EPYLLION

BY MATTHEW BALL

The State of Video Gaming in 2025

(Version: January 5,

The most up- -date version of this PDF can always be found

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)

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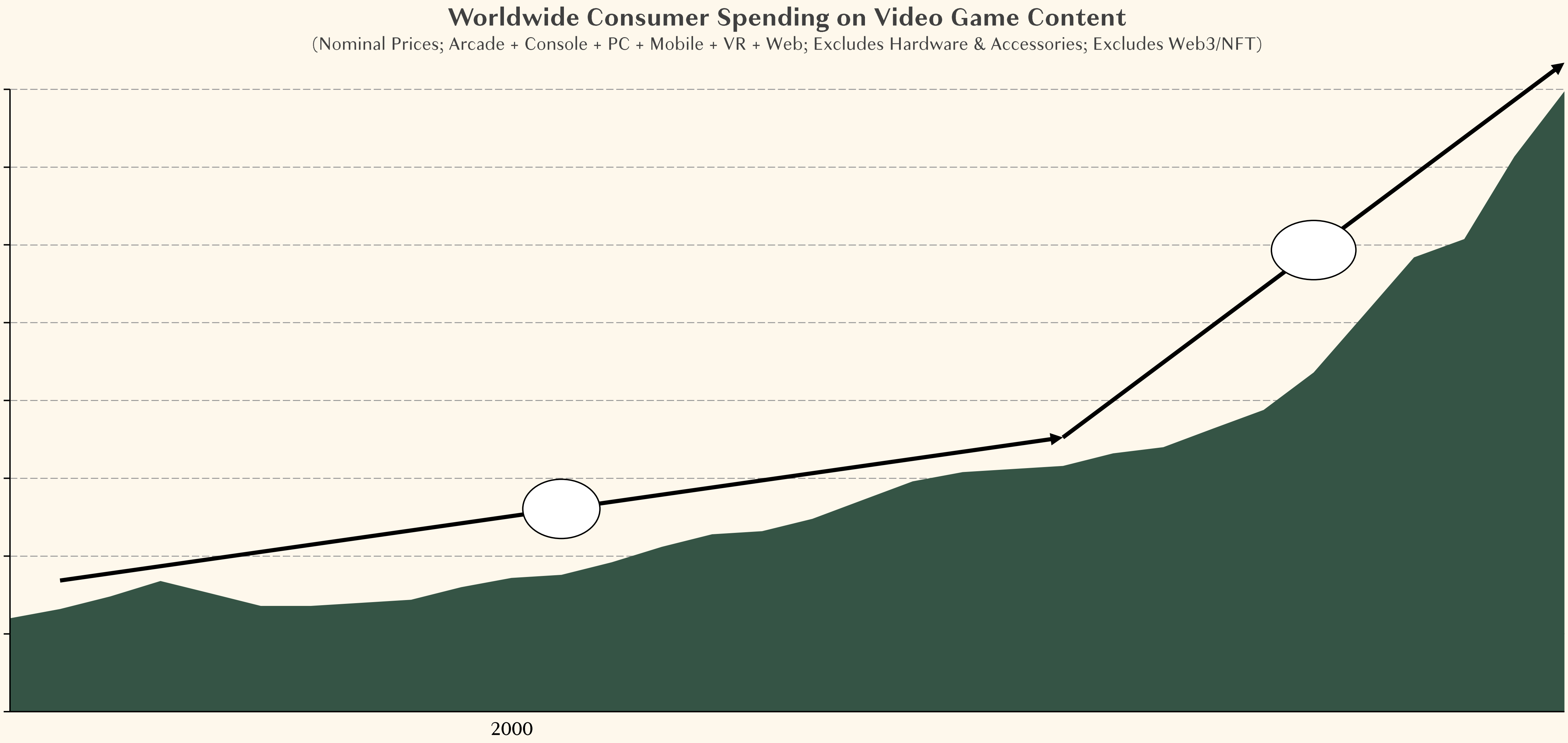

Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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)

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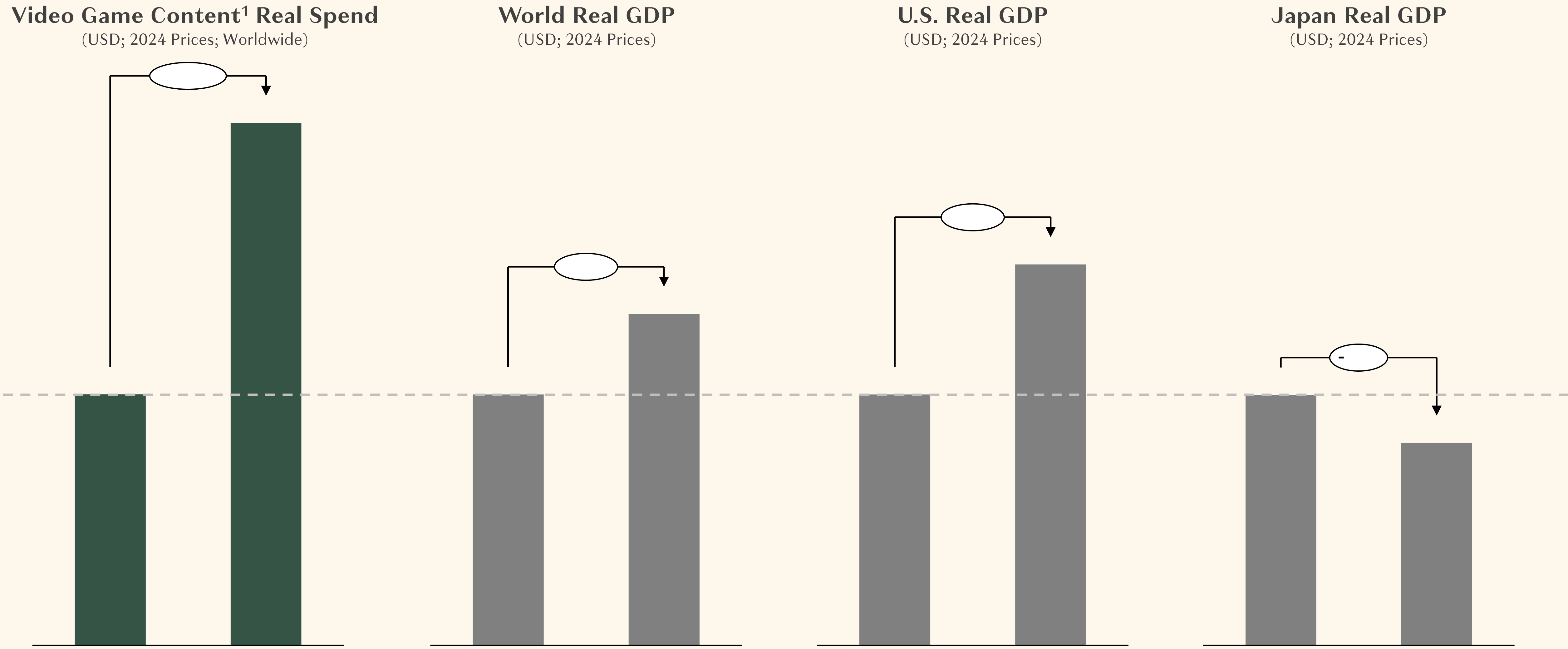

[1]Inclusive of Arcade + Console + PC + Mobile + VR + Web; Excludes Web3/NFT

Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis, World Bank, Epyllion analysis

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

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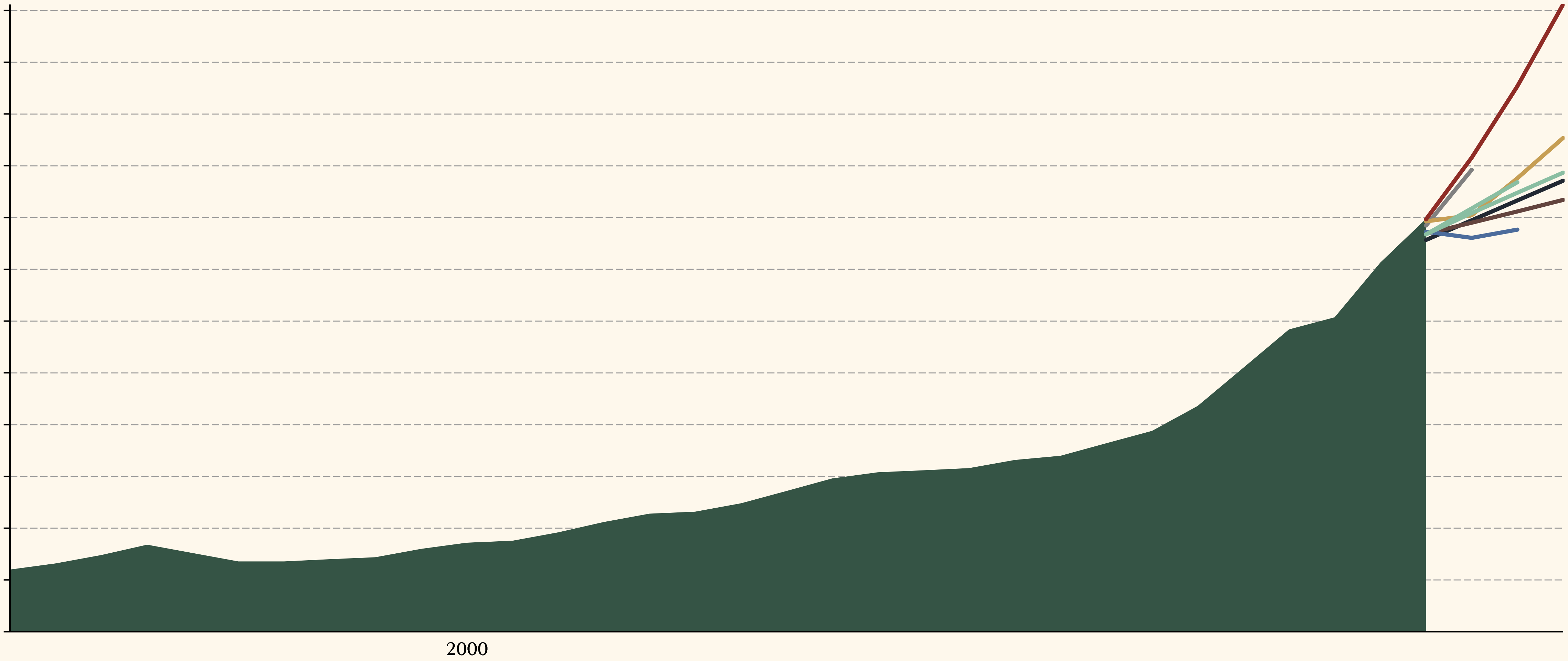
Worldwide Consumer Spending on Video Game Content, Plus Select External Forecasts For Growth[1]

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



[1]Forecasts that did not include AR/VR or arcade are normalized; different starting values in 2021 reflects different estimates for 2021 at the time of forecast

Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, ARK, Bain, Google, E&Y, Ampere, Epyllion analysis

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

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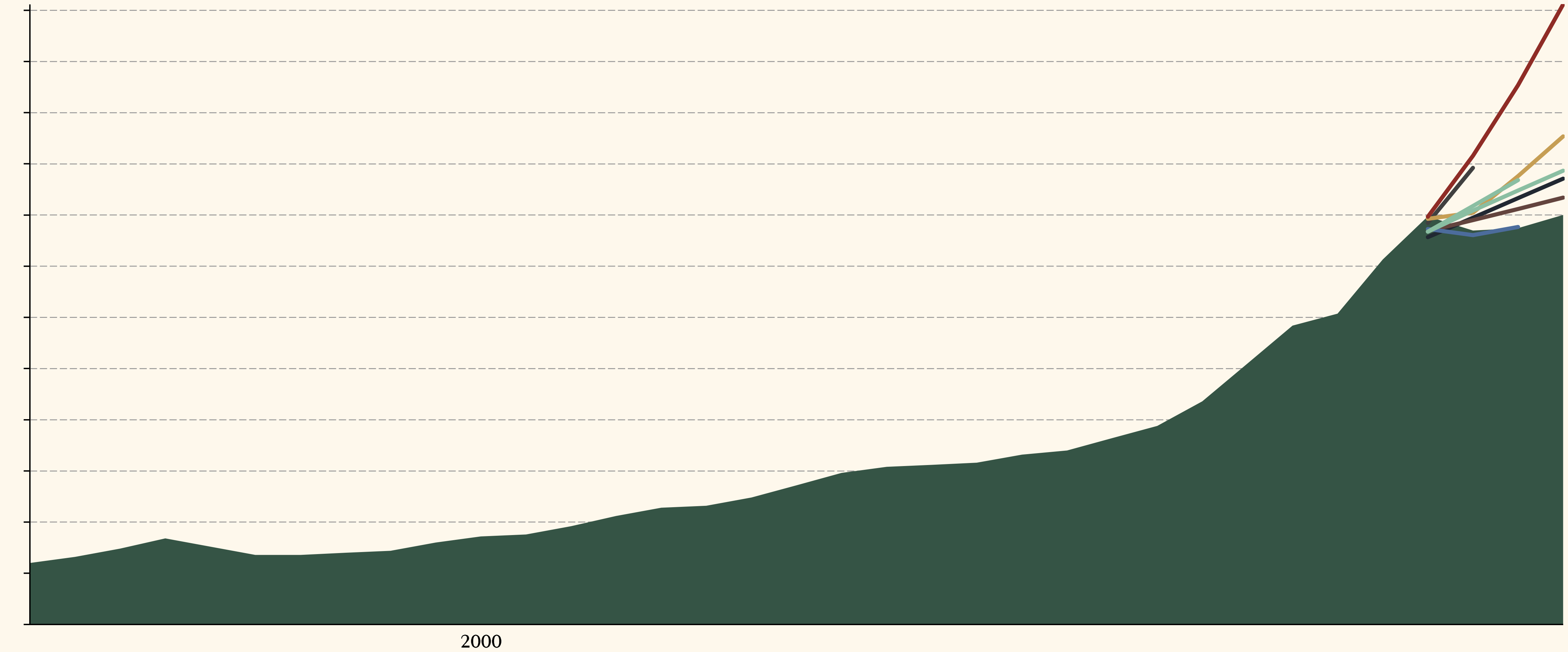

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This decline occurred despite the end of console/GPU shortages in mid-2022, and in 2023, arguably *the* best content release slate in the industry's 70-year history

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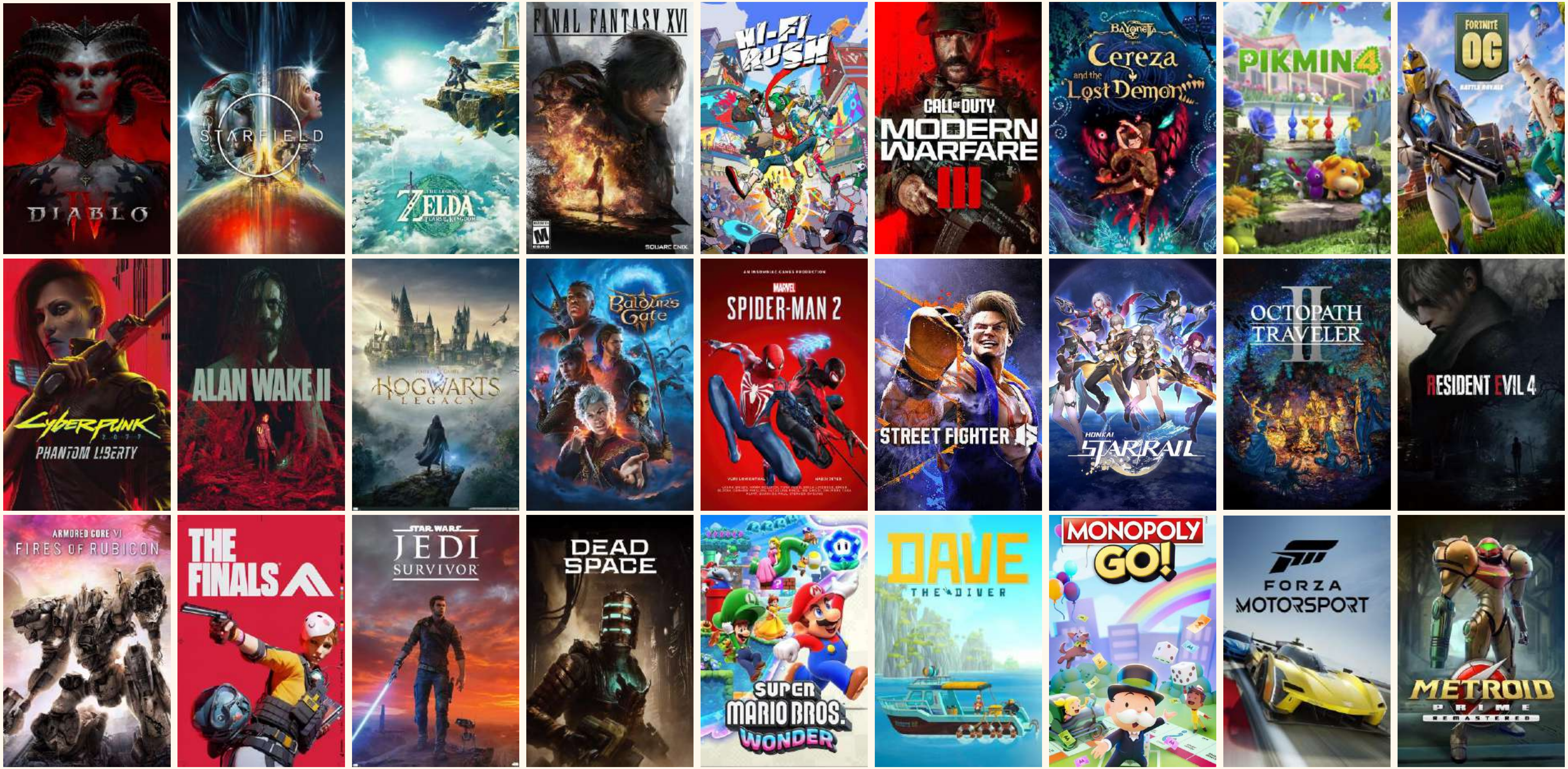

A post-pandemic pullback is an insufficient explanation for gaming's contraction and stall. Spending on books, music, and video (esp. digital) continued to grow

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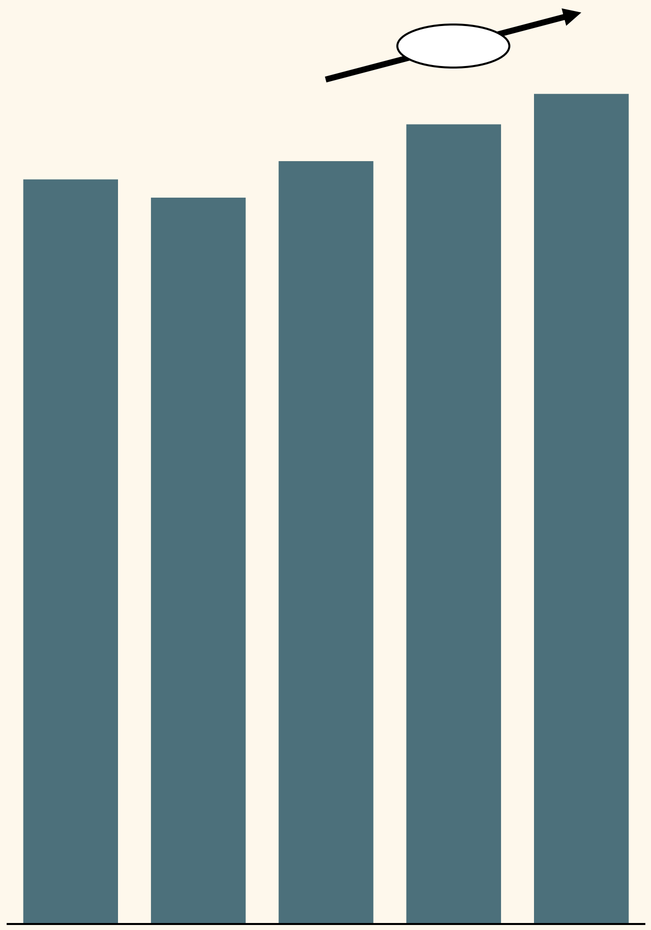
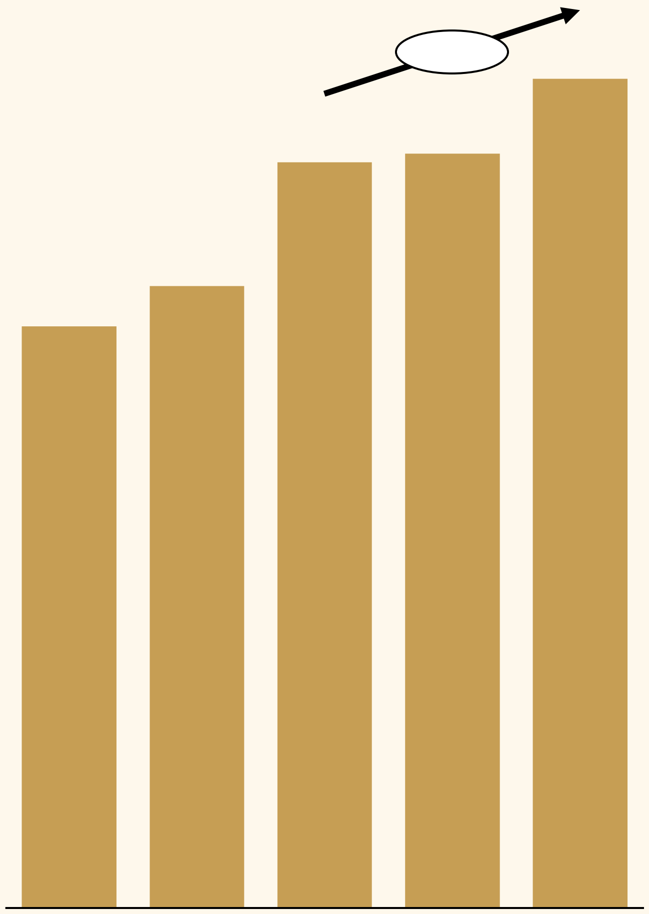
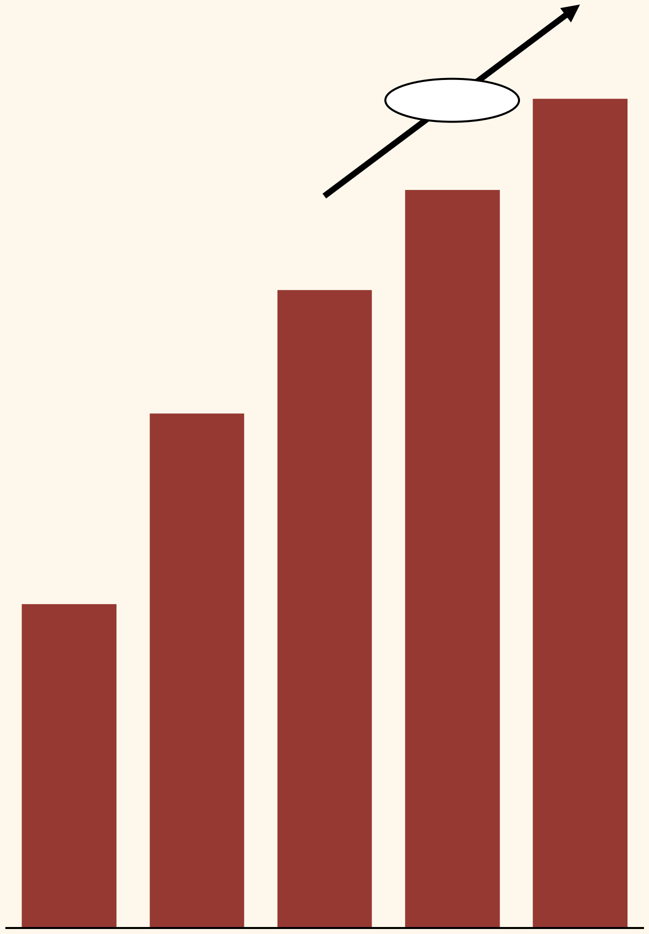
Worldwide Book Revenues
(Nominal Prices)



Worldwide Recorded Music Revenues
(Nominal Prices)



Spend on Digital Video
(Nominal Prices)



Sources: International Publishers Association, International Federation of the Phonographic Industry, Digital TV Research, MoffettNathanson

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

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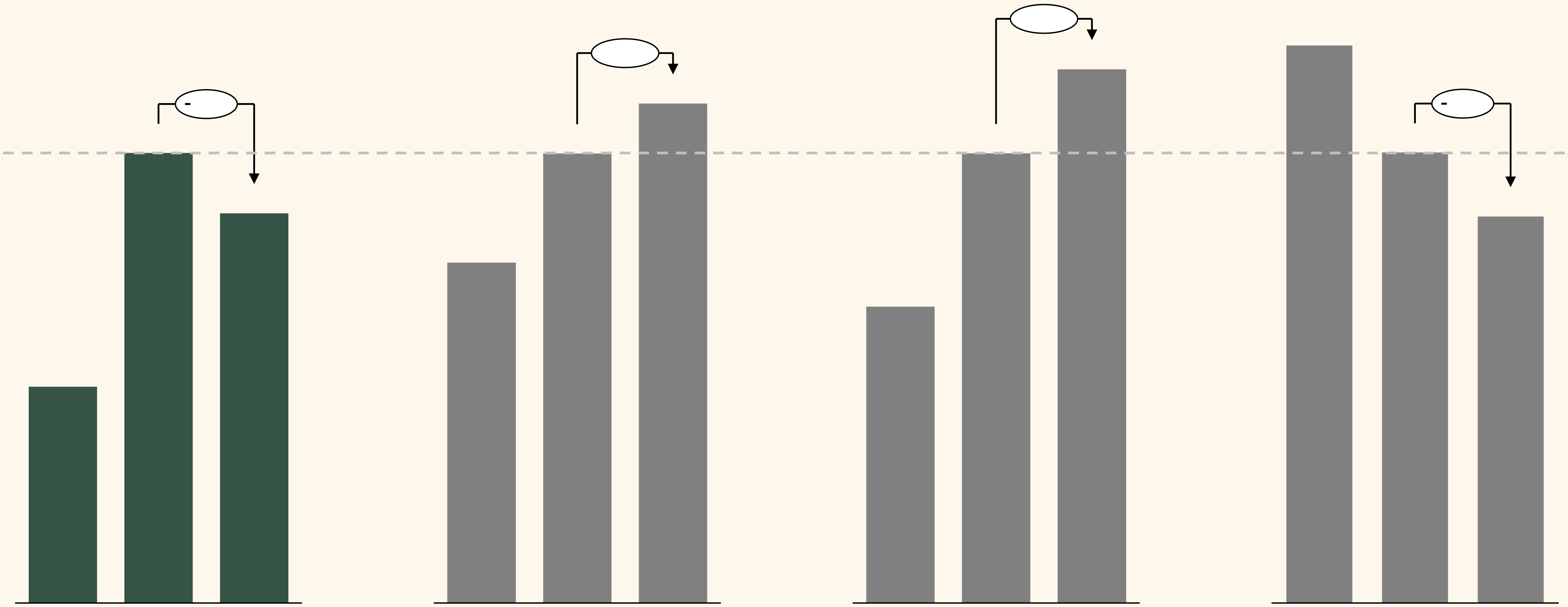
Video Game Content[1] Real Spend
(USD; 2024 Prices; Worldwide)

World Real GDP

US Real GDP

Japan Real GDP



[1]Inclusive of Arcade + Console + PC + Mobile + VR + Web; Excludes Web3/NFT

Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis, World Bank, Epyllion analysis

It's not just spend that is declining — players are too. Average playtime has partly recovered, but this is mostly *because* less engaged players stopped playing entirely

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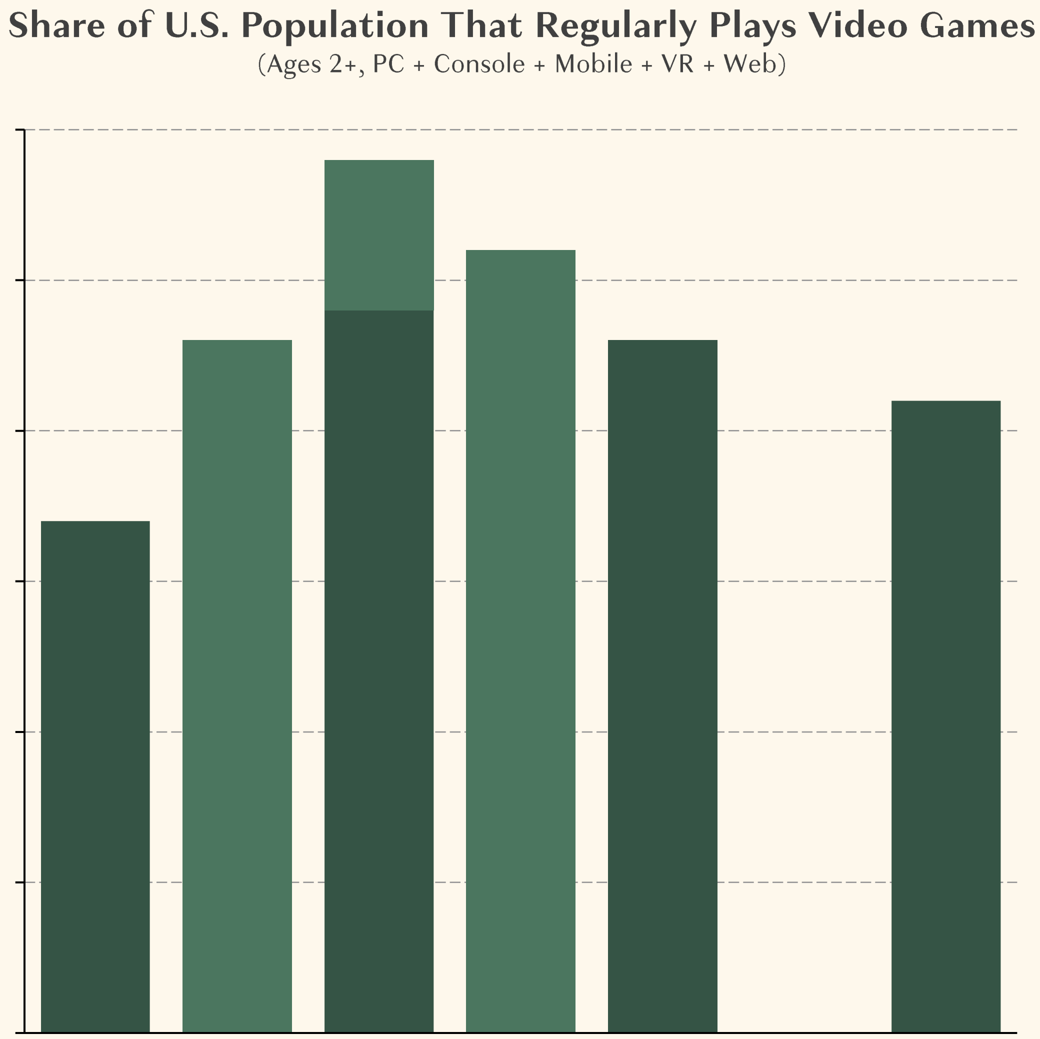

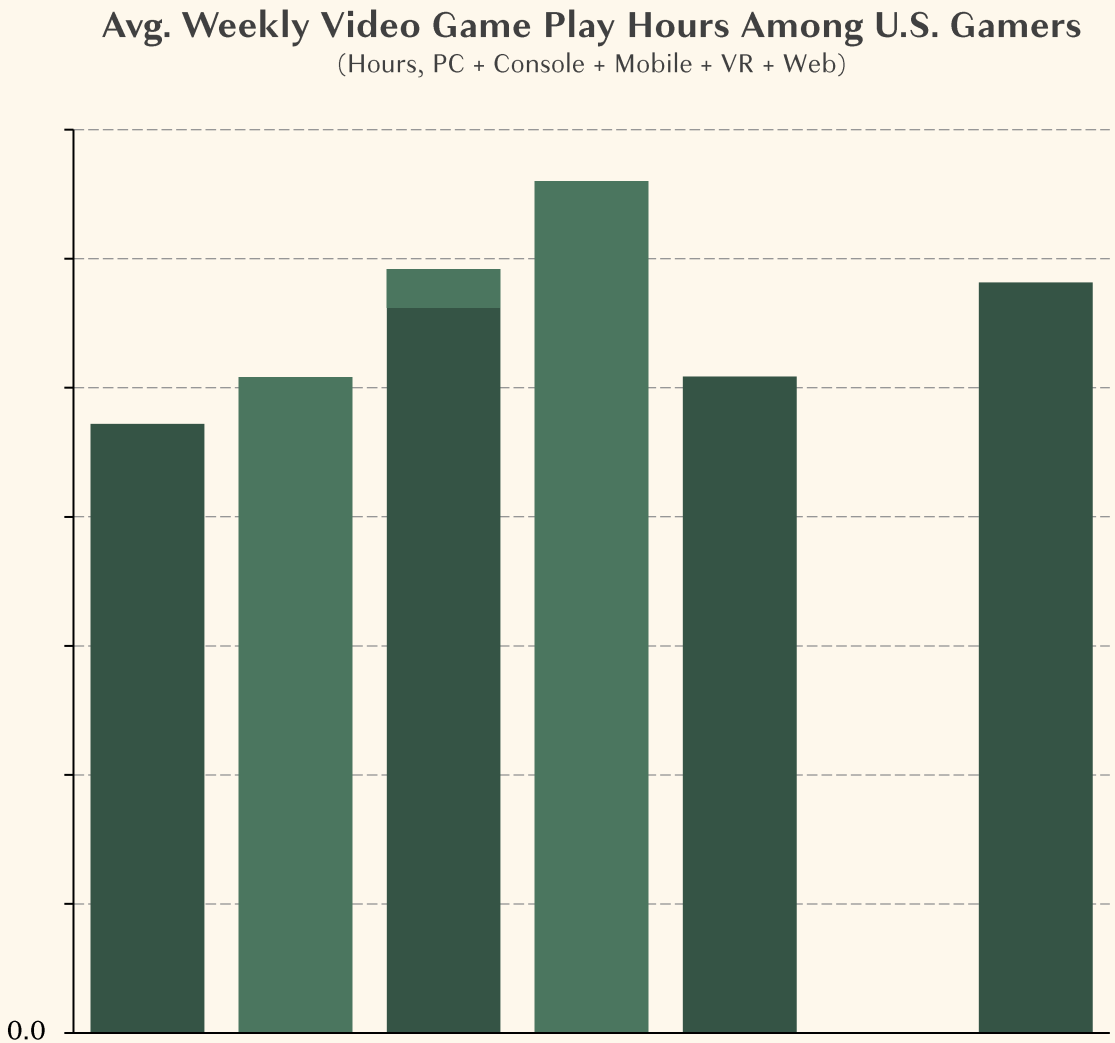

Gamer Segmentation Surveys
Evolution of Entertainment Surveys

The shortfall of players, dollars, and hours versus forecasts (and even vs. 2021) has led to an unprecedented number of commercial disappointments or flops

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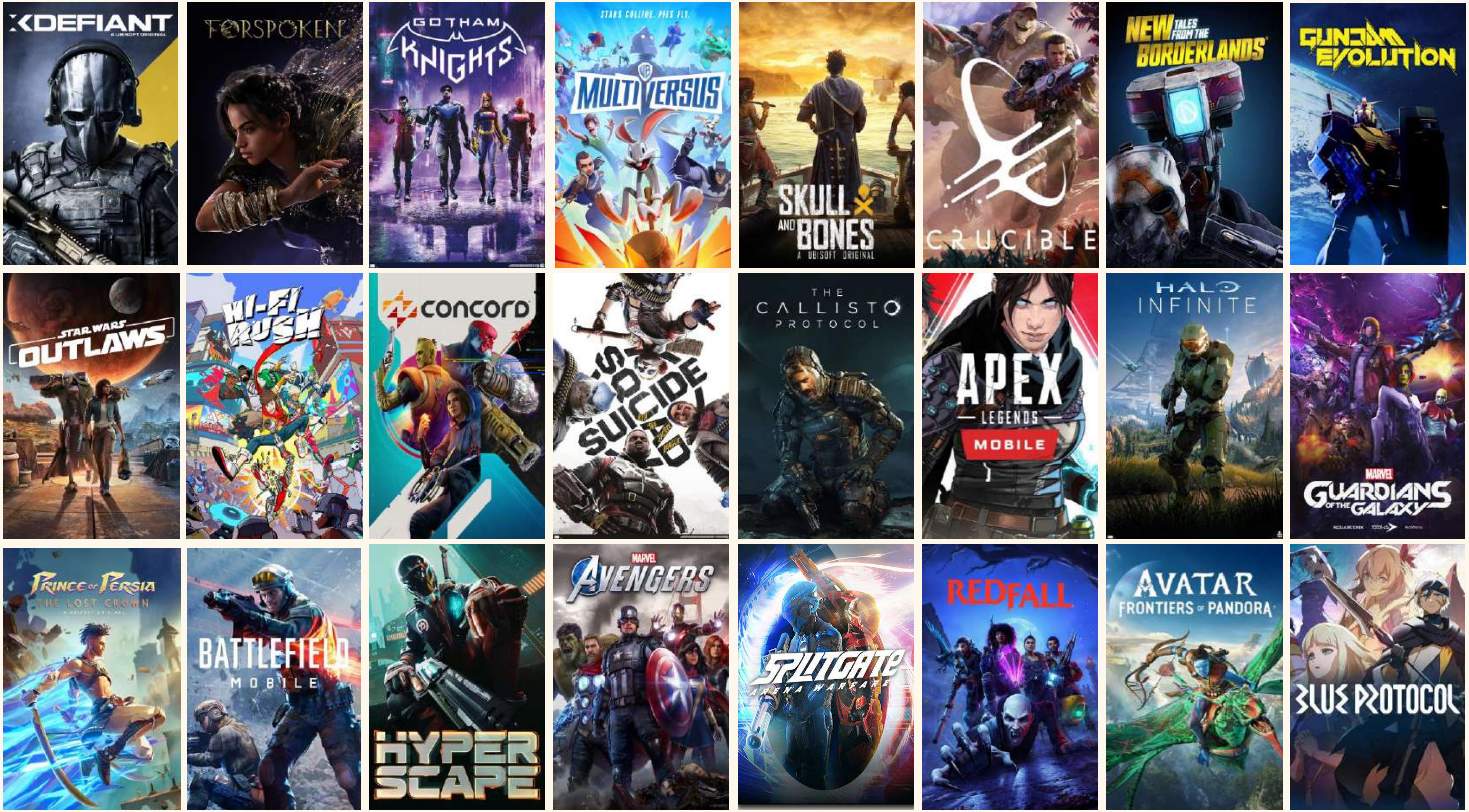

Rising failure rates have also led gamemakers to cancel scores of in-production titles, having lost faith in the business cases they had approved only a few years ago

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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

Sources: Naughty Dog, The Verge, Bloomberg, IGN, Kotaku, Game Developer, , PC Gamer, Polygon, VGC

And VC content funding has plummeted, too, falling 77% from H2’21–H1’22 highs and back to 2018–2019 levels even (despite consumer spend being up 34% or $51B)

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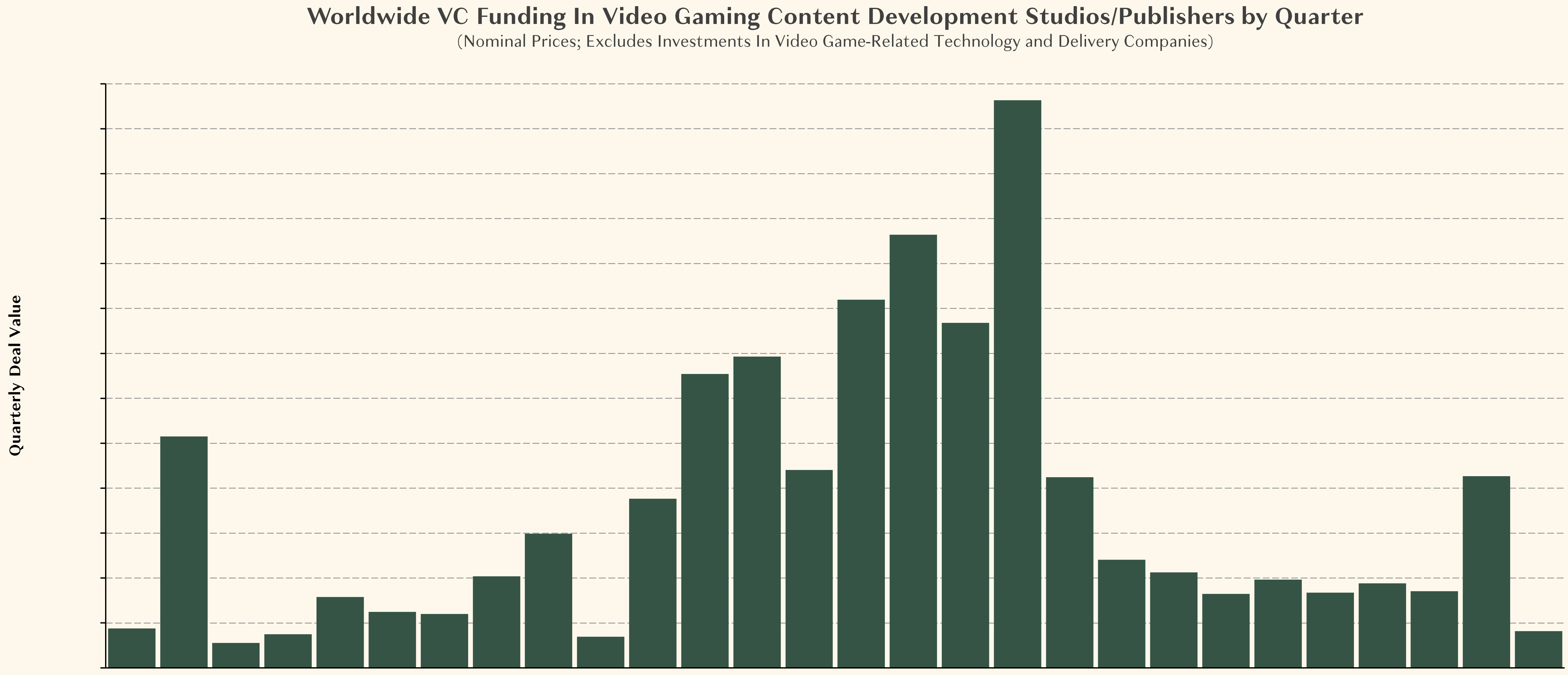

The collapse in venture investment dollars comes not just from smaller average investment rounds, but also far fewer rounds and from far fewer investors

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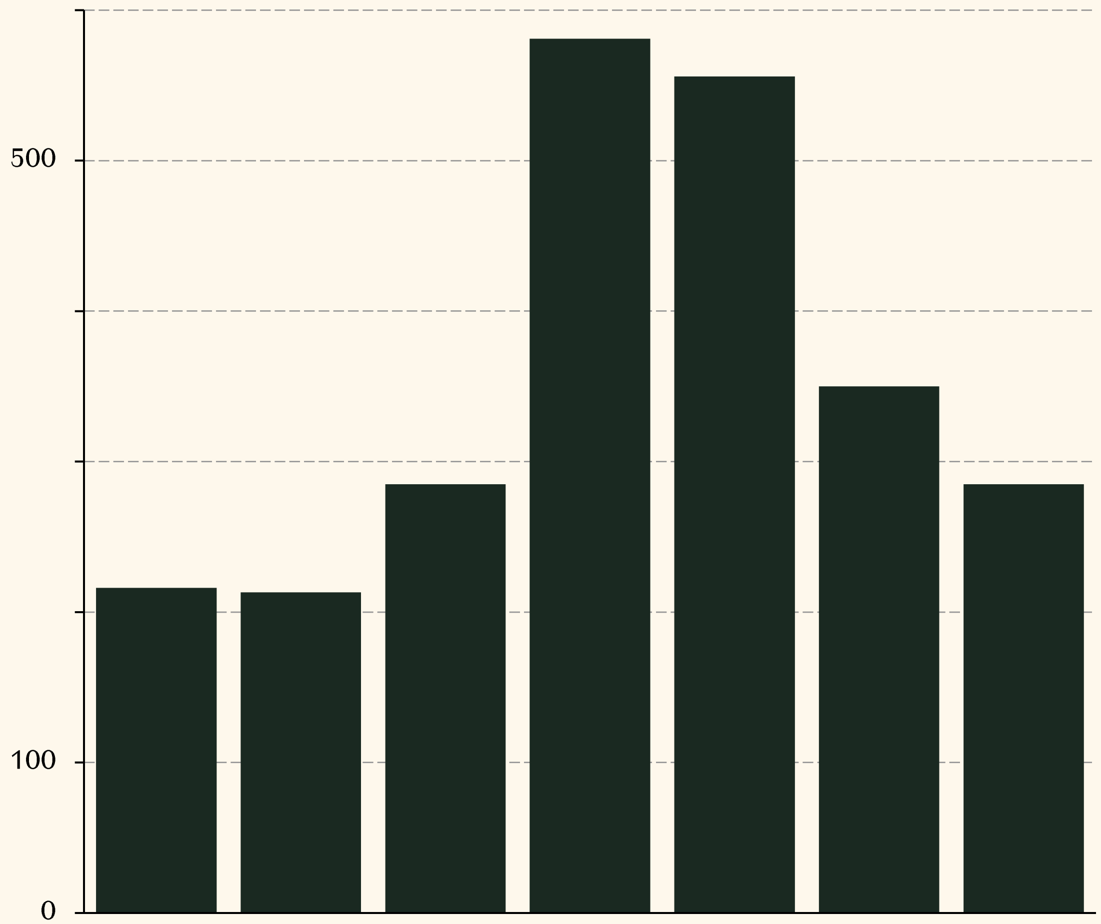
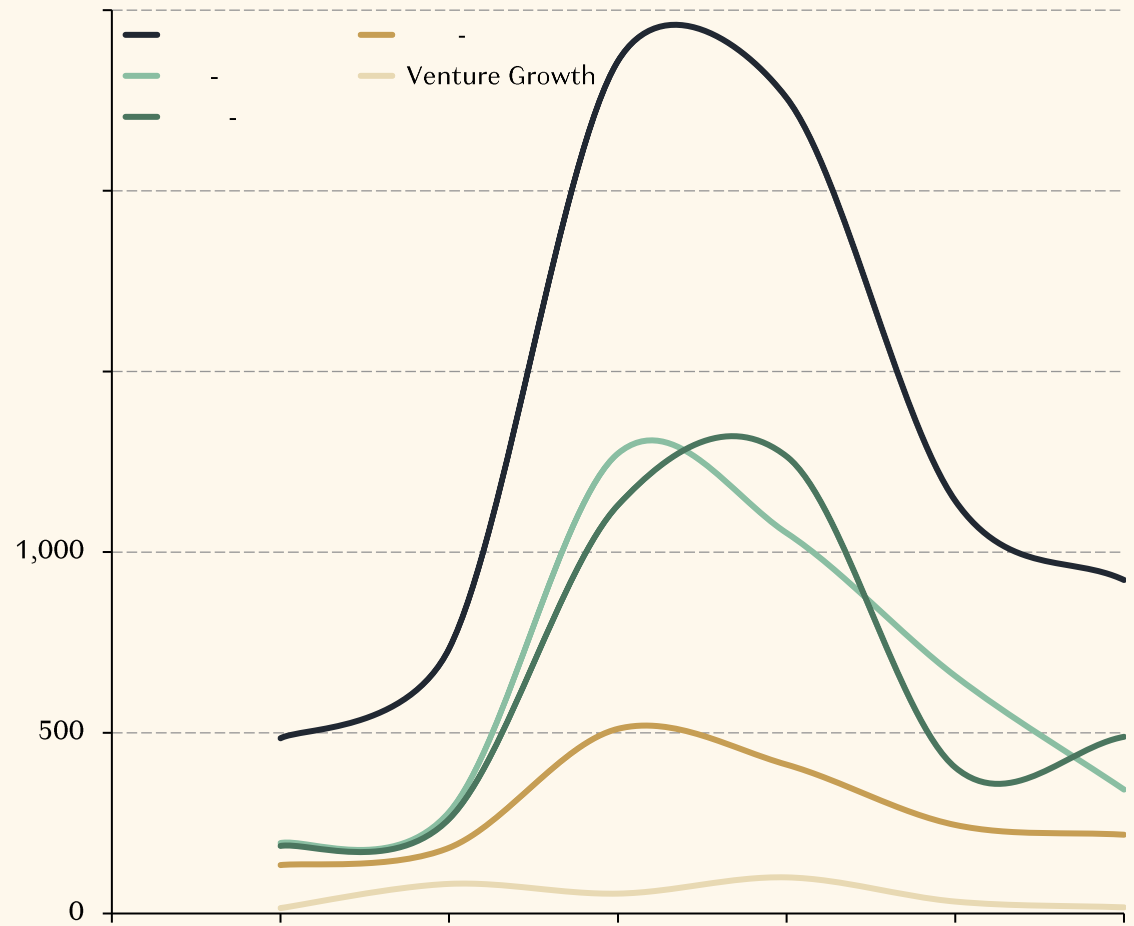
Total VC Deals in Video Game Content Studios/Publishers
(Worldwide; Content-Related Investments; Excludes Venture Growth Rounds)



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

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Jar of Sparks
4,315 followers
2h •

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.

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.

Deviation Games Is Shut Down Before It Can Ship a Game

Worlds Untold
4,273 followers
1w •

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.

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.

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.)

Sources: Surgent Studios, , Humanoid Origin, Worlds Untold

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

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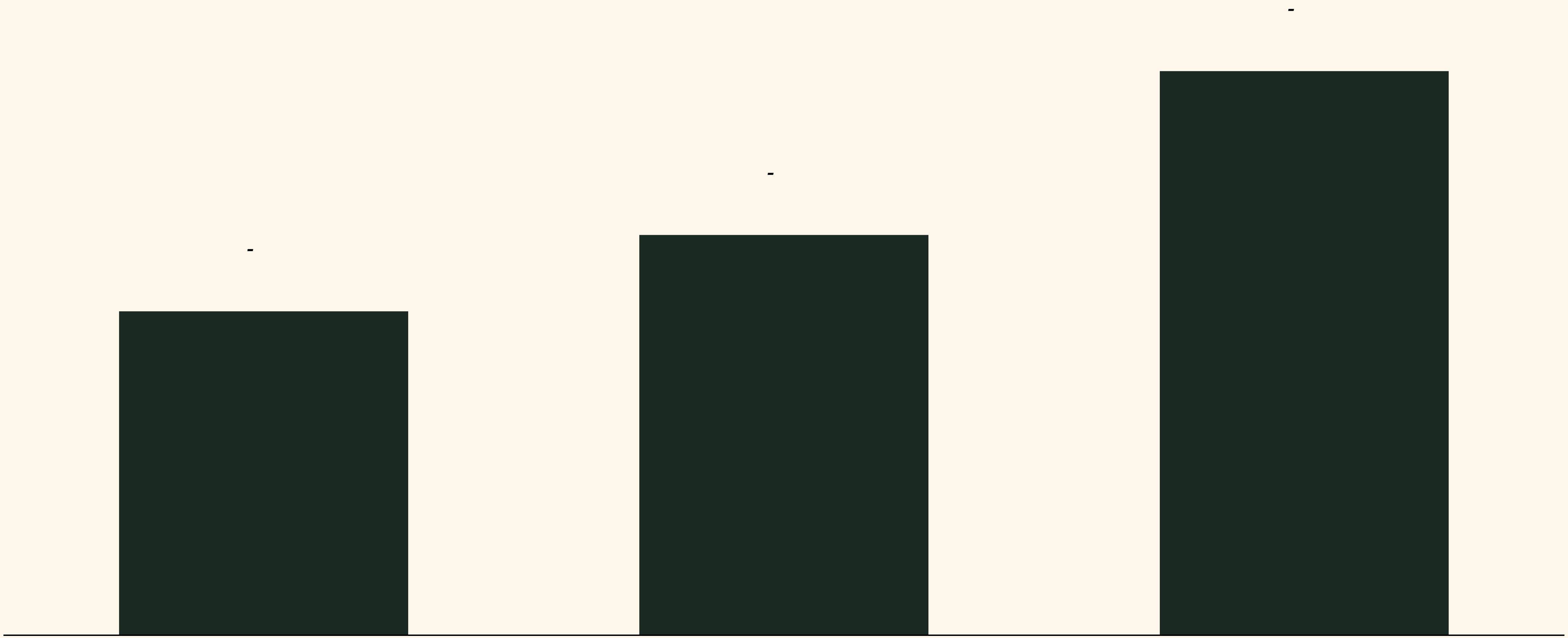
Annual Gross Reported Layoffs in the Video Game Industry

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



Sources: Farhan Noor, Epyllion analysis

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

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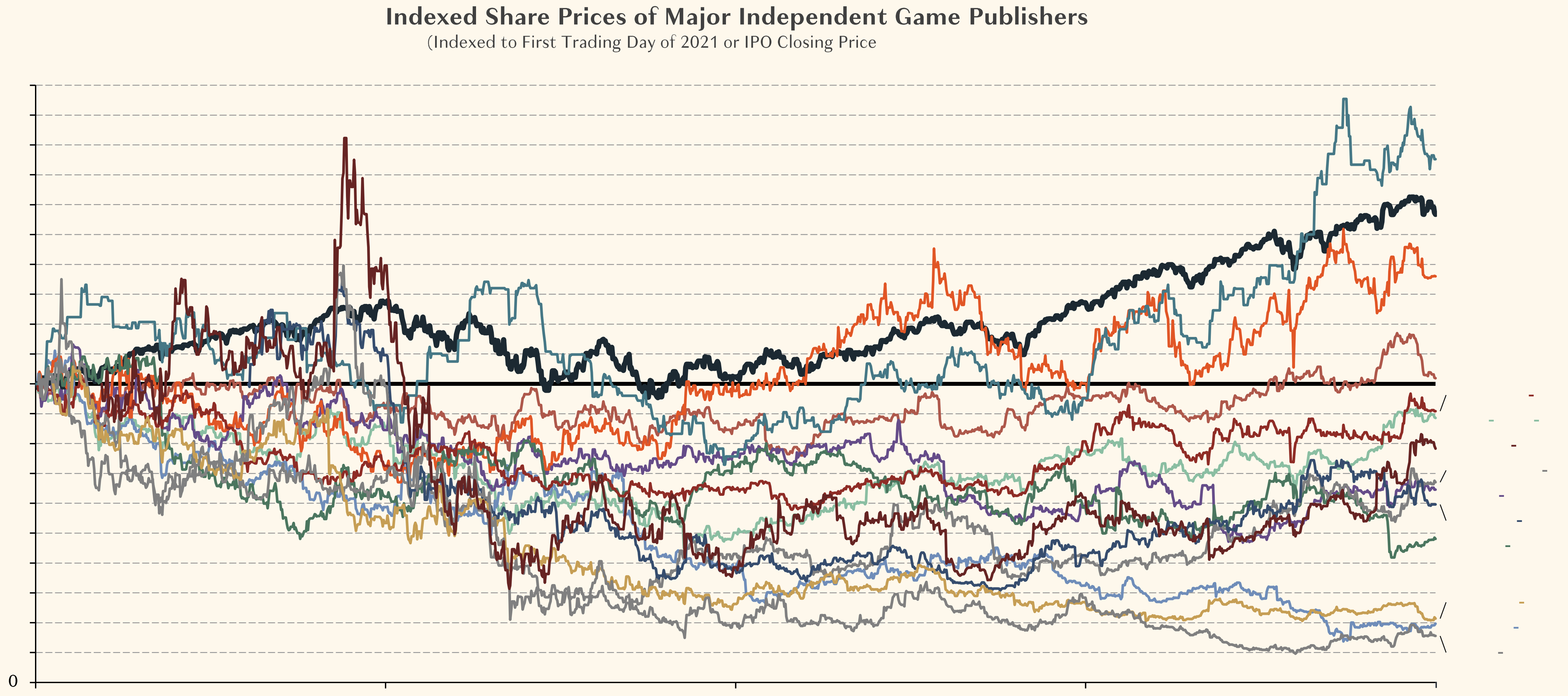

Sources: Investing.com, NASDAQ

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

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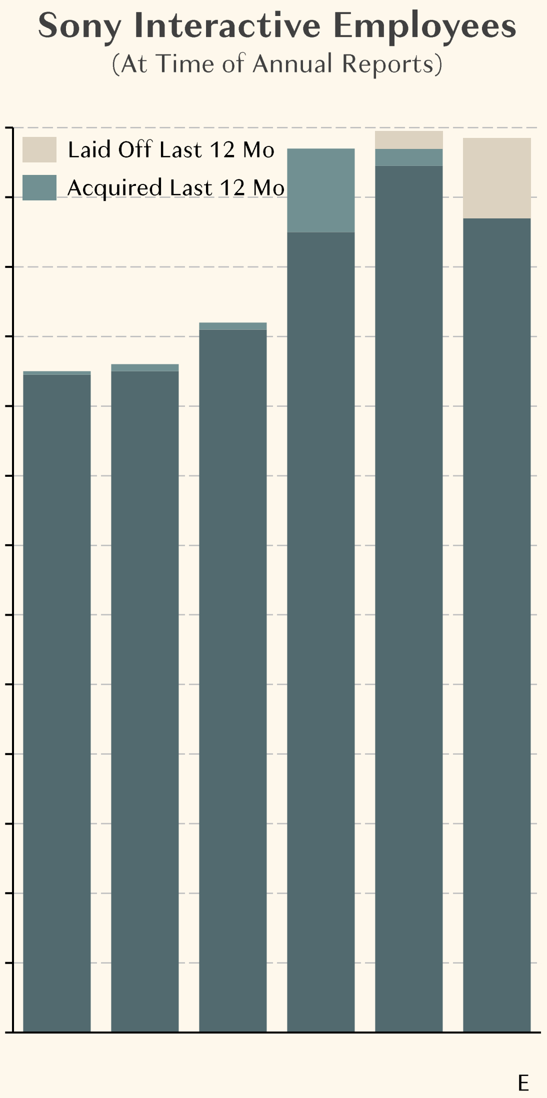

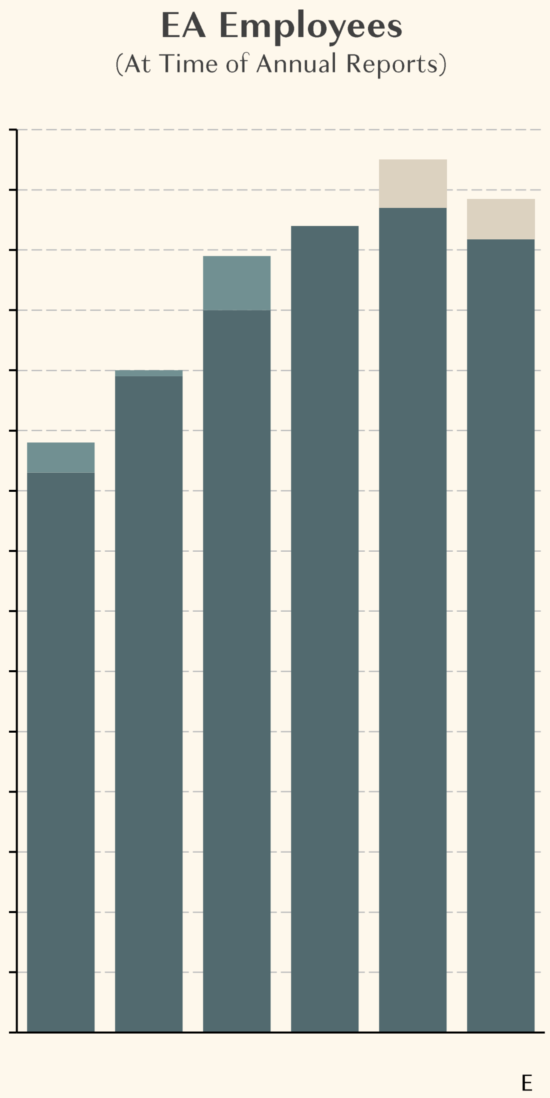

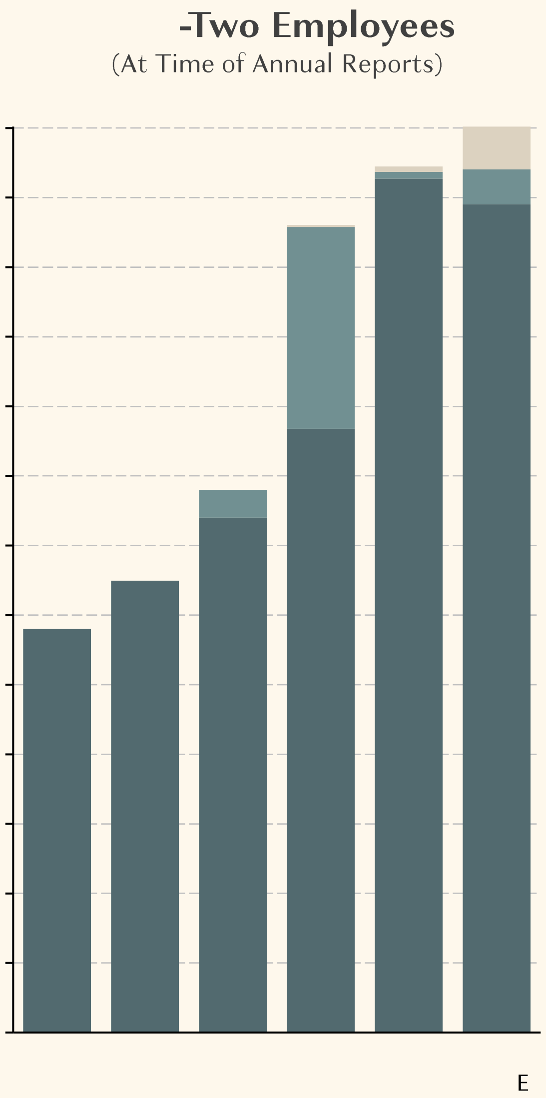

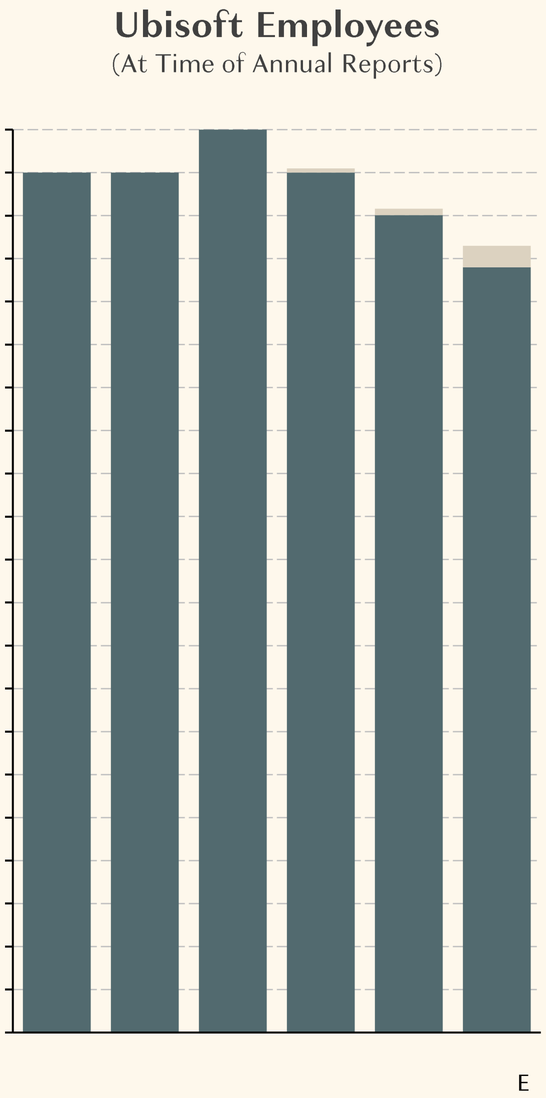

Sources: Sony, EA, Take-Two, Ubisoft, Epyllion analysis

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

- Mobile
- Free- - Play + MTX
- Live Services
- Cross-Platform Gaming
- Battle Royales
- Battle Passes
- UGC Platforms
- Social Gaming
- Social Game Services
- COVID Boost

Source: Epyllion analysis

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

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Mobile

Billions of new players & new hours per day to play

Free- - Play + MTX

Reduced barriers to playing; expanded games' social graphs; unlocked "whale monetization"

Live Services

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

Cross-Platform Gaming

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

Battle Royales

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

COVID Boost

Helped normalized video gaming; aided game discovery; "pulled forward" revenues

Social Game Services

YouTube, Discord, Twitch created a new "meta- that enriched gaming , aided game discovery, and strengthened social play

Social Gaming

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

UGC Platforms

Most popular experiences of all time

Battle Passes

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

g

Source: Epyllion analysis

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

Source: Epyllion analysis

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.

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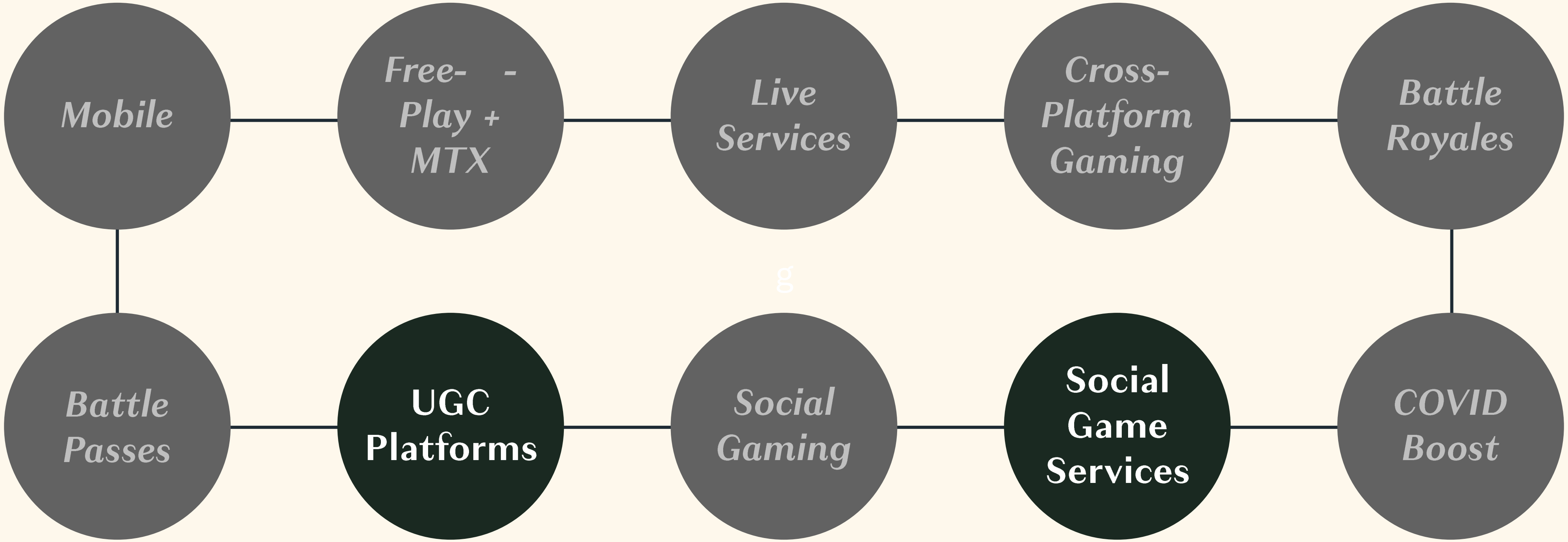

Source: Epyllion analysis

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

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- Cloud Gaming
- Subscrip-tions
- AR, VR, and LBE
- New Game Genres
- Esports
- Game + Esports Betting
- Crypto, Web3, NFTs
- App Store Regulation

Source: Epyllion analysis

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.

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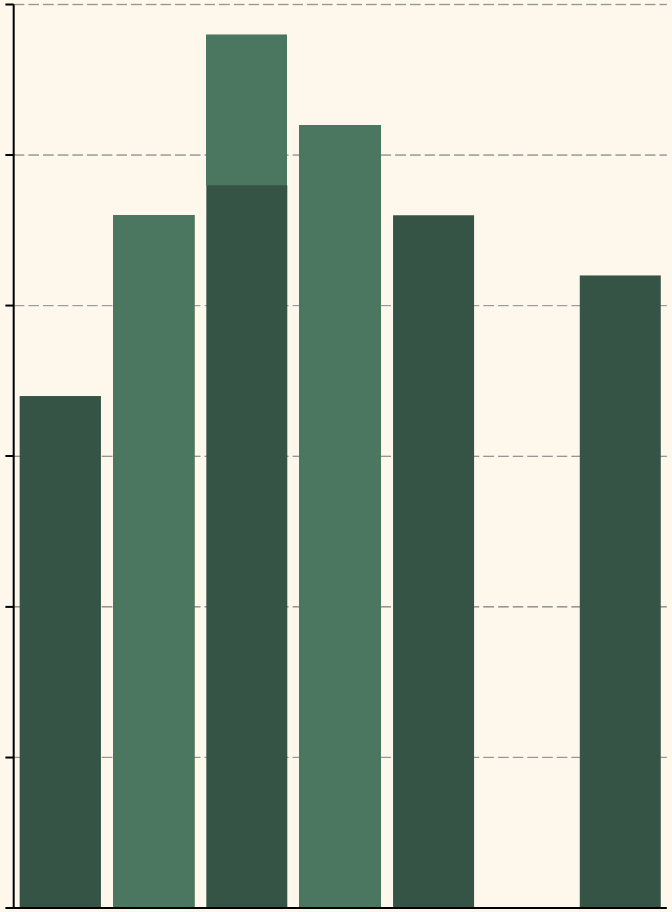
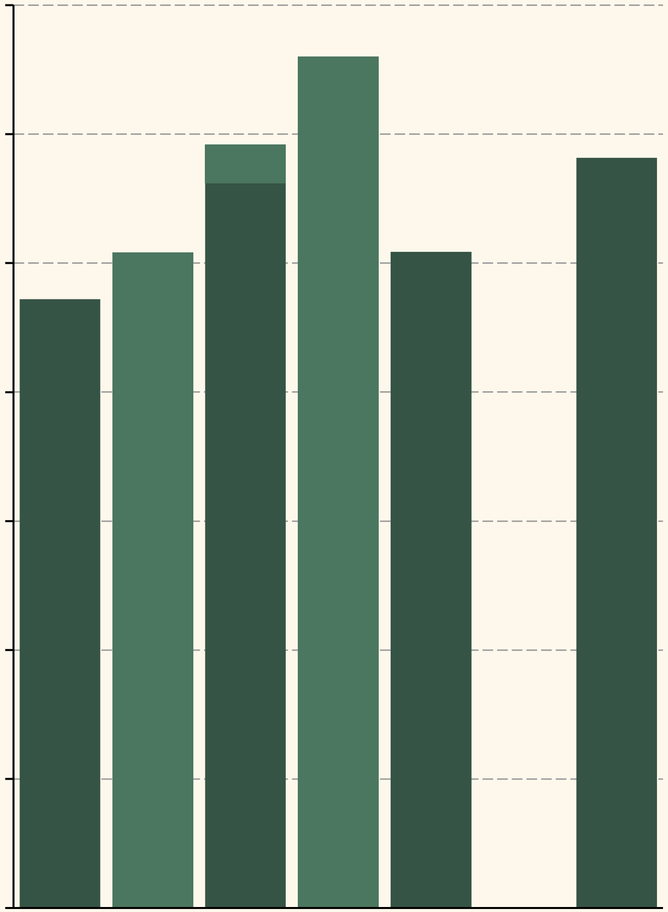
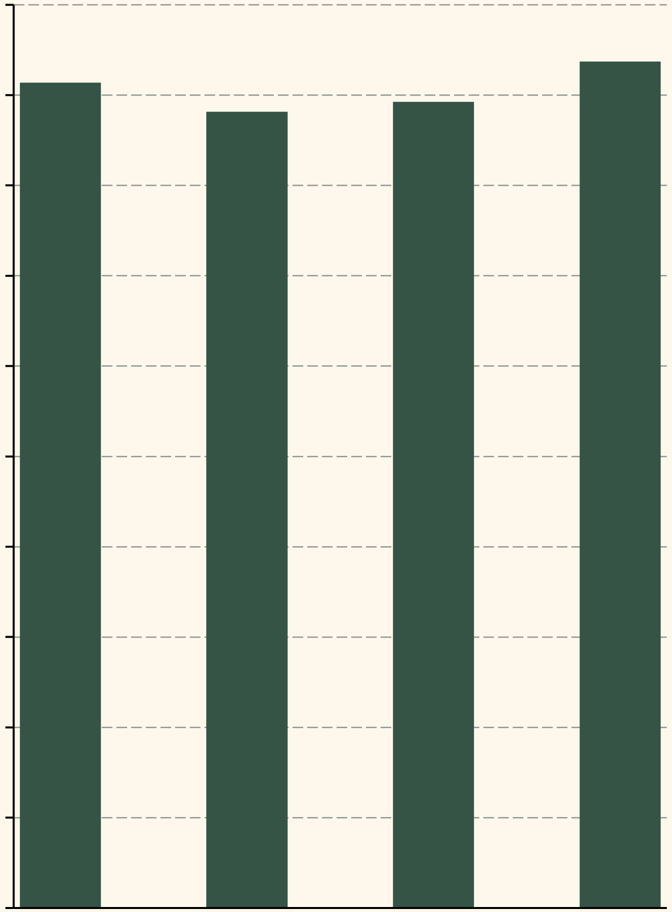
Share of U.S. Who Regularly Games



Weekly Playtime Among U.S. Gamers



Monthly Spend Among U.S. Gamers
(Nominal Prices)



Gamer Segmentation Surveys Evolution of Entertainment Surveys

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

- End of Mobile Growth
- Stagnant Console Install Bases
- Growth in Foreign Developers
- Rise of Social Video
- Foreign-Focused Growth
- ATT, IDFA, & GAID
- Worsening Discovery
- “Black Hole” Games
- Reductions in Game Sampling
- Rising Development Costs
- Rising User Acquisition Costs
- Lengthening Production Timelines
- Closed App Stores
- Deflation-Pricing
- of Failure Rates

Source: Epyllion analysis

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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%

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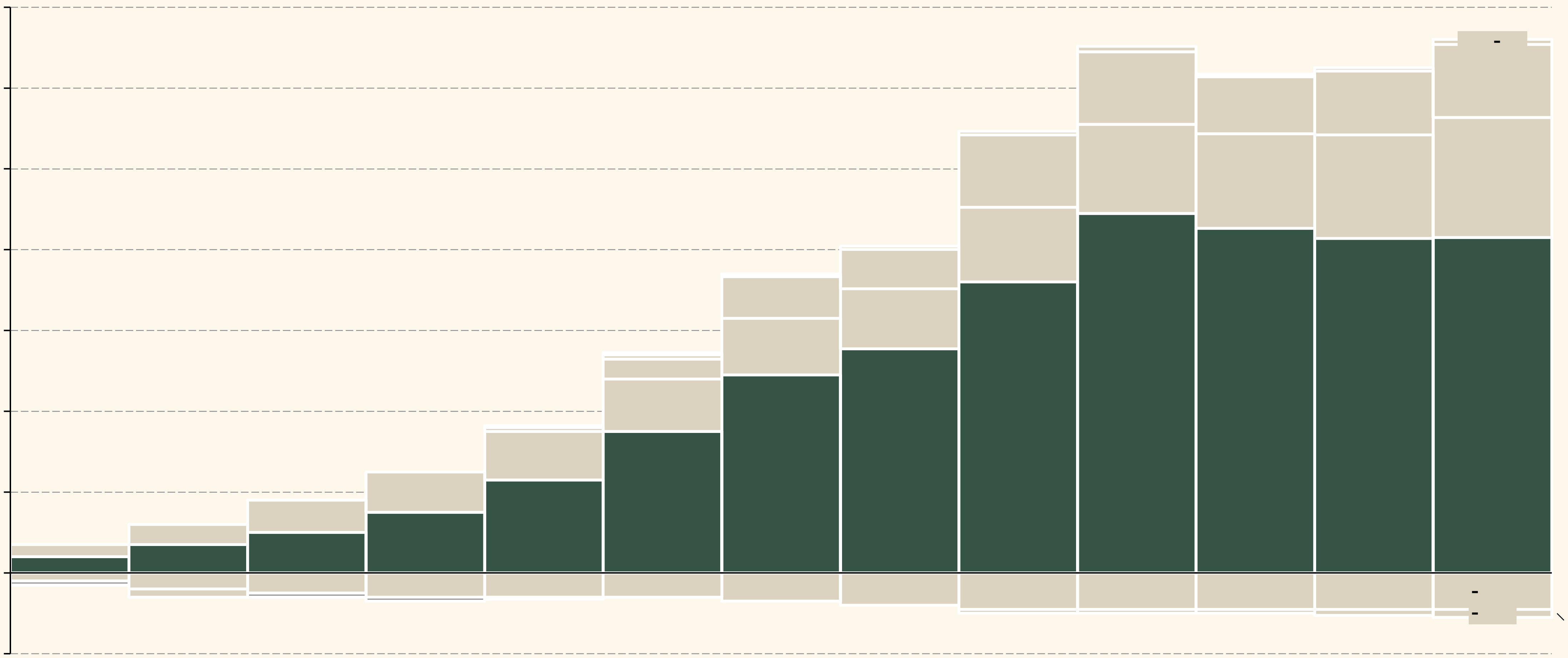
Share of Growth in Worldwide Consumer Spending on Video Game Content Since 2011

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



Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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

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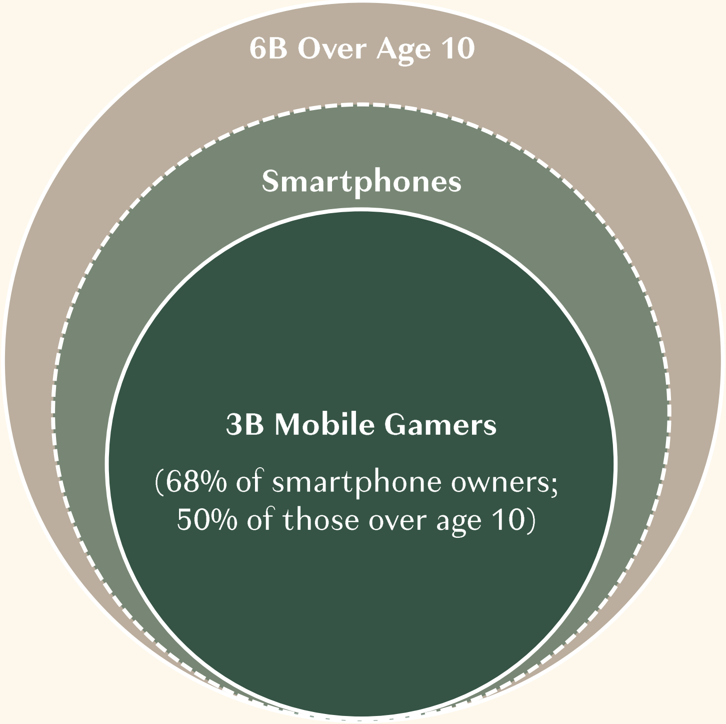

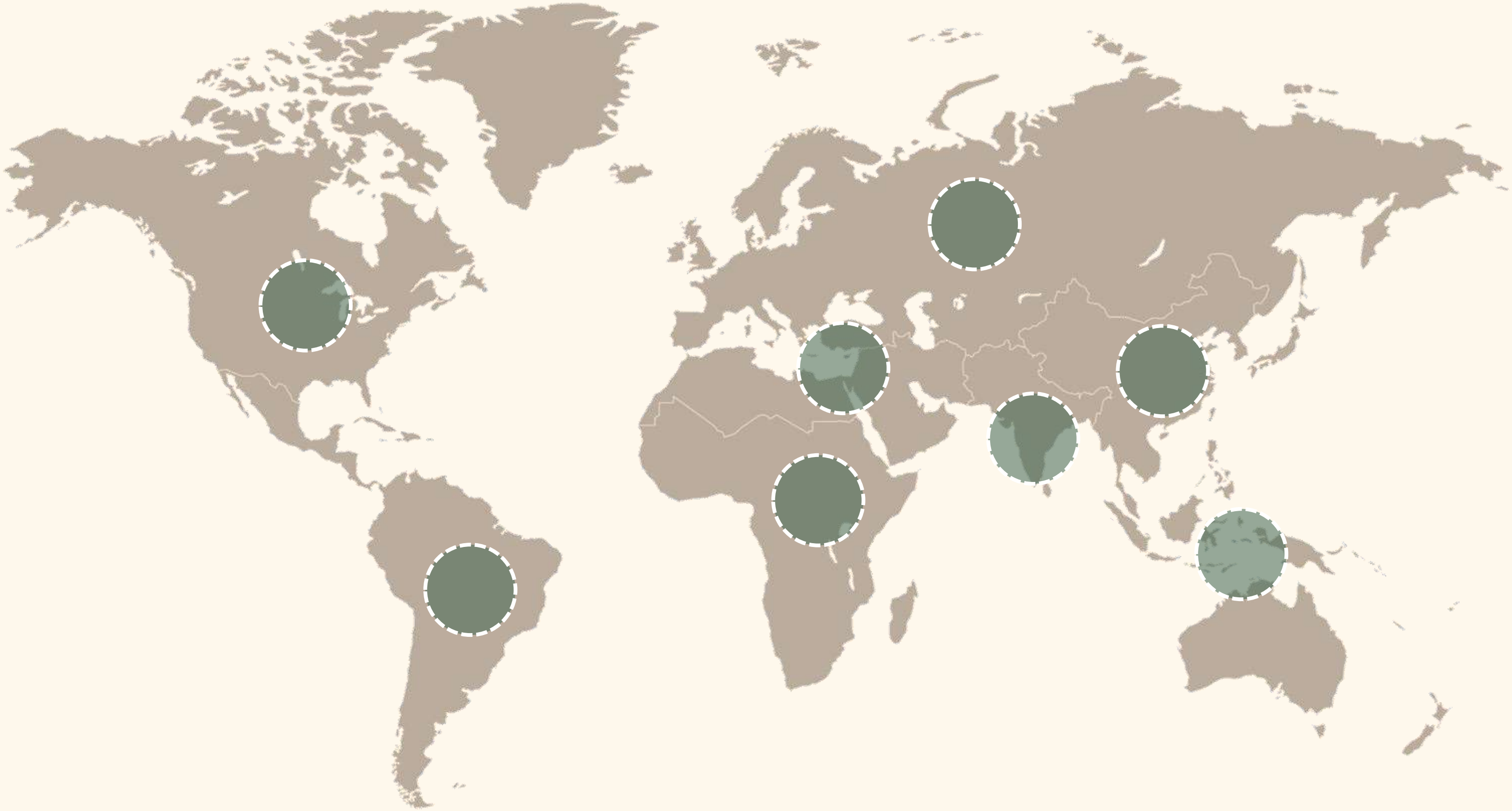

Sources: Microsoft, GSMA, World Bank

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

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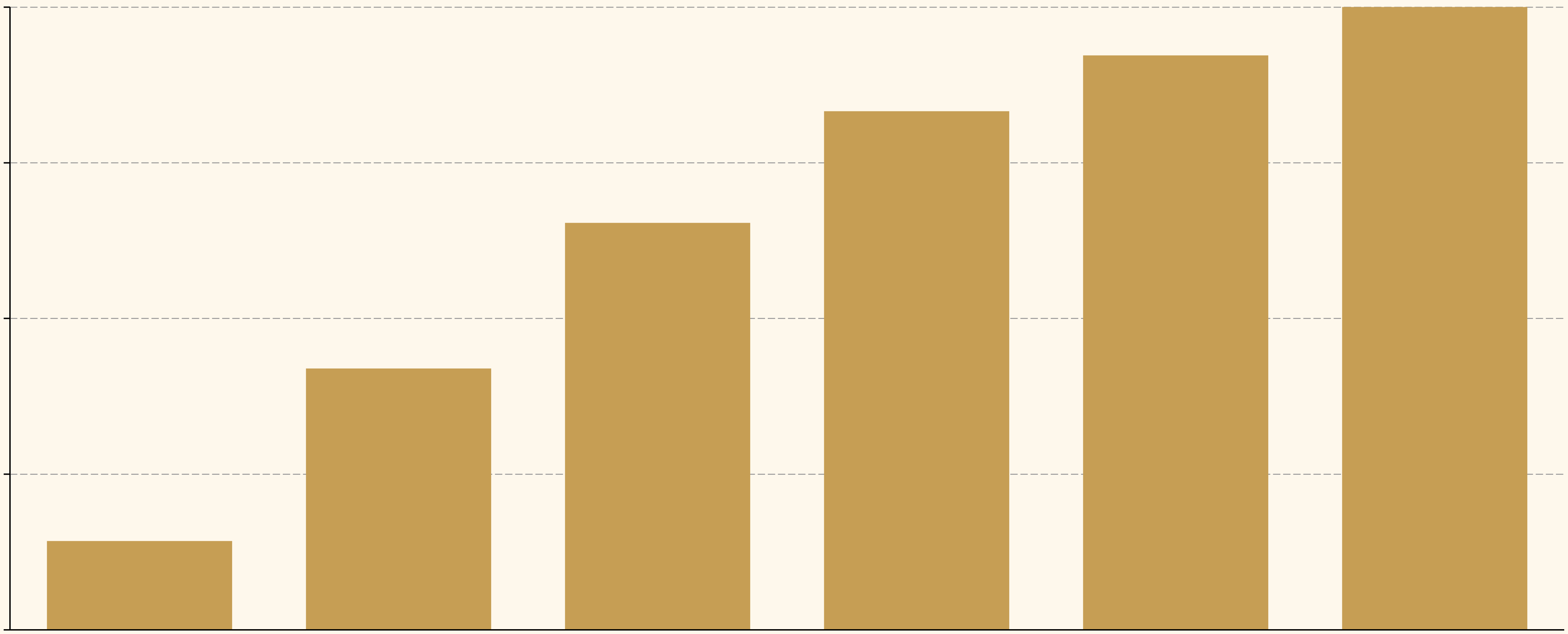
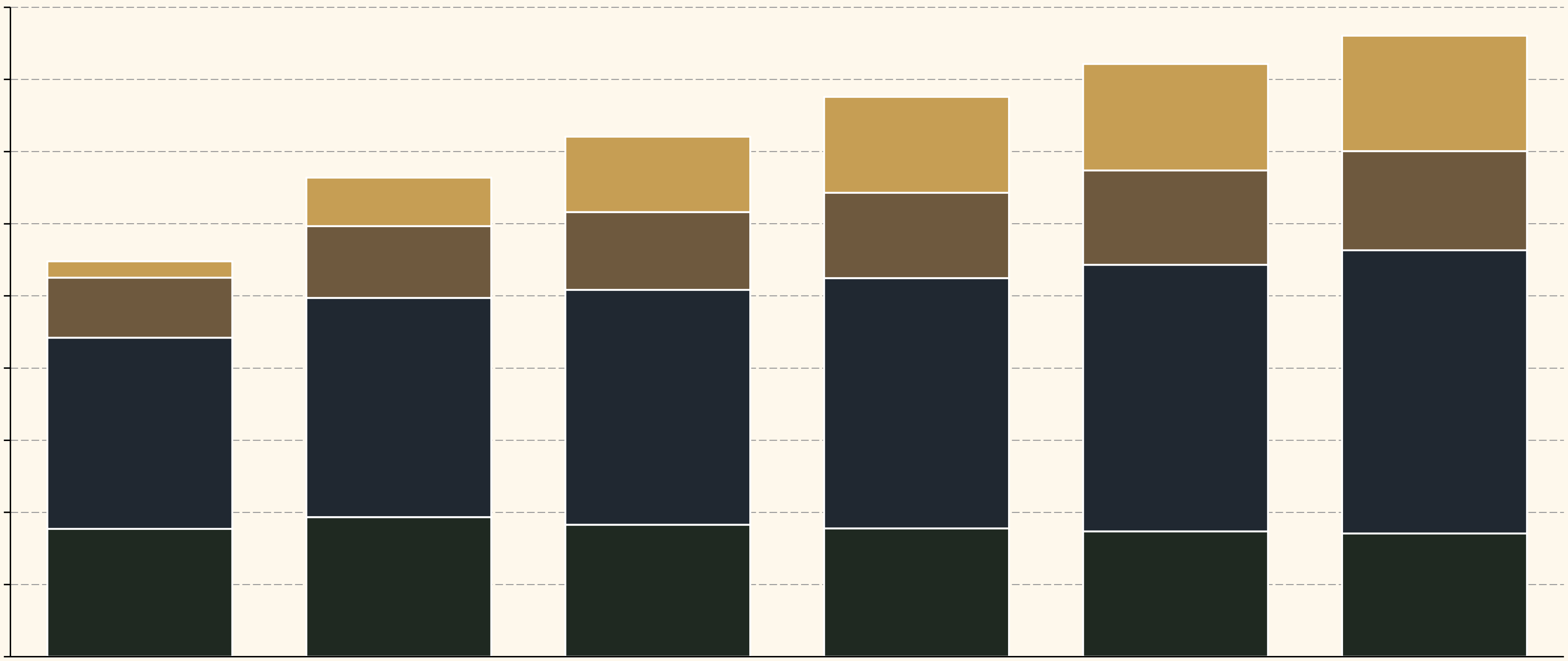
Daily Hours of TikTok Use Among All U.S. Adults



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



IDFA created a vicious cycle: install volumes down + costs up → player time, spend, and ad revenue fall → UA is even costlier → install volumes go down more, etc.

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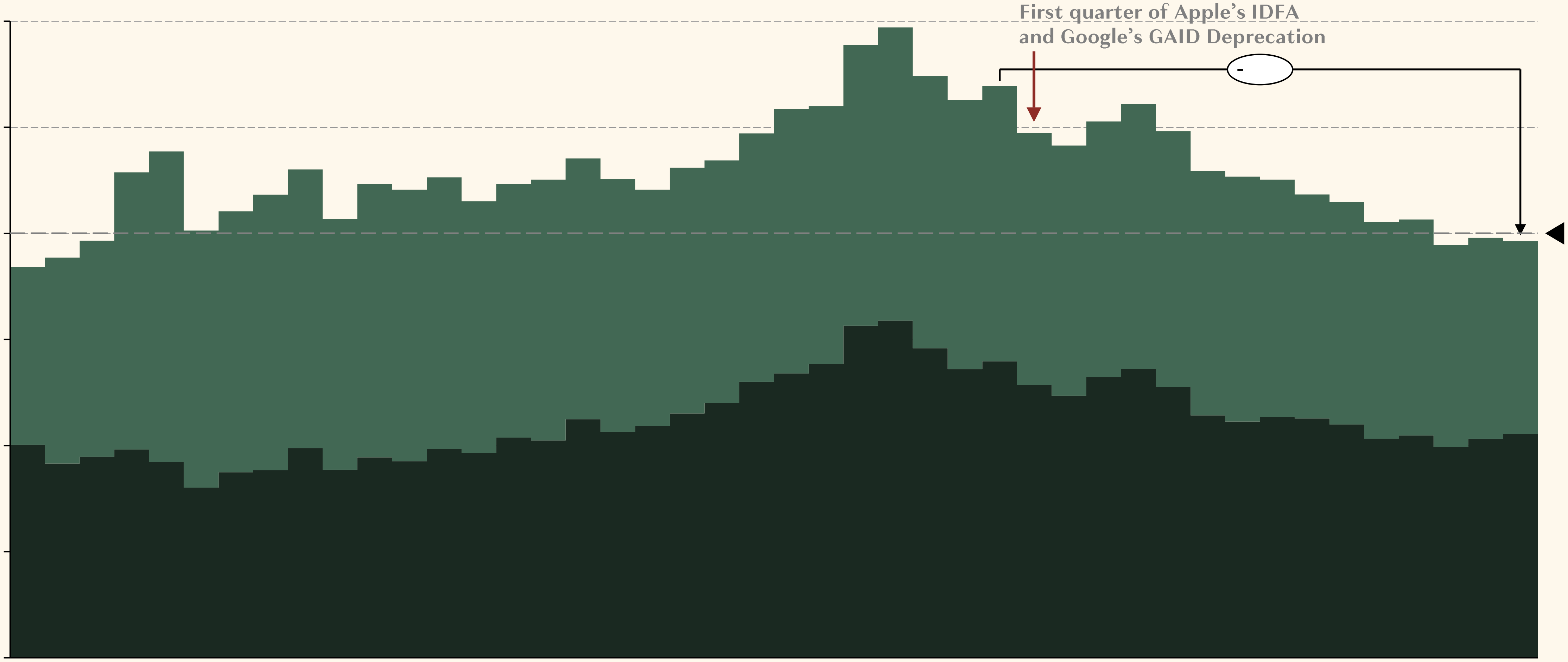
U.S. Mobile Game Downloads by Quarter



Sources: Sensor Tower, Epyllion analysis

IDFA and social video have led mobile gaming to lose 2.6 percentage points of its share of all digital media time among U.S. adults since 2020 (a ~17% drop in time)

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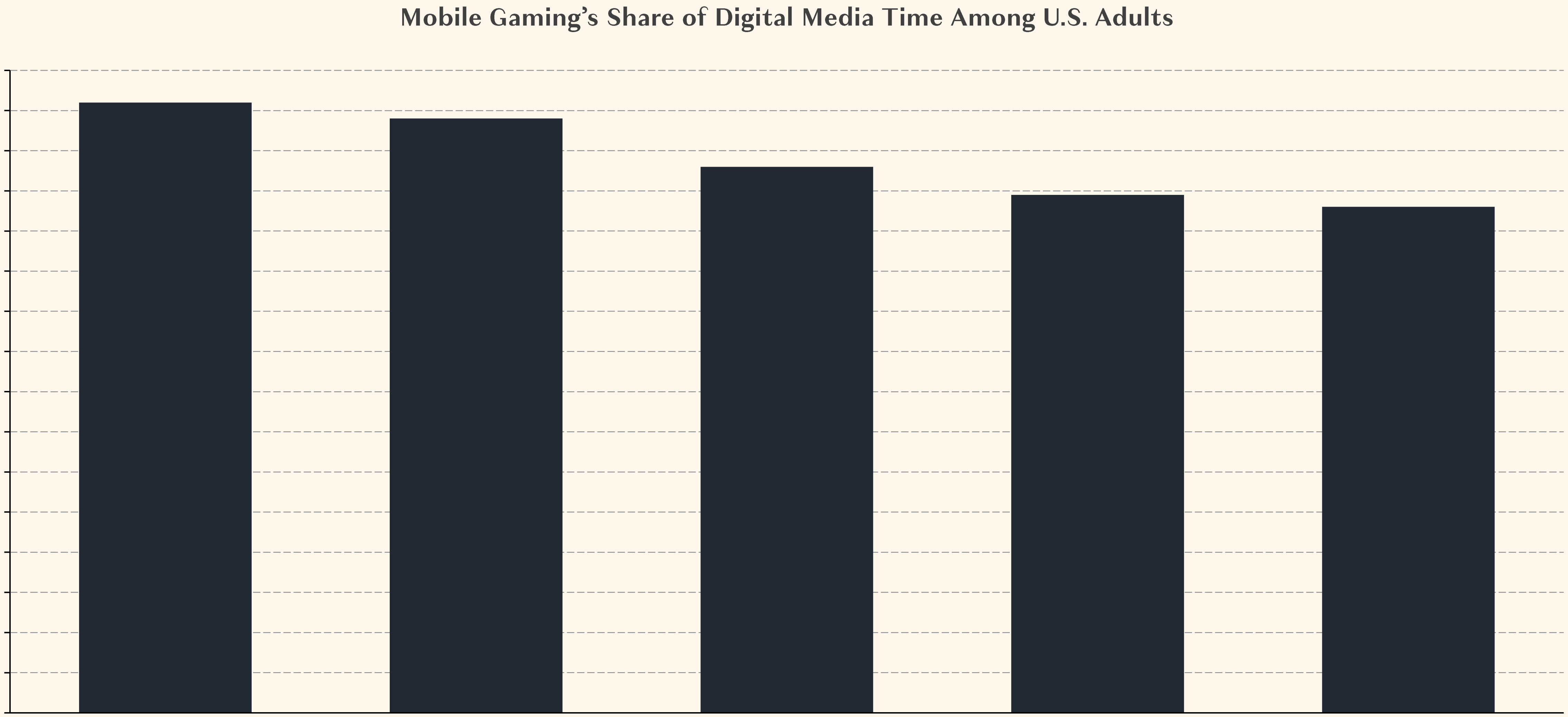

After three years, global mobile gaming spending remains down 8% from its peak (*real* spending is down 23%). The competitive consequences are even greater...

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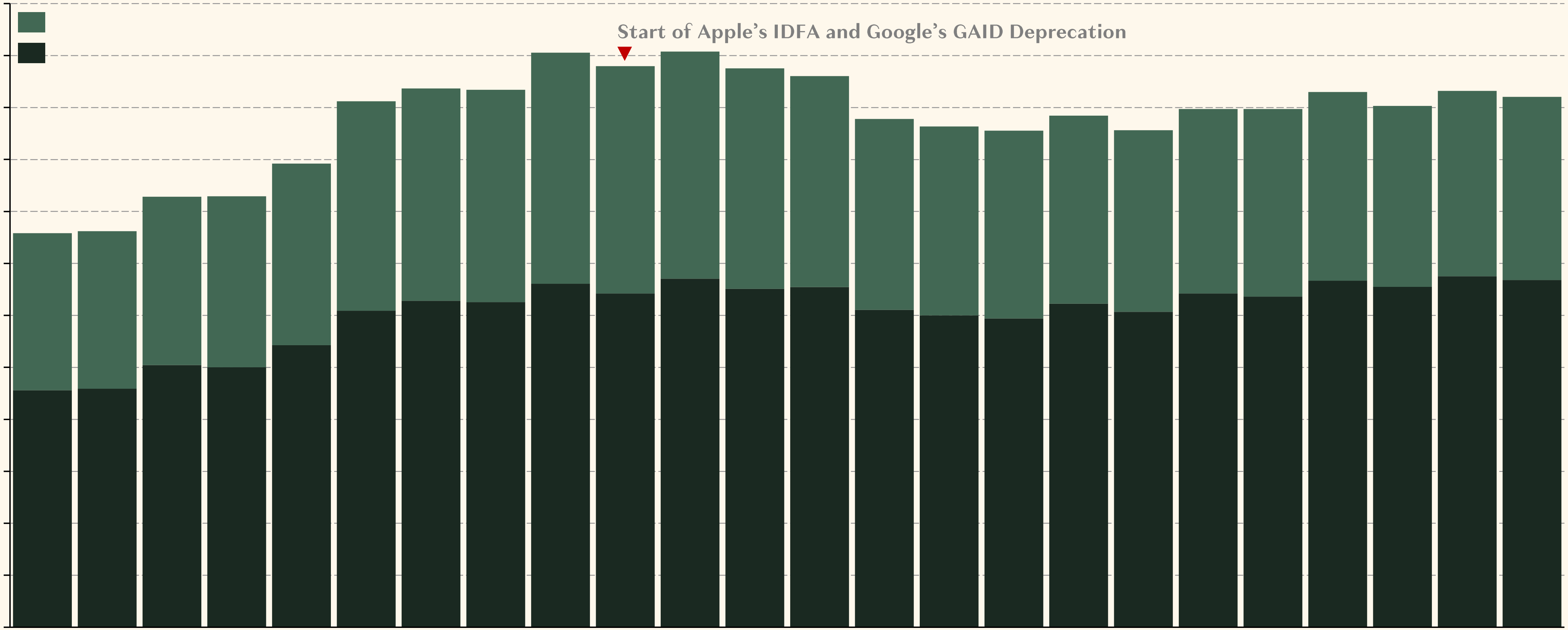
Worldwide Mobile Game Revenues by Quarter
(Sensor Tower Measured Markets and Platforms)



Source: *Sensor Tower*

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

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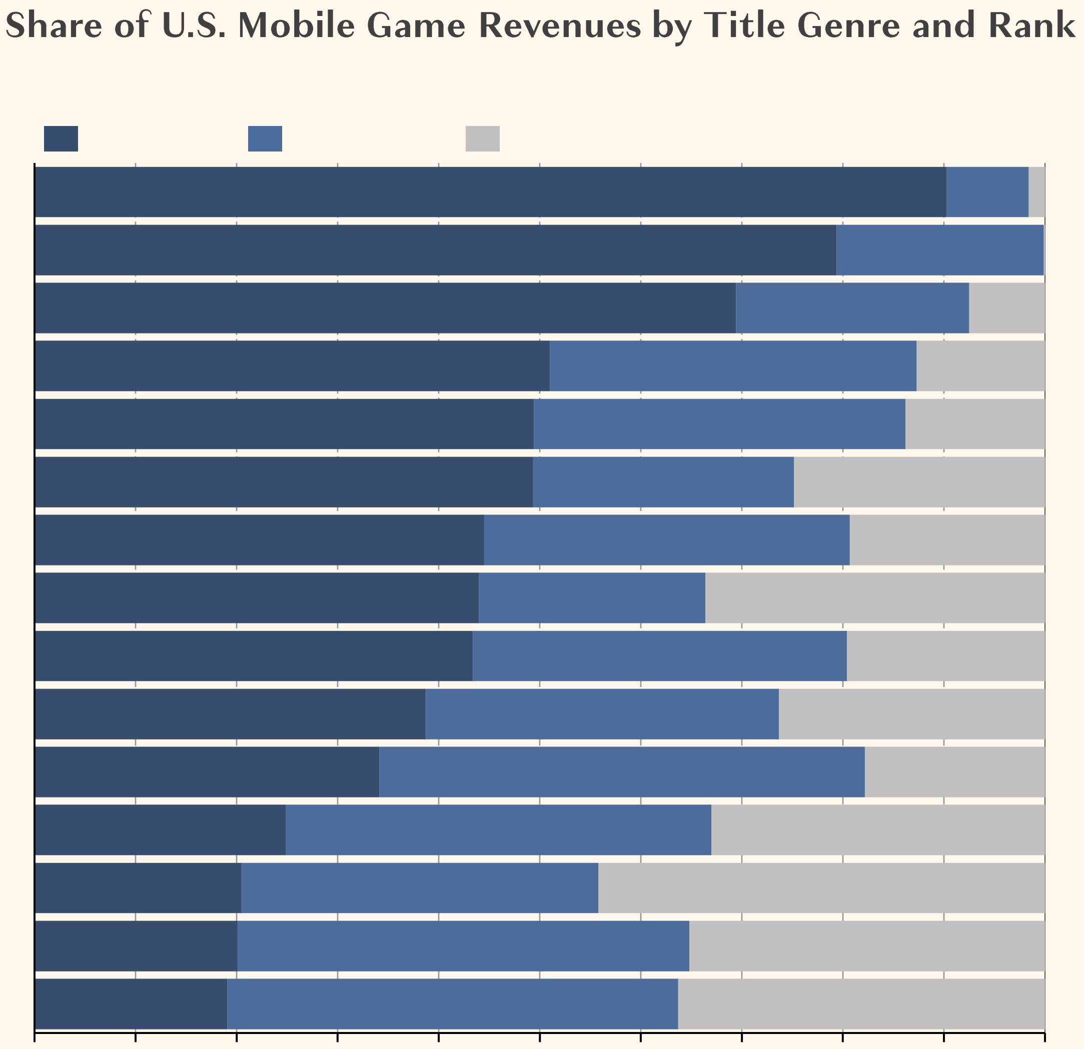

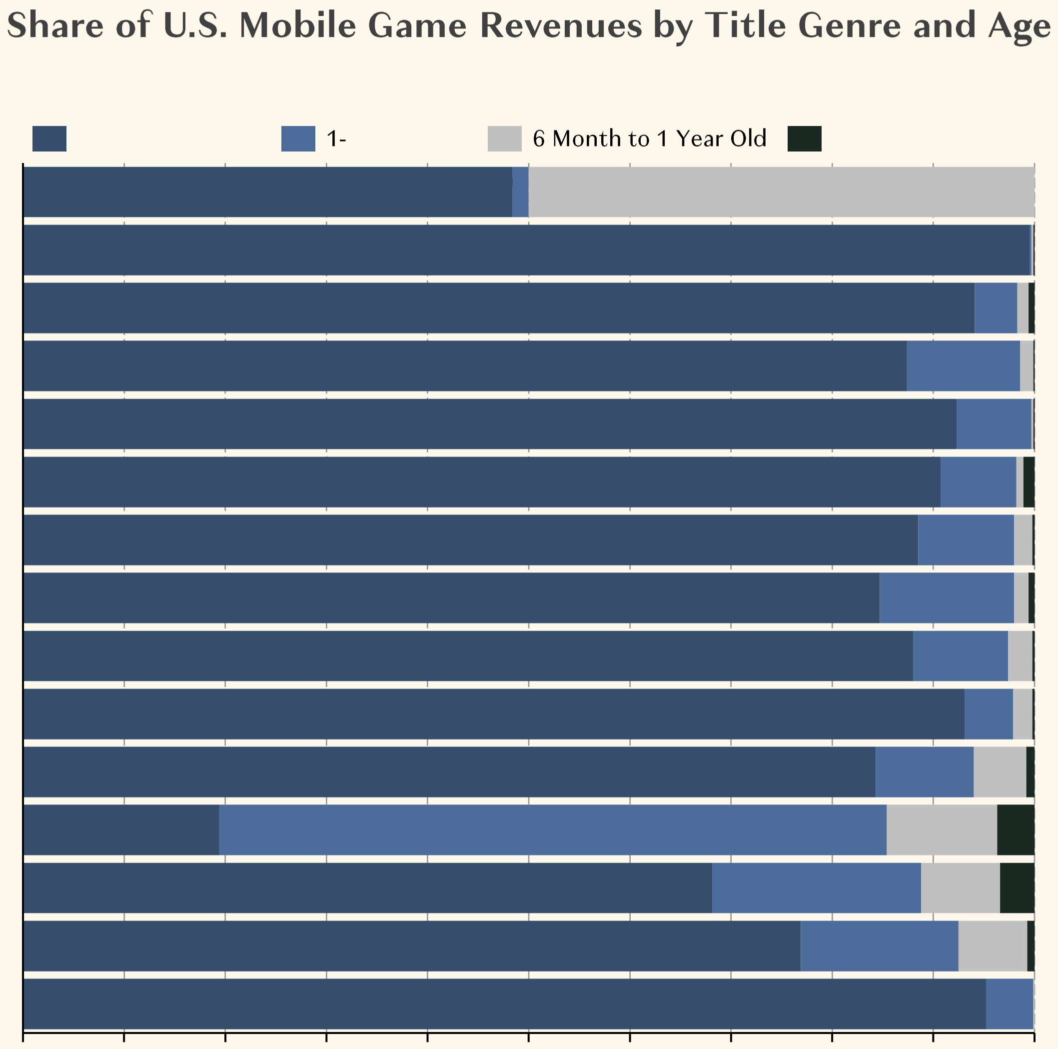

Sources: Sensor Tower / Data.ai

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)

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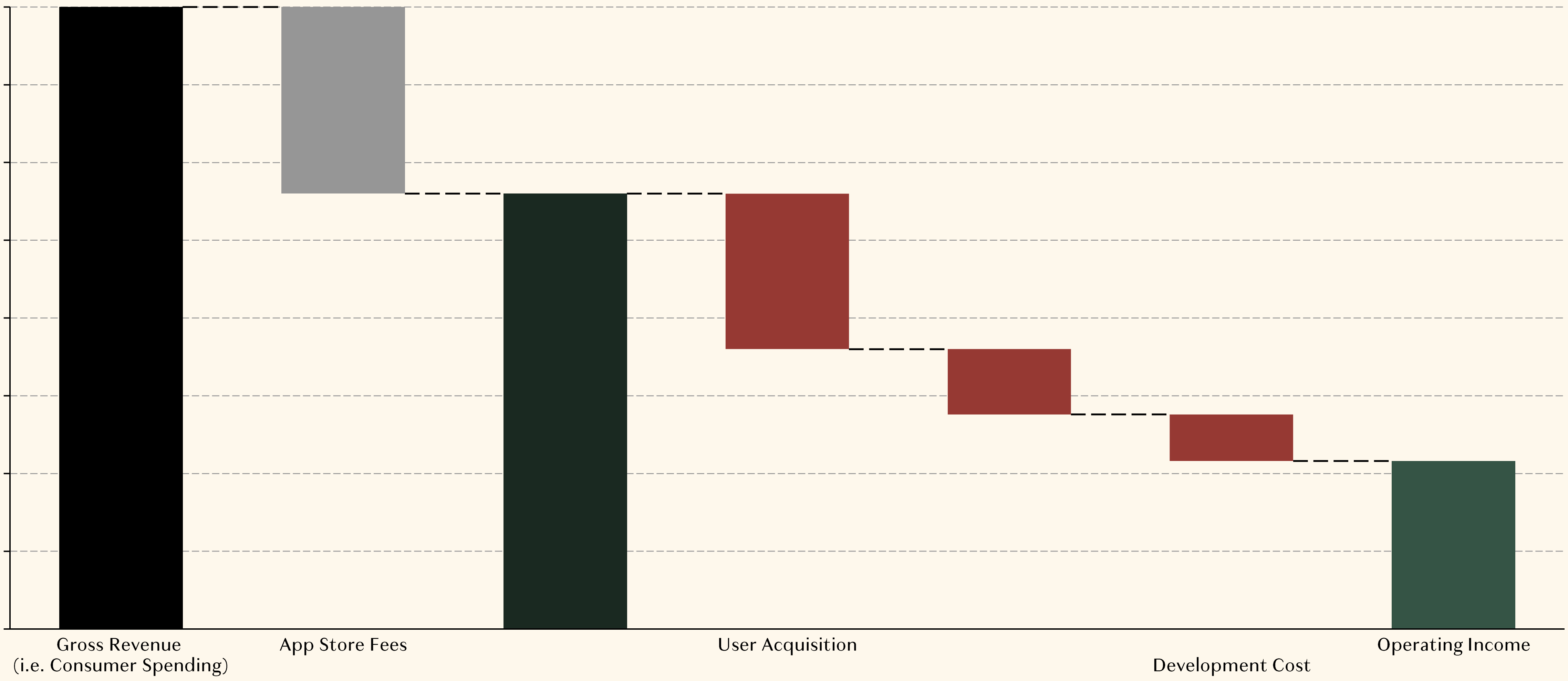
Estimated P&L For *Monopoly Go* During Its First 11 Months



Sources: Hasbro, Game File / Stephen

Or that while the number of smartphone owners has tripled since 2014 (1.5B to 4.5B), as has mobile gaming spend ($35B to $105B), there are *fewer* mobile games

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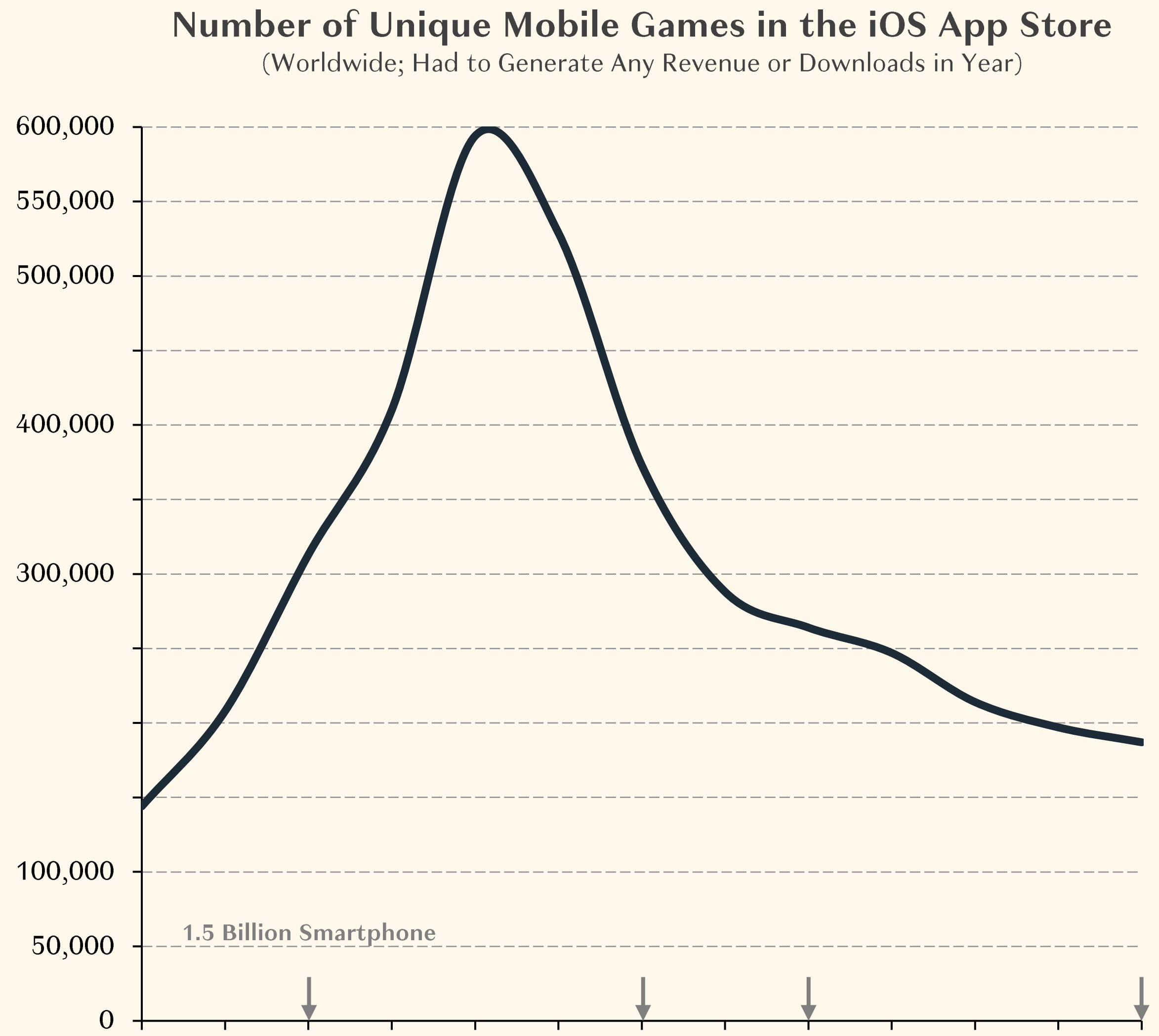
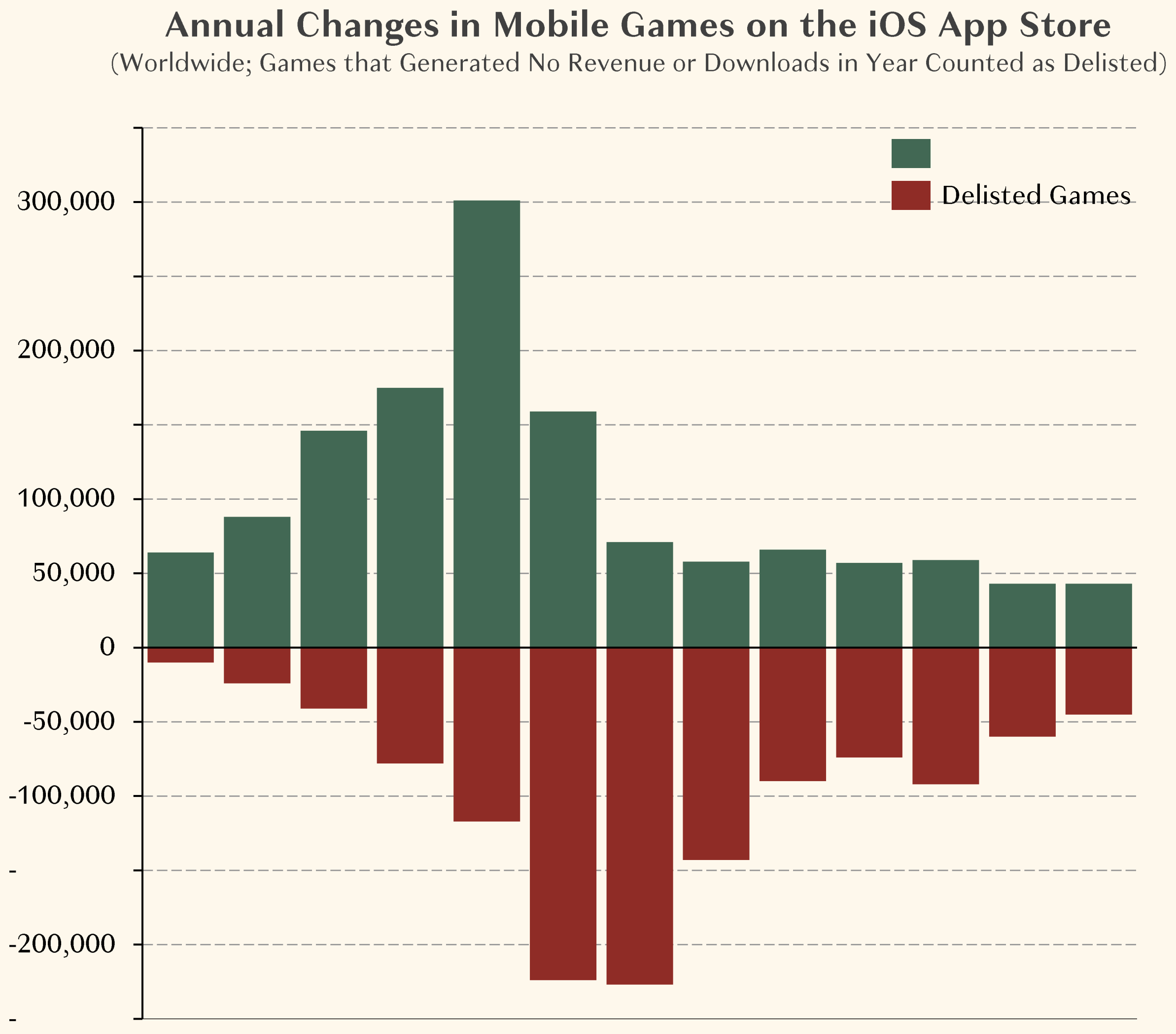
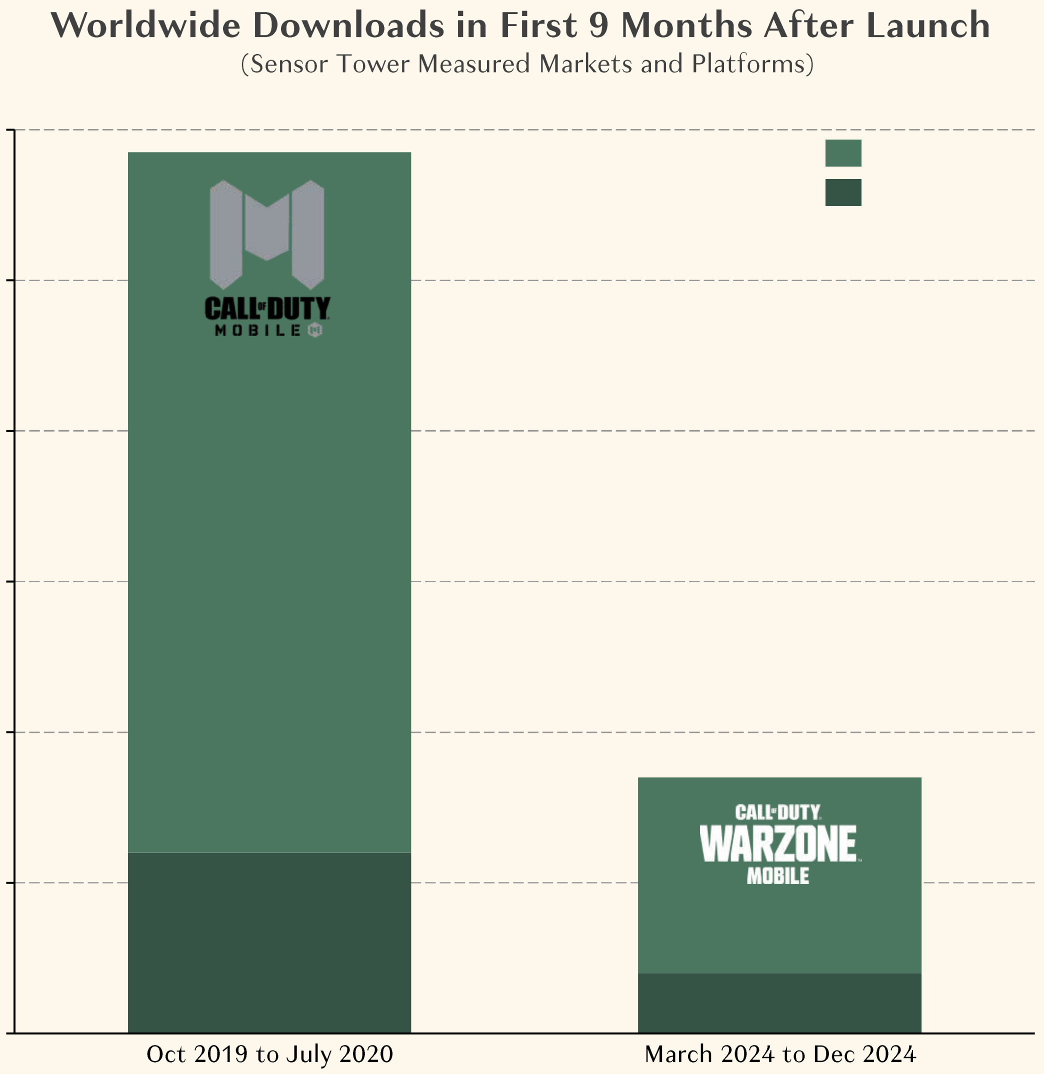
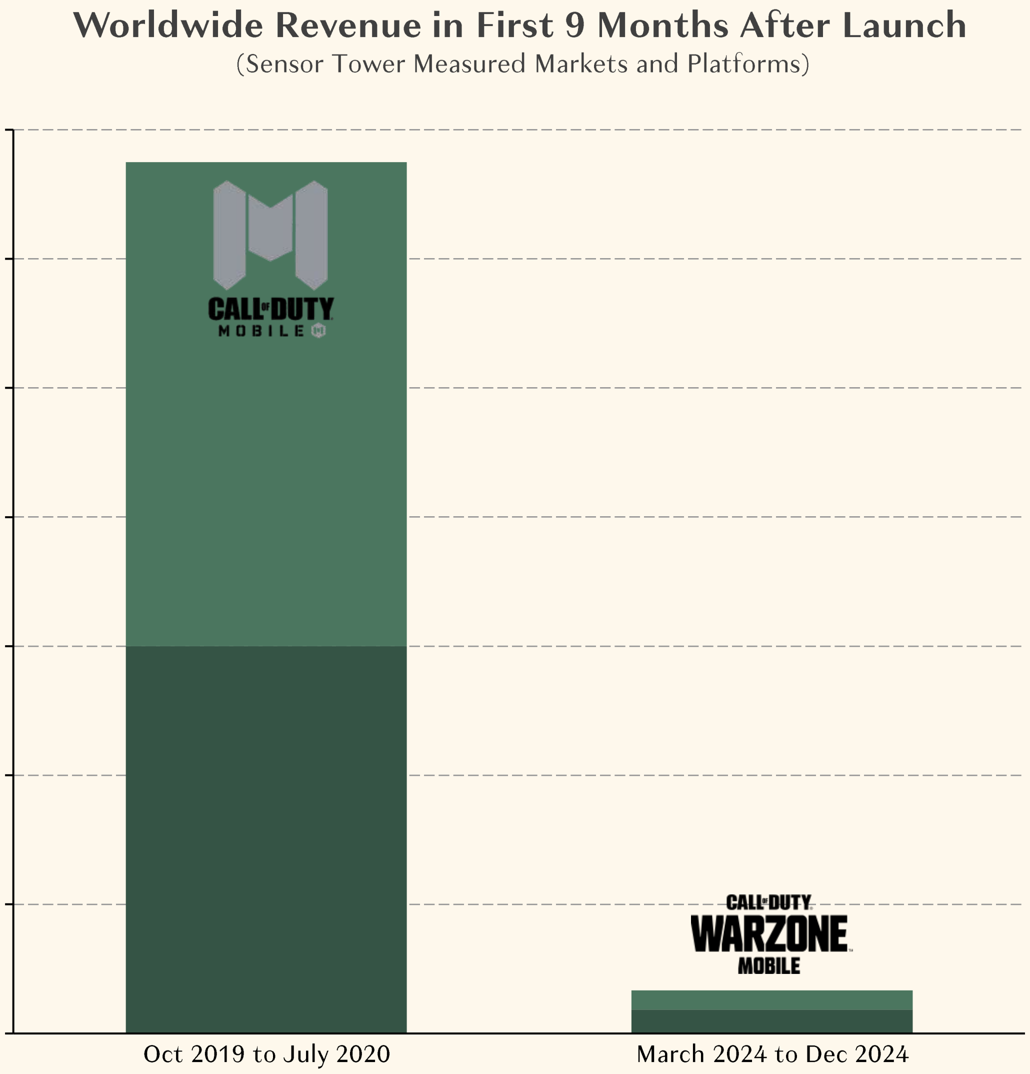




Sources: Sensor Tower, Data.ai, Epyllion analysis

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

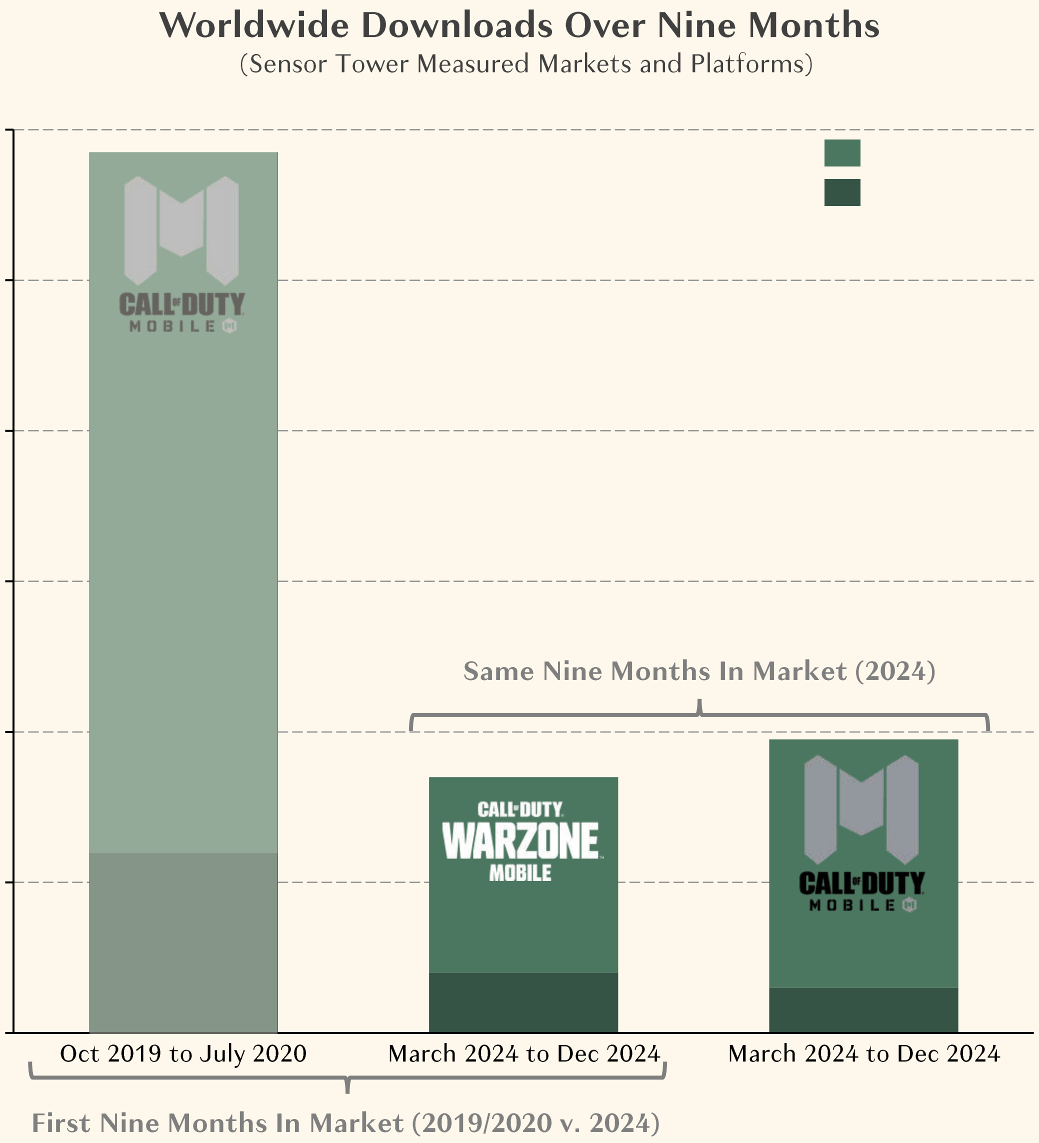


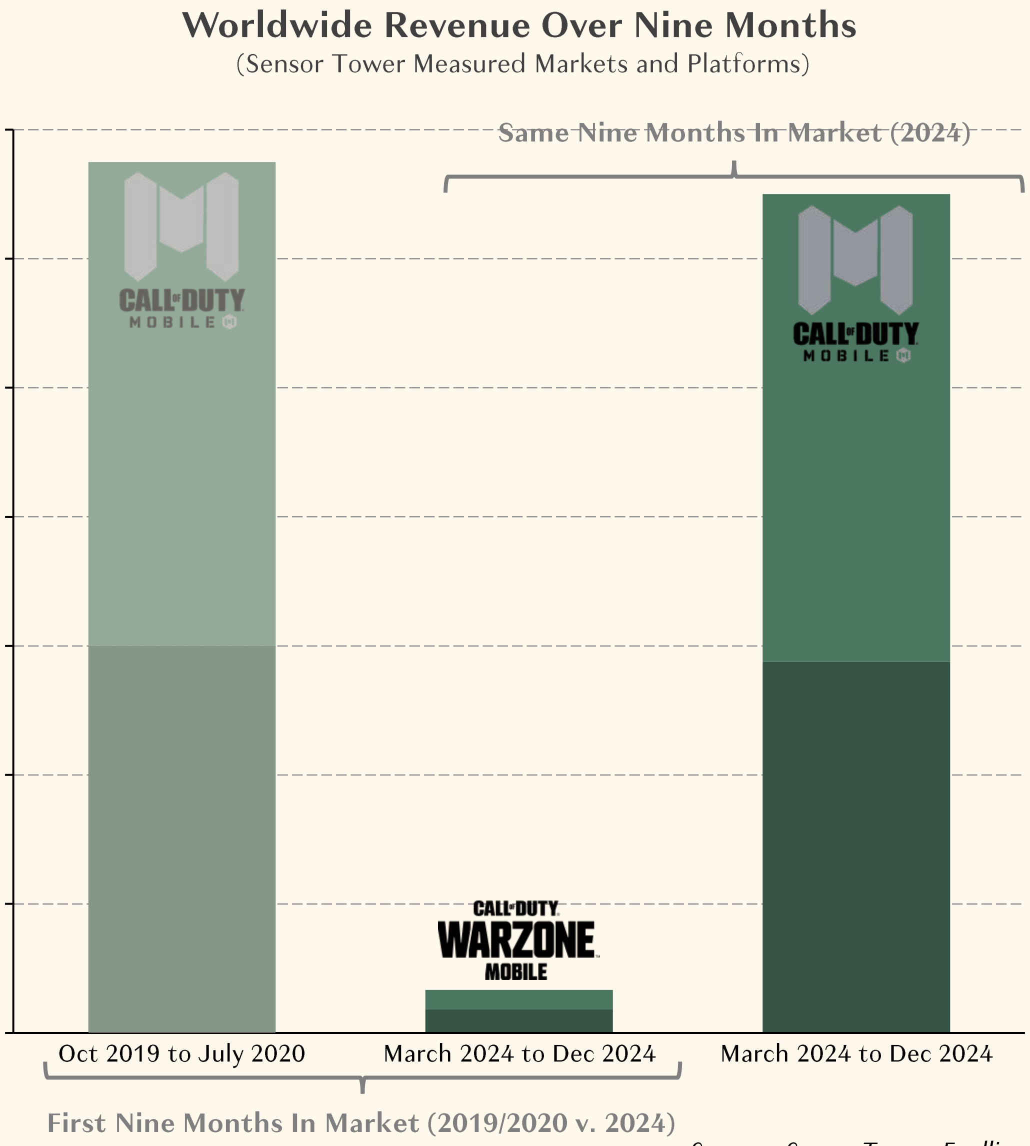


Source: Sensor Tower

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

EPYLLION





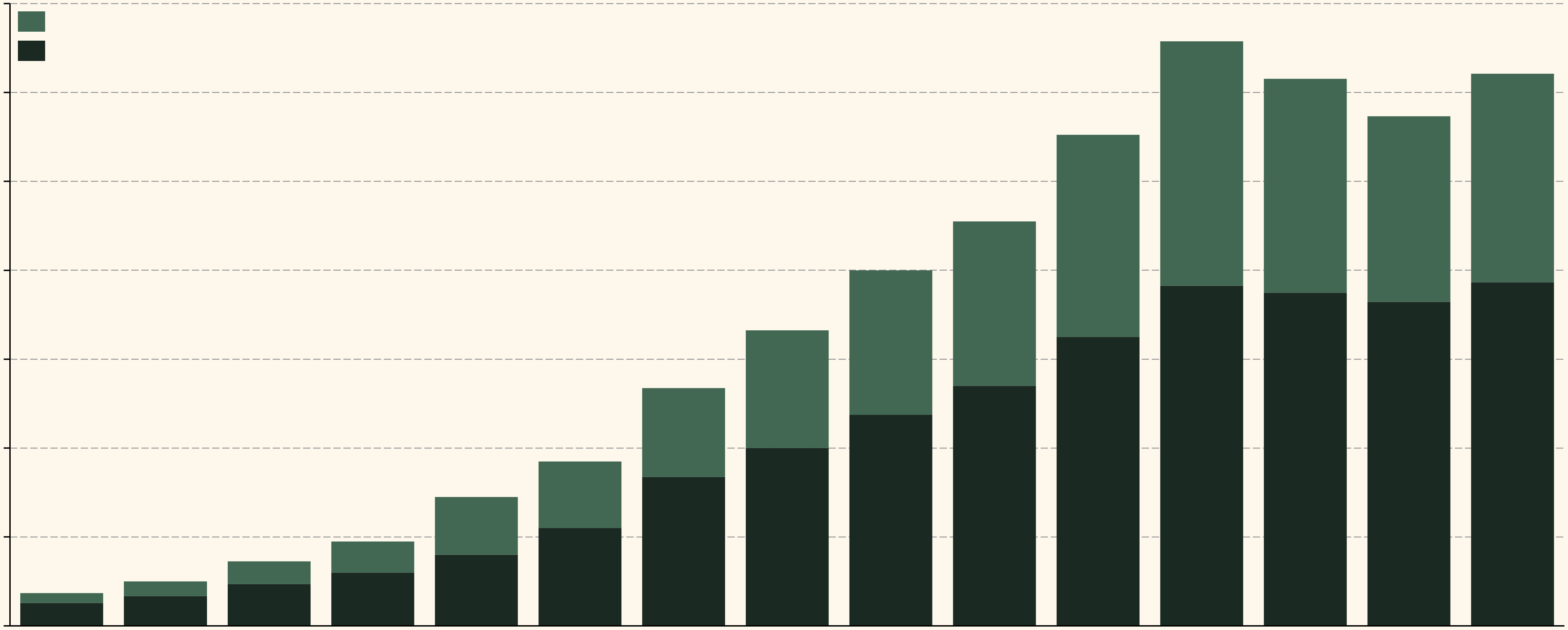
Sources: Sensor Tower, Epyllion analysis

With mobile gaming stagnated, app stores, which net $20B+ per year from mobile game developers, are facing renewed scrutiny over their commissions and policies

EPYLLION

Total Worldwide App Store Revenue from Video Game Commissions

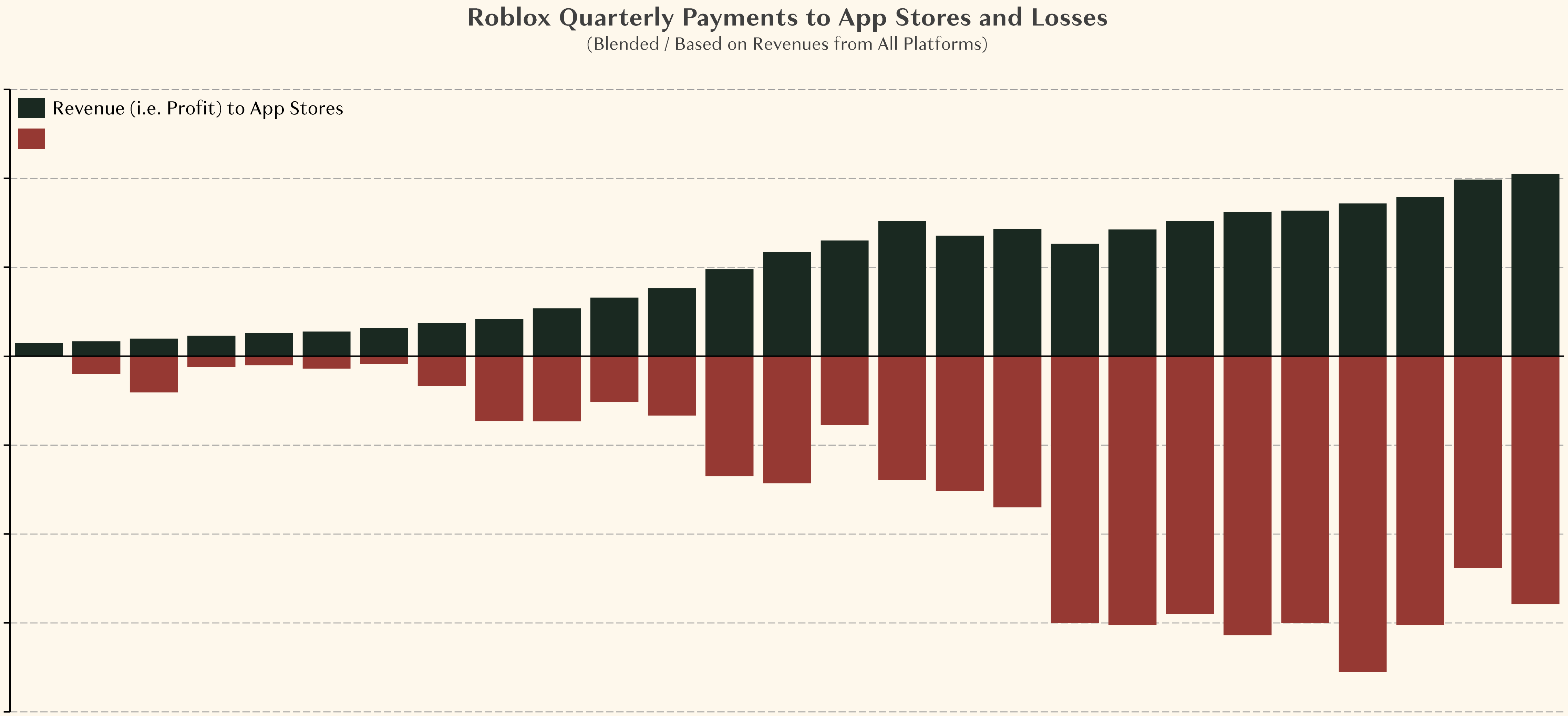
(Nominal Prices; Revenue Typically Estimated at 75–85% Profit Margins)



Sources: Pelham Smithers / Bloomberg, IDG,   , Meta, IDC, Epic Games, The Verge, E.U. Commission, U.S. Department of Justice, Epyllion analysis

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

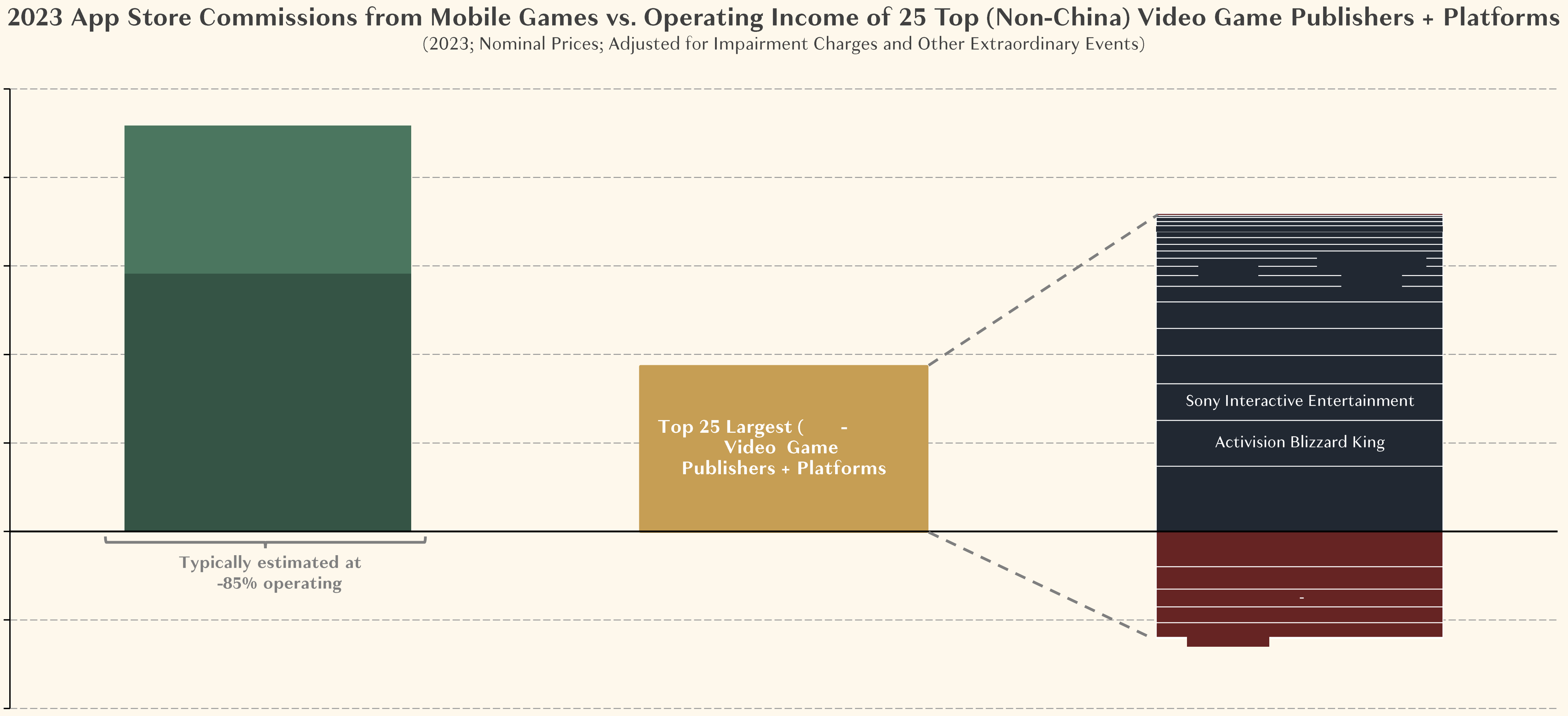
EPYLLION



Source: Roblox, Epyllion analysis

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

EPYLLION



Sources: Activision Blizzard, Bandai Namco, Capcom, CD Projekt, EA, Embracer, Epic Games, Sea, Konami, , , , Nexon, Nintendo, , Roblox, Sega, Sony, Square Enix, -Two, Ubisoft, Unity, Valve, Warner Bros. Discovery, , Pelham Smithers / Bloomberg Sensor Tower, The Verge, E.U. Commission, U.S. Department of Justice, Epyllion analysis

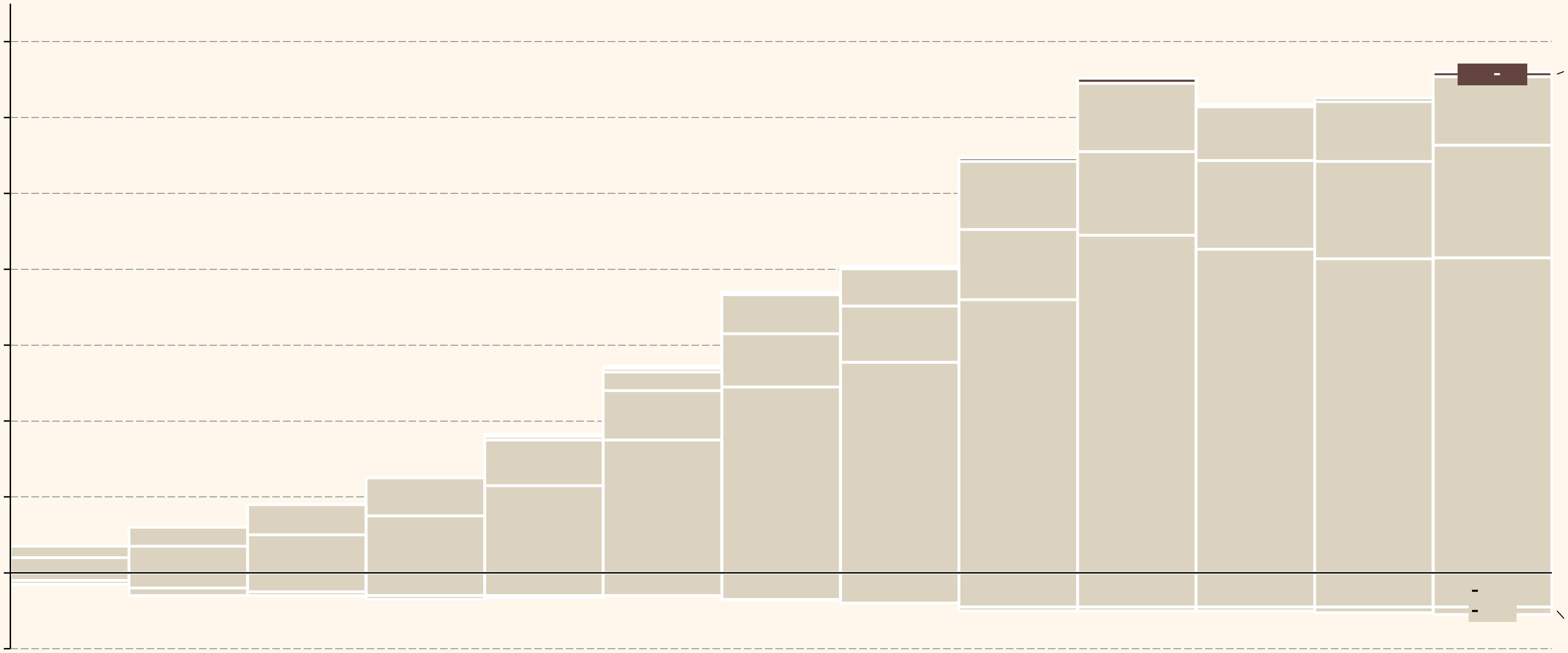
EPYLLION

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

EPYLLION

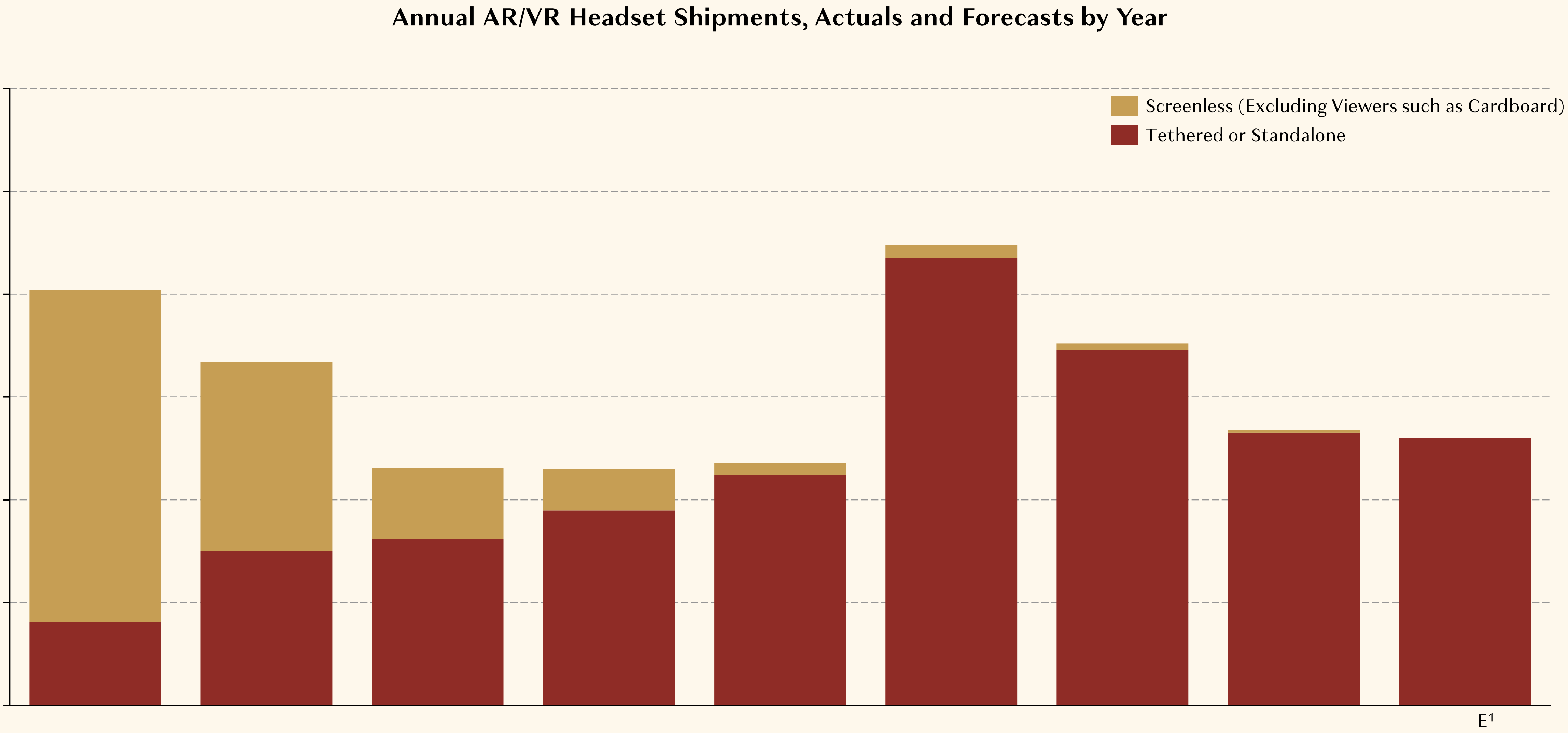
Share of Growth in Worldwide Consumer Spending on Video Game Content Since 2011

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



Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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



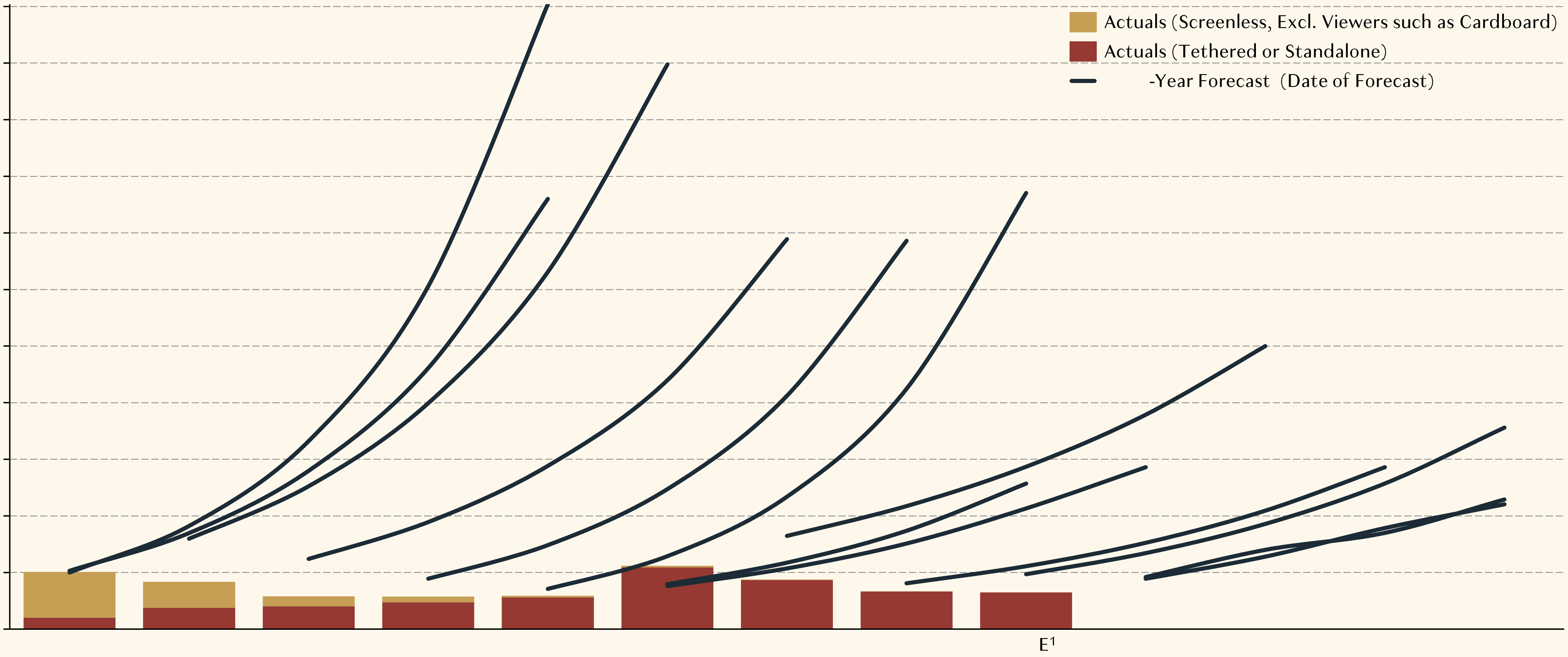
[1] *Full year estimate as of December 2024*

AR/VR sales are also way behind forecasts. IDC now estimates 6-7MM headsets sold in 2024. Only a few years ago, IDC predicted 6-7MM per quarter (if not *month*

EPYLLION

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

(Worldwide, Including MR and XR)



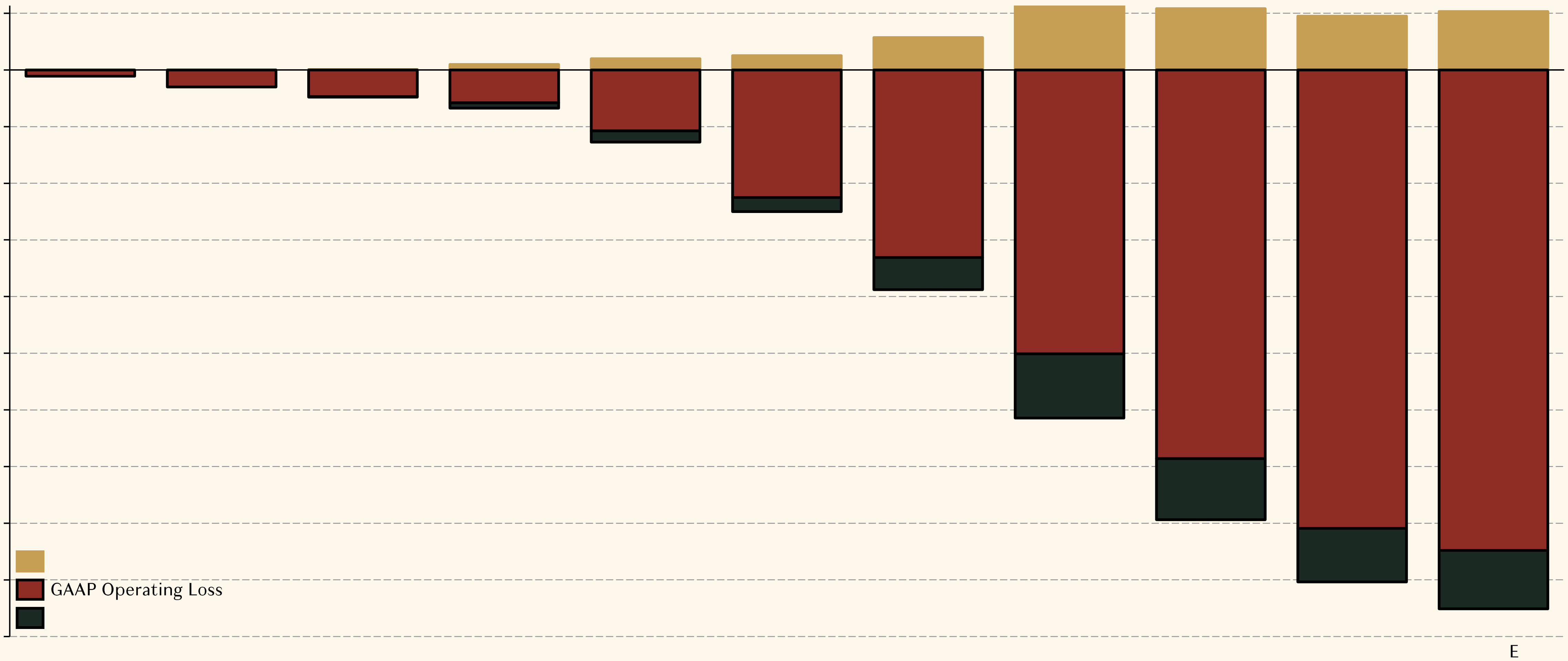
¹Full year estimate as of December 2024

Sources: IDC, Epyllion analysis

Though focused on building a general-purpose computing platforms (vs a gaming console), Meta's Reality Labs has now spent ~$84B on AR/VR, with ~$74B in losses

EPYLLION

Annual Meta Reality Labs Annual GAAP P&L[1]



[1] The total figures exceed the commonly-reported totals as Meta has only disclosed the P&L as of 2019 and on, rather than from its establishment in 2014

Sources: Meta, Epyllion analysis

EPYLLION

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

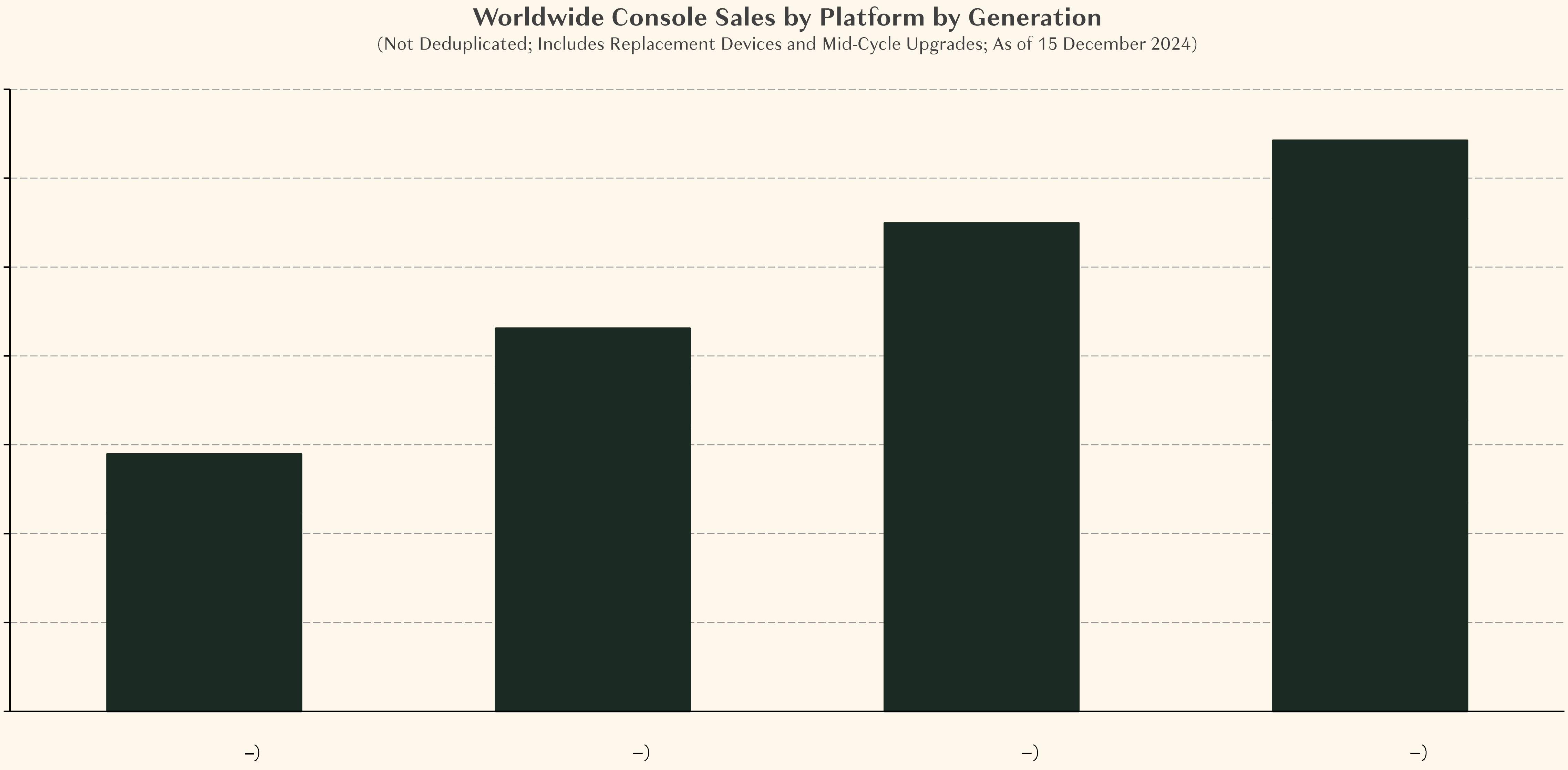
The Relevance of China (and Other Emerging Markets)

The Hostility of the Modern Console/PC Content Marketplace

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

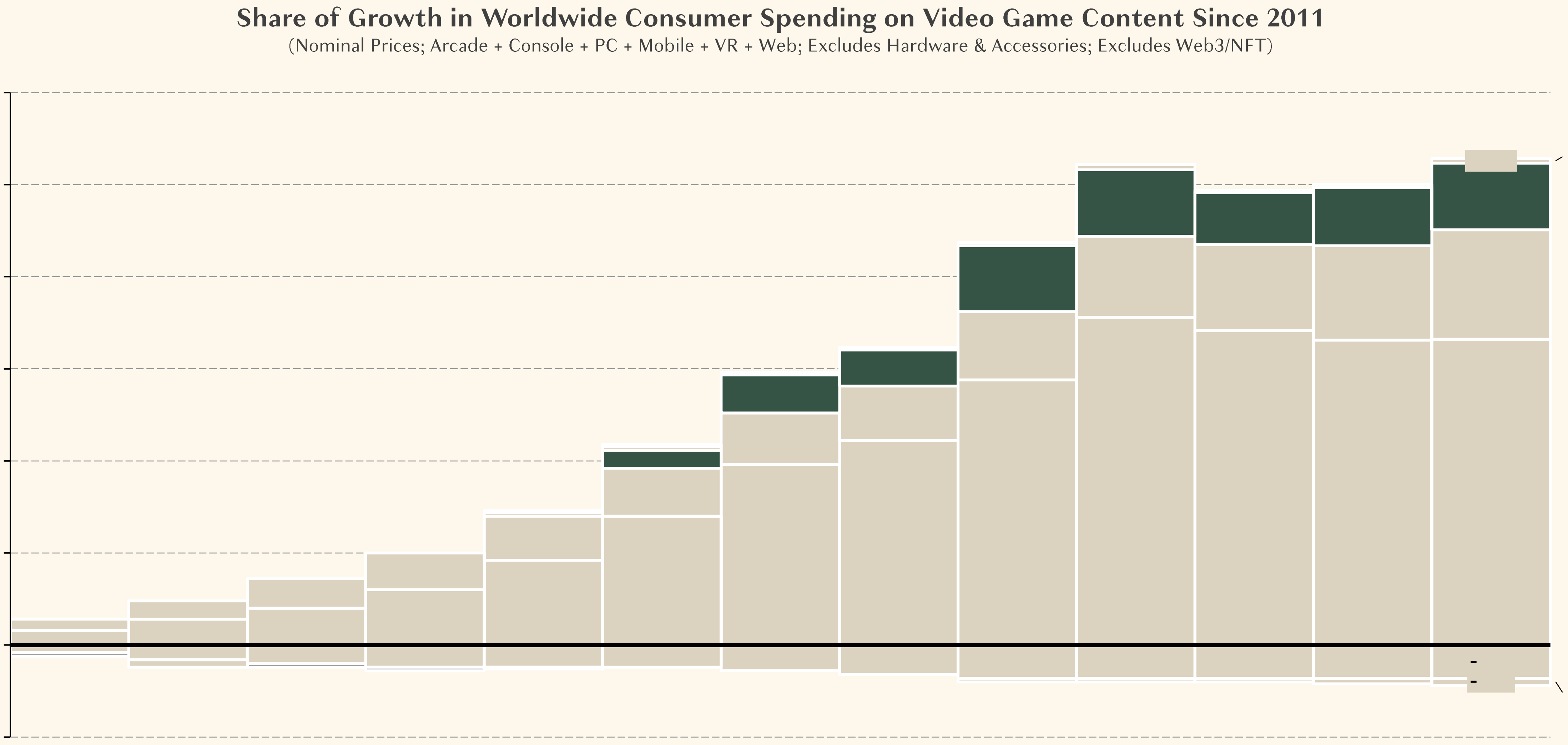
The billions spent on each console generation on R&D, subsidies, content, etc., do seem to be growing penetration. Gen 8 outsold Gen 6 by over 50%

EPYLLION



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

EPYLLION



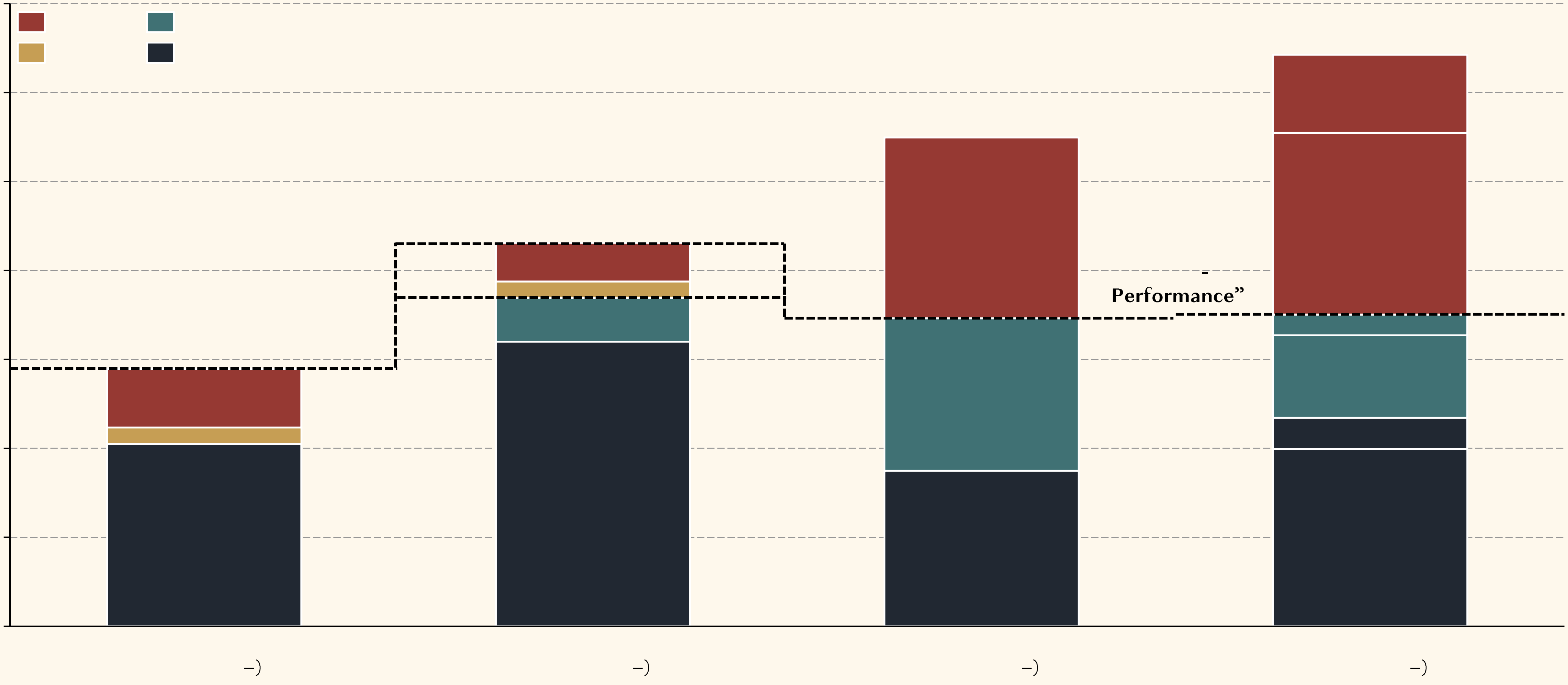
Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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

EPYLLION

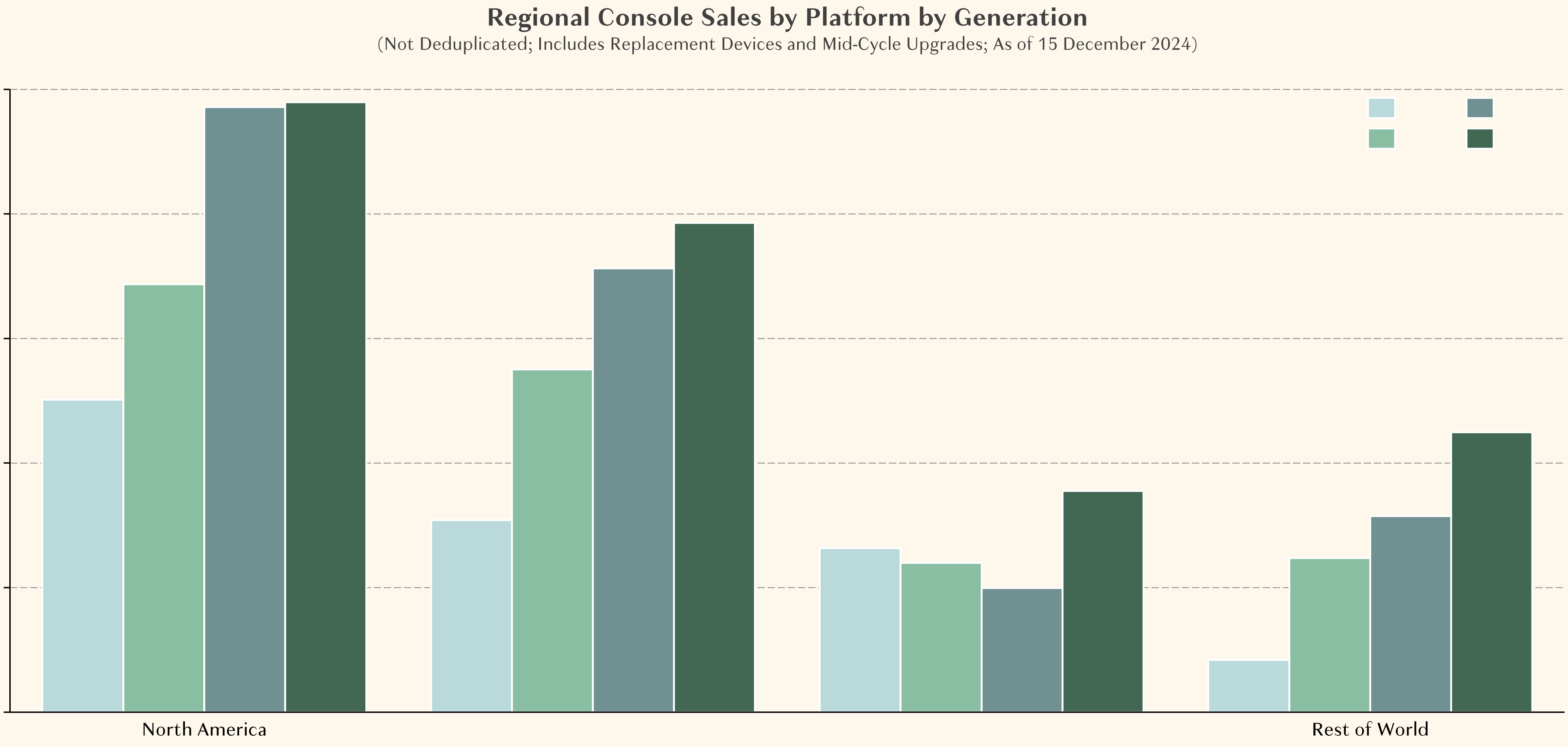
Worldwide Console Sales by Platform by Generation

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



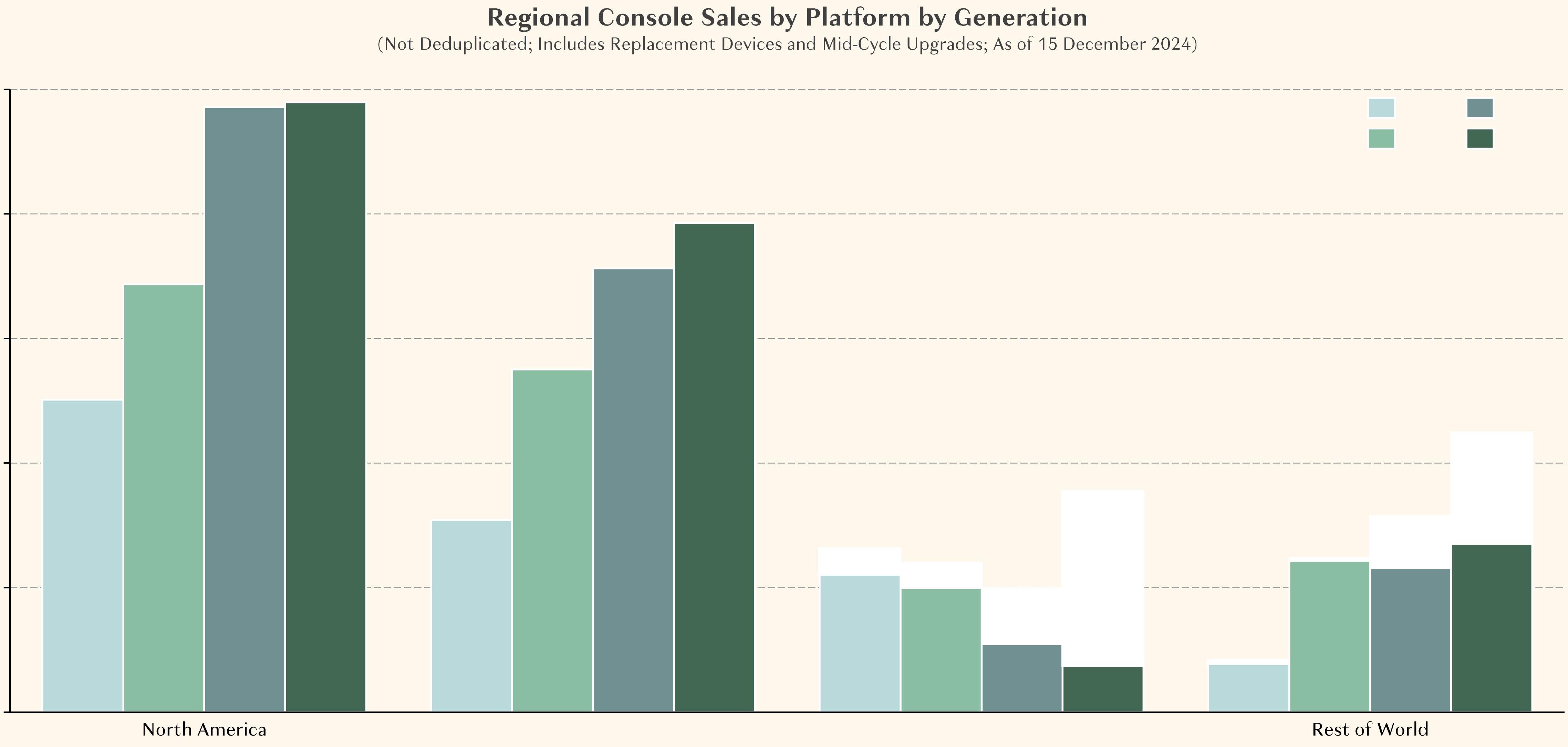
And even with more upgrades and replacement buys, total American and European console sales are ~flat versus a decade ago. Only Japan and ROW materially grew

EPYLLION



...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

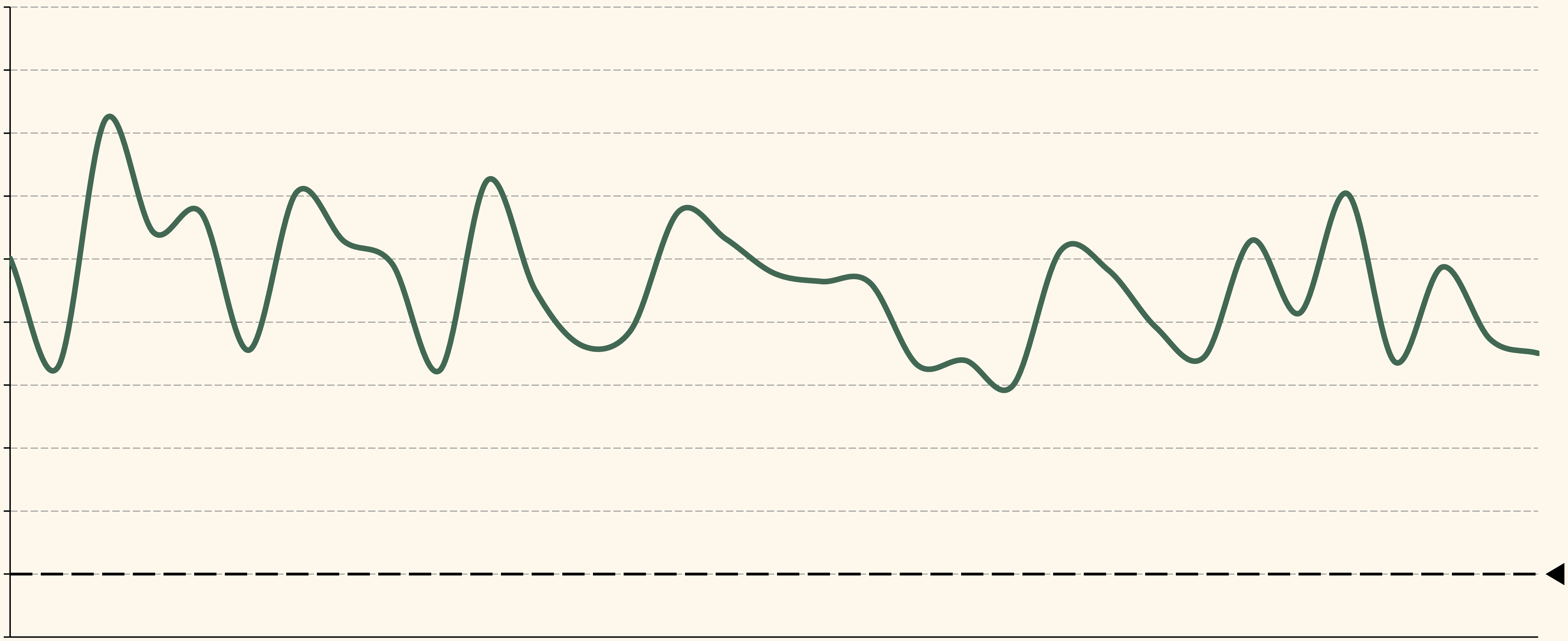
EPYLLION



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)

EPYLLION

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

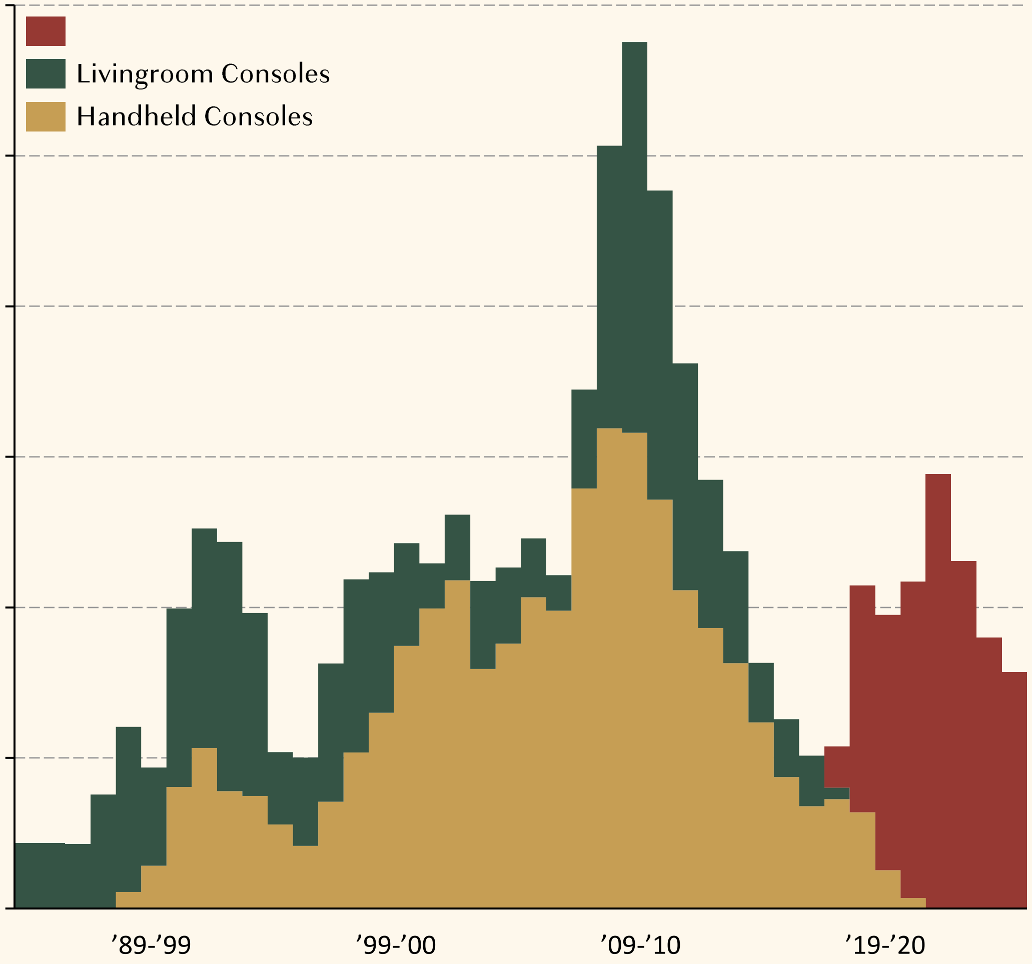


, Nintendo, Niko Partners & Daniel Ahmad, Epyllion analysis

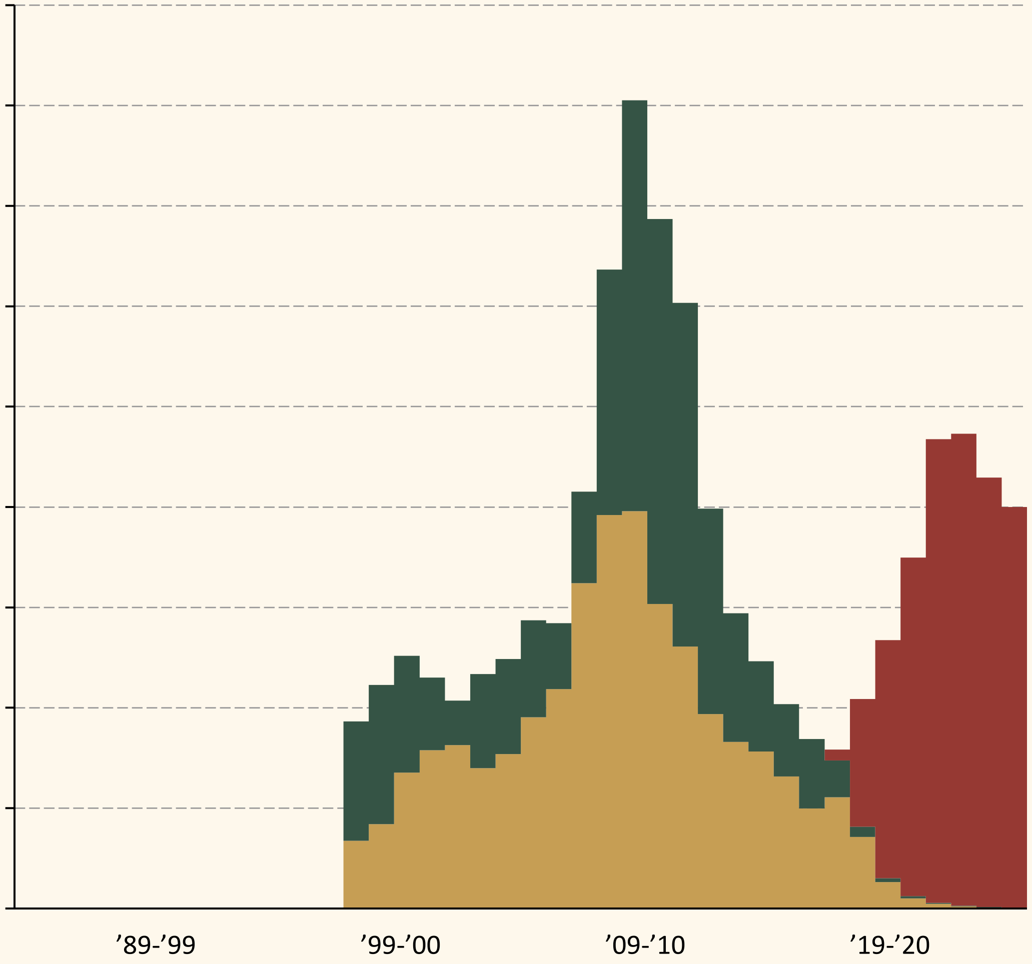
Switch's extraordinary sales are, for the most part, not from net new players but from the cannibalization of two console form factors (livingroom and handheld)

EPYLLION

Nintendo's Annual Hardware Sales by Platform Type



Nintendo Annual Software Unit Sales by Platform Type

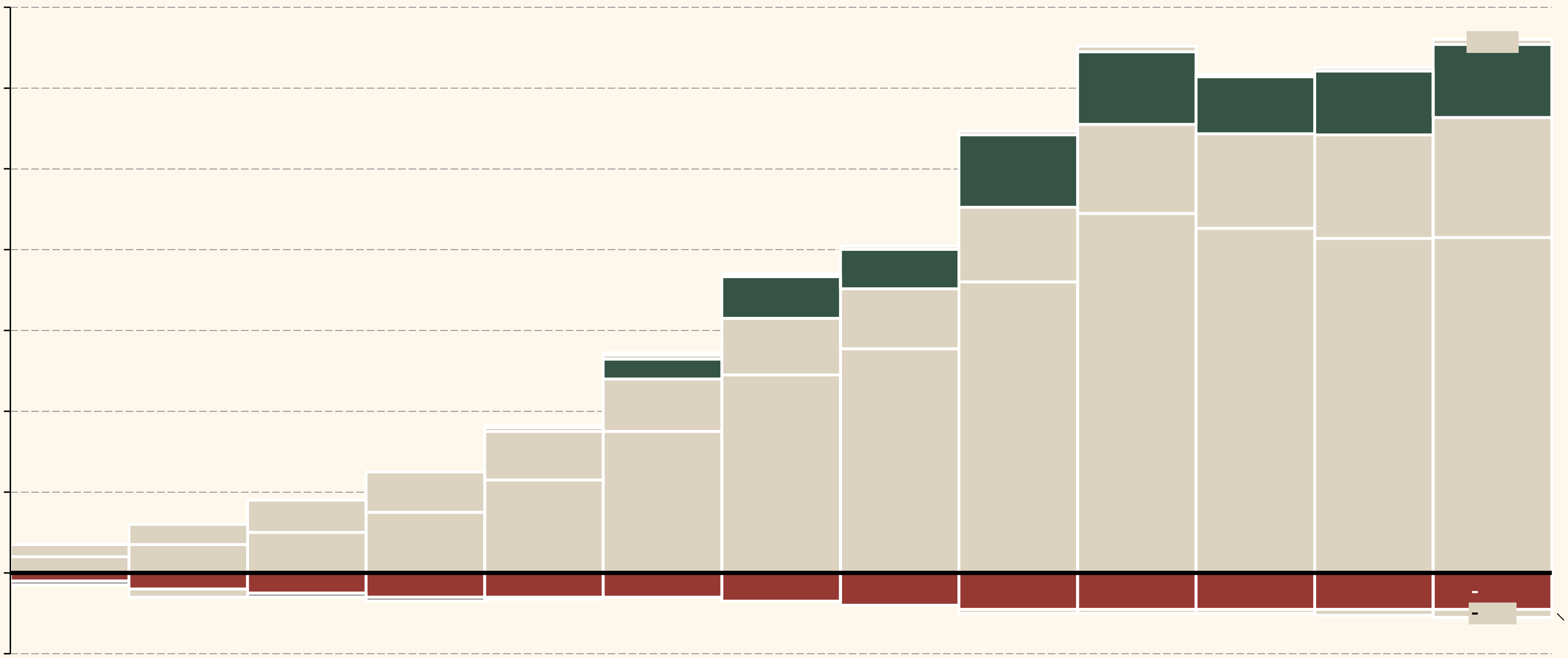


The decline of handheld revenues (-$9B since 2011) also offsets roughly half of livingroom growth ($18B). Combined console is up a more modest $9B, or 28%

EPYLLION

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)

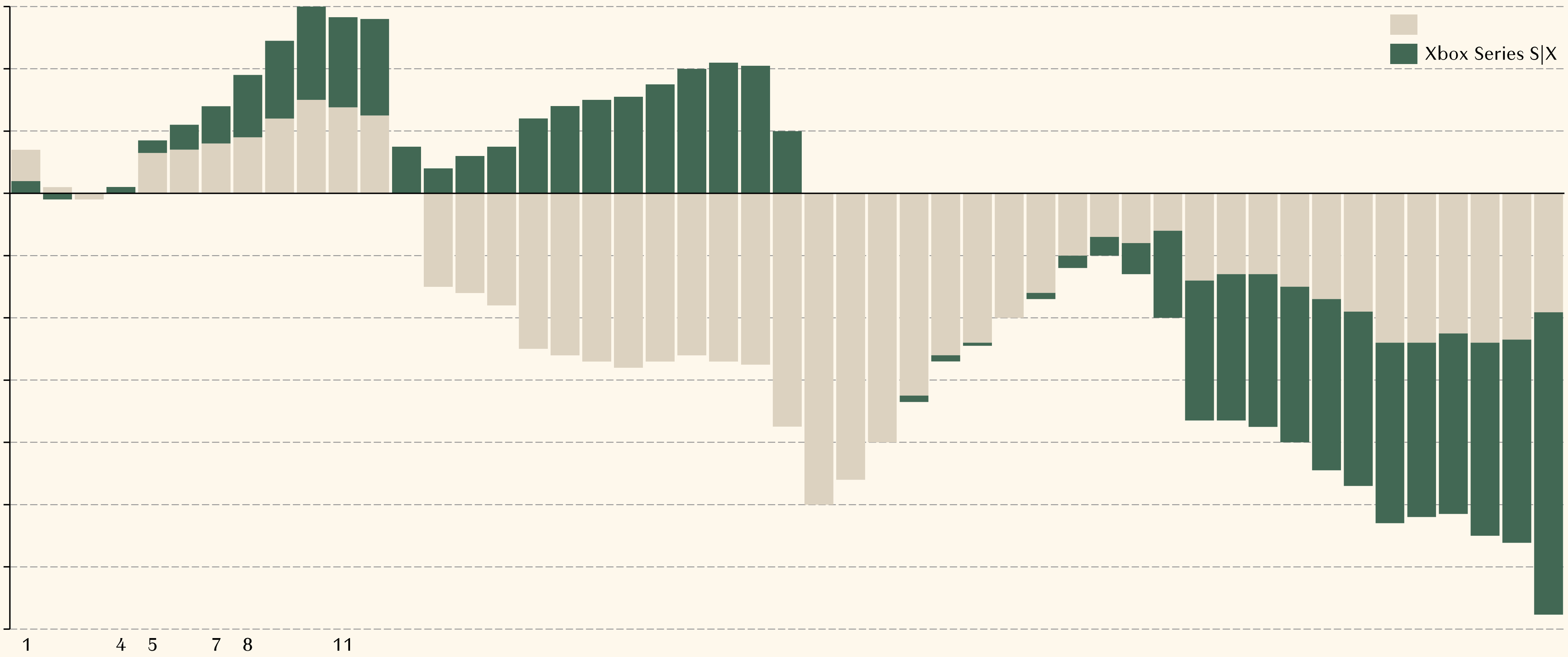


Sources: Pelham Smithers / Bloomberg, , data.ai / Sensor Tower, IDG, Epyllion analysis

And while Switch 2 is a likely mega-hit, Gen 9 PlayStation & Xbox sales are both down versus Gen 8 after 49 months — now a combined 6.8MM shortfall (or -6.4%)

EPYLLION

Net Sales Delta of Generation 9 Platform Console Sales Compared to Generation 8 by Month Since Release

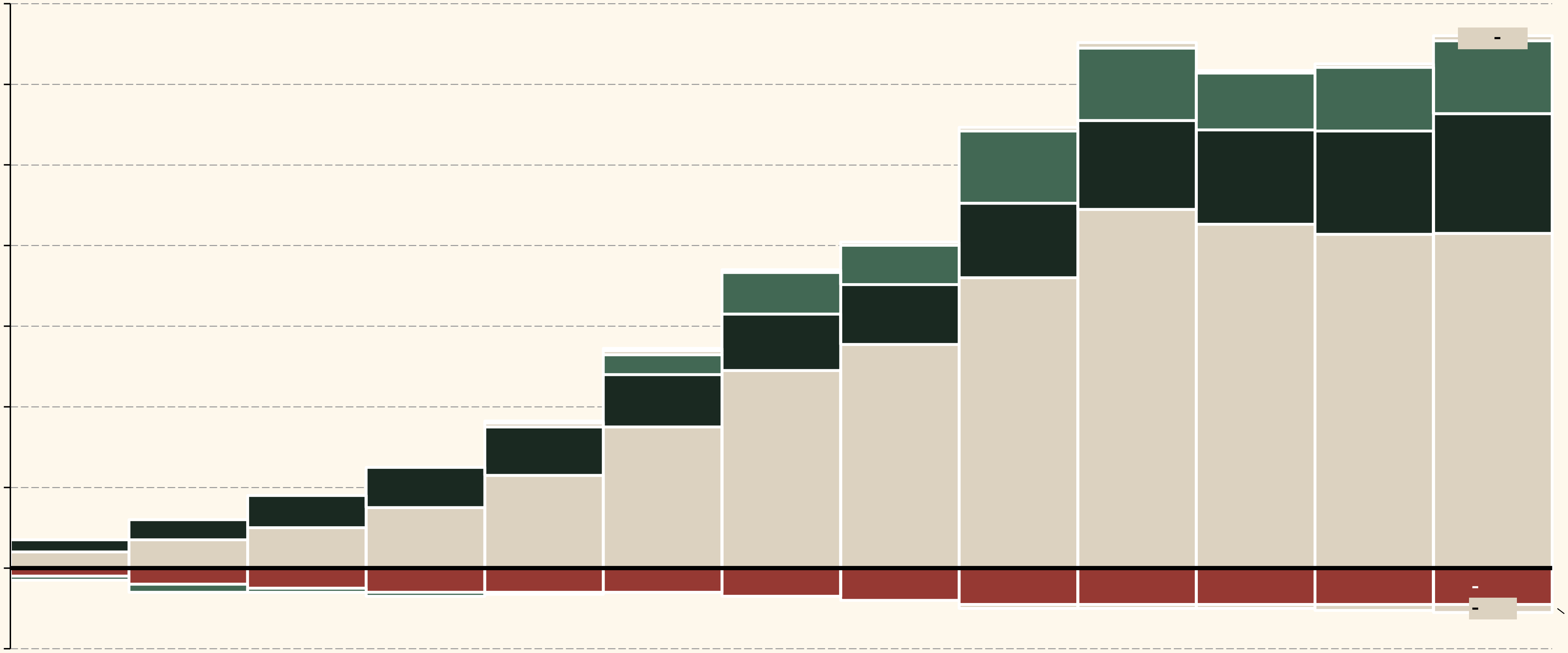


PC is a big bright spot, adding 65% more content spend than livingroom console since 2011 and 225% more than combined console, or $30B in total

EPYLLION

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)

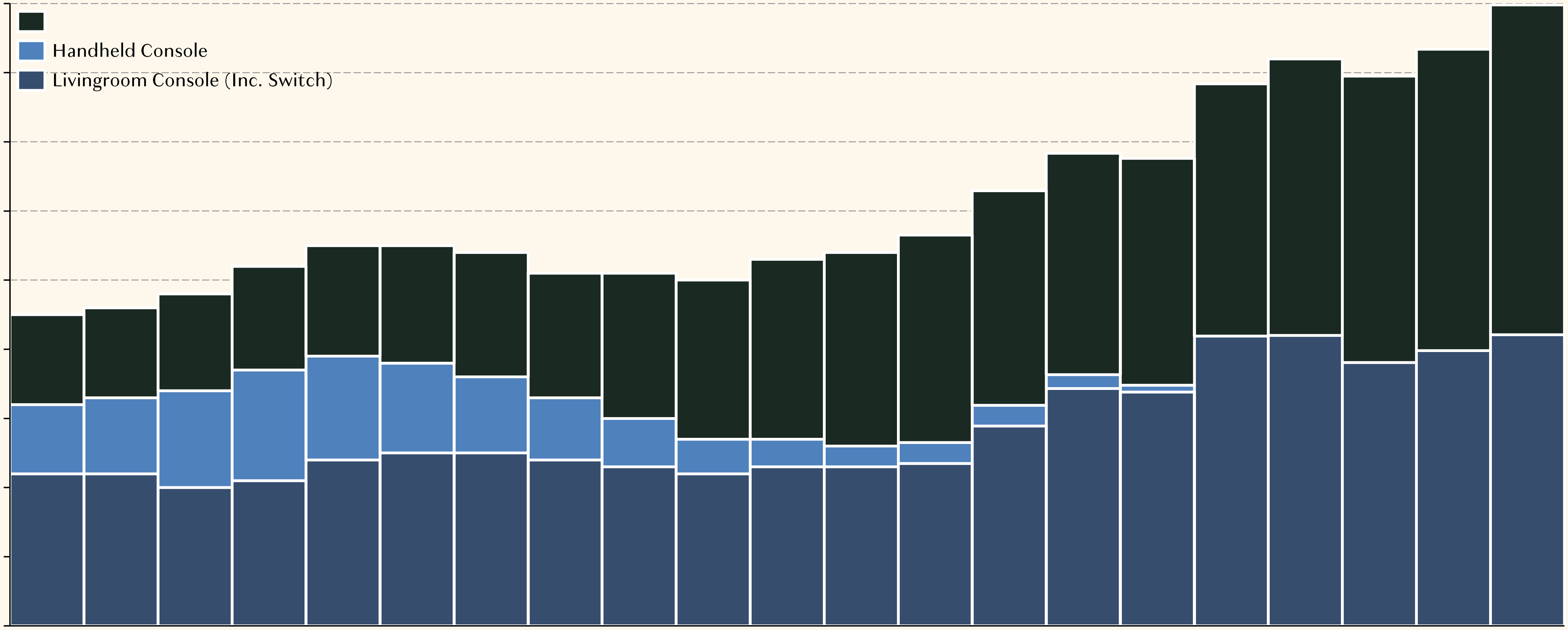


Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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%

EPYLLION

Worldwide Non-Mobile Video Game Content Spend
(Excludes Web3/NFT)



Sources: Pelham Smithers / Bloomberg, IDG, , IDC, Epyllion analysis

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

EPYLLION

Existing PC Advantages

- Much larger library than any one console (or all consoles combined), and with near full backwards compatability
- 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

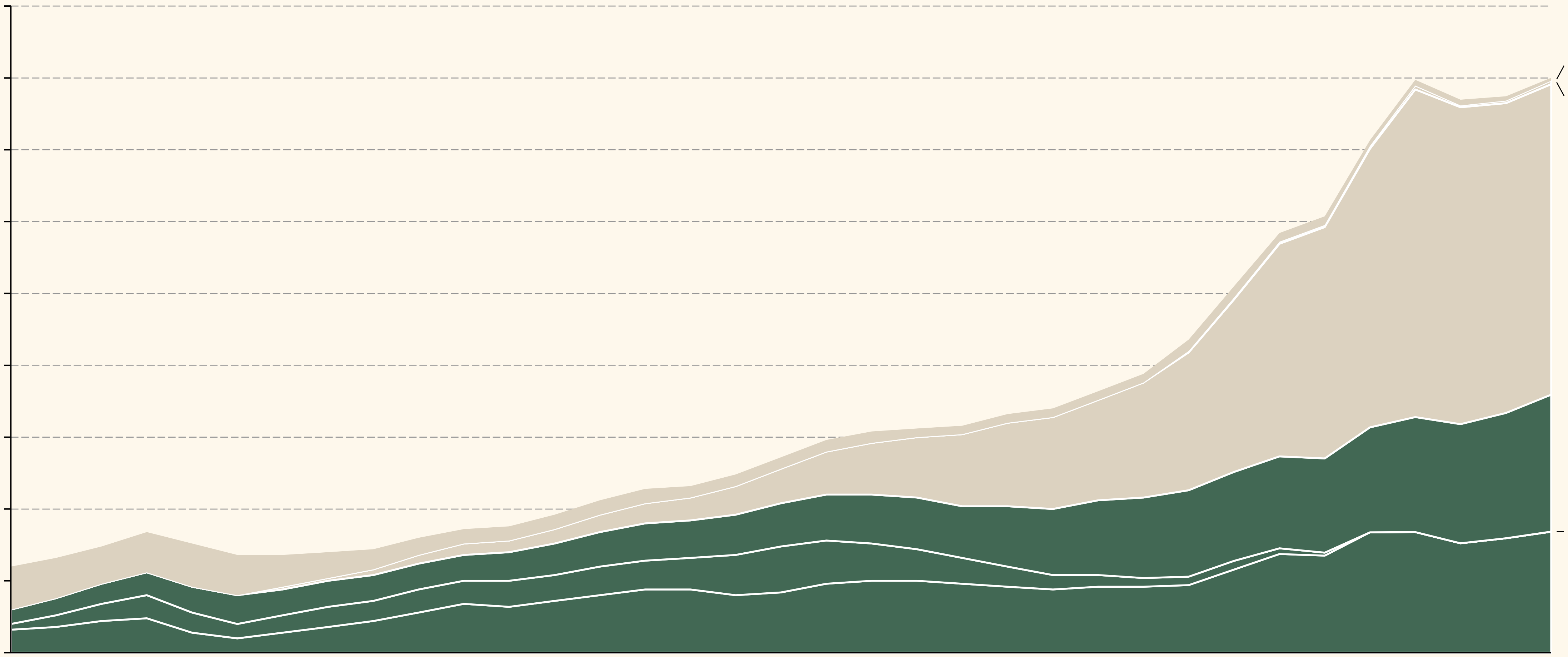
Source: Epyllion analysis

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

EPYLLION

Worldwide Consumer Spending on Video Game Content

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



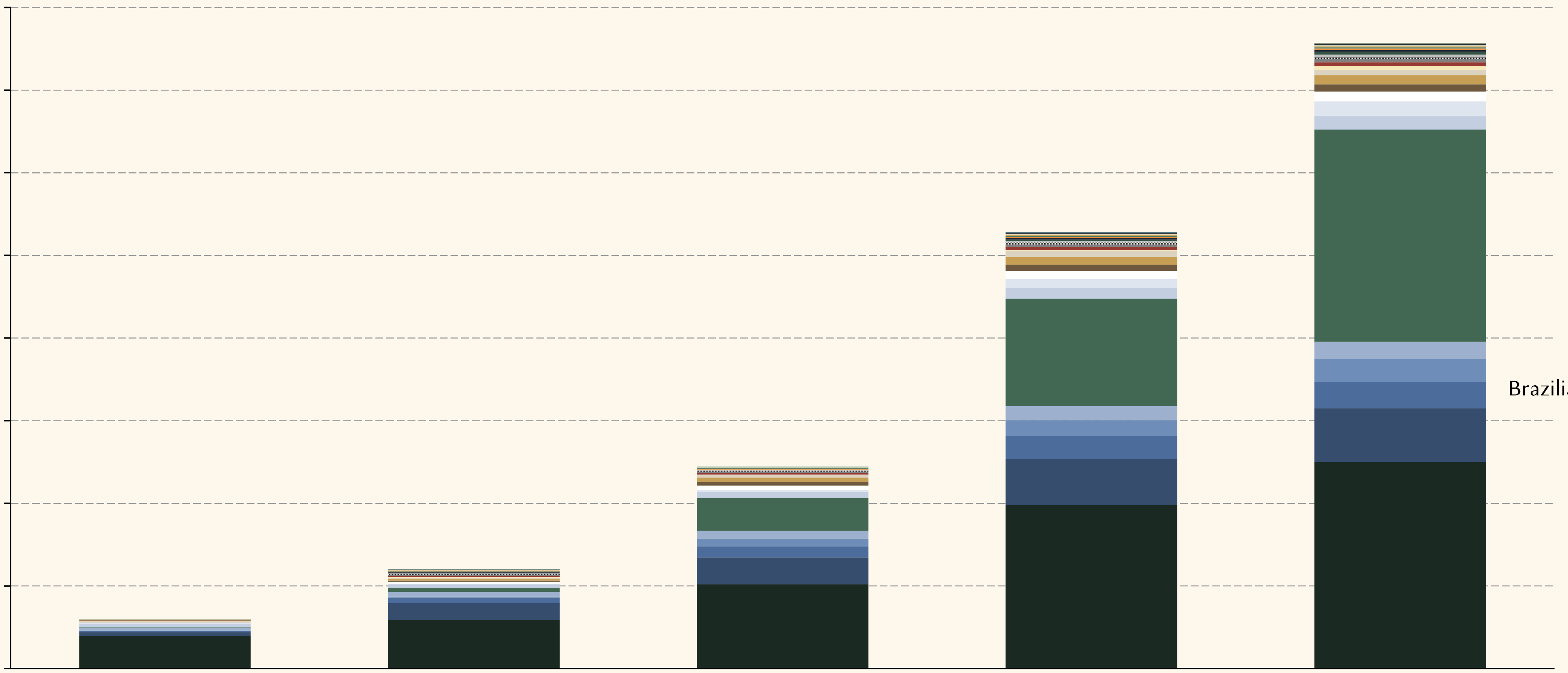
Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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

EPYLLION

Steam Monthly Active Users By Client Language[1]

(Worldwide; Based on Trailing 90 Days)

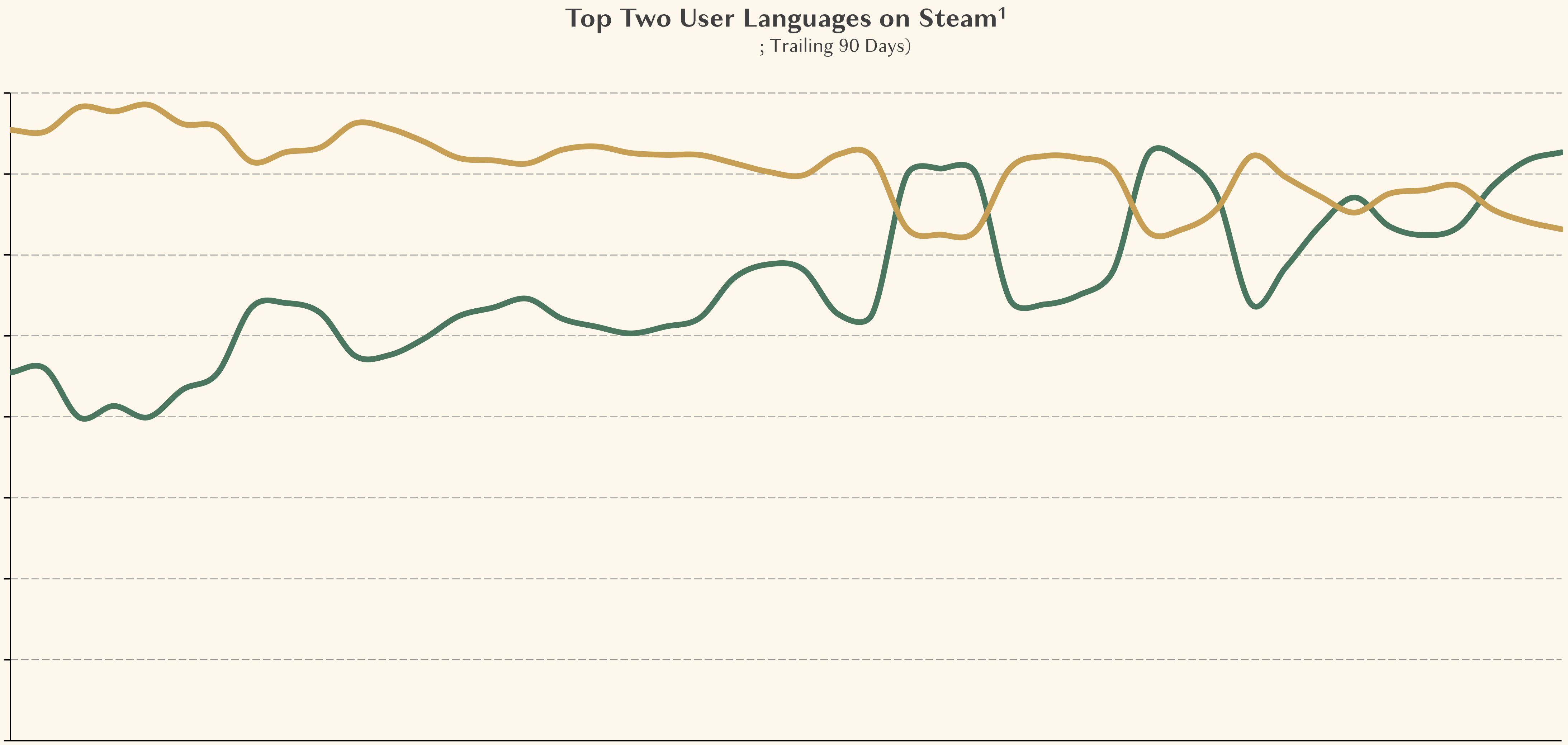


[1]Valve's hardware survey collects data based on the language the user has set their Steam client to, rather than the user's fi or preferred language. As such, it's likely that, as an example, many Chinese users choose to use Steam in English, thereby exaggerating English's share; Includes all registered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

Sources: Valve, Epyllion analysis

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

EPYLLION



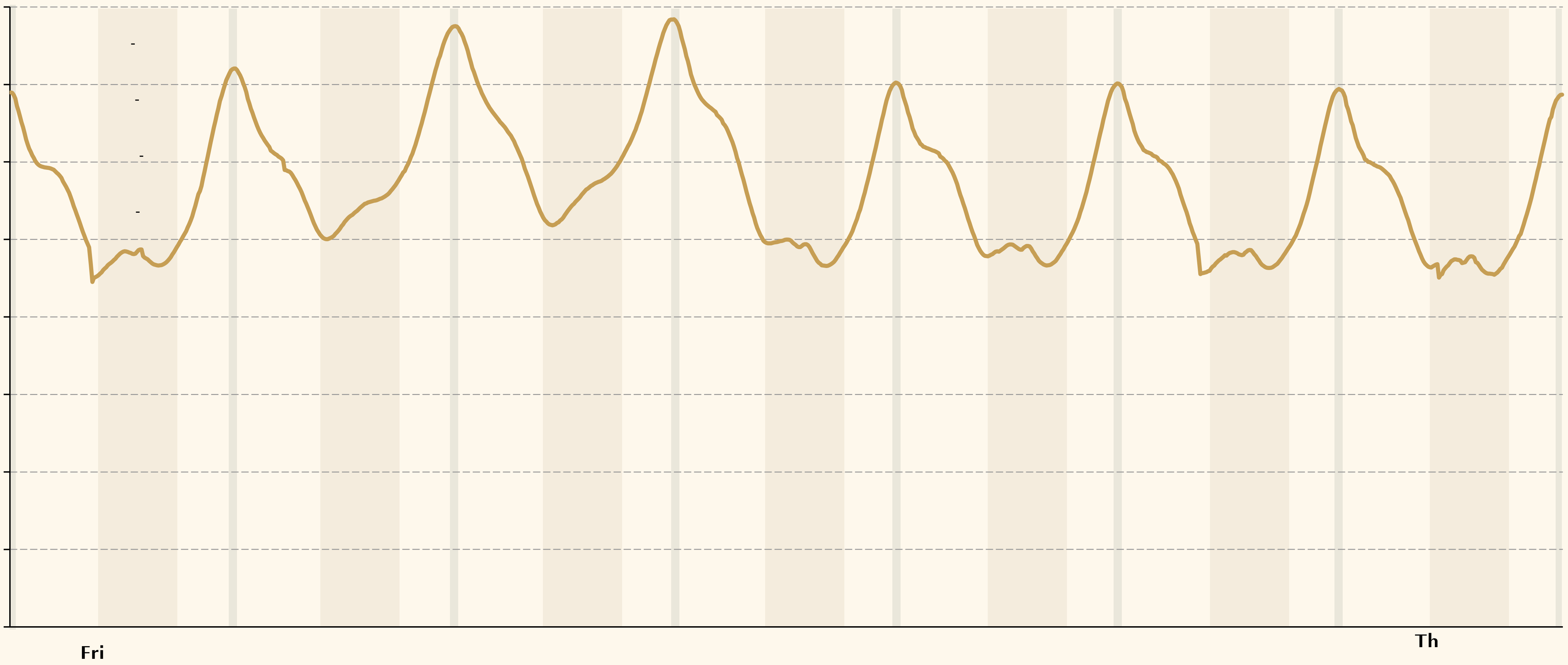
Notes: [1] Valve's hardware survey collects data based on the language the user has set their Steam client to, rather than the user's first or preferred language. As such, it's likely that, as an example, many Chinese users choose to use Steam in English, thereby exaggerating English's share; (2) Includes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

EPYLLION

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

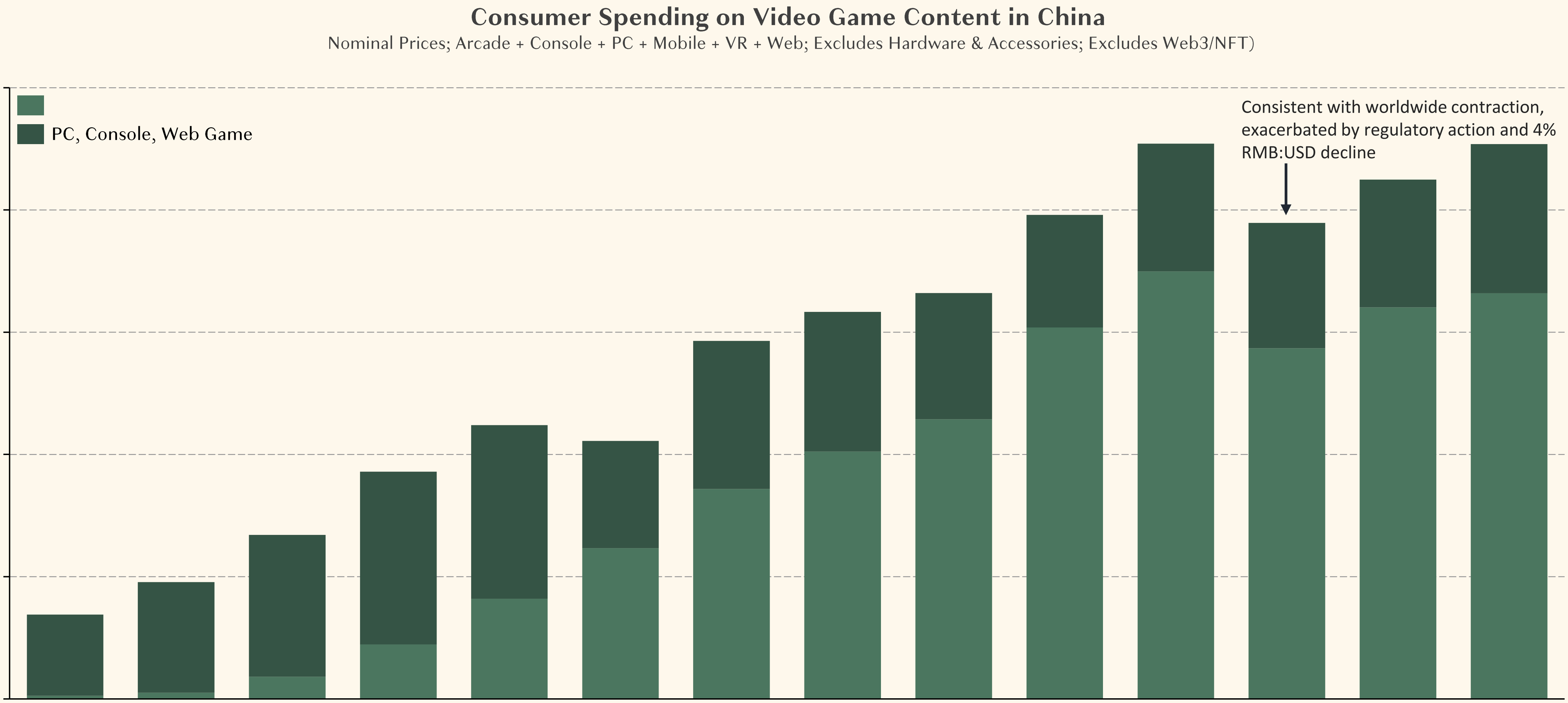
; GMT Dateline)



EPYLLION

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)

EPYLLION



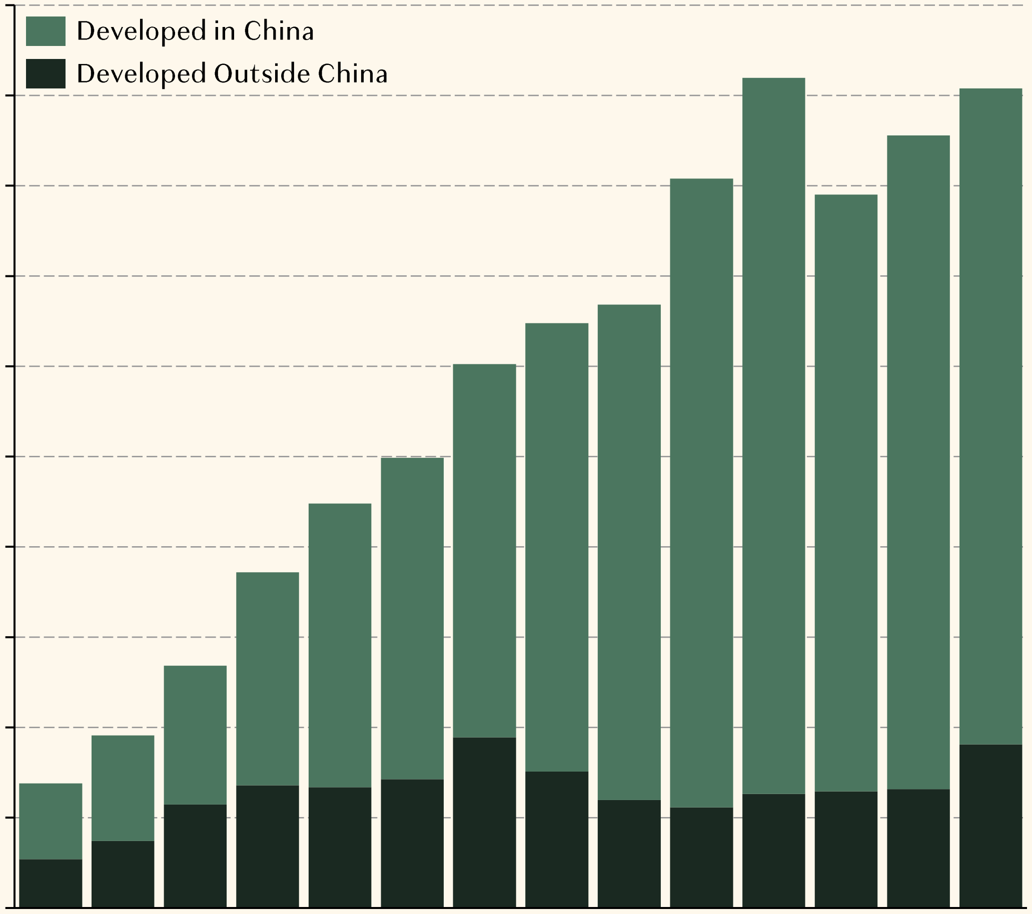
-*Video and Digital Publishing Association,* ,

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%

EPYLLION

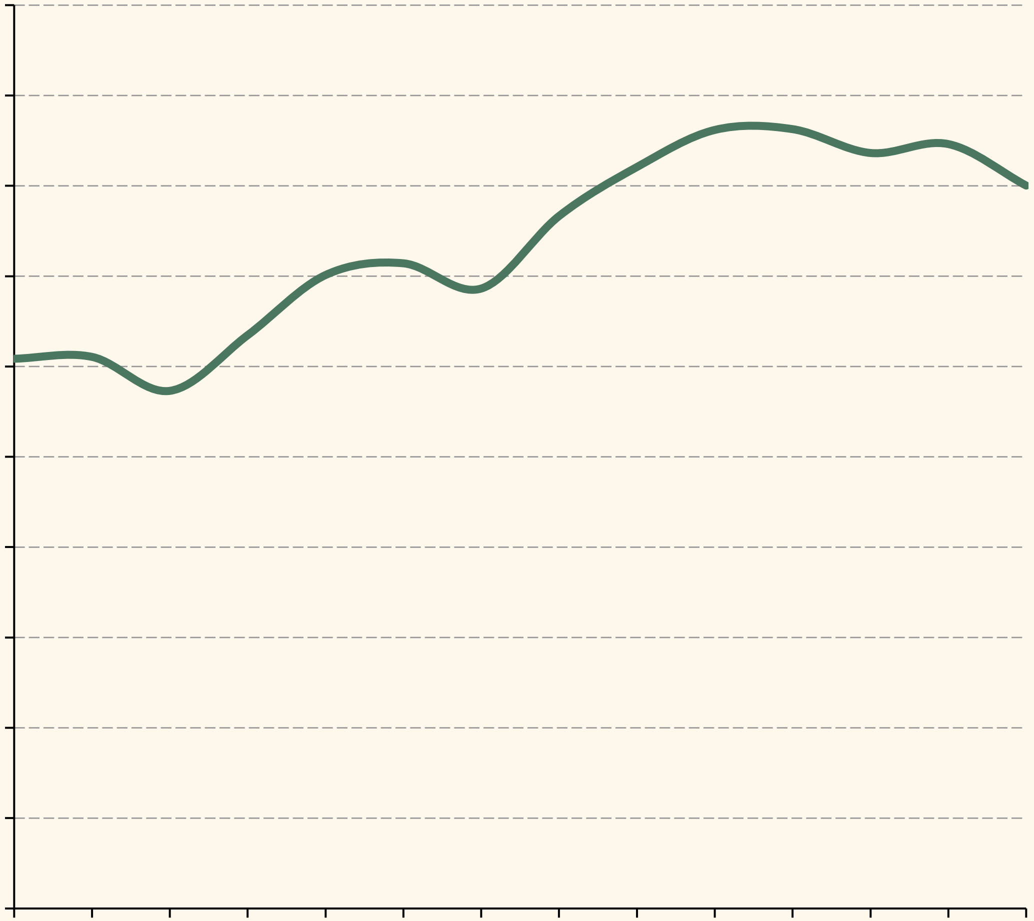
China Spend on Video Game Content by Country of Origin

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



-Made Games' Share of China Video Game Content Spend

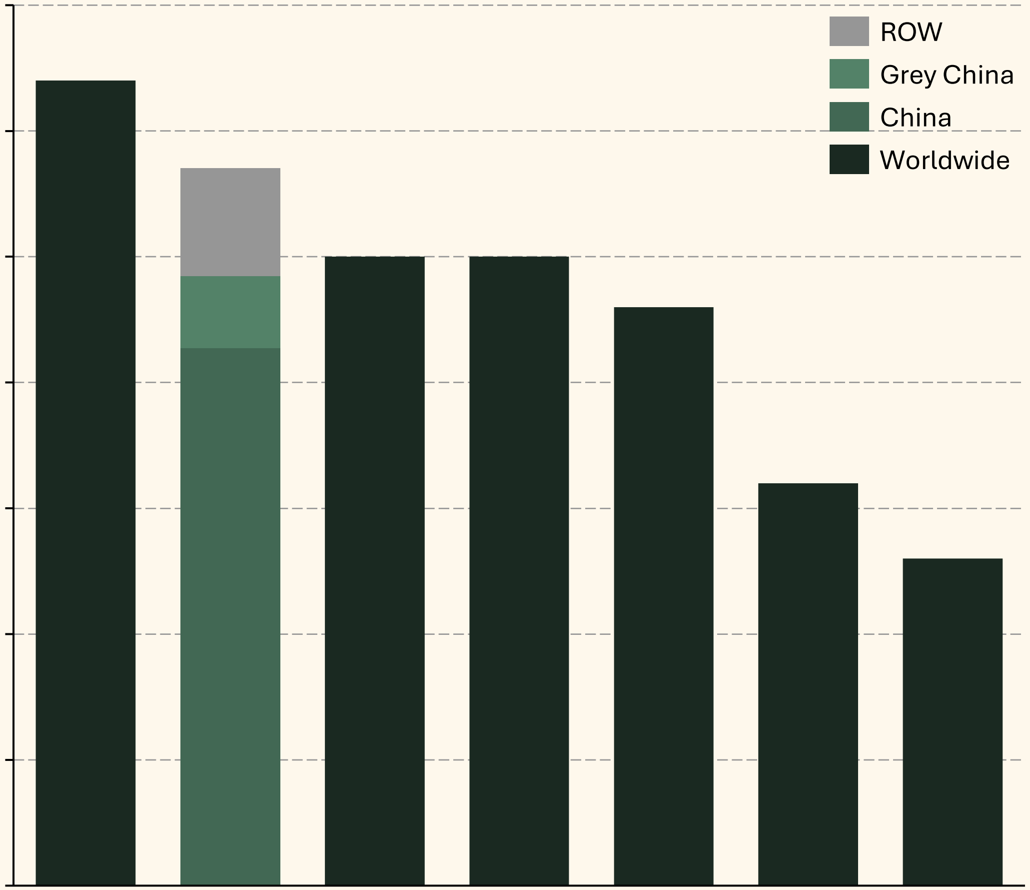
(Console + PC + Mobile + VR + Web; Excludes Hardware, Excludes Web3/NFT)



-Video and Digital Publishing Association, Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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

EPYLLION



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

THE GAME AWARDS
- **Winner: Best Action Game**
- **Winner: Game of the Year**

GOLDEN JOYSTICK AWARDS
- **Winner: Game of the Year**
- **Winner: Best Visual Design**

PlayStation Partner Awards 2024 SPECIAL AWARD
- **Winner: Grand Award**
- **Winner: Best Visual Design**

- Nominee: Game of the Year
- Nominee: Best Direction
- Nominee: Best Art Direction

STEAM AWARDS
- **Winner: Game of the Year**
- **Winner: Best Game You Suck At**
- **Winner: Best Story-**

DICE 28th ANNUAL AWARDS
- [1]
- [1]: Action Game of the Year
- [1]: Outstanding Art Direction

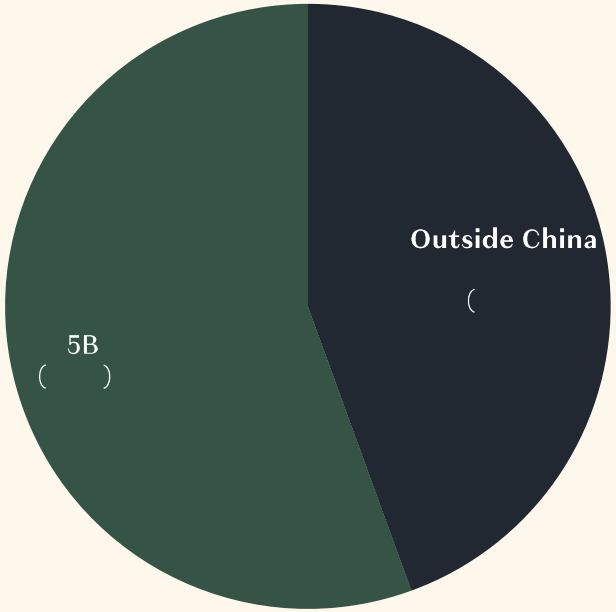
[1]Award still outstanding as of January 18, 2024

, Sony, Nintendo, FromSoftware,

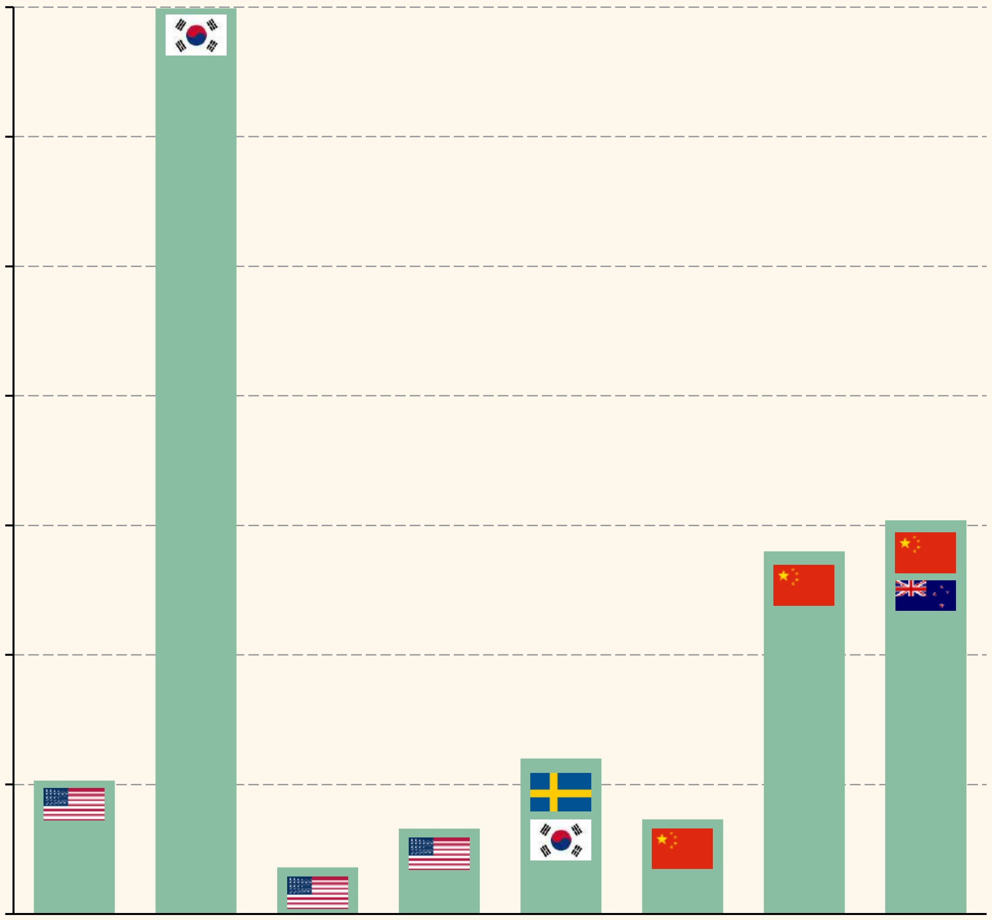
China's exports are soaring, too. *Genshin* is one of few titles to gross over $9B — almost half was *outside* China; *Marvel Rivals* is one of the biggest releases in years

EPYLLION

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)



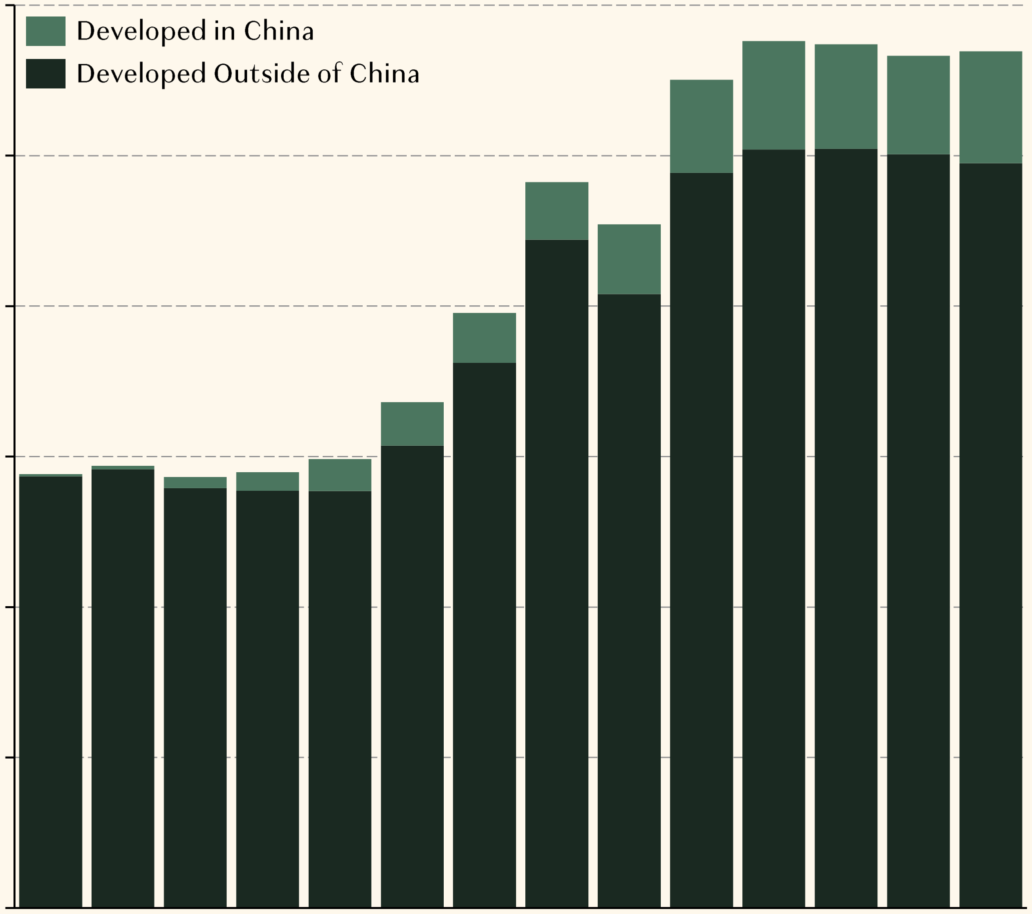
Niko Partners, Steam Charts, Epyllion analysis

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

EPYLLION

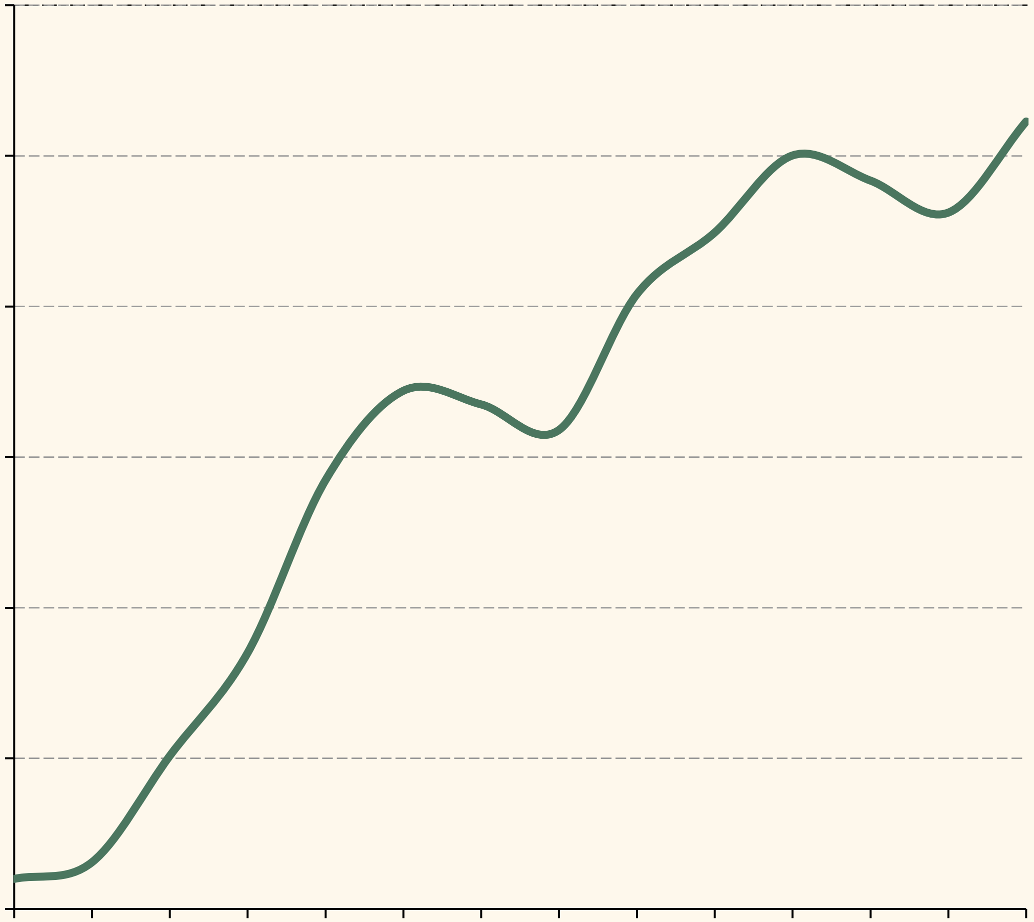
Total Video Game Content Spending Outside of China

(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)



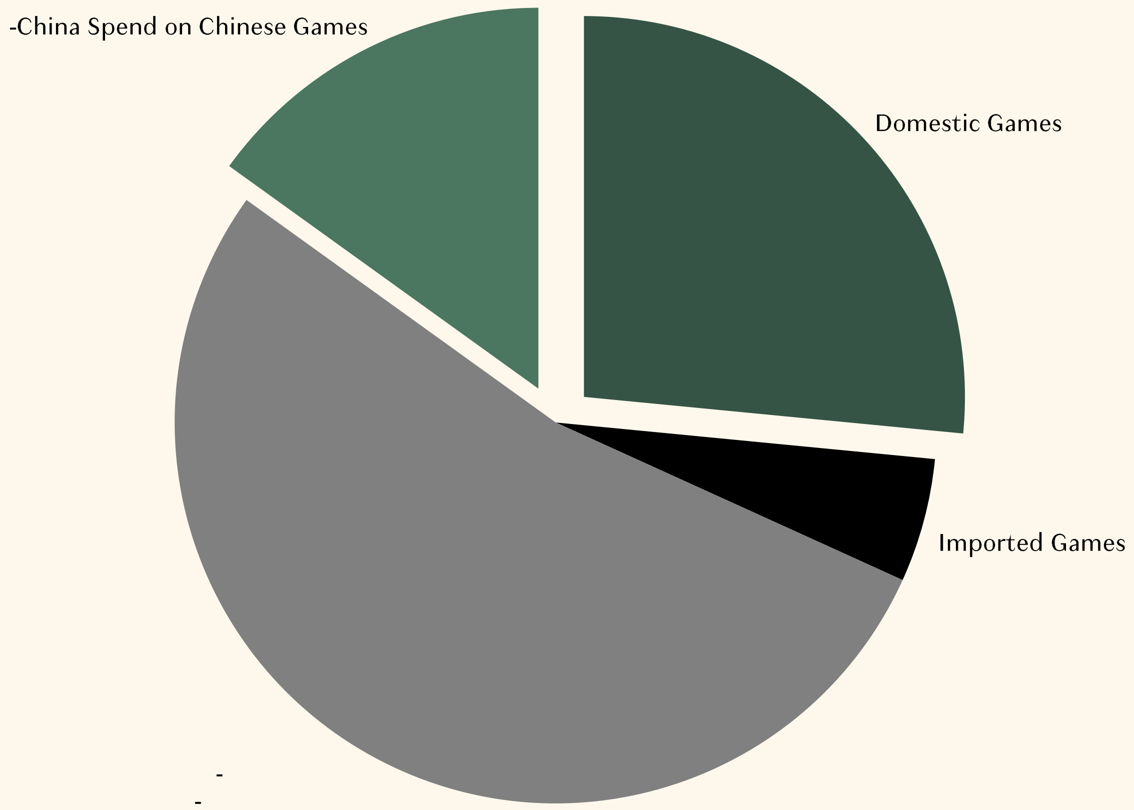
-Video and Digital Publishing Association, Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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)

EPYLLION

Worldwide Consumer Spending on Video Game Content

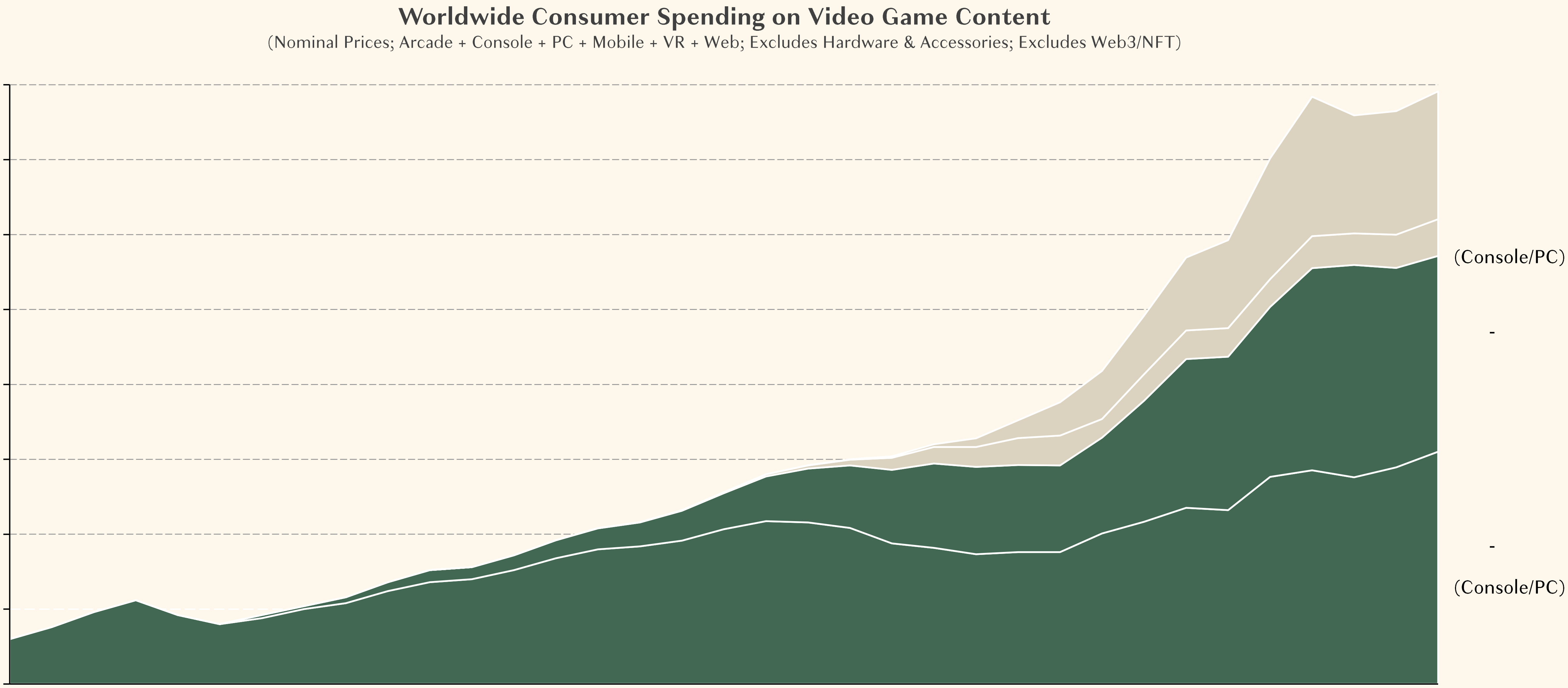
(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)



-Video and Digital Publishing Association, Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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)

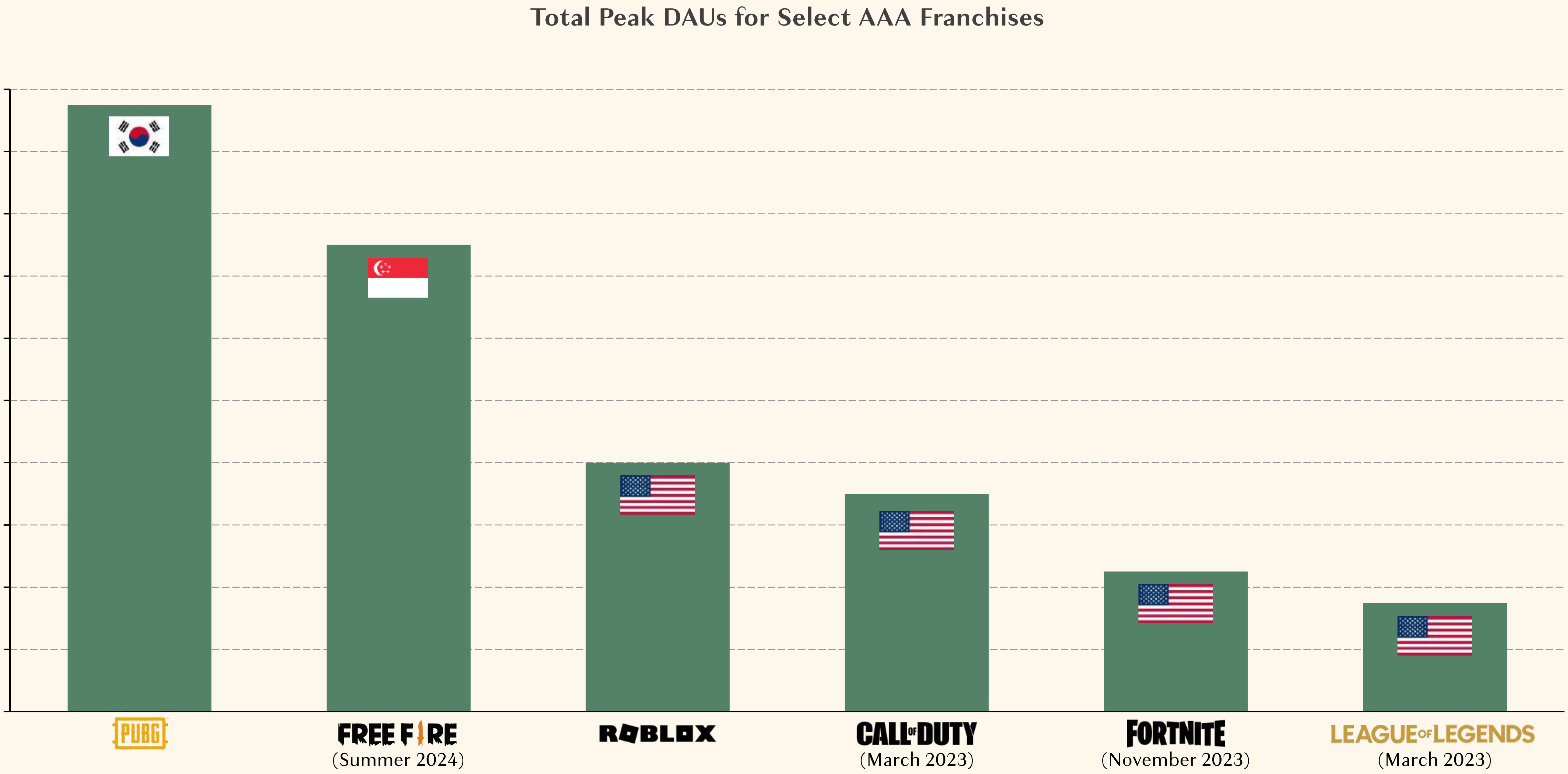
EPYLLION



-Video and Digital Publishing Association, Pelham Smithers / Bloomberg, IDG, , Meta, IDC, Epyllion analysis

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

EPYLLION

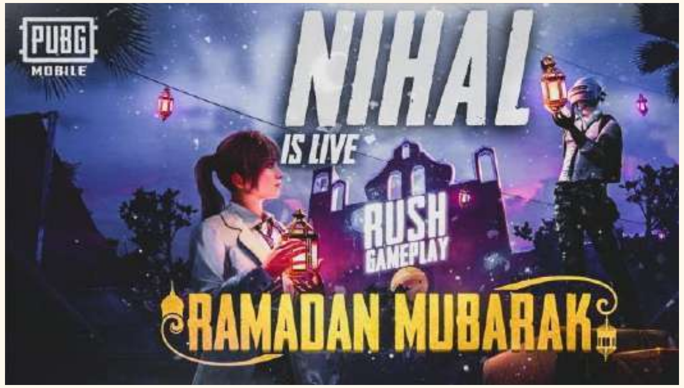


, Roblox, Activision, Epic Games, Epyllion analysis

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

EPYLLION

Fortnite Battle Royale Events	PUBG Battle Royale Events	Free Fire Battle Royale Events

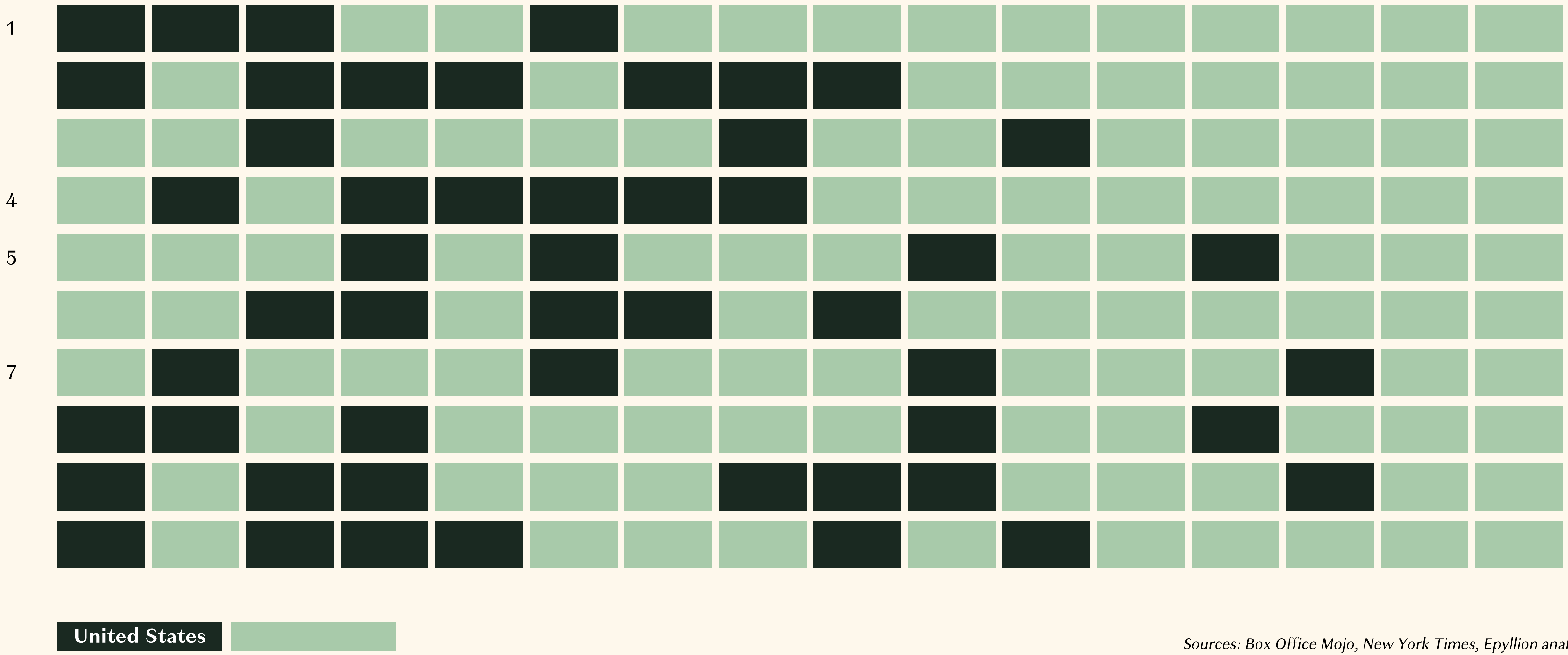


Sources: Epic Games, ,

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

EPYLLION

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



Sources: Box Office Mojo, New York Times, Epyllion analysis

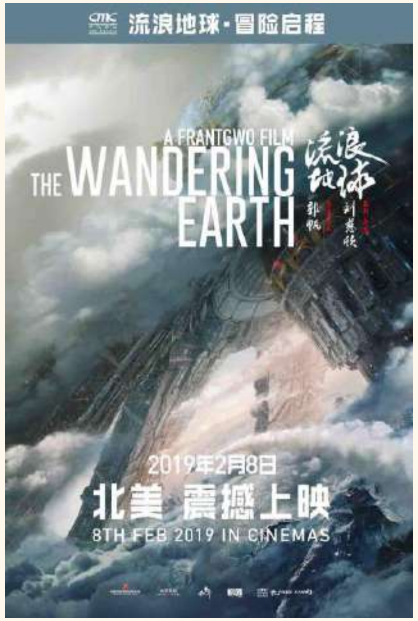
The films that now top the Chinese box office are not just “made in China” — they are fundamentally *of China* and *for Chinese* audiences

EPYLLION

Wolf Warrior II
(2017, $875MM)

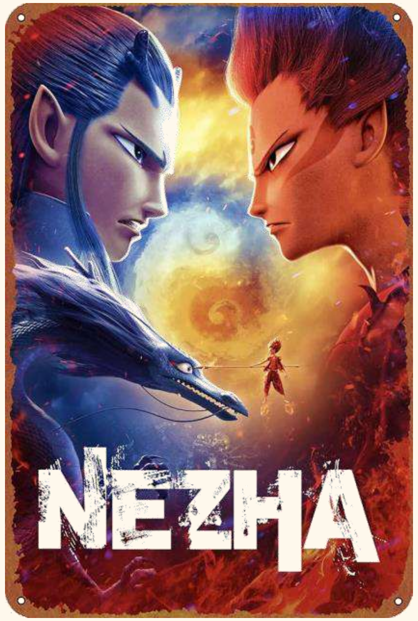
- action film in which the muscled and jaded Chinese hero rescues Africa from American imperialism and bioterror. The bad guy is played by New York–born Frank Grillo (previously an evil mercenary in Captain America) and is scolded by the hero for America’s role in slave trade. The hero also announces 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 scientists leading the nations of the world — the notable absence of the U.S. — , 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)



-oriented film that resembles animated Disney hits, particularly , focuses on 16th-century Chinese folklore about a mischievous but misunderstood boy born from a powerful spirit pearl. is (gods and demons) genre, with humor that is decidedly non-

Source: Epyllion analysis

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

EPYLLION

A Tribe Called Judah
(2023, 1.2x Avengers: Endgame)

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 meddling families, uninvited exes, and unexpected drama.

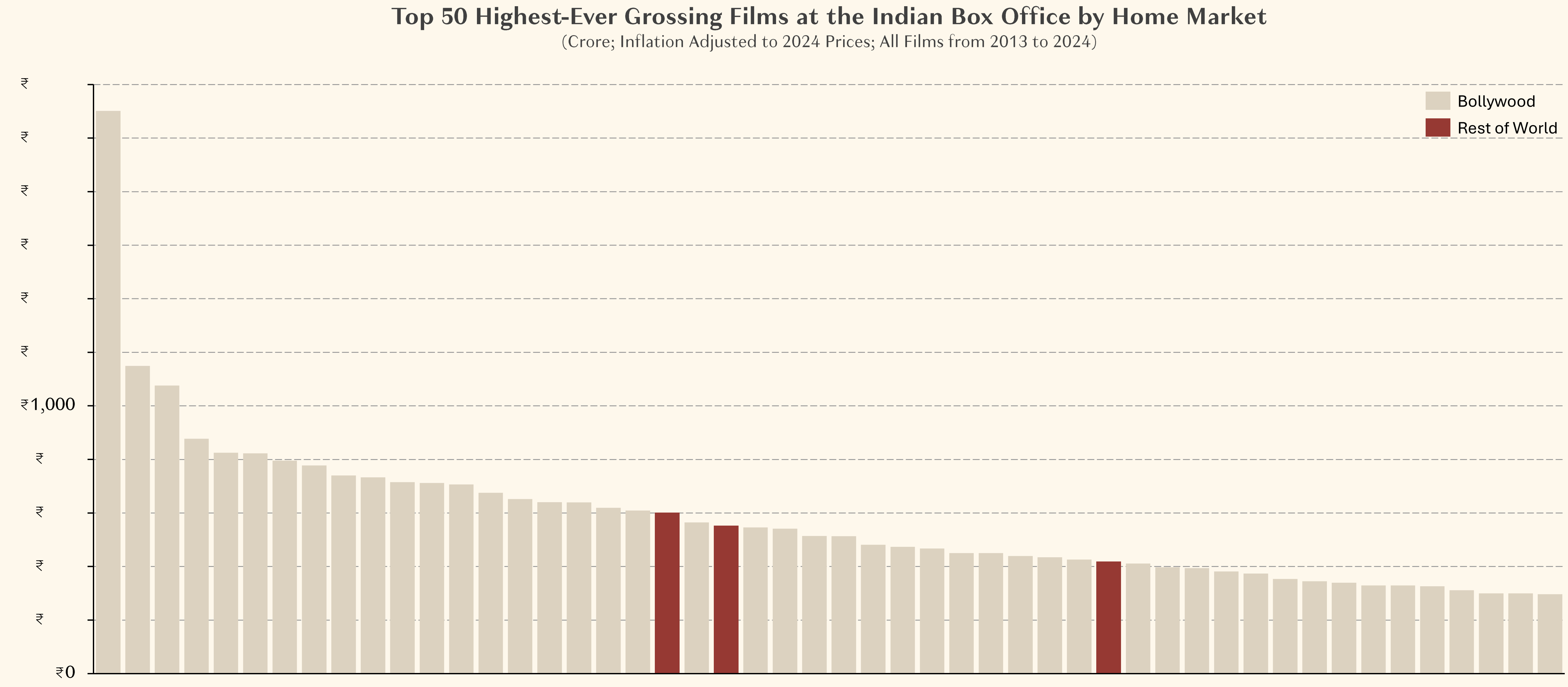
Omo Ghetto 2: The Saga
(2019, 1.1x Avengers: Endgame)

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-law enforcement and rival gangs, while forcing her to confront her complex identity and loyalties.

Source: Epyllion analysis

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

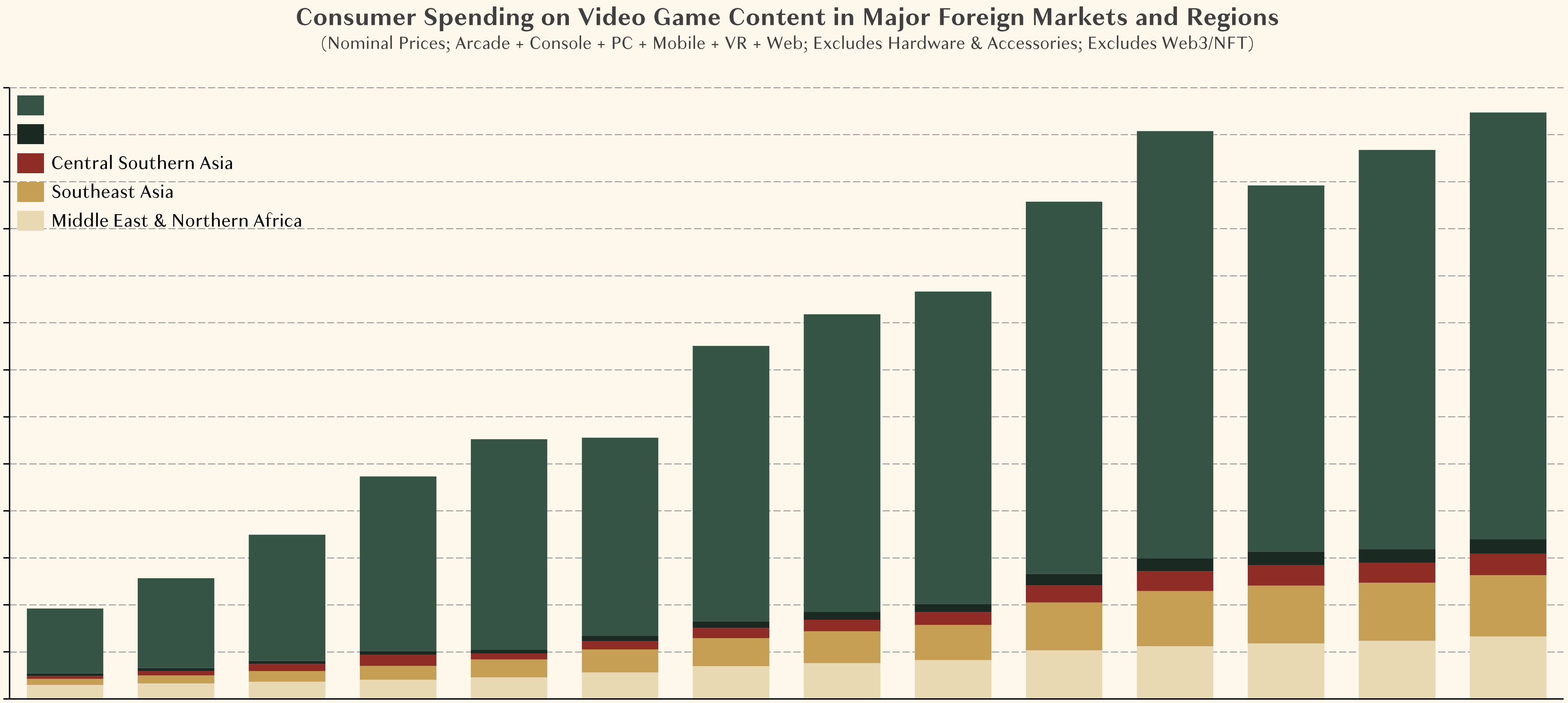
EPYLLION



Sources: World Bank, Wikipedia

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

EPYLLION



-Video and Digital Publishing Association, Niko Partners, Research & Markets,

EPYLLION

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)

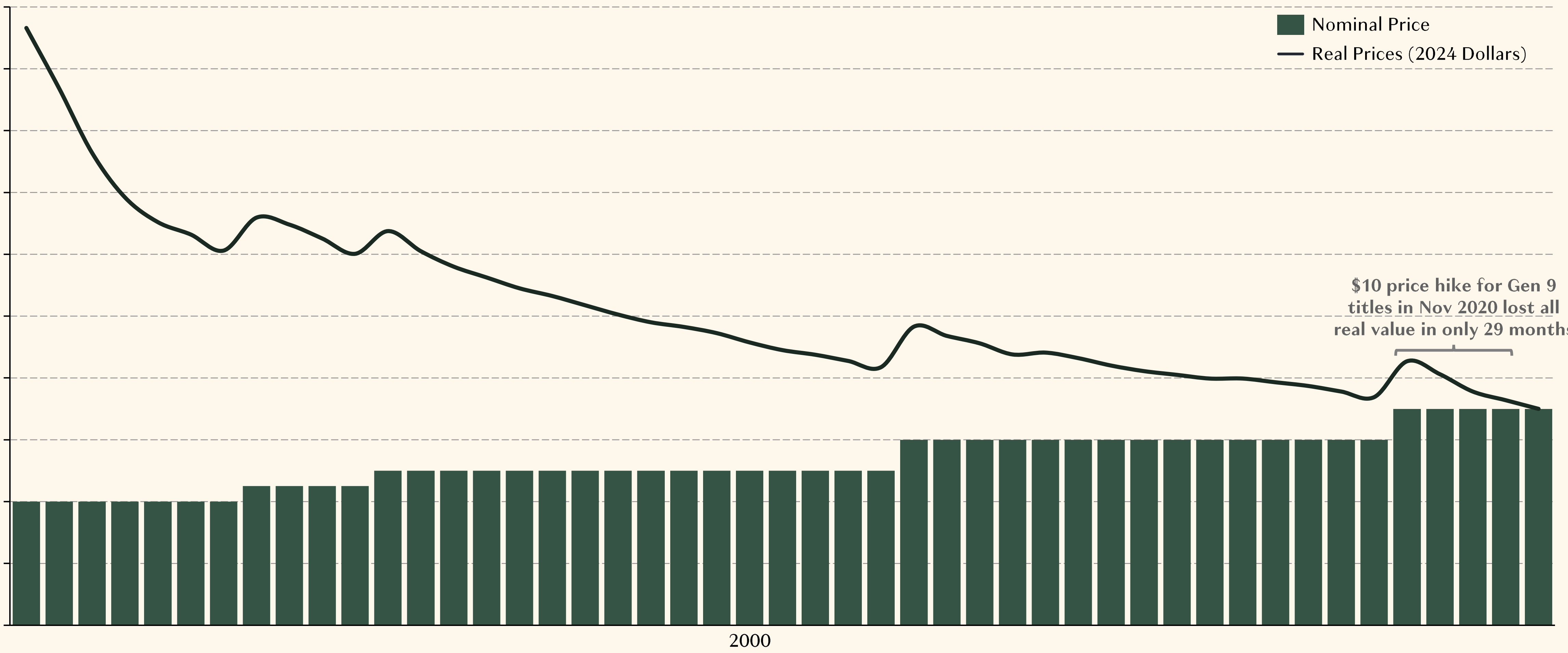
The Hostility of the Modern Console/PC Content Marketplace

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

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

EPYLLION

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



Sources: *Wikipedia, Bureau of Labor Statistics*

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

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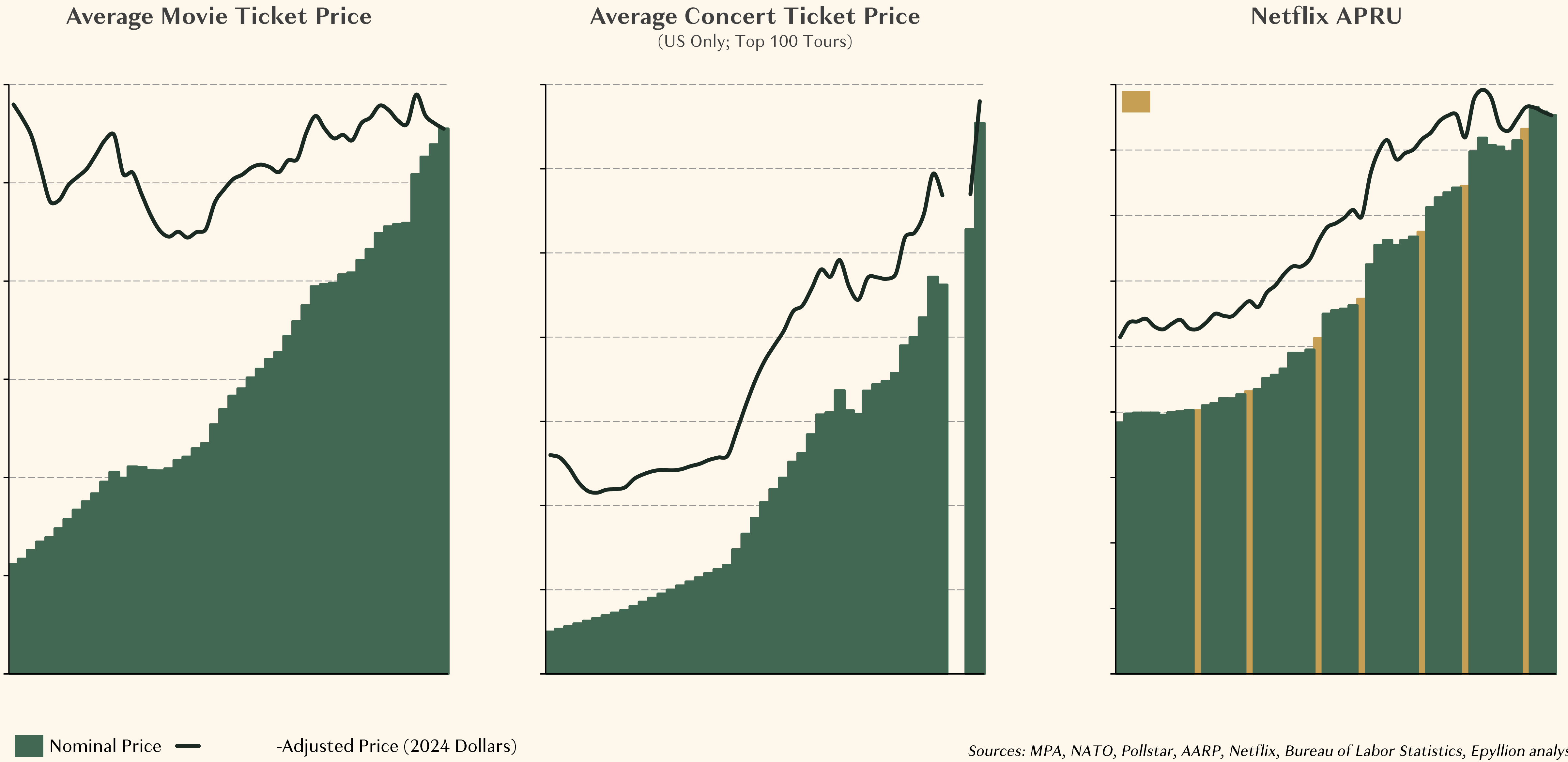


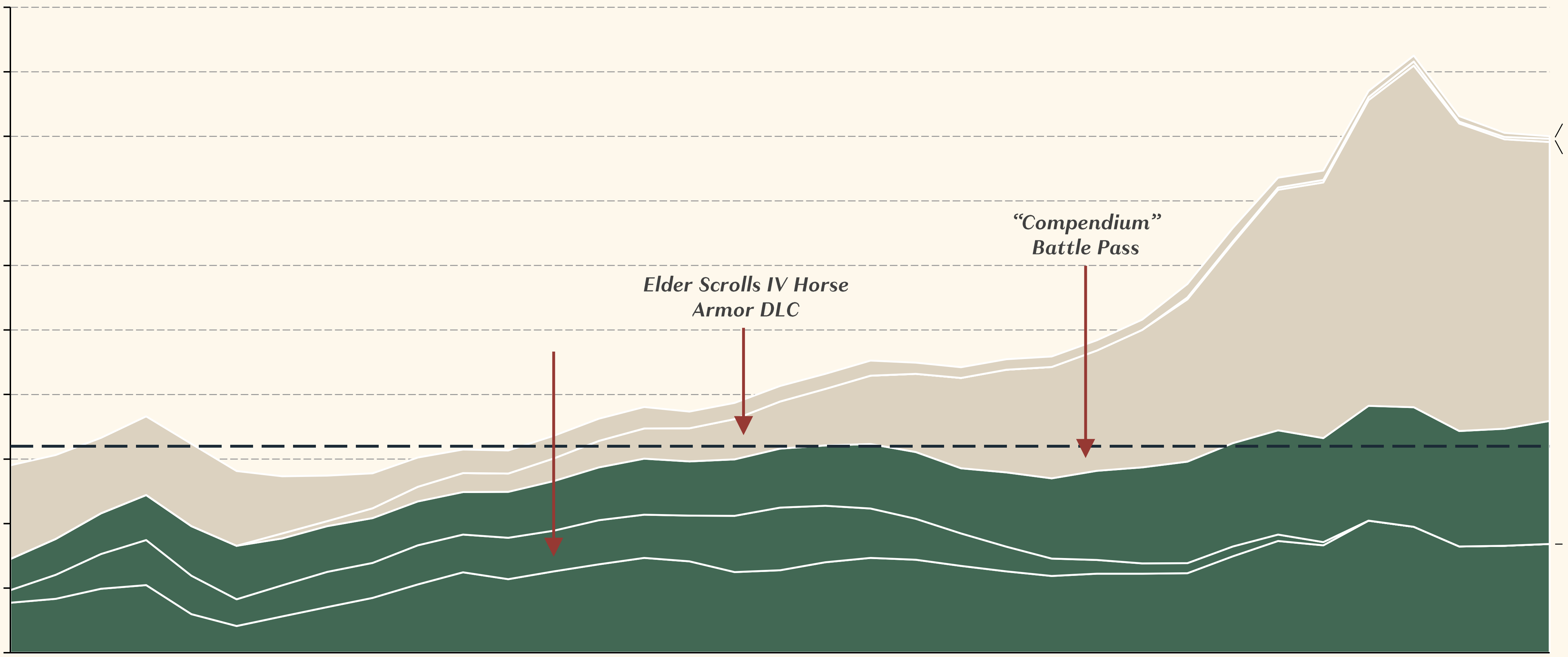
Sources: MPA, NATO, Pollstar, AARP, Netflix, Bureau of Labor Statistics, Epyllion analysis

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

EPYLLION

Worldwide Consumer Real Spending on Video Game Content

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



Sources: Pelham Smithers / Bloomberg, IDG, , Meta, IDC, World Bank, Epyllion analysis

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

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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: - -Play Dynamics	The most popular and profitable games globally are typically free- -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: -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 -50 (versus $60-70) to help drive sales, which again constrains the size of the market

Sources: Ultra Market / Research, NPD Group, Epyllion analysis

Worse, Console + PC is experiencing ongoing engagement decreases; even so-called "hardcore" gamers are increasingly shifting time to other forms of leisure

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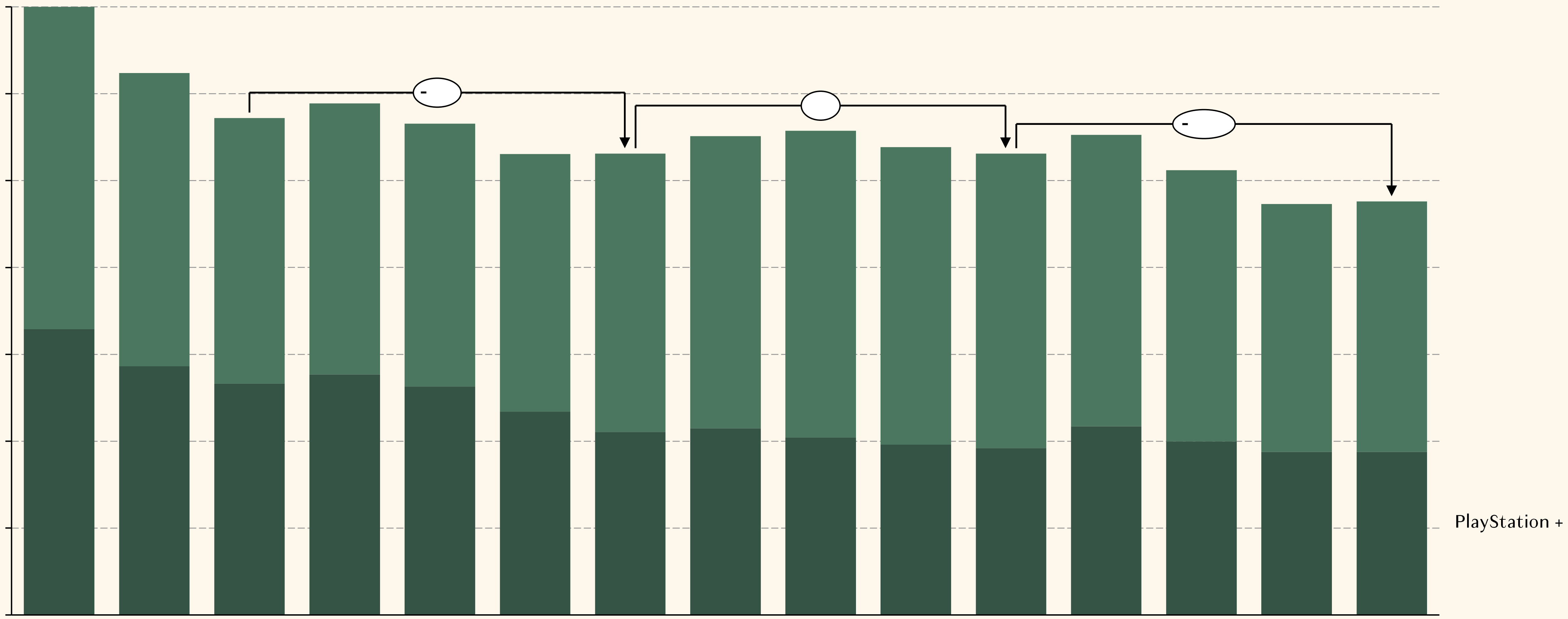
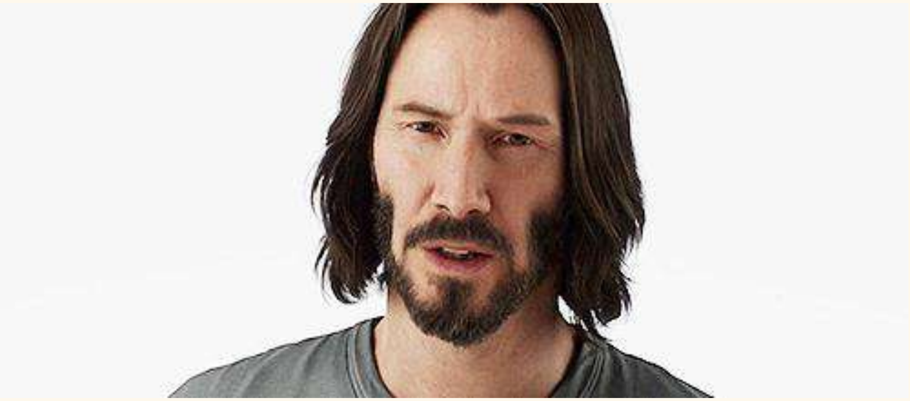
Hours Played Per Quarter Among Adult PC, PlayStation, and Xbox Users in Key Markets

(Worldwide; 37 Markets Total and Excludes India and China; Excludes Nintendo Switch)



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?

EPYLLION



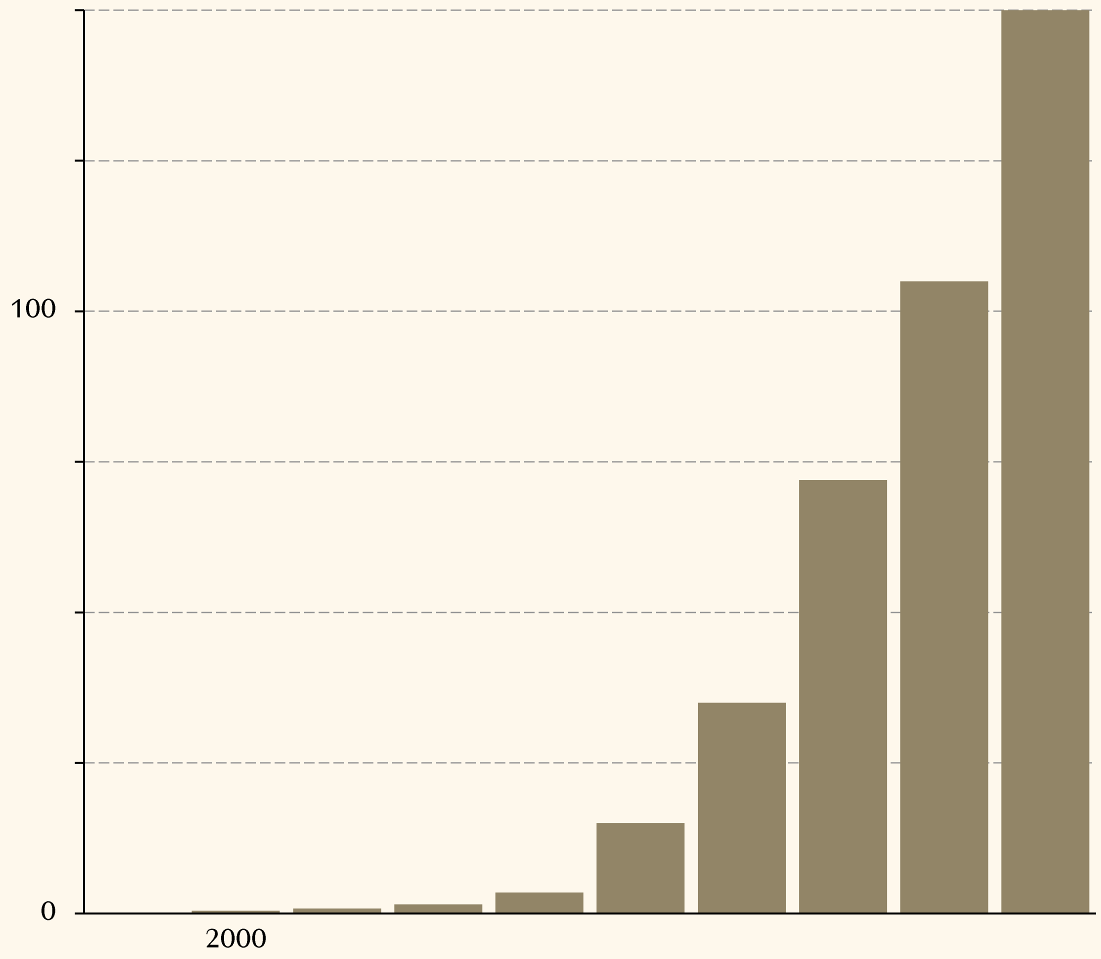
https://www.youtube.com/watch?v=WU0gvPcc3jQ or https://tinyurl.com/StateofVideoGaming2025-

Source: Epic Games

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

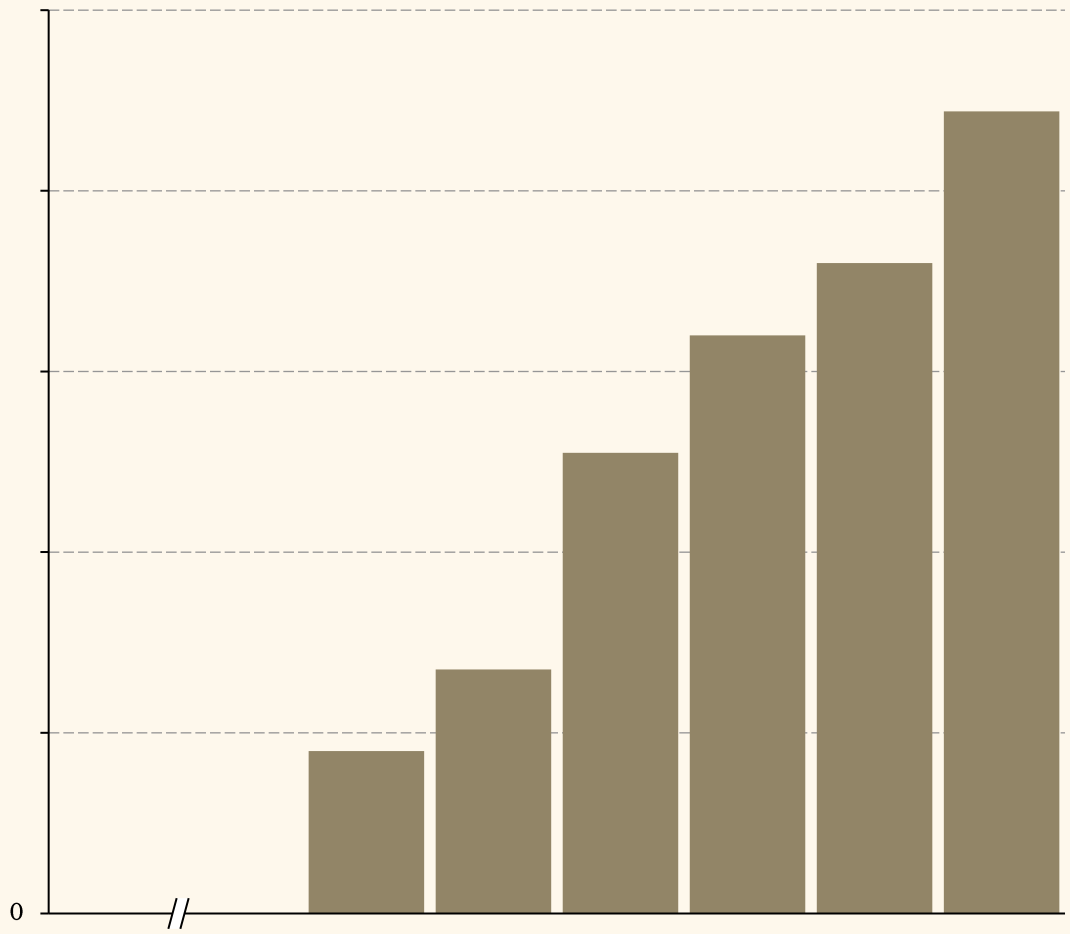
EPYLLION

Filesize per AAA Open World Action Game



Avg. Credits per AAA Open World Action Game

(Does Not Include Uncredited Staff or Support)

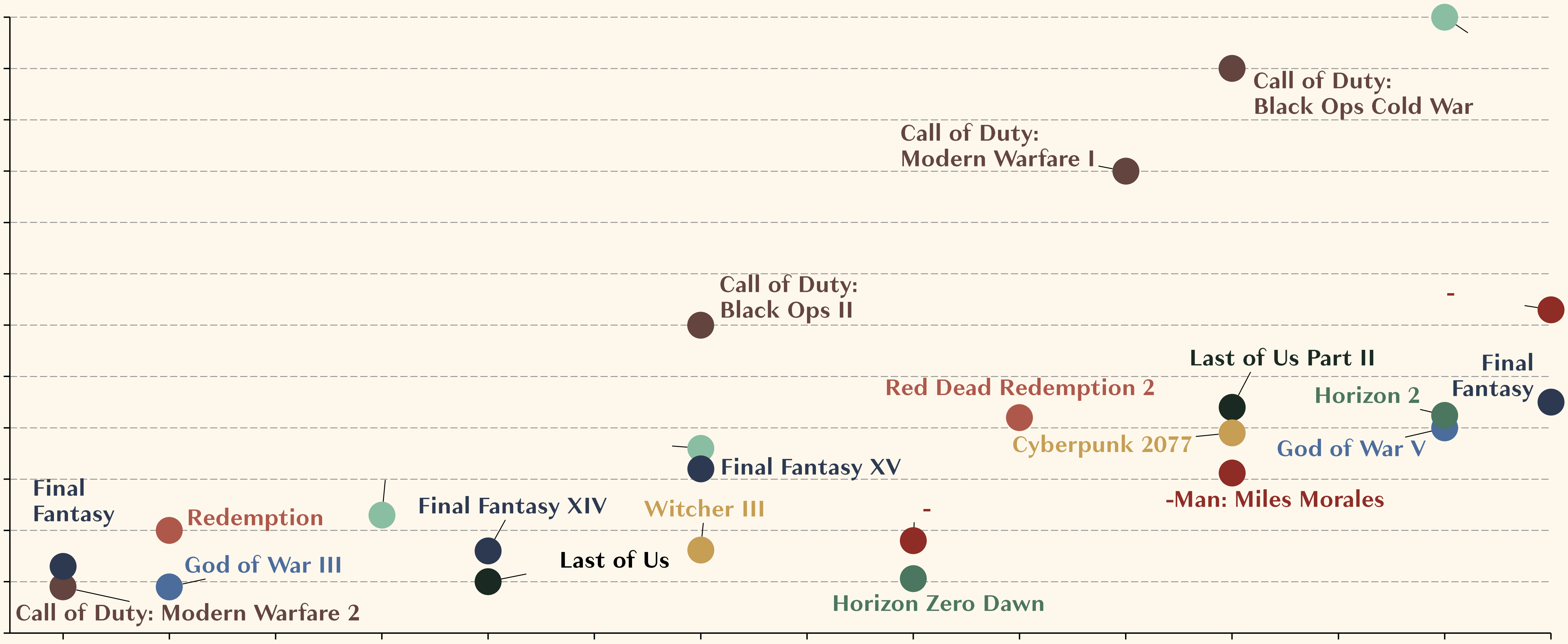


Franchises that cost $50 million per title only 15 years ago, now run $200–$500 million or more to develop — and costs are still growing

EPYLLION

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

(USD, Excludes Marketing and Publishing Costs)



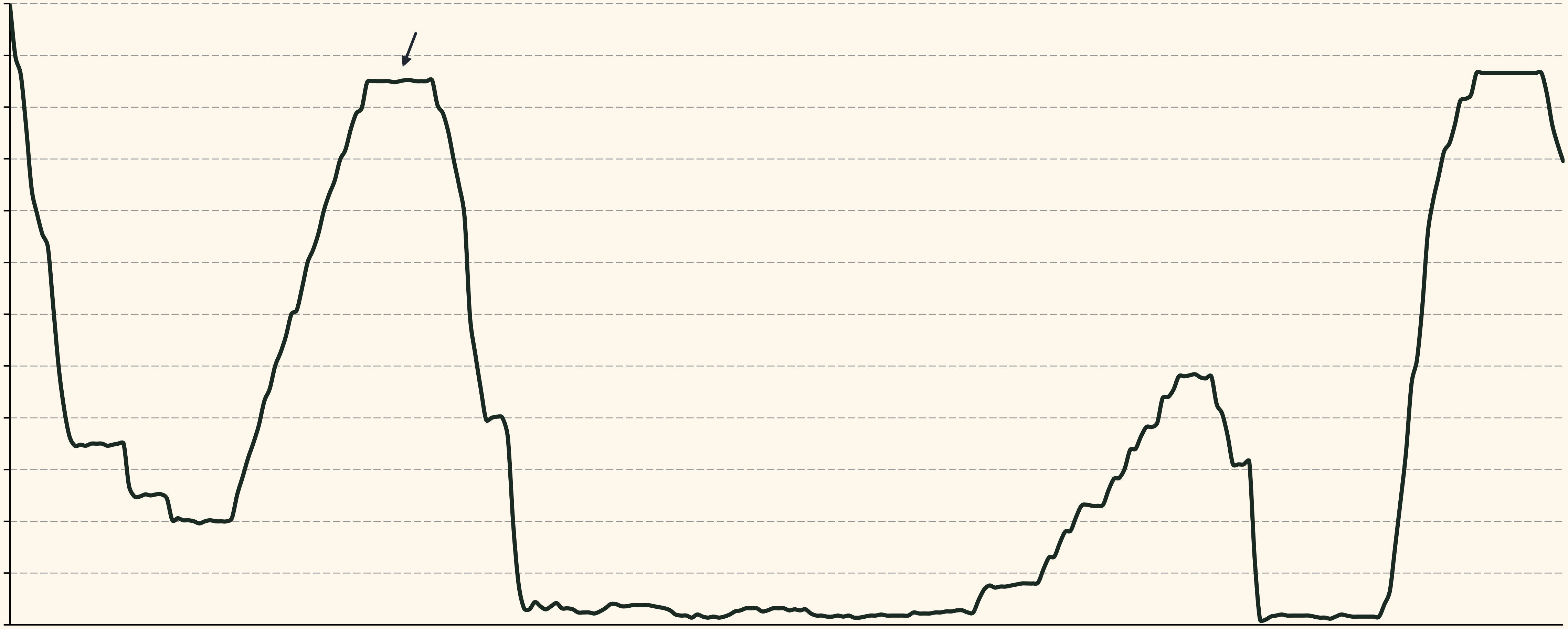
Sources: Sony, Insomniac, Wedbush, CMA / IDC, LA Times, CD Projekt, NRC, Keywords,

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%+

EPYLLION

U.S. Federal Funds Effective Rate

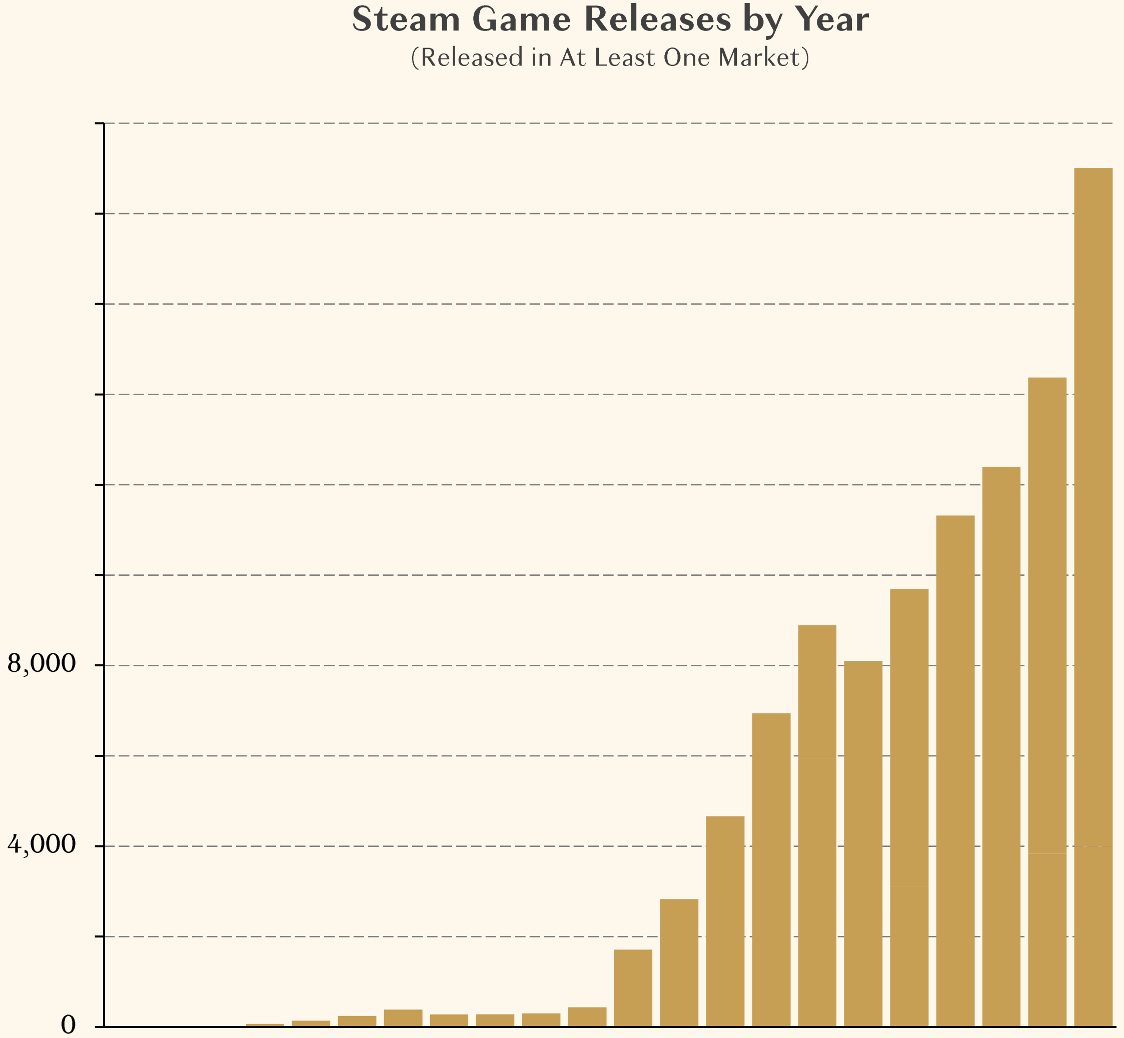
(Monthly Average)

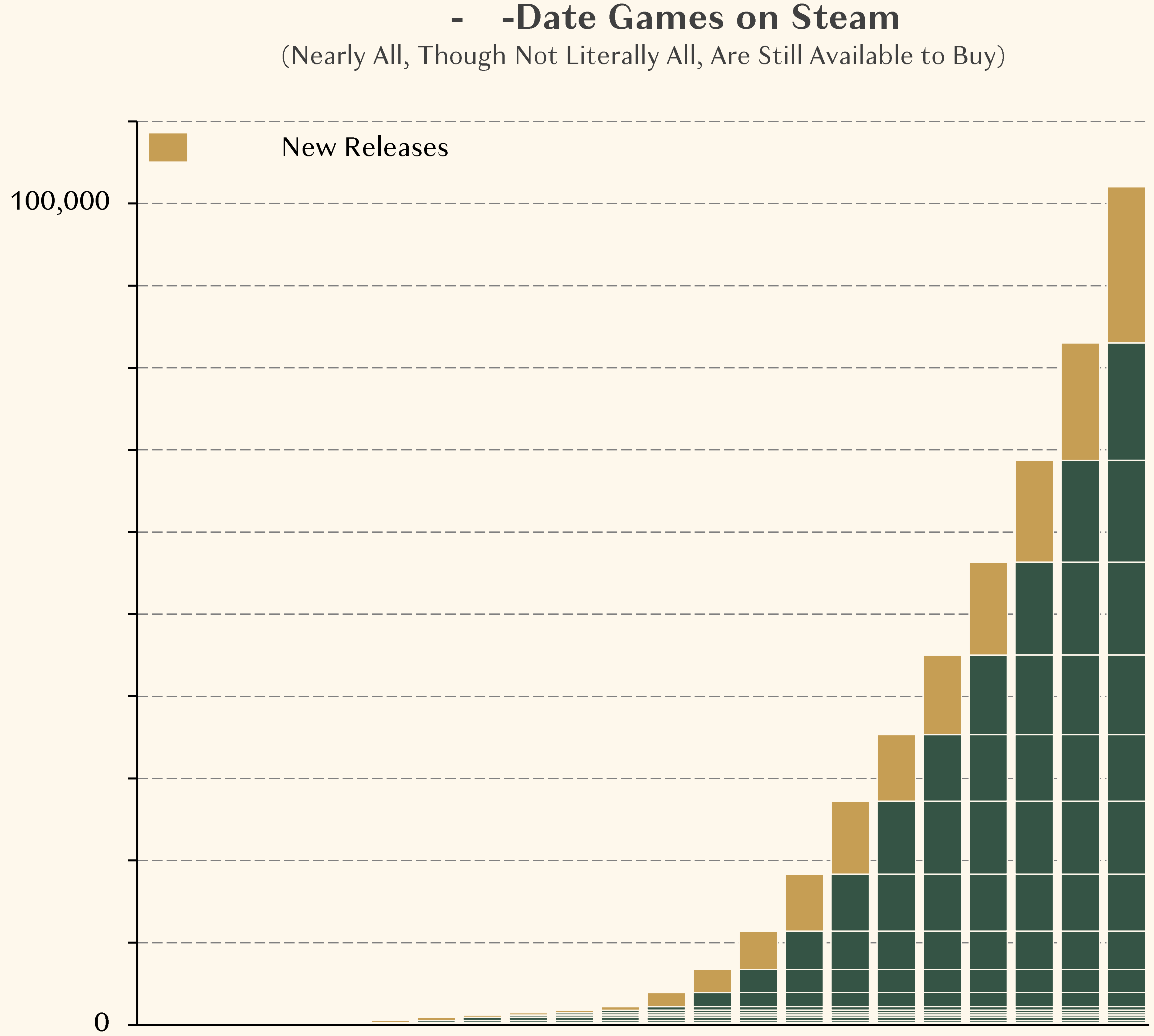


Source: Federal Reserve Board of St. Louis

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*

EPYLLION

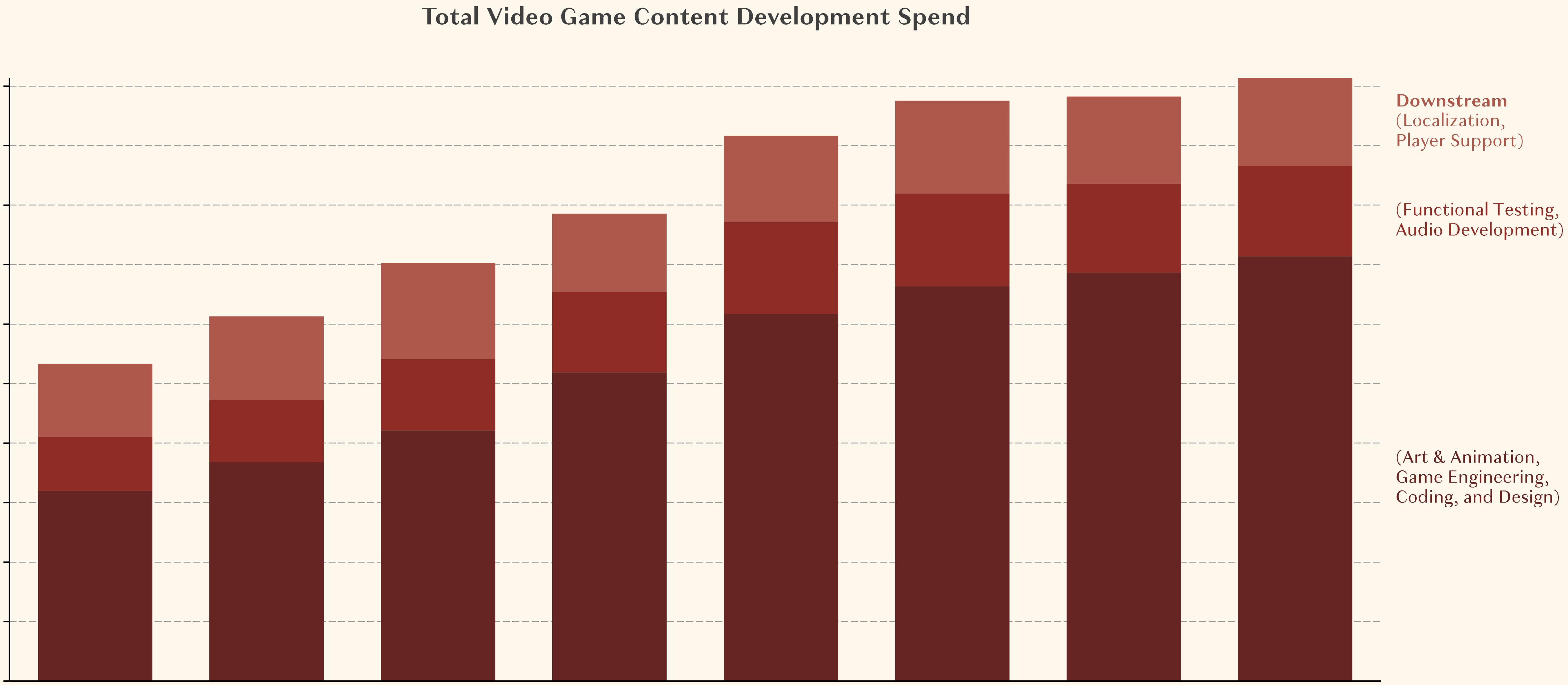




, Video Game Insights, Epyllion analysis

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)

EPYLLION



Sources: IDG Intelligence, Keywords, Epyllion analysis

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

EPYLLION

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

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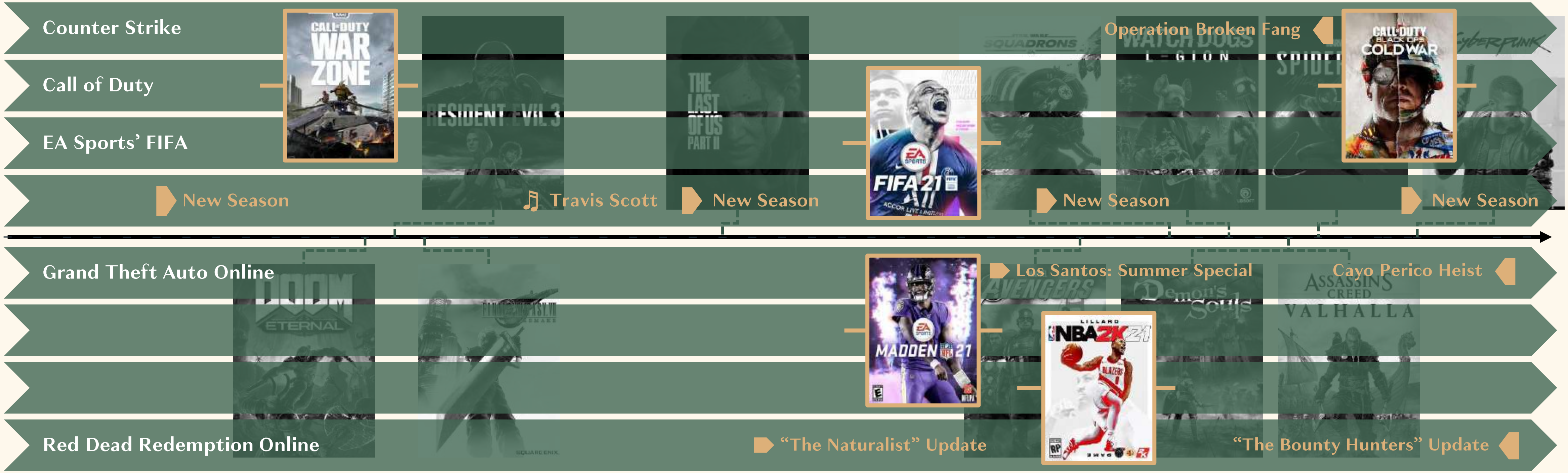
Major Packaged AAA Video Game Releases Targeting Roughly the Same Player, Including Top Annual Releases and DLC/Updates

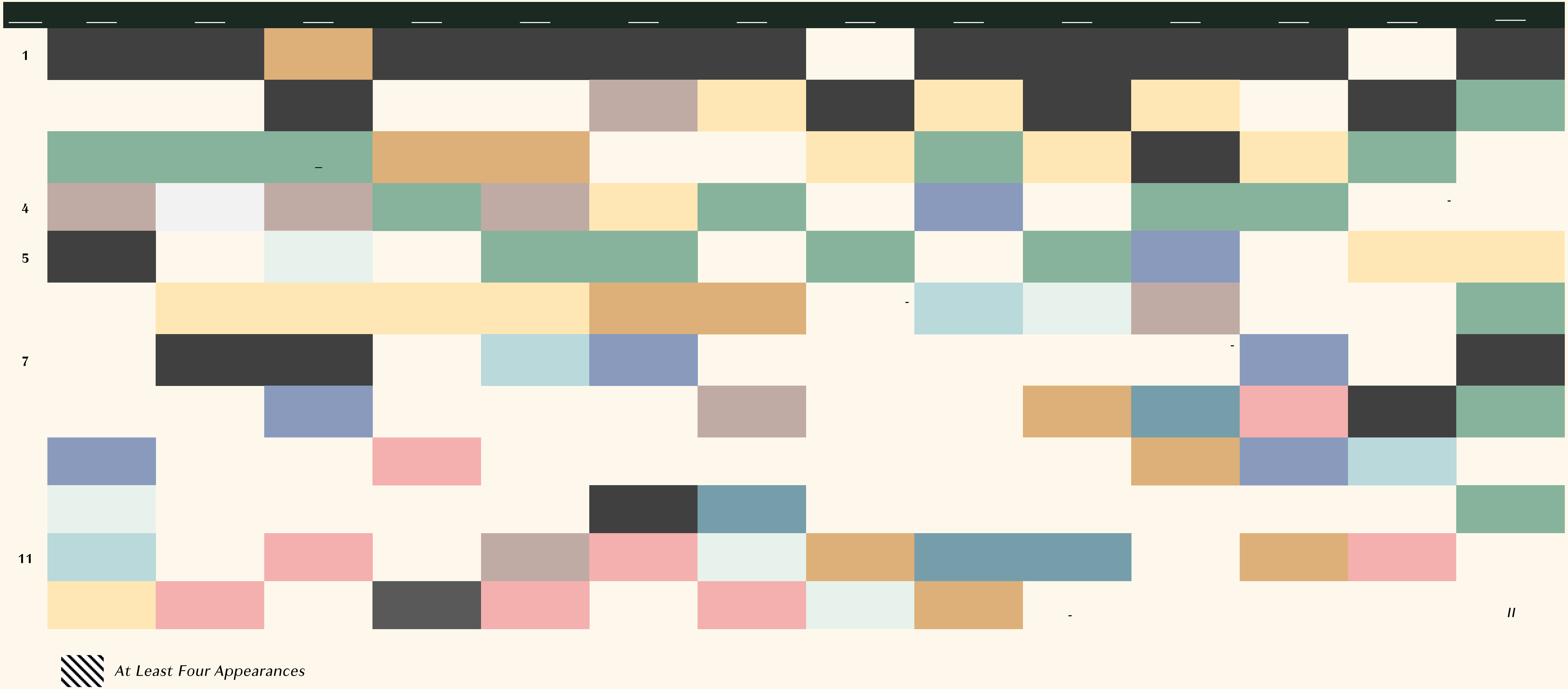


And the top games in a given year? Well, they’re almost always the top games in *any* given year

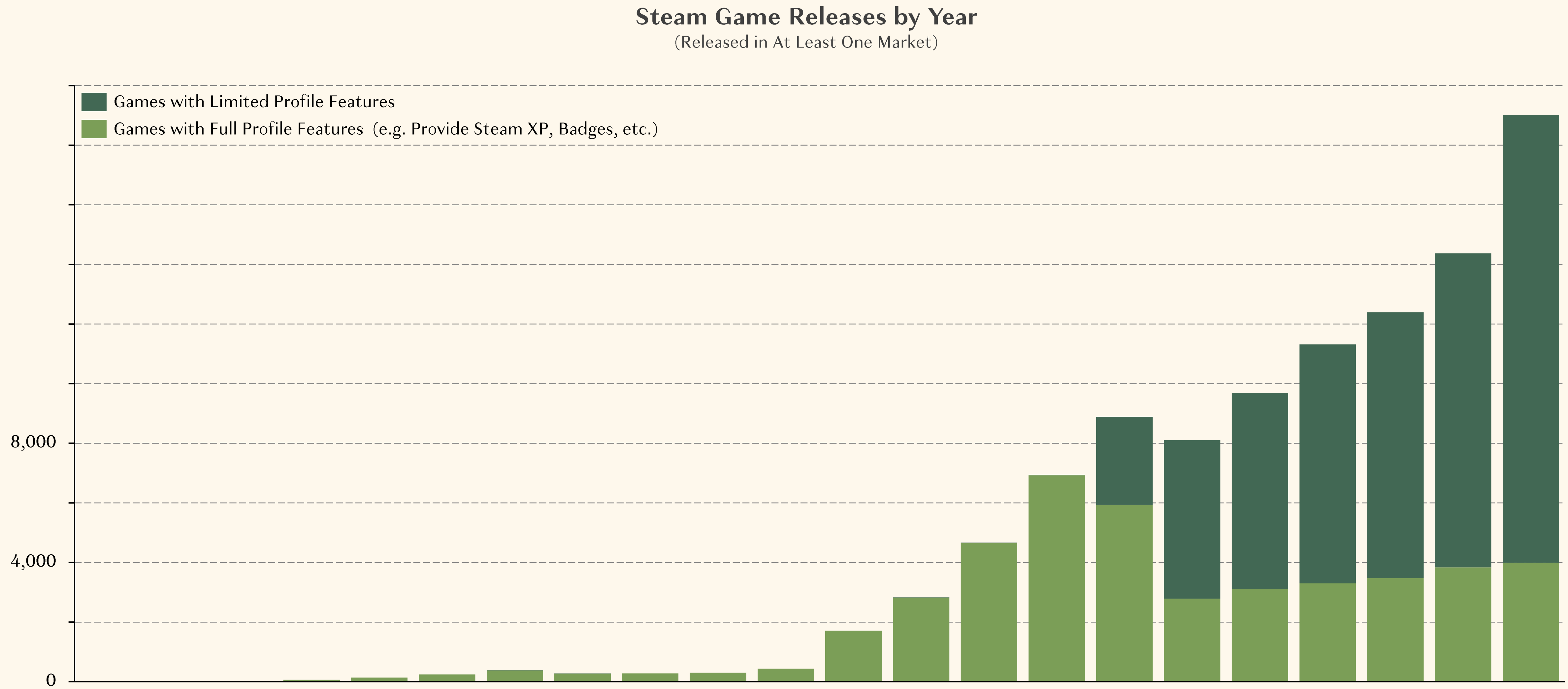
EPYLLION

-Selling Packaged Games by Year by Packaged Sale Revenues

(US Only; Excludes Revenues From DLC and Microtransactions



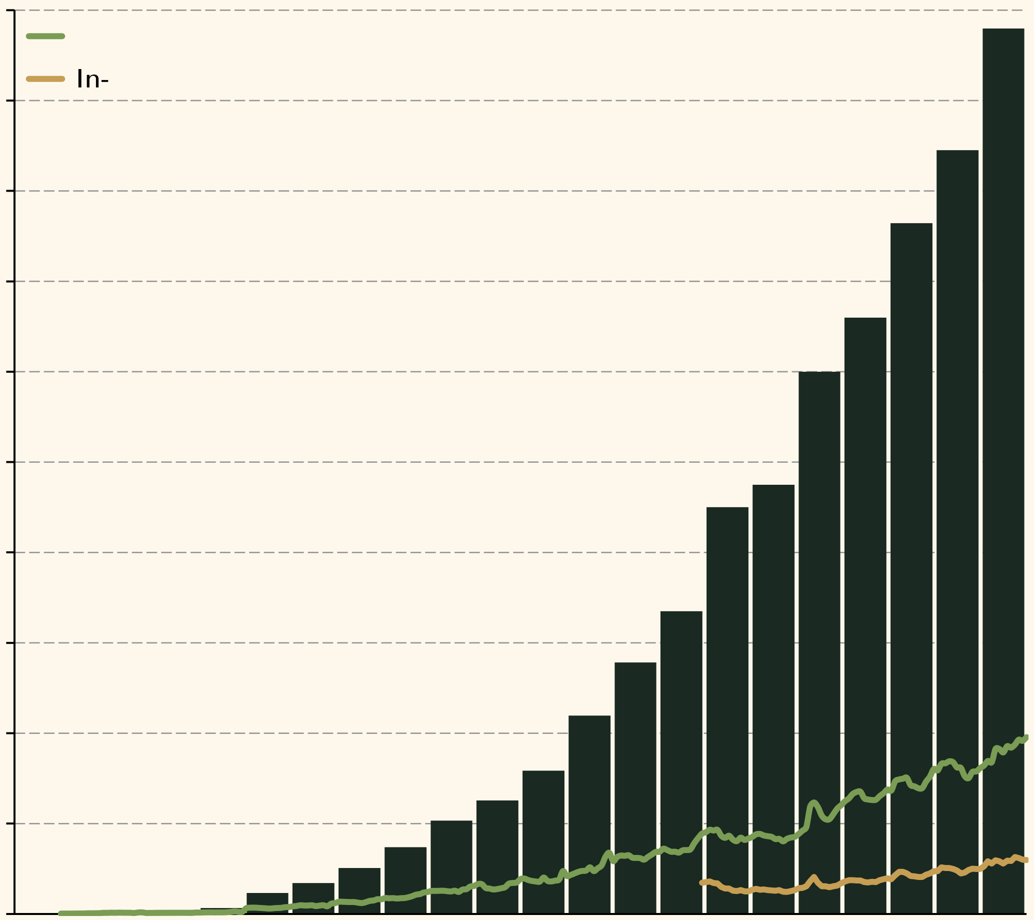
Steam is best-in-class for game discovery. Still, 80% of 2024's 19,000 releases didn't qualify for Steam's full social feature functionality (~$5K in sales in 2024)



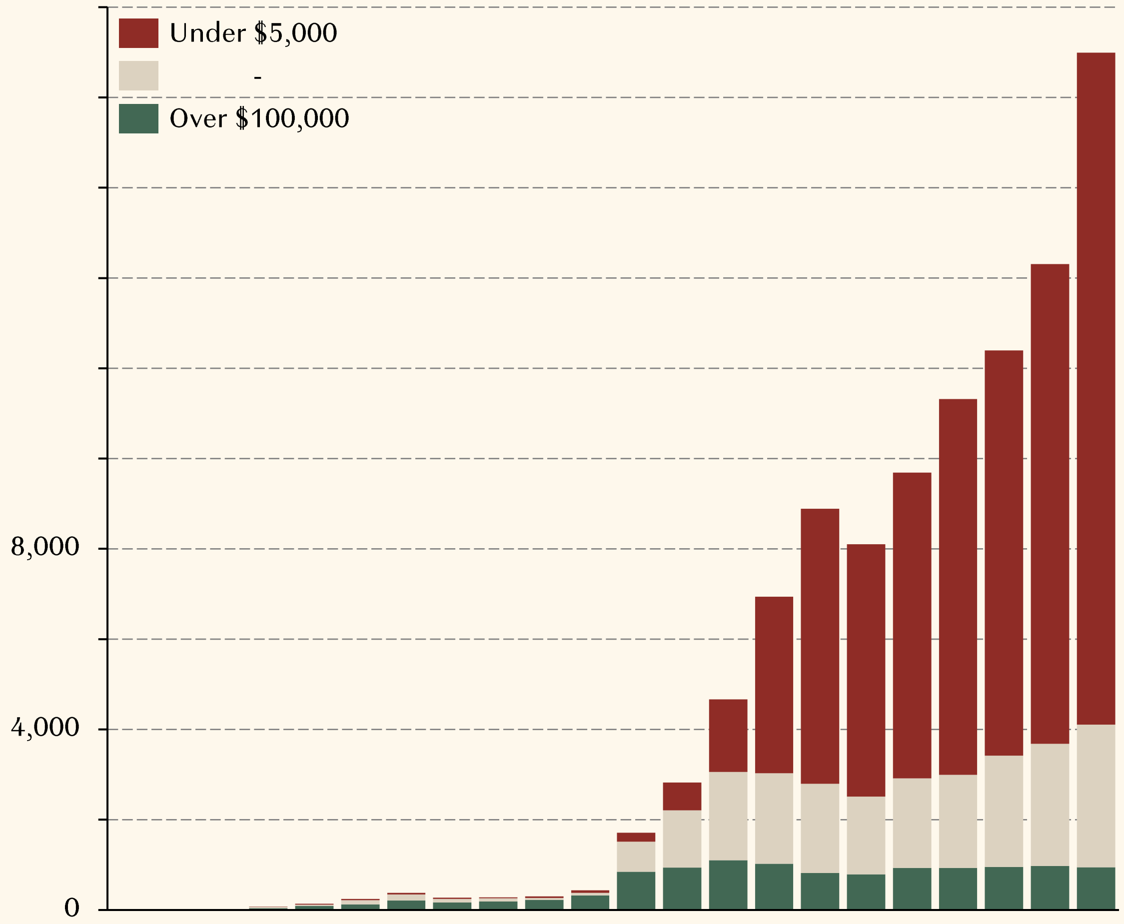
In fact, 150 fewer Steam new releases grossed >$100,000 in 2024 than in 2016 — even though users are up 250%, new releases over 300%, and user spend up 200%

EPYLLION

Estimated Steam MAUs and Peak CCUs by Month



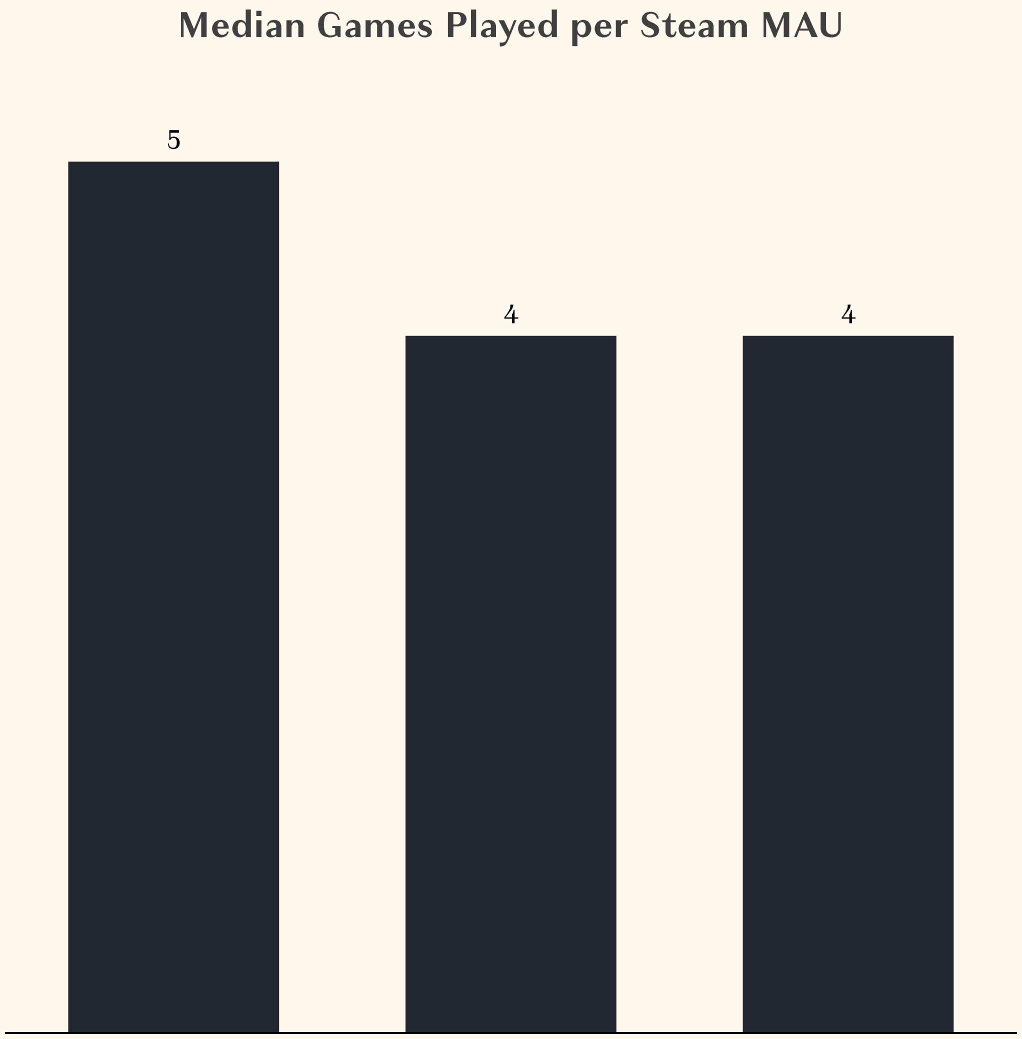
Steam Game Release by Year, First Year Sales
(Released in At Least One Market, Includes Microtransactions)

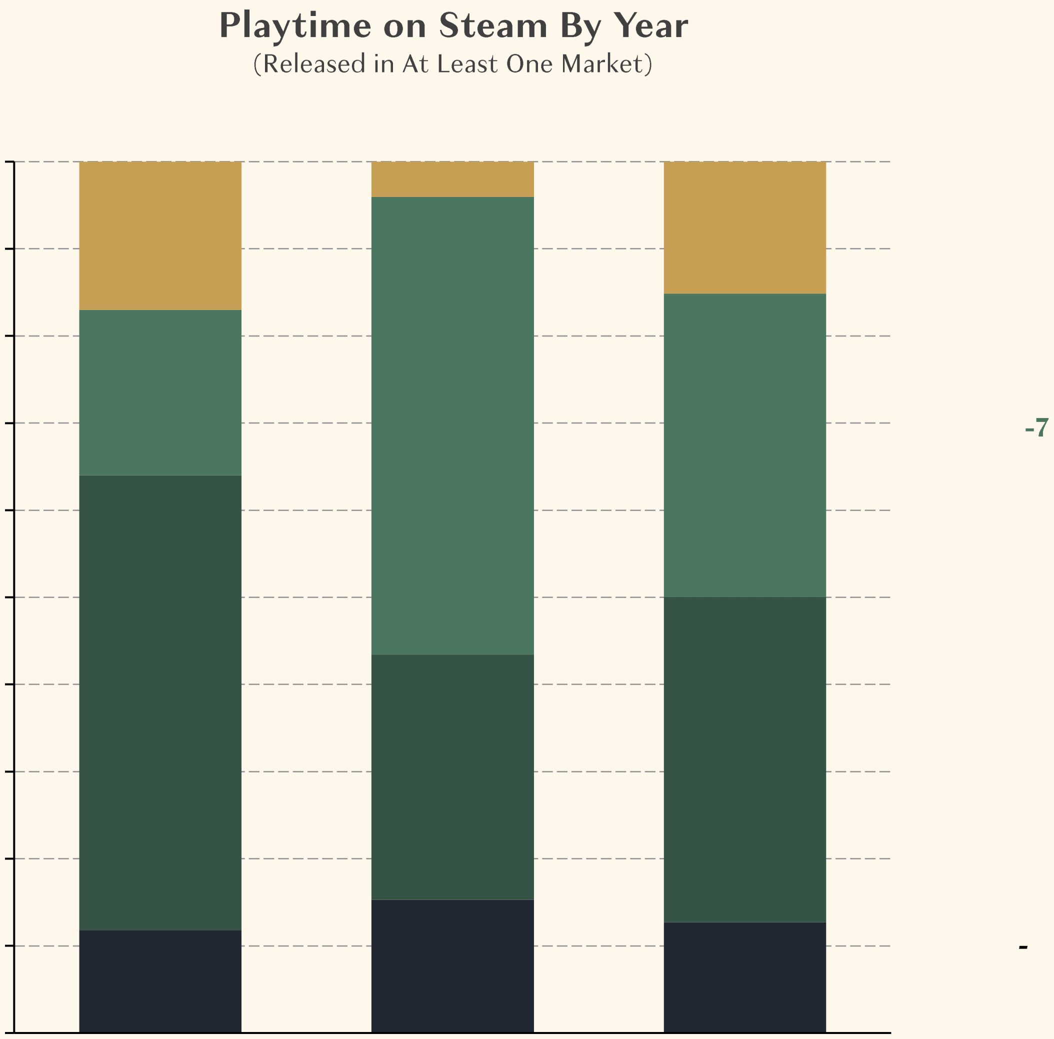


, *Video Game Insights, Epyllion analysis*

Steam users play only 4 games a year, with games 8+ years old getting 40% of total playtime and *Counter-Strike* another 13%; the 12-19,000 new releases get only 12%

EPYLLION



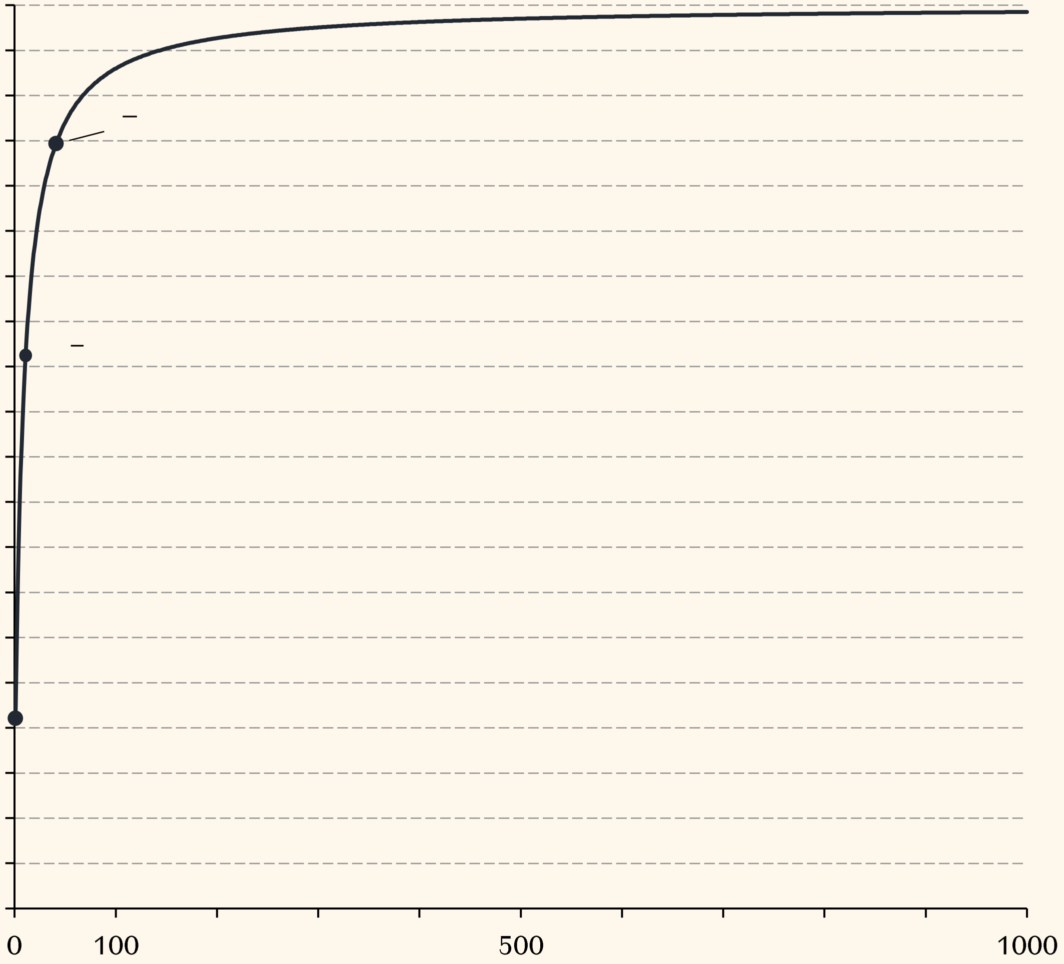


Sources: Valve, Epyllion analysis

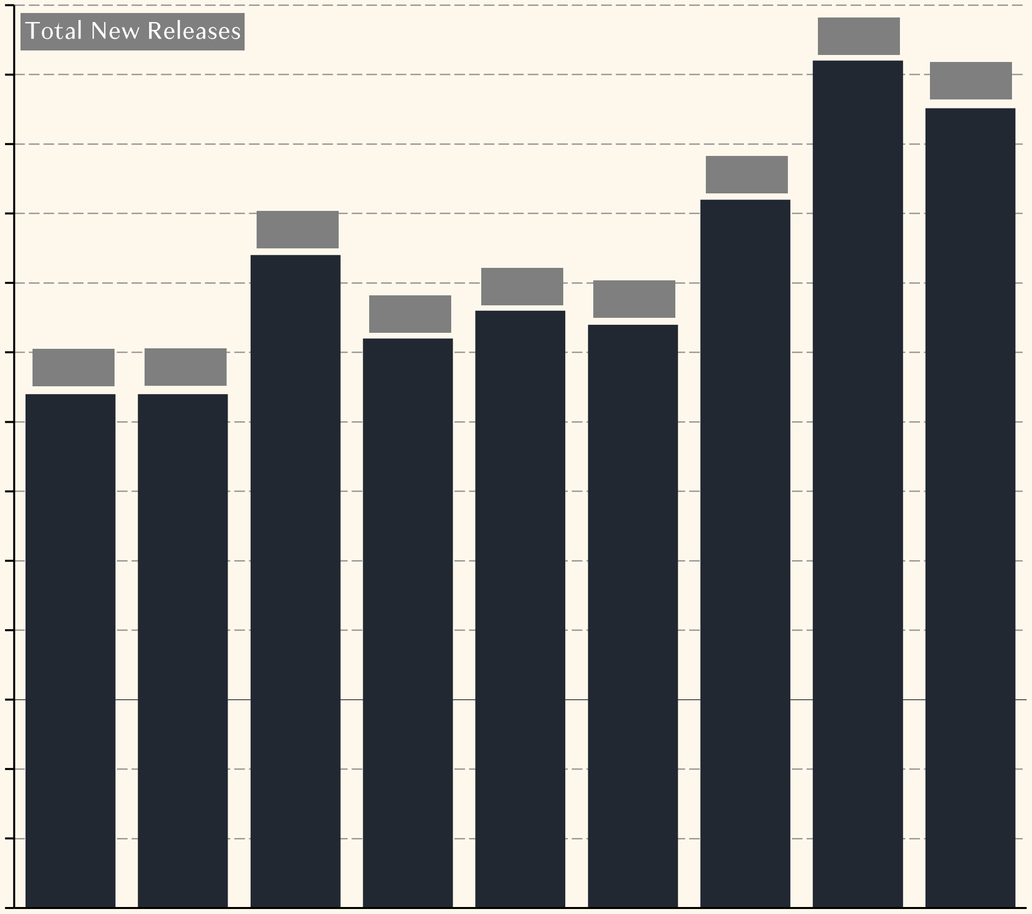
And among the thousands of annual releases fighting for 12% of playtime, #1 gets 20% of sales and #1–10 take 60% (a share that has grown even as output swelled)

EPYLLION

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



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



Sources: Video Game Insights,

In total, the *same* five franchises on PC (which are 6–22 years old) have averaged 30% of playtime for 4 years straight. On PS/Xbox (7–31 years), it's a stunning 43%!

EPYLLION

Share of PC Engagement
(Worldwide; Users 18+; 37 Markets Total and Excludes India and China)

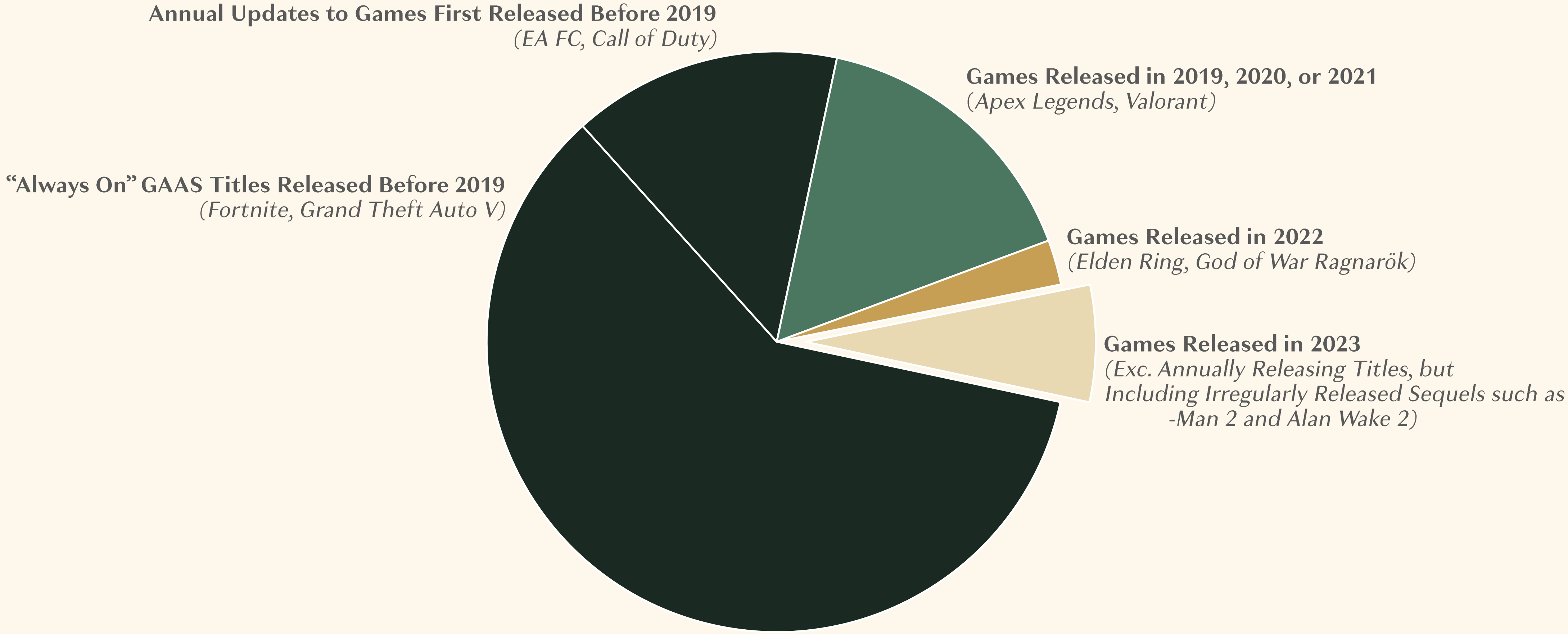
Share of PlayStation and Xbox Console Engagement
(Worldwide; Users 18+; 37 Markets Total and Excludes India and China)

[1]Ordered alphabetically, rather than by time share

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)

EPYLLION

Share of Time Spent Playing PC and PlayStation/Xbox Games in 2023
(Worldwide; Users 18+; 37 Markets Total and Excludes India and China)

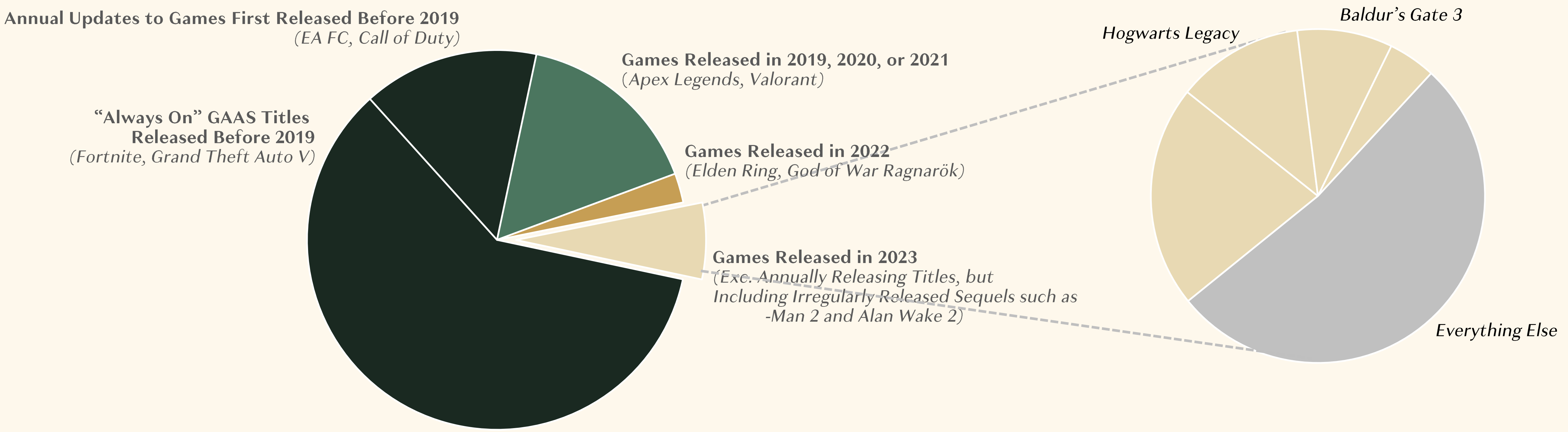


Tens of billions in development and marketing investment and thousands of games competed for that 6.5% of total player hours (and four titles won half of it)

EPYLLION

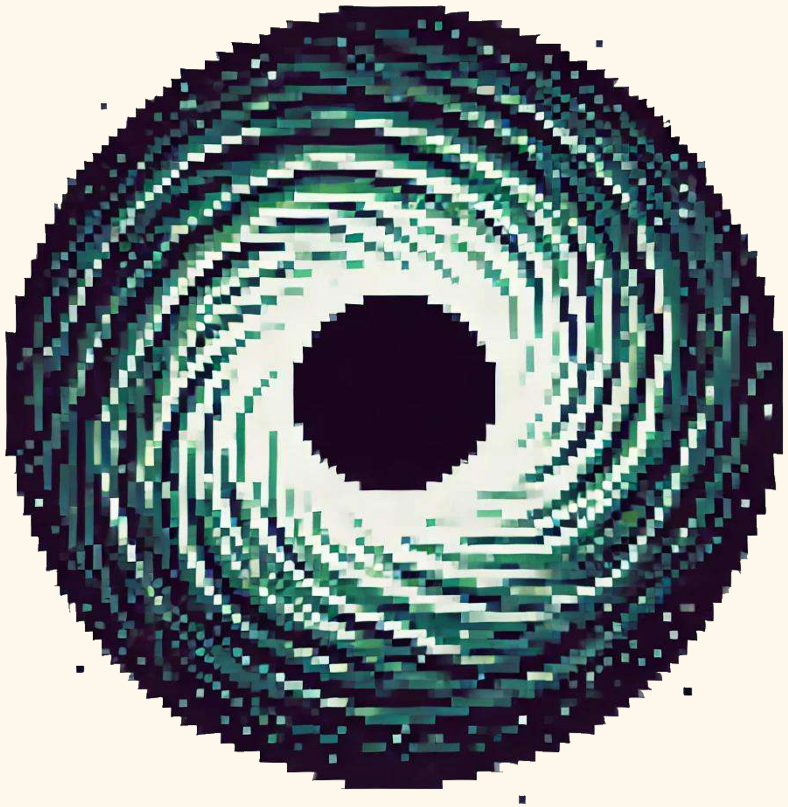
Share of Time Spent Playing PC and PlayStation/Xbox Games in 2023

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



"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

EPYLLION



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

1. <u>Hundreds or thousands of hours achieving skill mastery (and comfort)</u>
   - *800MM+ Fortnite players have probably spent 125B+ hours playing the game*

   <u>Hundreds or thousands of dollars in purchased entitlements (avatars, outfits, items, skins, etc.), and much more in earned entitlements</u>
   - *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*

   <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*

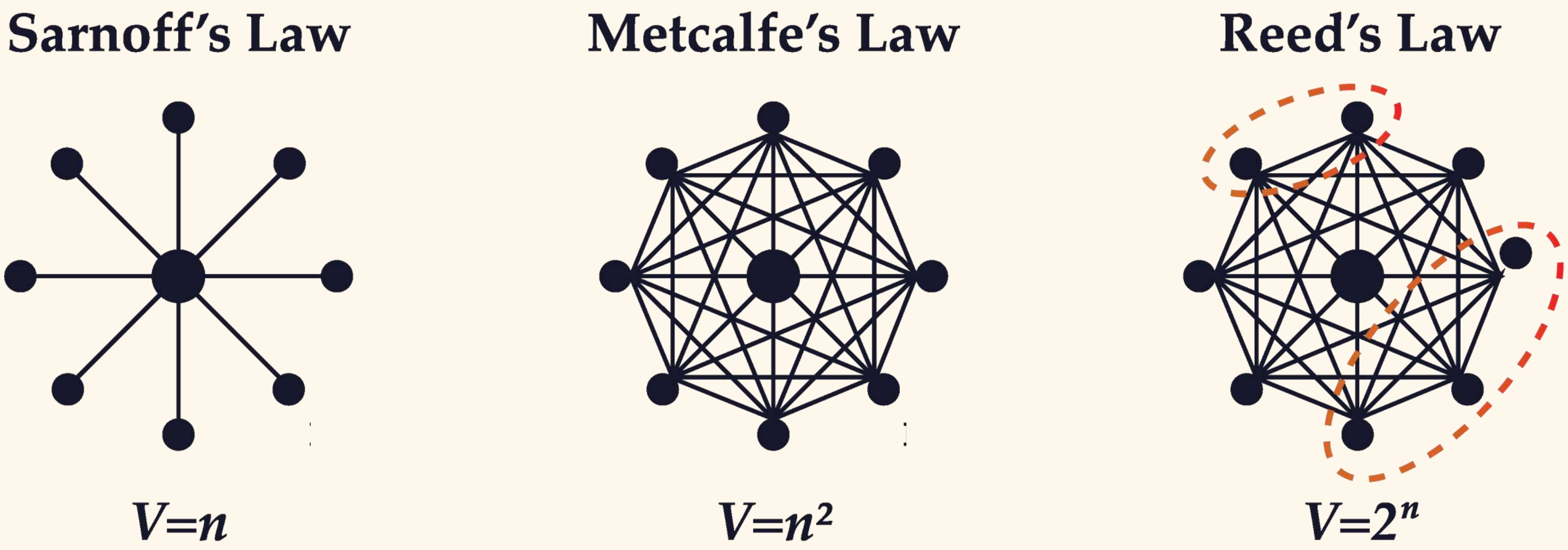
4. <u>Hundreds of millions of hours and investment dollars (if not billions) in ecosystem development</u>
   - *Creators have launched over 150,000 UEFN games on Fortnite, with Epic paying $500MM to these creators since March 2023*

5. <u>Confidence that their scarce time, money, effort, and social signaling will be durably rewarded</u>

Source: Epyllion analysis

Behind "Black Hole" games is not just Metcalfe's Law (the value of a network is a quadratic function) but the stronger Reed's Law (it is an exponential function)

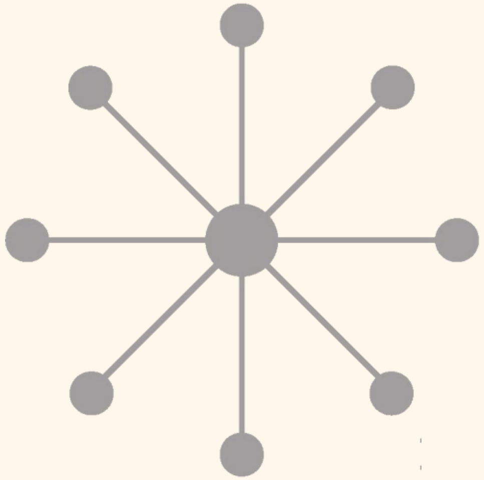
EPYLLION



Reed’s Law observes network strength on network size, as well as group and sub-group formation. An A+ game that lacks a player’s squad is no A+ game.

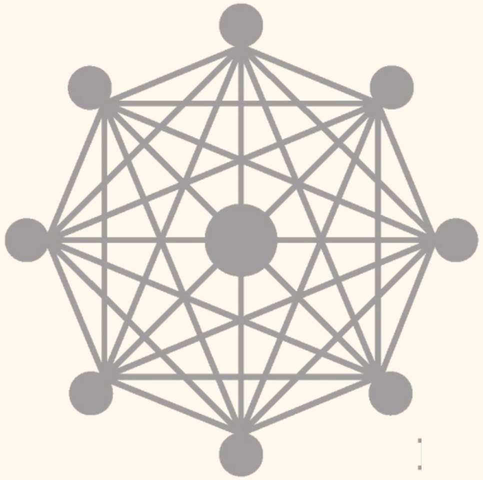
EPYLLION

Sarnoff’s Law



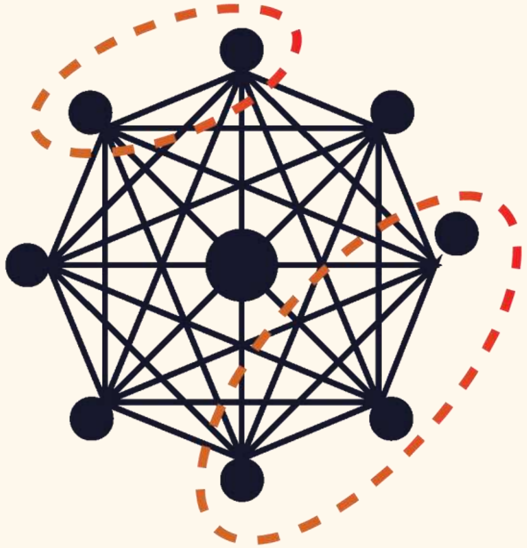
$V=n$

Metcalfe’s Law



$V=n^2$

Reed’s Law

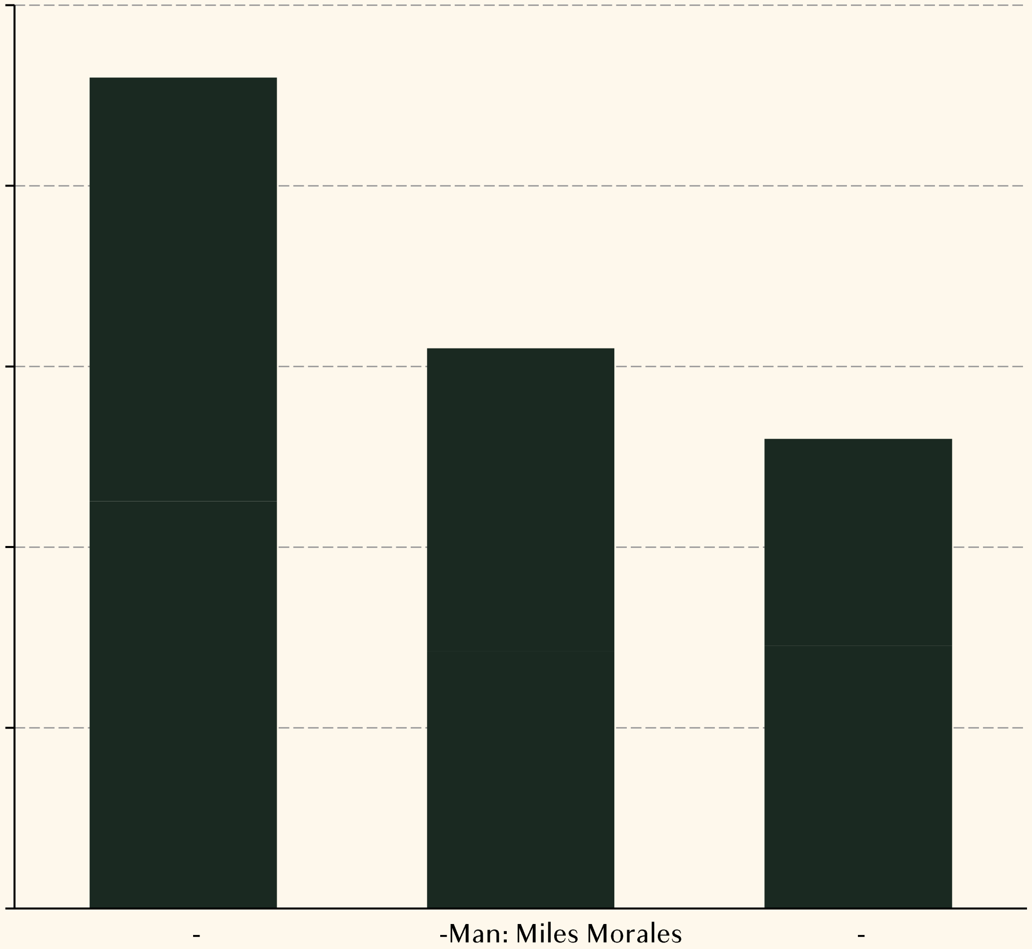


$V=2^n$

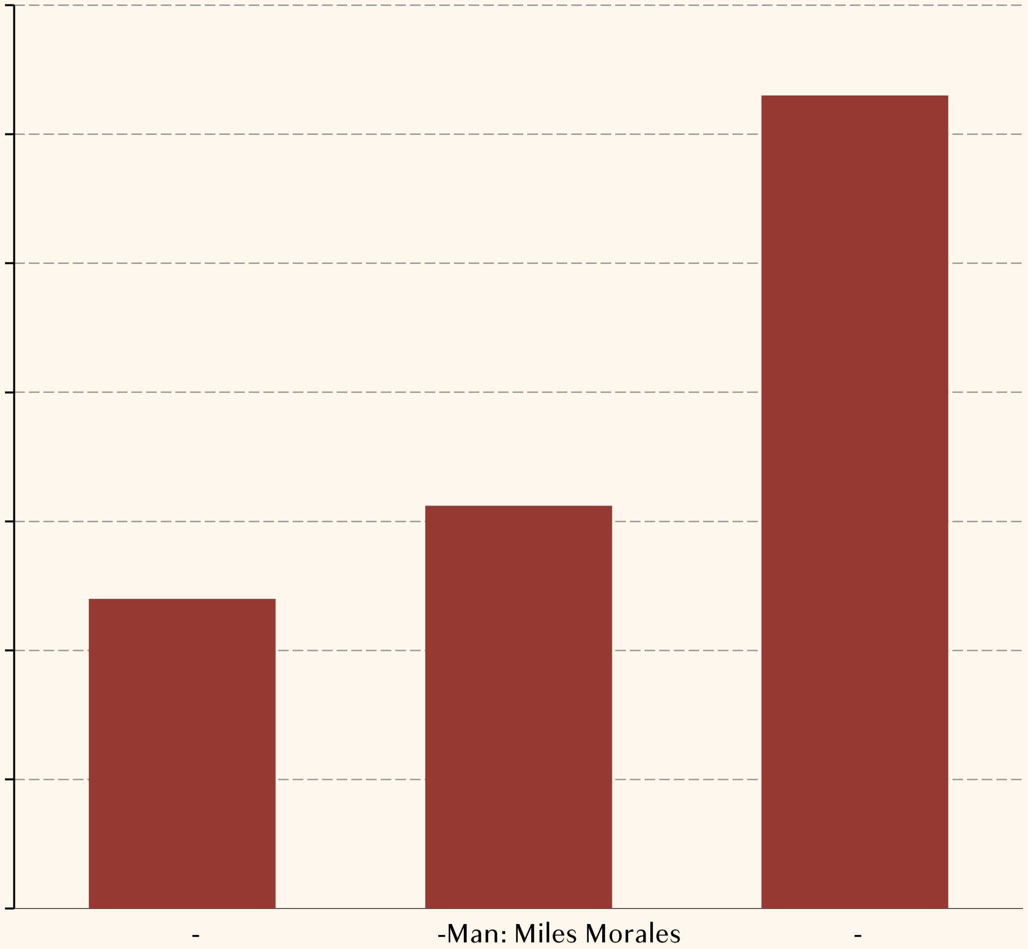
As “Black Holes” strengthen, supply grows, but players stagnate, even the best franchises often face falling sales but higher budgets across successive releases

EPYLLION

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



Production Budget for Insomniac’s Spider-Man Series
(USD; Nominal Prices)

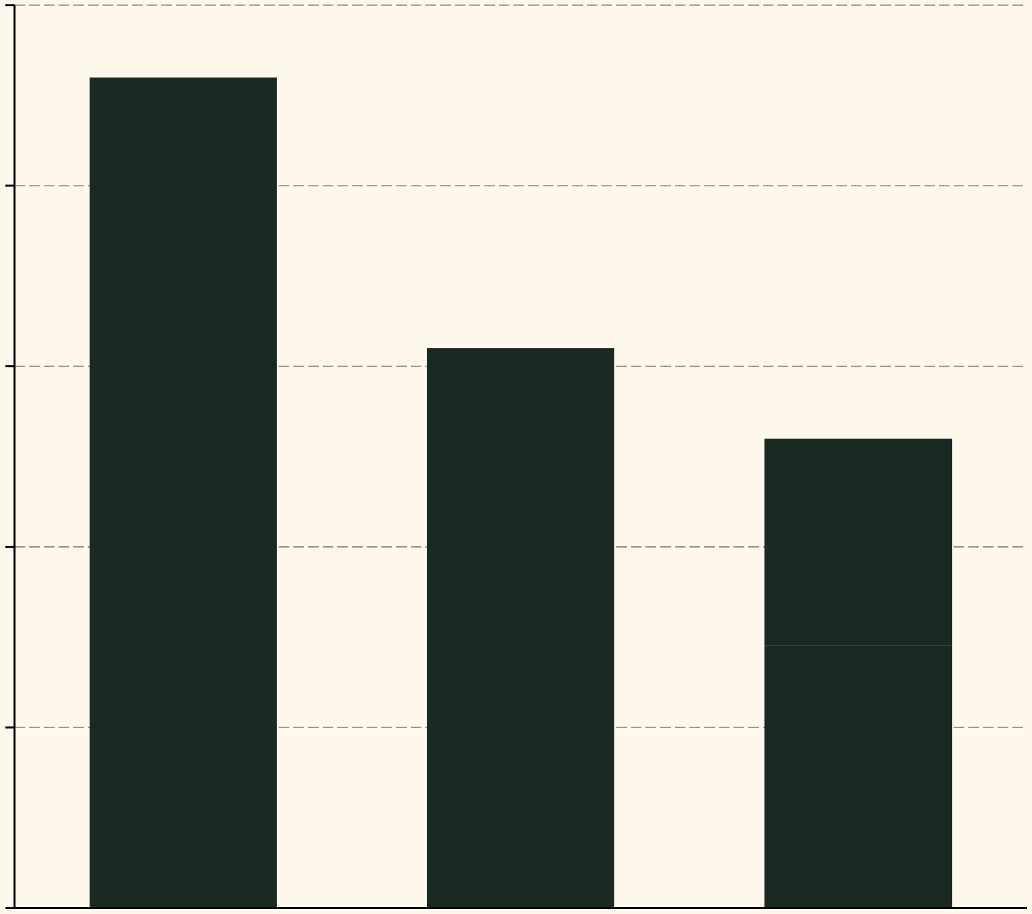


Sources: Insomniac, Sony,

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...

EPYLLION

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

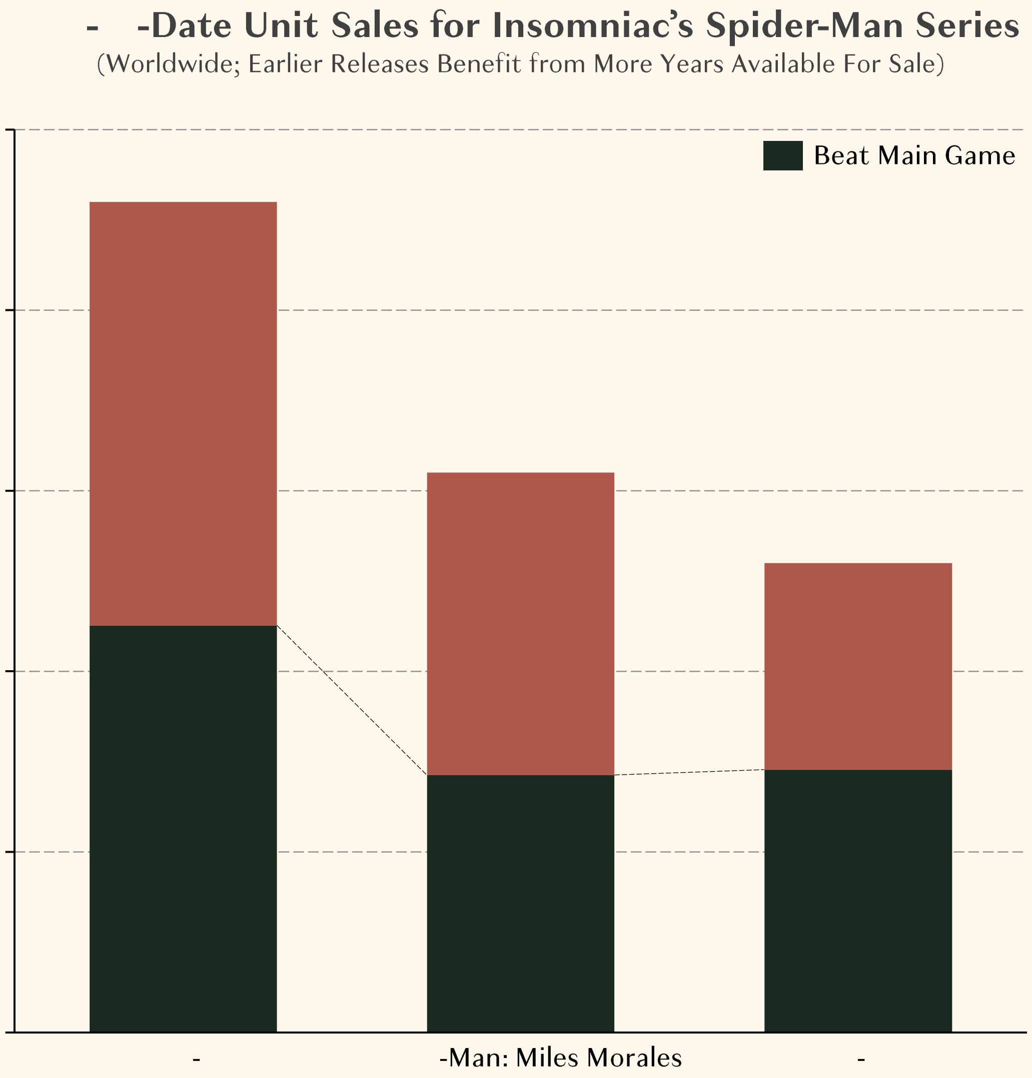


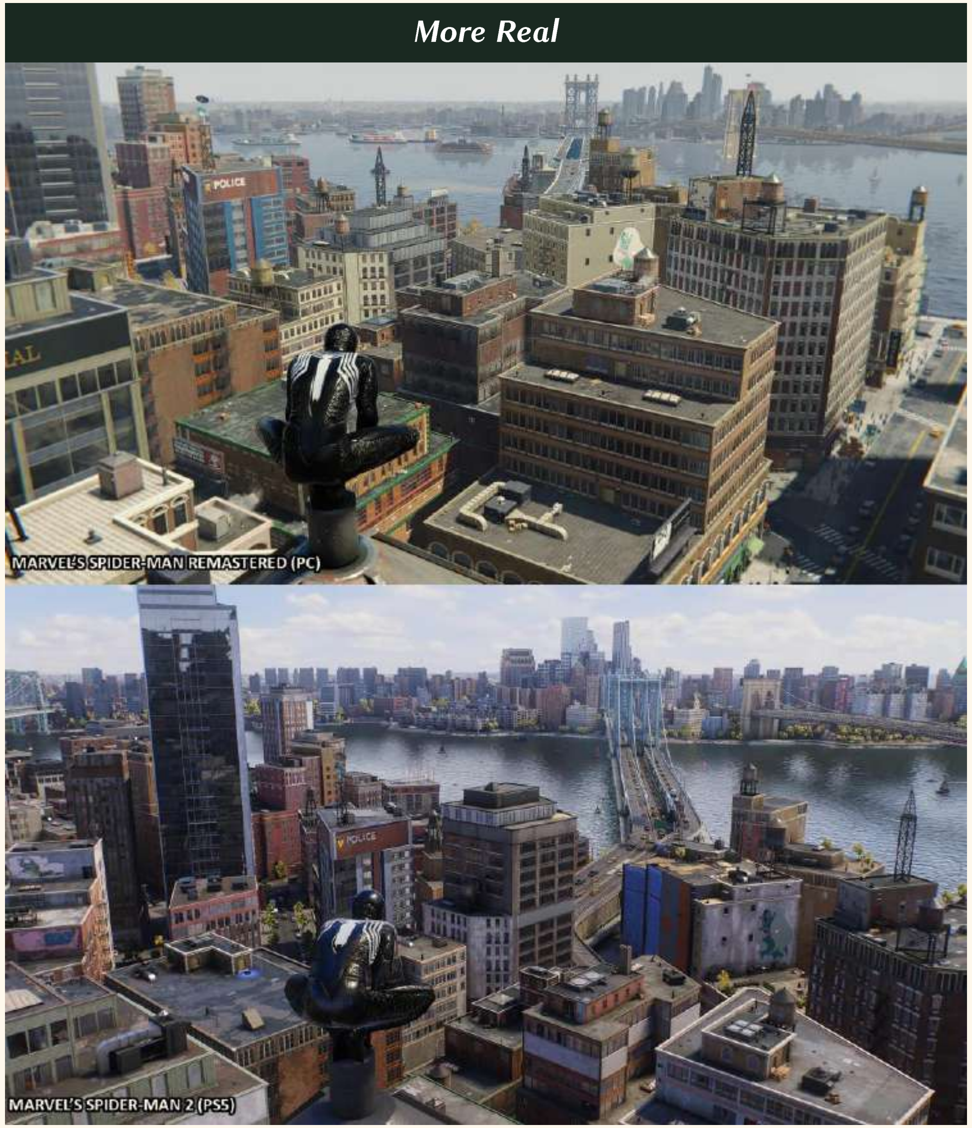
More Expansive

Sources: Insomniac, Sony,

…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

EPYLLION



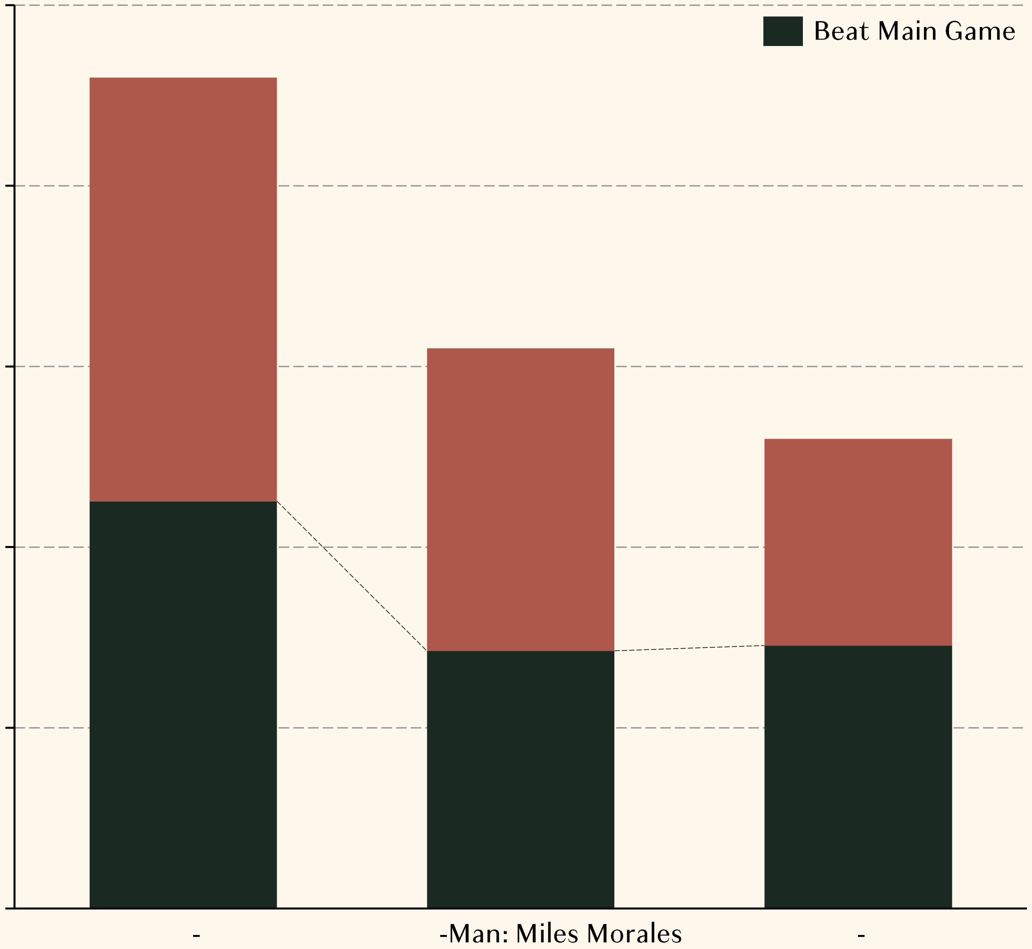


Sources: Insomniac, Sony,

…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

EPYLLION

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



More Immersive

More Cinematic

2hr 45m of Cinematics

4hr 45m of Mocap Cinematics

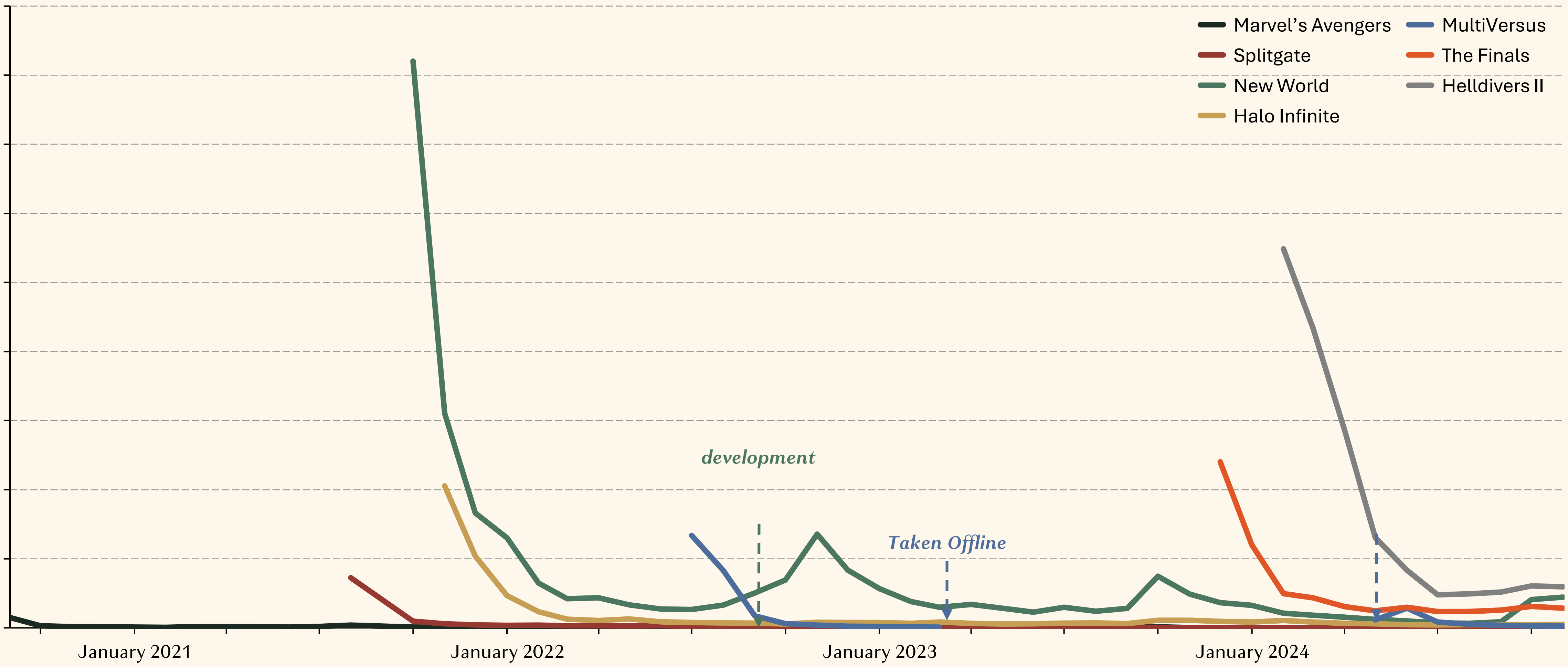
Sources: Insomniac, Sony,

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

EPYLLION

Average Concurrent Players on Steam by Month

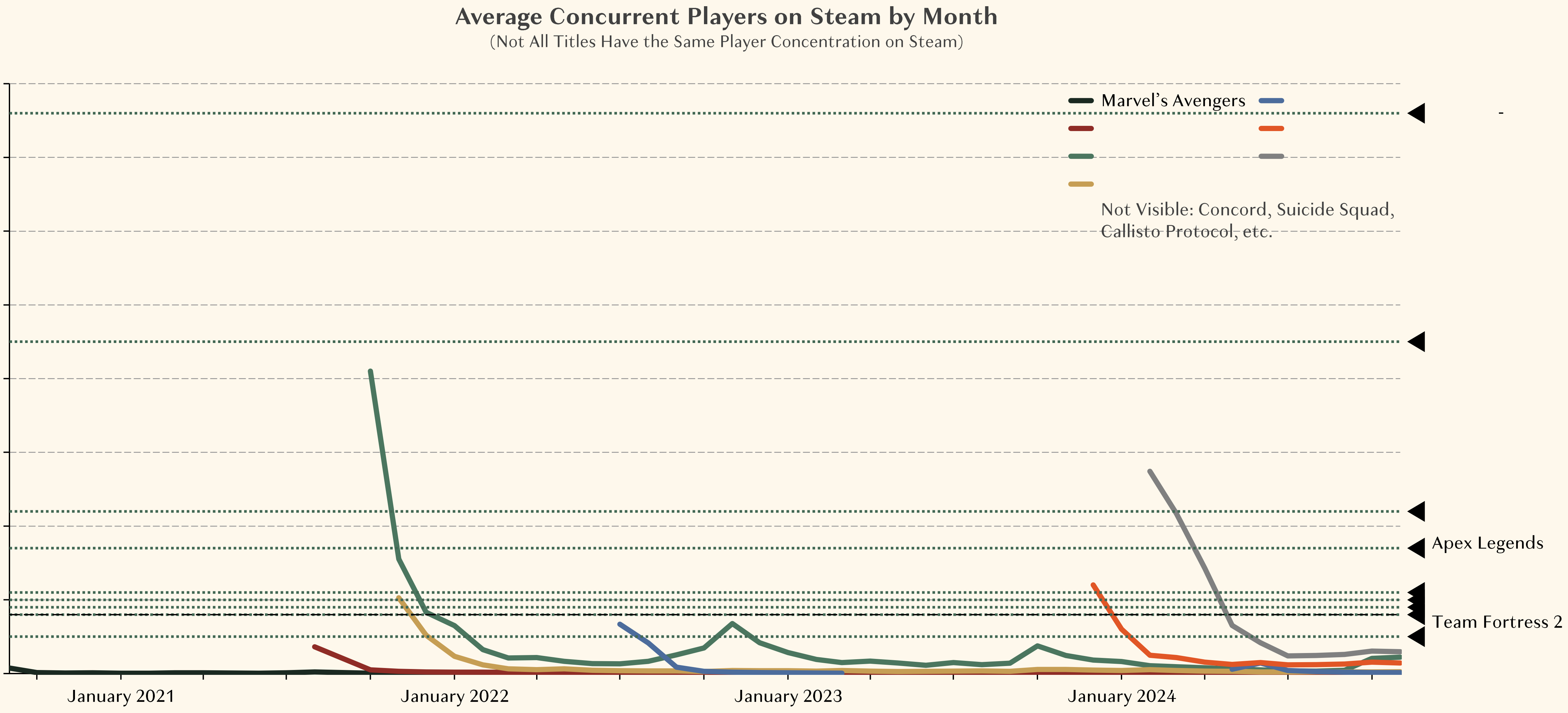
(Not All Titles Have the Same Player Concentration on Steam)



Source: Steam Charts

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

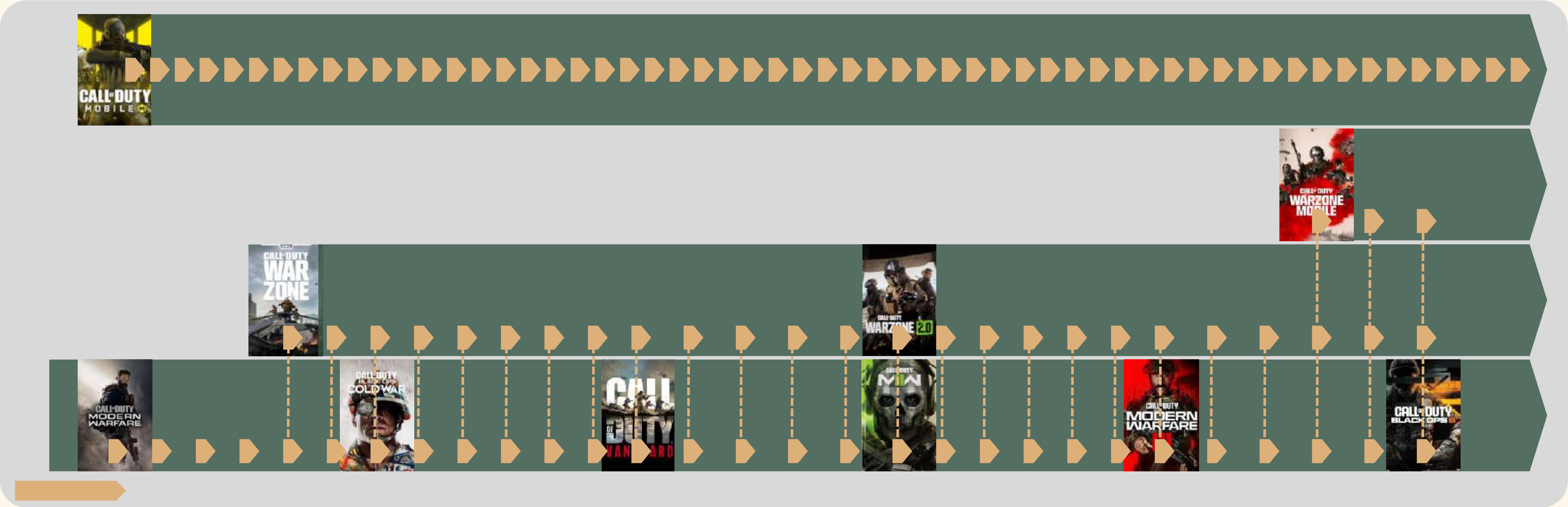
EPYLLION



Source: Steam Charts

And *after* a hit launch, a new title must sustain against market leaders powered by extraordinarily effective, profitable, and substantial releases and infrastructure

EPYLLION



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

Infinity Ward
Beenox
Treyarch
Digital Legends
Sledgehammer Games
Raven
Activision Shanghai Studio
High Moon Studios
Solid State Studios
Activision Central Tech
Activision
Demonware
Activision Quality Assurance
Toys for Bob
Team Ricochet

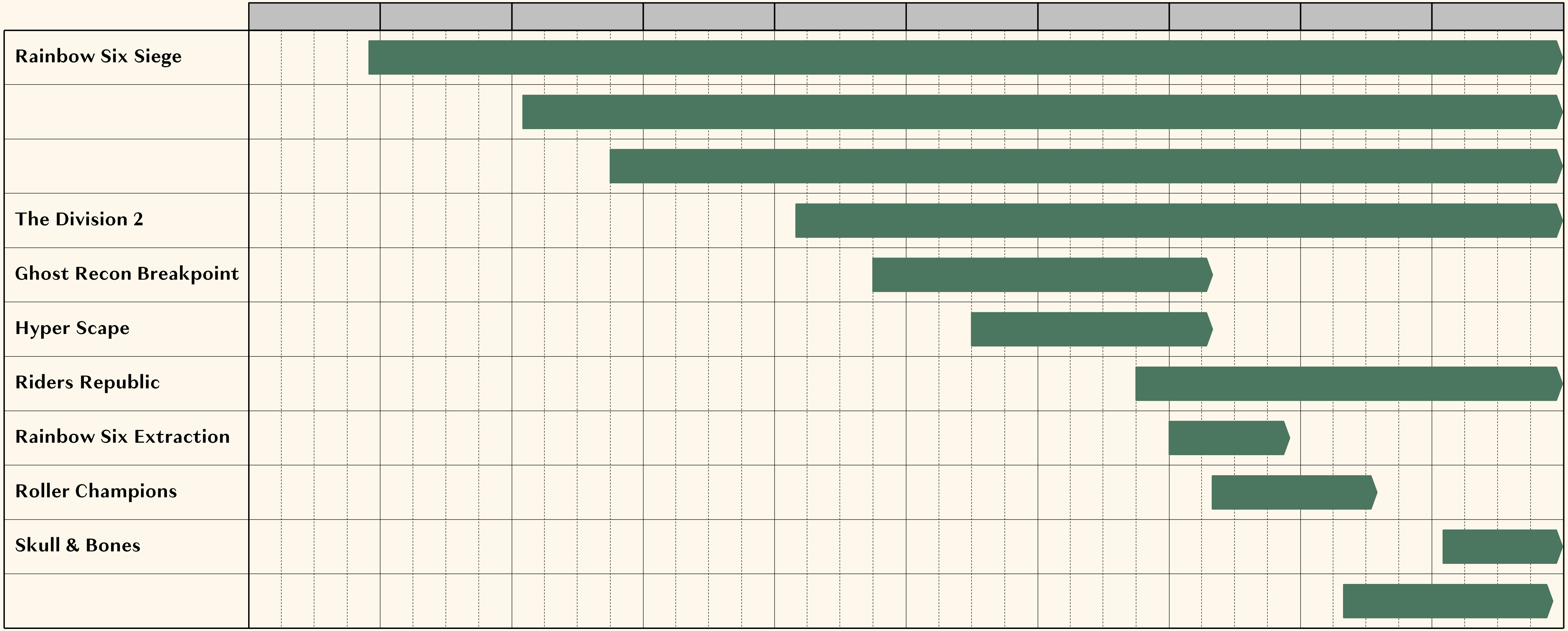
Outside Co/Ex-Dev, Localization, and QA

Sources: Activision,

With rising costs of support, shrinking playerbases, and strengthening Black Holes, new live service titles are forced to call it quits earlier than ever

EPYLLION

Ongoing Development Timeline for Ubisoft Live Services Titles
(Launches Since Q4 2015)



Sources: Game File / Game File, Ubisoft

EPYLLION

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

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

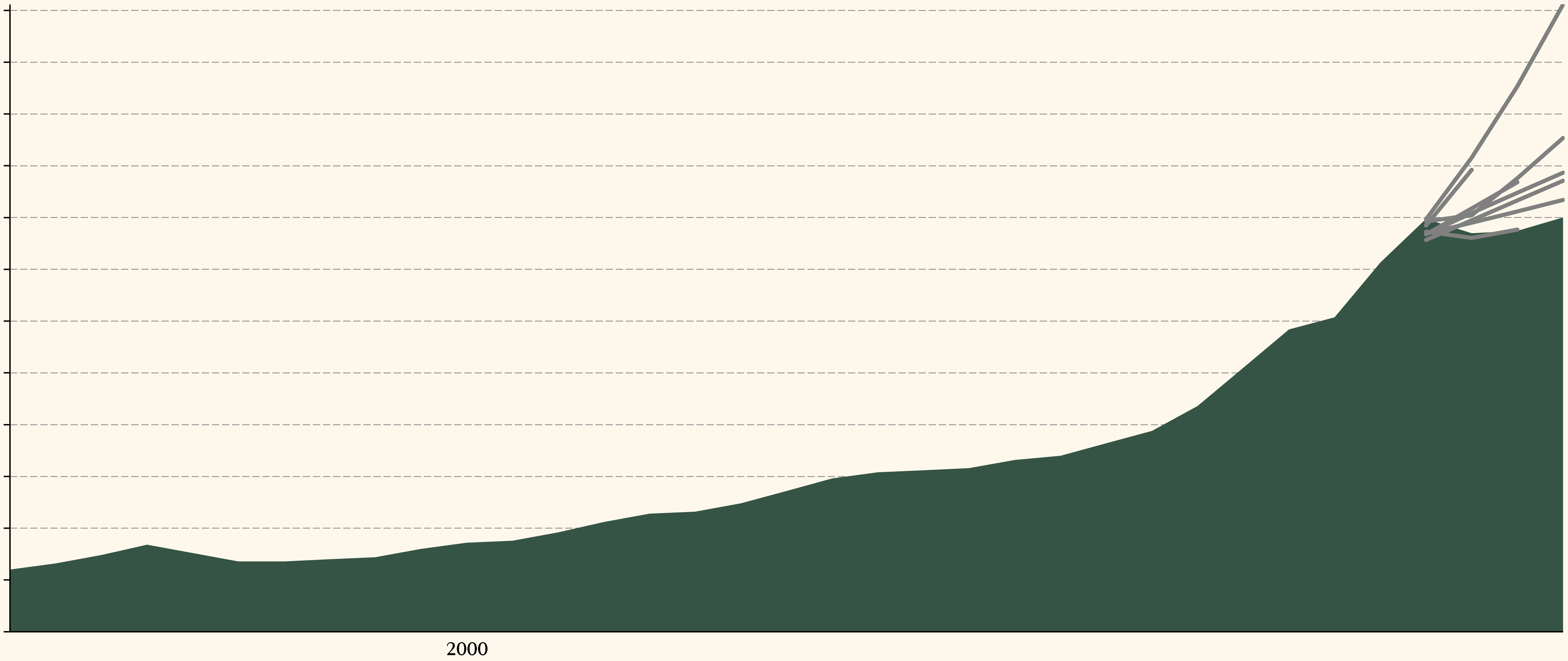
The exhaustion of decade-plus growth drivers that grew players, playtime, and spend... coincided with evolving user behaviors, changing monetization models, and growing "lock-in" effects... that exacerbated long-running competitive and budgetary escalations... while growth concentrated in foreign markets 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

EPYLLION

Worldwide Consumer Spending on Video Game Content, Plus Select External Forecasts For Growth[1]

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

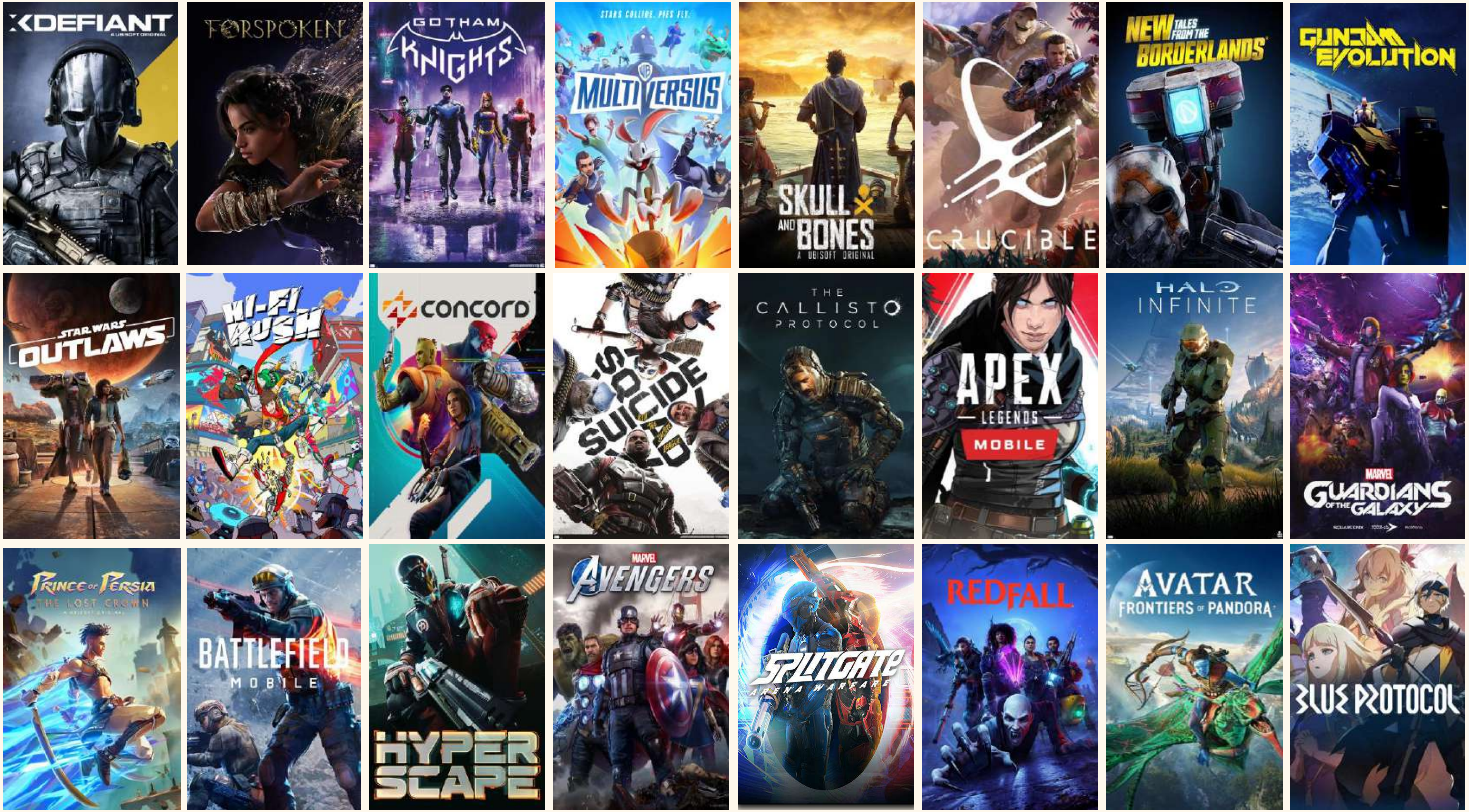


[1]Forecasts that did not include AR/VR or arcade are normalized; different starting values in 2021 reflects different estimates for 2021 at the time of forecast

Sources: Pelham Smithers / Bloomberg, IDG,   , Meta, IDC, ARK, Bain, Google, E&Y, Ampere, Epyllion analysis

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

EPYLLION



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

EPYLLION

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

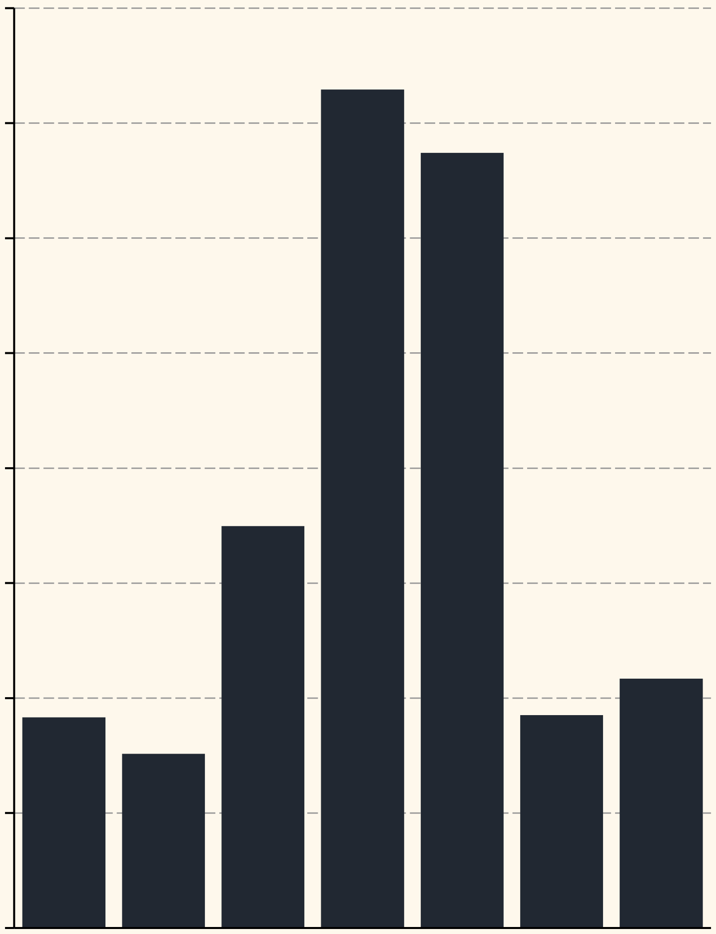
XDefiant Is Being Shut Down, Developer Closed

Sources: Naughty Dog, The Verge, Bloomberg, IGN, Kotaku, Game Developer, , PC Gamer, Polygon, VGC

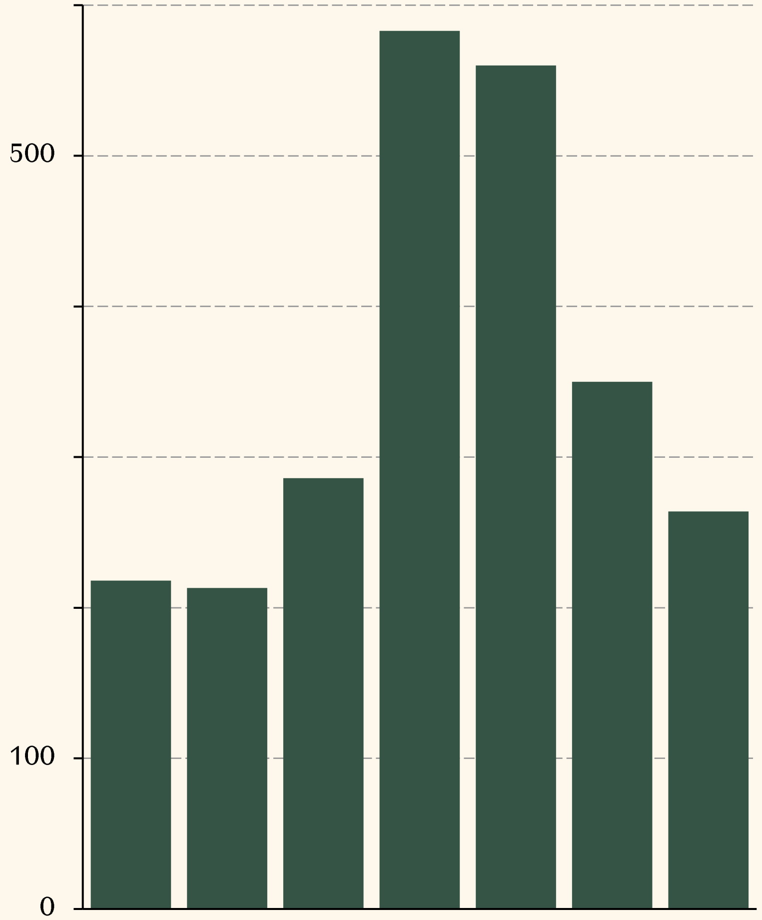
…And why venture capitalists have retreated to 2018–2019 investment levels, even though worldwide spend is up 34% or $51B

EPYLLION

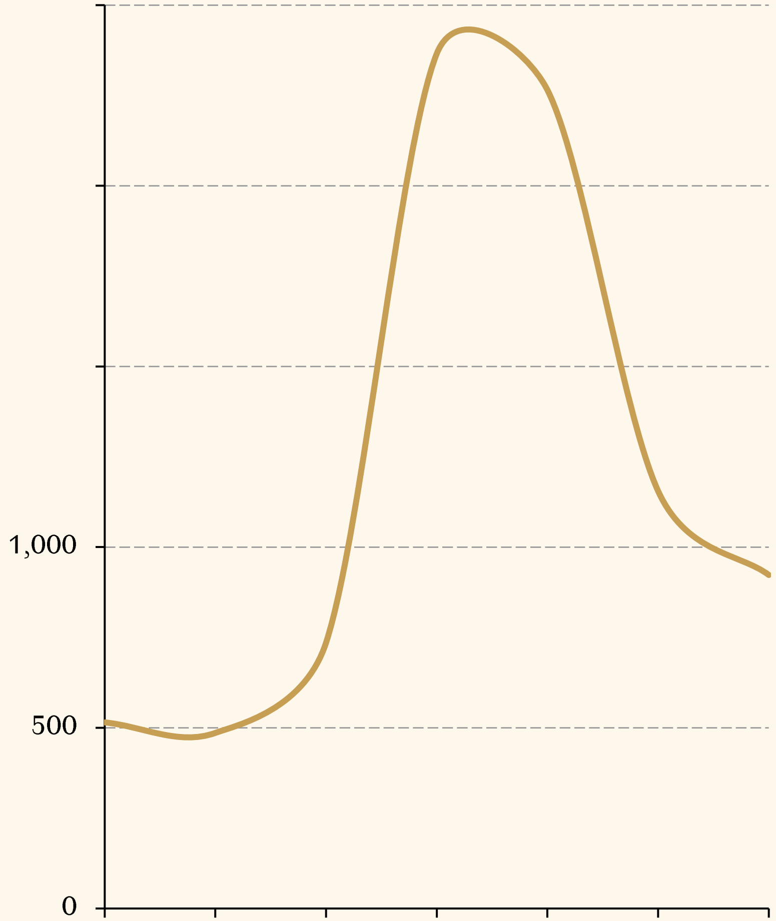
VC Funding in Video Game Content Start-



VC Deals in Video Game Content Start-



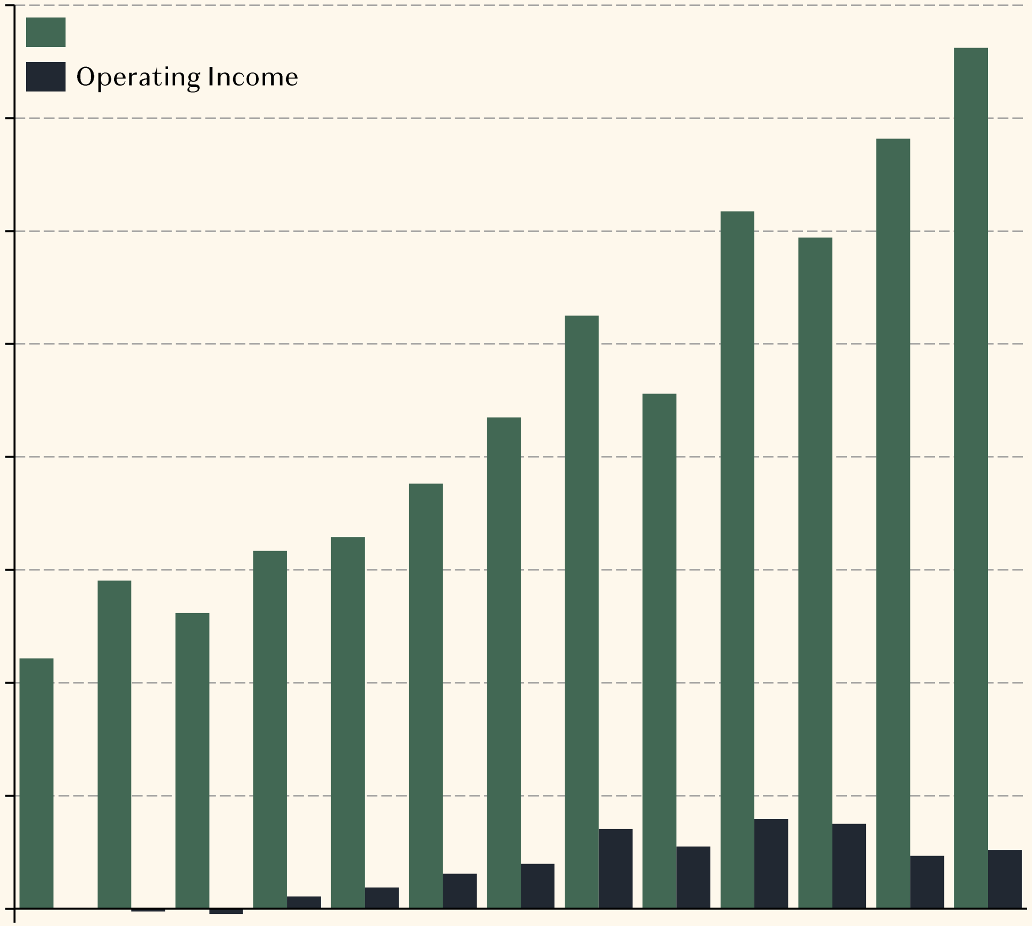
Active VC Investors in Video Gaming
(Worldwide; At Least One Deal)



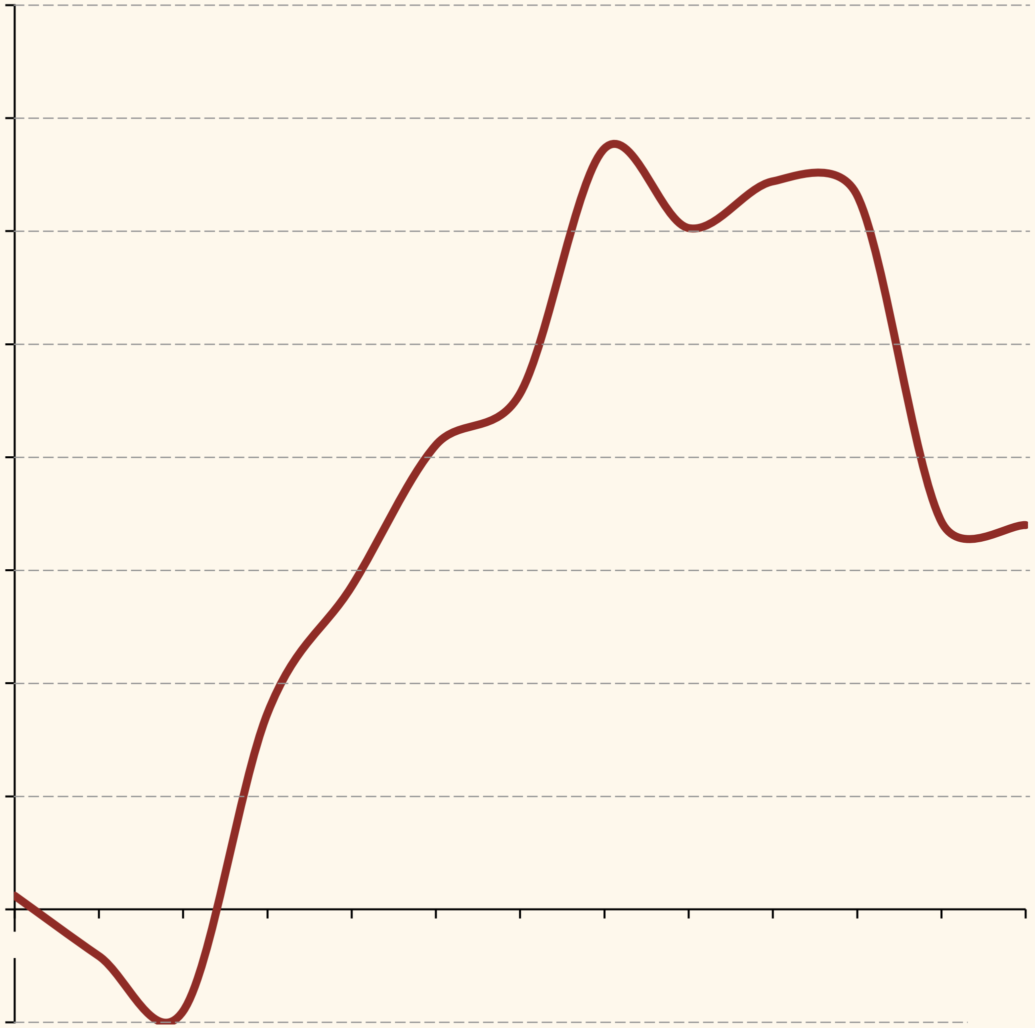
…Why PlayStation, a platform with 100MM MAU and $30B in revenue, has seen revenues grow 67% since 2019 but profits fall by 6% (and to a 7% income margin)

EPYLLION

PlayStation P&L
(USD; Nominal Prices)



PlayStation Operating Income Margin

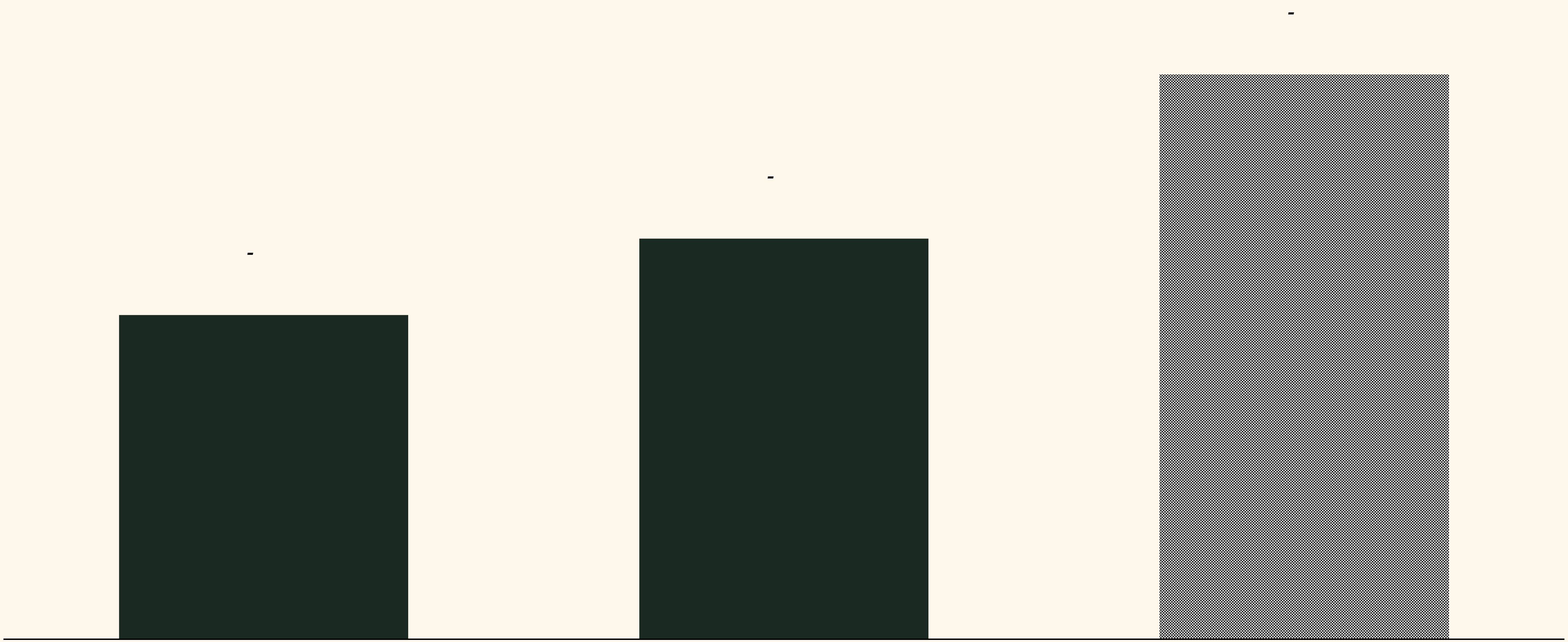


...And employees suffered three straight years of record layoffs — 35,000 total *before* counting unreported layoffs and those without specified headcount

EPYLLION

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)



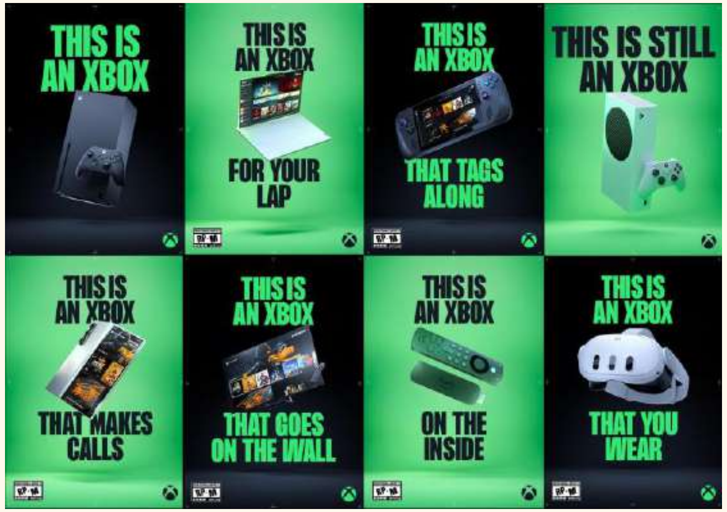
Sources: Farhan Noor, Epyllion analysis

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

EPYLLION

2024 PlayStation Network MAUs

2024 Xbox Platform Strategy



2024 Square Enix Content Strategy

"[We will now] aggressively pursue a multiplatform strategy that includes Nintendo platforms, PlayStation, Xbox, and PCs."

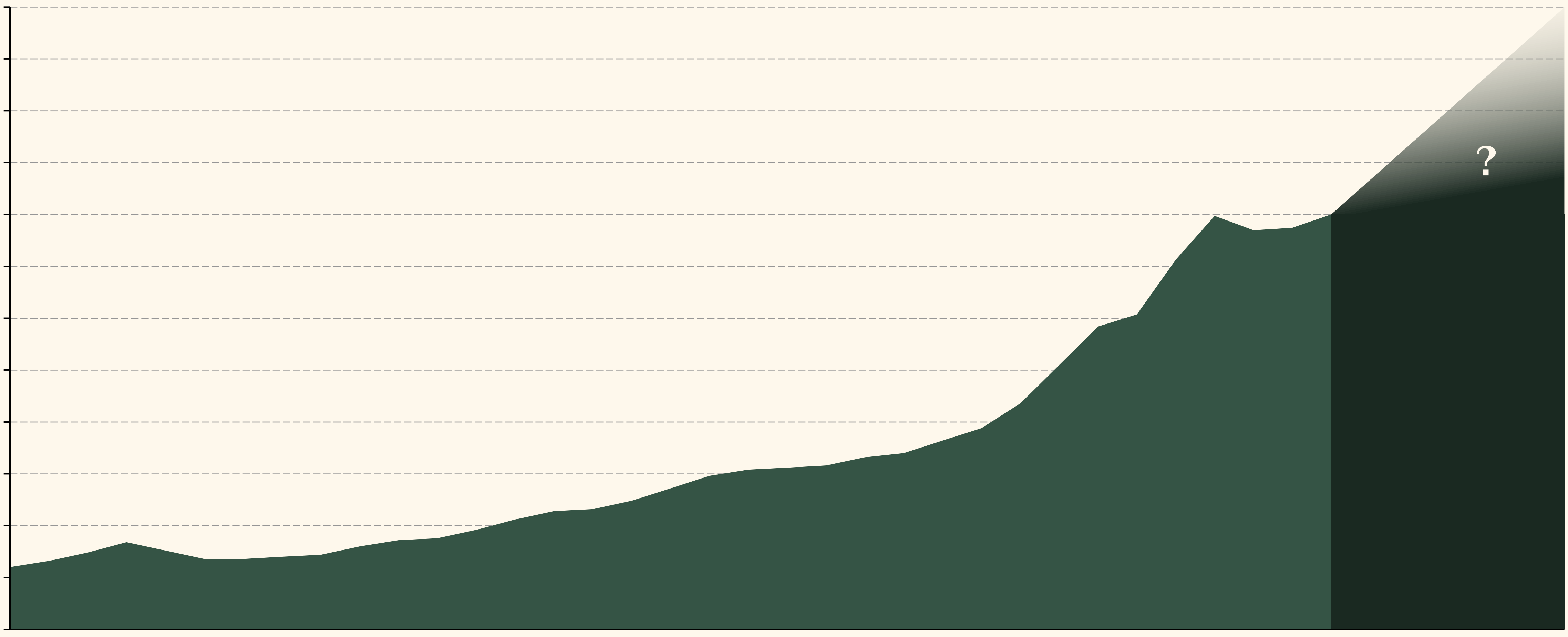
Sources: Sony, Microsoft, Square Enix

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)?

EPYLLION

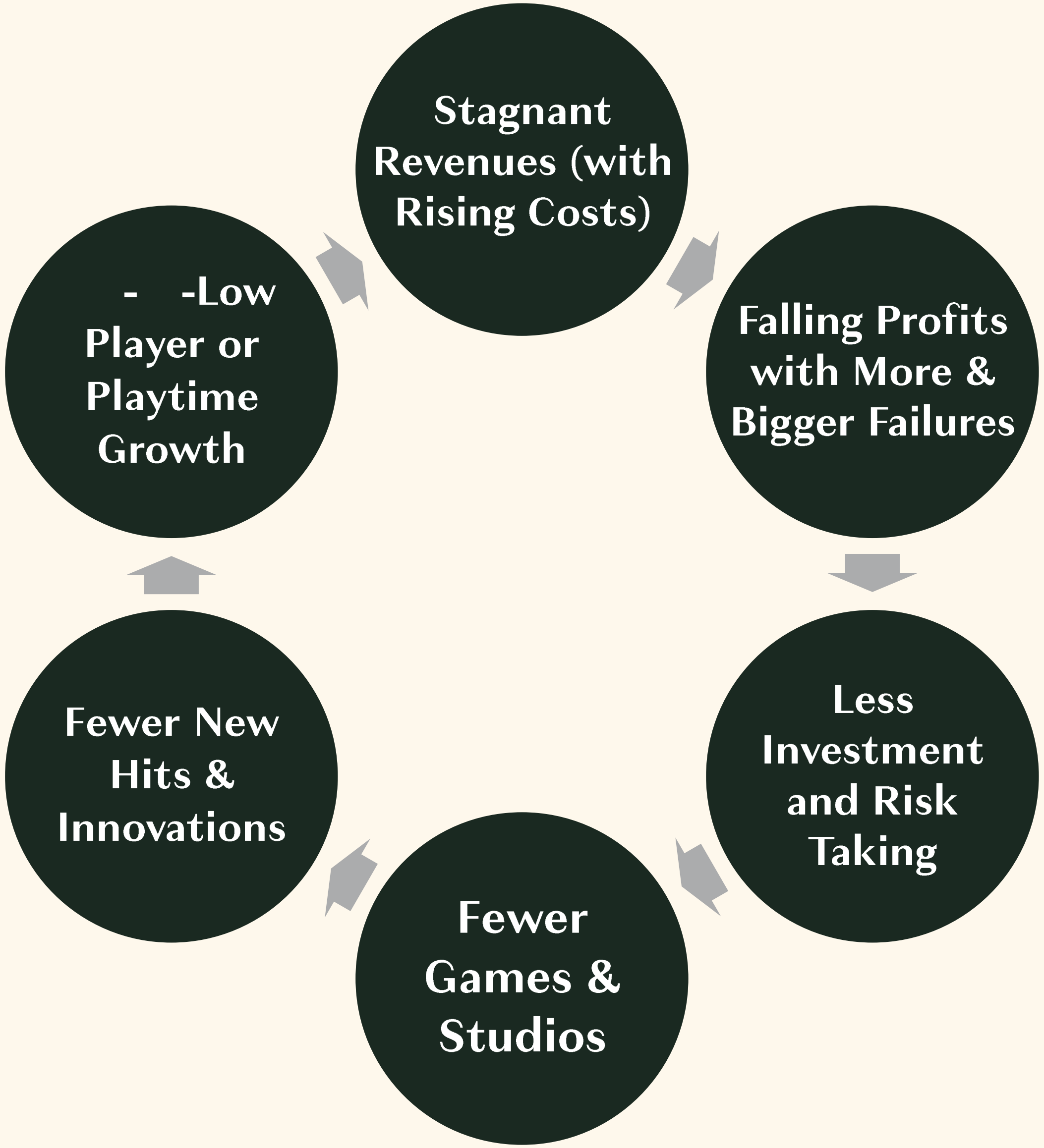
Worldwide Consumer Spending on Video Game Content

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



Sources: Pelham Smithers / Bloomberg, , data.ai / Sensor Tower, IDG, Epyllion analysis

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



Source: Epyllion analysis

EPYLLION

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

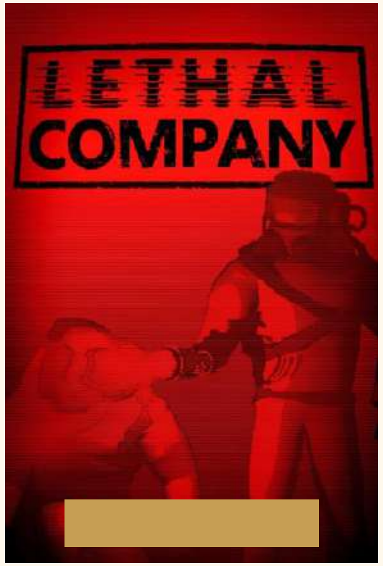
The Relevance of China (and Other Emerging Markets)

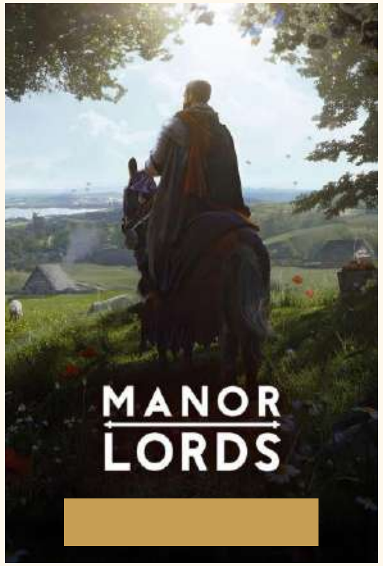
The Hostility of the Modern Console/PC Content Marketplace

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

EPYLLION





Second, there are a few potential "Growth Engines" that are argued and in sight

EPYLLION

"Non-Core" Markets

UGC Platforms & Tools

Social Game Services

Switch 2

Other New Handhelds & Devices

AA/AAA Mobile Gaming

App Store Regulation

New Game Genres

Advertising

GTA VI Pricing

[1] Ordered logically, rather than in order of monetary value, significance, timing, etc.; This isn't to say I believe in each one, let alone to the degree sometimes argued, but I do think each is worth arguing

Reviewing Potential New "Growth Engines"[1]

"Non-Core" Markets

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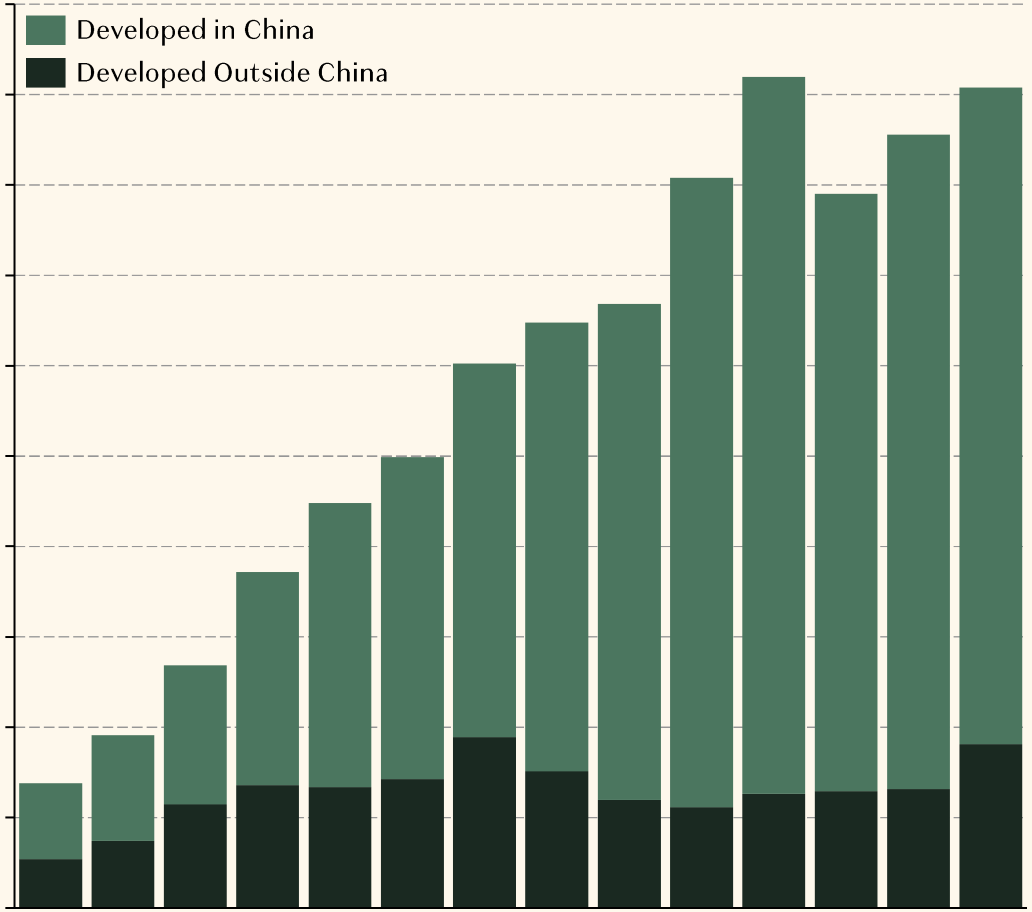
As was the case in China, the global maturation of local/regional content studios is likely to (substantially) accelerate spending growth in those same markets

EPYLLION

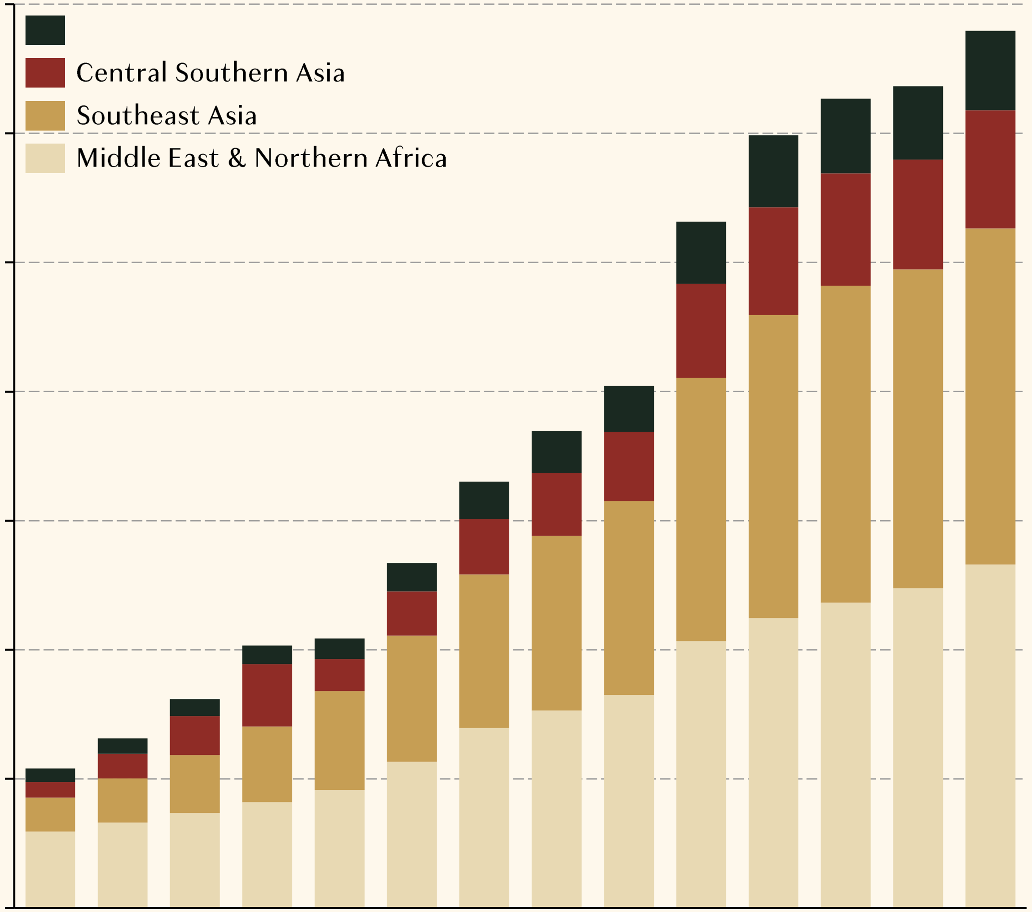
China Spend on Video Game Content by Country of Origin

(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)



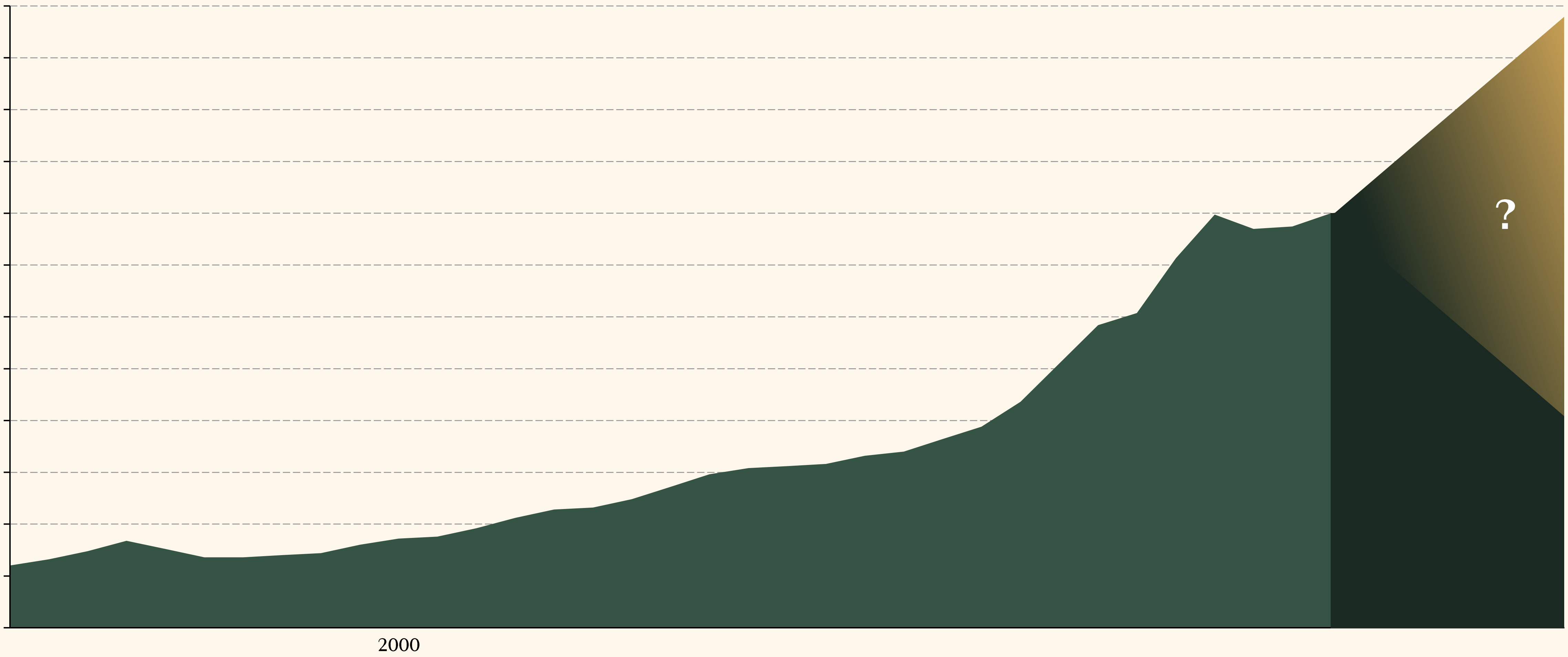
-Video and Digital Publishing Association, , Niko Partners, Research & Markets,

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

EPYLLION

Worldwide Consumer Spending on Video Game Content

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



Sources: Pelham Smithers / Bloomberg, , data.ai / Sensor Tower, IDG, Epyllion analysis

Reviewing Potential New "Growth Engines"[1]

EPYLLION

"Non-Core" Markets

UGC Platforms & Tools

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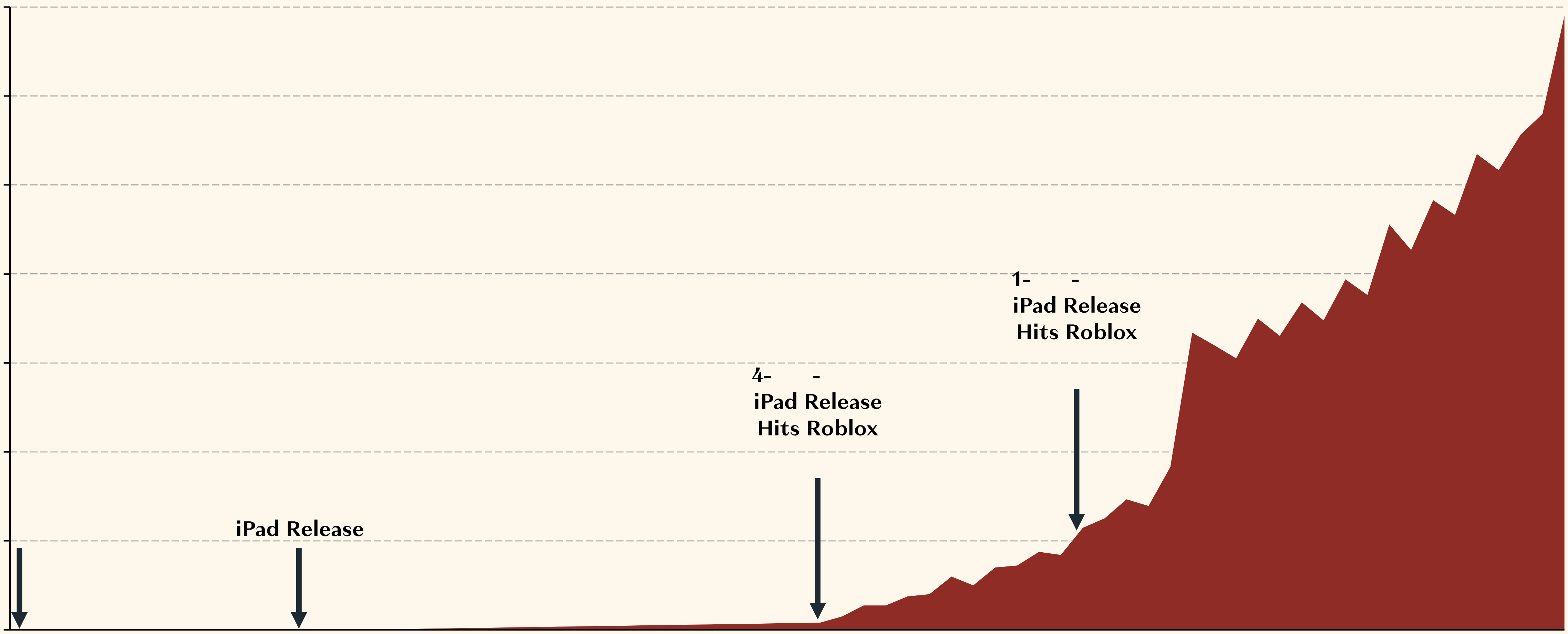
[1]*Ordered logically, rather than in order of monetary value, significance, timing, etc.; This isn't to say I believe in each one, let alone to the degree sometimes argued, but I do think each is worth arguing*

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

EPYLLION

Roblox Avg. Monthly Hours of Engagement
(Launch to Date; -Platform Engagement such as YouTube and Twitch)

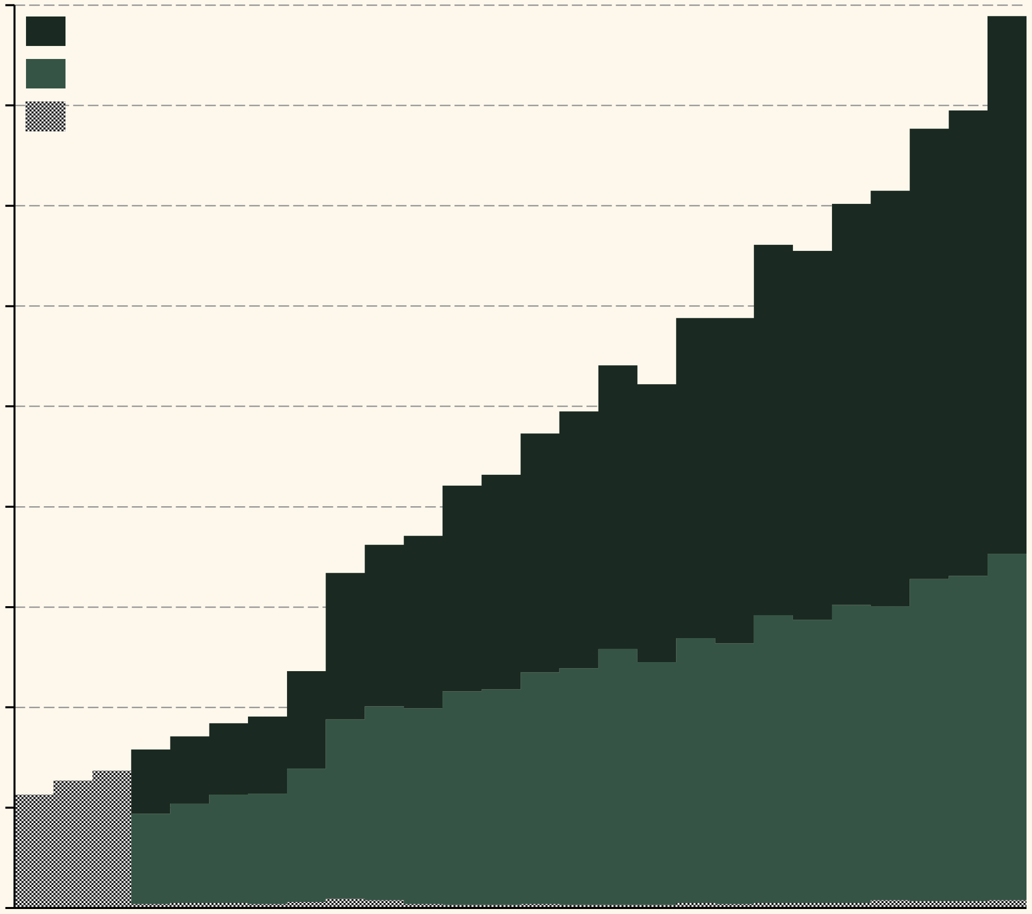


Sources: Roblox, Epyllion analysis

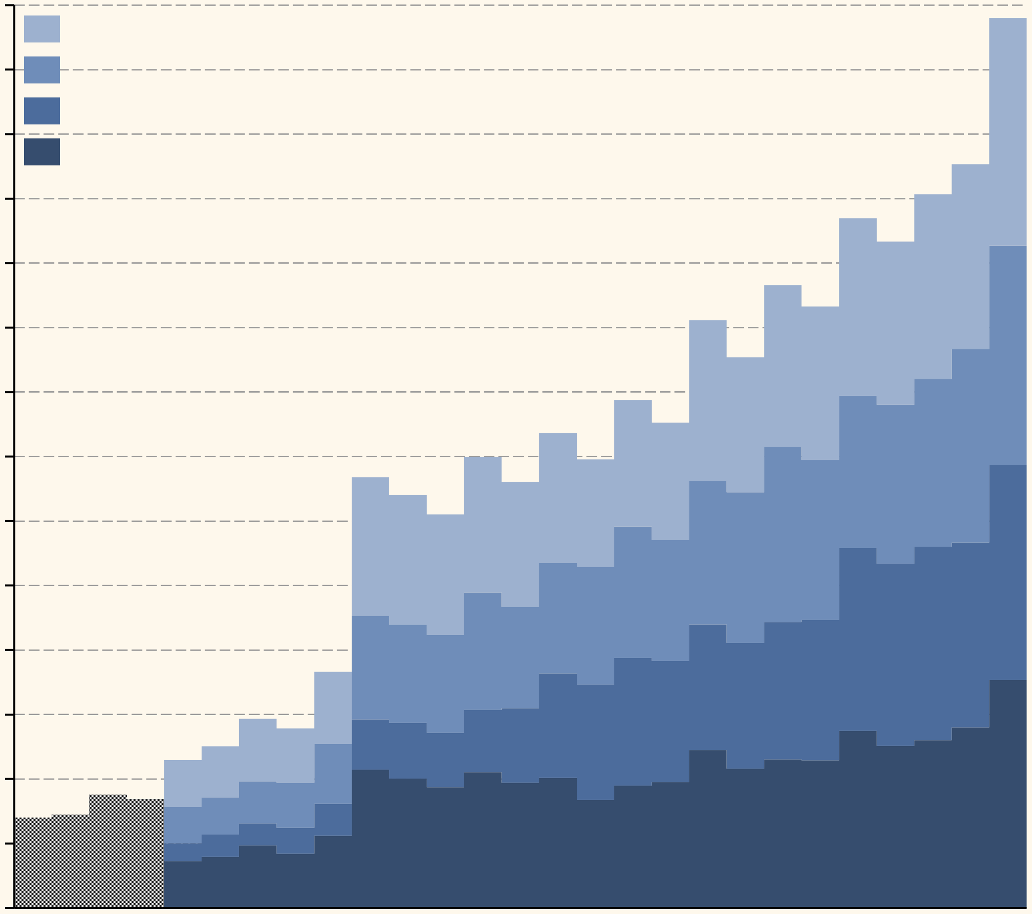
Yet Roblox's growth is also heavily diversified. 60% of users are now over 13 and playtime (and growth) is split roughly evenly across all major regions

EPYLLION

Roblox Average DAUs by Age by Quarter

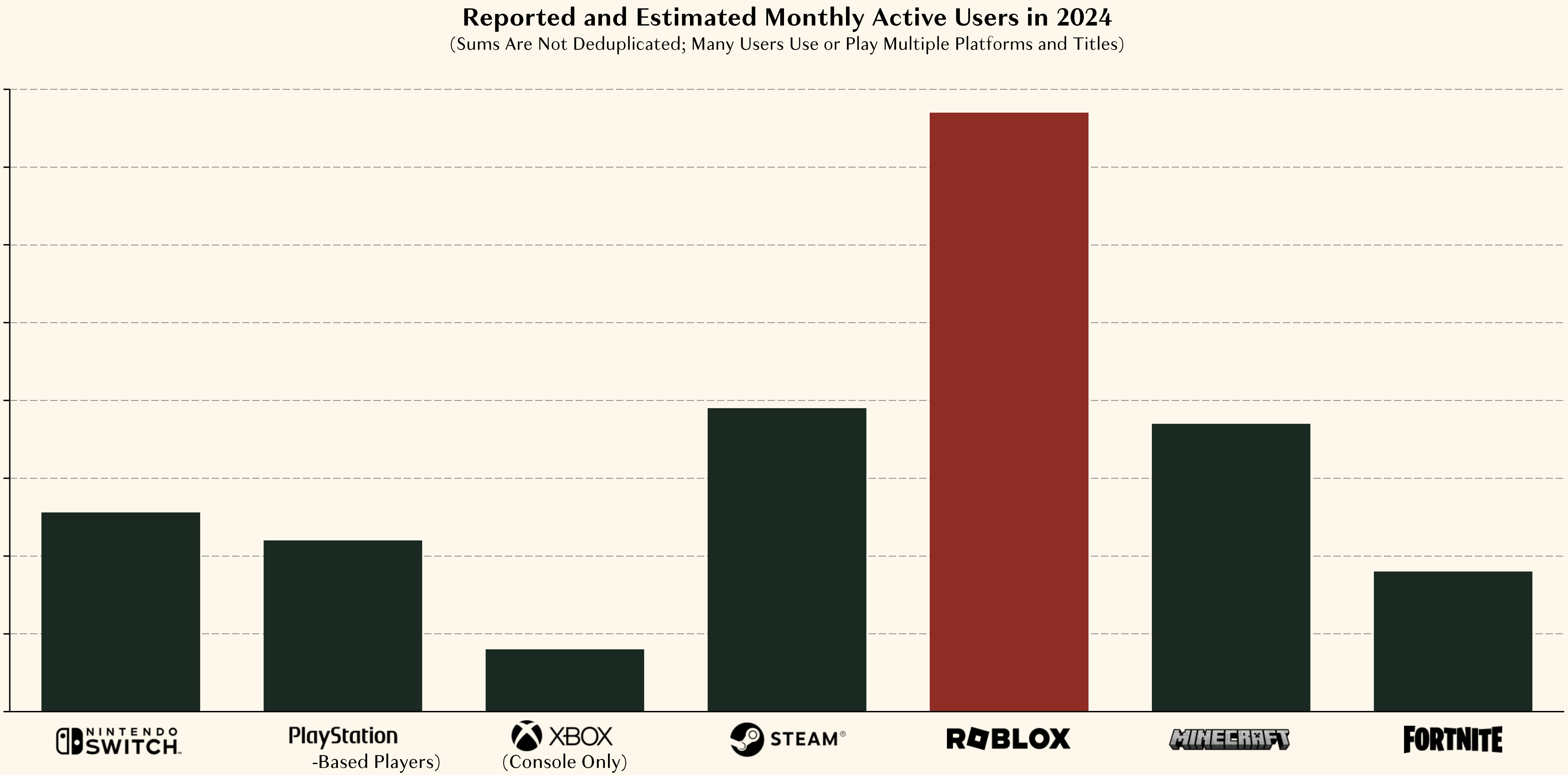


Roblox Avg. Monthly Hours by Region



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

EPYLLION



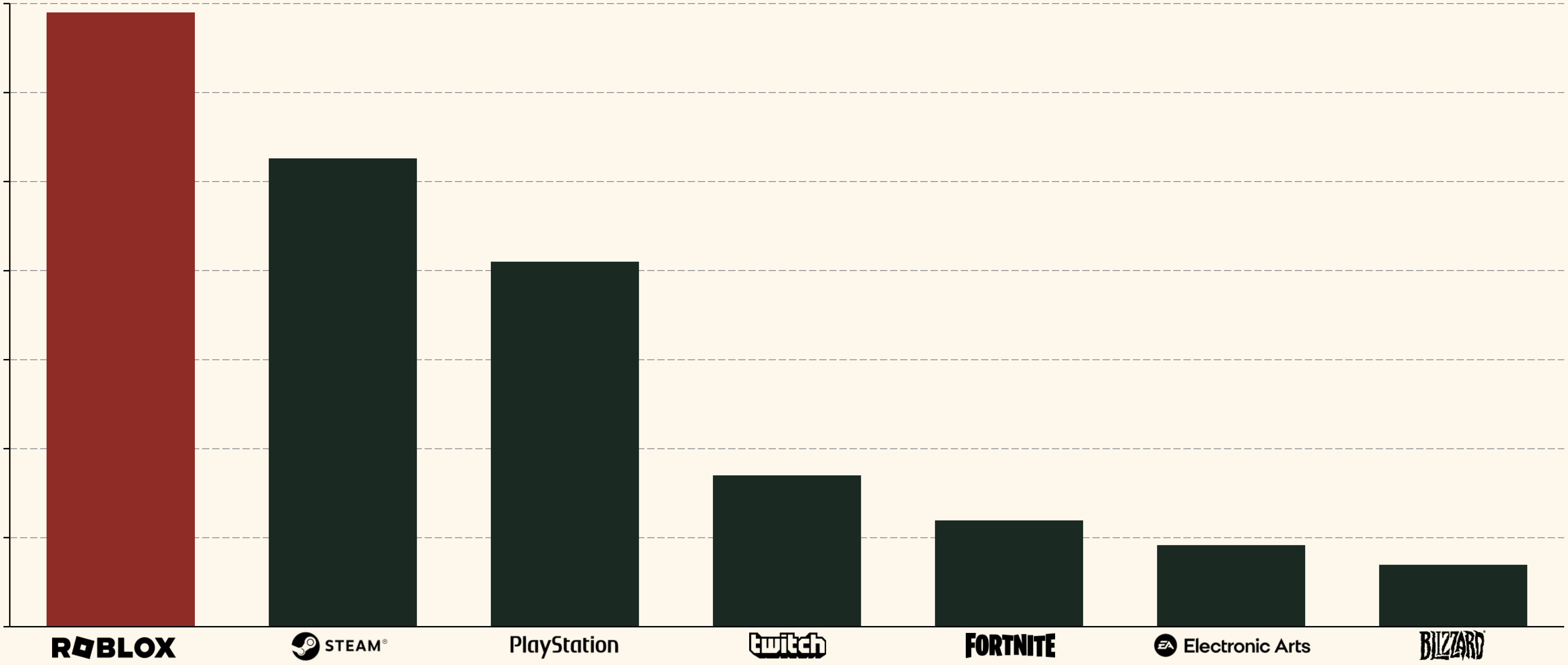
, Nintendo, Sony, Microsoft, , IGN, Epyllion analysis

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

EPYLLION

Monthly Hours of Engagement

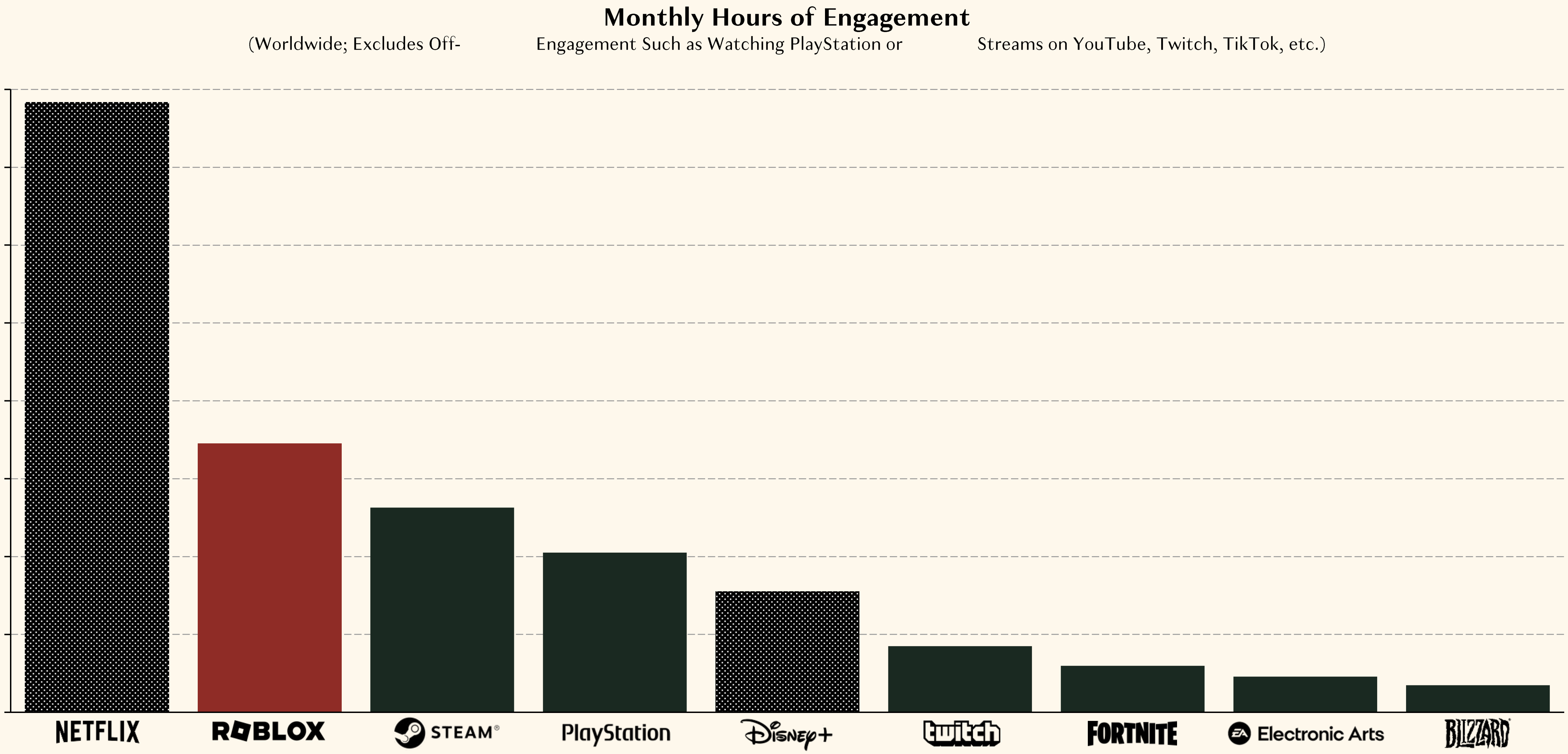
(Worldwide; Excludes Off- Engagement Such as Watching PlayStation or Streams on YouTube, Twitch, TikTok, etc.)



, Epic Games, Blizzard, Epyllion analysis

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+

EPYLLION

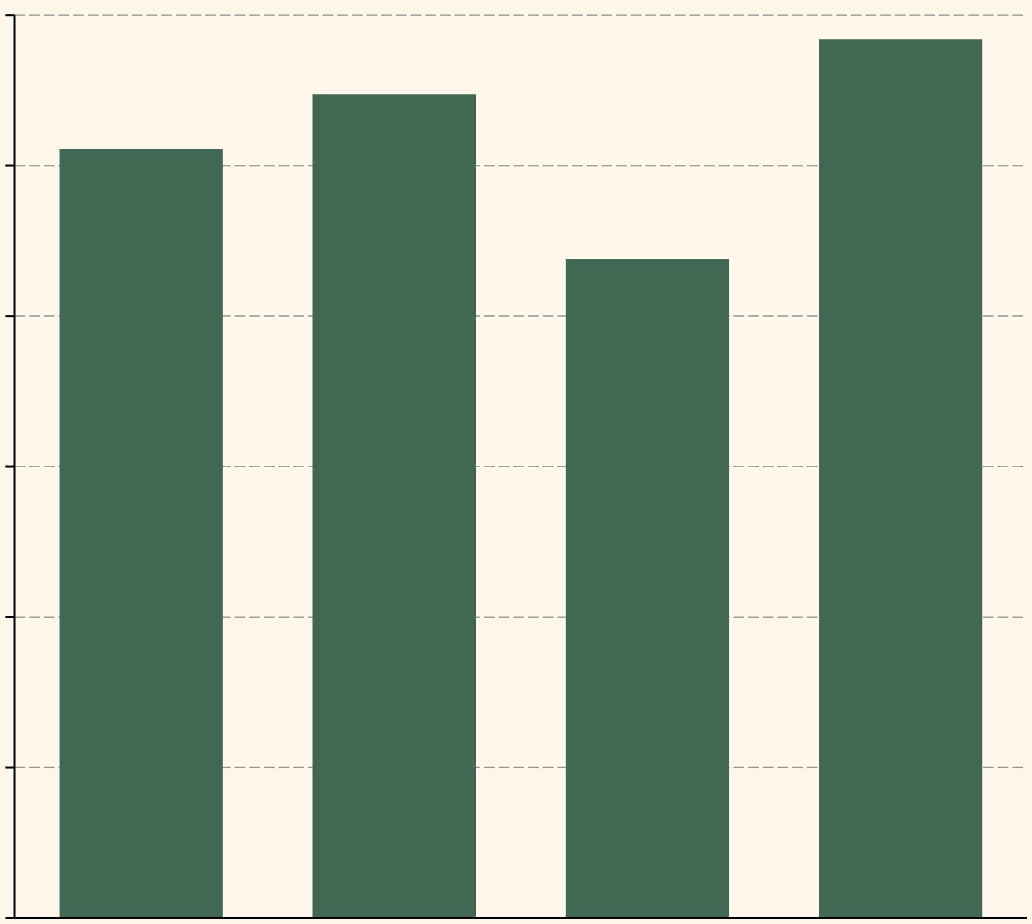


, Epic Games, Blizzard, Epyllion analysis

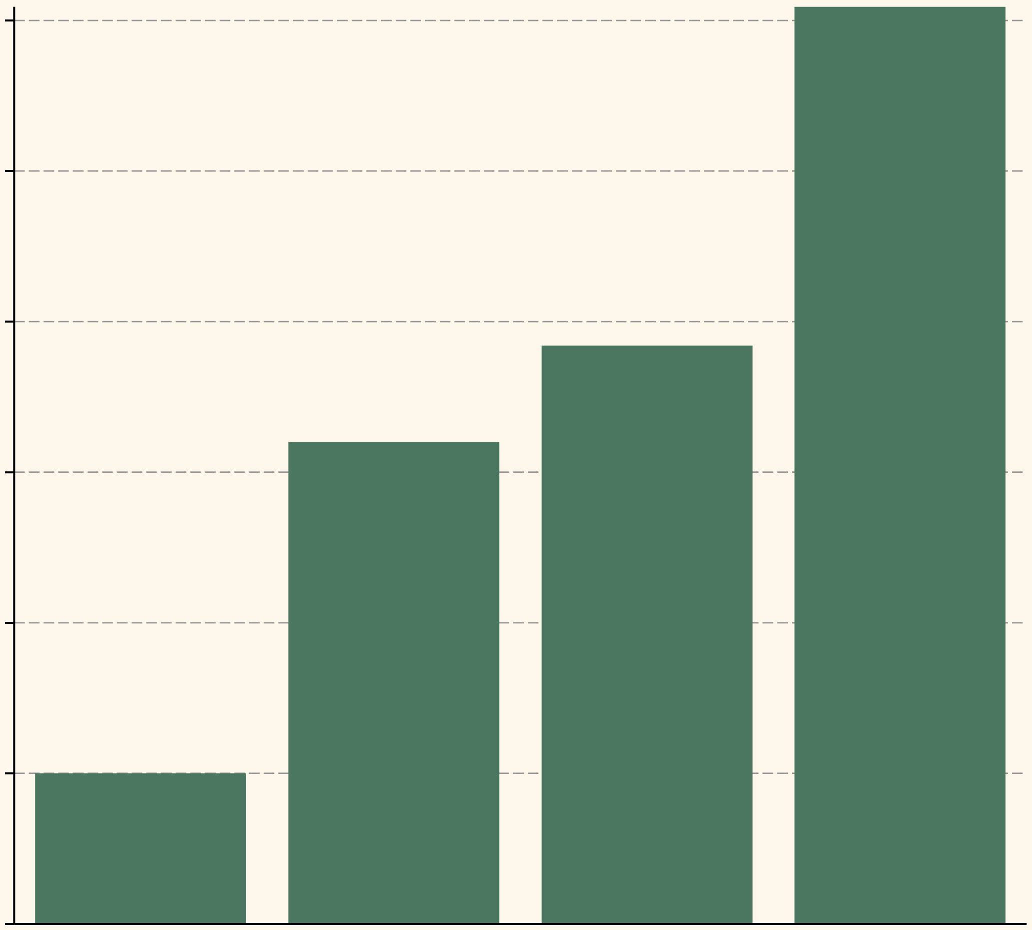
But Roblox doesn’t focus on “game-like” objectives (win, kill, shoot, defeat, score, beat) but non-game-like ones (share, create, express, identify, feel, show)

EPYLLION

Roblox UGC Experiences Made per Year



Roblox UGC Cosmetics, Assets or Bundles Made per Year
(Counts Bundles as a Single Release)

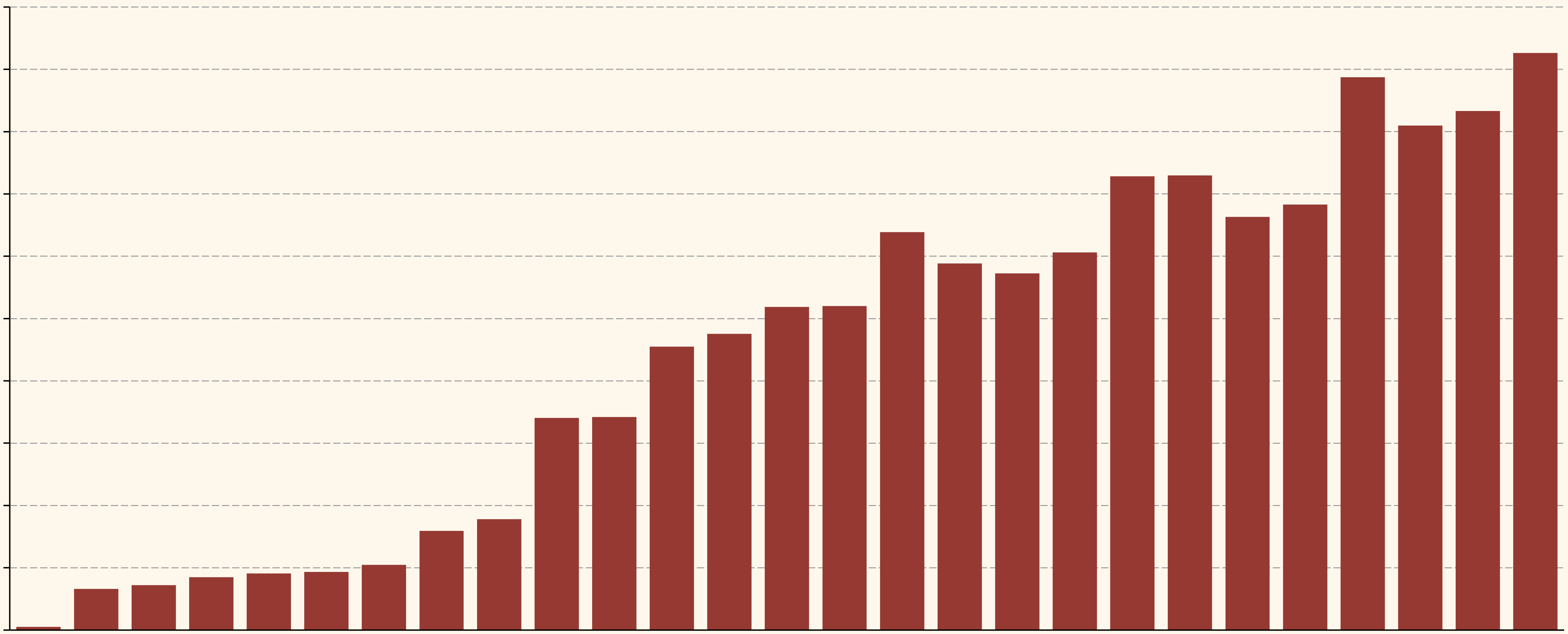


Source: Roblox, Epyllion analysis

Moreover, Roblox's UGC economy is piping, with over $3B in payouts to UGC developers since 2006 — and annual run-rate payments now approaching $1B

EPYLLION

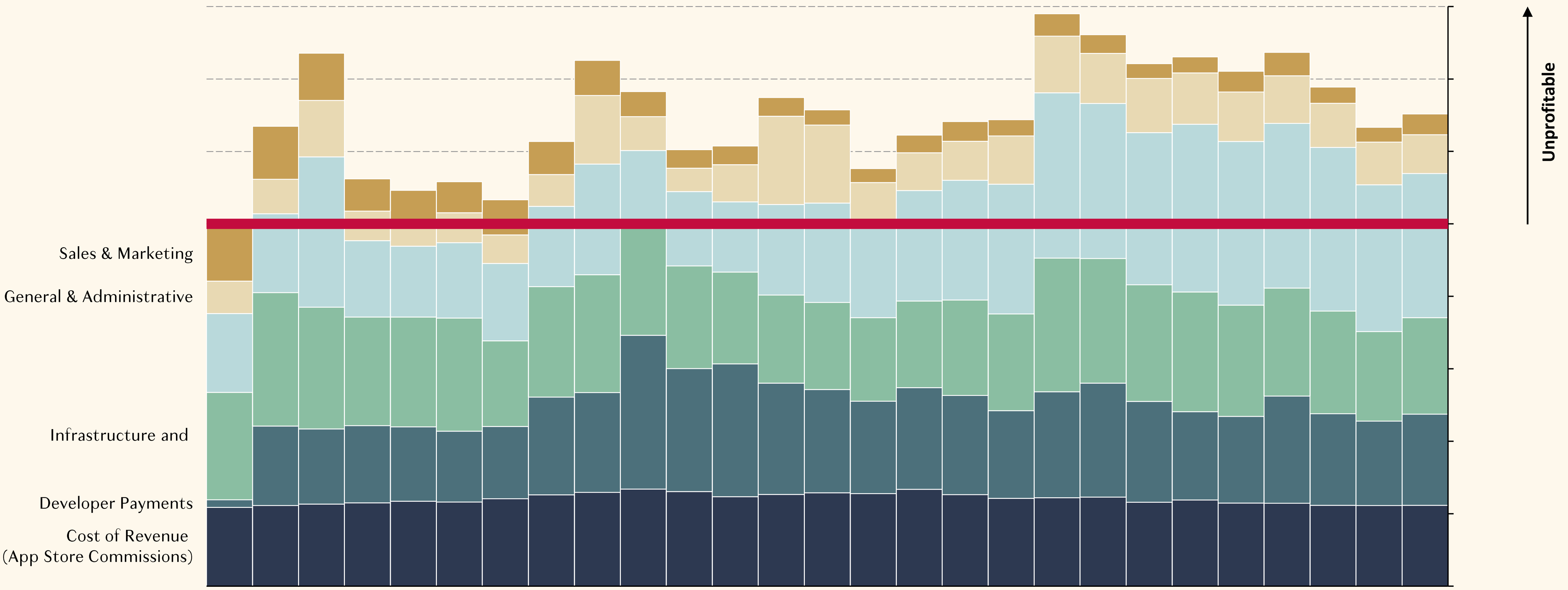
Roblox Quarterly Developer Payments



Yet Roblox also loses roughly $35 for every $100 a player spends. After App Store and developer payments, only $52 is left for the remaining $87 in costs

EPYLLION

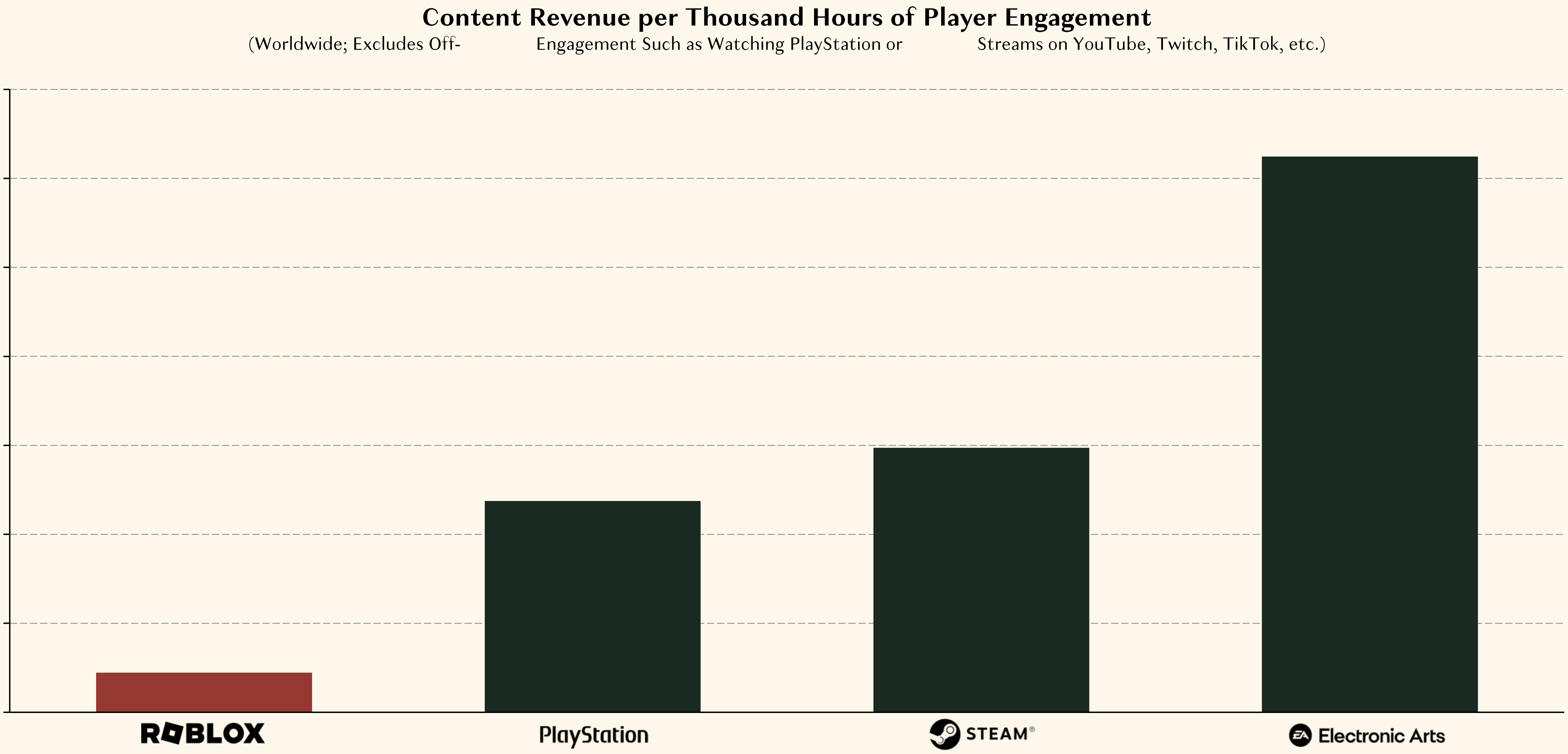
Roblox Costs as a Percentage of Revenue
(Based on GAAP)



Source: Roblox, Epyllion analysis

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

EPYLLION

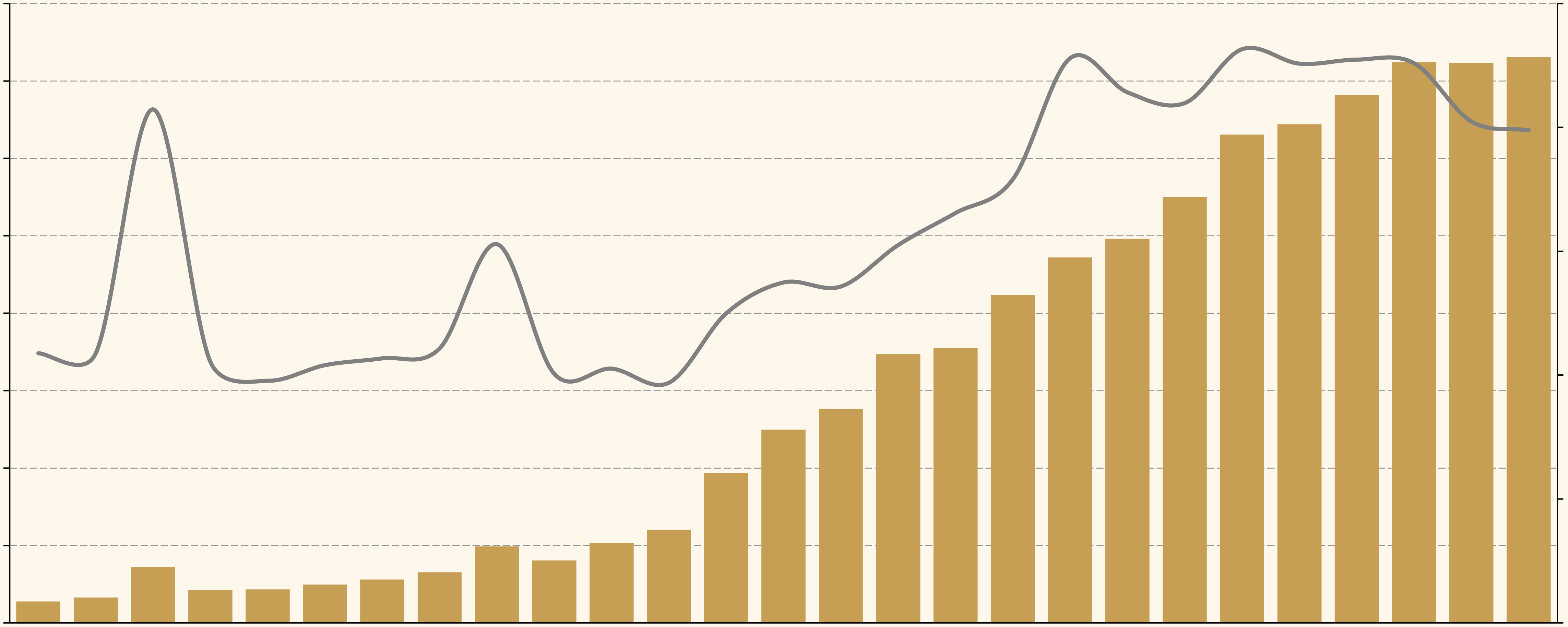


Sources: *Roblox, Sony, Valve, IDG, EA, Epyllion analysis*

Another challenge is the tech/tools platform required for such scale. Roblox now spends $1.4B annually (45% of revenue) just on R&D (a 13x increase over 5 years)

EPYLLION

Roblox Quarterly R&D Expense and R&D Expense as TTM Share of Revenue
(Based on GAAP)



Sources: Roblox, Epyllion analysis

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

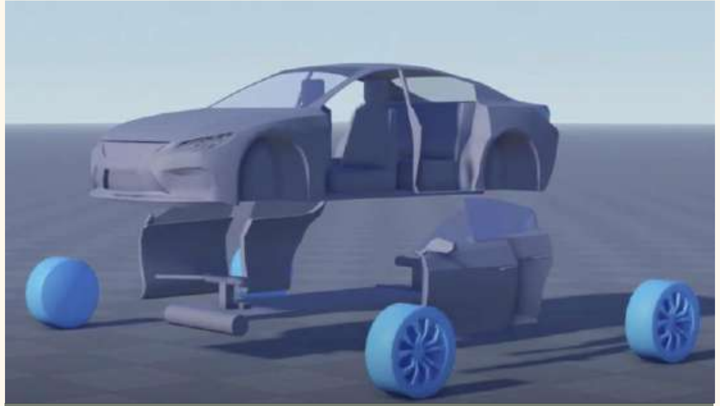
EPYLLION

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

Sources: Maximillian's FRONTLINES on Roblox, Josh Lu

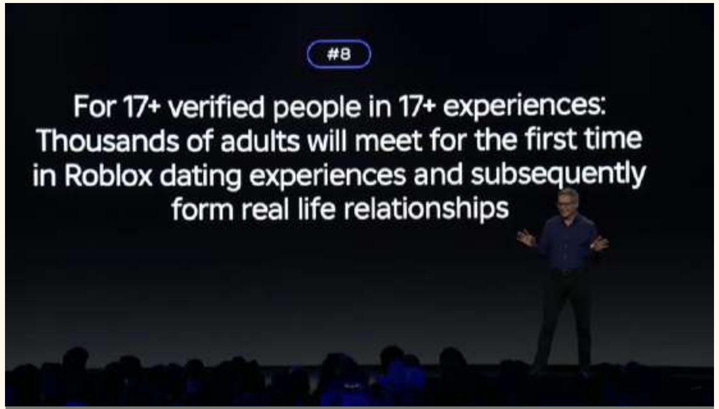
Roblox's R&D also supports numerous (mostly non-gaming) platform efforts. Few platforms ever reach 400MM MAU — and when they do, opportunities only grow...

EPYLLION



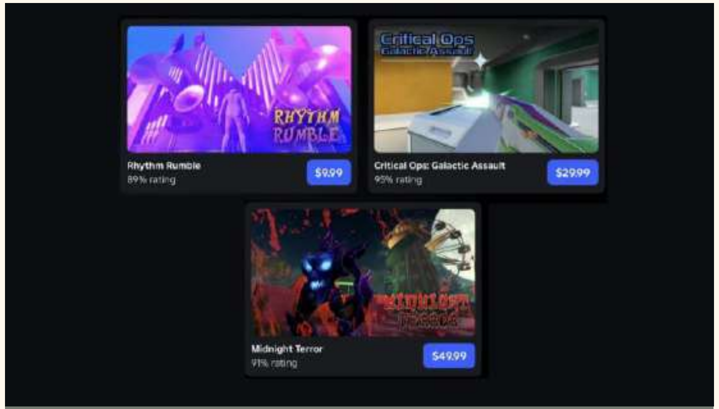
Fully Composable Objects & Worlds

Immersive Ad Network



(Rumored) Dating Platform

Social Messaging and Video Calling



Packaged Game Sales ($10-

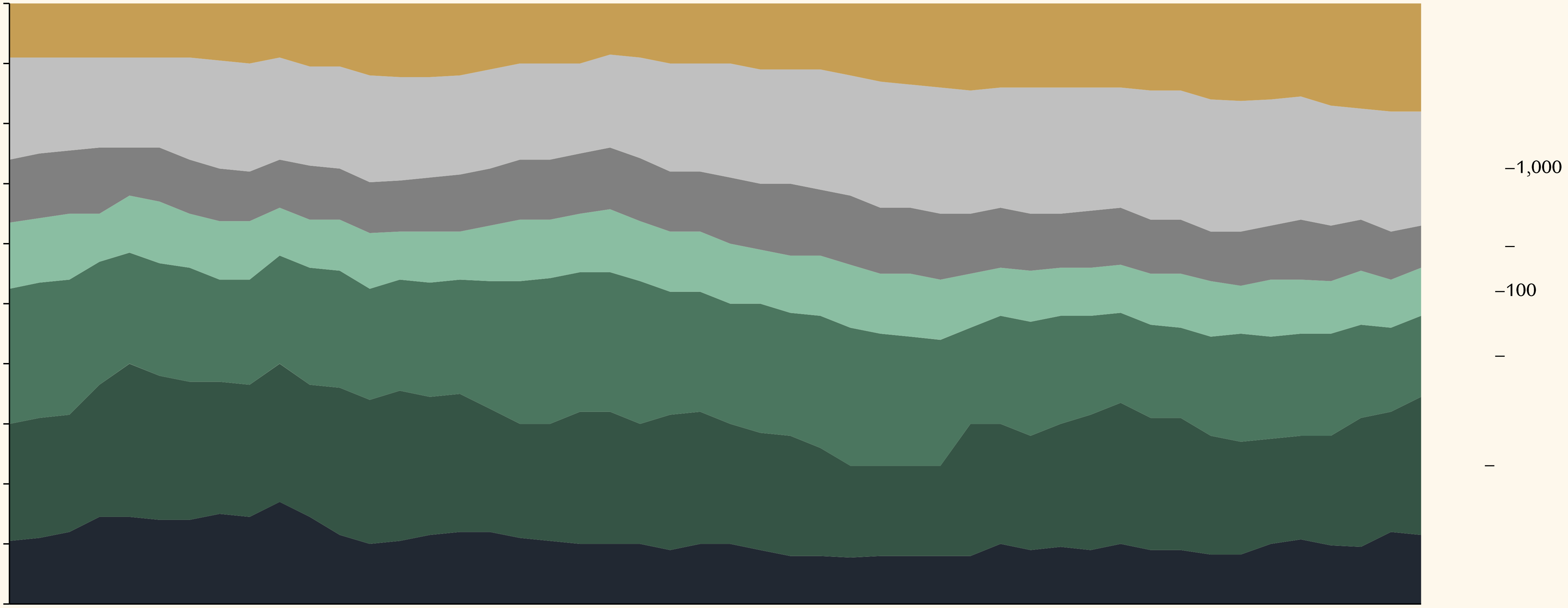
Shoppable Real World Merch

Sources: Roblox, Epyllion analysis

Yet Roblox has its own discoverability challenges: The most-played experience is 10% of playtime, while the top 10 are 30%, and top 50 of 15MM+ (!) are over half

EPYLLION

Distribution of Engagement Across All Roblox Experiences



Sources: Roblox, Epyllion analysis

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

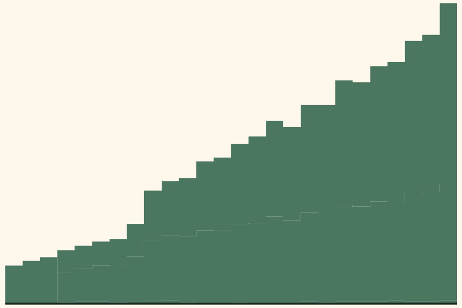
EPYLLION

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 —

Platform-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

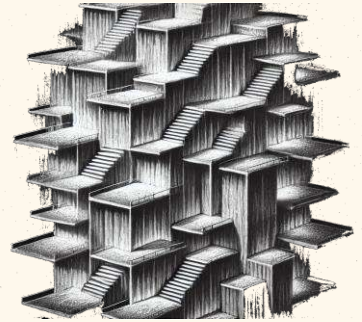
Moreover, a Roblox developer's is partly limited to the players already on Roblox as would-players cannot "directly" download a Roblox game

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 -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

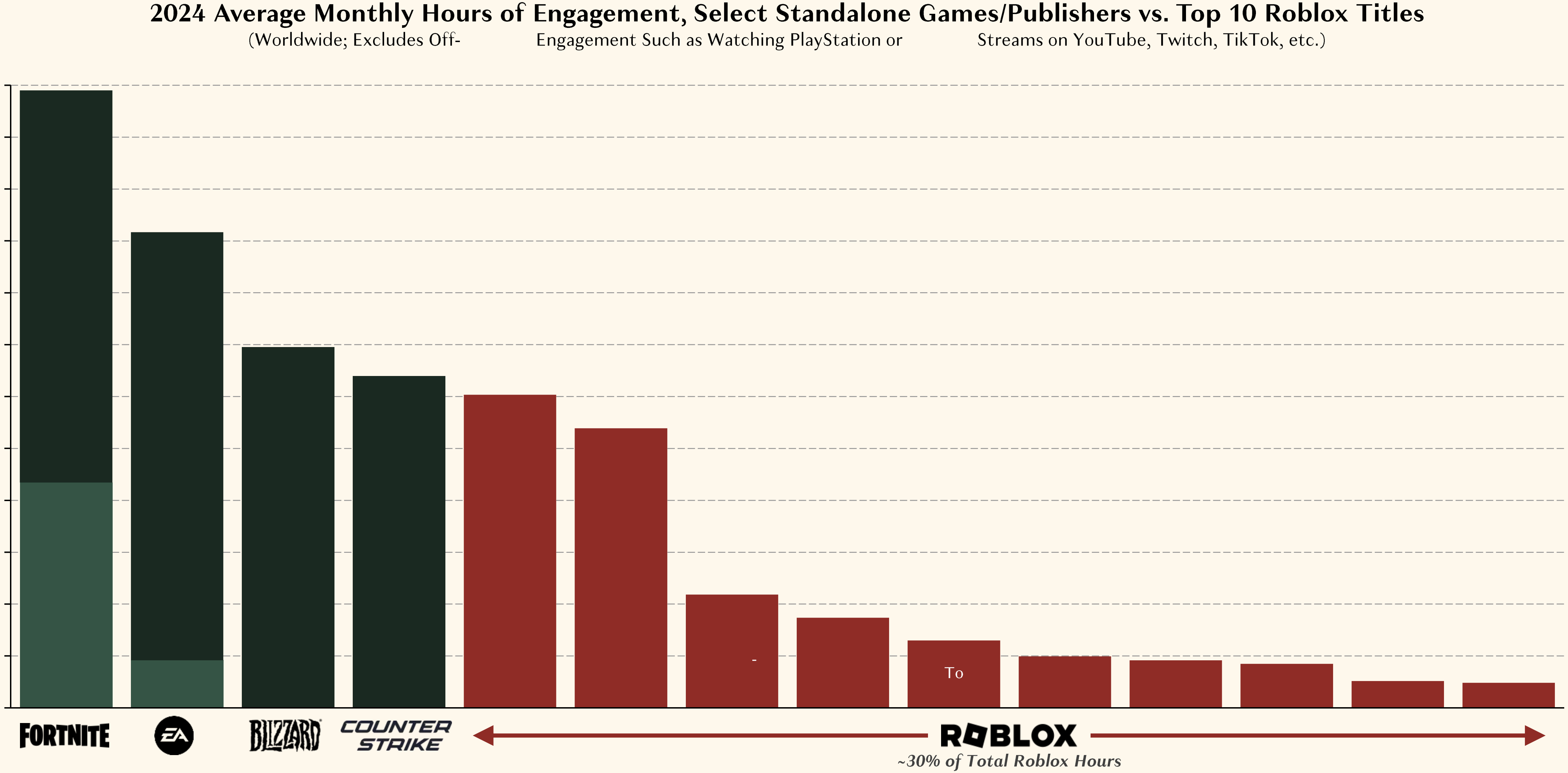


As is the case whenever a developer uses a closed platform managed by a for profit entity, the developer is subject to policy-related and/or commercial changes at Roblox. These may include the platform's approach to monetization and discovery, content and/or moderation rules, payments/royalties and other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

Source: Epyllion analysis

…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

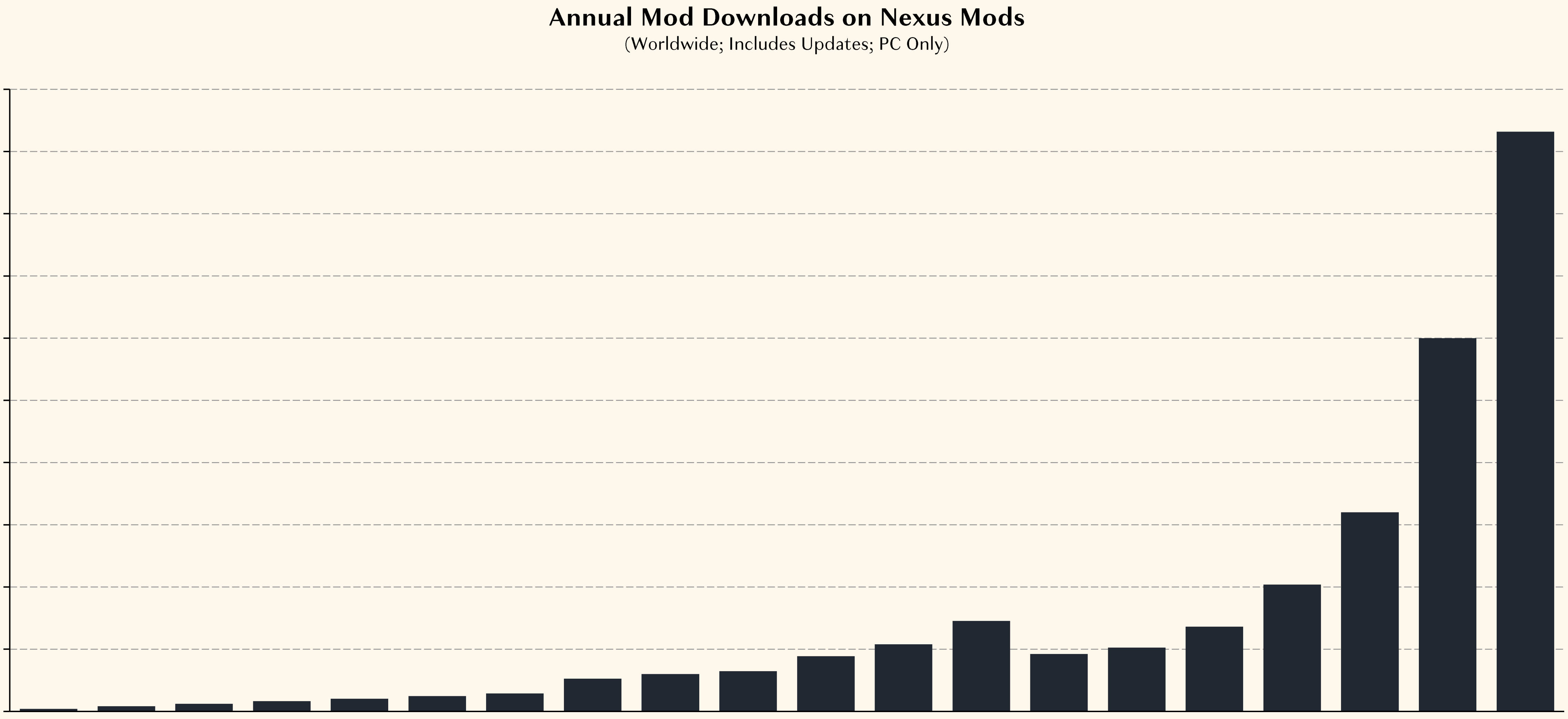
EPYLLION



Sources: Epic Games, EA, Blizzard, Valve, Roblox, , Fandom, Epyllion analysis

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

EPYLLION

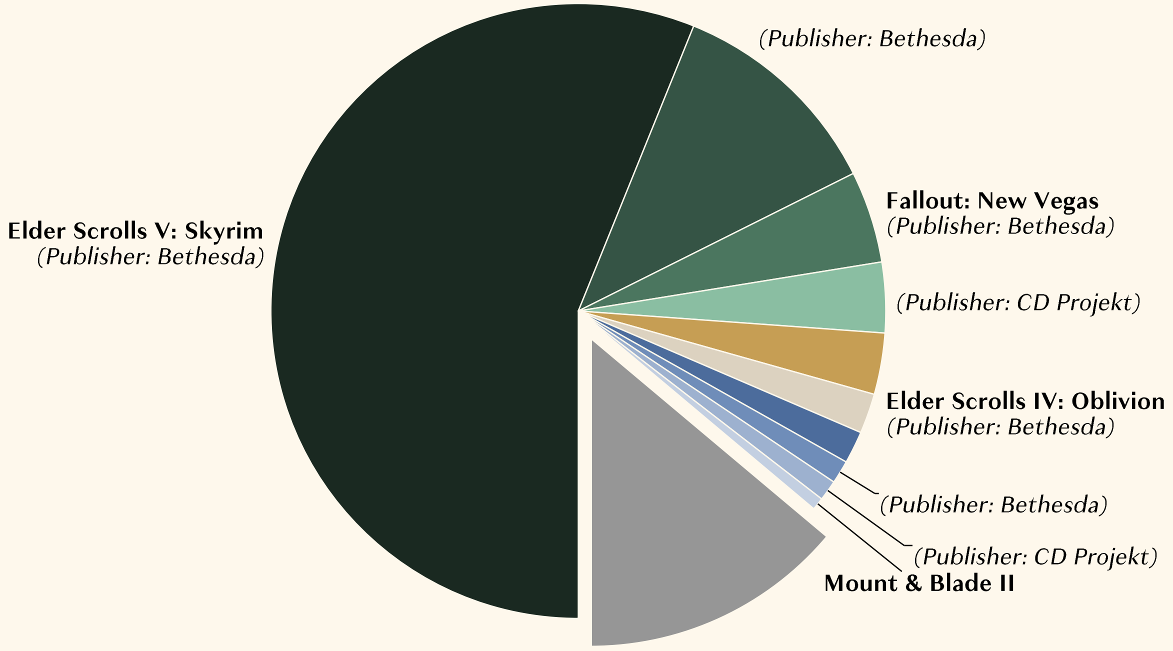


Sources: Nexus Mods, Epyllion analysis

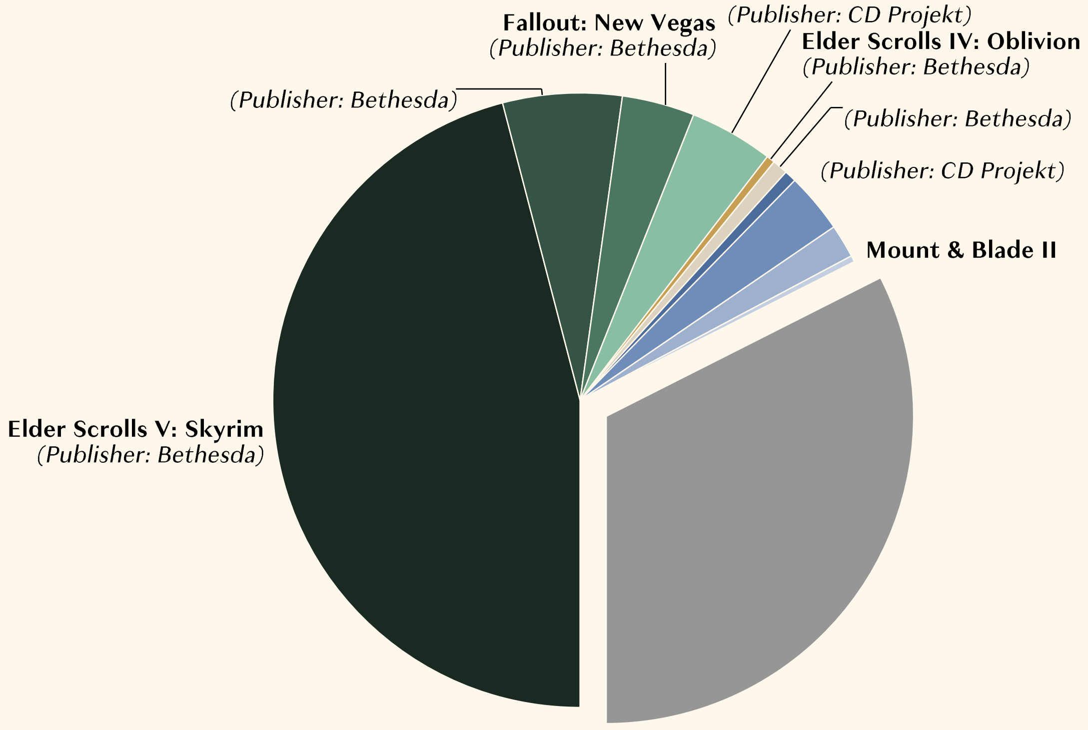
Unsurprisingly, UGC modding is often hyper-concentrated to top titles — a reflection of which genres are suitable, Metcalfe's Law, and publisher policies

EPYLLION

Share of Nexus Mods' Life- -Date 15B Mod Downloads
(Worldwide; Includes Updates; PC Only)



Share of 2025 Downloads on Nexus Mods
(Worldwide; Includes Updates; Nexus Mods PC Only)

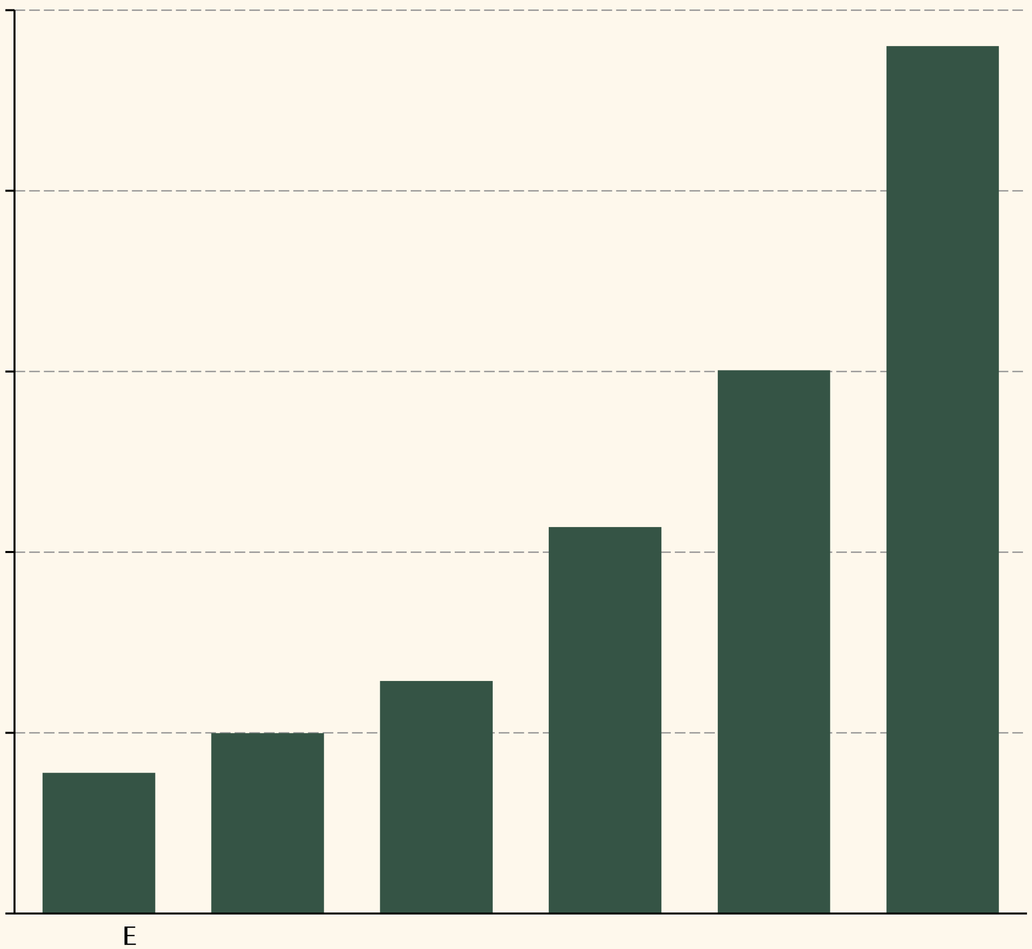


Sources: Nexus Mods, Epyllion analysis

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

EPYLLION

Annual Mod Downloads on CurseForge
(Worldwide; Includes Updates;

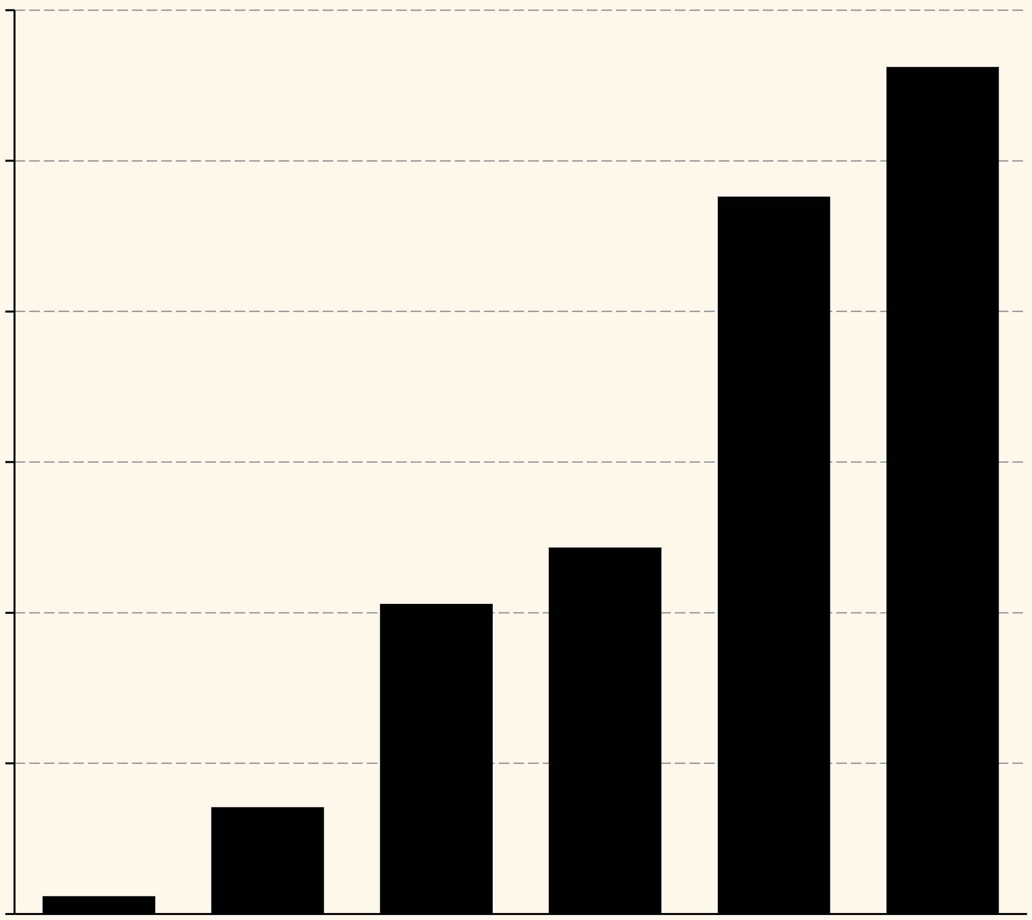


Share of CurseForge's - -Date 79.5B Mod Downloads
(Worldwide; Includes Updates;

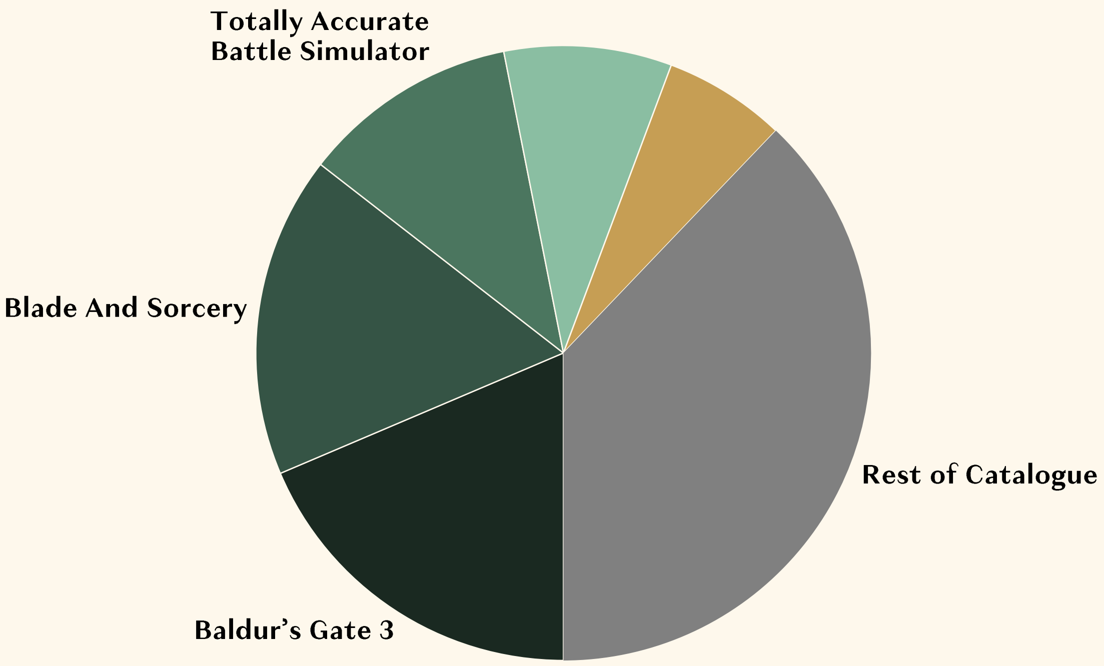
Mod.io, too, has seen its annual mod downloads surge to over half a billion per year, supporting an average of 15MM MAUs by the end of 2024

EPYLLION

Annual Mod Downloads from Mod.io
(Worldwide; Includes Updates;



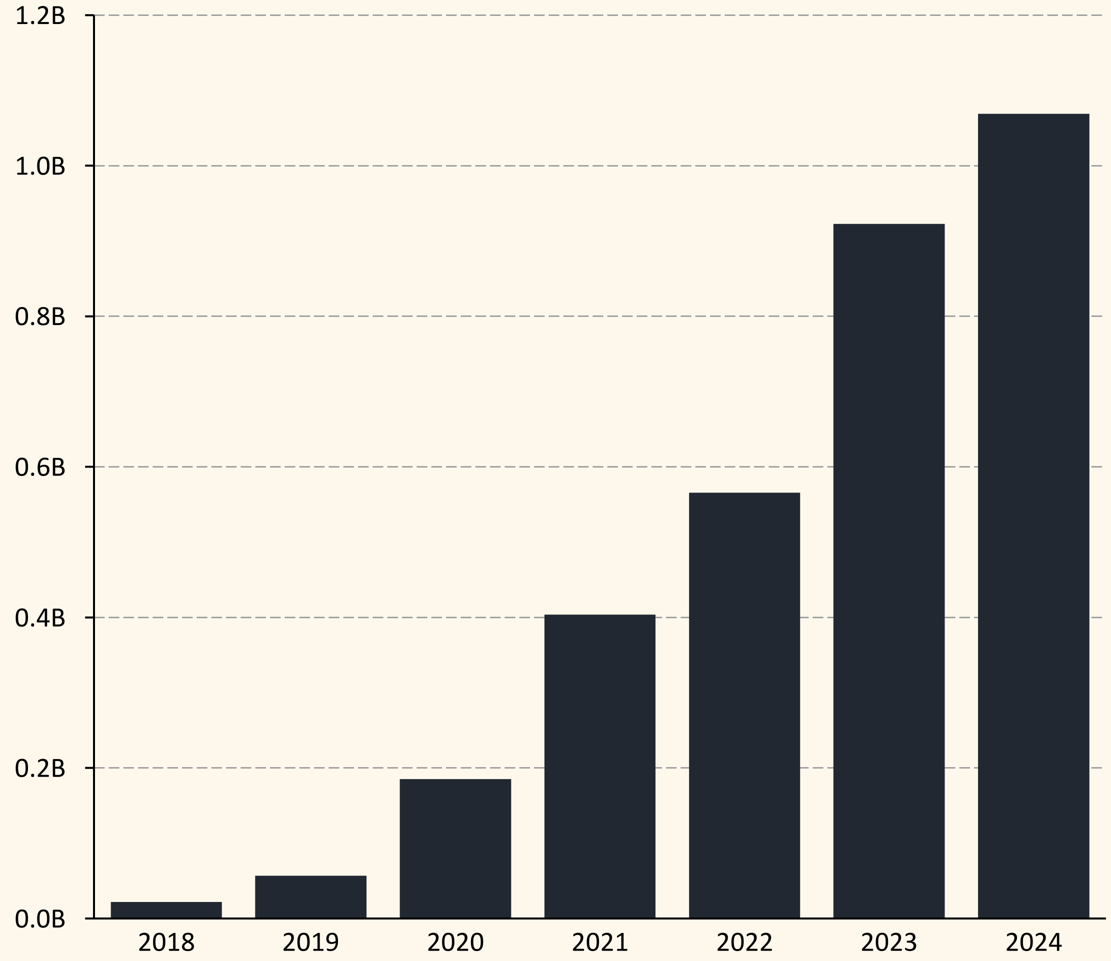
Share of Mod.io's 550MM Mod Downloads in 2024
(Worldwide; Includes Updates;



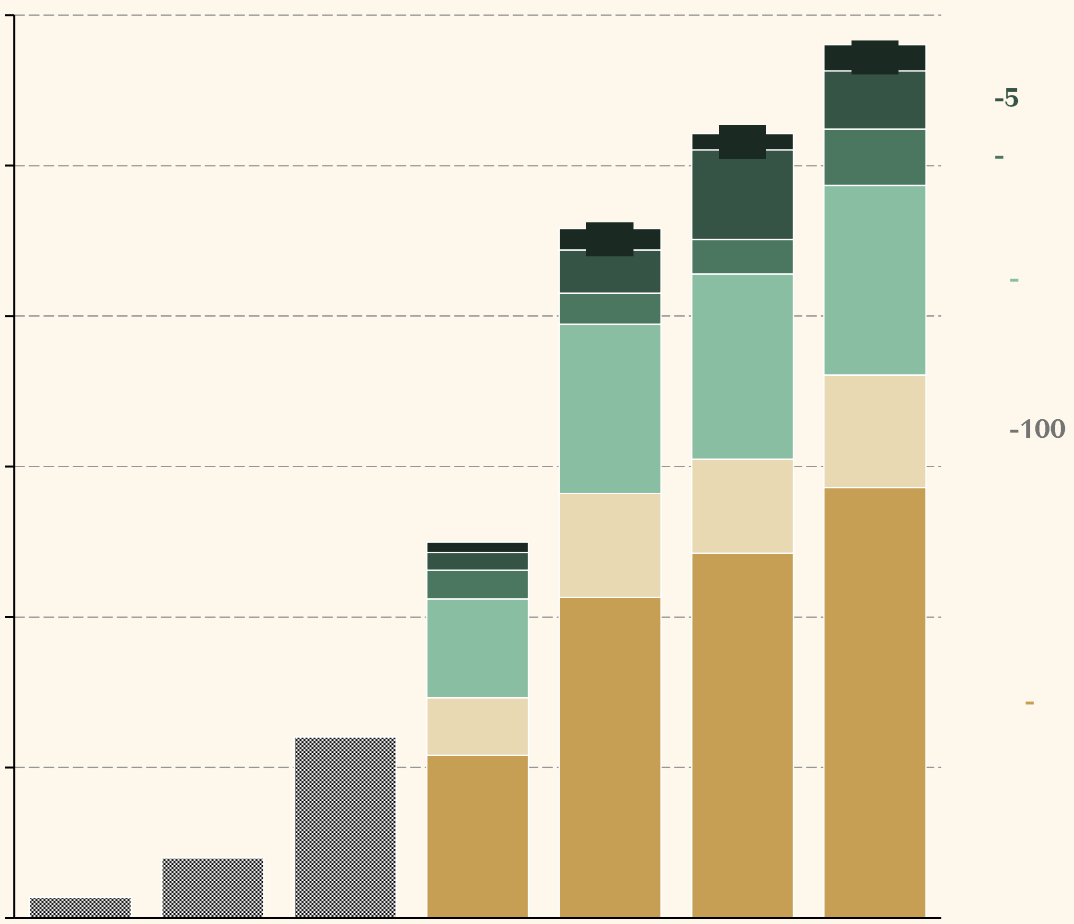
Through real–time game assist (or challenge) mods for non–competitive games, WeMod is driving hundreds of millions of hours of diverse catalogue engagement

EPYLLION

WeMod Total Mod Activations By Year



Hours of WeMod Use by Title Popularity in Year



Reviewing Potential New "Growth Engines"[1]

EPYLLION

"Non-Core" Markets

UGC Platforms & Tools

Social Game Services

Switch 2

Other New Handhelds & Devices

AA/AAA Mobile Gaming

App Store Regulation

New Game Genres

Advertising

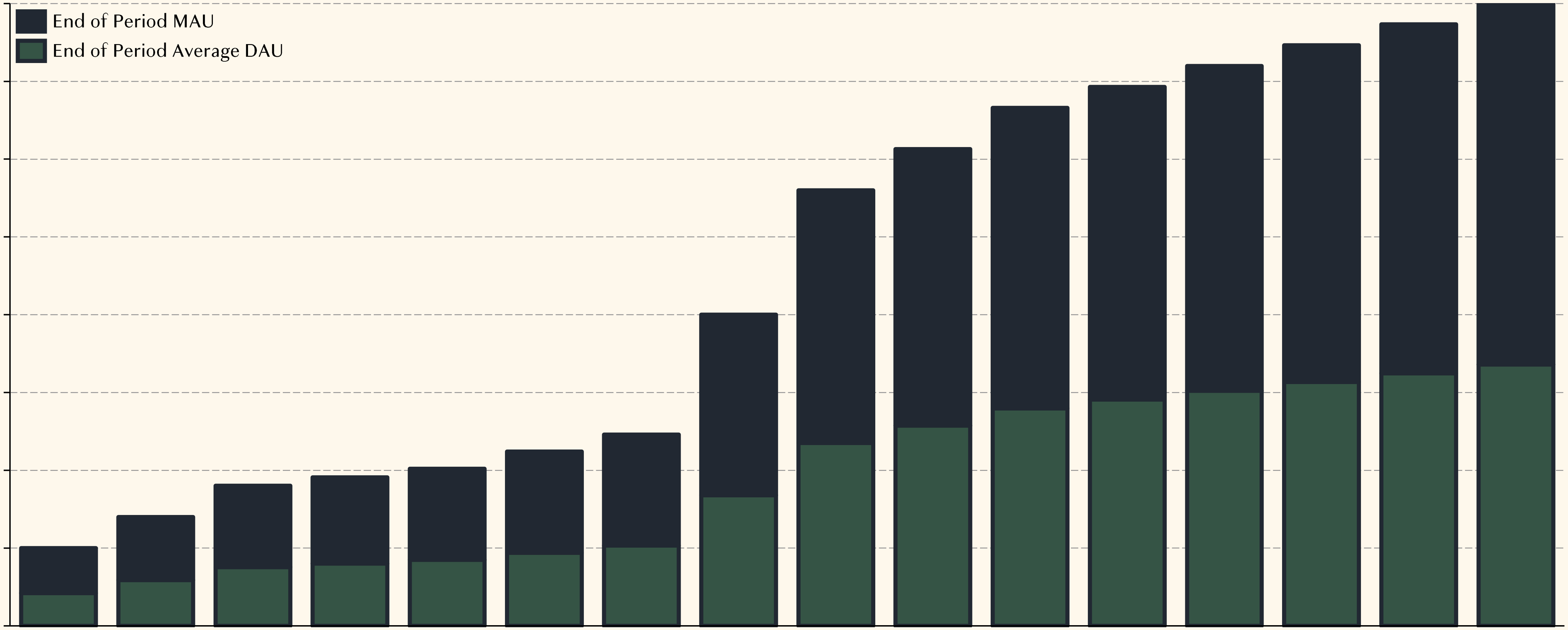
GTA VI Pricing

[1]*Ordered logically, rather than in order of monetary value, significance, timing, etc.; This isn't to say I believe in each one, let alone to the degree sometimes argued, but I do think each is worth arguing*

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

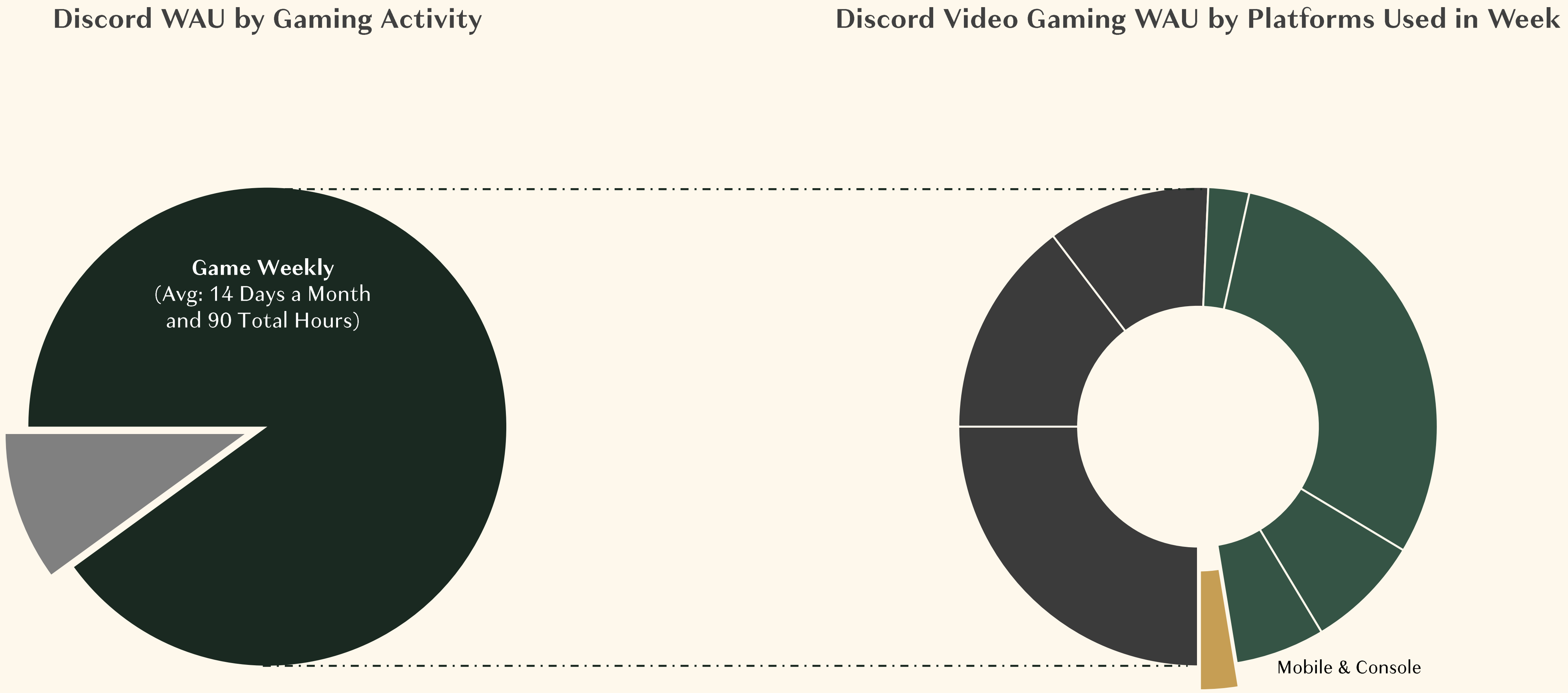
EPYLLION

Discord Monthly And Daily Active Users by Quarter End



Sources: Business Insider, CNN, New York Times, Venture Beat, Discord, Epyllion analysis

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

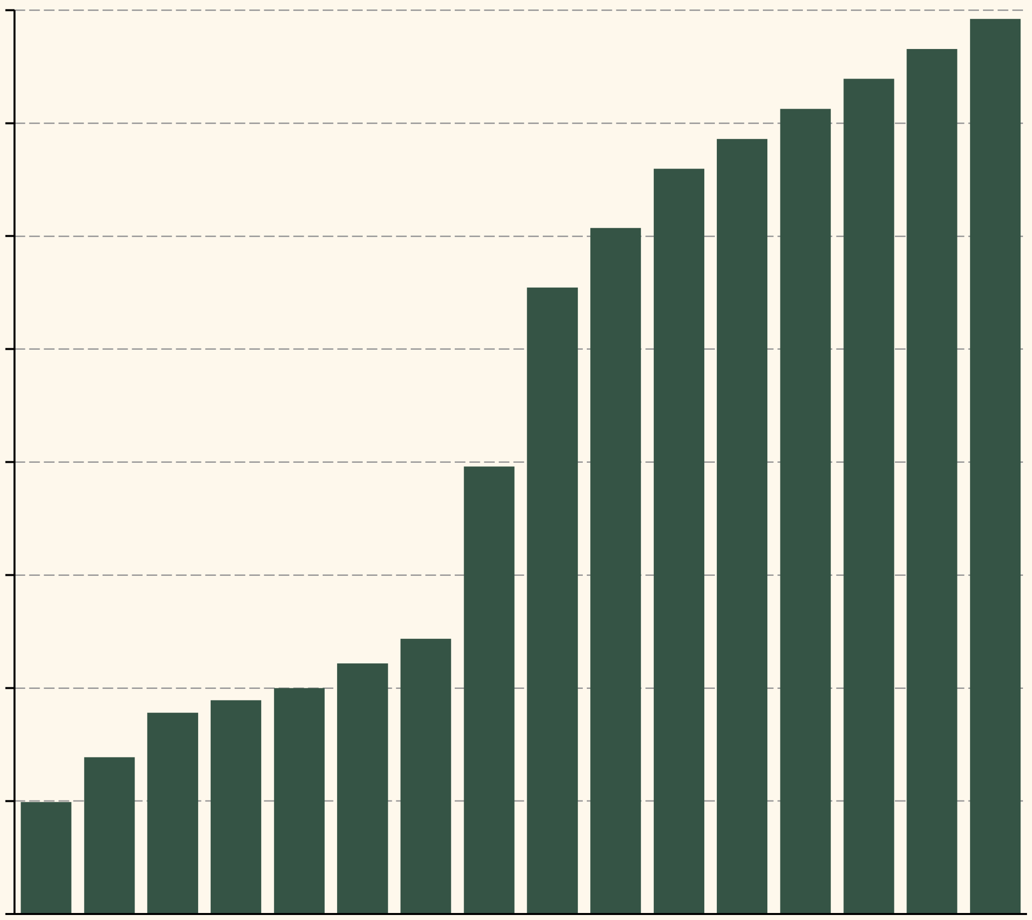


Sources: Discord, Epyllion analysis

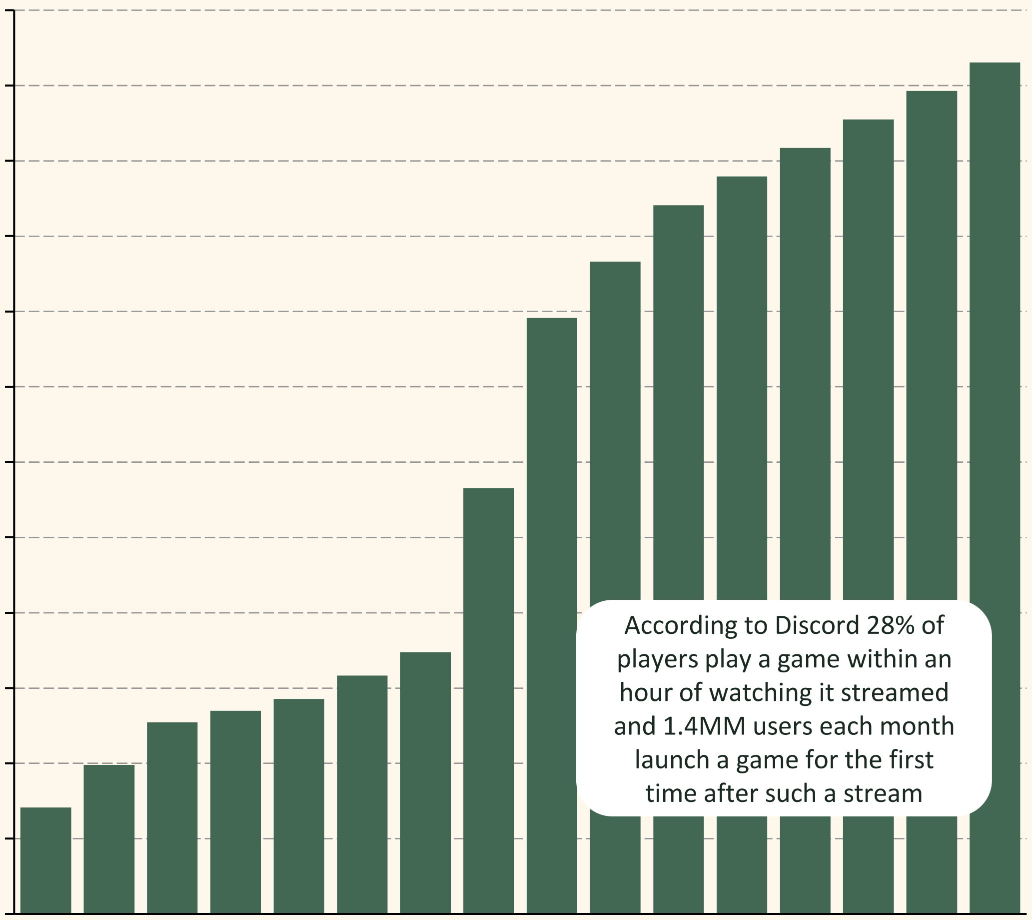
One in five Discord users (or 40MM total) use the app to stream gameplay to their friends each month — and just under one in three watches monthly

EPYLLION

Avg. Discord Users Who Stream Monthly to Friends



Avg. Discord Users Watching Friend/Server Stream in Month



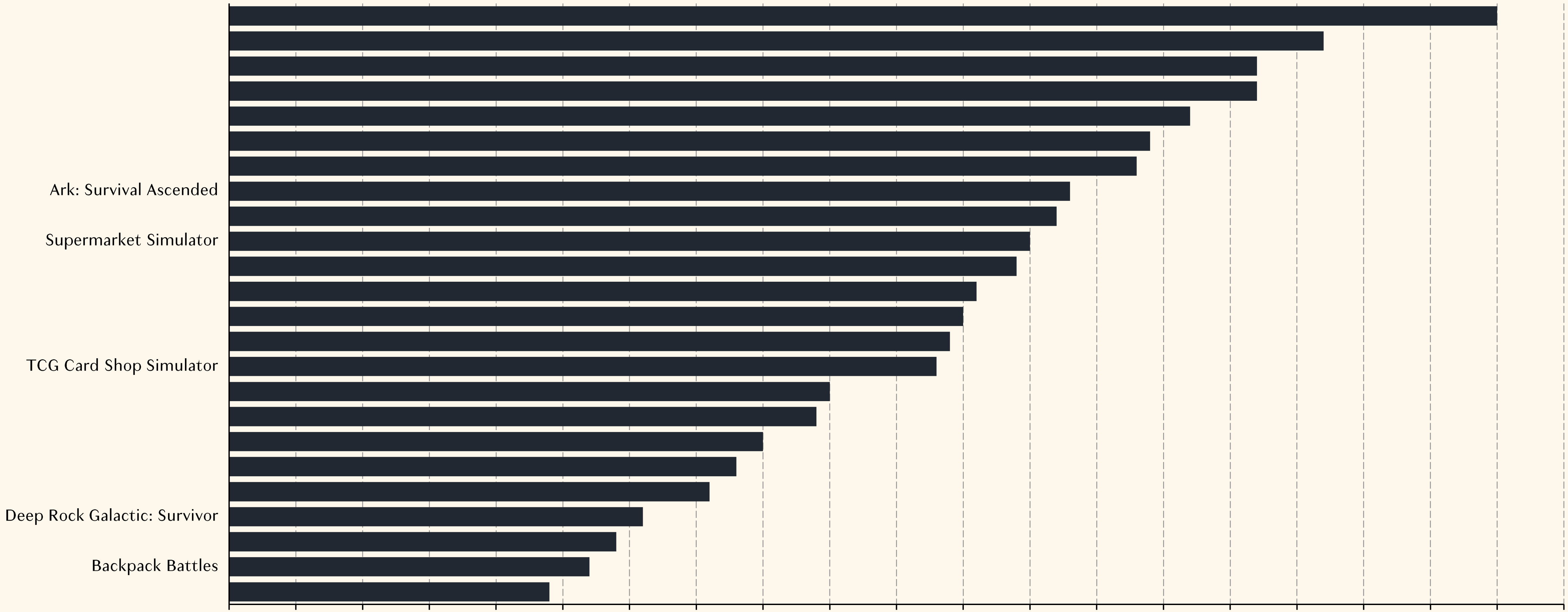
Sources: *Business Insider, CNN, New York Times, Venture Beat, Discord, Epyllion analysis*

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

EPYLLION

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

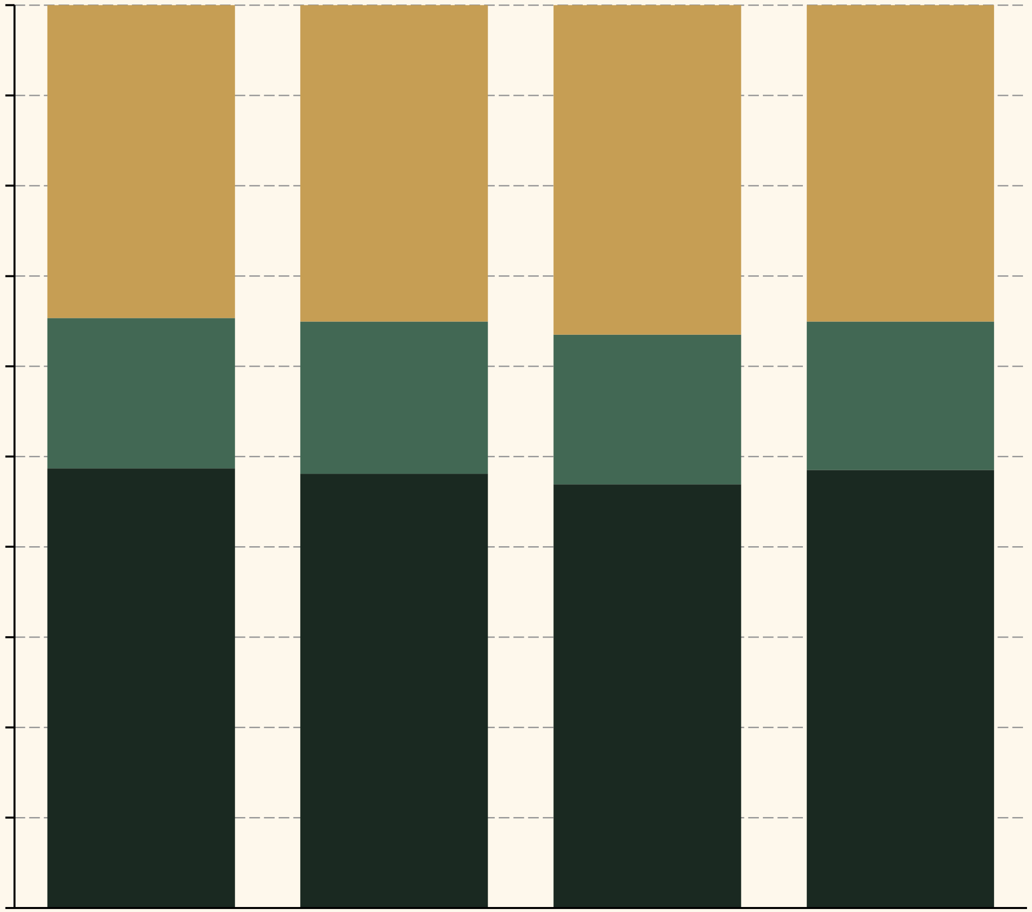
(Worldwide, PC Only, Q4 30-Day Lookback)



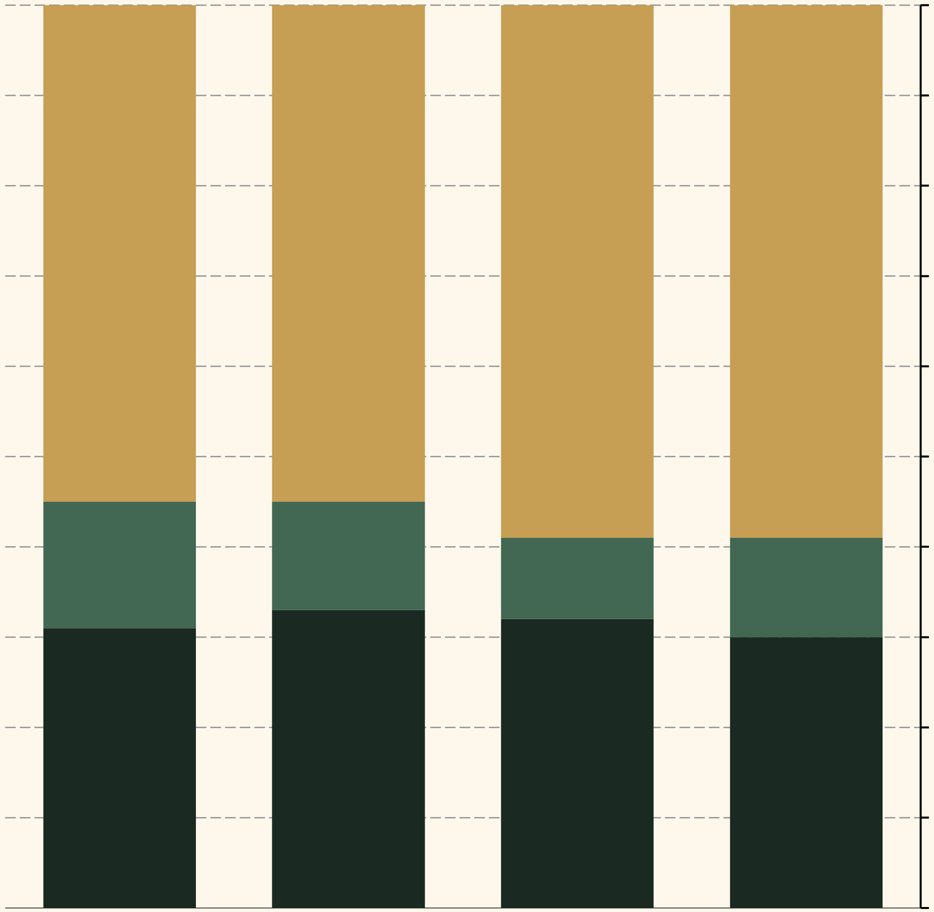
Unsurprisingly, Discord users have far greater gameplay diversification than typical gamers. Surprisingly, time has *diversified* as users scaled – not reverted to the mean

EPYLLION

Distribution of Total PC Playtime by Rank in Year
(Worldwide; Users 18+; 37 Markets Total and Excludes India and China)



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



Sources: Newzoo, Discord, Epyllion analysis

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

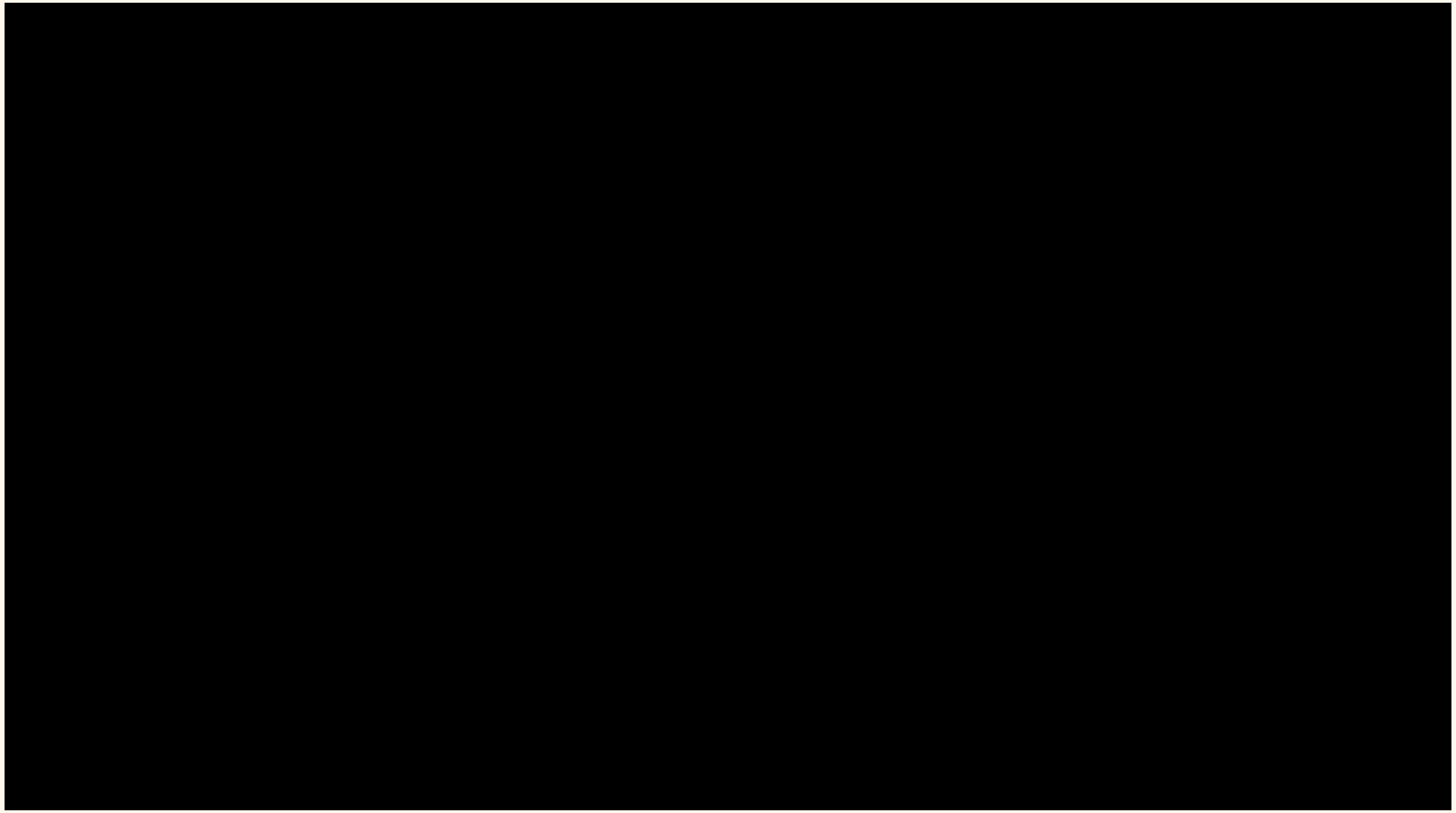
EPYLLION

Sources: Sony, Microsoft

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

EPYLLION

Discord Quests Overview Video



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

Reviewing Potential New "Growth Engines"[1]

"Non-Core" Markets

UGC Platforms & Tools

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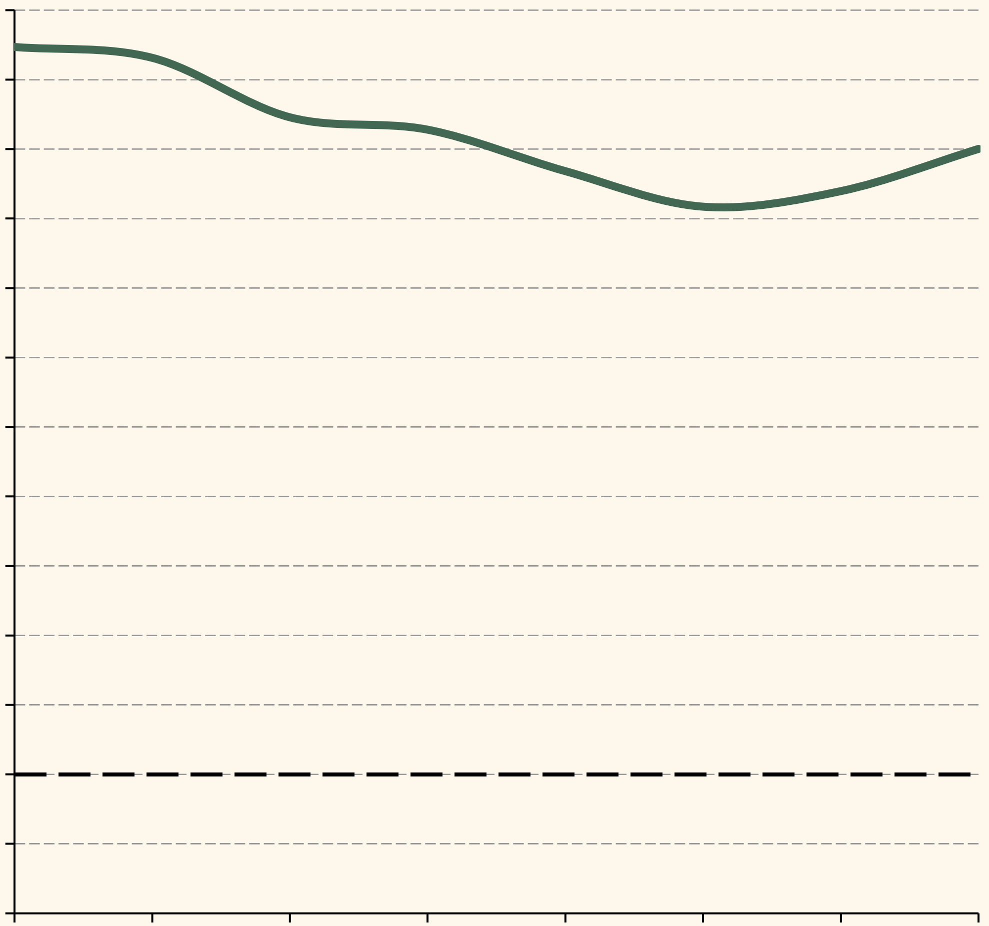
[1]Ordered logically, rather than in order of monetary value, significance, timing, etc.; This isn't to say I believe in each one, let alone to the degree sometimes argued, but I do think each is worth arguing

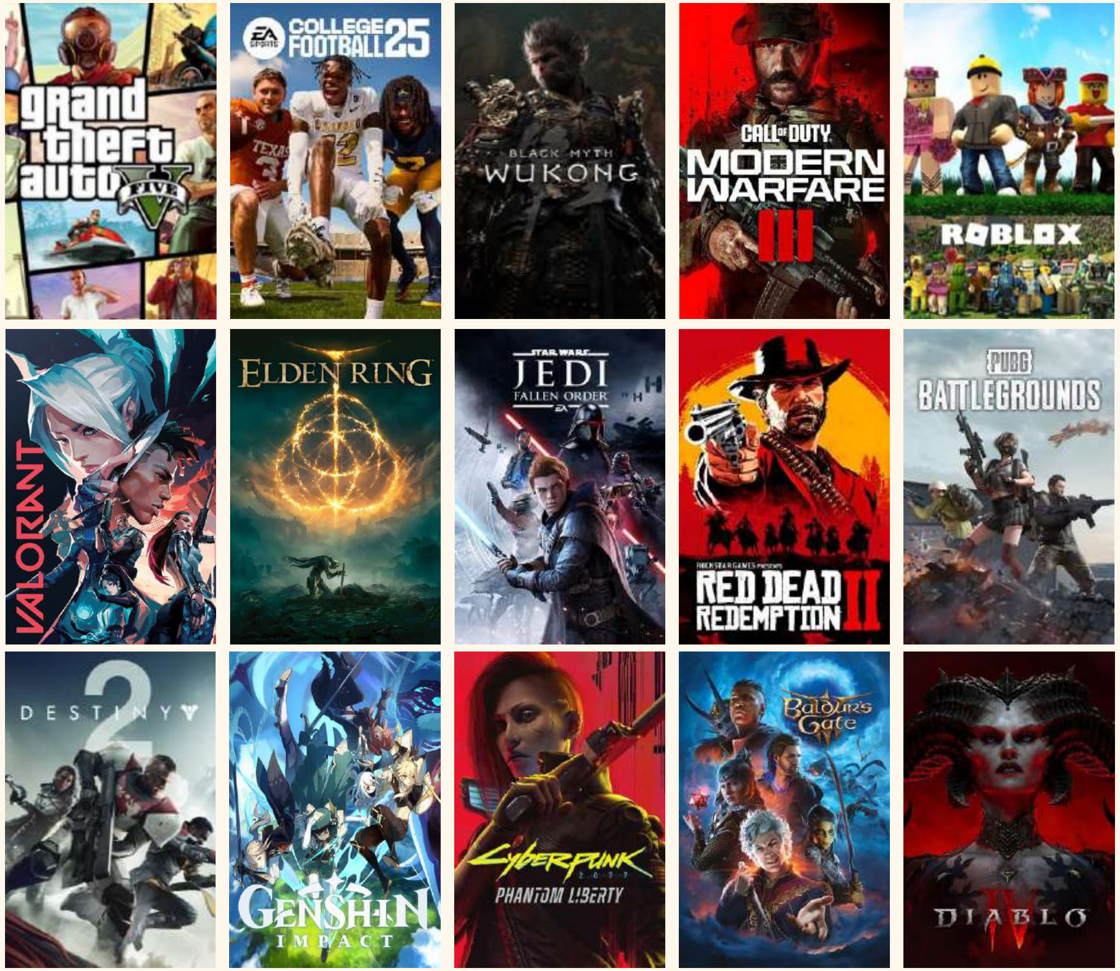
Nintendo's own games dominated Switch content sales in part because many of the top multiplatform games aren't on the device. Why? Many can't even run on it!

EPYLLION

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



Notable Multiplatform Hits not on Nintendo Switch
(As of December 15, 2024)



Sources: Nintendo, Niko Partners & Daniel Ahmad, Epyllion analysis

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

EPYLLION

Sources: Epic Games, WB Games

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

EPYLLION

Switch, 2017–

Modified 2017 Tegra X1 (Model T210)

- Two Clusters (256 CUDA Cores + 256 Shader Cores)
- GPU 700-900MHz
- -bit Memory Interface
- 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)

-Powered
(GPU, Battery, Display)
→ **Long Battery life**
–7 hours by title and brightness, enabling actual portable use)

, Digital Foundry, Kernel.org, Eurogamer

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"

EPYLLION

Switch, 2017–

Modified 2017 Tegra X1 (Model T210)

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

Switch 2, 2025–

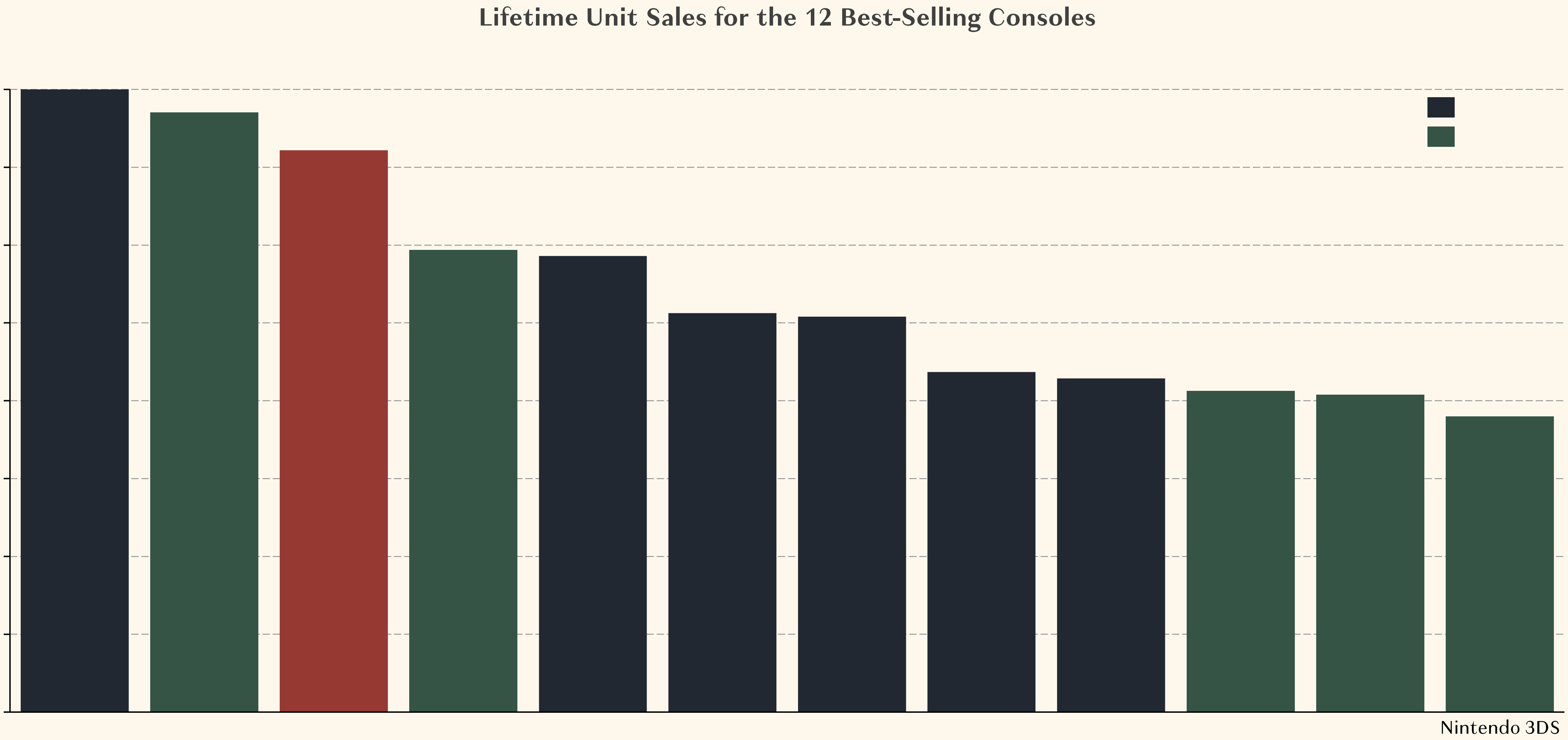
Modified 2022/23 Tegra Orin (Model T239)

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

, Digital Foundry, Kernel.org, Eurogamer, u/MHN1994, Epyllion analysis

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

EPYLLION



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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

EPYLLION

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.

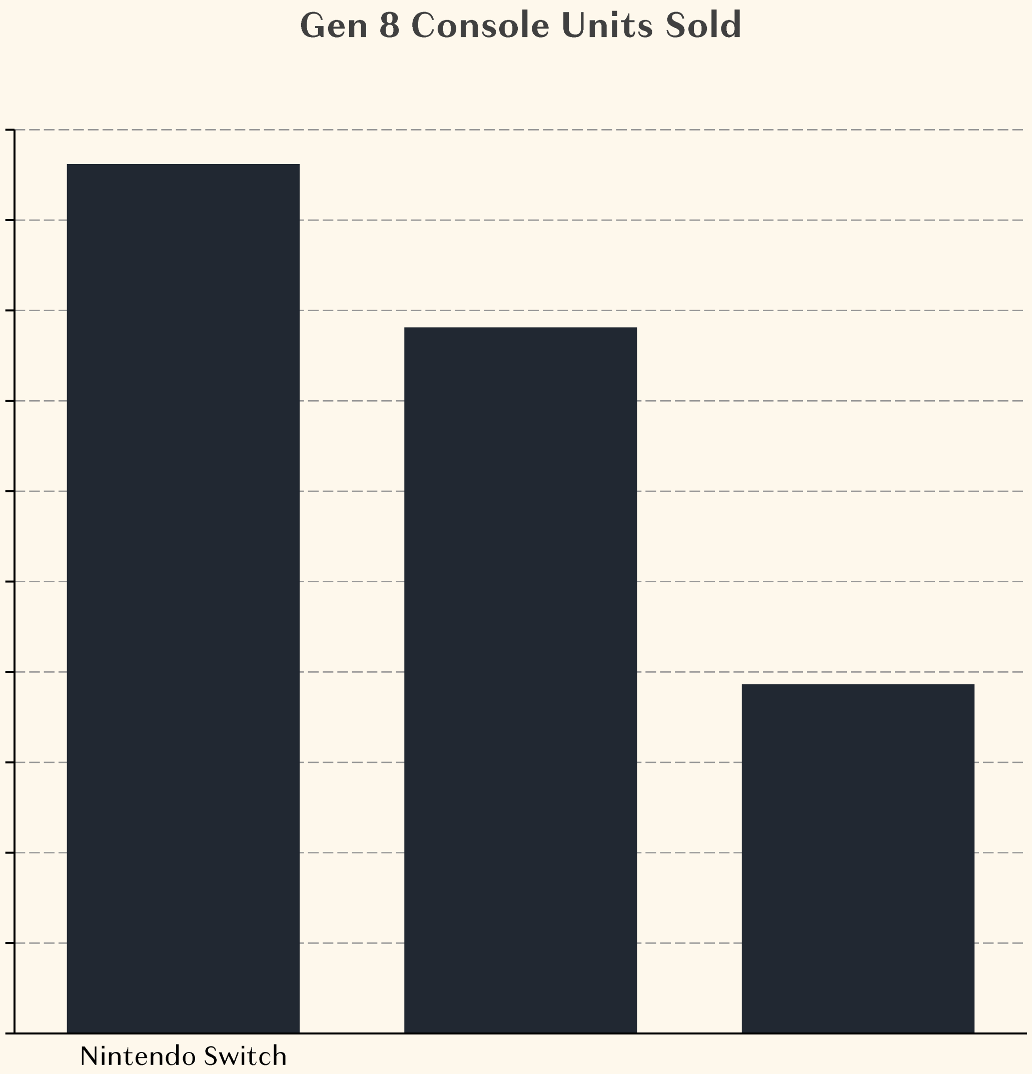
Asus ROG Ally X review: the best Windows gaming handheld by a mile

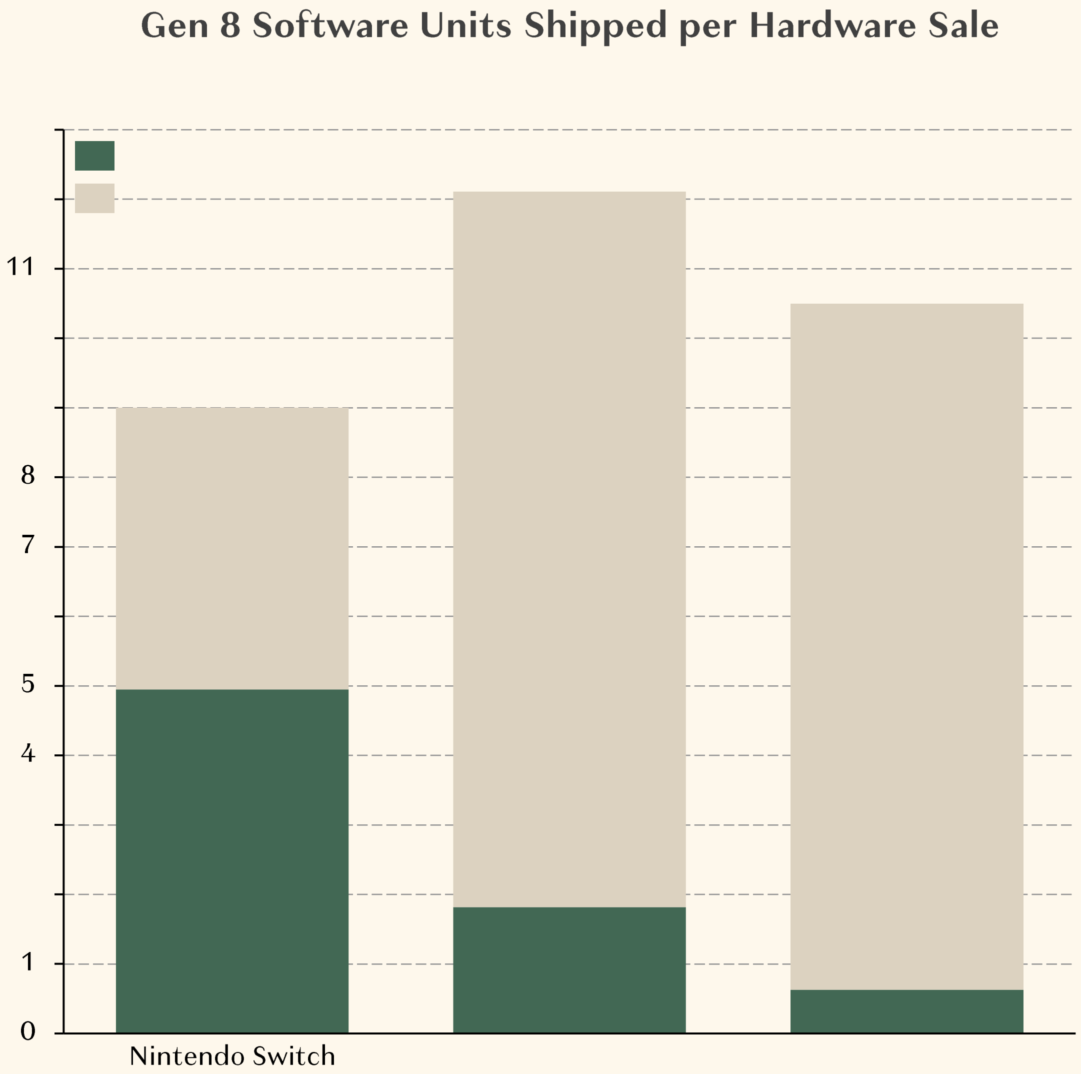
The first true Steam Deck competitor has arrived.

Sources: Gaming Bible, Bloomberg, The Verge, Mashable

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

EPYLLION



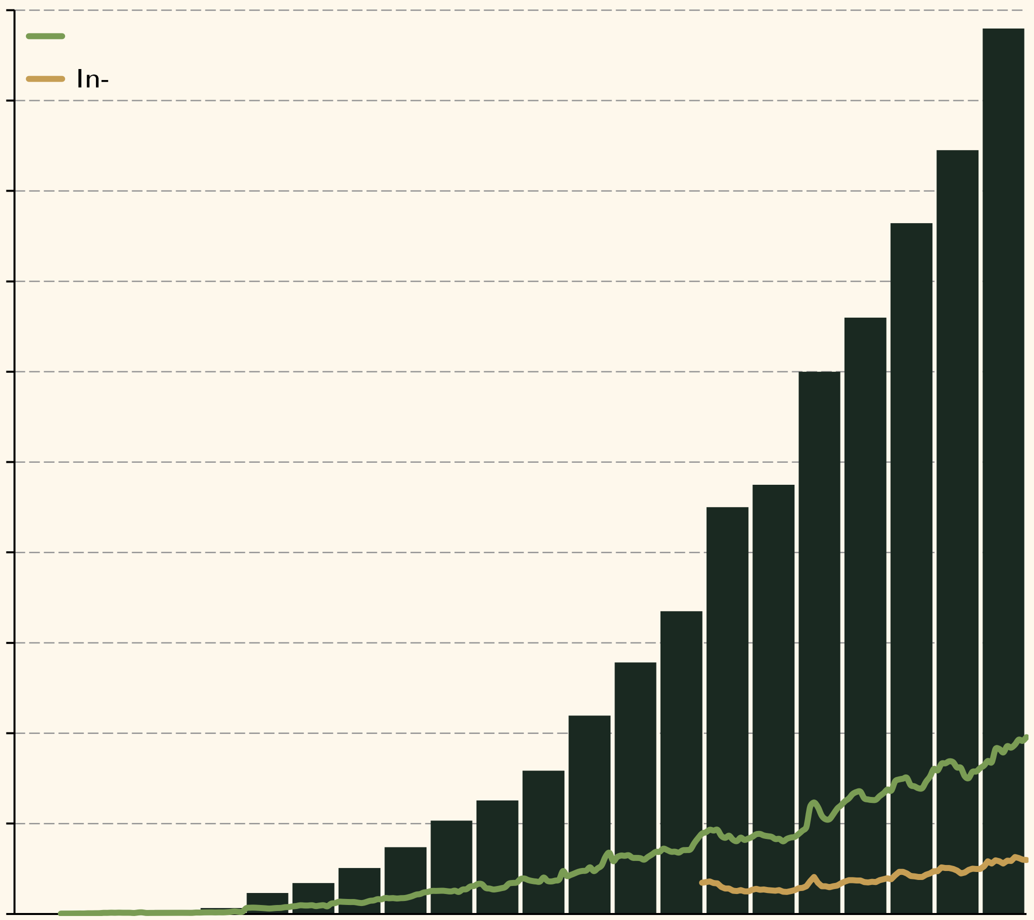


Sources: Nintendo, Sony, Microsoft,

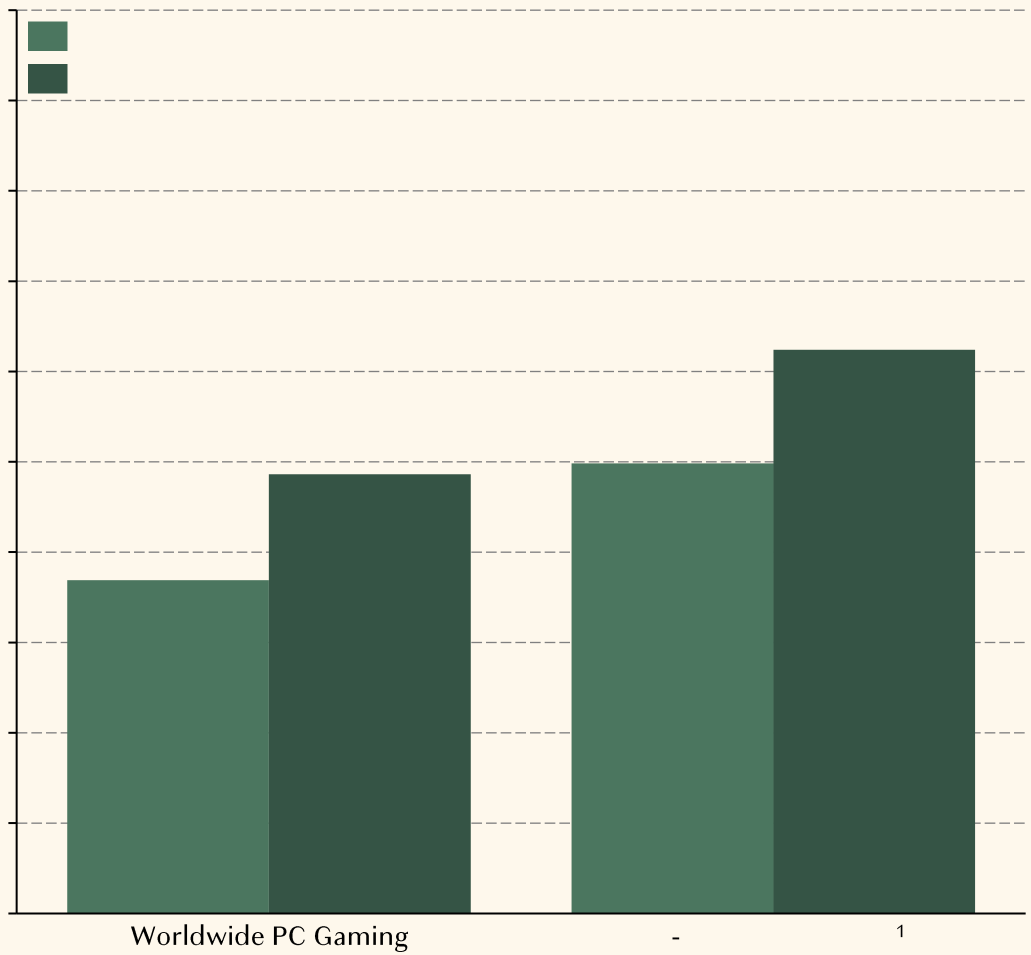
Valve is another unique handheld beneficiary, as Steam boasts PC's largest social graph, game library, and sales platform — by far — with share accelerating

EPYLLION

Estimated Steam MAUs and Peak CCUs by Month



Steam Share of Total Game Sales by Market Category

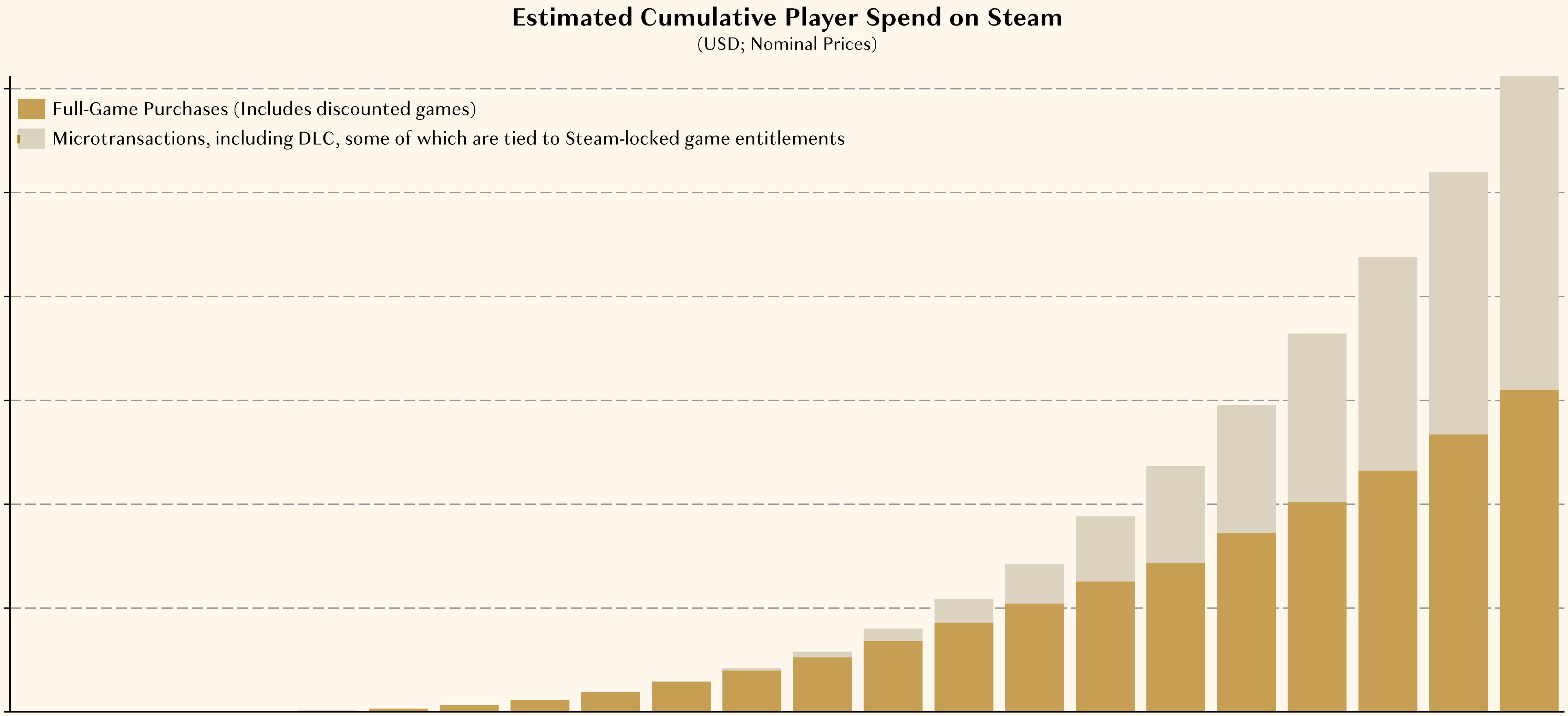


[1]Some of Steam's revenue comes from Chinese players who use a VPN and foreign payment mechanism in order to work around the national firewall. As such, Steam's share of Ex-China revenue is likely partly overstated as it includes spend from C

Sources: IDG, Epic Games, , Valve, Tencent, Pelham Smithers / Bloomberg,

Steam-based handhelds give players access to $75-150B in game entitlements locked to Steam (*plus* Steamworks/Keys) and its full player and achievements graph

EPYLLION

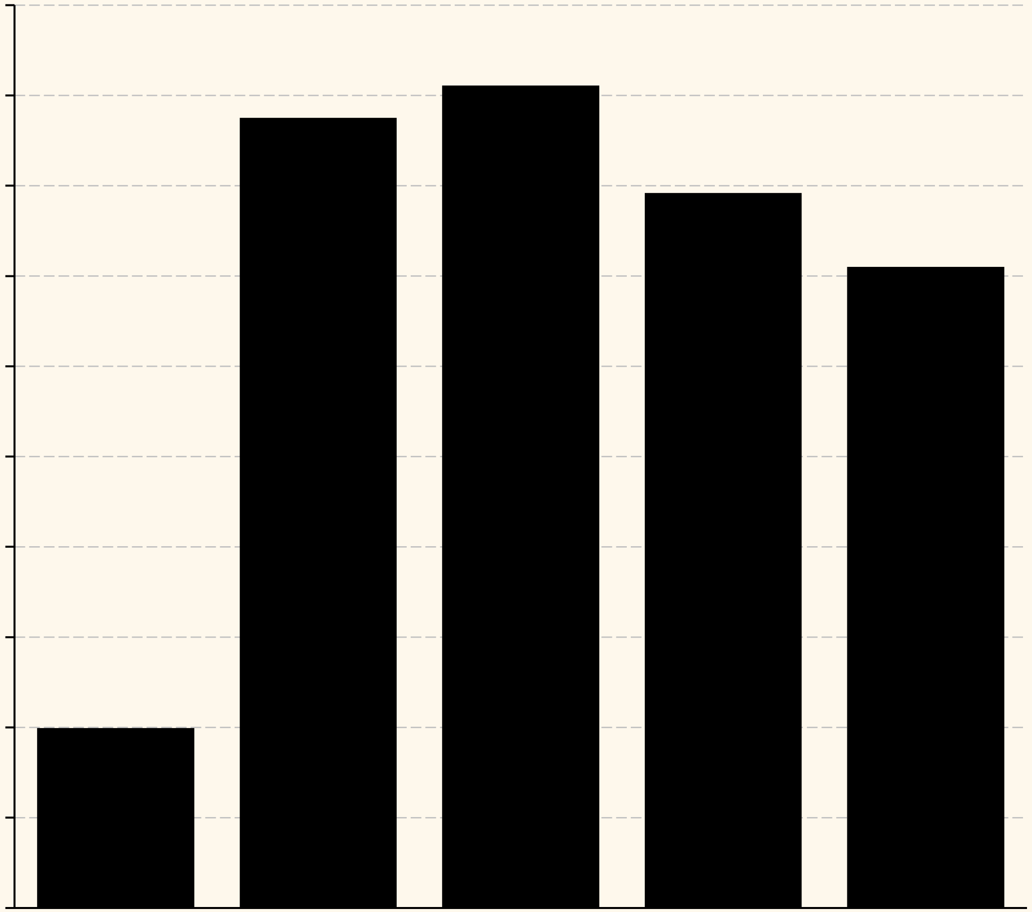


Sources: *IDG, Epic Games Store, Video Game Insights, Epyllion analysis*

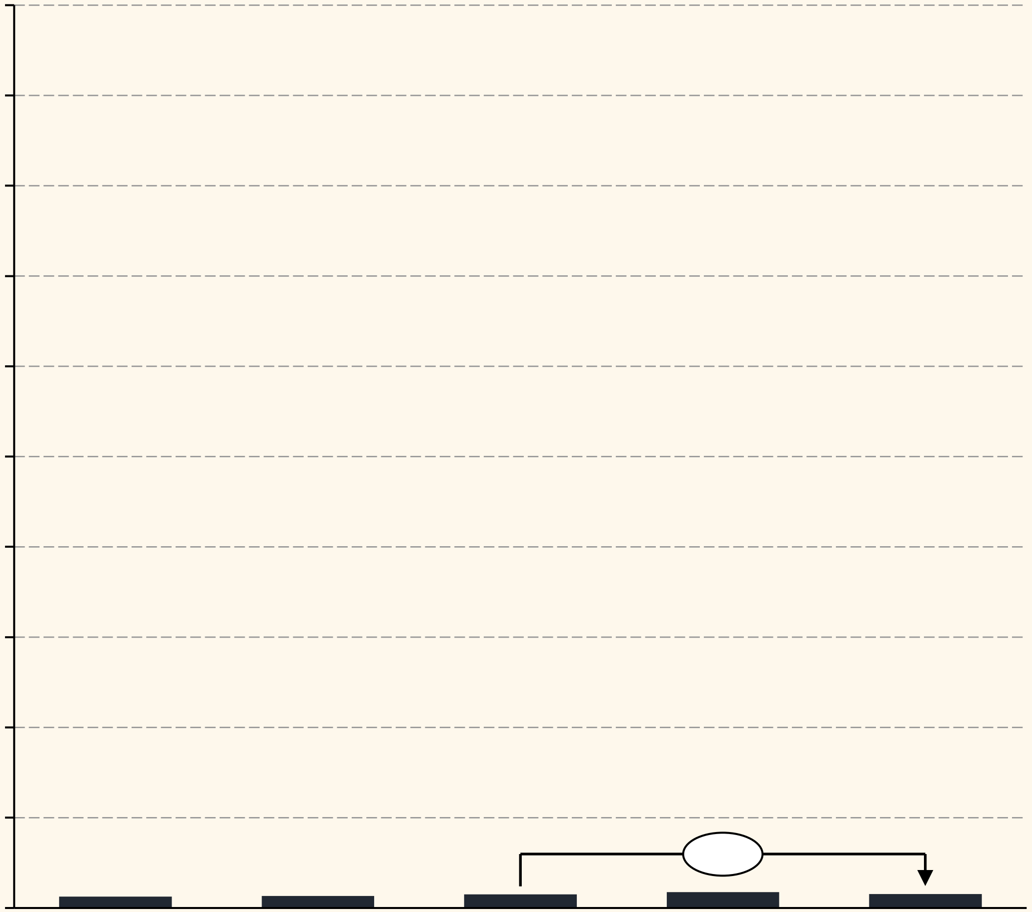
The potency of Steam's lock-in explains Epic's PC store challenge — despite ~$70B in game giveaways (by MSRP), it's generating only ~$300MM in 3rd-party spend/year

EPYLLION

Epic Games Store: Retail Value of Annual Game Giveaways
(Epic's Wholesale Cost Would Be a Small Fraction of this Sum)



Epic Games Store: Player Spending on 3 Party Games
(Epic's Net Revenue Would be ~10% of these Figures or Less)

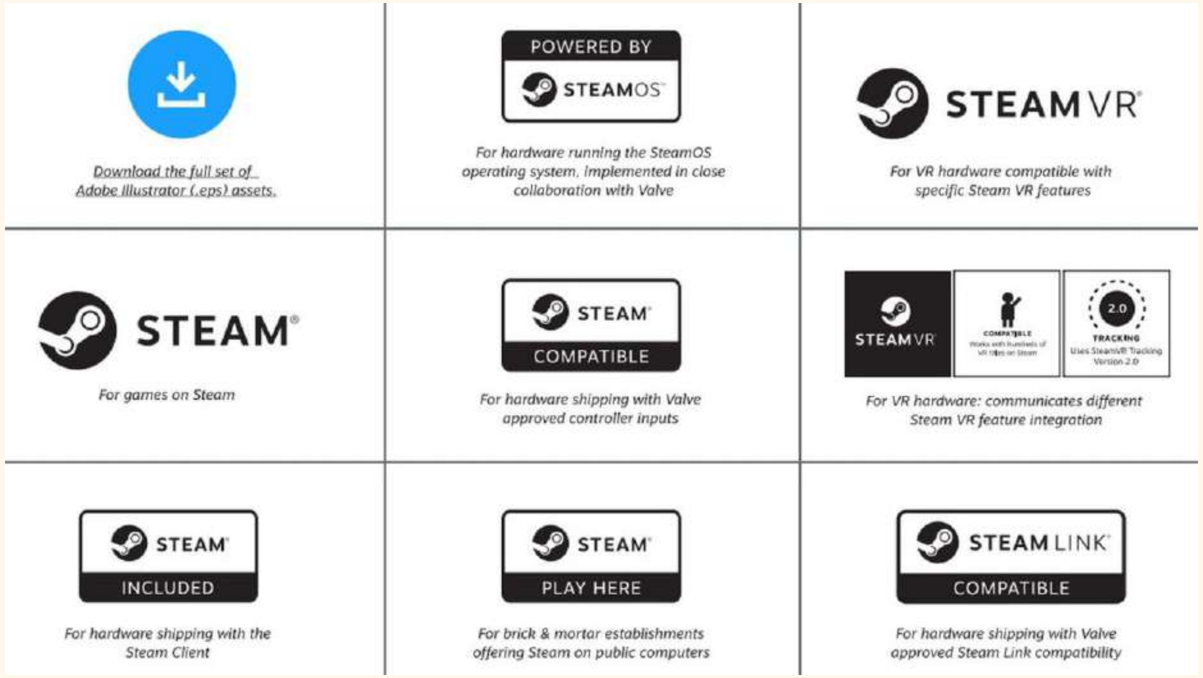


Source: Epic Games, Epyllion analysis

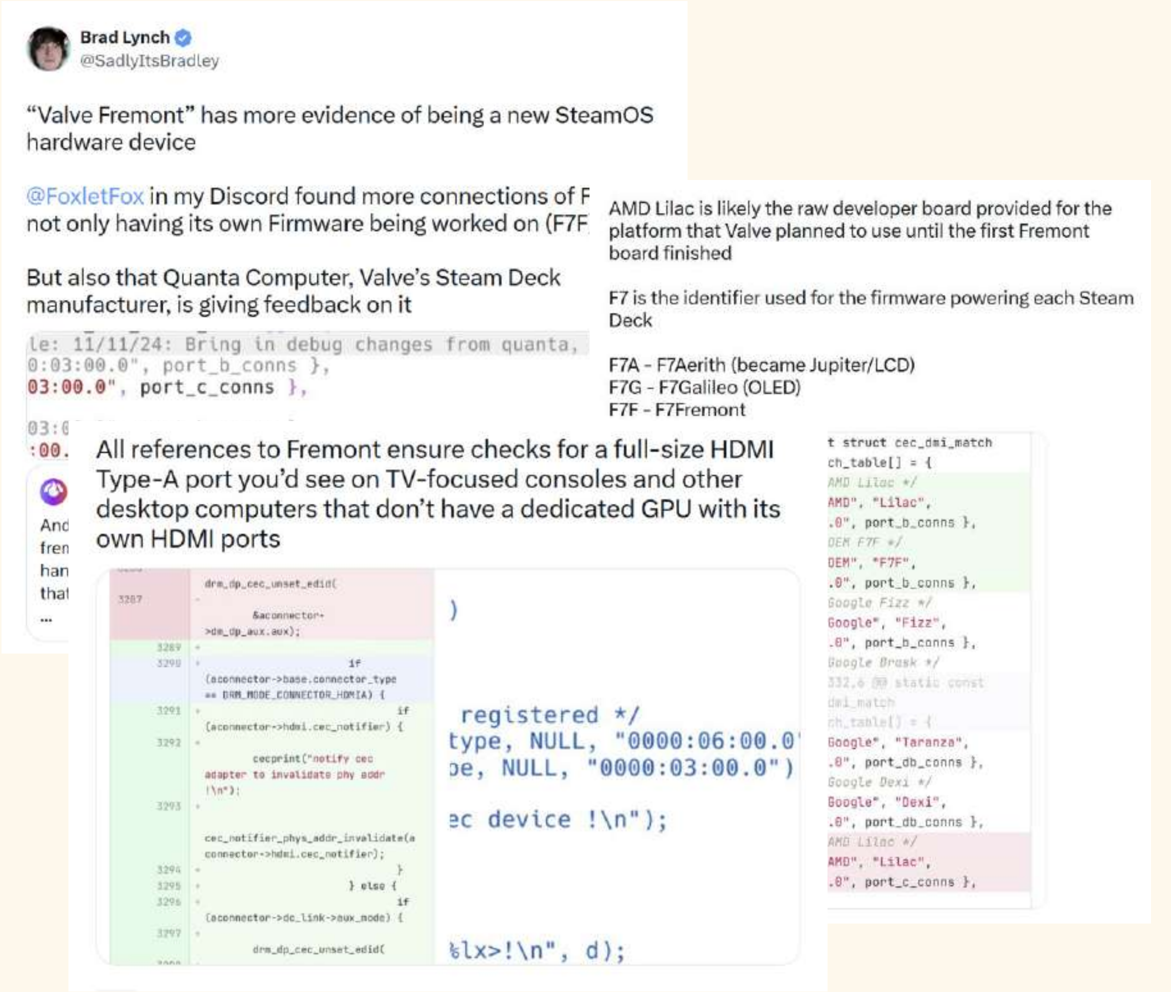
Valve is also set to disrupt livingroom consoles – bringing its $100B in entitlements to the TV, plus its super-scaled social graph and PC-functionality/social integrations

EPYLLION

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



-based Evidence of a Steam Console/Platform



Sources: Valve, The Verge, Brad Lynch

Reviewing Potential New "Growth Engines"[1]

EPYLLION

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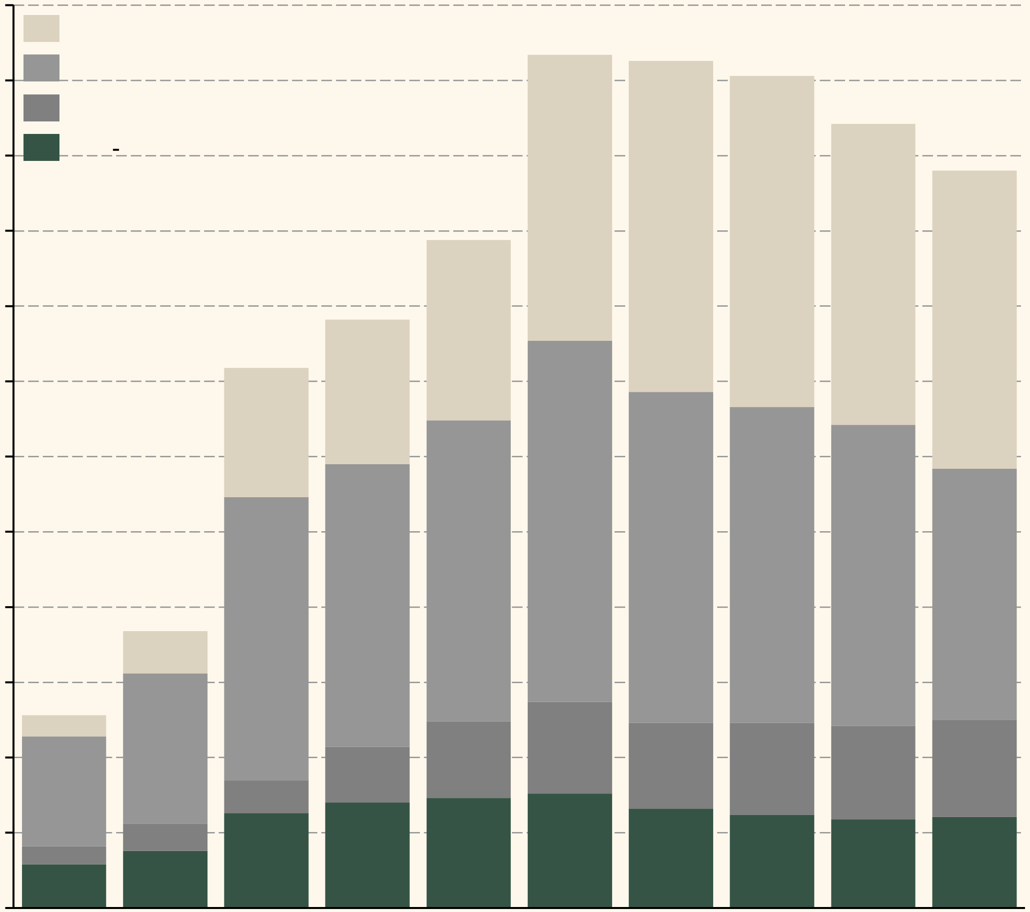
There is a sense of an "unfulfilled promise" that mobile gaming should have onboarded millions to higher fidelity (or AA/AAA) gaming

…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

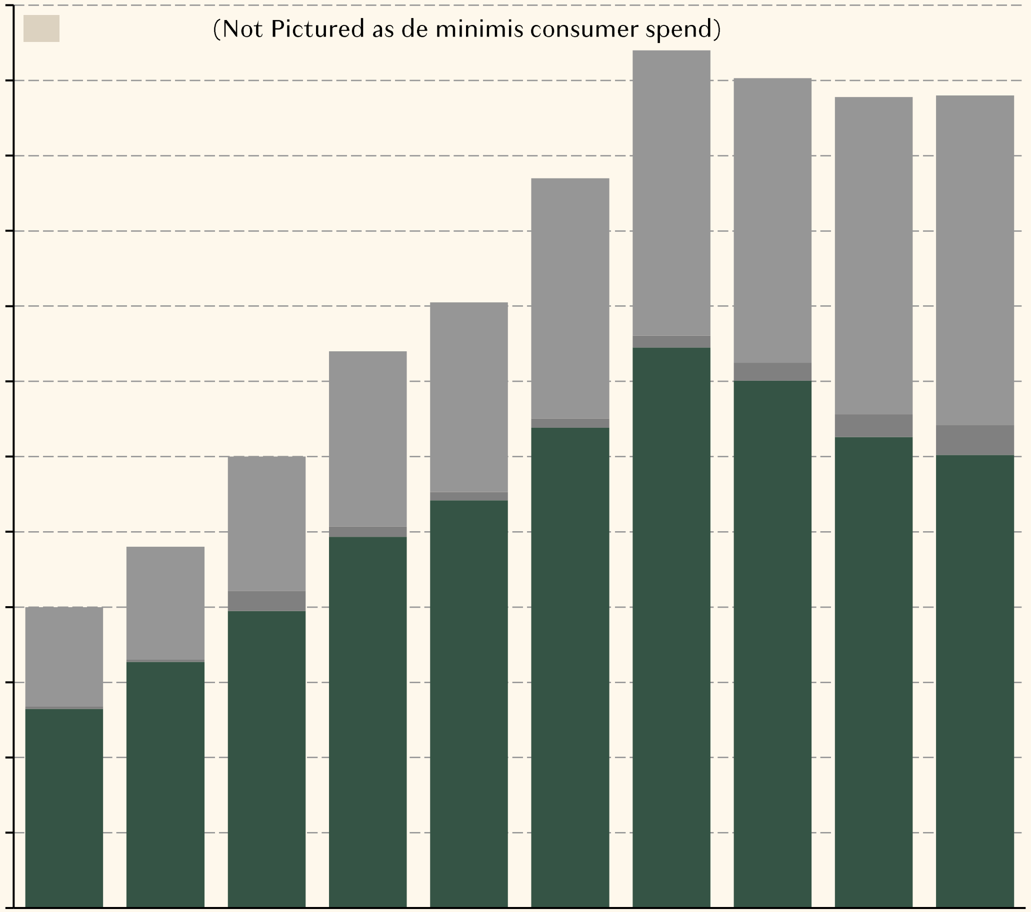
EPYLLION

Annual Mobile Game Downloads by Type



Worldwide Mobile Gaming Revenues

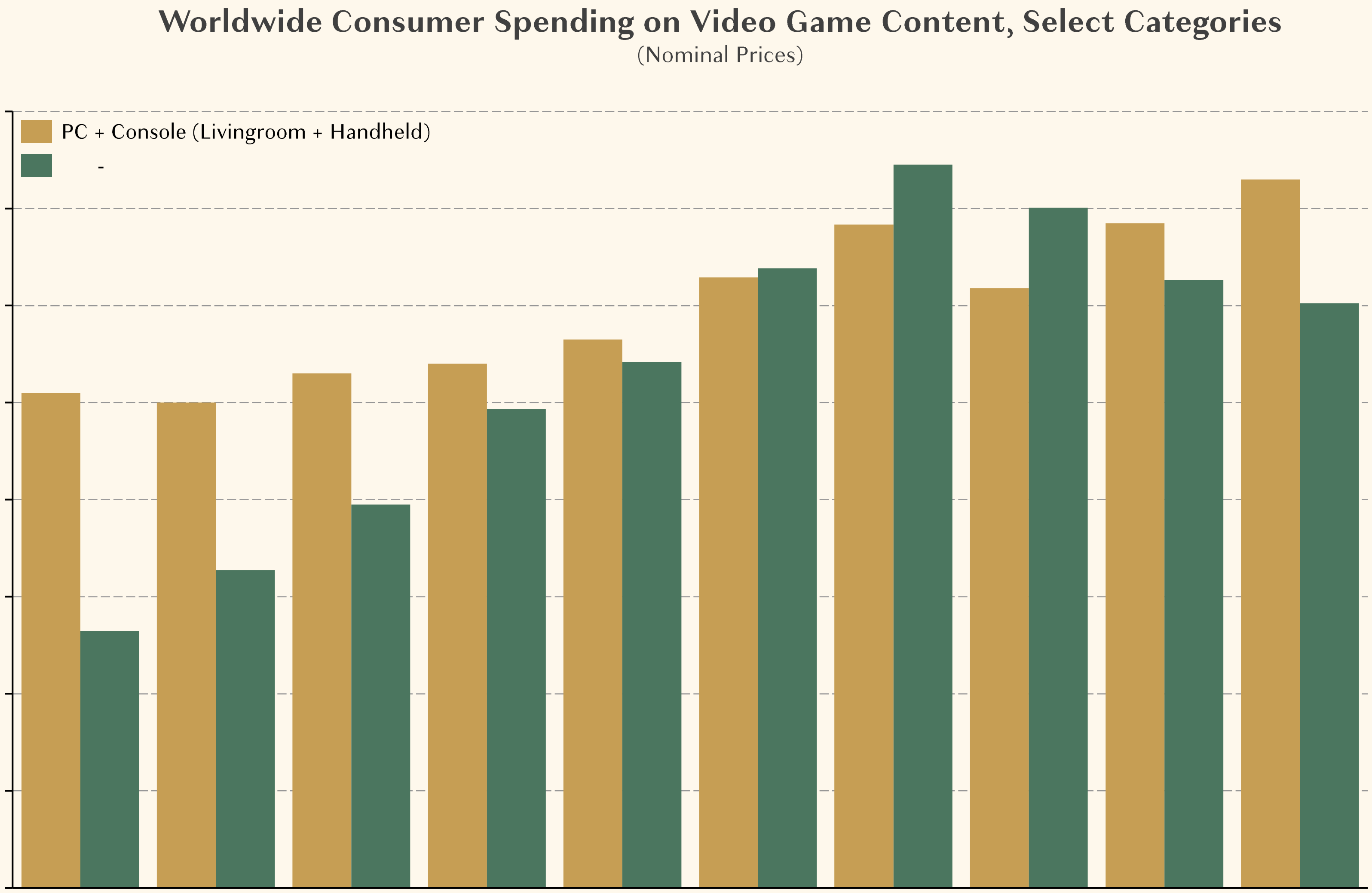
(Select Categories Only)

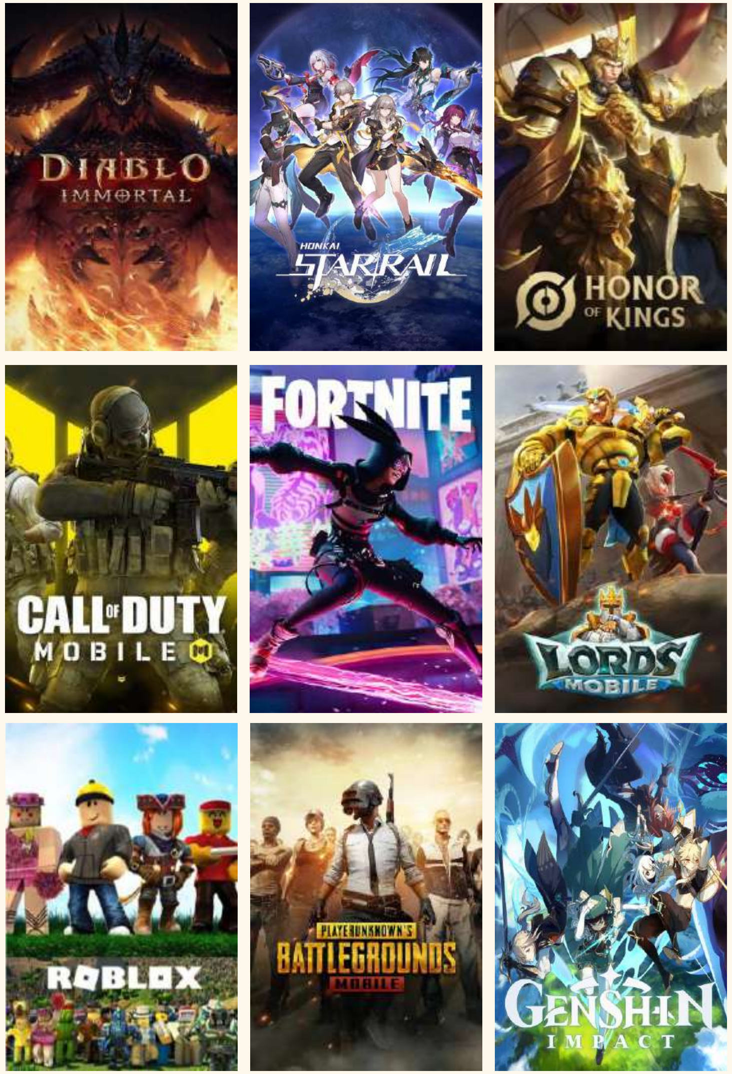


Sources: Sensor Tower, Epyllion analysis

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

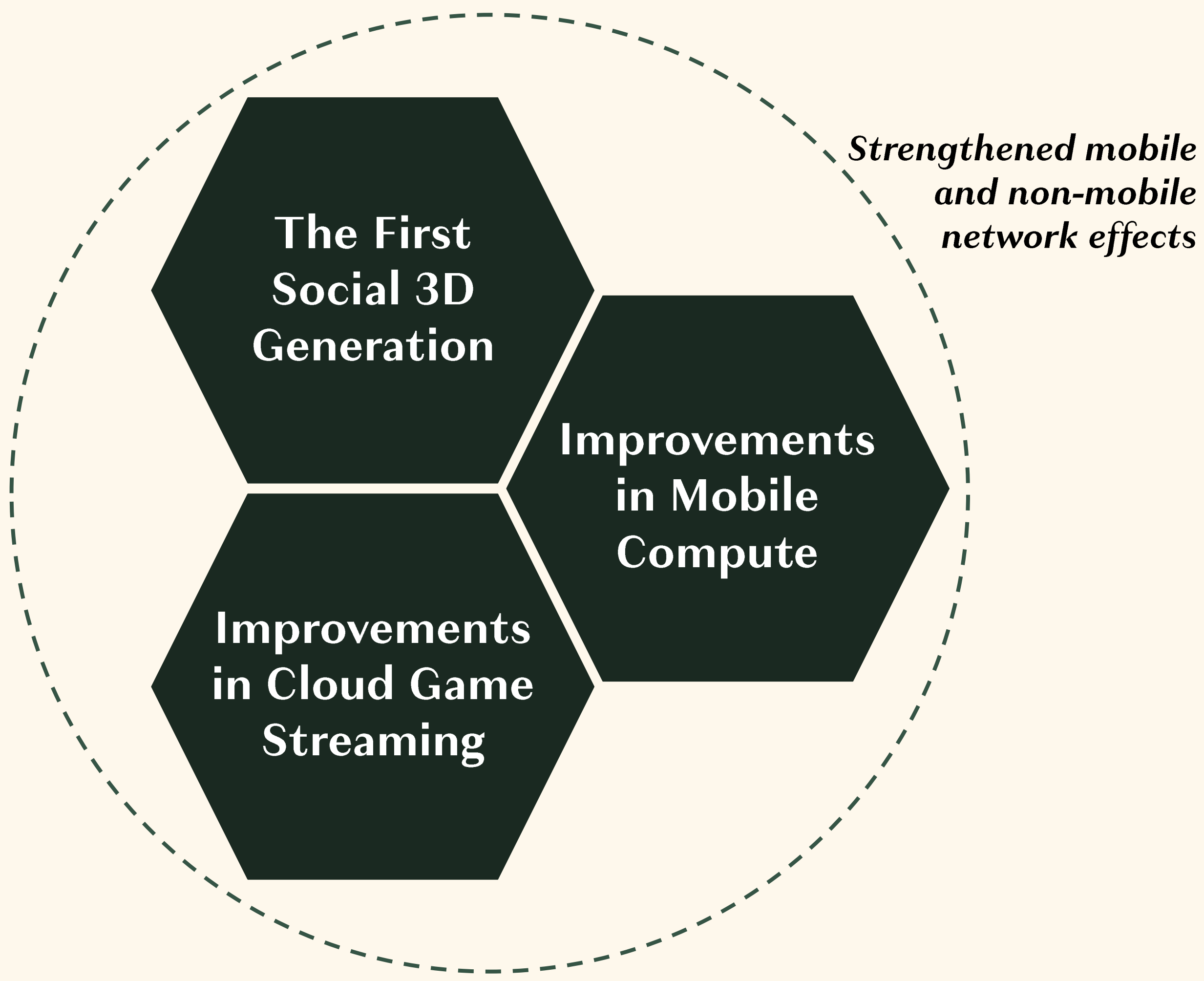
EPYLLION





Sources: Sensor Tower, Epyllion analysis

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



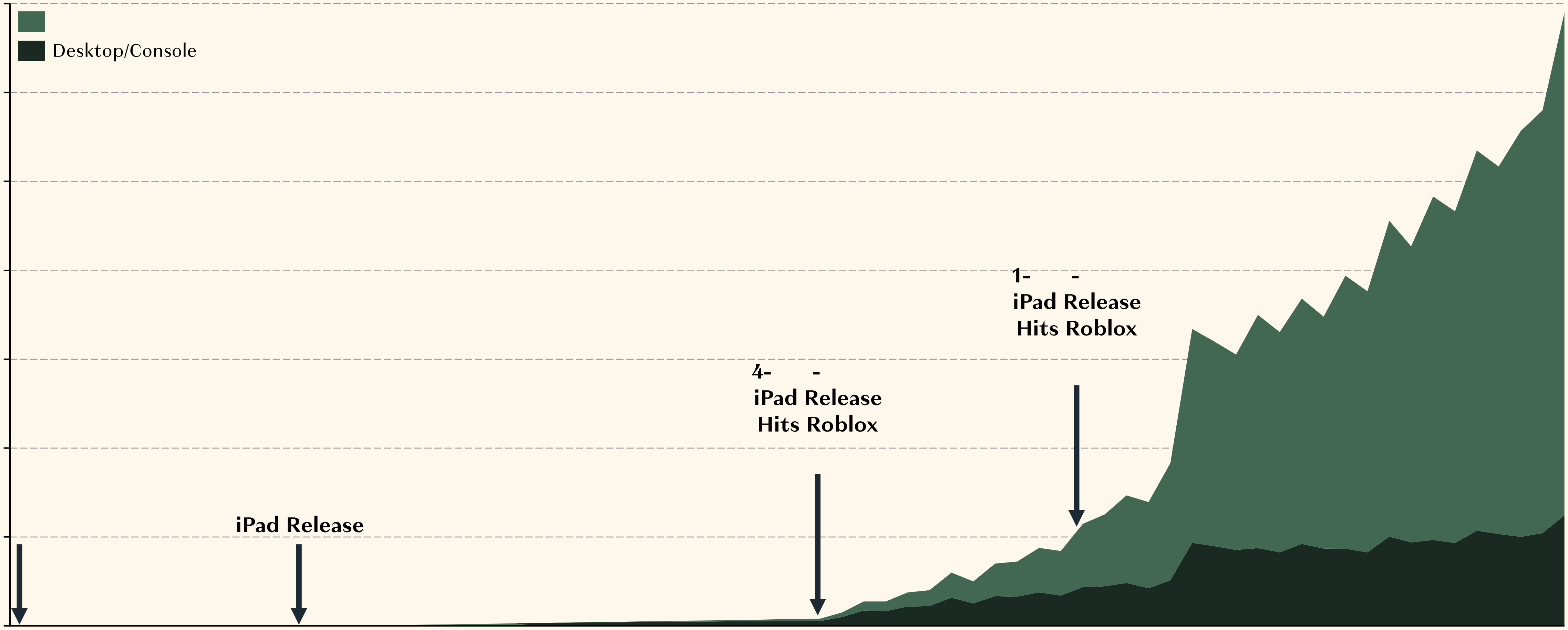
Source: Epyllion analysis

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*

EPYLLION

Roblox Avg. Monthly Hours of Engagement

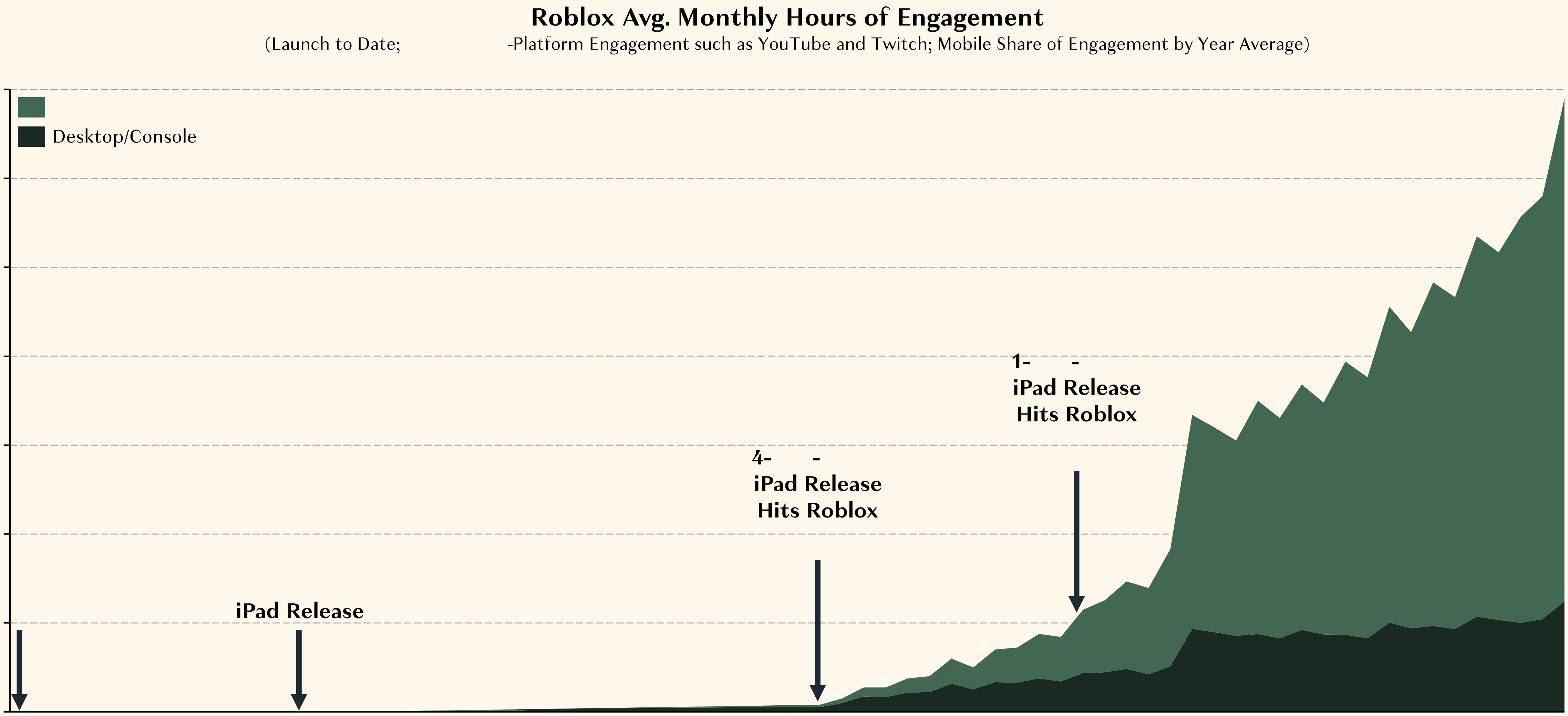
(Launch to Date; -Platform Engagement such as YouTube and Twitch; Mobile Share of Engagement by Year Average)



Sources: Roblox, Epyllion analysis

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...* absurd

EPYLLION



Sources: Roblox, Epyllion analysis

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

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

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

Sources: Perfect Gaming (YouTube), Apple, Epyllion analysis

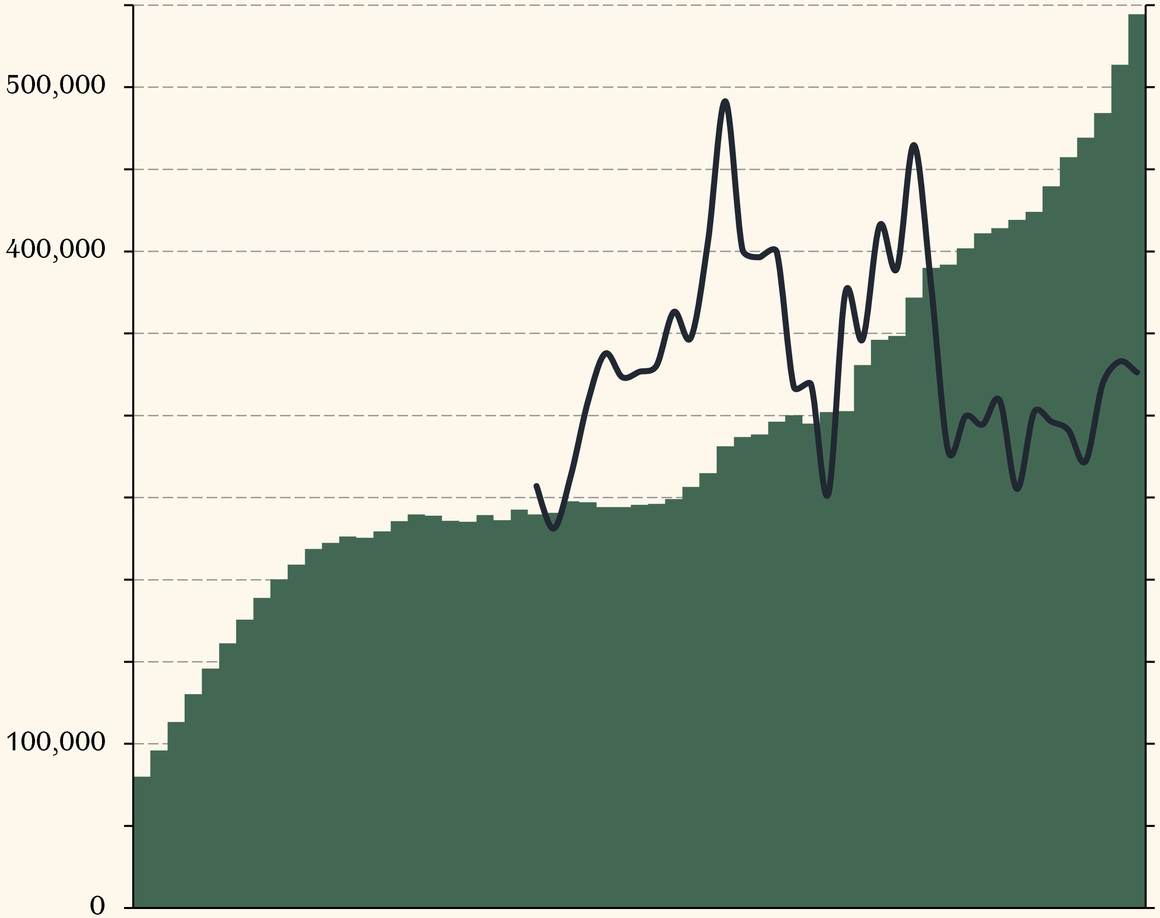
Meanwhile, cloud gaming continues to scale as latency and broadband improve, PC stores connect their entitlements, and regulators open up mobile devices

EPYLLION

"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 *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 consol... 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

GeForce Now U.S. Paid Subscriptions & Monthly Churn

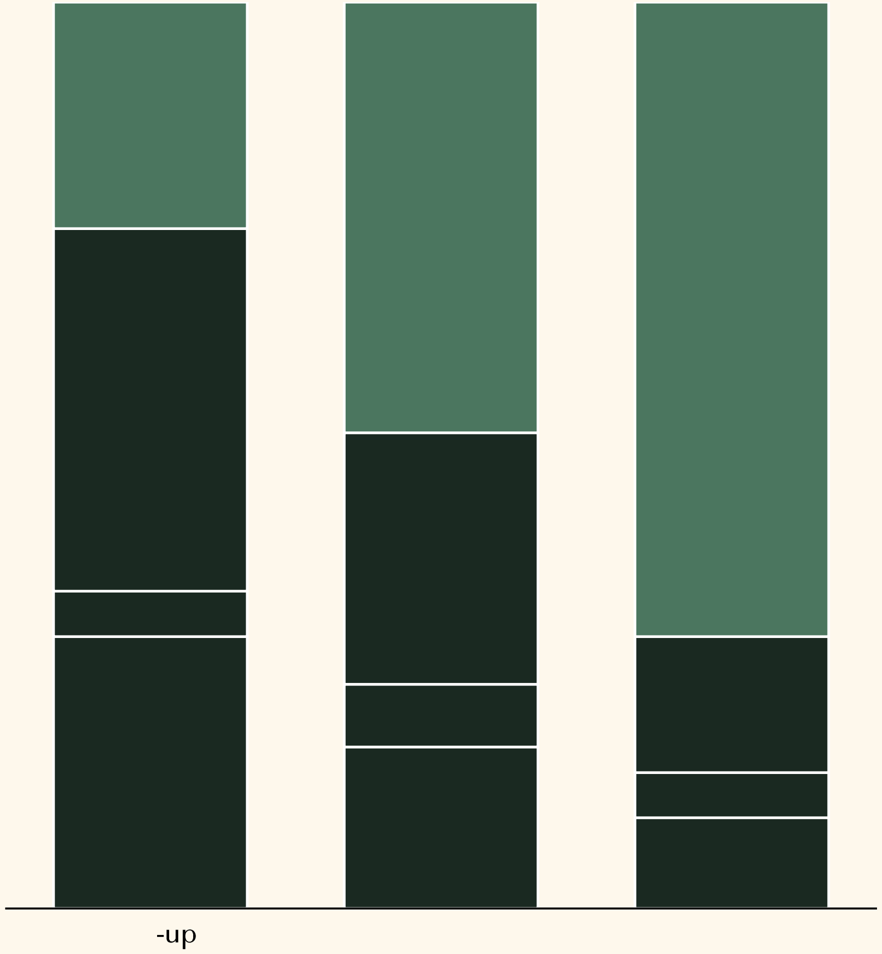


, Antenna, Epyllion analysis

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

EPYLLION

Netflix: Global Sign-Ups v Usage by Device
(Worldwide; As of May 2018)

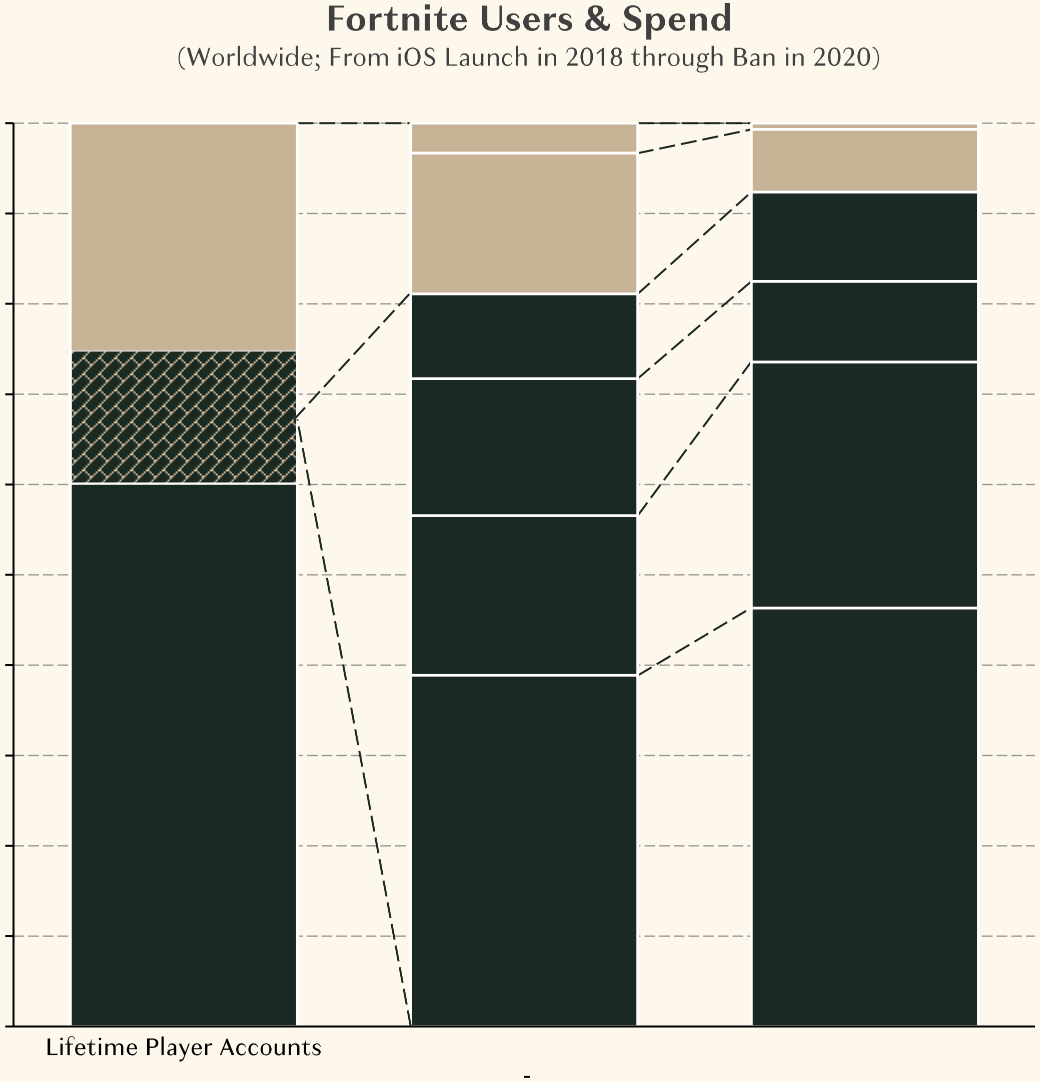


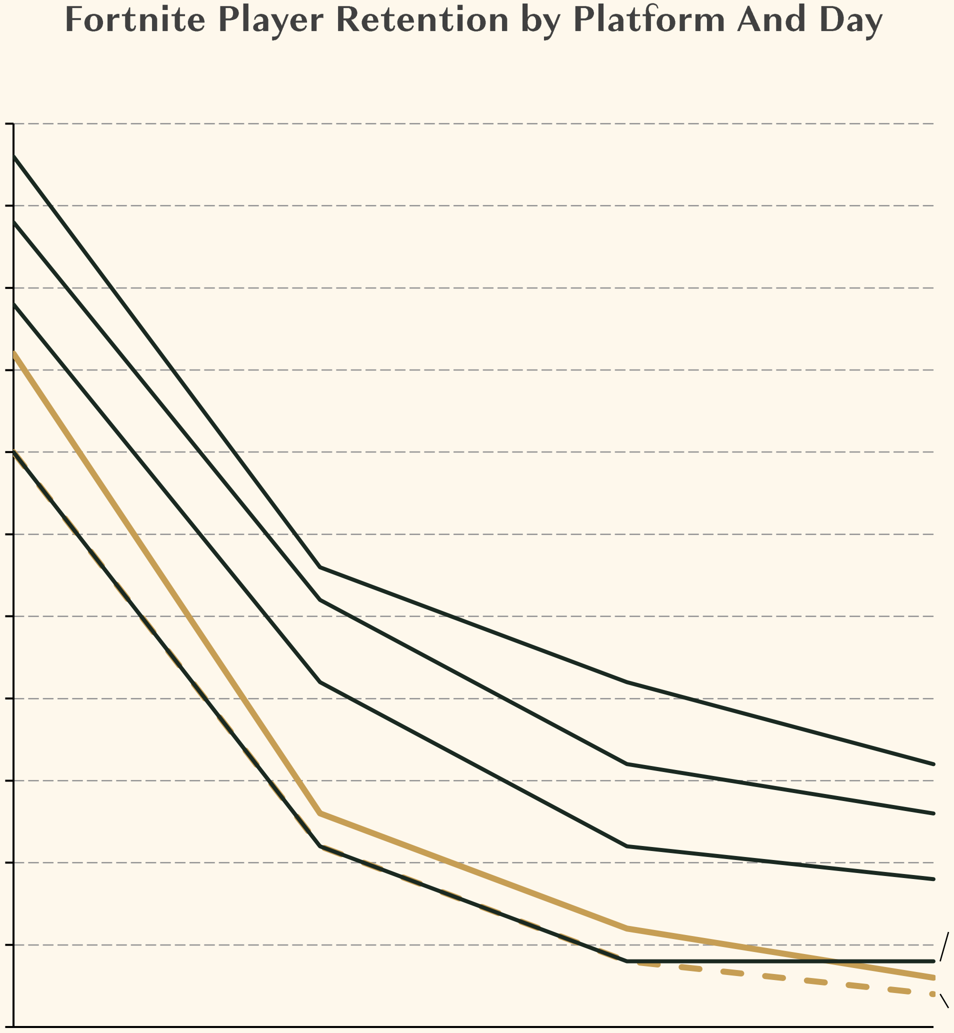
YouTube Share of Total Watch Time By Device Type

Sources: YouTube, WSJ, *The Information*

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…

EPYLLION





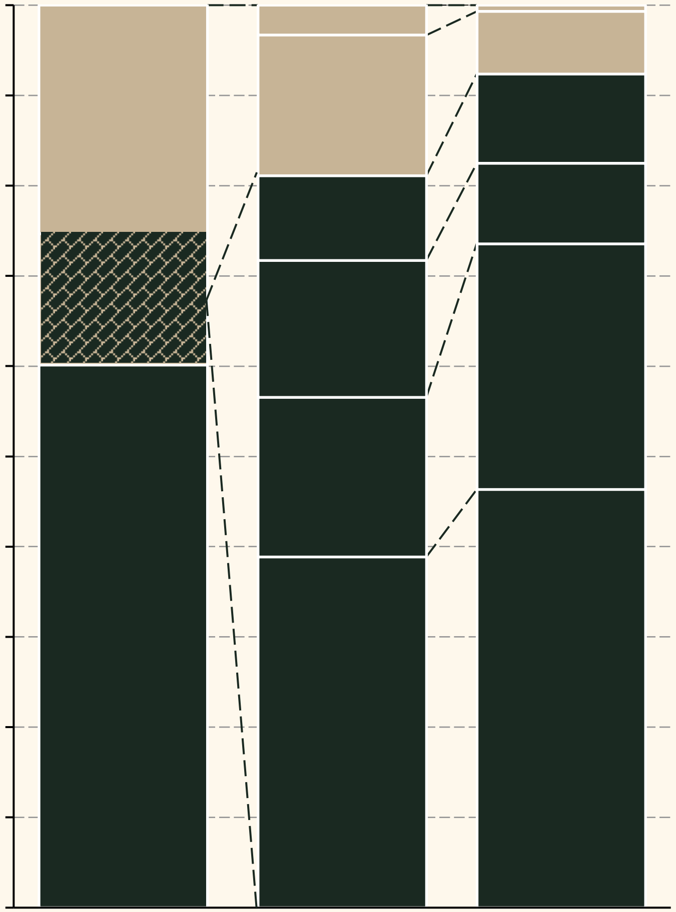
Sources: Epic Games, Epyllion analysis

…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

EPYLLION

Fortnite Users & Spend

; From iOS Launch in 2018 through Ban in 2020)



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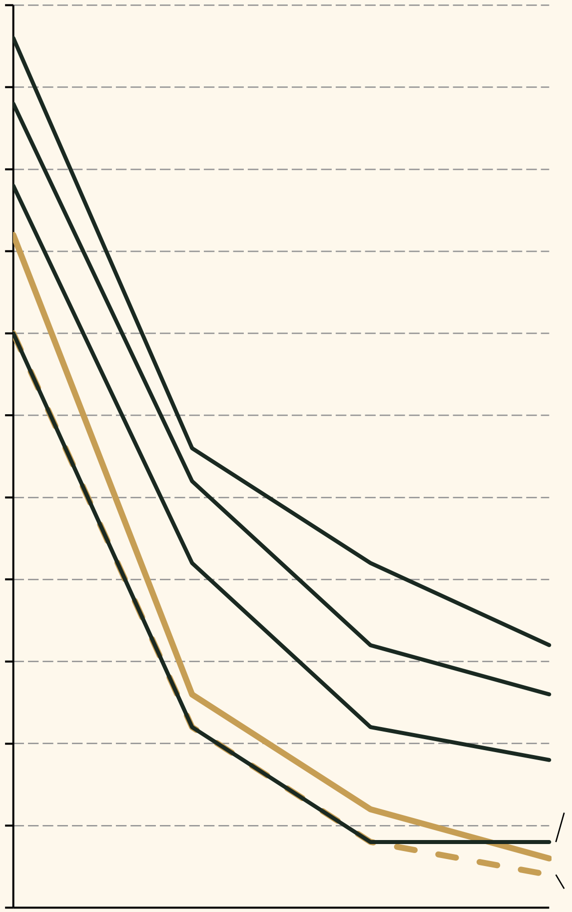
Fortnite Player Retention by Platform



- of Fortnite players played through mobile, which should increase their propensity to buy Battle Passes and cosmetics
- 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)
- have additional reasons to play battle royale, rather than an alternative

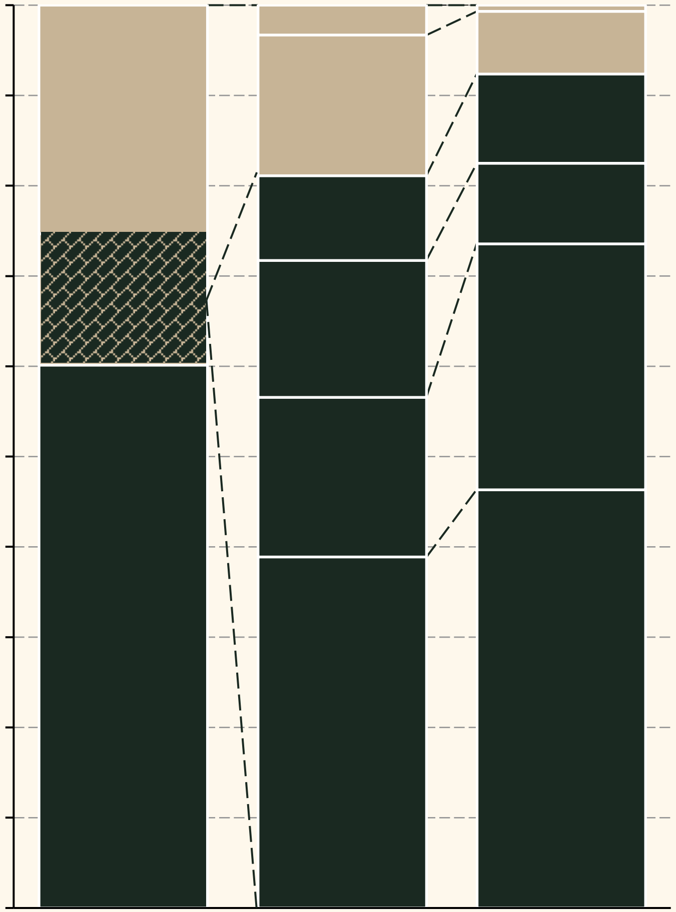
Sources: Epic Games, Epyllion analysis

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

EPYLLION

Fortnite Users & Spend

; From iOS Launch in 2018 through Ban in 2020)



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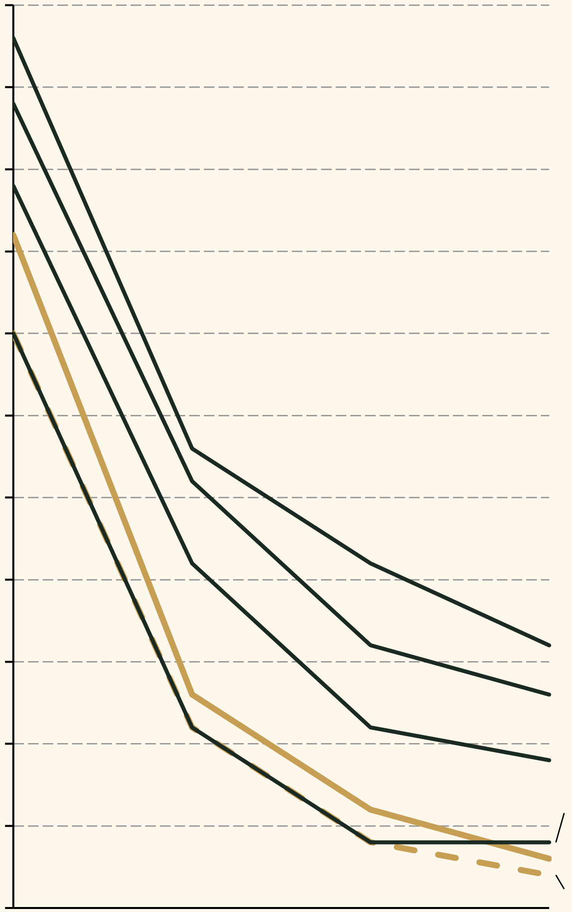
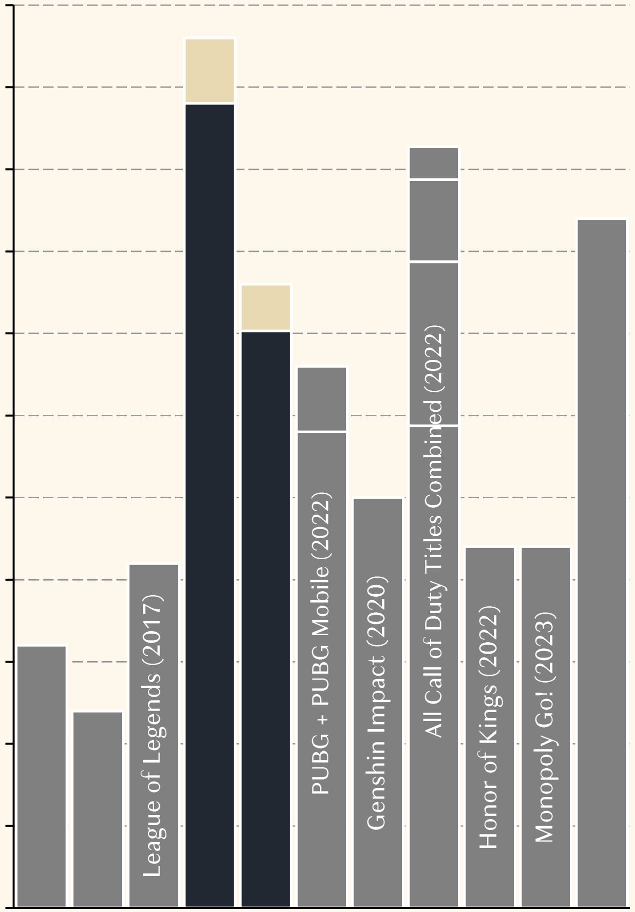


Highest-Grossing Games in 12 Months

(Worldwide, Order of Peak Year on Record)



Sources: Epic Games, , Sensor Tower, App Annie, , Supercell, Roblox, , Riot, Financial Times,

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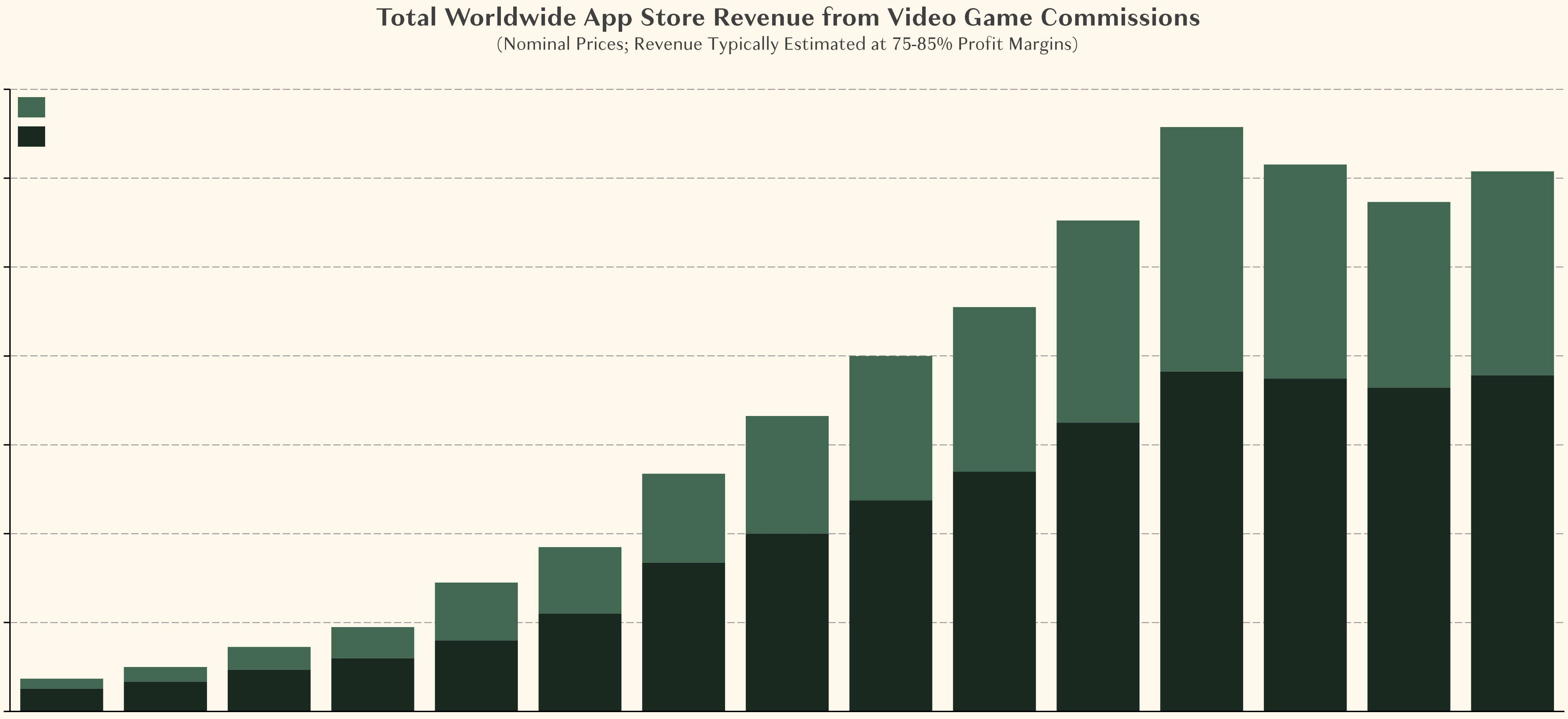
EPYLLION

- "Non-Core" Markets
- UGC Platforms & Tools
- Social Game Services
- Switch 2
- Other New Handhelds & Devices
- AA/AAA Mobile Gaming
- App Store Regulation
- New Game Genres
- Advertising
- GTA VI Pricing

[1]Ordered logically, rather than in order of monetary value, significance, timing, etc.; This isn't to say I believe in each one, let alone to the degree sometimes argued, but I do think each is worth arguing

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

EPYLLION

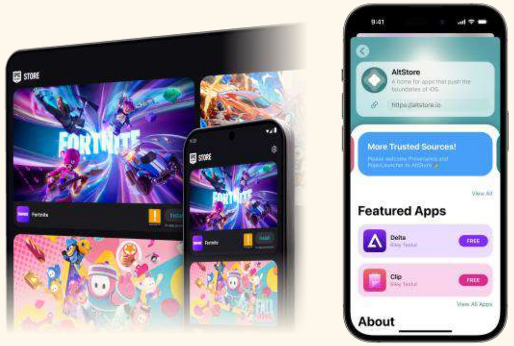


, Pelham Smithers / Bloomberg, Epic Games, Epyllion analysis

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

EPYLLION

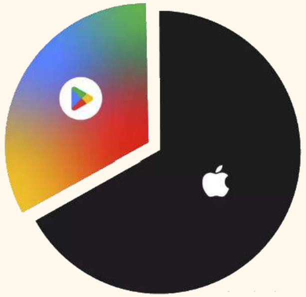
Improved/New Discovery & Competition to Drive Downloads



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

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

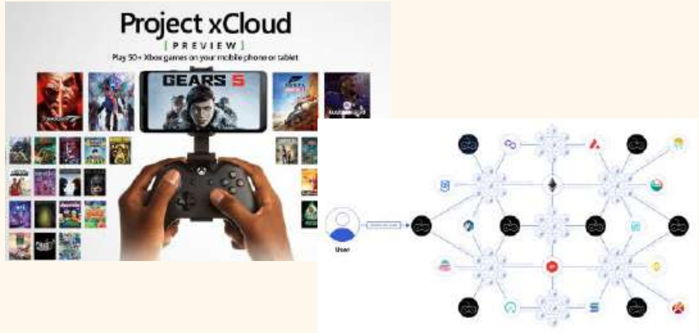
–20% Higher Net Revenue Margins



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–

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-

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

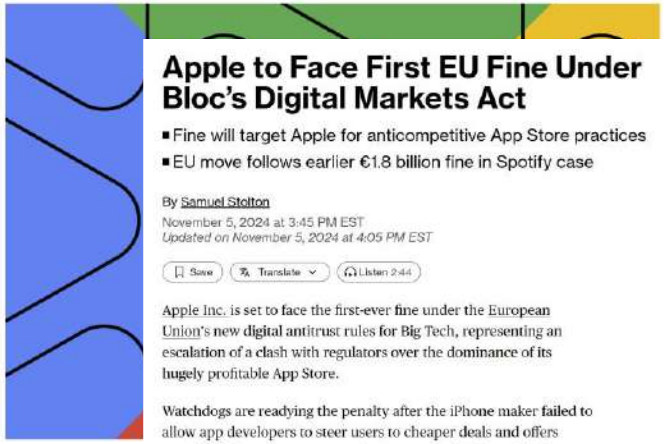
However one feels about the viability, let alone significance of these theories, the inability for new ideas to be fully tested (and in failure, learned from) is stifling — and fundamentally problematic for a stagnant and/or declining category. Worse still is the plausibility that some of these prohibitions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

Source: Epyllion analysis

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

EPYLLION

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

By Samuel Stolton
November 5, 2024 at 3:45 PM EST
Updated on November 5, 2024 at 4:05 PM EST

Save 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.

-Profile App Stores Are Launching

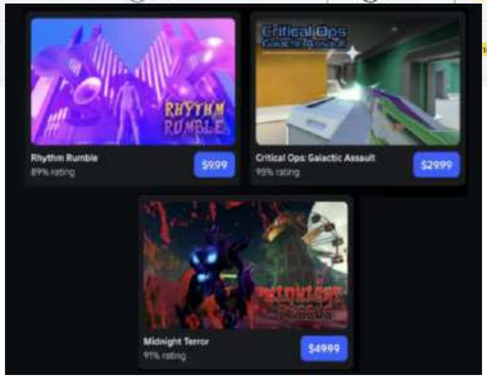
Microsoft will open a mobile-game store to challenge Apple, Google

May 10, 2024 at 1:16 pm

Epic’s dream is starting to come true – its store will be preinstalled on ‘millions’ of Android phones / Telefónica will bring the Epic Games Store to Samsung devices in the UK, Germany, Spain, and Latin America, among others.

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

Price	Mobile & console	Computer, web & gift cards	
$199.99	~~22,500~~	24,000	+ 1,500 more
$99.99	~~10,000~~	11,000	+ 1,000 more
$49.99	~~4,500~~	5,250	+ 750 more
$19.99	~~1,700~~	2,000	+ 300 more
$9.99	~~800~~	1,000	+ 200 more
$4.99			100 more



Source: Epyllion analysis

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

EPYLLION

-150B In Total Game Entitlements Steamworks & Steam Keys) → $200B per Year in Consumer Video Game Spending

200MM Players (& Billions of Connections) → 3B+ Players (& Trillions Connections)

6B Monthly → 6B Monthly

PC & PC Handheld → PC & PC Handheld

Source: Epyllion analysis

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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

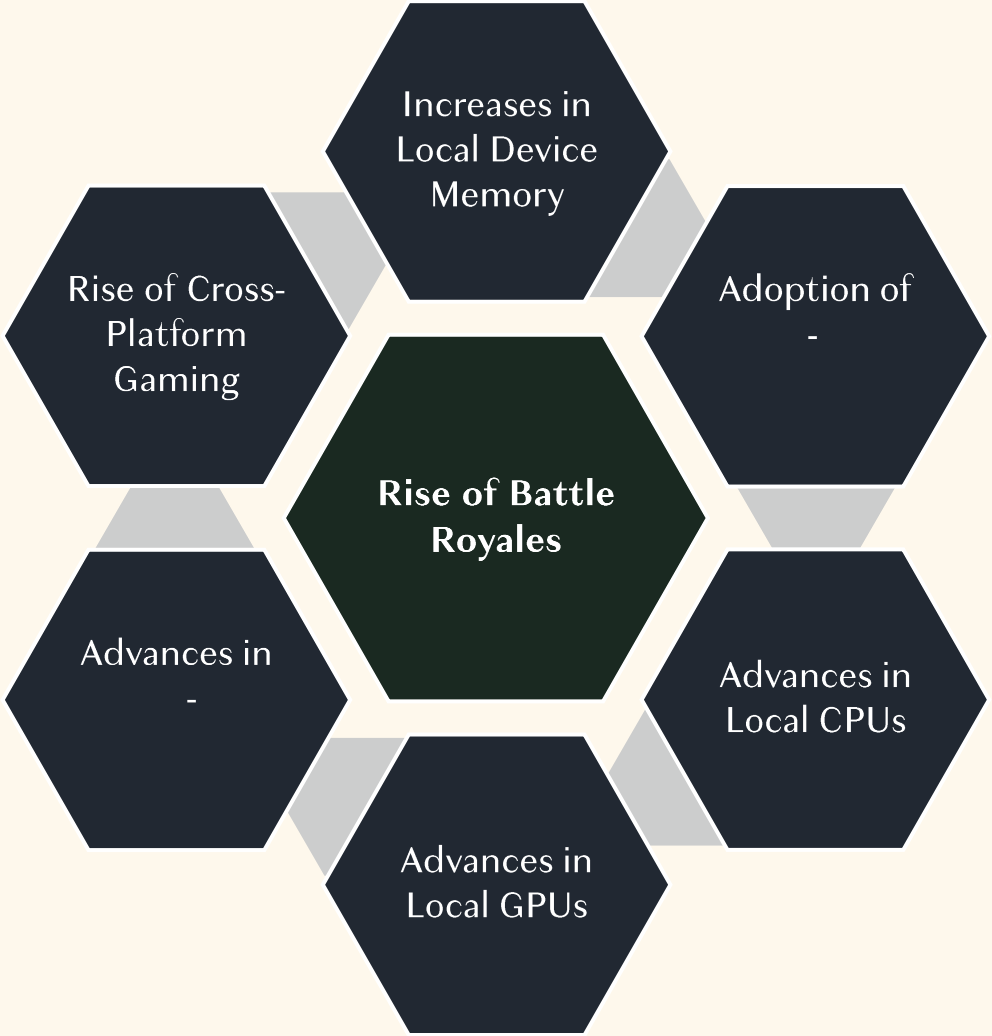
EPYLLION

Development of the Battle Royale Genre

(Select Examples)

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

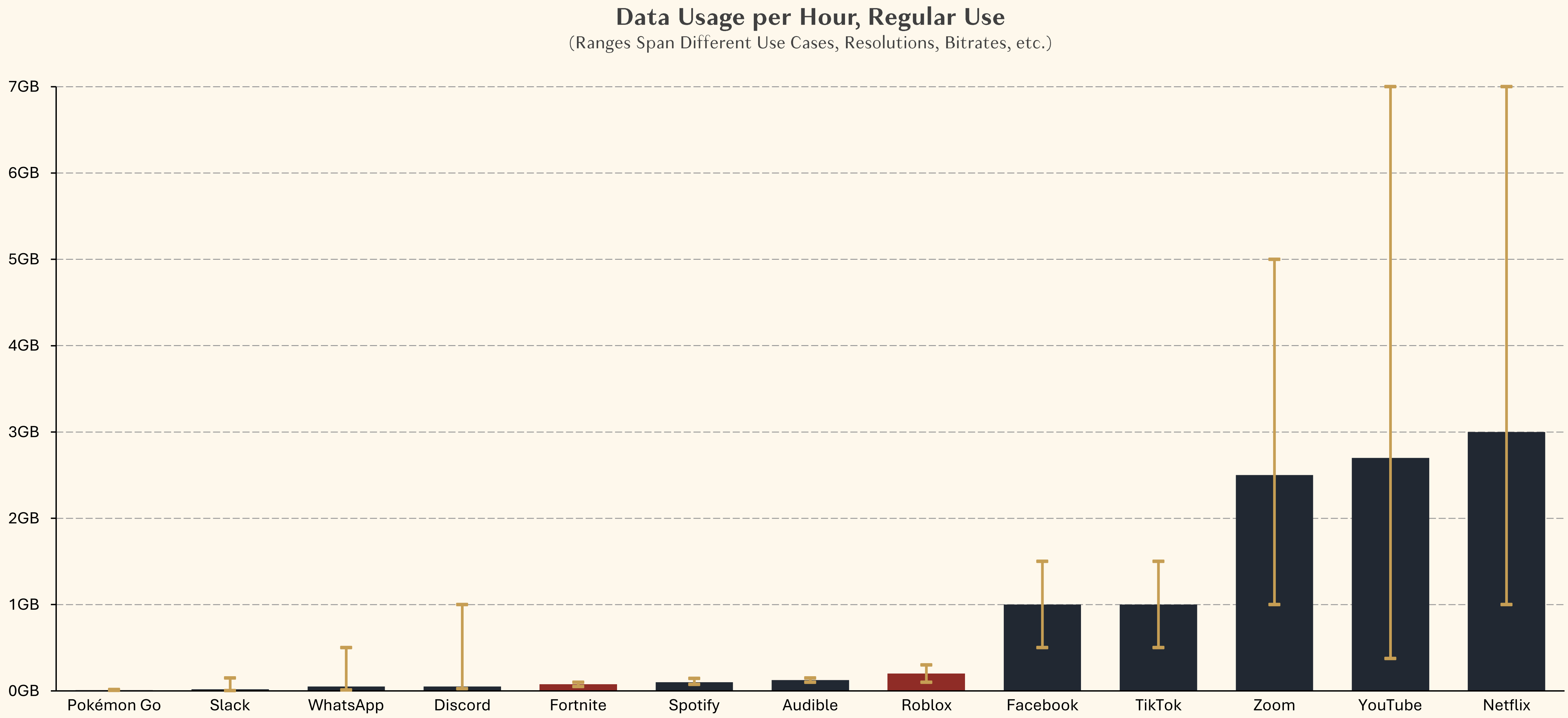
EPYLLION



Source: Epyllion analysis

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

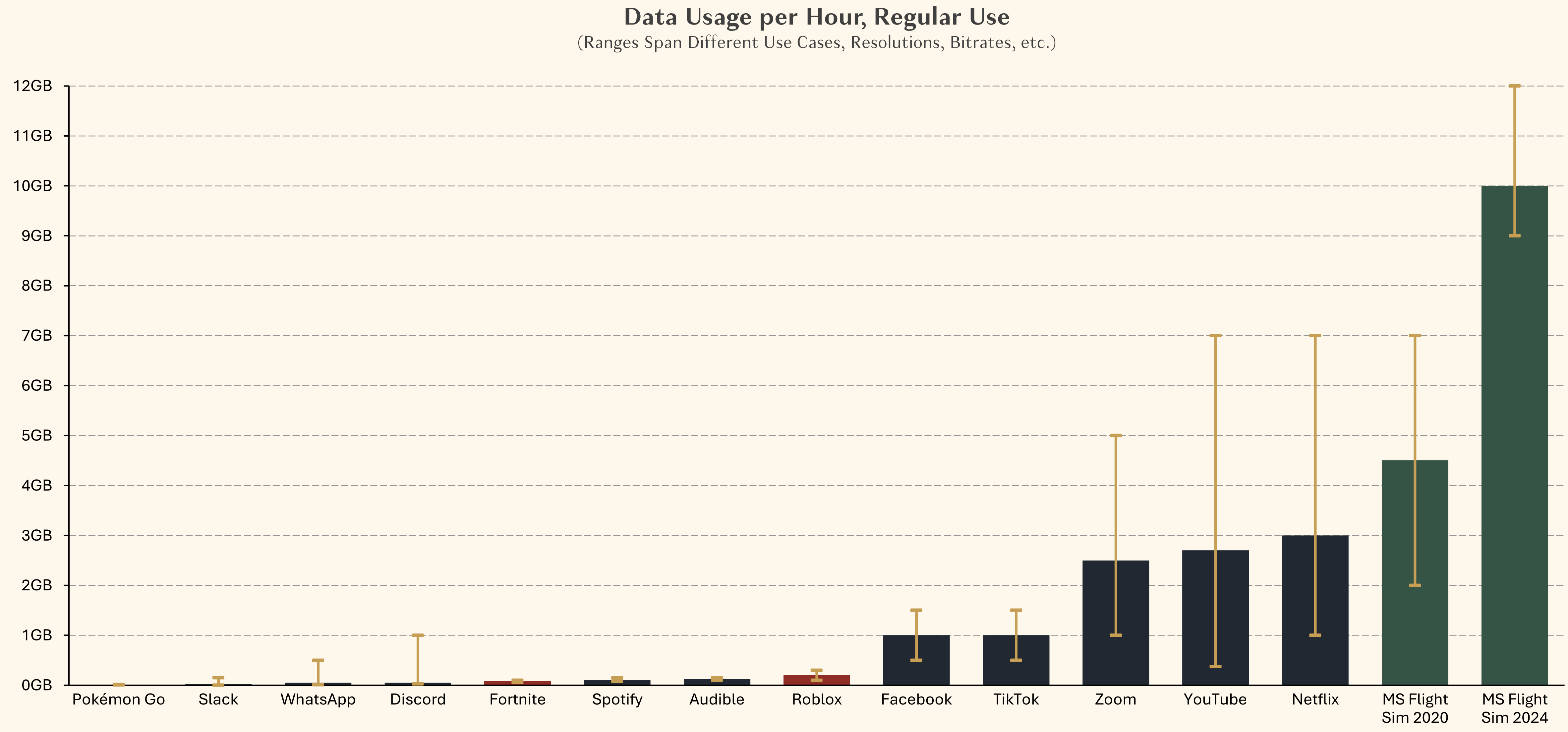
EPYLLION



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

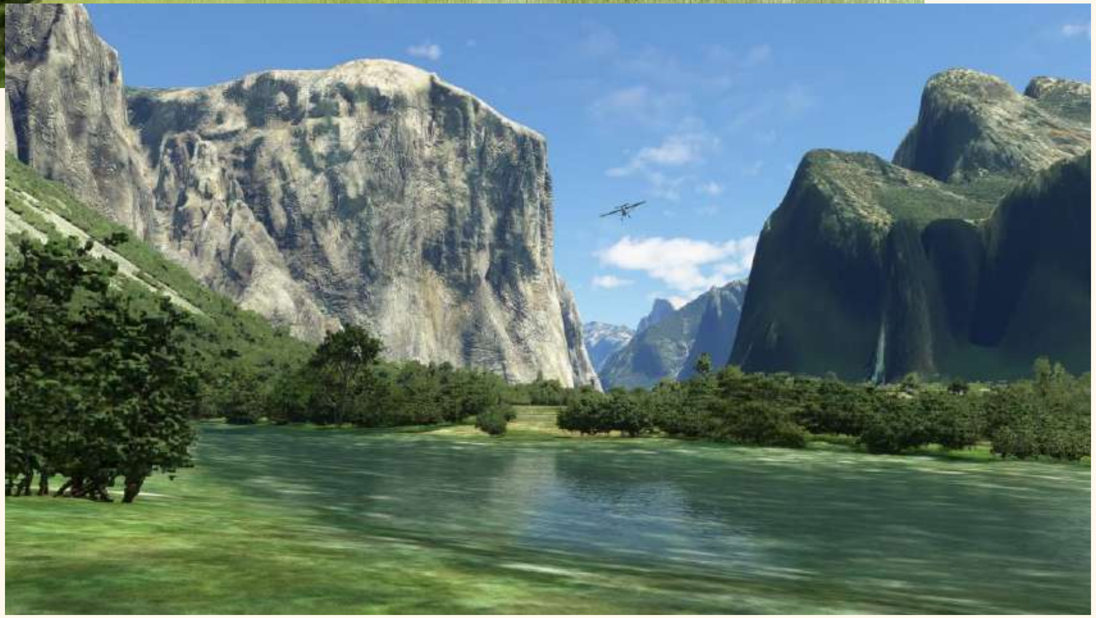
EPYLLION



Sources: Simulation Daily, Epyllion analysis

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

EPYLLION

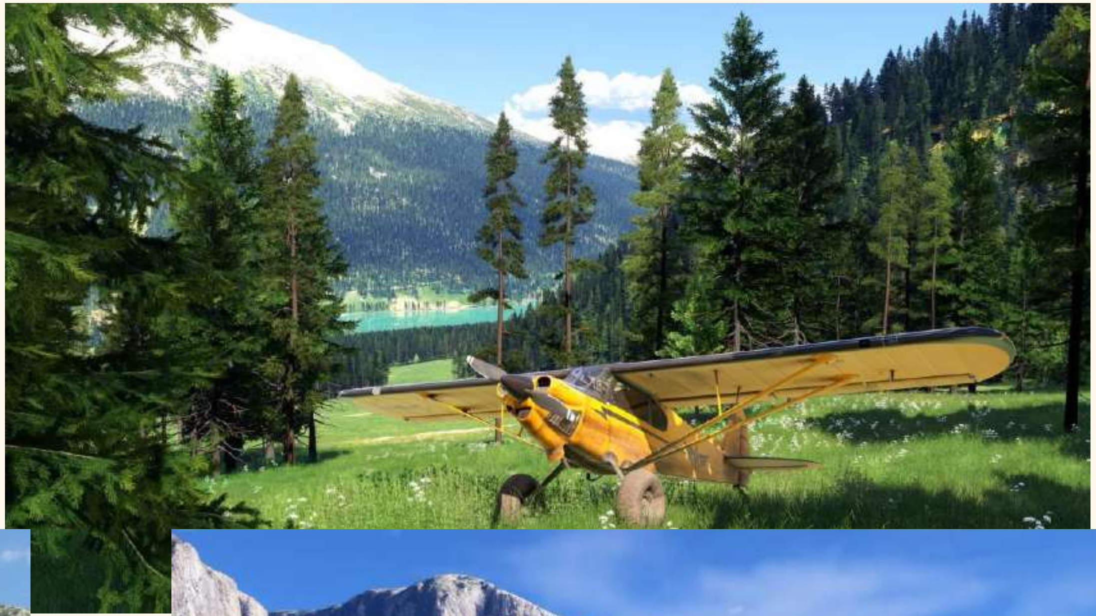


https://www.youtube.com/watch?v=DVNIyjo2Q44 or
https://tinyurl.com/StateofVideoGaming2025-

Sources: VentureBeat, Protocol, Microsoft

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)

EPYLLION



Sources: VentureBeat, Protocol, Microsoft

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

EPYLLION

Sources: Epyllion analysis

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

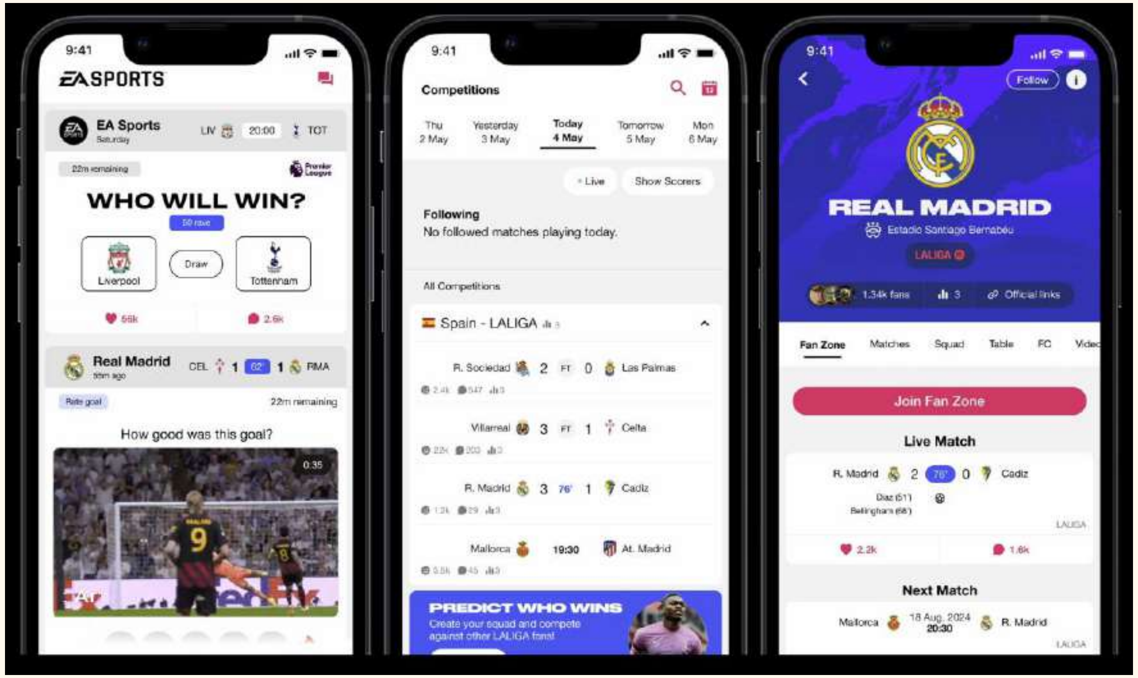
EPYLLION

Source: Loft Dynamics

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"

EPYLLION

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=hsvX8NMGUxI&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

EPYLLION

Mass Concurrency

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 grows, what might the new "battle royale" be? And how might it introduce new monetization models, cultural events, or players to video

-Bandwidth Data Streaming

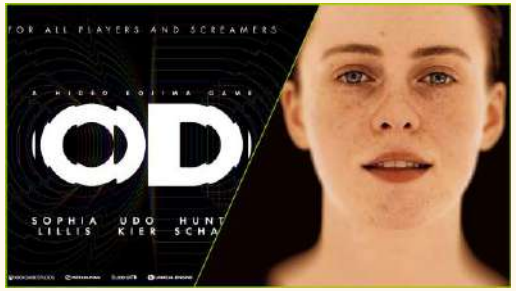
The fidelity, diversity, and "live" aspect of any game world today is currently limited by the fact that nearly all of that world is "pre-downloaded" and limited information is sent to the user as they play (e.g., positional data, select items or game data). Our very sense of what a world is, looks like,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

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

"forgotten" by the
such, it's as though they never even
– meaning the
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



-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
streaming, rather than built for traditional rendering and then cloud streamed, might produce particularly unique, new gaming experiences.

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

Sources: Tim Sweeney, Microsoft, Kojima Productions, Epyllion analysis

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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

EPYLLION

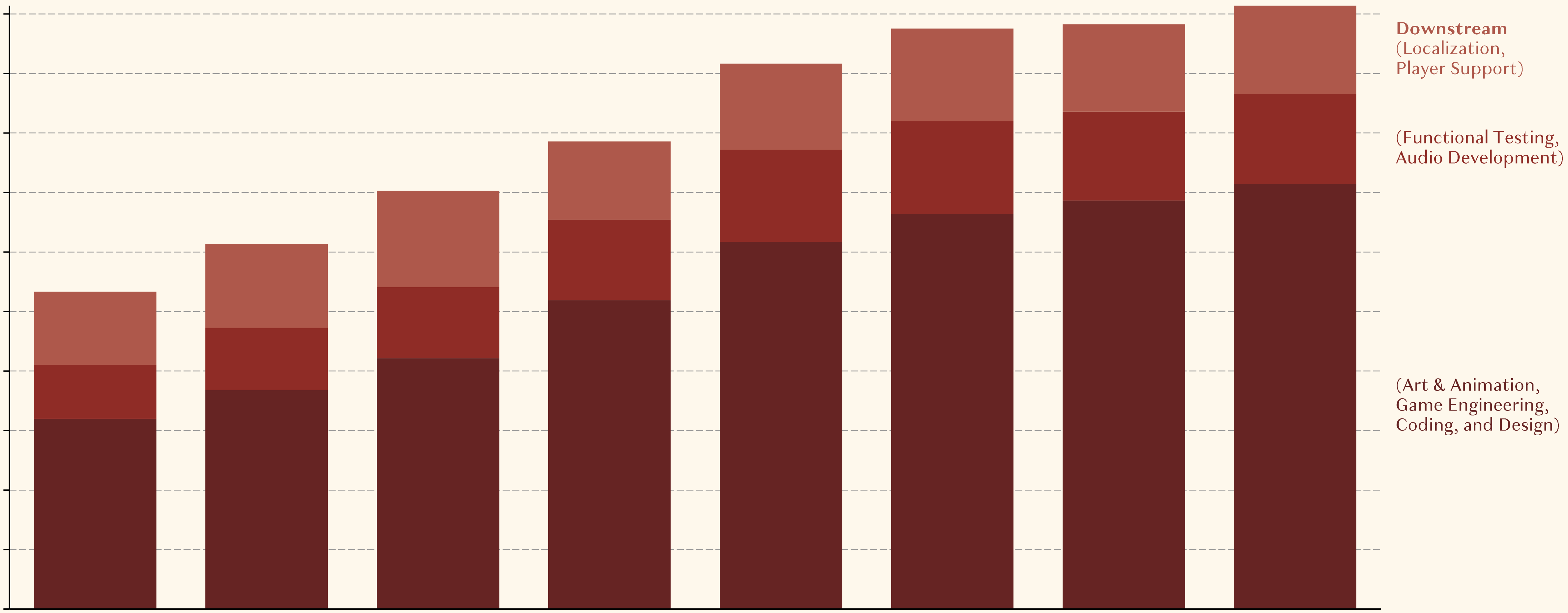
- Bring games to market faster (i.e. less delay to market trends);
- Lower cost of development and support (enabling viability at lower sales or userbases)
- More iteration (improving quality)

- Higher volumes of GAAS content (improving retention and engagement)
- Greater personalization (driving sense of immersion)
- Expanded UGC functionality and ease- -use (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



Sources: IDG Intelligence, Keywords, Epyllion analysis

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

EPYLLION

In April 2023, researchers at Google and Stanford [published a paper] 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 1: Generative agents are believable simulacra of human behavior for interactive applications. In this work, we demonstrate generative agents by populating a sandbox environment, reminiscent of The Sims, with twenty-five agents. Users can observe and intervene as agents plan their days, share news, form relationships, and coordinate group activities.

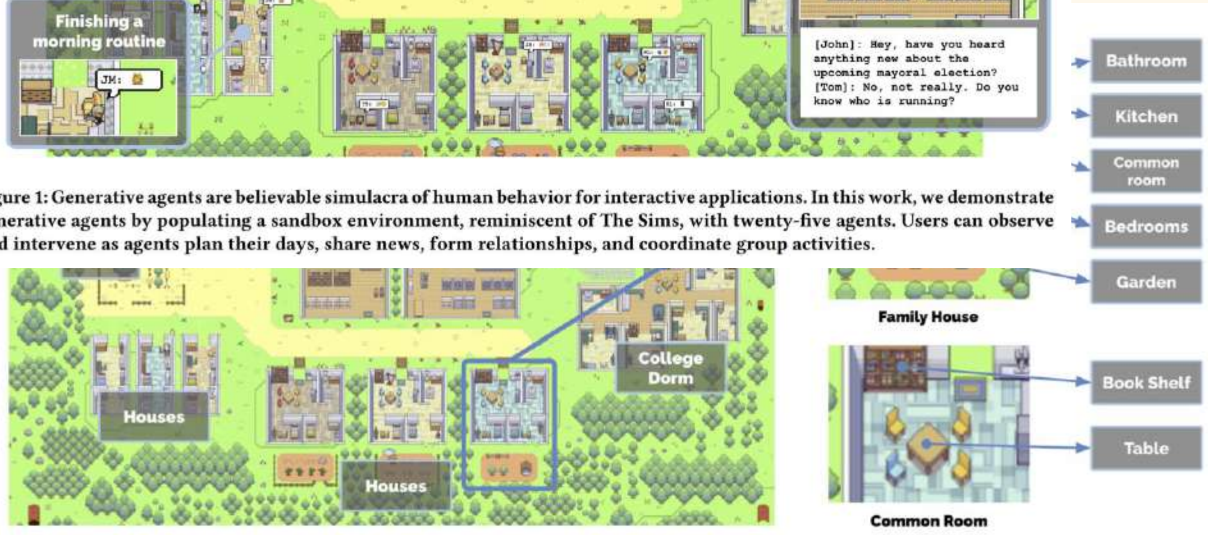


Figure 2: The Smallville sandbox world, with areas labeled. The root node describes the entire world, children describe areas (e.g., houses, cafe, stores), and leaf nodes describe objects (e.g., table, bookshelf). Agents remember a subgraph that reflects the parts of the world they have seen, maintaining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

(Generative Agents: Interactive Simulacra of Human Behavior), *Epyllion analysis*

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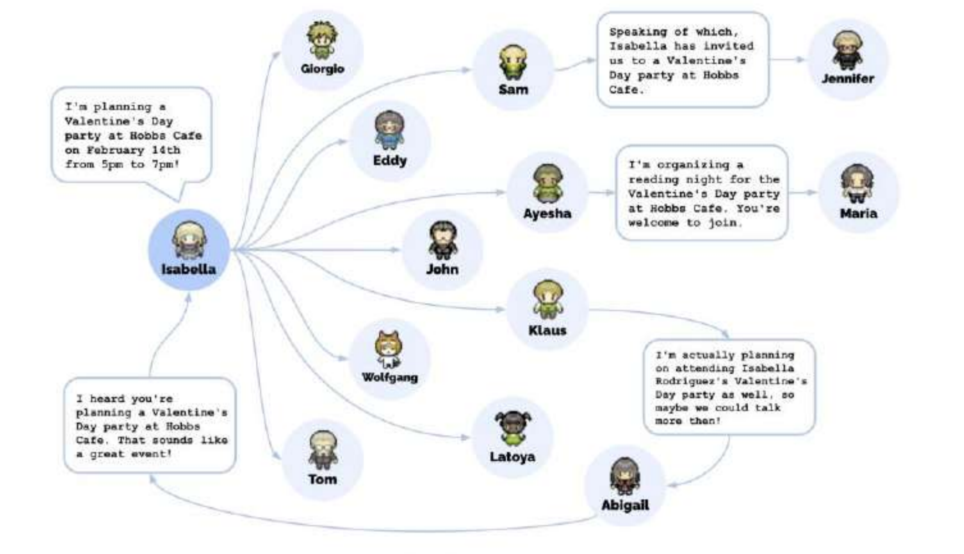


Figure 9: The diffusion path for Isabella Rodriguez’s Valentine’s Day party invitation involved a total of 12 agents, aside from Isabella, who heard about the party at Hobbs Cafe by the end of the simulation.

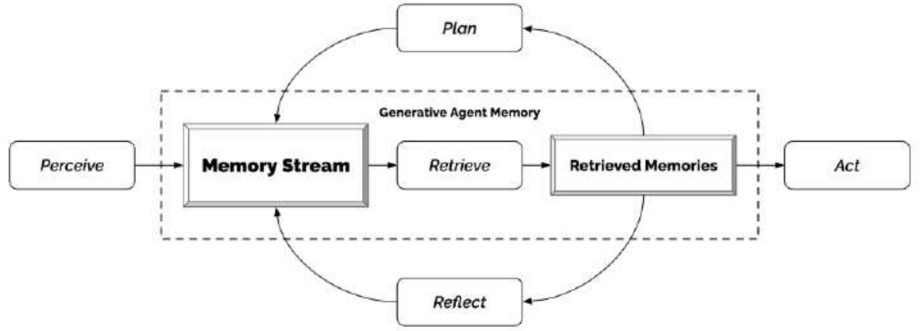


Figure 5: Our generative agent architecture. Agents perceive their environment, and all perceptions are saved in a comprehensive record of the agent’s experiences called the memory stream. Based on their perceptions, the architecture retrieves relevant memories and uses those retrieved actions to determine 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.

(*Generative Agents: Interactive Simulacra of Human Behavior*), Epyllion analysis

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

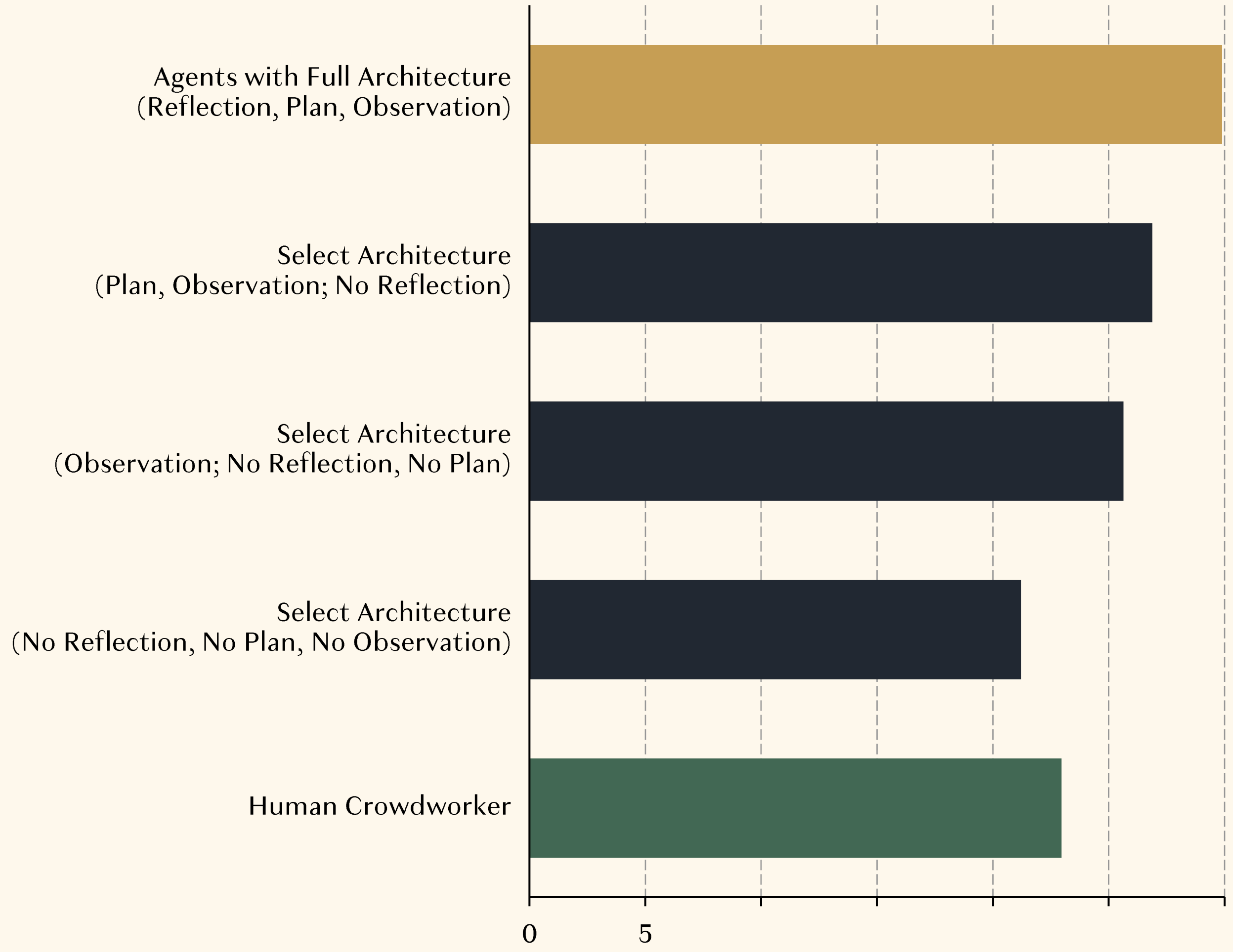
EPYLLION

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 system) and variance tests (Kruskal-

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).

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

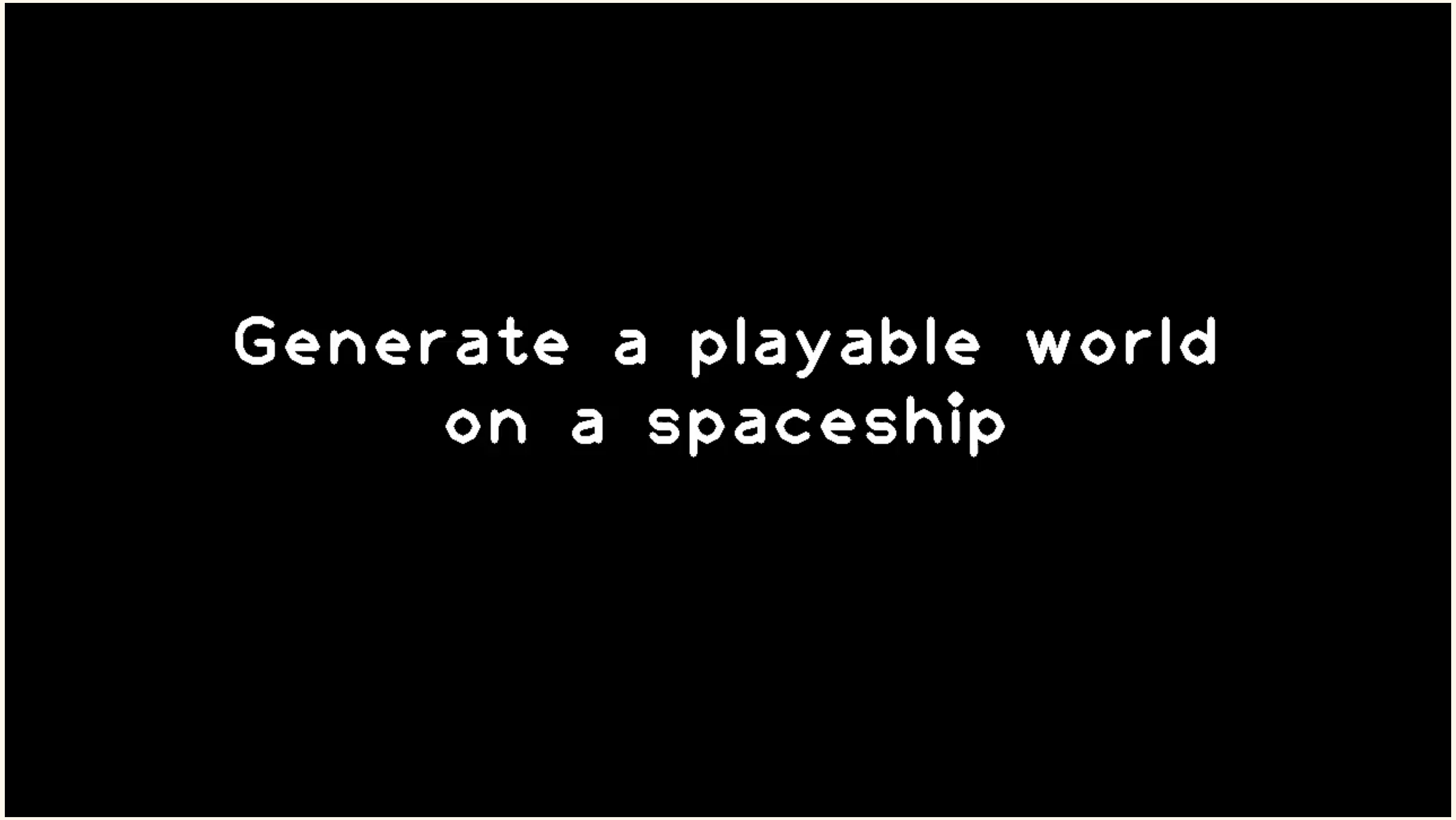


(*Generative Agents: Interactive Simulacra of Human Behavior*), Epyllion analysis

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

EPYLLION

Google's Genie 2 Large-Scale Foundational World Model



https://deepmind.google/discover/blog/genie- -a- - -foundation- - or
https://tinyurl.com/StateofVideoGaming2025-

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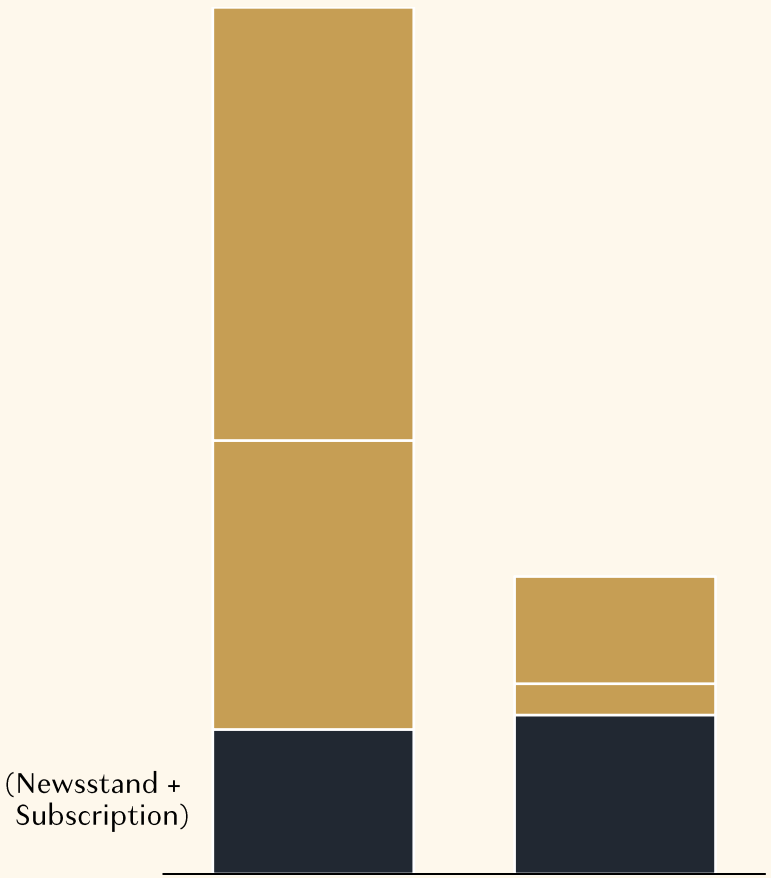
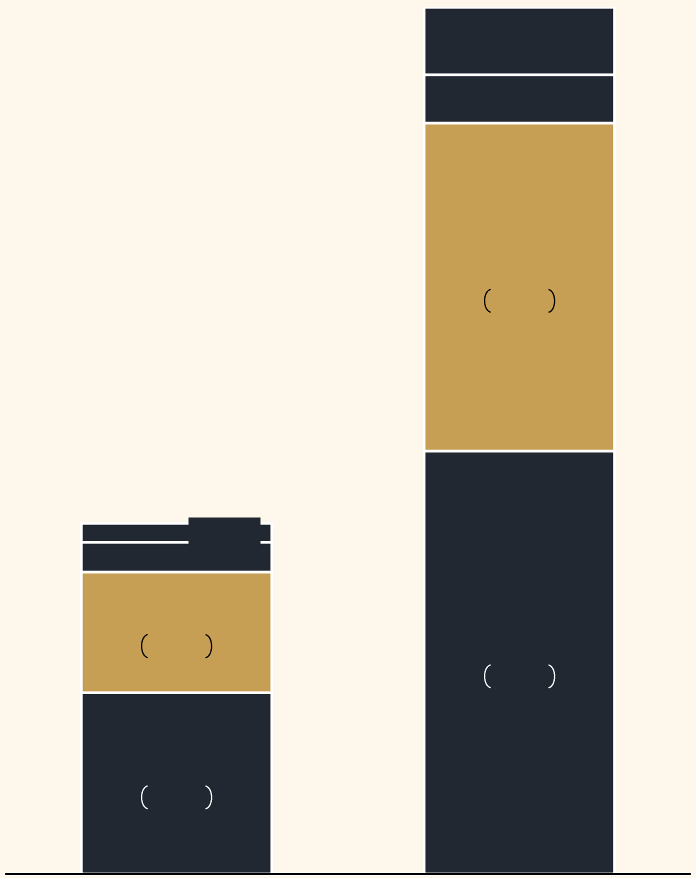
For most media categories, advertising will constitute 40–50% of total revenues — contributing just under a dollar for every dollar a consumer spends

EPYLLION

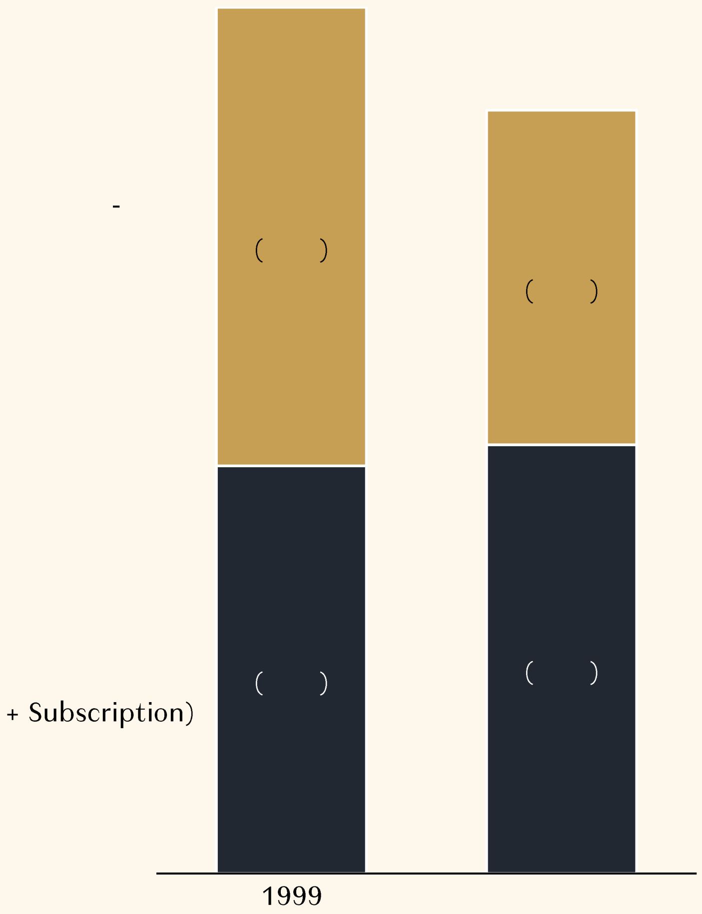
U.S. Newspaper Revenues
(Nominal Prices)



Total Video Revenues in 2015
(Nominal Spend)



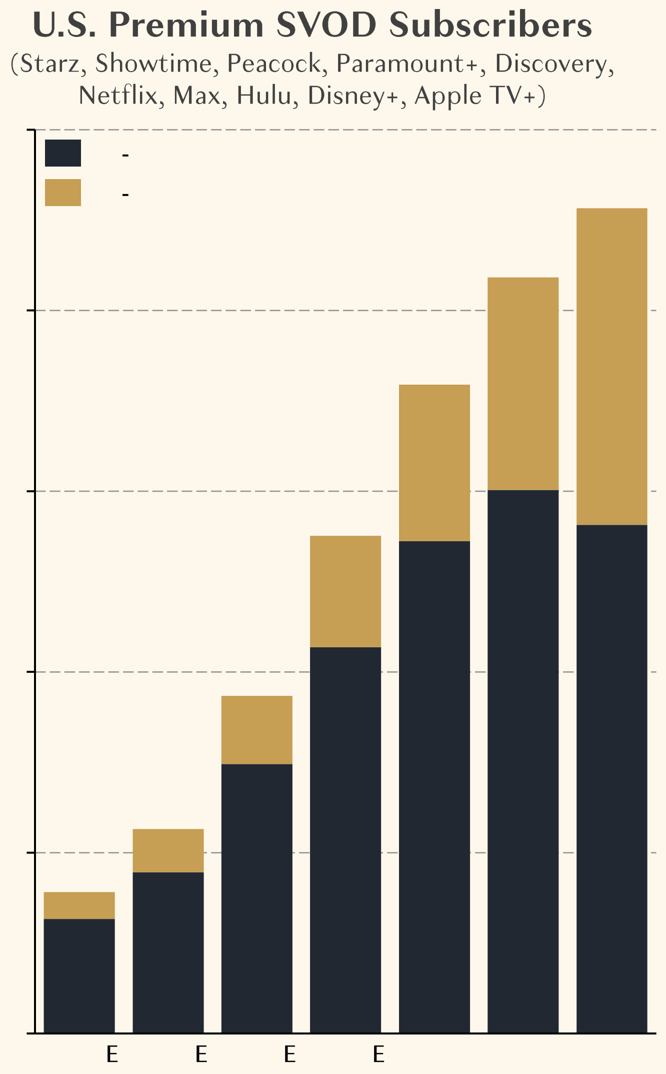
U.S. Recorded Audio Revenue
(Nominal Prices)

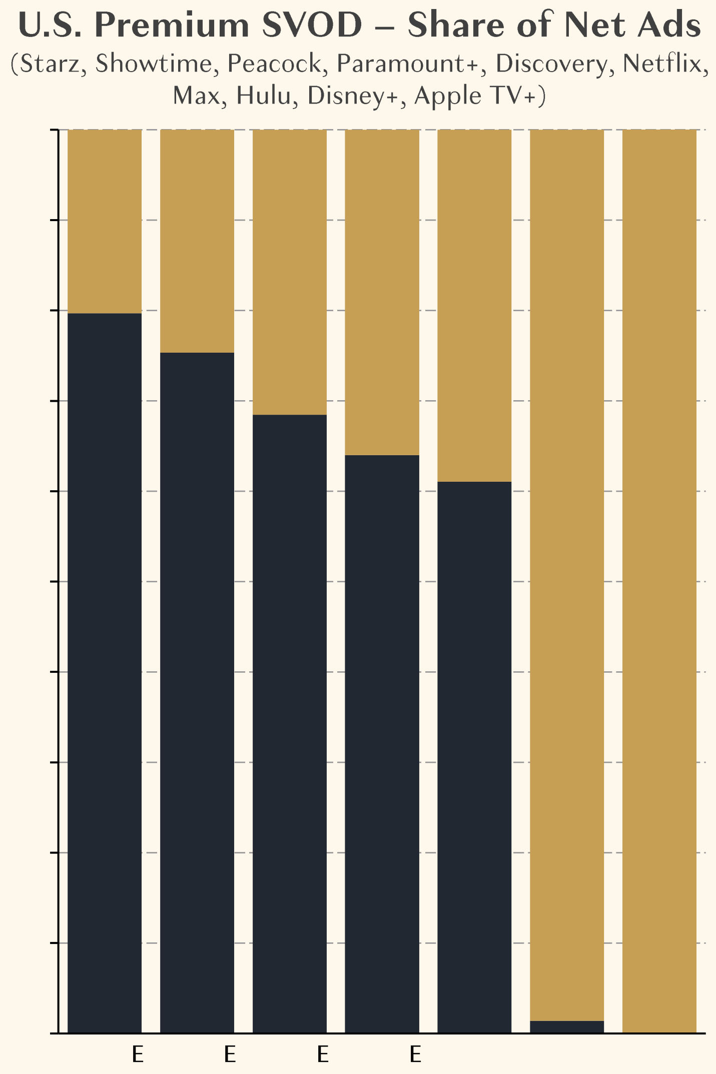


Sources: Pew, ZDNET, Hussman School of Journalism, RIAA, McCann- , Audio Publishers Association, St. Louis Federal Reserve, Christopher H. , Strategy Analytics, Gower Street, Epyllion analysis

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

EPYLLION

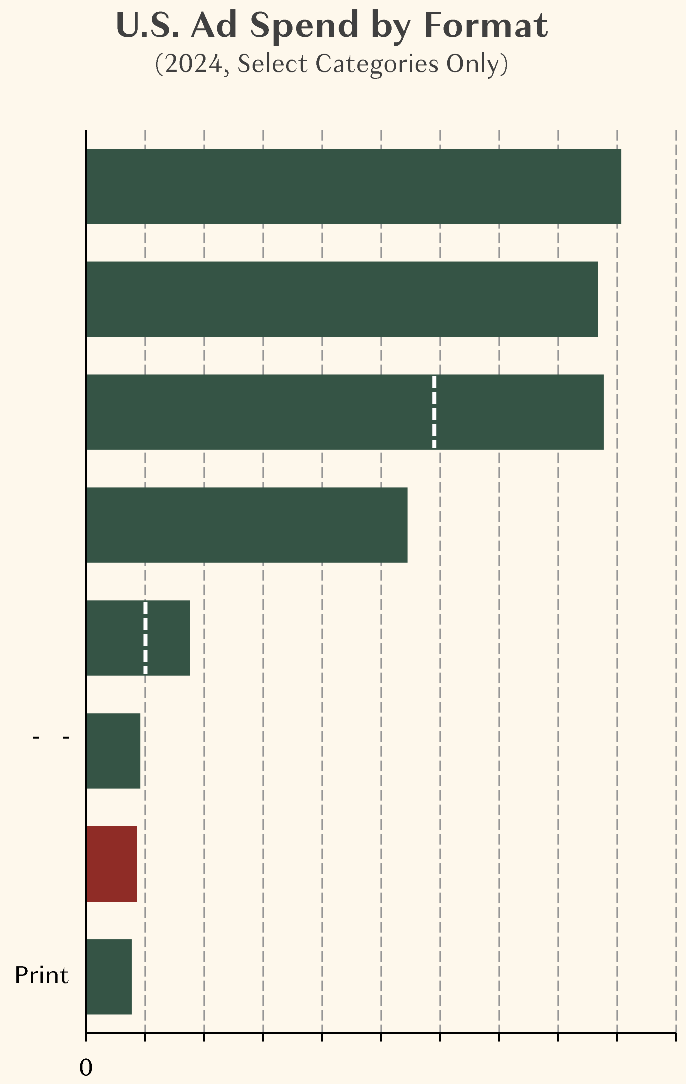


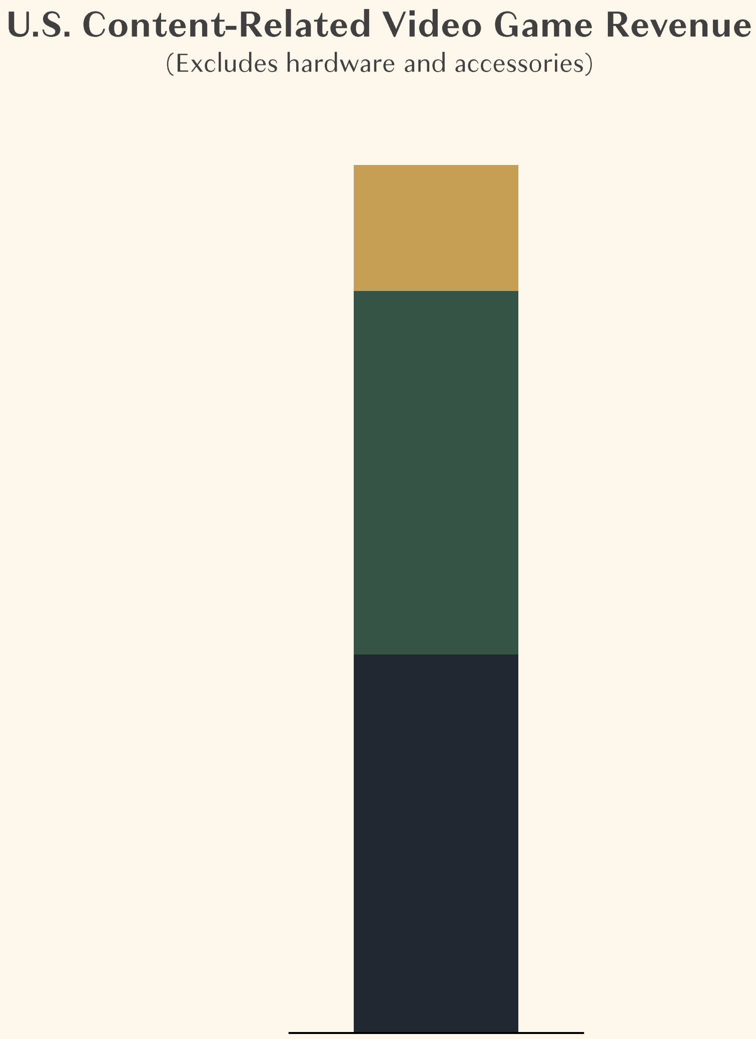


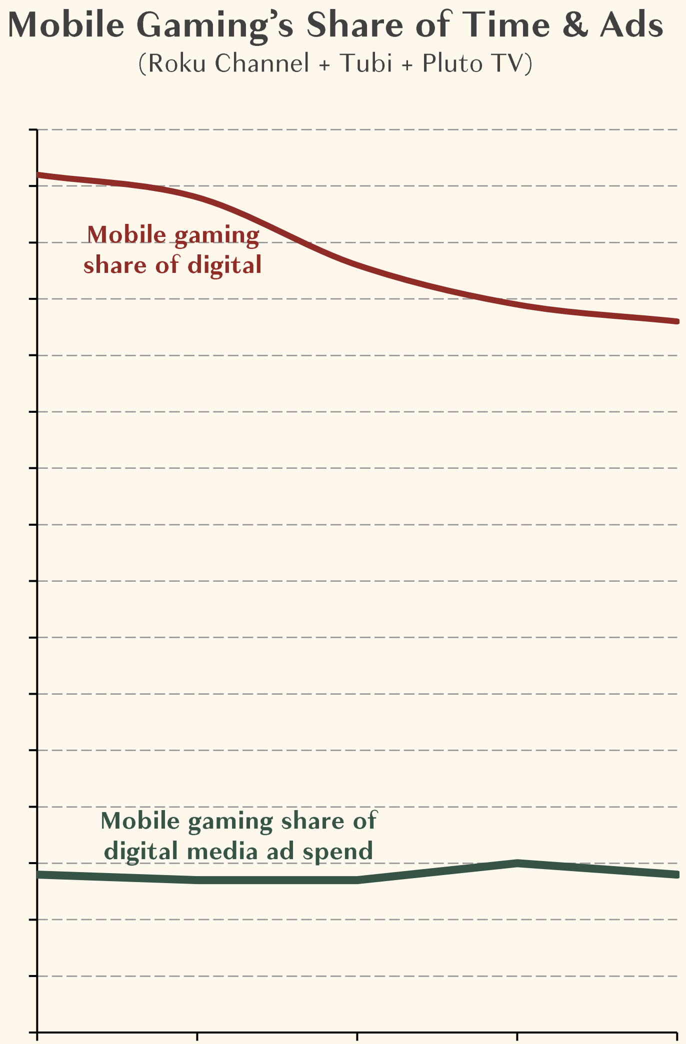
Sources: Antenna, Nielsen, Epyllion analysis

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

EPYLLION

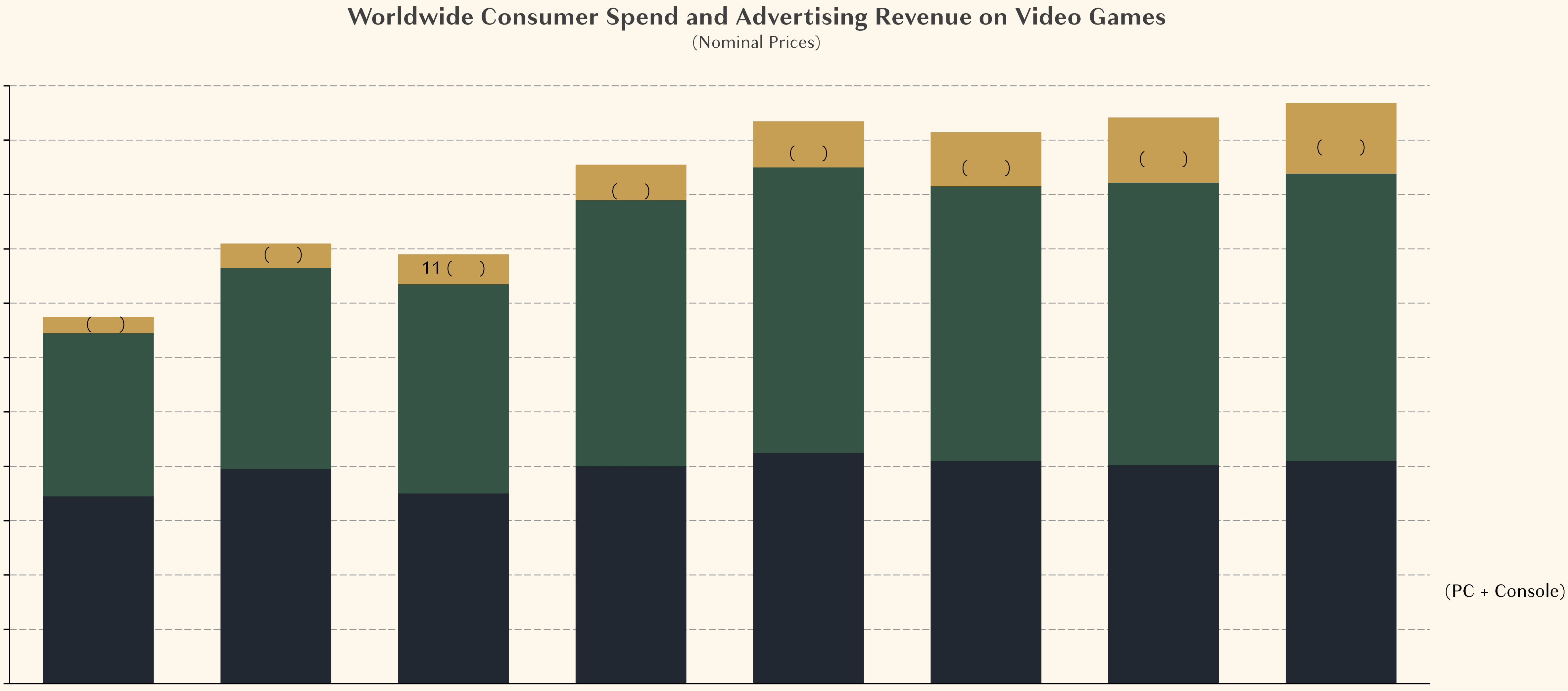






And as consumer spend fell $2.3B v. 2021, related ad revenue grew $9B, from 8% to 12% of total revenues (but nearly all is *on* mobile games to *promote* mobile games)

EPYLLION



Sources: Pelham Smithers / Bloomberg, , data.ai / Sensor Tower, IDG, BCG, Ampere, Epyllion analysis

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

EPYLLION

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.

-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

Sources: Epyllion analysis

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

EPYLLION

- Ad Unit Problem
- Standard View Problem
- -To-Action + Measurement Problem
- Limited History of Ads Problem
- Programmatic Network Requirement
- Minimum Viable

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

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

CEO (2024): "Advertising has an opportunity to be a meaningful driver of growth for us... [we] have teams internally in the company right now looking at how do we do very thoughtful implementations inside of our [games]"

Sources: Ad Exchanger, Business Insider

Reviewing Potential New "Growth Engines"[1]

EPYLLION

"Non-Core" Markets

UGC Platforms & Tools

Social Game Services

Switch 2

Other New Handhelds & Devices

AA/AAA Mobile Gaming

App Store Regulation

New Game Genres

Advertising

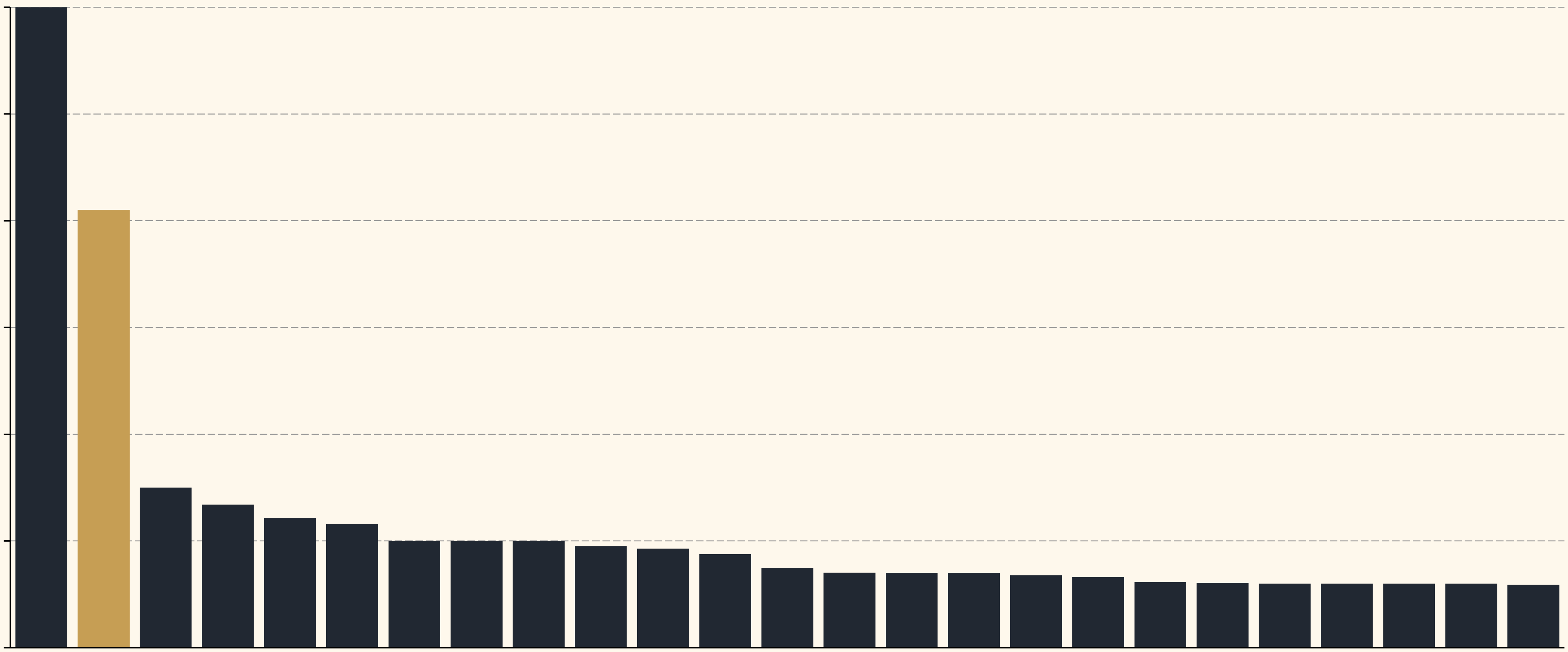
GTA VI Pricing

[1] *Ordered logically, rather than in order of monetary value, significance, timing, etc.; This isn't to say I believe in each one, let alone to the degree sometimes argued, but I do think each is worth arguing*

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

EPYLLION

-Selling Packaged Games of All-Time By Unit Sales

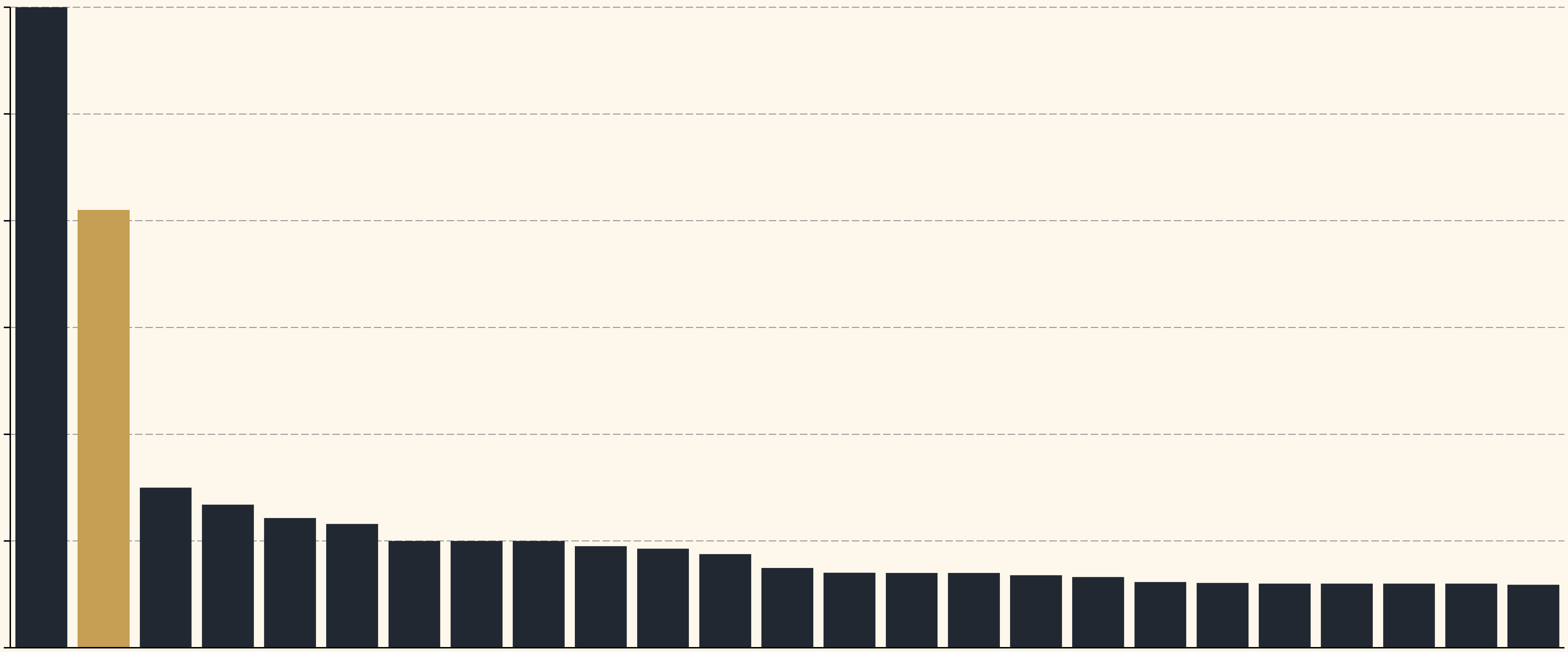


Sources: Wikipedia,

…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.

EPYLLION

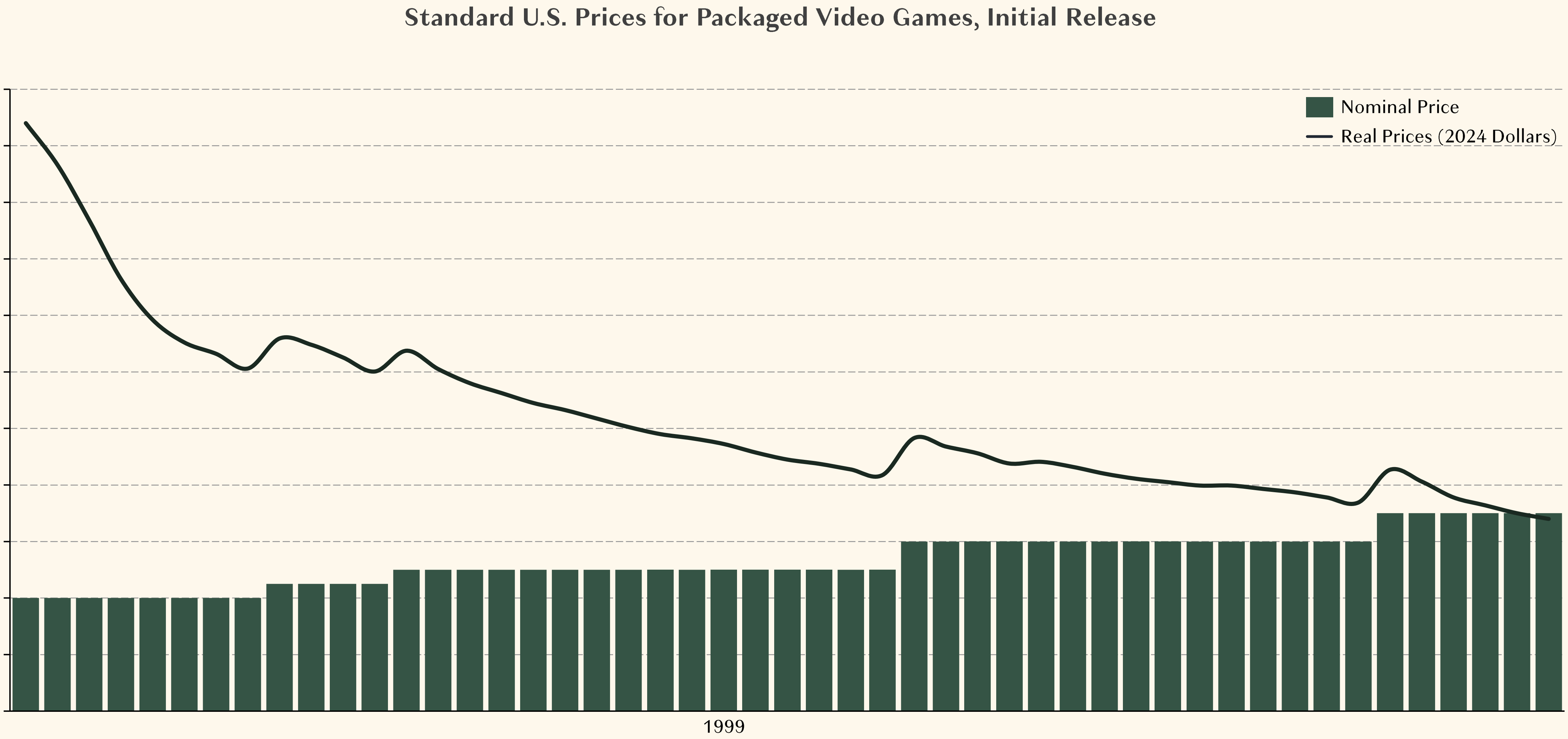
-Selling Packaged Games of All-Time By Unit Sales



Sources: Wikipedia,

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

EPYLLION

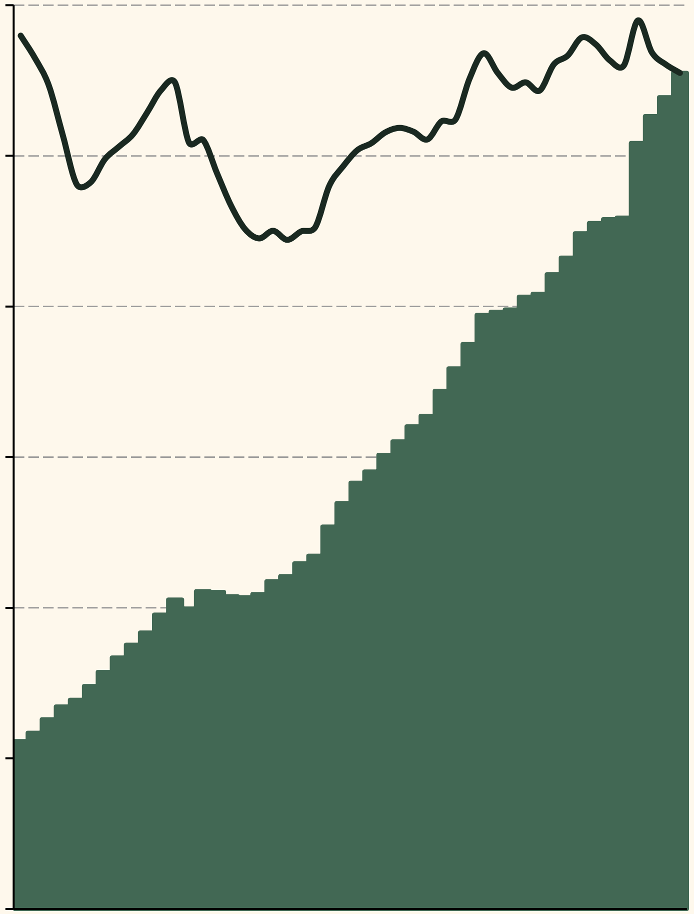


Sources: Wikipedia, Bureau of Labor Statistics

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

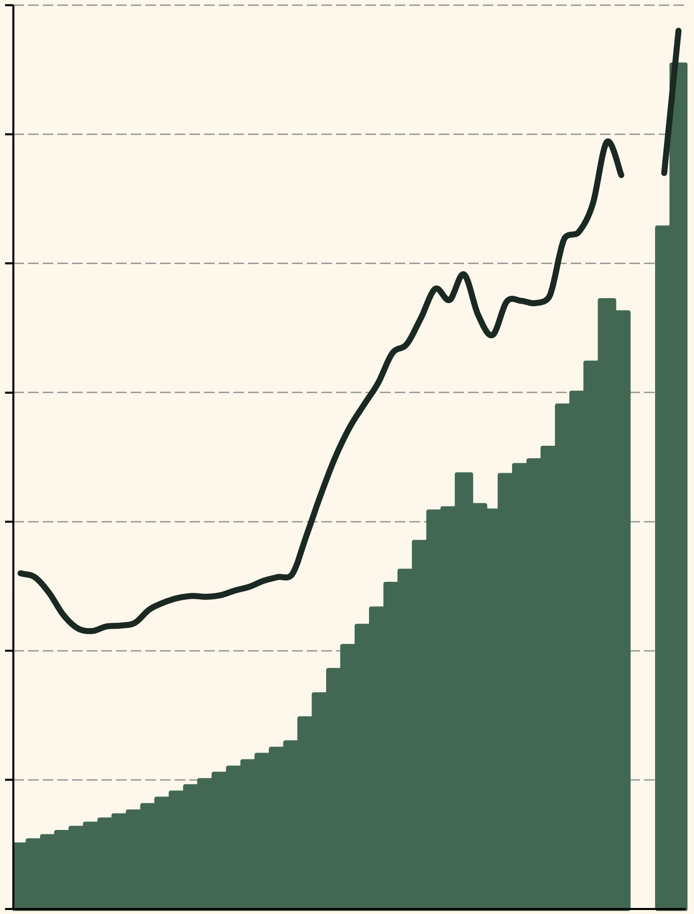
EPYLLION

Average Movie Ticket Price

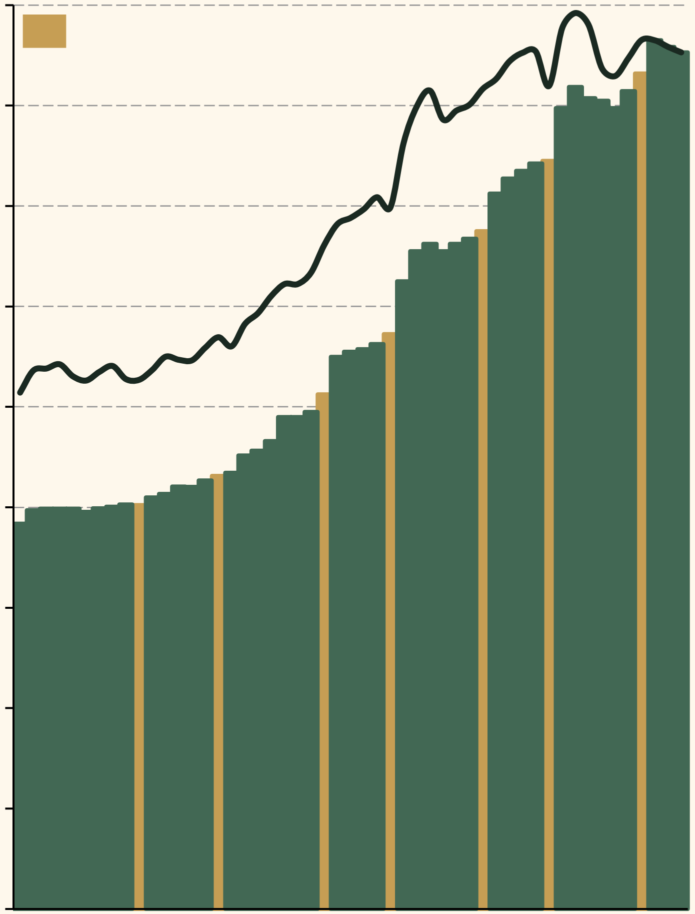


Average Concert Ticket Price

(US Only; Top 100 Tours)



Netflix APRU



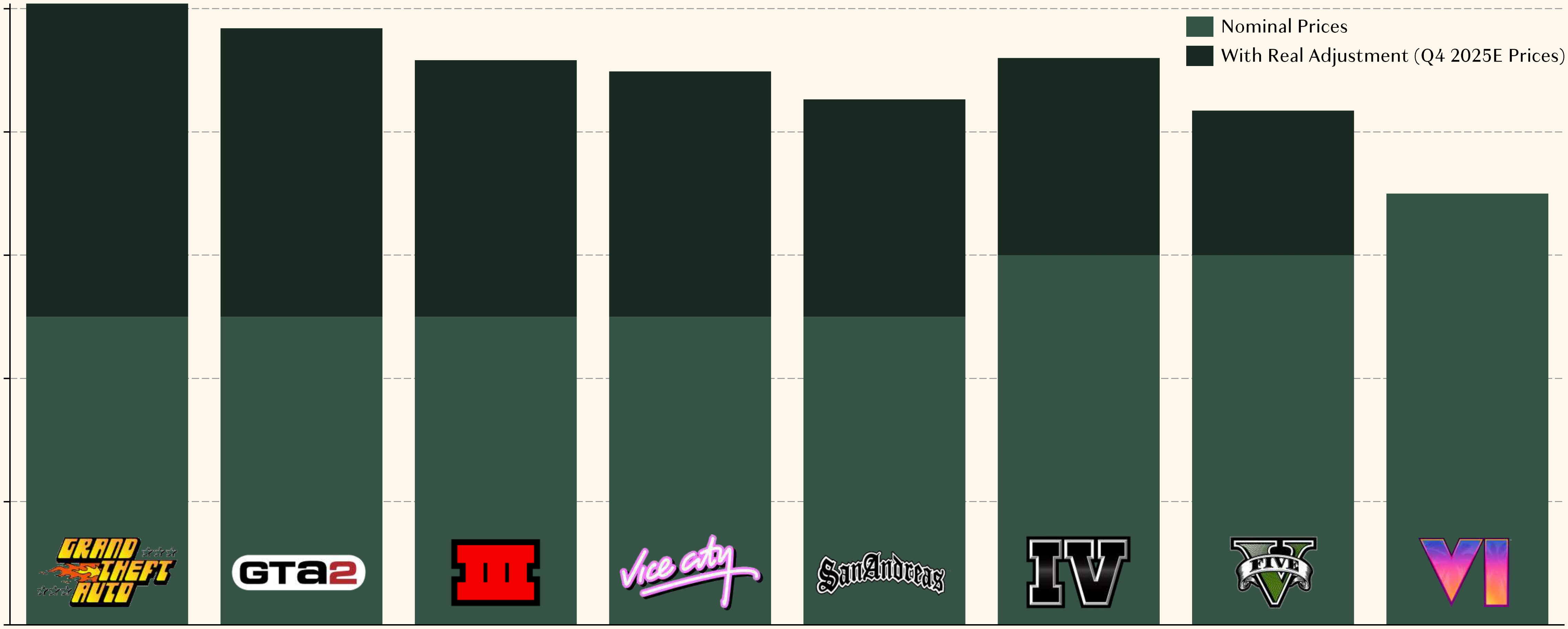
Nominal Price — -Adjusted Price (2024 Dollars)

Sources: MPA, NATO, Pollstar, AARP, Netflix, Bureau of Labor Statistics, Epyllion analysis

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*

EPYLLION

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



Sources: *Wikipedia, Bureau of Labor Statistics*

Reviewing Potential New “Growth Engines”[1]

EPYLLION

"Non-Core" Markets

Maturation of local developers/content should accelerate local spending growth

UGC Platforms & Tools

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

Social Game Services

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

Switch 2

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

Other New Handhelds & Devices

AA/AAA Mobile Gaming

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

App Store Regulation

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

New Game Genres

As gaming (and non-gaming) technology improves, the “next” battle royale may soon emerge

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

-
packaged video game prices after decades of deflation (despite rampant cost growth)

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BY MATTHEW BALL

The State of Video Gaming in 2025

(Version: January 5,

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