

The Intersection of Blockchain & VideoGames

Rafael J. Brown - Game Designer & Game Developer

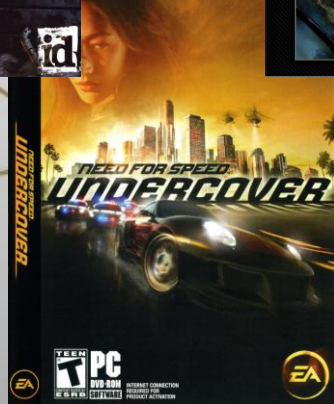
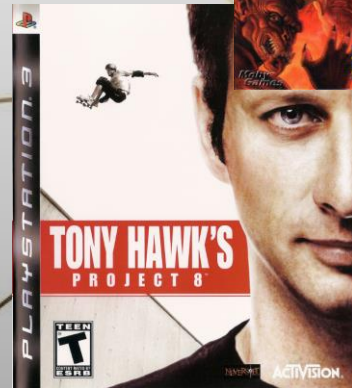
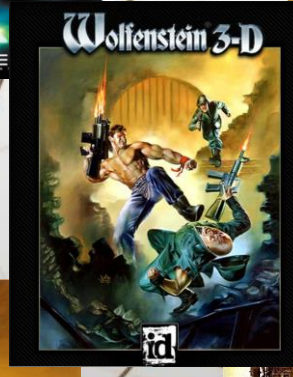
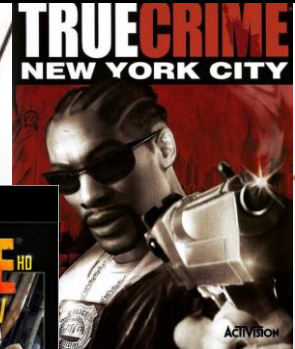
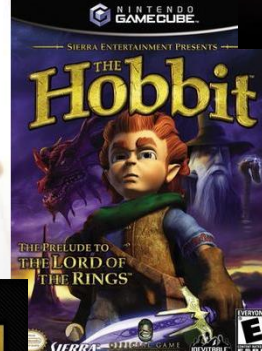
CEO - Symbol Zero

Microsoft Regional Director (Adviser/Consultant)

26 year Game Veteran, 10 years in XR



Who Am I?



TECHNOLOGY IS NOT A RELIGION



**Blockchain & Web3
Need To
Learn This**



Why are people calling Bitcoin a religion?

February 3, 2022 8:13am EST

Some Bitcoin evangelists see the currency as an answer to problems that plague society. mustafa akman/Stock via Getty Images

Timeline of Game Technology

CONSOLES - conceived in 1966, and launched in 1972, with the Magnavox Odyssey.

PERSONAL COMPUTERS - conceived in the 1970s, and launched in 1981 with the IBM PC

ARPANET - ran in the 1960s and 1970s

OPTICAL DISCS - introduced as a storage medium in 1980, introduced to games in 1988.

BITNET - started in 1981 and ran thru the 80s and 90s.

The INTERNET - started in 1990 and the Web/HTML launched on it at the end of the same year.

The GPU - launched into the PC market as of 1996 as did Quake 1/GL Quake, similarly the Nintendo 64 and Super Mario, heralding the rise of 3D.

MOBILE - started in 2007 with the iPhone/iOS, and expanded in 2008 with Android.

CLOUD - launched in 2006, grew thru the mid 2000s. Became a fixture of underlying network technology all thru the 2010s.

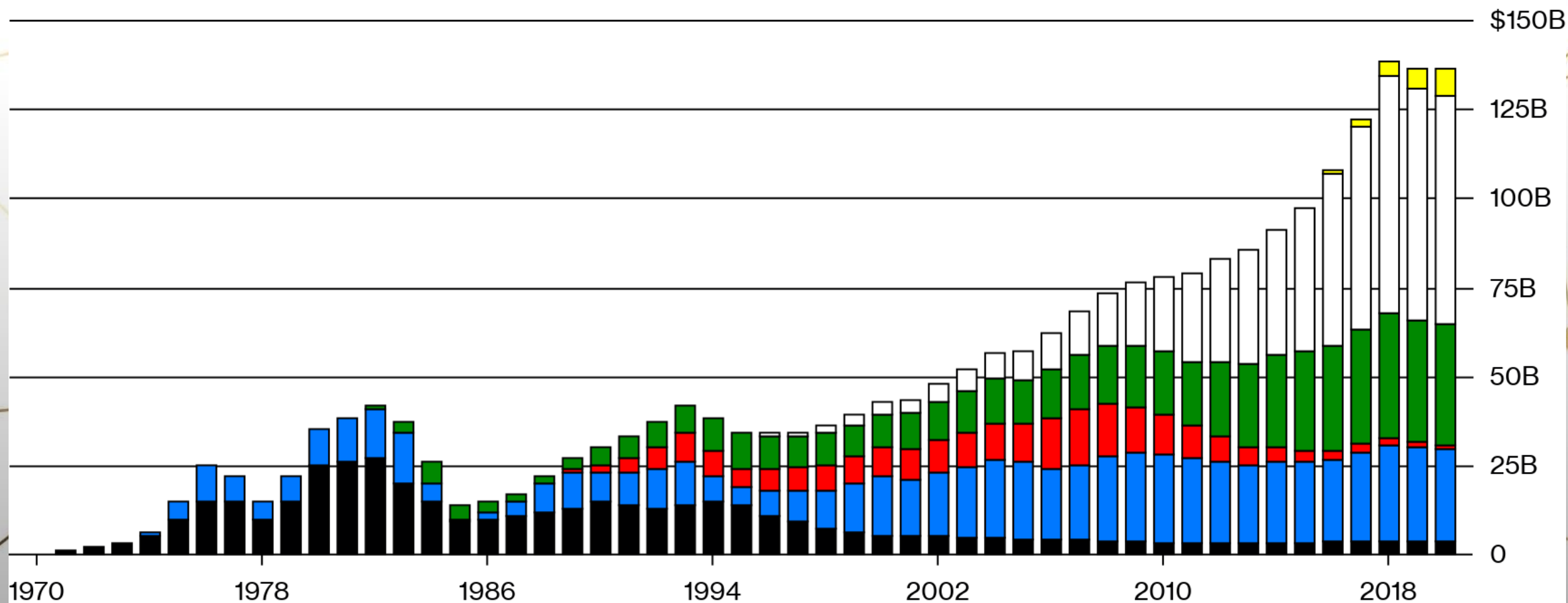
BLOCKCHAIN - began with the 2009 release of Bitcoin. We are still trying to determine both when and if it is a relevant technology to games.

GAME REVENUE TIMELINE

Peak Video Games?

Industry revenue could shrink in 2019 on China slowdown and Fortnite fatigue

■ Arcade ■ Console ■ Handheld ■ PC ■ Mobile ■ Virtual reality



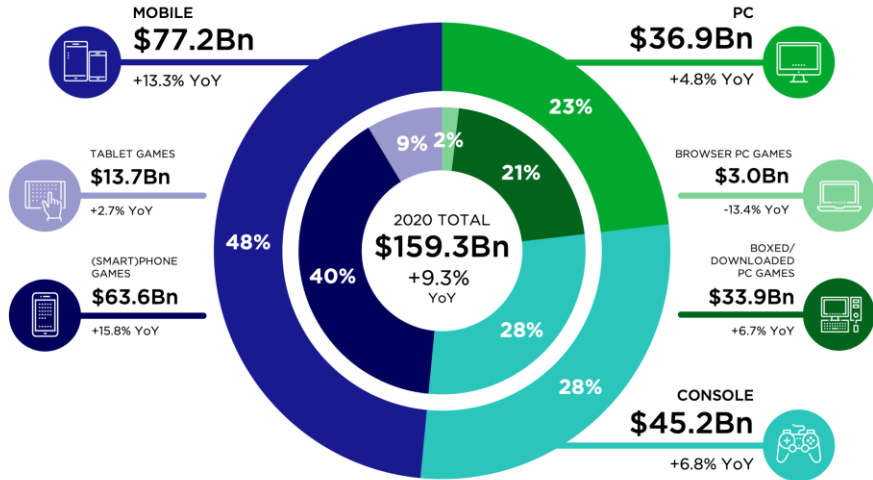
Data: Pelham Smithers; graphic by Bloomberg Businessweek

Game Revenue 2020 & 2021 - BOOM



2020 Global Games Market

Per Device & Segment With Year-on-Year Growth Rates



Source: ©Newzoo | 2020 Global Games Market Report | April Update
newzoo.com/globalgamesreport



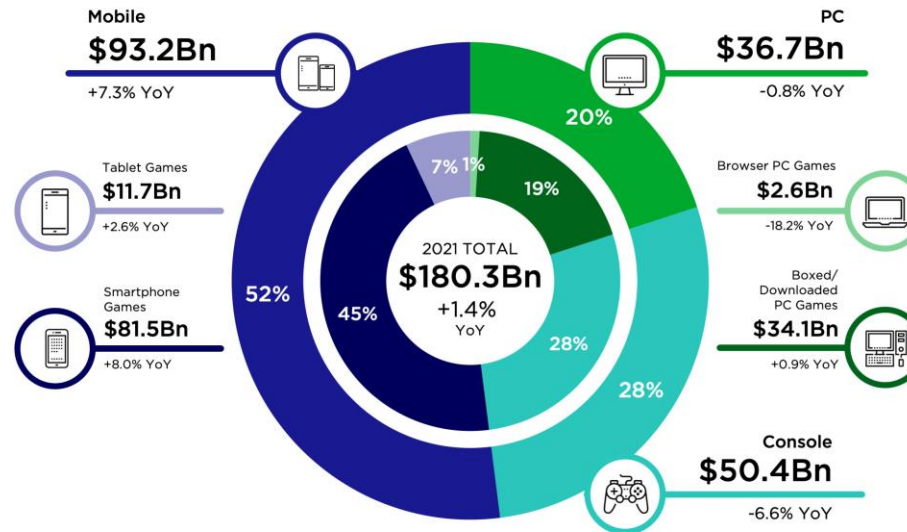
\$77.2Bn

Mobile game revenues in 2020 will account for 48% of the global market



2021 Global Games Market

Per Device & Segment With Year-on-Year Growth Rates



Source: ©Newzoo | Global Games Market Report | January 2022
newzoo.com/globalgamesreport



\$93.2Bn

Mobile game revenues in 2021 will account for 52% of the global market

Our revenues encompass consumer spending on games: physical and digital full-game copies, in-game spending, and subscription services like Xbox Game Pass. Mobile revenues exclude taxes, secondhand trade or secondary markets, advertising revenues earned in and around games, console and peripheral hardware, B2B services, and the online gambling and betting industry.

Timeline of Game Monetization

ARCADES - Coin Operated, quarter fed

HOME CONSOLES - Premium purchase

PERSONAL COMPUTERS - Premium purchase plus magazines

BULLETIN BOARDS - Free, sometimes with Subscription

PC Shareware - Free plus Premium Upgrade

PC MMOs - Premium & subscription

Console Online - Premium + Downloadable Content (DLC)

MOBILE F2P - Free with In App Purchases (IAP) with microtransactions (MTX)

PC/Console Online - Premium or Freemium, with DLC, Season Pass, & MTX

GAMES AS A SERVICE - GaaS is F2P Cross Device (PC, Console, Mobile) with MTX & Subscription

BLOCKCHAIN - Unknown, TBD, entirely guesswork, P2E (Play to Earn or Pay to Exploit) is a white paper waiting to be proven, ICOs failed, NFTs are in a bubble, virtual land sales are whale attractors.

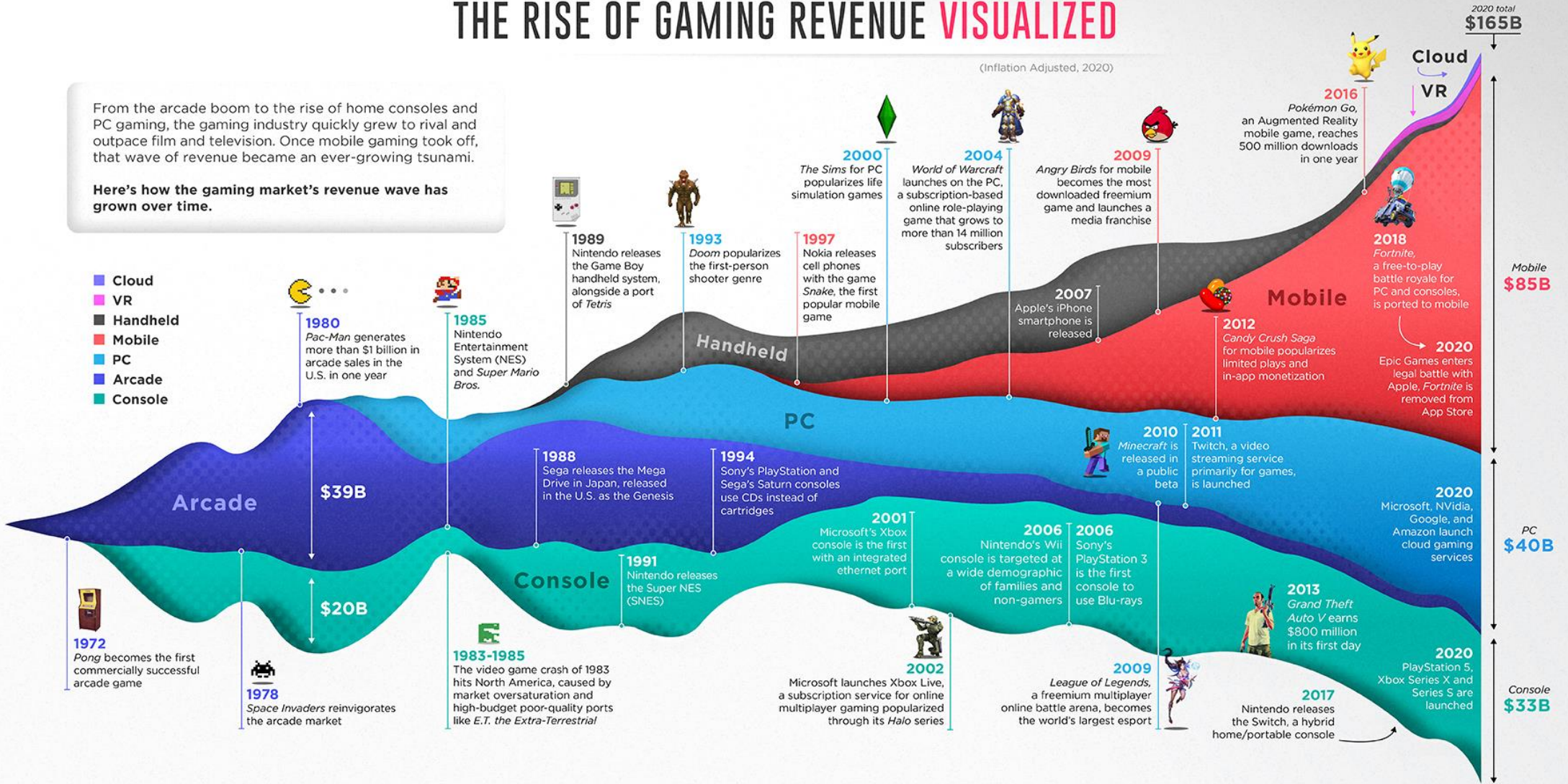
Timeline of Game Monetization

THE RISE OF GAMING REVENUE VISUALIZED

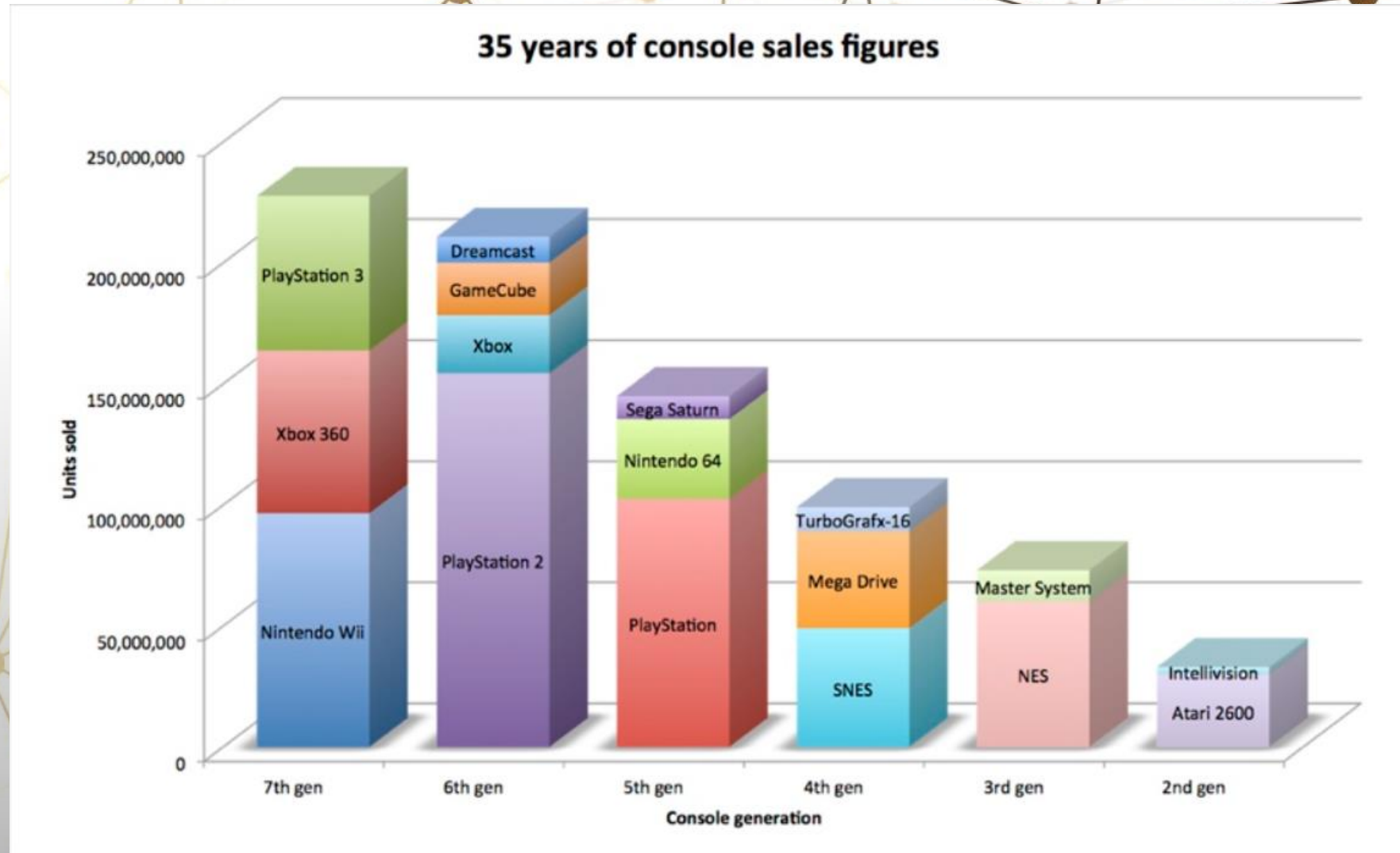
(Inflation Adjusted, 2020)

From the arcade boom to the rise of home consoles and PC gaming, the gaming industry quickly grew to rival and outpace film and television. Once mobile gaming took off, that wave of revenue became an ever-growing tsunami.

Here's how the gaming market's revenue wave has grown over time.



Steady Generations of Console

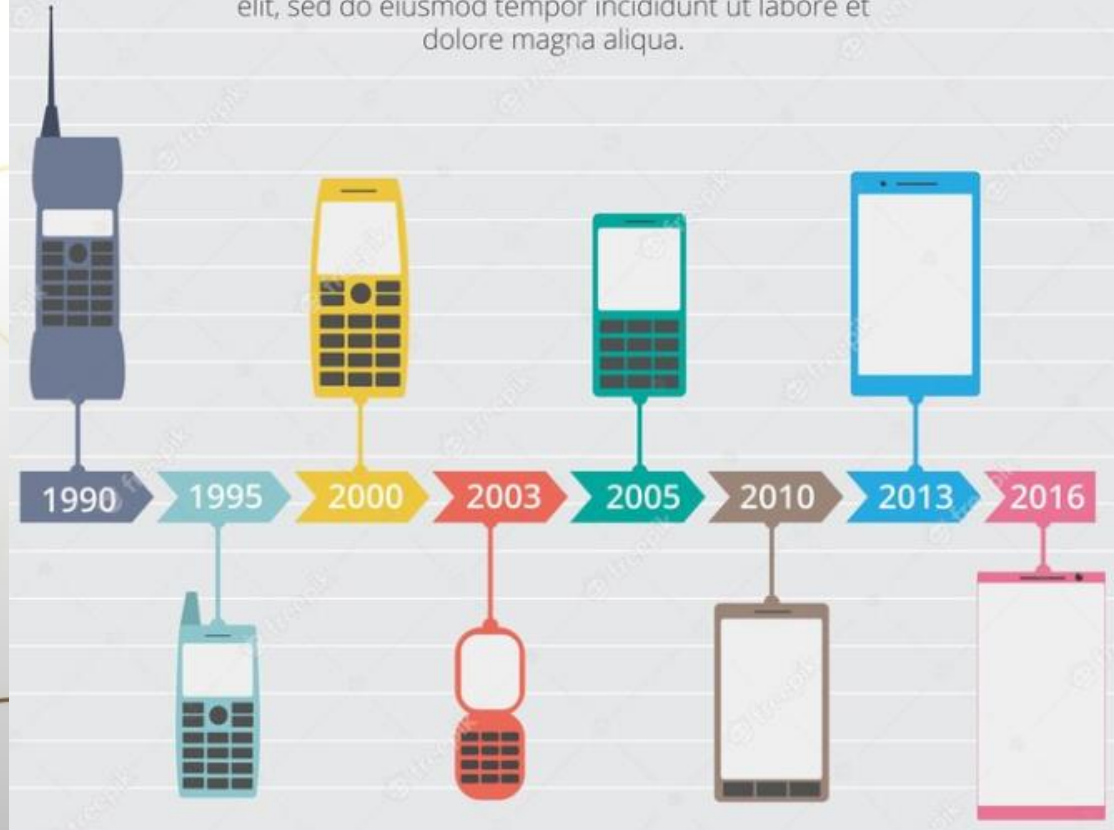


Across 9 generations of videogame consoles there has been slow steady linear growth (pictured here - 7 gens)

The Rise of Mobile

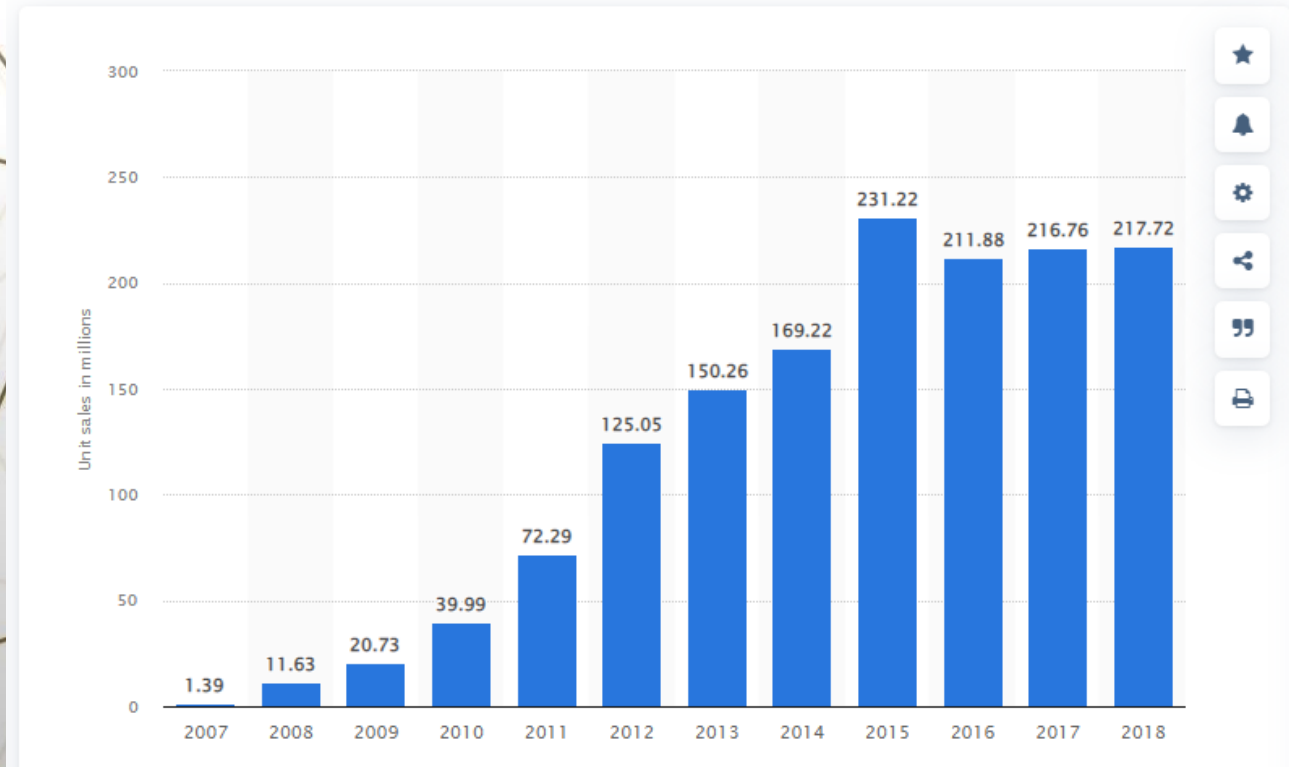
Mobile Phones Evolution

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.



Technology & Telecommunications > Consumer Electronics

Unit sales of the Apple iPhone worldwide from 2007 to 2018 (in millions)

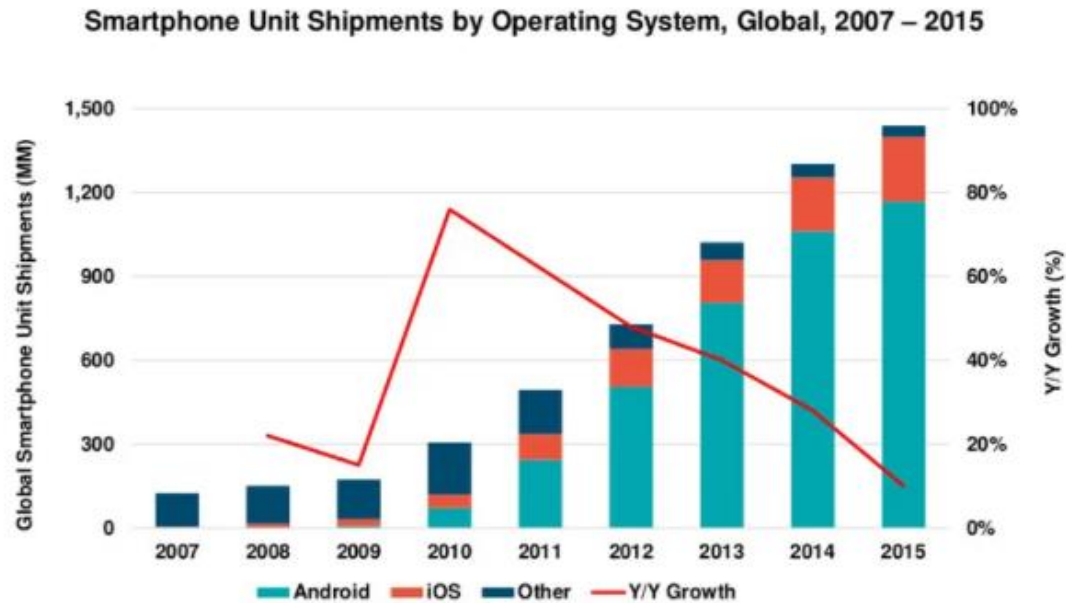


Hardware Works In 30 Year Cycles

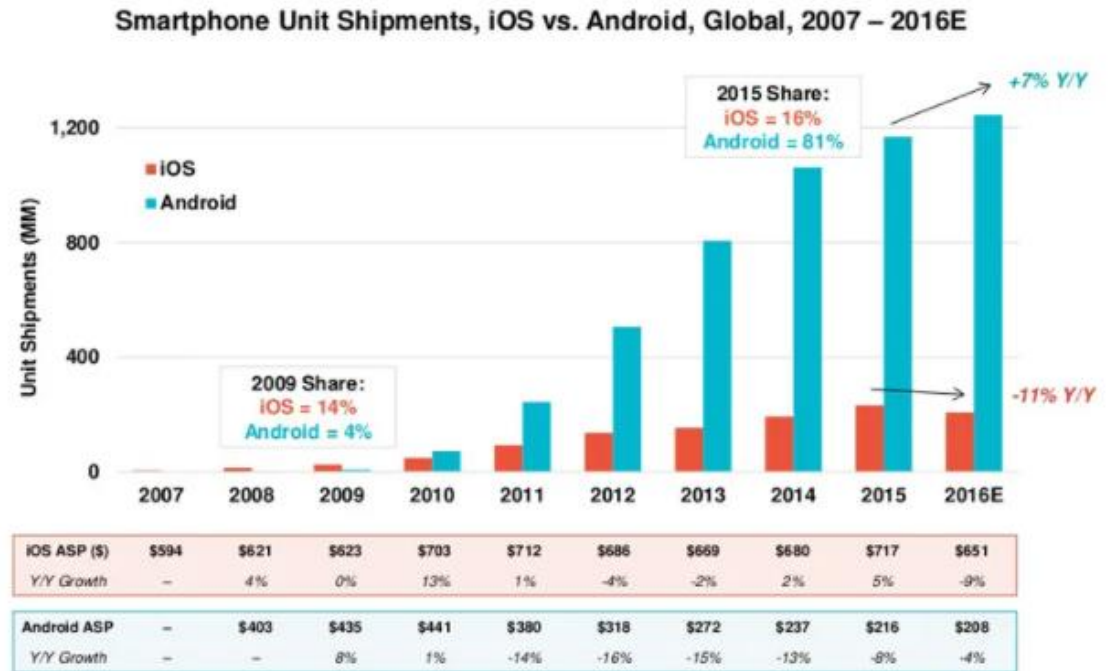
The iPhone Curve Looks Exponential Because Its After 15 years of Phones

The Rise of Mobile

Global Smartphone Units Slowing Dramatically...
After 5 Years of High Growth @ +10% vs. +28% Y/Y



Android Smartphone Share Gains Continue vs. iOS...
Android ASP Declines Continue...Delta to iOS @ ~3x



Android increases that exponential curve

The Rise of Cloud

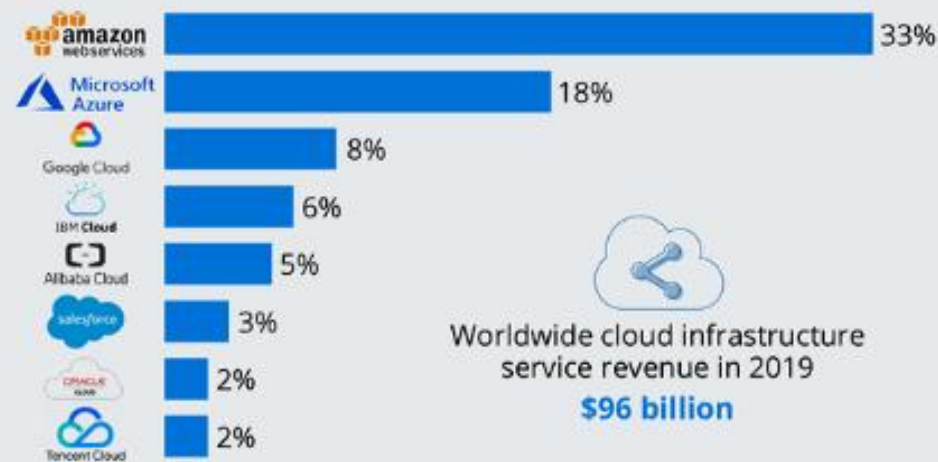
Microsoft Is Up in the Clouds

Microsoft's annualized commercial cloud revenue run rate (fiscal year ends June 30)*



Amazon Leads \$100 Billion Cloud Market

Worldwide market share of leading cloud infrastructure service providers in Q4 2019*



Worldwide cloud infrastructure service revenue in 2019
\$96 billion

* includes platform as a service (PaaS) and infrastructure as a service (IaaS) as well as hosted private cloud services
Source: Synergy Research Group

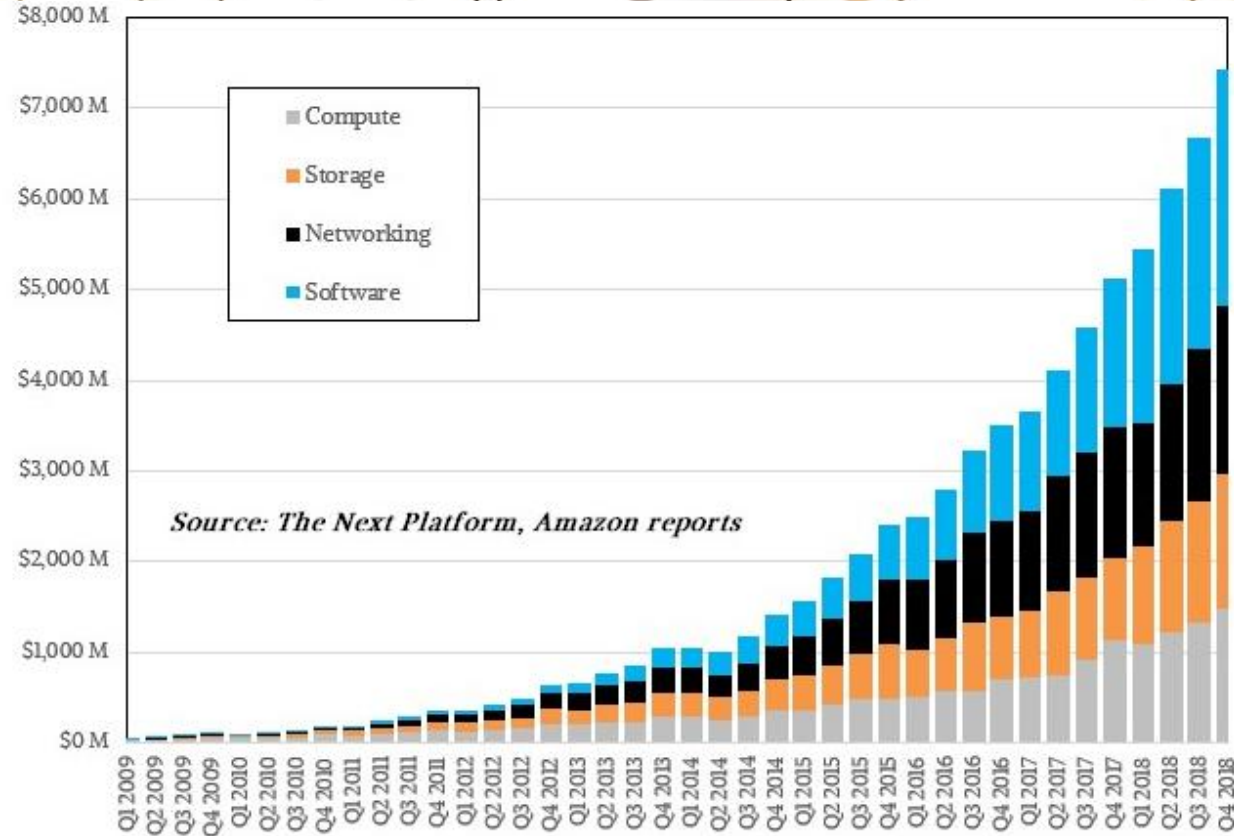
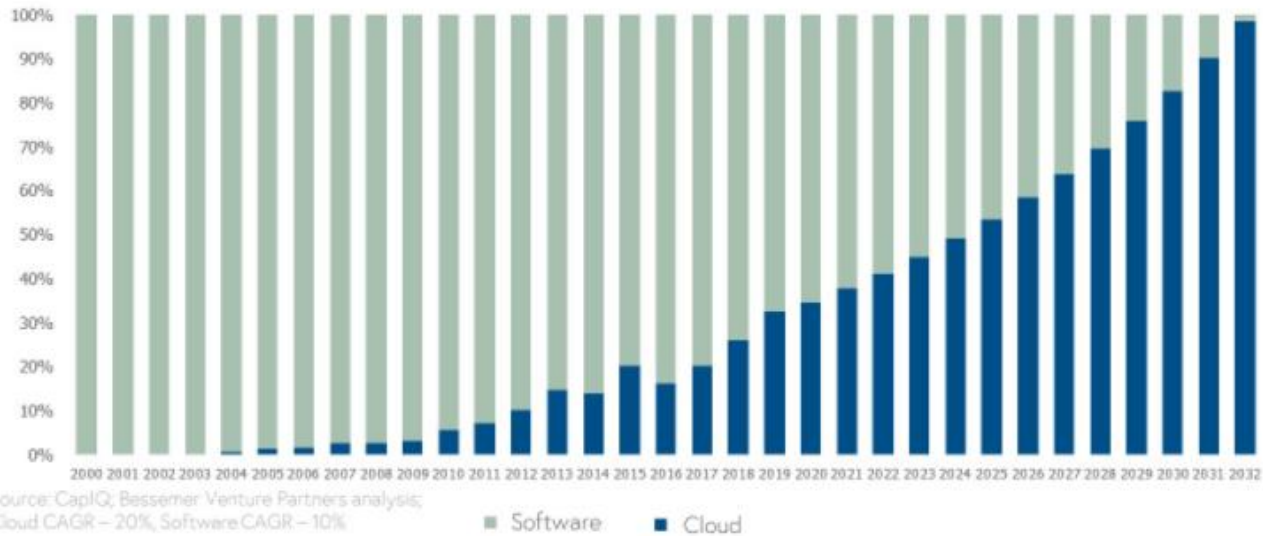
**Microsoft illustrates Cloud Across 5 years
BUT... Azure Started in 2008**

AWS > Azure > GCloud > The Rest

The Rise of Cloud

Cloud is eating software

Cloud will become majority of software market within 5 years



Cloud Not Blockchain is Growing to Takeover Software Applications & Hosting

**Exponential Curve Since 2014
Profitability Tracked Since 2009
Amazon AWS Started in 2002**

Soooo.. Blockchain into Games?

GDC State of the Game Industry 2022 Survey

What is your studio's interest in cryptocurrency as a payment tool?



What is your studio's interest in non-fungible tokens (NFTs)?



What is the Current Game Developer Perspective?

Blockchain into Games?

How has Blockchain interacted with Games?

2017-2018: The ICO Phase

- Initial Coin Offerings in 2017 to 2018, a year and a half of rampant speculation...
- Until the bubble burst, most failed, the market crashed,
- And countries started banning and regulating ICOs.

Most Profitable Scams in 2017 and 2018 by Type



Blockchain into Games?

How has Blockchain interacted with Games?

2021-2022: The NFT Phase

- Started in Spring 2021, another bubble waiting to burst.
- Quickly shifted from items and avatars to virtual land sales.
- The land grab is around projects that have no track record, experience, skillset to implement their vision.
- The market doesn't care, but the market isn't gamers.
- The current market are mostly crypto/blockchain enthusiasts looking to support blockchain projects.
- With Ethereum bros (high rollers), speculative retail investors, renters, and the gold rush equivalent of storekeepers waiting to selling pickaxes to the late goldminers.
- There is no room for gamers in that. Gamers won't come if they see the knives being sharpened to gut them.
- Everyone cannot be converted into a whale or a serf.
- Offer benefits equitably and consistently or scare gamers away.



Blockchain into Games?



What do Gamers (Mainstream Consumers) see coming for them from Web3/NFTs?

Blockchain into Games?

How can Blockchain Interact with Games?

(REPEAT THE PATH OF CLOUD)

- By responsibly creating tools, processes, and paths for developers (like Cloud did) instead of destructive speculation like the ICO and current NFT phase.
- By showing a maturity of tools and process that showcase benefits over a decade like Cloud did across the 2011-2020 period.
- Id Software started using Amazon AWS GPU clusters to bake MegaTextures in 2008.
- Amazon AWS, Microsoft Azure, Google GCloud , IBM (BlueMix/Watson) all offer defined and useful services for (game and non-game) enterprise/publisher to developer/indie projects
- Microsoft, because of internal Xbox development, rolled an extensive array of features and services onto Azure around graphics, physics and audio pre-processing, and AI (including Machine Learning, Machine Translation, Deep Learning, Curation, Moderation, and more)
- Make and test useful experiments that fill gaps in existing processes.
- Help with crowdfunding! More on that later.

Blockchain into Games?

How is Blockchain Interacting with Games?

Game Publishers & Developers

- Learning about and getting burned by NFTs
- NFTs do not appear to be a good match to existing IP or products generating revenue.
- NFTs currently are the kiss of death publicly in the game industry.
- NFT collectibles sales, even their announcement are generating heated responses

Game Blockchain Startups

- Driven by investor revenue or the promise of NFT revenue
- mostly consisting of web devs, mobile devs, social media devs, and funded by investors
- over promising and selling NFTs.
- Item sales, inventory sales, avatar sales, land sales.
- No understanding of industry BASICS of time, budget, staffing, cost, experience.

How does the Game Industry view NFTs?

As a fundamentally destructive force that can turn the player audience against videogames. SCAMS.

A screenshot of a tweet from Tim Sweeney (@TimSweeneyEpic) replying to @EliBenSasson. The tweet text reads: "We aren't touching NFTs as the whole field is currently tangled up with an intractable mix of scams, interesting decentralized tech foundations, and scams." The tweet is dated 9:00 AM on Sep 27, 2021, and has 194 retweets, 360 quote tweets, and 1,485 likes. The interface shows a back arrow, the word "Tweet", a profile picture of Tim Sweeney, and icons for replying, retweeting, liking, and sharing.

← Tweet

 **Tim Sweeney**
@TimSweeneyEpic

Replying to [@EliBenSasson](#)

Replied:

We aren't touching NFTs as the whole field is currently tangled up with an intractable mix of scams, interesting decentralized tech foundations, and scams.

9:00 AM · Sep 27, 2021 · Twitter for iPhone

194 Retweets 360 Quote Tweets 1,485 Likes

Fix This Web3, NFT, Blockchain, Crypto Advocates

Why the Game Industry is worried about NFTs?

Why does the Games Industry care about scams and Blockchain/Crypto/NFT bad behaviour?

- Because videogames as a 'newer' medium are still viewed as a youth medium by legislators.
- Like comics, rap music, and rock 'n roll, games get regulated because of potential harm to children.
- There is steady legislation in the US, EU, and UK, around games as it relates to children or motivated by child endangerment.
- Because gambling laws are real and everywhere.
- Also lootbox legislation and child data privacy.
- **Basically, we don't want to see the Game Industry harmed by NFT marketplaces filled with grifters, scammers, phishers, spam bots, MLMs, Pyramid Schemes, Ponzis schemes, & Pump n Dumps.**



Game Platform Response to NFTs?

Platforms concerned with circumvention of payment processing (the 70/30 rule)

Nintendo Switch

- Interested but cannot find or define what joy this area provides. Not currently allowed.

Microsoft Xbox

- Doesn't want exploitive NFTs, very cautious about ecosystem. Not currently allowed

Sony PlayStation

- Silence, not currently allowed.

Apple iOS App Store

- Apps hosting NFTs not appropriate for App store. NFTs must be made into In App Purchases (IAPs) or removed.

Google Play Store

- Unclear, probably only loosely enforced. Play Store has always been a mess of IP infringement.
- BUT if something starts making huge money, Google may force the same rules as Apple.

Steam

- NFTs explicitly banned in developer rules

Epic Game Store

- Open to blockchain games on a review basis, none yet, hasn't clarified exact NFT position.



Game Publisher response to NFTs?

Publisher/Developer Mentions

Electronic Arts (Earnings Call)

- CEO mentioned NFTs in one earnings call for stock bump.
- Backtracked away from NFTs in the next, likely after watching other publishers place feet in mouth.

Sega (Earnings Call)

- “Will ditch NFTs if it’s perceived as a simple money-making scheme. Cites public/gamer backlash.

Take Two (Earnings Call)

- on NFTs, “blockchain authorization, which is what an NFT really is, is one way -- not the only way -- to authenticate the fact something is singular is rare.” Suggest that GTA already has NFTs without blockchain.
- “we already have metaverses at Take-Two”, describing GTA O & RDRO.
- “Blockchain is useful technology that hasn’t found many uses yet outside of crypto currency” everything NFTs do



Game Publisher response to NFTs?

Publisher/Developer Mentions

Ubisoft (Ghost Recon Breakpoint/Quartz)

- Digging themselves into a hole, 'gamers don't get NFTs'
- Initial experiment in Ghost Recon Breakpoint failed in the market. A struggling game dropped in player volume after NFT introduction. Made a centralized/decentralized hybrid system that made nobody happy.

Team 17 (Worms)

- Announced NFTs collectibles using IP, outside of games.
- Canceled within 24 hours after partner and public backlash.

GSC Game World (Stalker 2)

- Announced NFTs to fund self-published Triple-A scale open world.
- Canceled a day later after massive public/player backlash.



Game Publisher response to NFTs?

Publisher/Developer Mentions

Square Enix (New Year's Letter)

- Mentioned NFTs to watch without revealing any clear plans.
- Talks about 'play to have fun' and 'play to contribute' without defining.

Konami

- Selling NFTs as out of game collectibles, Konami has mostly exited the PC/Console market, and deemphasized traditional arcade games.
- focuses on mobile games and other verticals, like arcade & amusement machines, gyms, sports clubs, fitness equipment, and casino management systems, and pachinko machines.

Epic (Fortnite)

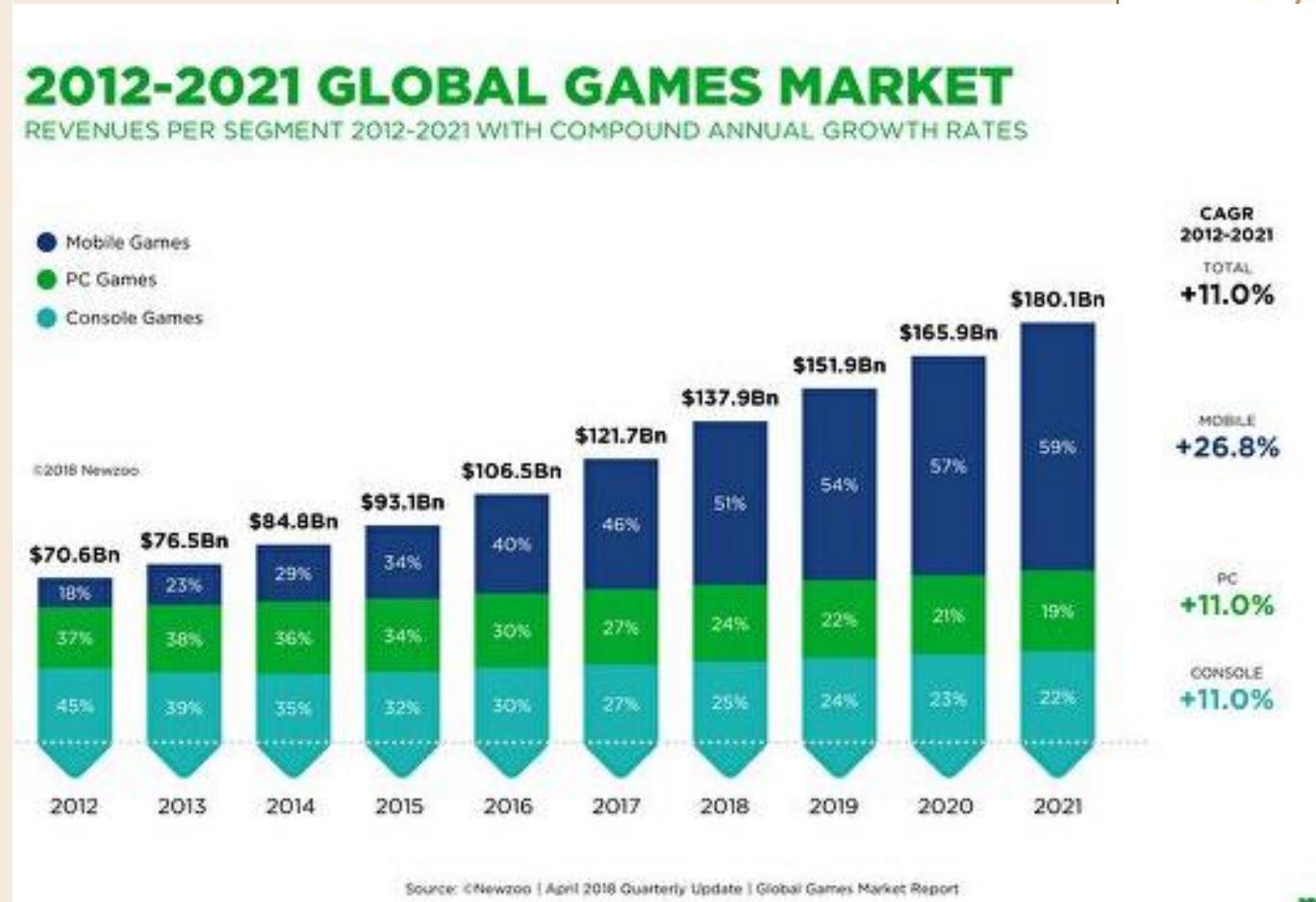
- Tim Sweeney explicitly said that Fortnite will not use NFTs.
- EGS first said they will allow Blockchain gaming on a per case basis, to be reviewed, but EGS did not actually mention NFTs.
- Then they welcomed games that use NFTs, to spite Steam.



Differences from Mobile

How is this different from Mobile?

- Mobile proved out thru practice, investment came later.
- Terminology like Mobile F2P came after proof in the marketplace... NOT through medium blogs and white papers and social media influencer posts.
- White papers proving anything is viewed as laughable within games\ dev. Prove it in practice.
- Mobile didn't try to attract the pc/console audience, it migrated the facebook/web, social audience and then GREW that 10x de to PHONES.



Game Development - Parameters

Triple I (Micro Indie)

- \$500k to \$1.5 Mil
- 1-5 People
- 4-12 months

Single A (Indie) (or Mobile) (most VR)

- \$1 Mil to \$5 Mil
- 1- 15 people
- 1-4 years

Double A -

- \$6 to \$20 Mil
- 10-35 people
- 2-4 years



Triple A The Standard

- \$25 - \$75 Mil
- 50-150
- 2-5 years

Quadruple A

- \$100 Mil to \$250 Mil
- 100-1000 people
- 3-7 years

Blockchain ?!

- >\$1 million
- 3-12 months
- size of webgames & websites

Game Development - Disciplines

GAME DISCIPLINES

ART & ANIMATION

- Concept Art, Character Art, Character Animation, Character Technical Art, Environment & Prop Art, Environment Technical Art, Visual F/X Art, Motion Capture Direction, Art Sourcing Management.

DESIGN

- Systems Design, Level Design, Technical Design, Player Design, Navigation Design, AI/NPC Design, User Interface Design, Interaction Design, Combat Design, Progression Design, Narrative Design, Audio Design, Economy Design.

PROGRAMMING & ENGINEERING

- Gameplay Programming, Engine Programming, Tools Programming, User Interface Programming, Network/BackEnd Programming, AI Programming, Cloud Programming.

AUDIO

- Audio Design, Music Composition, Audio Sound F/X Creation, Voice Casting & Direction.

PRODUCTION

- Production, QA Testing, Embedded QA, Localization, Localization Testing, Community Management.

PUBLISHING

- Marketing, Sales, Finance, Product Development, Business Development, Strategy, Executives, Certification, Production, QA Testing, Embedded QA, Localization, Localization Testing, Community Management.

(Economy Design is one of roughly thirty things that goes into a modern game)

Game Development: The 90-90 Rule

Game Development is Hard. Thus the 90/90 Rule.

"The first 90 percent of the code accounts for the first 90 percent of the development time. The remaining 10 percent of the code accounts for the other 90 percent of the development time." Tom Cargill (Bell Labs)

The amount of work required to make a good game is variable and depends on the team, the tech stack, and the whims of fate.

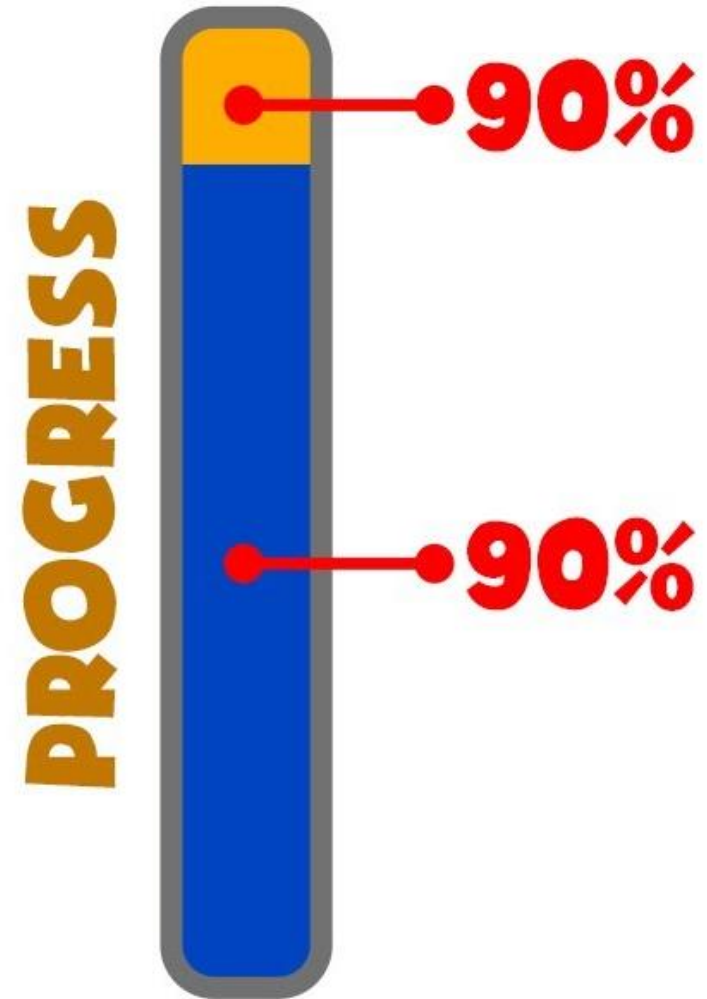
"In game development the first 90% of a project is lot easier than the second 90%" Tim Sweeney (Epic Games)

Unless you are making a gamified non-game, you won't know what your game needs until you are deep in the middle making it and can see it running.

"You forgot the middle 90%. We all know games are 270% efforts." - George Broussard (3D Realms)

The game is never understood at the start, you have to be in the tunnel of making the game to see the light at the end of the tunnel of release.

"A good game takes a great team working together. A great game takes a great team that has previously made a good game together." - Rafael Brown (Looking Glass) (talking about work on Thief 1 to Thief 2)



Game Development: Online Game Economies are Doubly Hard

Online is Doubly Hard

There is 30+ years of history with online games that shows that the game, the economy, the players, the social order DOES NOT SELF-REGULATE. Online games require constant work to maintain and balance so the game and community doesn't eat themselves alive. An online game is an evolving, constant conversation between developer and player community. Do you think anything can be locked down before the game goes live, or ever? Really?

"If you don't plan for hacking, cheating, DDoSing, cloning, farming, and other exploits from the start, the online game is over once its launched. You'll always be behind." - Pat Wyatt (Blizzard/Amazon)

Some of Raph Koster's Rules of Online World Design

Hyrup's Loophole Law: If something can be abused, it will be.

Game systems: No matter what you do, players will decode every formula, statistic, and algorithm in your world via experimentation.

Player Behaviour: It is always more rewarding to kill other players than to kill whatever the game sets up as a target.

Macroing, botting, automation: No matter what you do, someone is going to automate the process of playing your world.

Community size: Ideal community size is no larger than 250. Past that, you really get subcommunities.

J C Lawrence on Utopias: Don't strive for perfection, strive for expressive fertility. You can't create utopia, and if you did nobody would want to live there.

Game Development: Online Game Economies are Doubly Hard

Some of Raph Koster's Rules of Online World Design

- **Lambert's Laws:** As a virtual world's "realism" increases, the pool of possible character actions increase. The opportunities for exploitation and subversion are directly proportional to the pool size of possible character actions. A bored player is a potential and willing subversive. Players will eventually find the shortest path to the cheese.
- **Players have higher expectations of the virtual world**
The expectations are higher than of similar actions in the real world. For example: players will expect all labor to result in profit; they will expect life to be fair; they will expect to be protected from aggression before the fact, and not just to seek redress after the fact; they will expect problems to be resolved quickly; they will expect that their integrity will be assumed to be beyond reproach; in other words, they will expect too much, and you will not be able to supply it all. The trick is to manage the expectations.
- **Mass market facts:** Disturbing for those used to smaller environments, but: administrative problems increase EXPONENTIALLY instead of linearly, as your playerbase digs deeper into the mass market. Traditional approaches tend to start to fail. Your playerbase probably isn't ready or willing to police itself.
- **Psychological disinhibition:** People act like jerks more easily online, because anonymity is intoxicating. It is easier to objectify other people and therefore to treat them badly. The only way to combat this is to get them to empathize more with other players.
- **Violence is inevitable:** You're going to have violence done to people no matter what the facilities for it in the game are. It may be combat system, stealing, blocking entrances, trapping monsters, stealing kills to get experience, pestering, harassment, verbal violence, or just rudeness.

Blockchain has an Identity Crisis, Games Noticed

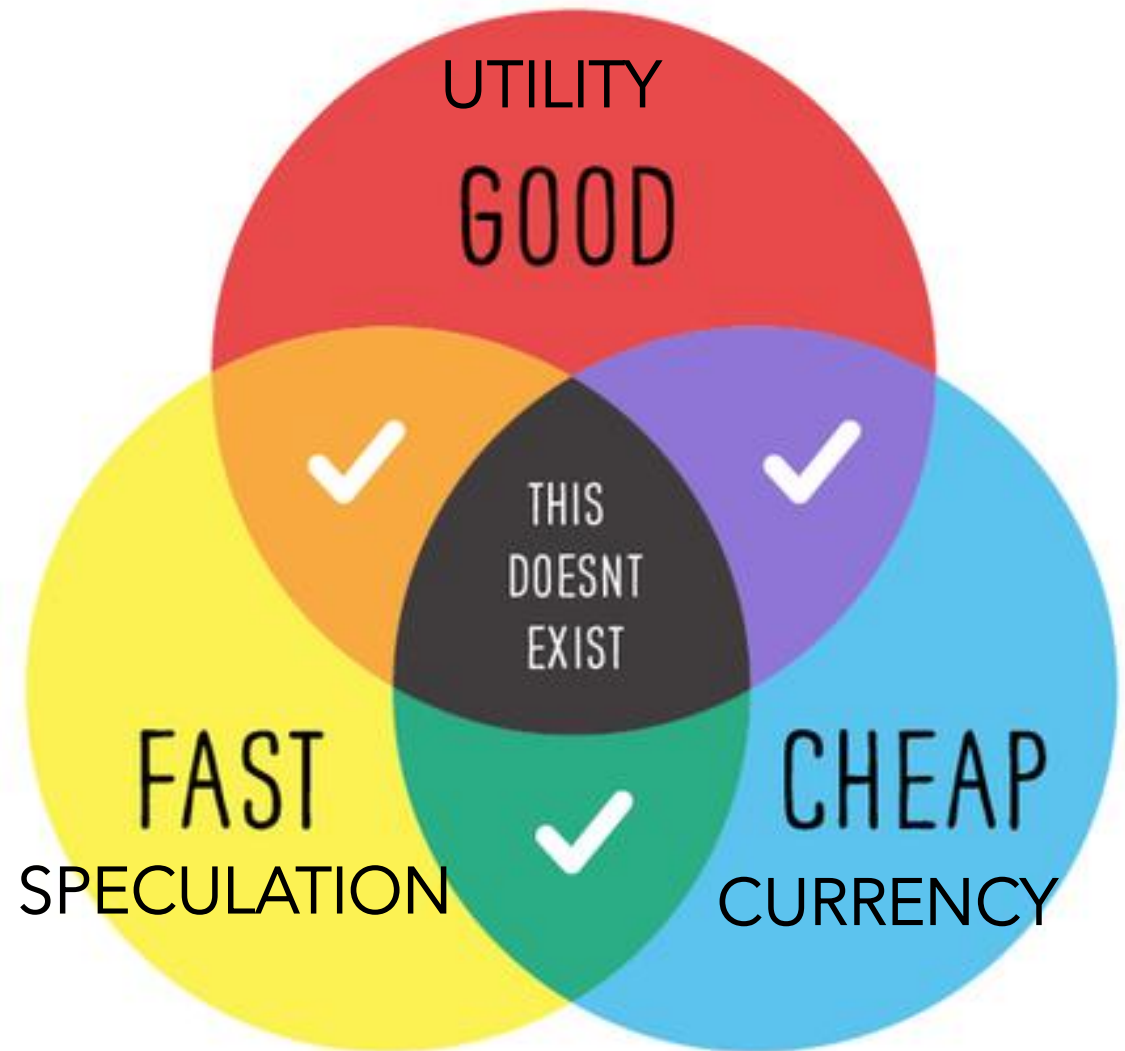
Let Them Eat Cake - Hard Choices

Games Development forces hard choices constantly. So for blockchain in games, do you want blockchain tech brought in to be:

- (1) a speculative penny stock,
- (2) a unit of currency,
- (3) a functional utilitarian tool.

Pick One, or Two, but never Three. Hard choices.

- Three cannot be done without negating parts of each other
- Two can be decently together, but with occasional flaws and compromises.
- One can be done well.



OUTLIERS - EXCEPTIONS

One Game Does NOT Make a Rule ... It Makes an Exception

Pokemon Go is a Mobile Game
NOT a Mobile AR Game

The notion of proving a Mobile Geospatial Maps AR for
Gaming genre died in 2019
Geospatial just folded back into True AR



Axie Infinity is a Gamified Economy
NOT a P2E game. There is NO P2E ... yet?

Wake me up in 2-4 years and
show me 12-20 live games
proving P2E gameplay and revenue
Each with millions to tens millions of users
in the market. Otherwise its all talk.



NFTs Virtual Land Sales

Virtual Land Sales are Selling Hot Air

The notion that virtual real estate has any value prior to the developer proving that they can make anything worthwhile is ludicrous.

Second Life did this in 2004, and it was a disaster that set non-game virtual worlds back for a decade.



<https://theconversation.com/stars-for-sale-but-no-you-cant-really-buy-an-official-star-name-to-remember-someone-92033>

BROOKLYN BRIDGE'S
"SELLER" SENT TO
SING SING FOR LIFE

Parker, 68 Now, Resigned to

Blockchain game publishers are now telling developers "figure out how to have persistent land in your game. Make your first NFT sales virtual land because that's the biggest ticket. Let's make every player a into a whale. Make your game like an MMO that you build for half the budget of a mobile game. And the game grows in budget if you sell land well." Preposterous. Bad Design. Bad Publishing.

NFTs Virtual Item/Avatar Sales

Virtual Item Sales are Fraught with Disaster

Online Multiplayer Games: Battle Royales, MMOs, Open World Games are the biggest most complex genres that games have ever made. They are Triple A to Quad A budgeted efforts led by teams where leaders have decades of experience and they still falter and fail. All the time. The game is never perfectly design in a white paper or a project greenlight pitch or a GDD, its just iterated on in development, and then grown and evolved with the community in further iteration. Balancing an online economy is hard. EVERY successful online game in the last 25 years has been balanced steadily in post release.



"Blizzard will [shut down the in-game Auction House](#) in its popular RPG Diablo III on March 18, 2014, it said this week.

The Auction House "undermines Diablo's core game play," said Blizzard production director John Hight in an official statement. As such, both auction houses – the one that lets players use their in-game play money to buy more weapons and armor, and the one that allows them to trade the loot they've farmed for actual real-world cash – will be shuttered, he said.

<https://www.wired.com/2013/09/diablo-auction-house/>

Hard Choices: Game or Economy?

Let Them Eat Cake - Hard Choices: Pick One

Which is more important? The Game or the Economy? Which do you prioritize? Player enjoyment or players making money? Balance and curation or the assumption of no thumb on the scale? There cannot be both. One must ultimately give way in systems to the other.

You don't know what you have until it is in the hands of consumers. And you have time to self-correct.

Keeping a game both fair and balanced requires constant work.

Having your cake and eating it too, never works in game design, especially online game design. In fact, it usually leads to catastrophe.

P2E = "Play to Earn" & "Pay To Exploit" It's all in the balance.

I don't believe Play to Earn is Possible.

DO YOU WANT PLAY OR DO YOU WANT WORK?

You can't have both. They are designed differently.



What Can Blockchain Do?

What can Blockchain Advocates do in Games? SLOW DOWN!

- Let the bubble burst.
- Build tools.
- Create experiments.
- Find use cases.
- Learn game development history and processes
- Be less prescriptive and listen more.
- Help with crowdfunding, responsibly
- Help build consortiums and alliances
- Tackle experiments to find future solutions
- Fight scams, reduce scams, solve scams.
- Anticipate the coming regulation.
- Learn about past lawsuits & legislation.



Fix Indie Dev Crowdfunding ... Responsibly

The hardest thing in games for a developer is raising money

- Kickstarter is going to blockchain, which is making other crowdfunding platform view it as corrupted.
- There are and always will be fundamental flaws in selling parts to an incomplete design. Gamers know this. Speculators don't.
- DAOs are an anarchic mess. NFTs are filled with scams.
- BUT if decentralized folks want to actually hold true to their principals...
- The challenge at THIS STAGE is NOT to sell virtual tchotchkes and make speculative money.
- But rather to empower developers (professional to indie to amateur) to be able to self publish WITHOUT locking in or compromising their designs and without viewing going to a publisher as a safer, saner option.
- And without destroying community among the people who PLAY rather than speculate.
- Ideas and experiments?



What are the issues with NFTs/Blockchain in Games?

How much time do you have? The NFT Hydra has many heads, many issues.

- Gambling Laws
- Tax Reporting/Evasion
- Money Laundering/Anonymity
- Child Endangerment & Child Purchase
- Speed of Processing
- Data Structure Simplicity (ERC1155 doesn't support metadata)
- Lack of Asset Management
- Lack of IP Security
- Data Privacy Issues & Compliance
- Child Privacy Requirements
- Intellectual Property Protection
- Scams, Spam, Phishing, & Schemes
- Lack of Systemic Complexity (Entropy) Compared to Real Life
- Environmental Impact



The Myth of Easy Interoperability

Interoperability of assets is an assumption that comes out of naivete

- People who don't understand game development suggest that games share items & assets.
- It is impractical. This is not how we plan, develop, build, maintain, & sequelize games.
- Every game engine is different. Every game is built differently.
- Game development is about reducing inspiration from the real world to what is possible across decades and for widely varying devices that are constantly evolving. Optimization is key.
- Different genres, gameplay styles and art styles compound the massive technical issues including different user perspectives, resolutions, construction styles, async vs sync, realtime vs turn-based, etc.
- There is no one size fits all.
- There is not and likely never will be standardization... until a future metaverse, with perfect realistic rendering (20-25 years out), unlimited cloud accelerated processing, and cloud-based variable LoD asset management.

The Myth of Easy Interoperability

The Socket Wrench and the Chocolate Cake

Does it look like the socket wrench and the chocolate cake fit together?

The socket wrench is a tool made of steel with measurements in its usage.

The chocolate cake is consumable food and baked dessert.

Both are artificial human constructions.

They both have functional uses, styles, creation processes, and types of users.

Will the socket wrench taste good in the chocolate cake?

Will the chocolate cake help the use of the socket wrench in automotive repair?

Can you imagine a way to make these two fit together in form and function? No? Exactly.

That is game asset creation.

Juxtaposition of items does not guarantee mixture when items are transposed



The Myth of Easy Interoperability

Interoperability Solutions

- Do what every current game store does, and just have developers custom skin assets and setup gameplay for promotional collaboration, ... on a case-by-case basis. Amiibos did that.
- Keep everything to as simple as possible: 2D instead of 3D, turn-based, pre-rendered, non-realtime, async multiplayer, or single player only, web-based as low fidelity as possible, and also...
- Build every game to have the same exact same gameplay (and code), user perspective, genre type, interaction types, mechanics & dynamics, art style, and actual gameplay code... enforce
- Basically take Facebook style 2010-era web games with minimal gameplay, do one mechanic, build a gamified economy sim with basic gameplay, and then you have a chance of interoperability, ... and then you have Axie Infinity.
- Now convince every developer in the industry to make shit-basic, economy-focused, gamified sims, and nothing else.

The Myth of Easy Interoperability

Interoperability Solutions

- Or build new engines that can fit inside each other or port out their item context (currently completely impossible fantasy)
- Or wait 10-30 years while we tackle interoperability standards... and then try to convince everyone to use them. Will take decades, require further consolidation, and force/mandates from platforms.
- Which would also require planning out and codifying and defining every single sub-genre ever made, and tell developers how interaction can be built, on a level that would make China envious.
- And also build massive cloud (not blockchain) arrays to handle Cloud AI retrofitting aof ssets, or through unlimited Cloud/Edge accelerated processing assists at rendered assets perfectly at under 22 milliseconds (in roundtrip ping).
- Oh, and solve every IP issue that comes up before it happens to transfer IP protected assests between platforms and convince every IP holder to give blanket approval.
- Or give up. Or find brief special cases for small scale collaboration.
- Or make a Metaverse and force everyone to build the same way... because you were Facebook, and you became IOI or The Grid.

Blockchain has a Choice, Choose wisely

Blockchain Trilemma

Scalability

(Main Challenge)

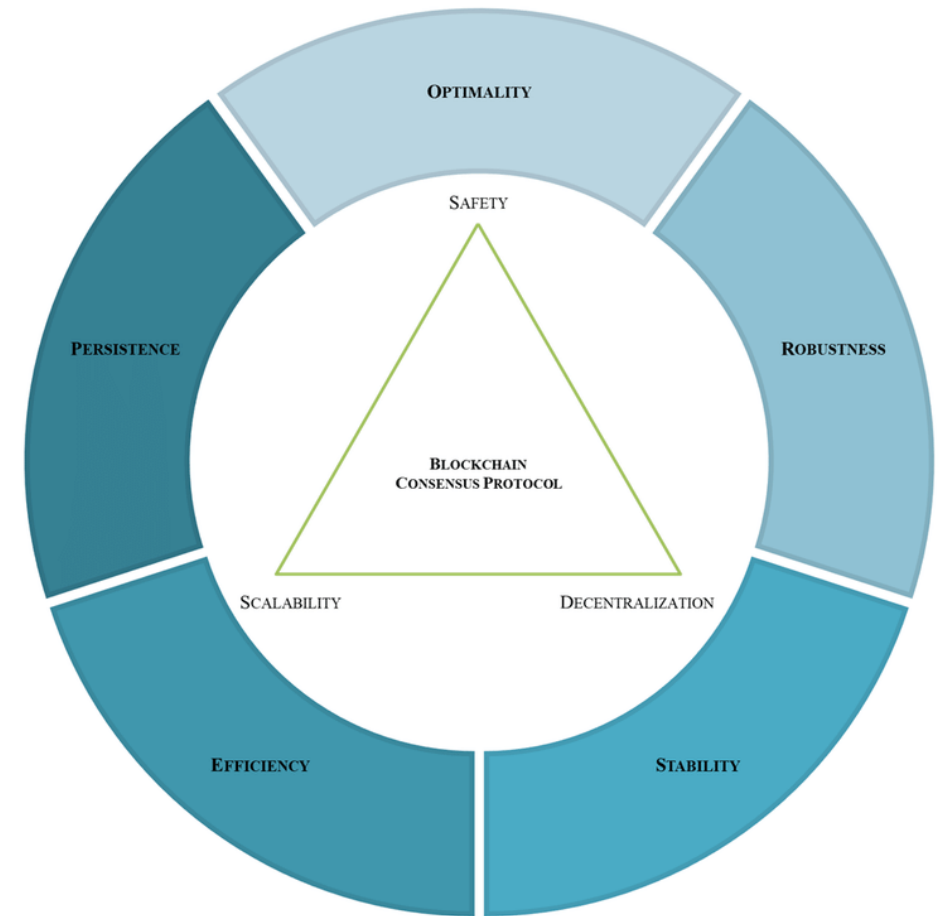
The question is: How can we improve the scalability without reducing the security level and maintaining a decentral network on chain?

Security

(Basic and Essential)

Decentralization

(Core and Nature)



Blockchain has a Choice, Choose wisely

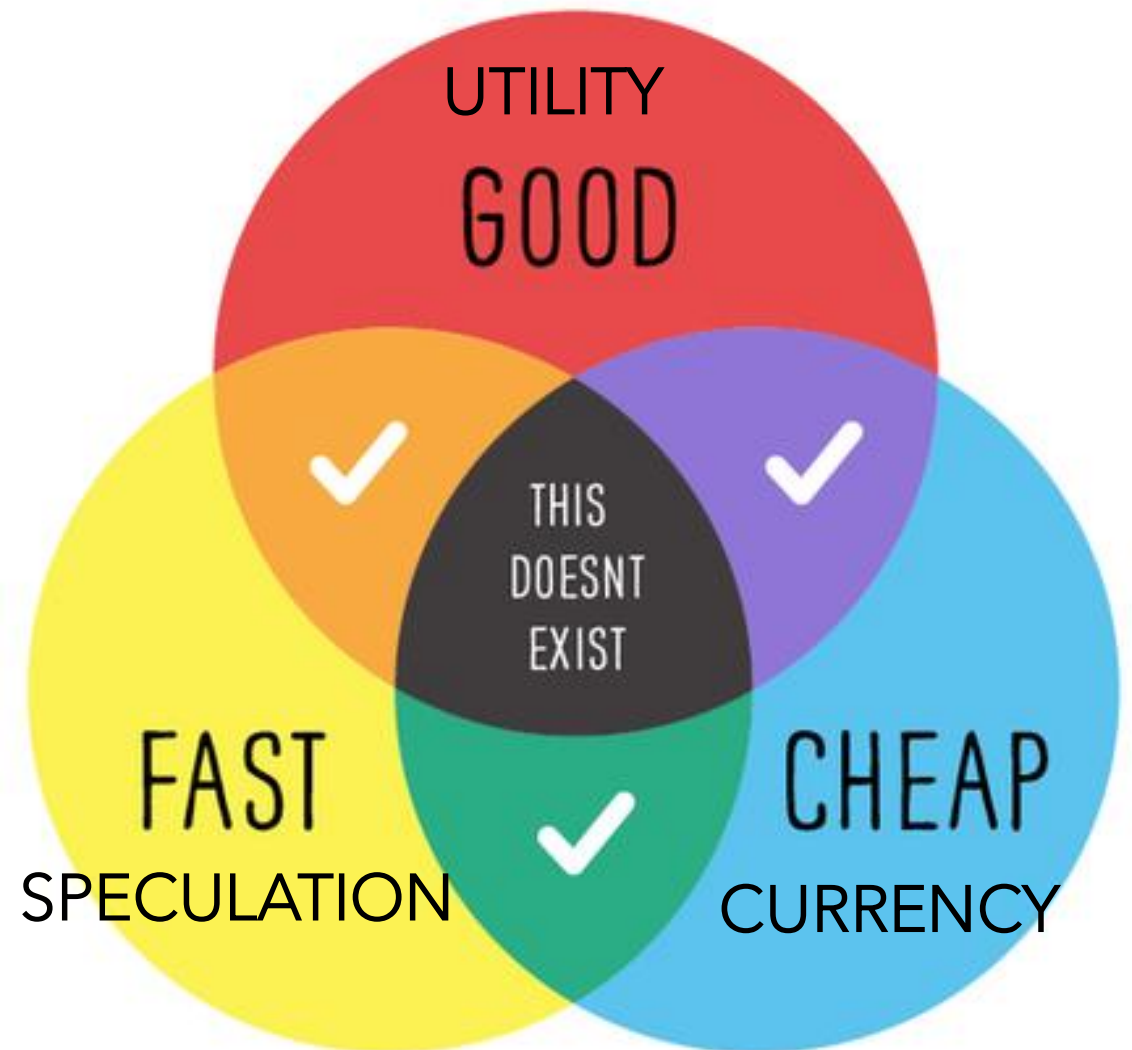
BUT... also The Blockchain Trilemma in Games

Games Development forces hard choices constantly. So for blockchain in games, do you want blockchain tech brought in to be:

- (1) a speculative penny stock,
- (2) a unit of currency,
- (3) a functional utilitarian tool.

Priority

- Three cannot be done without negating parts of each other
- Two can be decently together, but with occasional flaws and compromises.
- Only one can be done well.



The Intersection of Blockchain & VideoGames

Rafael J. Brown

Symbol Zero

Game Designer & Game Developer

rbrown@symbolzero.com

<https://www.linkedin.com/in/rafaelbrown/>

