Game Dev Economics

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CS 377: Game Development Studio
Winter Quarter 2024
Northwestern University

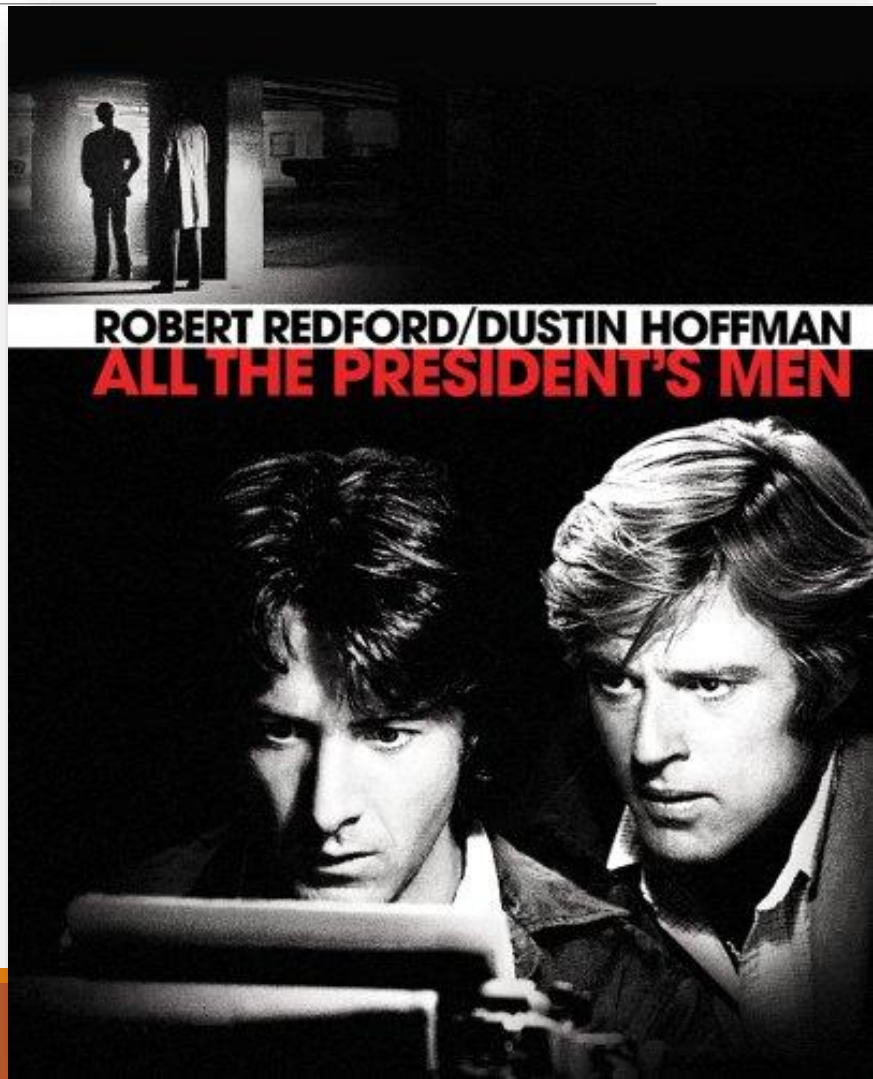
Game Dev Economics

How do people make money in this business?

How does this affect design?

We’re going to…

…follow the money.



Part 1. Costs and Revenues

How much does it cost to make a game?

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In the early 2020s:

Indie budget
- 100s of $k to make and market?

Small to mid budget
- $1-10M to make and market

Top of the line AAA game
- $X0M, $100M+ to make and market

Check out http://kotaku.com/how-much-does-it-cost-to-make-a-big-video-game-1501413649

AAA games are expensive to make

1995	Twisted Metal	$ 800 k
1998	Thief	$ 3 M
2001	Black & White	$ 5.7 M
2004	CoD: Finest Hour	$ 8.5 M
2006	Gears of War	$ 10 M
2007	Bioshock	$ 15 M
2010	God of War III	$ 44 M
2012	Borderlands 2	$ 35 M
2014	Watch Dogs	$ 68 M
2015	The Witcher 3	$ 81 M
2018	Tomb Raider	$ 100+ M
2020	Cyberpunk 2077	$ 300+ M
2023	Spider Man 2	$ 320 M

More than half is production costs (development, etc) but marketing is also very expensive

Total cost used to double every ~5 years

Main driver: increasing # of people

Teams of 100+ people not uncommon

(Sources: http://kotaku.com/how-much-does-it-cost-to-make-a-big-video-game-1501413649 https://en.wikipedia.org/wiki/List_of_most_expensive_video_games_to_develop , https://gamedevreports.substack.com/p/the-big-playstation-leak)

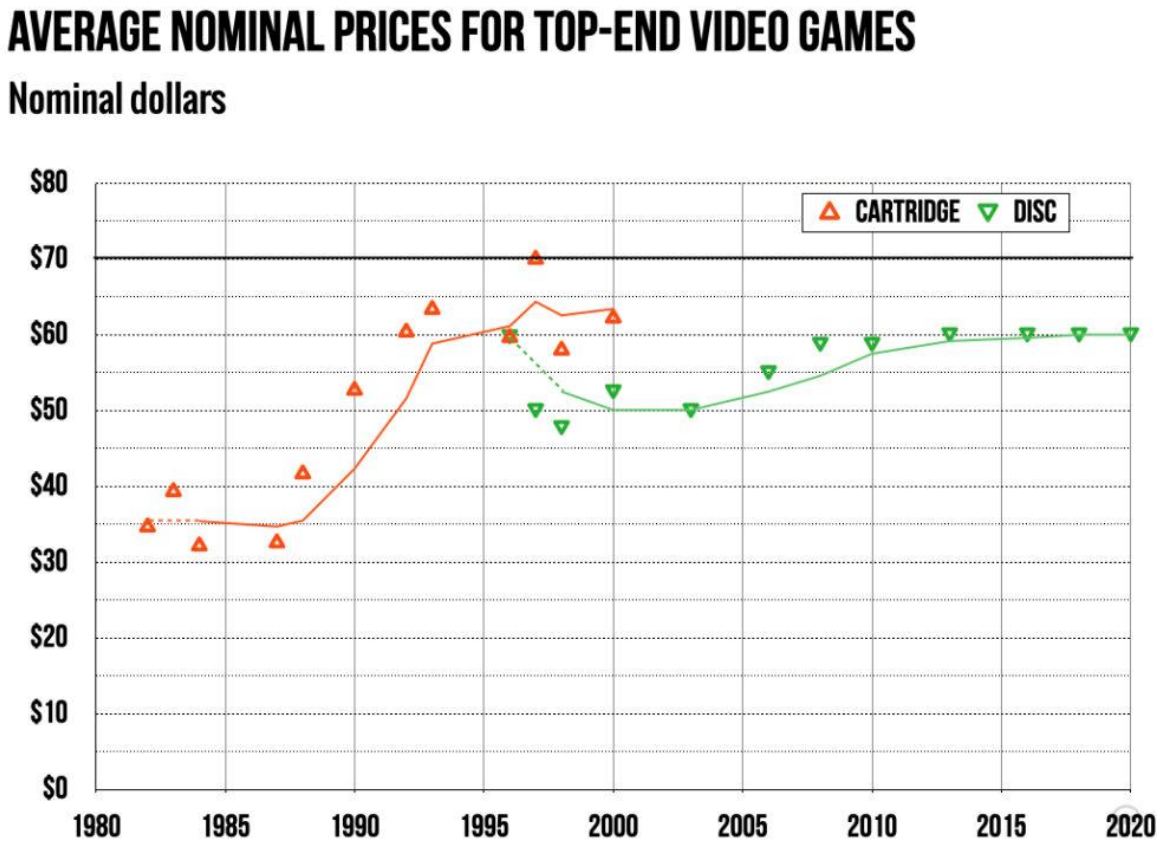
And yet prices are not rising

Pretty stable in nominal terms

→ Falling in inflation-adjusted terms

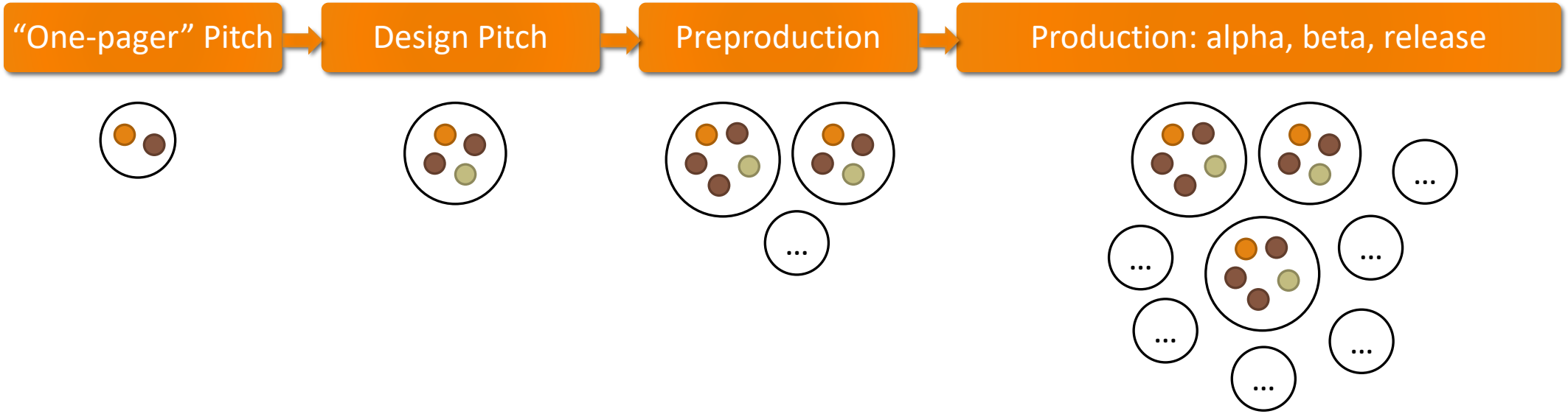
This is causing massive industry problems

We'll return to this in part 2



(Sources: https://arstechnica.com/gaming/2020/07/the-return-of-the-70-video-game-has-been-a-long-time-coming/)

AAA production process



Dev team breakdown

Example AAA headcount:

- Year 1: tiny prototyping team of 5
- Year 2: preproduction team of 25
- Year 3: production team of 100
- Year 4: production and finishing of 150 for 6 months, 250 for the other 6 months
- Total work: 5 + 25+ 100 + 150/2 + 250/2 **= 330 person-years**

Example small studio:

- Year 1: 6 people
- Year 2: 10 people = **16 person-years**

Fixed cost breakdown

AAA estimate: 330 person-years

Personnel costs:

- Average salary of $90k
  - Average! Some get much more, many get less
- Add overhead to round it up to $120k
  - Non-cash benefits: health insurance, holiday parties, etc.
  - Your team's share of cost of facilities, electric bill, etc.

- $120k * 330 = **$40M** in direct costs
- Let's say **$70M** total with marketing etc.
- + manufacturing?

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- $100k * 330 = **$40M** in direct costs
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- + manufacturing?

Small studio estimate: 16 person-years

Lower costs:

- Lower average salary: $60k
- Lower overhead, round up to $80k

- $80k * 16 = **$1.2M** in direct costs
- Let's say **$2M** with marketing etc.
- + manufacturing?

Who pays for this?

Up-front costs:

- Developing the game itself
- Marketing, buying ads, etc.
- Manufacturing and distributing to stores

Post ship costs

- Customer support
- Additional marketing, additional content

Who pays for this?

Funding sources

Developer

- Funds out of pocket from savings or “war chest”
- Full control over vision, marketing, schedule, etc.
- **Very risky!** One bad title and you’re toast

Publisher

- Funds development of a particular title.
  Diversified portfolio reduces overall risk.
- Owns IP and future revs from the game
- Not interested in small investments and small wins

Crowd-sourcing

- Ultimate DIY solution
- You have to gather a large fan base quickly (but how?)
- Hard to raise enough to cover the **real** costs of development

Venture Capital

- Owns stake in the **company**, not a particular title
- Typically not suitable for games,
  except for rare “rocketship” companies

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Who participates in the pie?

Developer – makes the game

Investor – fronts the cash

Manufacturer – prints CDs and manuals

Marketer – gets ads and press coverage

Platform – hardware required to play

Distributor – sells games retail

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Traditionally:

Developer

Publisher

Console (eg. Nintendo)

Retailer (eg. Best Buy)

So how does it make money?

How do they make it back?

AAA $80M:

- Comparable games sell for **$50 retail, $35 net**
- Need to sell ~**2.5M** copies! QED.
  - That's a lot, but that's why we do massive ad spend

Problem: discounting

- Only some players will buy at full price
- If we average at **$20 net**, need to sell **4M+** copies!

Budget size vs unit sales

Top of the line AAA game
- 10s of $M to make, 10s of $M to market

eg. $80M total → Need to sell **2.5M** units **@ $50 retail**

Mid budget
- $1-10M to make and market

eg. $4M total → Need to sell **200k @ $30** or **300k @ $20**

Indie budget
- 100s of $k to make and market?

eg. $200k total → Need to sell **20k @ $15** or **30k @ $10**

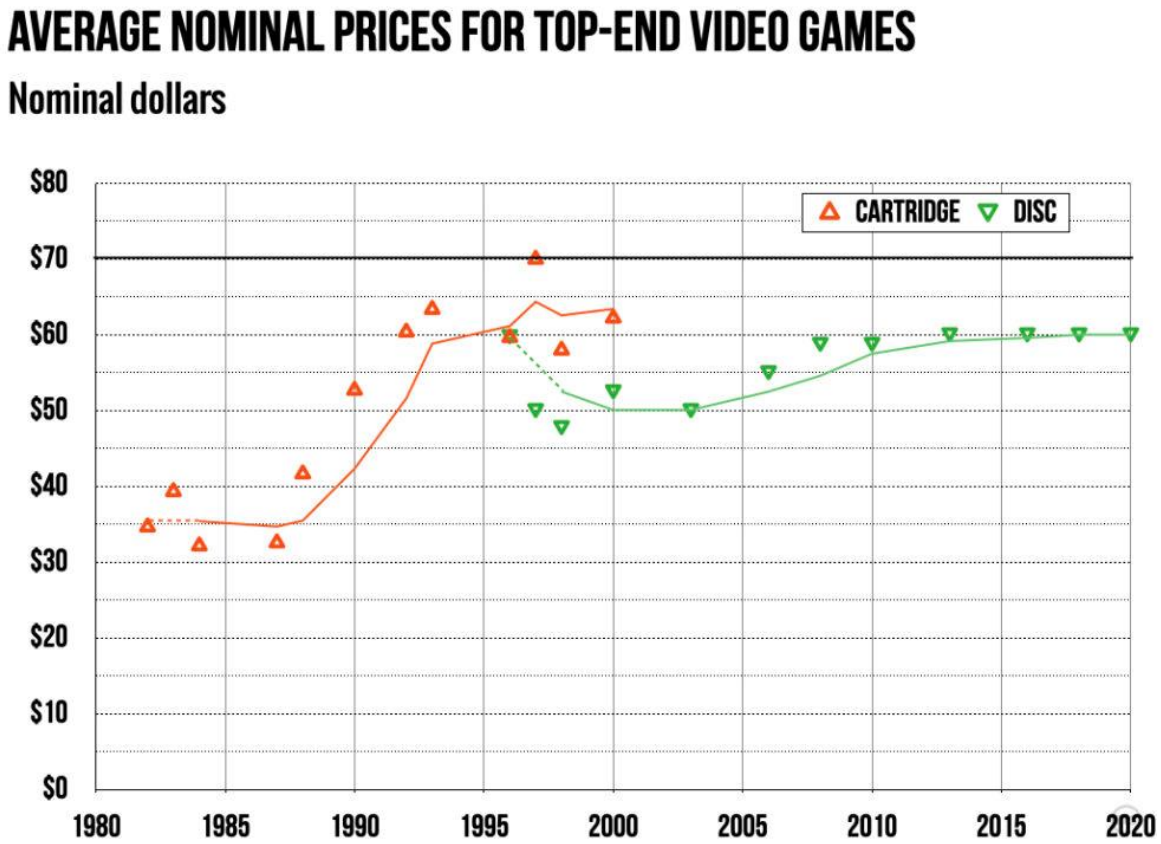
https://www.quora.com/If-I-create-a-moderately-successful-AAA-game-will-I-become-a-millionaire?share=1
http://kotaku.com/how-much-does-it-cost-to-make-a-big-video-game-1501413649

And yet prices are not rising

So as a publisher, you have to either

1. Find more and more **players**, or

2. Find more and more **things to sell**



(Sources: https://arstechnica.com/gaming/2020/07/the-return-of-the-70-video-game-has-been-a-long-time-coming/)

Other ways to sell

How AAA recovers their $80M investment

Retail sales

- Full price games: **2.5M @ $35 net**
- More realistic with discounts: **4M @ $20 net**

DLC

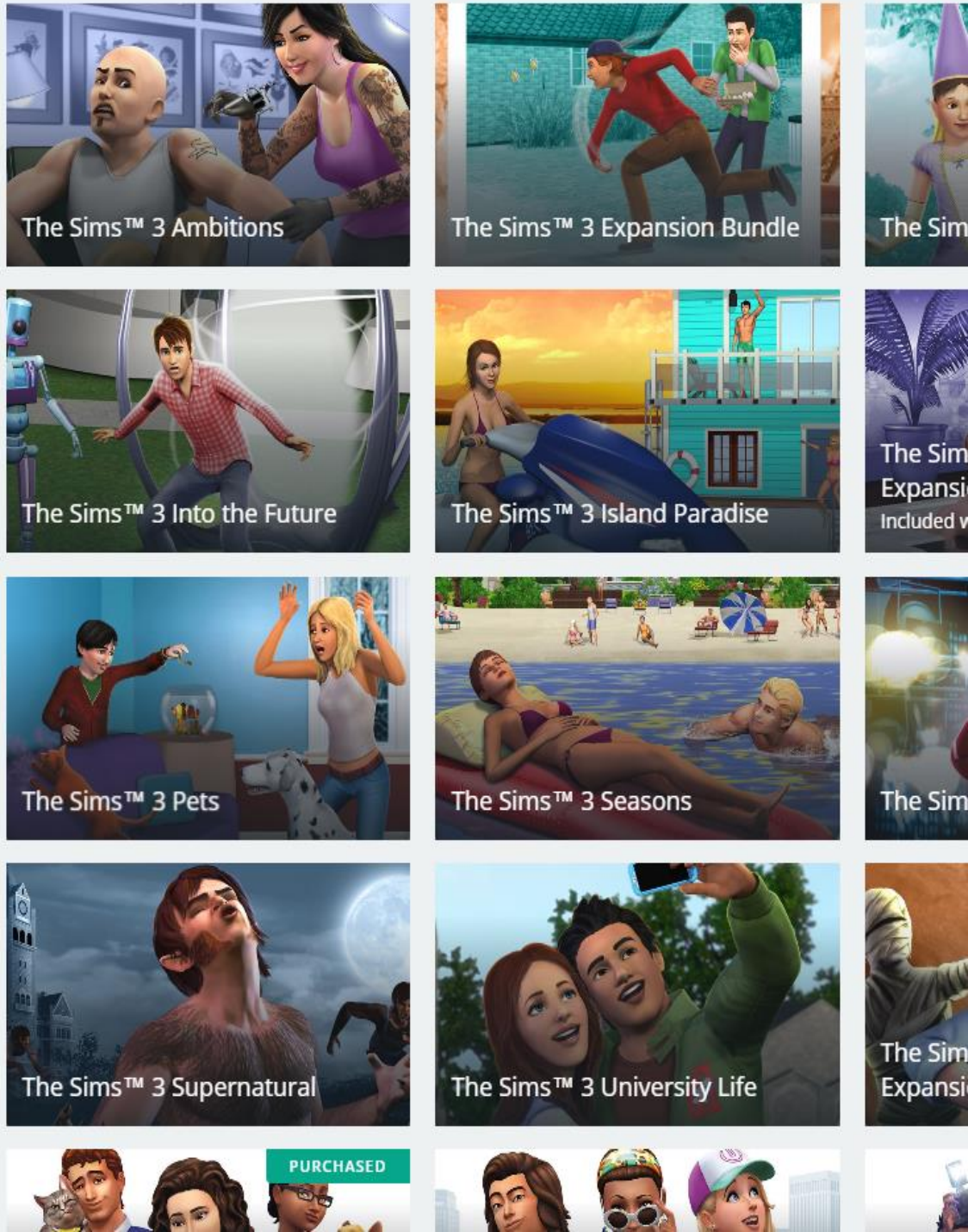
- Can we sell DLCs for avg **$10 net** per player?
- Then we only need **2.7M copies @ $20 net**

“Games as a Service”

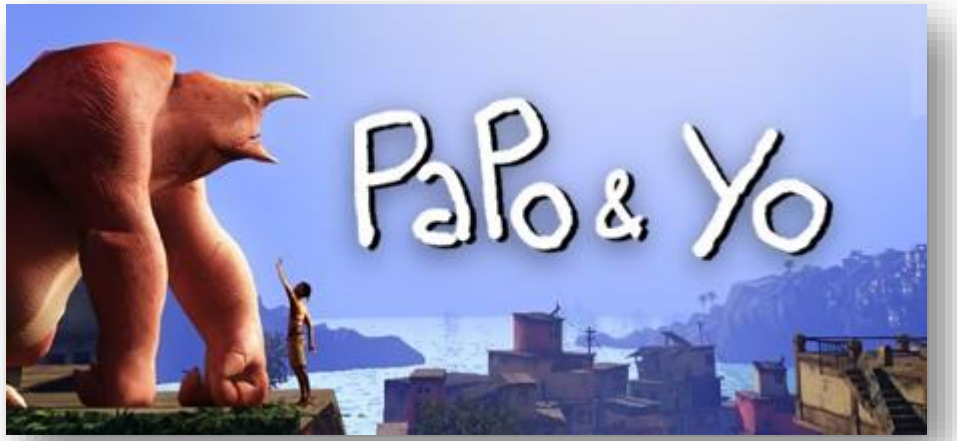
Microtransactions
DLCs
Subscriptions
Season passes
Loot boxes
Etc.

→ **Recurrent revenue sources**
beyond just a one-time sale

→ **Keep players coming back**



How do they make it back?



Mid sized, $1.5M:

- Comparable games sell for $15 retail, **$11 net**
- Full price: **150k** copies.
  - Worse: assume average **$7 net** incl. discounts
  - Need to sell **220k** copies!

- Not an easy thing! Probably **harder than AAA** without their marketing budgets.
- “Games as a service” out of reach for most

Effect on product design

Need to design the game **from day 1** with a plan for making your money back.

The details will depend on

- How much money
- How big is the team
- What is the game
- Who is the audience
- Etc.

Need to design **an overall production approach** to **fit the game**

Part 2: Economics History

How did we get here? What happens next?

We'll focus on the years 2000-2020

Four console generations

- Xbox / PS2 / Nintendo GameCube
- Xbox 360 / PS3 / Nintendo Wii
- Xbox One / PS4 / Nintendo Switch
- Xbox Series X / PS5

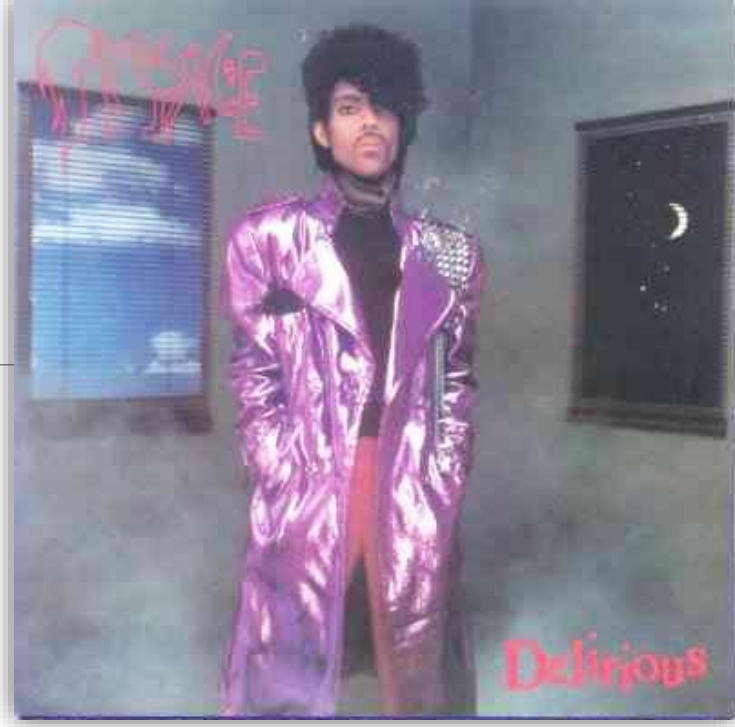
Part 2: Economics history

We'll focus on the years 2000-2020

Let's examine the changing roles of

- Platforms
- Publishers
- Distributors
- Developers

Scenario 1: imagine it's 1999



Platform

- Develops hardware and sells their Playstation/Xbox/etc. at cost
- But they take a % of each game being made by…

Publisher

- Pays the developer to make the game (as "advance on royalties")
- Handles distributors, platforms, QA, marketing, sales
- Manufactures CDs, boxes, ships them to the…

Distributor

- Best Buy etc. buys those CDs, maintains stores, staff, etc.

Scenario 1: imagine it's 1999

Typical rev breakdown:

- Platform ~ 25% of gross
- Distribution ~ 25% of gross
- Publisher 100% of net initially, ~ 70% after costs recouped
- Developer 0% of net initially, ~ 30% after costs recouped

Most? games never recoup the publisher's advance :(

Also see: http://www.eurogamer.net/articles/2011-01-10-where-does-my-money-go-article

Scenario 2: imagine it's 2009

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amazon

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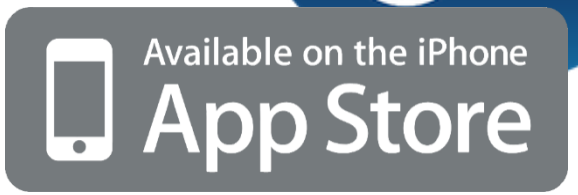

Digital distributor merges platform and distribution:

- Apple / Google maintain both a platform and an online store
- The store advertises and sells games

Standalone **online store** on existing platform (Valve's Steam)

- The store advertises and sells games

Publisher

- Fronts the money to developer for making the game (as "advance on royalties")
- Handles distributors, platforms, QA, marketing, sales

Scenario 2: studio in 2009

Typical rev breakdown:

- Platform/distributor: **~ 30%** of gross
- Publisher: 100% of net initially, ~ 70% after costs recouped
- Developer: 0% of net initially, ~ 30% after costs recouped

Scenario 3: imagine it’s 2014

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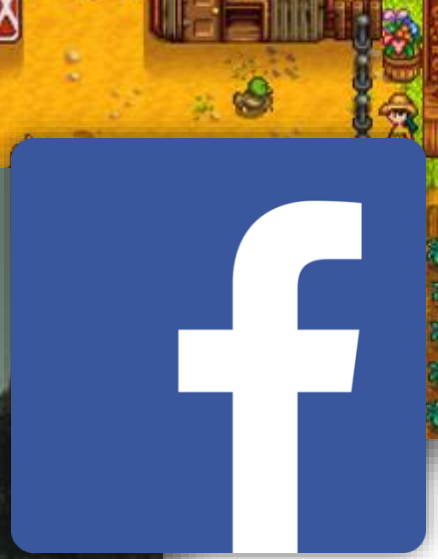


Images: wikipedia

Scenario 3: imagine it’s 2014

Wave of retro nostalgia makes **pixel art and lo-fi art** possible

Digital distributors makes **self-publishing** possible

Social media makes **self-marketing** possible

Indie developer can now also do the publisher’s job:

- **Fund the game** yourself (from savings or second job) while developing the game
- Handle **dealing with distributors,** QA, testing
- Handle **advertising** and **marketing** via social media, guerrilla campaigns

Scenario 3: studio in 2014

Typical rev breakdown:

- Distributor: ~ 30% of gross
- ~~Publisher:~~ out of the loop
- Developer: ~ 100% of net

Clouds of doom on the horizon…

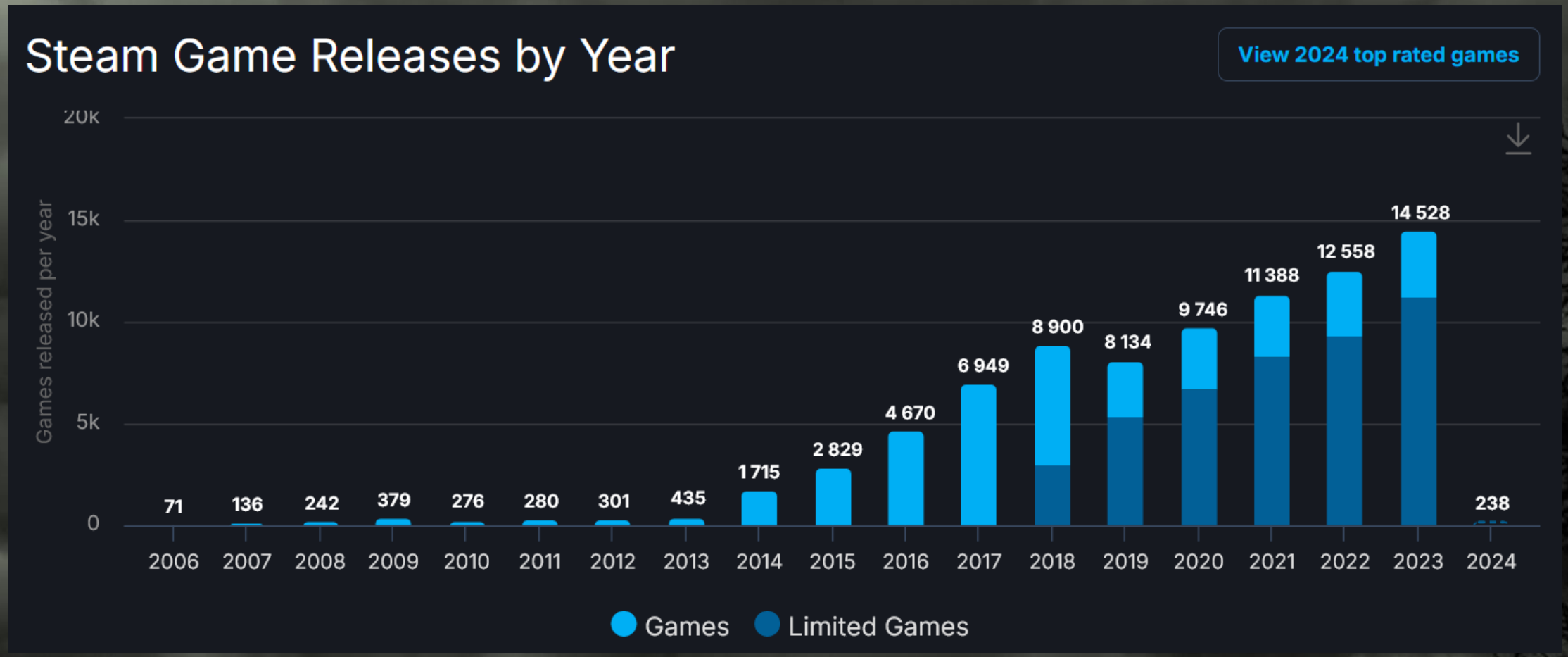
Open distribution platforms and no publisher gatekeeping means…

→ everybody and their dog piles into the indie space

→ market overcrowding, hard to stand out in a sea of mediocre games

→ social media becomes a flaming dumpster fire

→ advertising and marketing become more important, but cost serious $$$



https://steamdb.info/stats/releases/

How about the mobile market?

Mobile
ca 2015

500 new games per day → 180k per year

250 new games per day → 90k per year

Source: Mike Rose talk at GDC 2015

Scenario 4: imagine it’s 2020

≃

Scenario 4: studio in 2019

Typical rev breakdown:

- Distributor: ~ 30% of gross
- Developer: ~ 70% of gross

Scenario 4: studio in 2019

Typical rev breakdown:

- Distributor: ~ 30% of gross
- Developer: ~ 70% of gross BUT

Need a lot of $$$ up front:

Need $ for marketing
Need $ for PR
Need $ for social media presence
Need $ for customer support

+ $ for development

Return of the Old Business Models

Old distributors get entrenched

Publishers come back

1. Funder
   - Funding == risk
   - Publisher can pool risky investments
     so that failures are balanced out by successes
2. Marketer
   - Making the game stand out and be noticed

(image credit: starwars.com)

Trends for the 2020s

1. Failed new platforms

- VR – not growing big enough
- NFT games – dead
- Blockchain – dead?
- Metaverse – oh my

- … nothing obviously successful on the horizon?

Images: Wikipedia, playstation.com

Trends for the 2020s

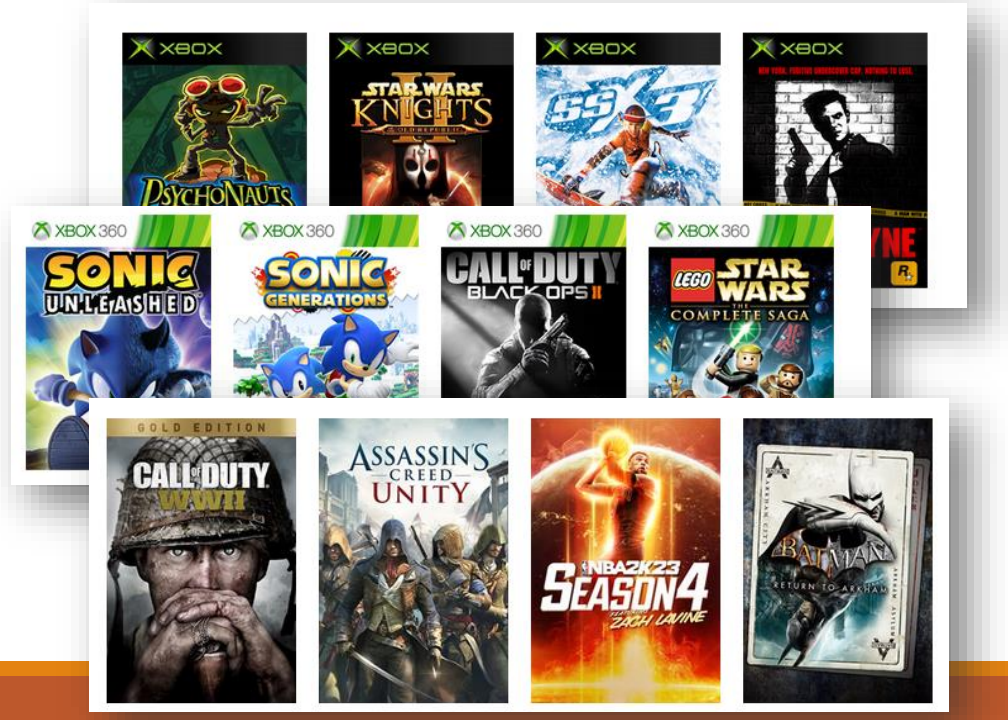
2. Old platforms become entrenched

PlayStation 5 / Xbox X are <u>not</u> a clean break

- They can keep selling the same games
- Devs have to compete with the entire back-catalog

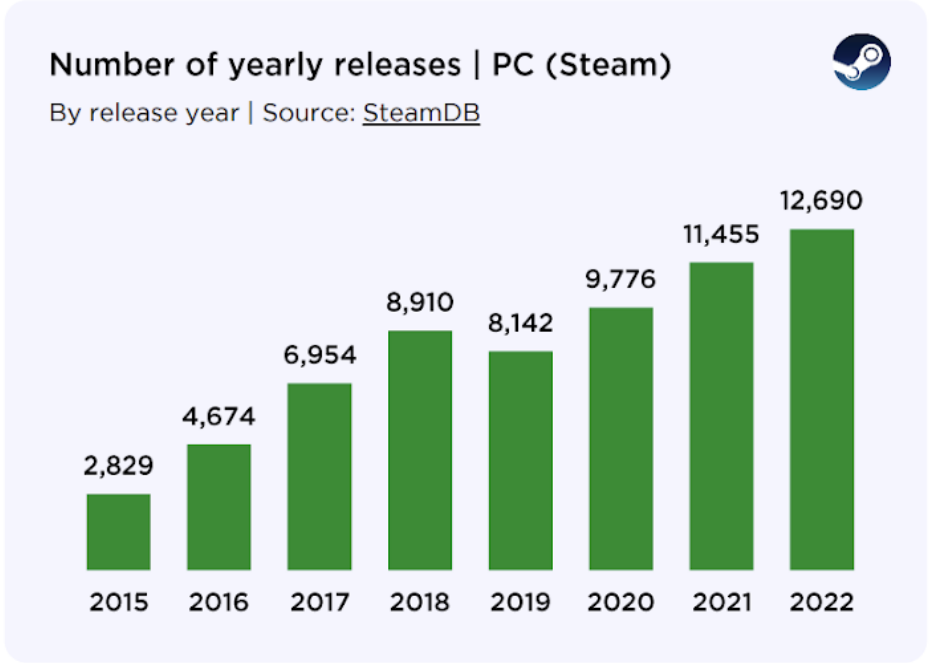
Subscription models (Xbox GamePass)

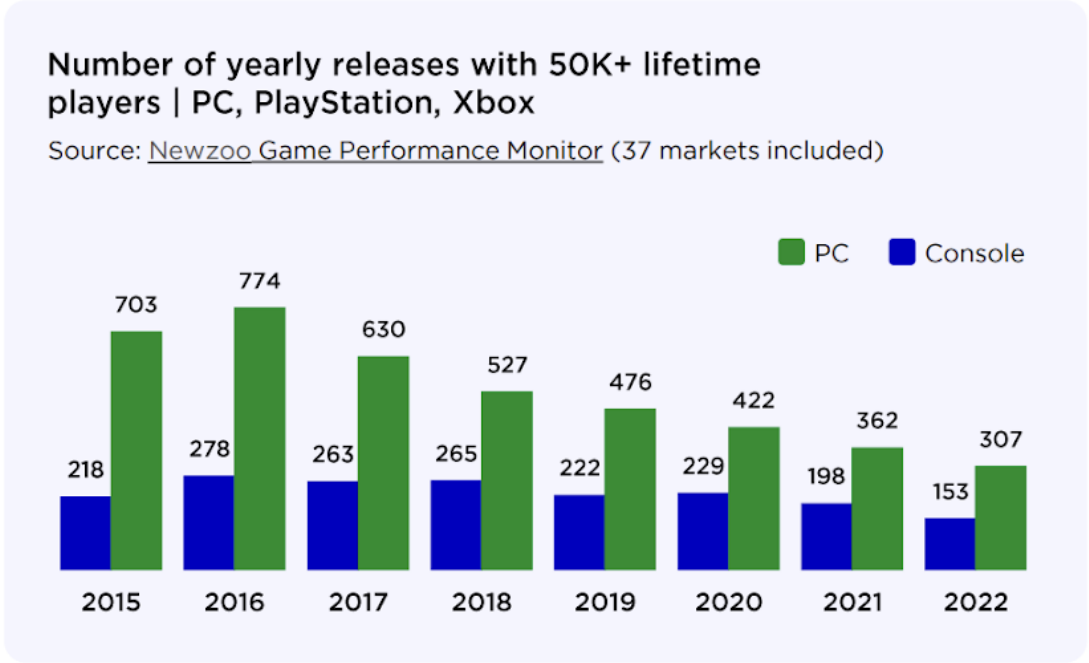
- Great for players
- Current financing model is risky for pubs and devs



Trends for the 2020s

Fewer titles are capturing more than 50K lifetime users





Source: https://newzoo.com/resources/trend-reports/tiktok-newzoo-gamer-behaviors-free-report

Trends for the 2020s

3. Overcrowded markets are the new normal
   - Winner-takes-all market
   - All game budgets are going up (small, medium, large)
   - More emphasis on getting tons of players (F2P has the advantage here)

4. Pandemic, inflation, recession? Oh yeah…
   - Funding is getting weird

Qs?s