Introduction to Video Games Creation (IVGC.course)

Module 13: The Games Industry and Data Analytics, 1 ECTS

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Course Leader

Material updated January 2023

The Games Industry and Data Analytics, 1 ECTS:

The Video Games Industry has grown since 90s to an industry worth more than 200 billion $ (2022). It is bigger industry than movies, films and music altogether. As learned from Module 11, and 12, it is thanks to lot of innovations in the industry as well excellent, creative people developing great games along the history of approx. 50 years.

This module is about games industry and data analytics. It is very seldom that any university degree in games teaches the business side of games. Most often courses are about technology and design. We try to give you an easy introduction about the terminology used in the games industry and introduce you to a number important game analytics topics (data science) that you should know before deciding what type of games you want to develop. At first you probably want to like to develop games you like personally, but when it comes to a successful game you need to know the facts about the games industry and where is the best potential, and still like the game genre you work with.

This Module is an 'easy' module. **It is important that you get to know at least the basics of the games industry and the economy** because your game and yourself will be part of it one way or another, if nothing else, as a gamer.

You will self-study this document I prepared for you and then answer to 40 quiz questions to show your learnings about the different aspects the games business and data analytics.

Enjoy!
Jan
Course Leader

Learning outcomes:

The module will improve your general knowledge about video games industry and data analytics in a simple way. You can study this module by using a smart phone.

Learn about video games industry, business, and economy.

Learn about terminology used in video games industry and data analytics.

Learning resources:

Your main learning resource is this presentation. There is NO need to search for internet for more information but there are references you might be interested in looking for further reading.

Assessment:

You need to pass quiz with over 80% correct answers (28/35).
You can do the quiz as many times you like until you pass.

Important! All answers to all the quiz questions are in this presentation.

Content

- The video game industry
- Statistics about games business and industry, the market
- Games studios and publishers, the ecosystem
- Games brands and most valuable games franchises
- Game economics
- Data analytics
- Monetisation
- Virtual goods
- Websites to follow for games industry news

THE VIDEO GAMES INDUSTRY

GROW YOUR GAMES

Video Games

“are experience information goods”

product evaluation process is ambigious

intangible products

high perceived value bias

and

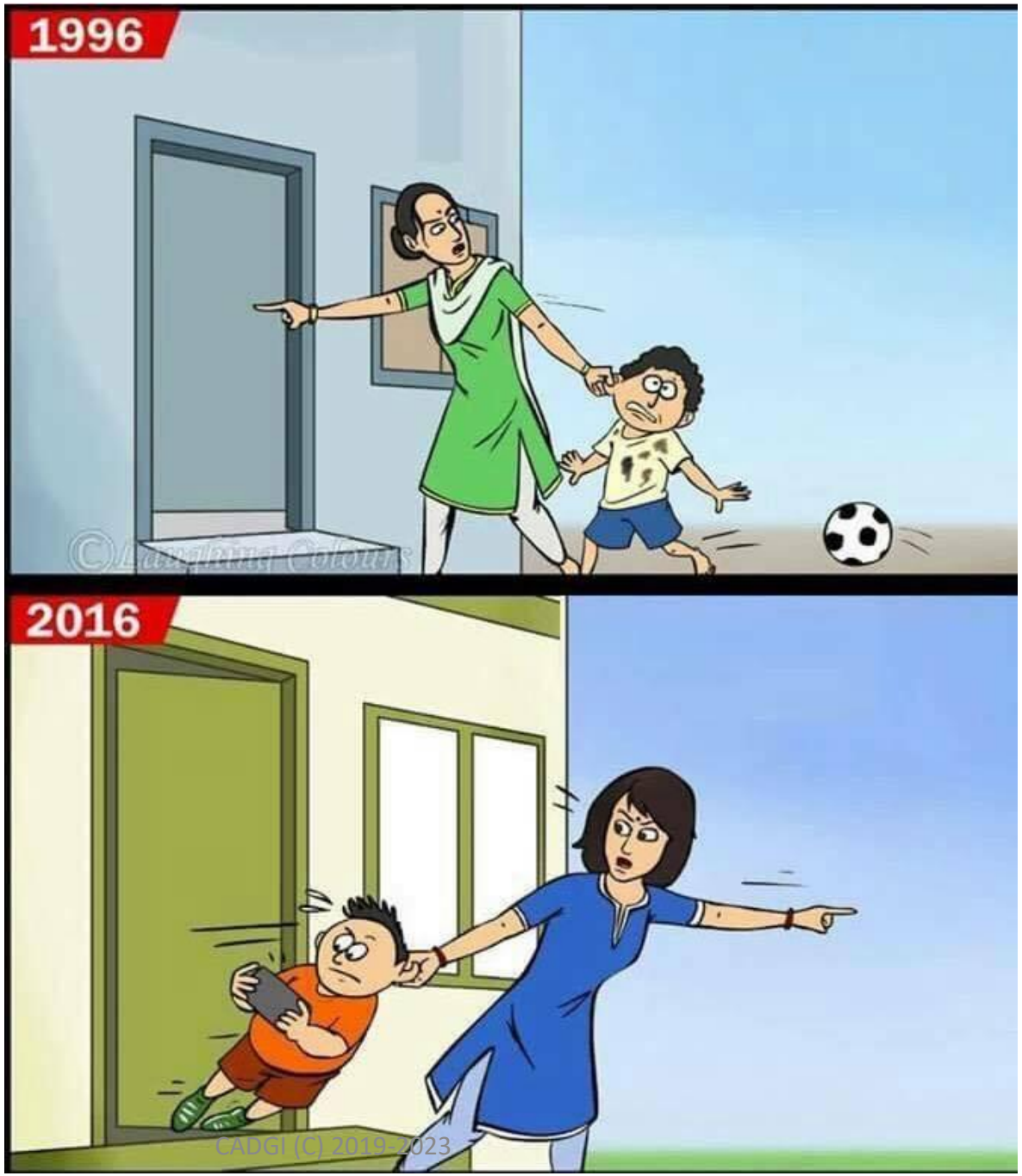
about play

Storgards (2006) Brand Equity of Digital Games.

Role of Play

(behaviours)

New generations
grow up with idea
of games type life experience



1972

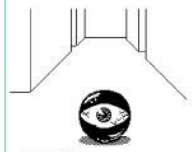
VIDEO GAME timeline

As the world of video games continue to evolve, we take a look back at popular consoles and video games that helped make Nintendo, Sony, and Microsoft the giants they are today

1st Generation

1972
The world's first home video game console, the Magnavox Odyssey, sold 330,000 units in it's lifetime

1974
Gran Trak 10, the first racing arcade game, is released. It is the first arcade game to use ROM.

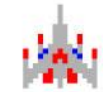


1974
Maze Wars is released. Considered to be the earliest first person shooter.

1977
Nintendo releases Color TV Game 6, packing 6 variations of "Light Tennis" (pong)

1979
Notable Releases:
Asteroids
Lunar Lander
Monaco GP
Flight Simulator

1980
Notable Releases:
Pac-Man
Missile Command
Defender
Centipede



1981
Notable Releases:
Galaga
DonKey Kong
Frogger

1983
Nintendo releases the Family Computer console in Japan and is later released in the United State as the Nintendo Entertainment System; 62 million units sold

1984
Notable Releases:
Dragon Buster
Tetris
Balloon Fight
Gauntlet
1942
Paperboy

1986
Notable Releases:
The Legend of Zelda
Out Run
Bubble Bobble
Dragon Quest
Metroid

1986
The Sega Mega Drive (Sega Genesis in the US) is released. Sega's most successful console sold 29 million units

Notable Releases:
Altered Beast
Super Mario Bros. 3
Power Pad

1990
Nintendo releases the Super Famicon (SNES), the best selling console of the 16-bit era sold 49 million units

Other Releases:
Neo Geo
Game Genie
TurboExpress
Bonk's Aduenture
Super Mario World
F-Zero

1993
Notable Releases:
Ridge Racer
Star Fox
Virtua Fighter
Atari Jaguar
3DO

1994
Notable Releases:
Killer Instinct
Virtua Fighter
Earthworm Jim

1996
Nintendo releases the N64. The last significant cartridge based home console was released in colors, it sold 33 million units sold

Other Releases:
Resident Evil
Crash Bandicoot
Sega Super GT

1996
Nintendo releas
the Gameboy
Color

Other Releases:
Rainbow Six
Metal Gear Soli
Xenogears

2nd Generation

1967
German-born television engineer Ralph Baer and his coworkers design the first video-game console that works on a standard television and dub it "Brown Box". They develop a chase game, allowing players to control two squares chasing each other on the screen. A modified toy gun is made and able to distinguish spots of light on the screen. 12 Other games are made

1972
One of the earliest arcade video games, PONG, is a simple tennis game that became the first commercially successful video game

1976
Atari releases Breakout. The prototype was designed by Apple cofounders Steve Jobs and Steve Wozniak. Blackberry's current variant is called Brick Breaker

1977
Atari releases the Video Game Computer System (Atari 2600 or VCS). It is the most successful video game console of its time

1978
Notable Releases:
Space Invaders
Space Wars
Bee Gee

1977
Atari opens the first Pizza Time Theatre (later Chuck E. Cheese's), a video arcade pizzeria

1980
Mattel releases the Intellivision video console; releasing a total of 125 games during it's lifetime

1982
Notable Releases:
Q-Bert
Tron
Megamania
Dig Dug
Pole Position
Joust

1983
Sega Releases the SG-1000 to the Japanese market finding only minor success

3rd Generation

1985
Nintendo releases the NES in the US. Super Mario Bros. is released and sells 10 million copies before year's end; eventually being the top selling video game until 2008 with 40 million copies sold

1986
Sega releases the Sega Master System as a competitor to the NES

1987
Notable Releases:
Megaman
Street Fighter
Metal Gear
Final Lap
Castlevania
Contra
Final Fantasy
Phantasy Star
Maniac Mansion

4th Generation

1991
Notable Releases:
Road Rash
Street Fighter II
Tecmo Super Bowl
Sonic the Hedgehog
Sega CD

1989
Bundled with Tetris, Nintendo releases the Game Boy and is an instant success; selling 118 million world wide

Also Released:
Power Glove
TurboGrafx-16
Prince of Persia

1992
Notable Releases:
Mortal Hombat
Virtua Racing
Kirby's Dream Land
Mario Kart
Air Combat
Philips CD-i

5th Generation

1995
Notable Releases:
Chrono Trigger
Time Crisis

1994
Sony releases the PlayStation Console and is heaully influences the end of the cartridge; 125 million units sold

Other releases:
Sega Saturn
Neo Geo CD
Sega 32X

1997
Notable Releases:
Goldeneye 007
Final Fantasy 7
Oddworld
Grand Theft Auto
Gran Turismo

1999
Sega releases the Dreamcast. Considered to be ahead of its time and the pioneer of online gaming, the Dreamcast sold 10.6 million units

Fun vs. Usefulness
Intrinsic vs. Extrinsic motivation

Nintendo thought that adding a clock (something useful) and an alarm clock to the game platform would give parents a reason to buy the game to their children.

Parachute is a Game & Watch game released as a part of the Wide Screen series on June 19, 1981. It was the first game in the Wide Screen series. It is a single-screen single-player Game & Watch.

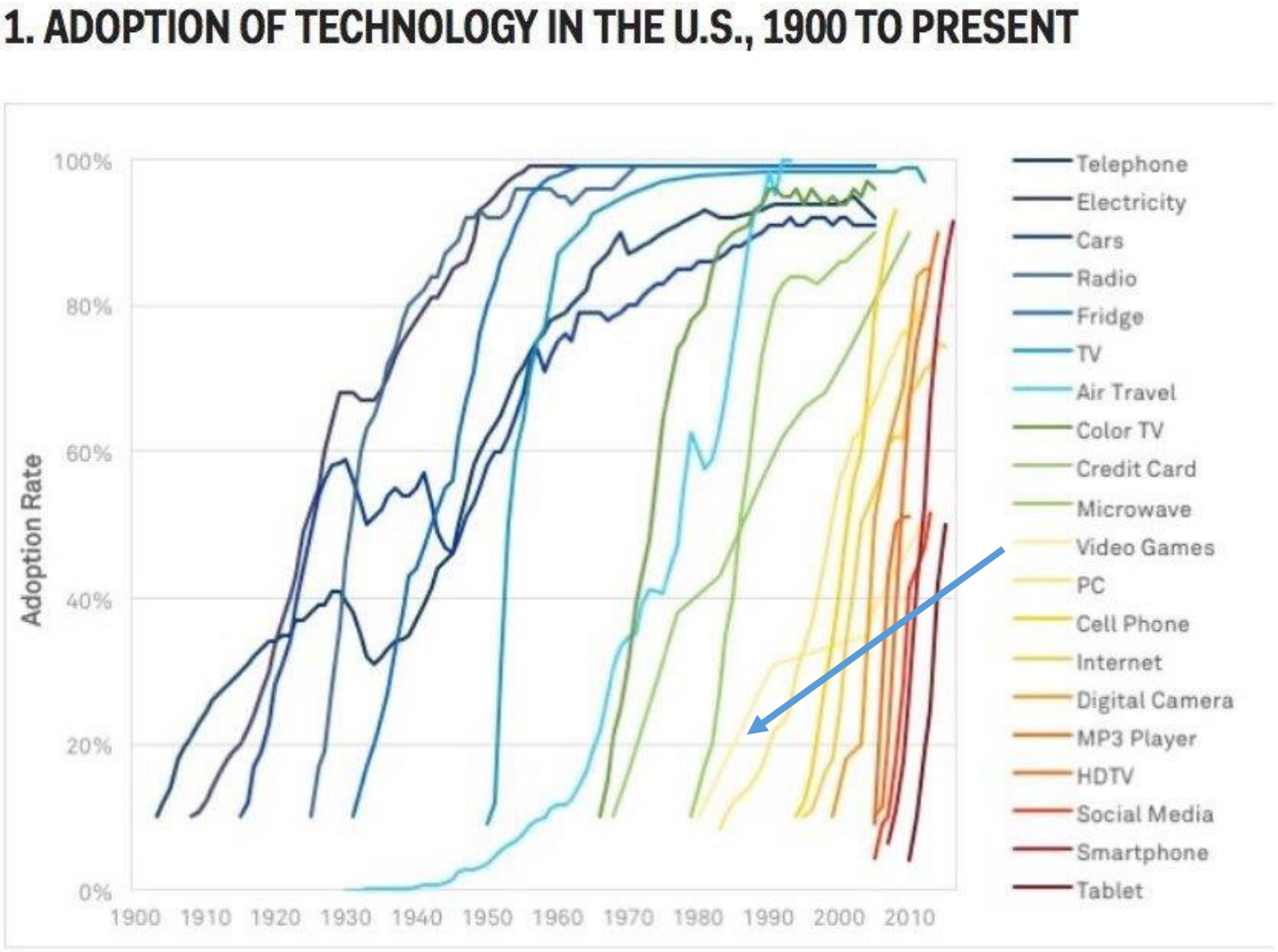
Designed by "godfather of Nintendo" Gunpei Yokoi

However, it has no been always a growth market.

While games industry started to grow fast in the 80s and people started to buy games there was a period of time that the growth stagnated drastically and growth almost stopped. This ‘Atari shock’ happened due to a recession in the games industry in early 80s for the reason of too many bad quality games published.

Only a few game studios were making money and most of them went bankrupt.

Adopted from Wikipedia article (Video game crash of 1983) Read more https://en.wikipedia.org/wiki/Video_game_crash_of_1983



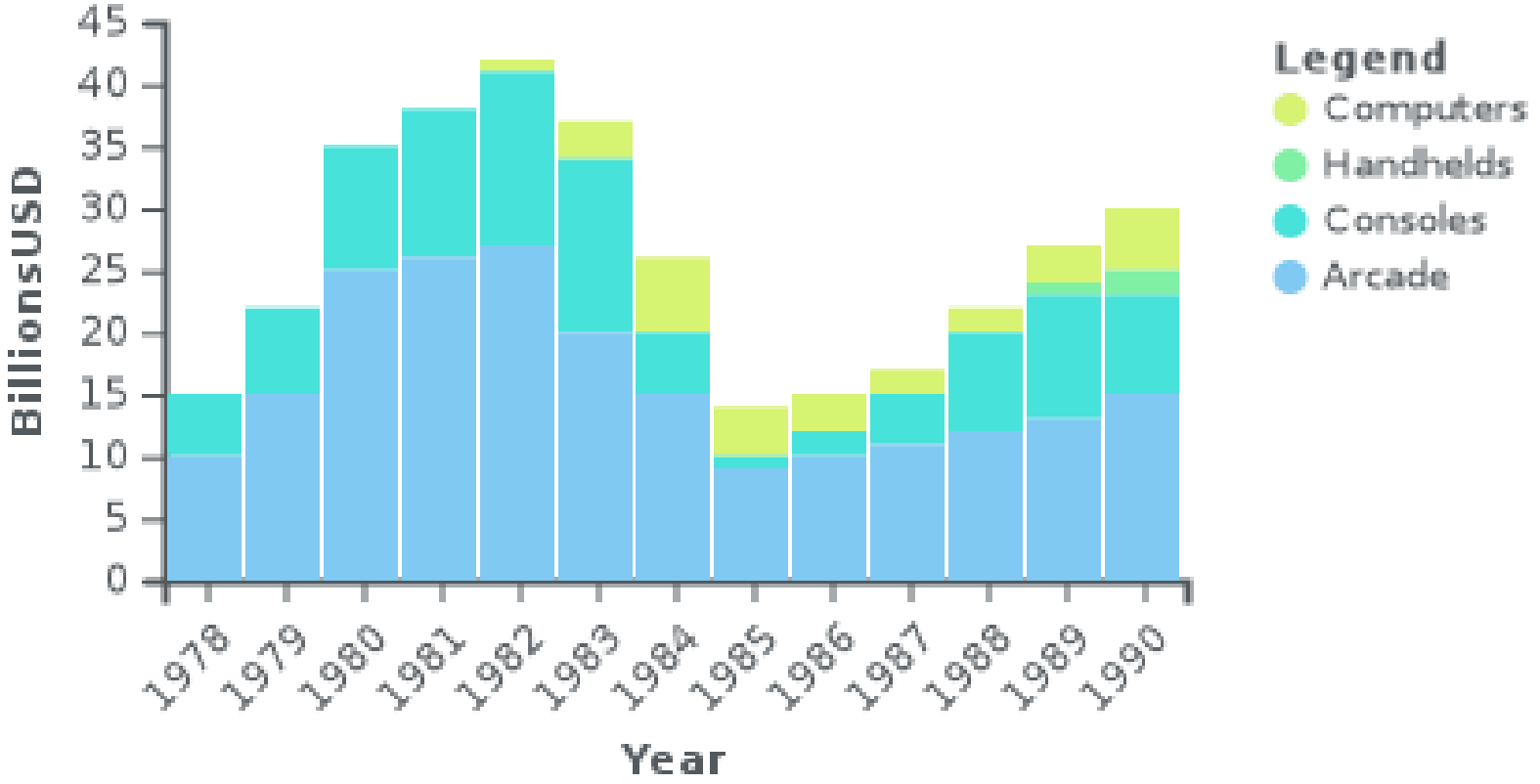
At early 80s Atari 2600 was the most popular console system in the market.

However, due to their new policy, Atari decided to give license agreements to 3rd party developers.

The number of games in the market suddenly jumped really fast but because the public thought the games were bad quality and many just fast copies of others' ideas, Atari's sales and market share dropped drastically.

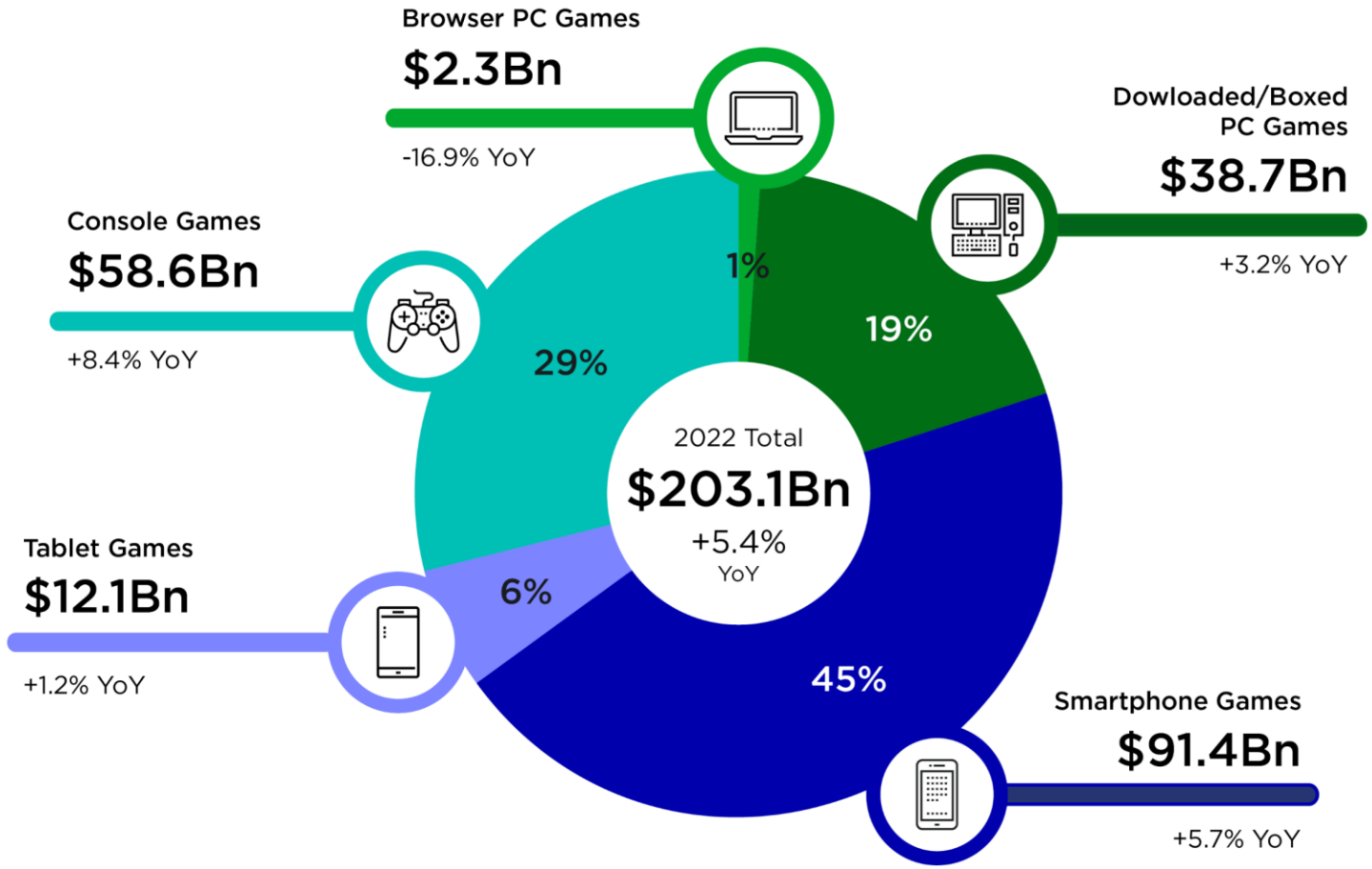
You can see the crash between 1982-1985 on the graph on the right.

Adopted from Wikipedia article (Video game crash of 1983) Read more https://en.wikipedia.org/wiki/Video_game_crash_of_1983



2022 Global Games Market

Per Segment With Year-on-Year Growth Rates



Source: ©Newzoo | Global Games Market Report | April 2022

newzoo.com/globalgamesreport

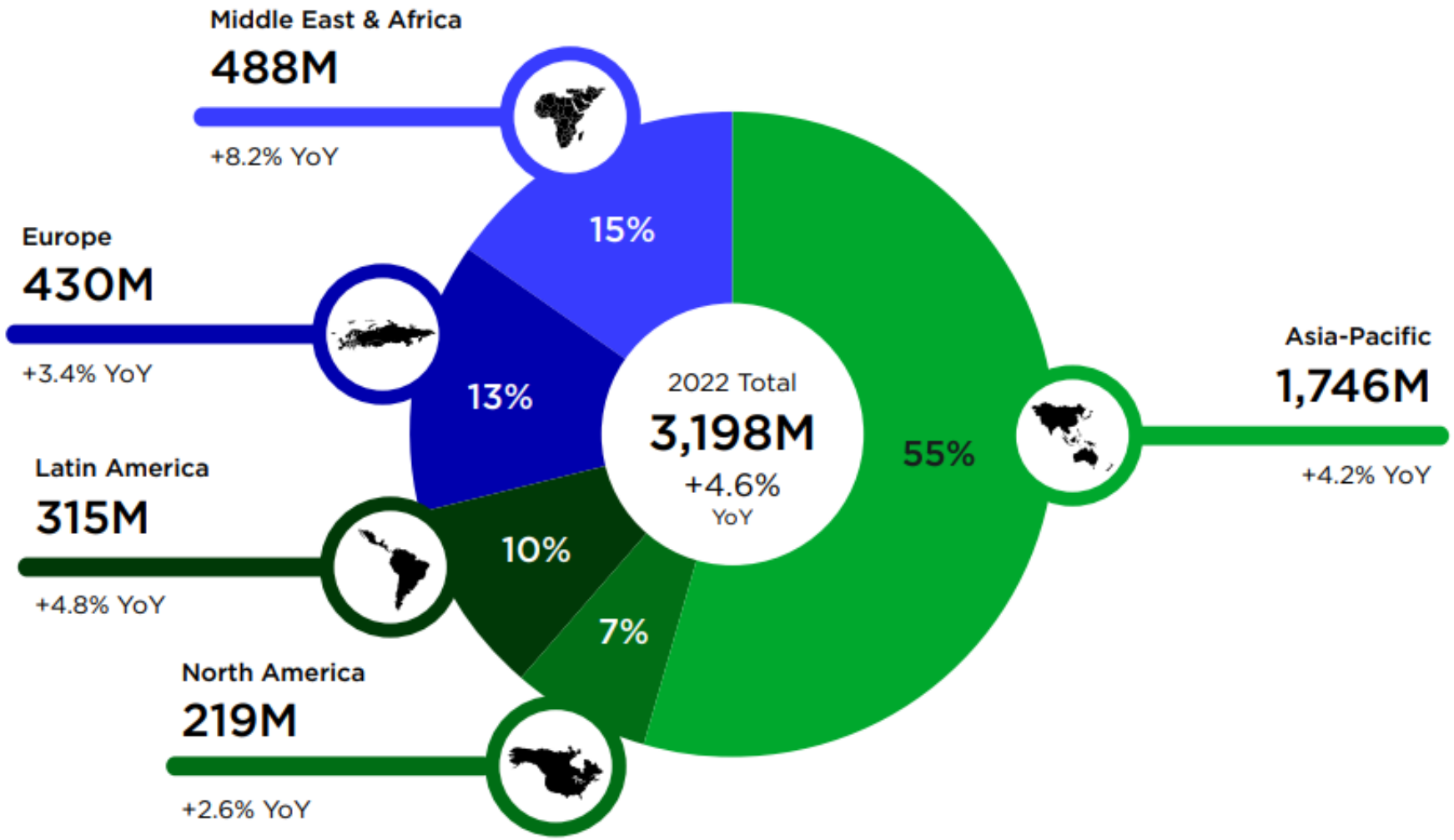
$103.5Bn

Mobile game revenues in 2022 will account for 51% 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 advertising. Our estimates 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.

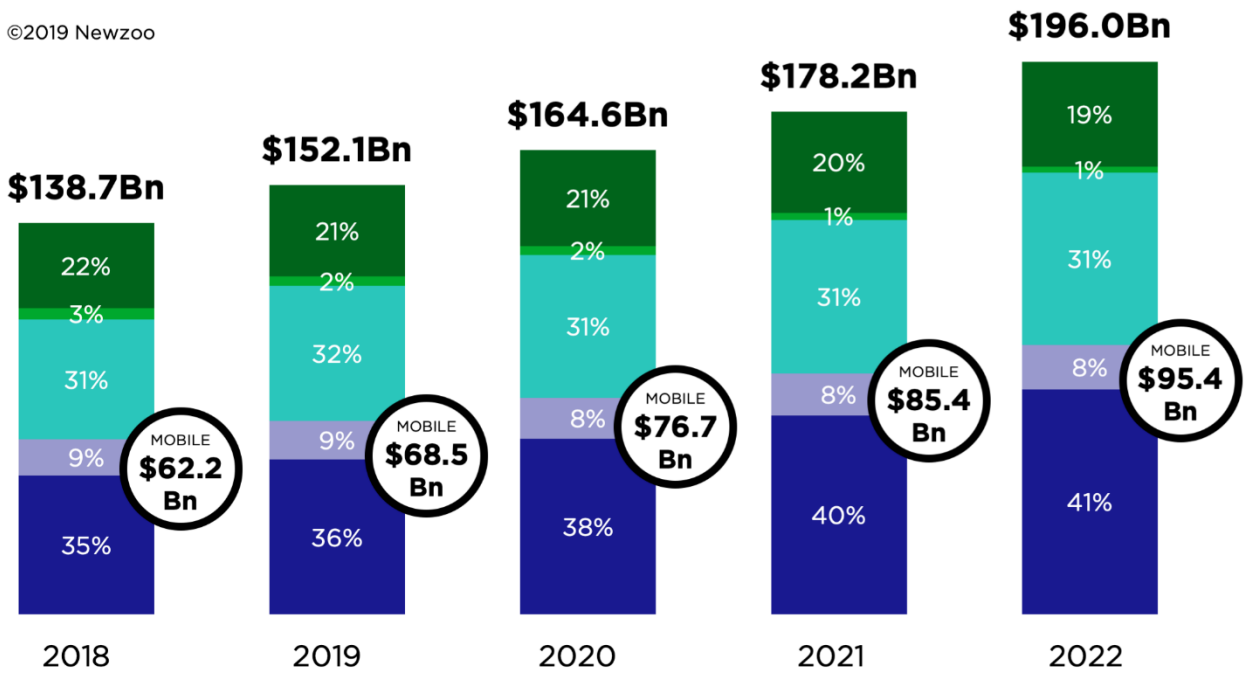
2022 Global Players

Per Region



2018-2022 GLOBAL GAMES MARKET

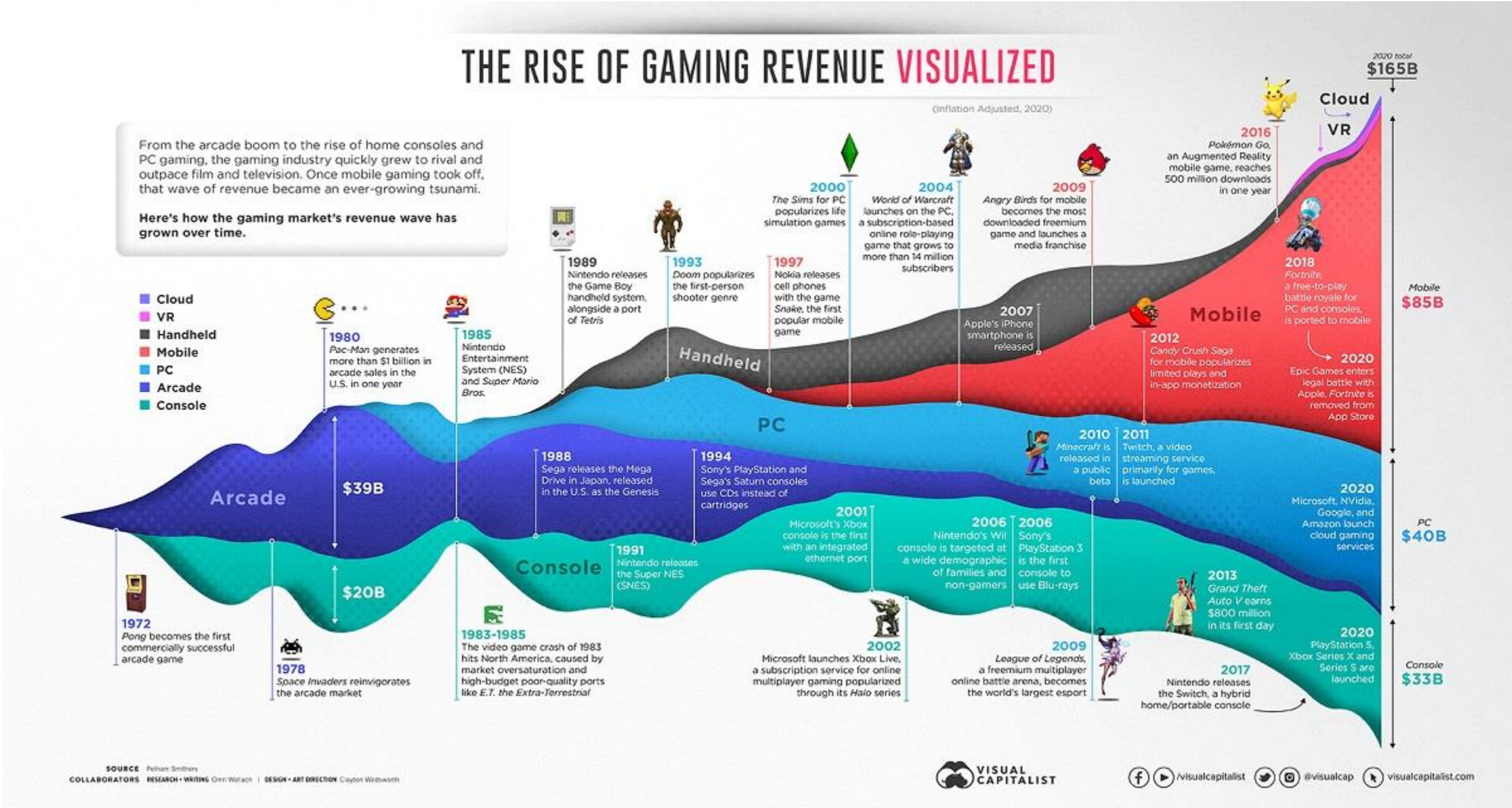
FORECAST PER SEGMENT TOWARD 2022



+9.0%

TOTAL MARKET CAGR
2018-2022

Source: ©Newzoo | 2019 Global Games Market Report
newzoo.com/globalgamesreport



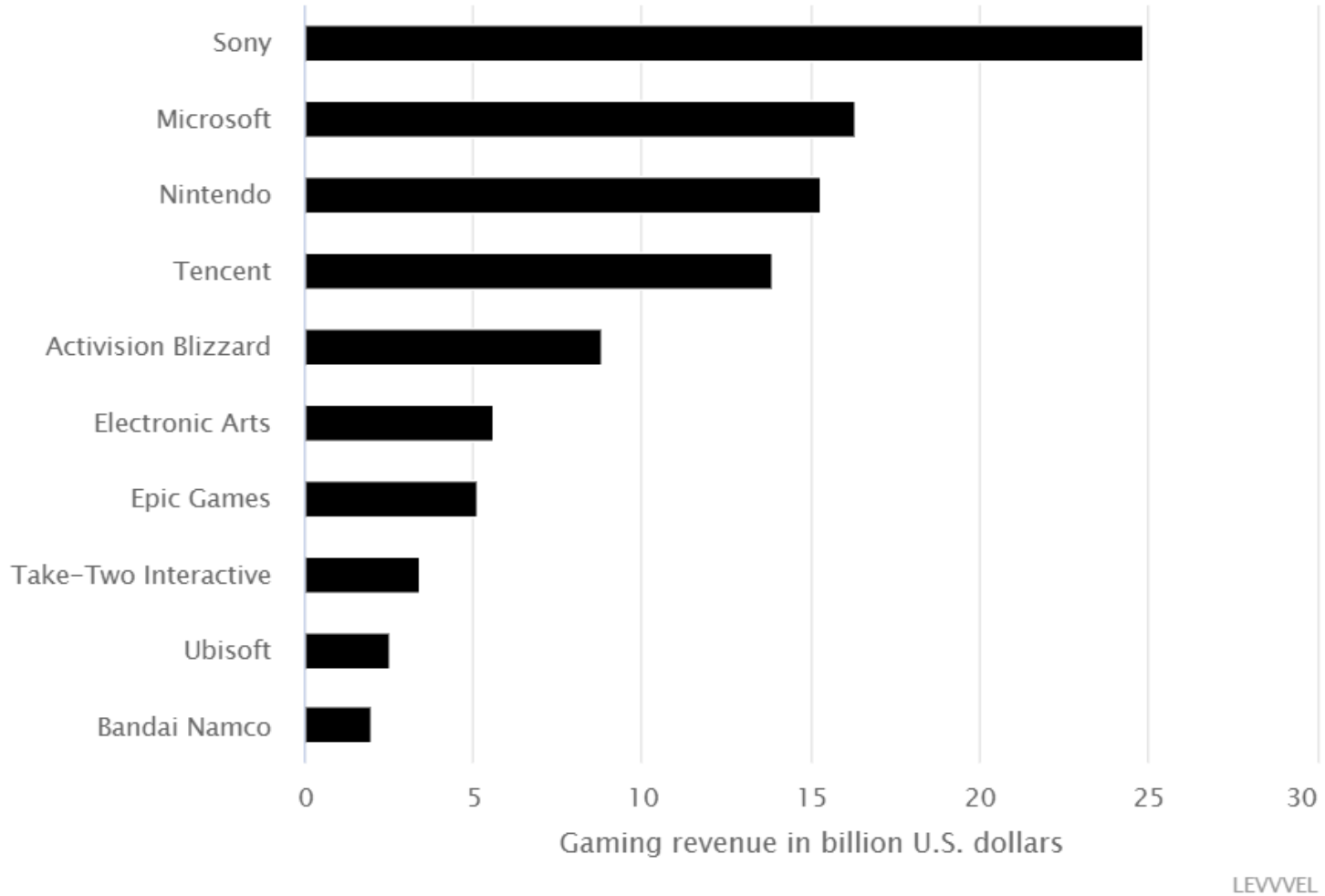
https://www.visualcapitalist.com/50-years-gaming-history-revenue-stream/

INDUSTRY MARKET CAP

$180.3 billion

INDUSTRY AUDIENCE SIZE

3.2 billion



https://levvvel.com/biggest-video-game-companies/ (2021)

Tencent 腾讯

SUPERCELL

China's Tencent Buys Control of Clash of Clans Maker for $8.6 Billion

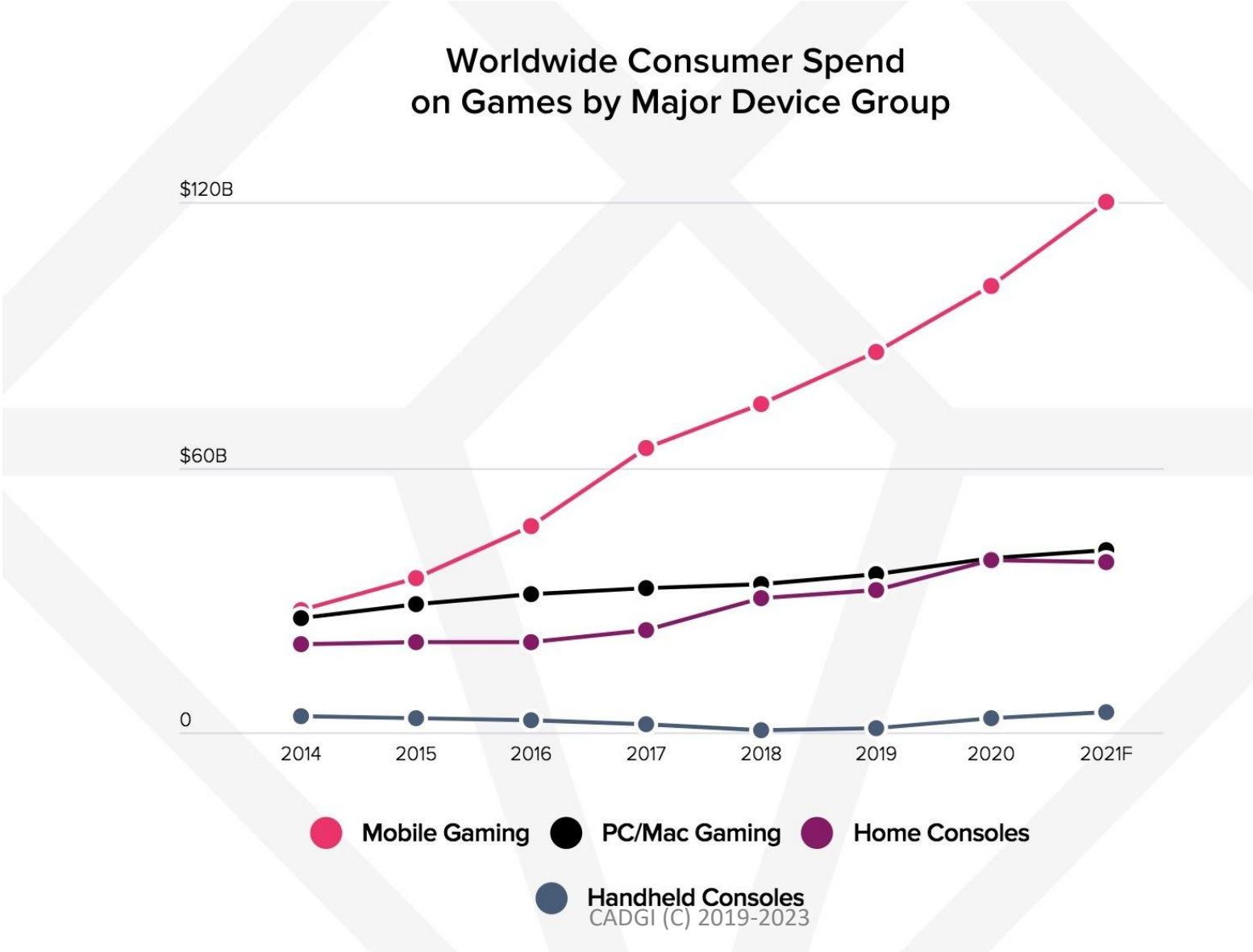
Throughout the history of video games business, games studios have been established and sold.

The fastest ever-growing company of all times is Supercell (Finland), just with 3 games in the market they were able to sell their company to Tencent for a whopping 8.6 billion dollars!

It has made history in the video games industry and also shows what is the potential of it.

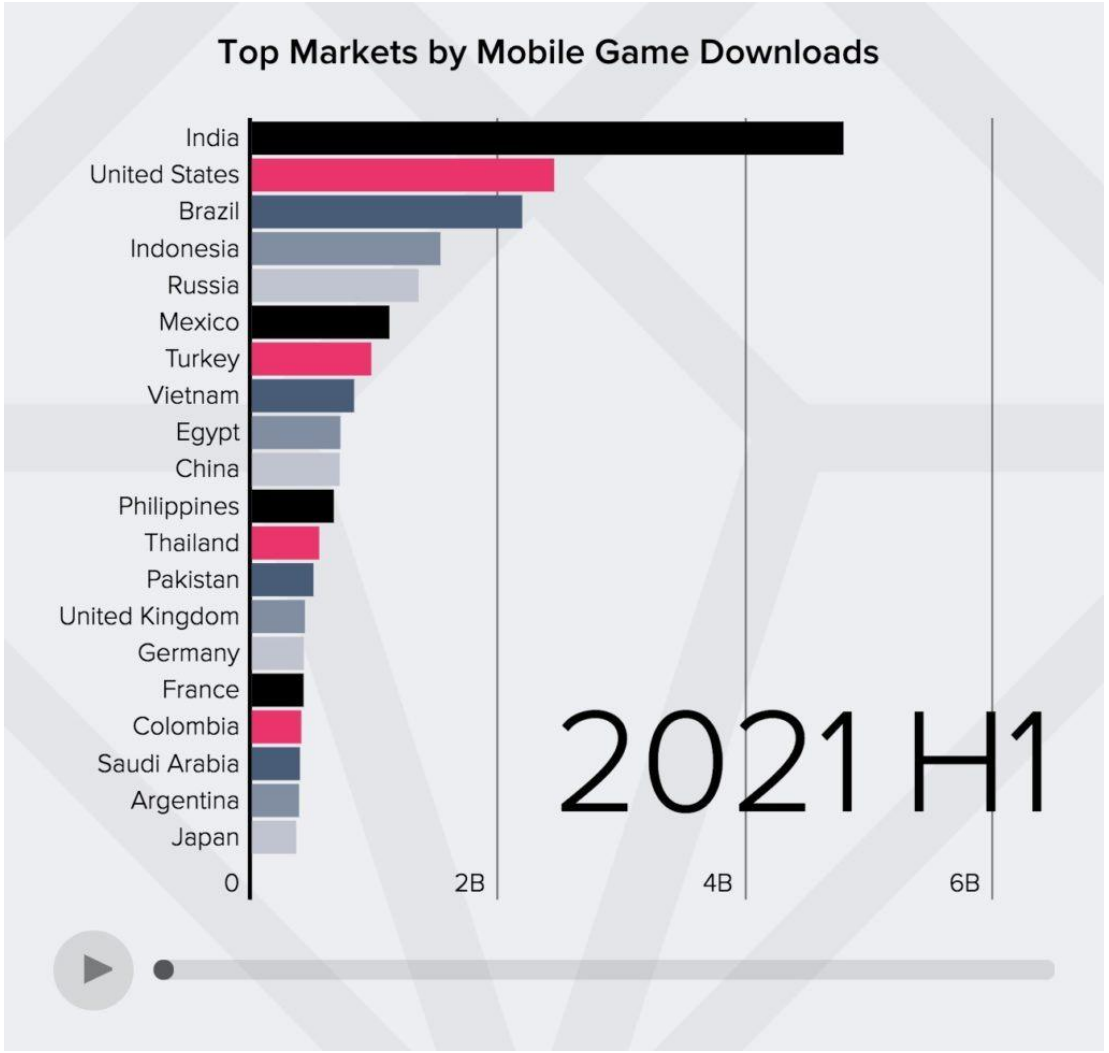
However, keep in mind that over 1000 mobile games are published every day so the market is brutally competitive and you have to be very smart positioning your game and use existing data to do so.

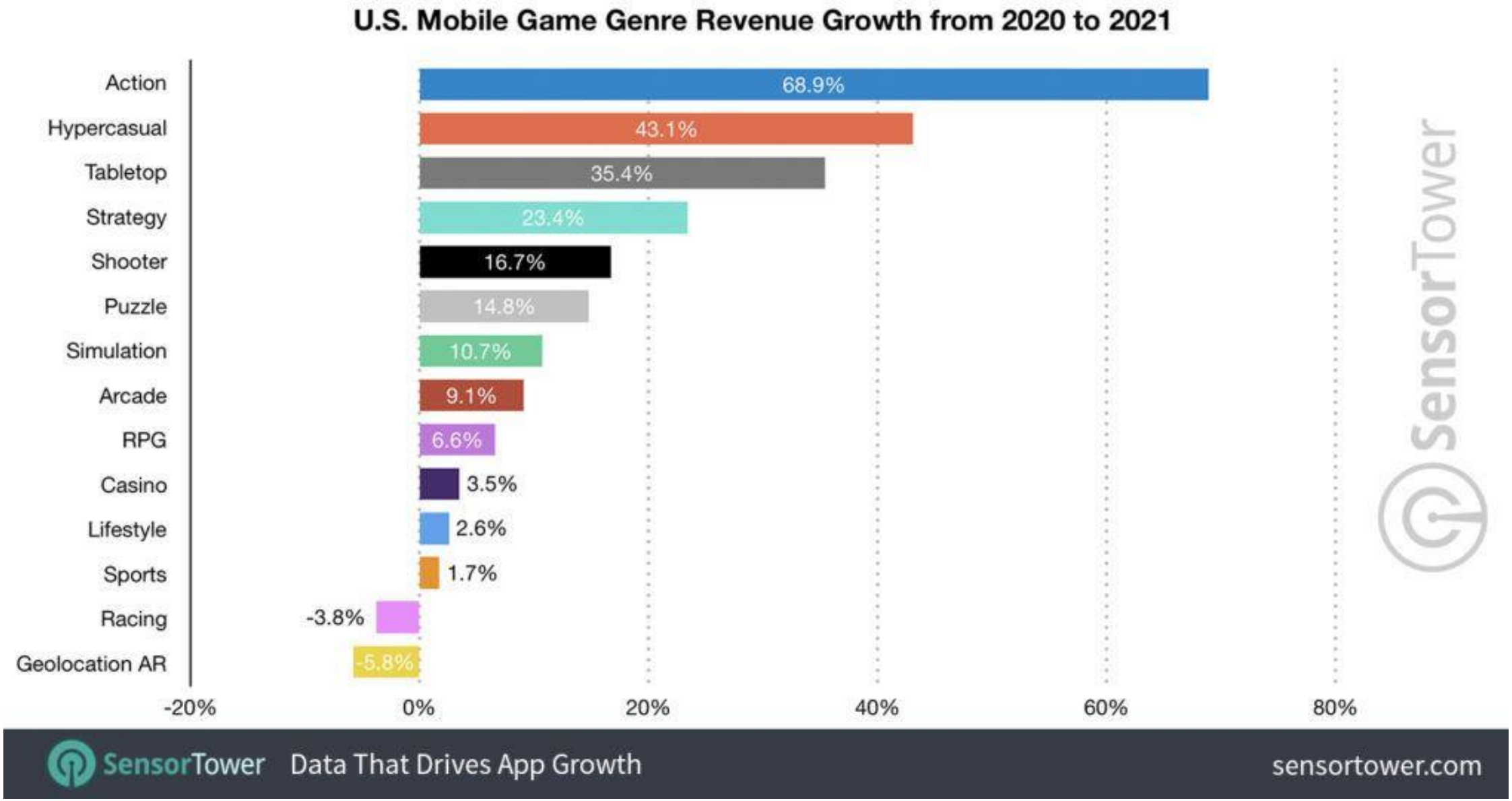
Which platform is growing fastest?

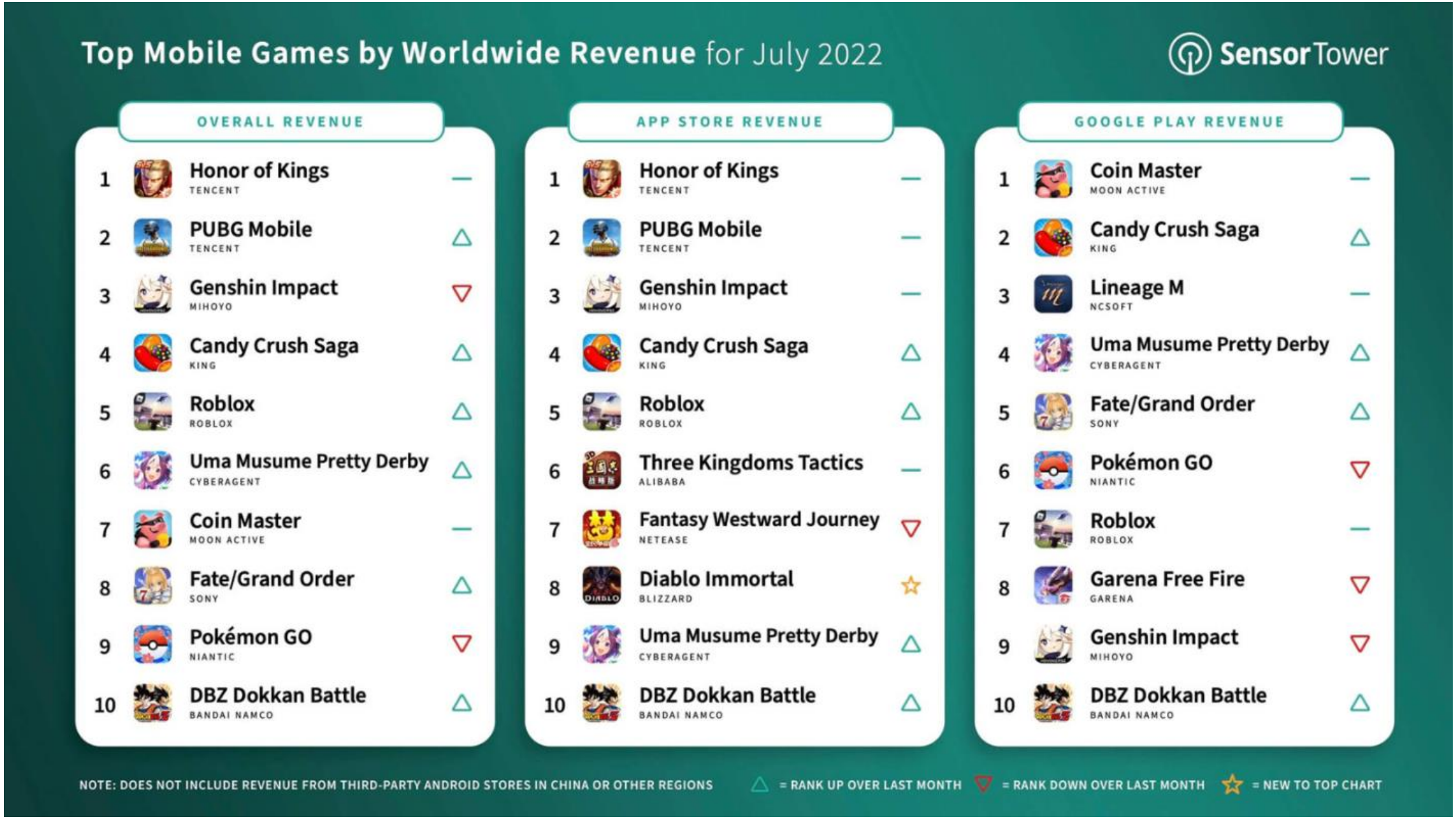


Top markets by mobile game downloads

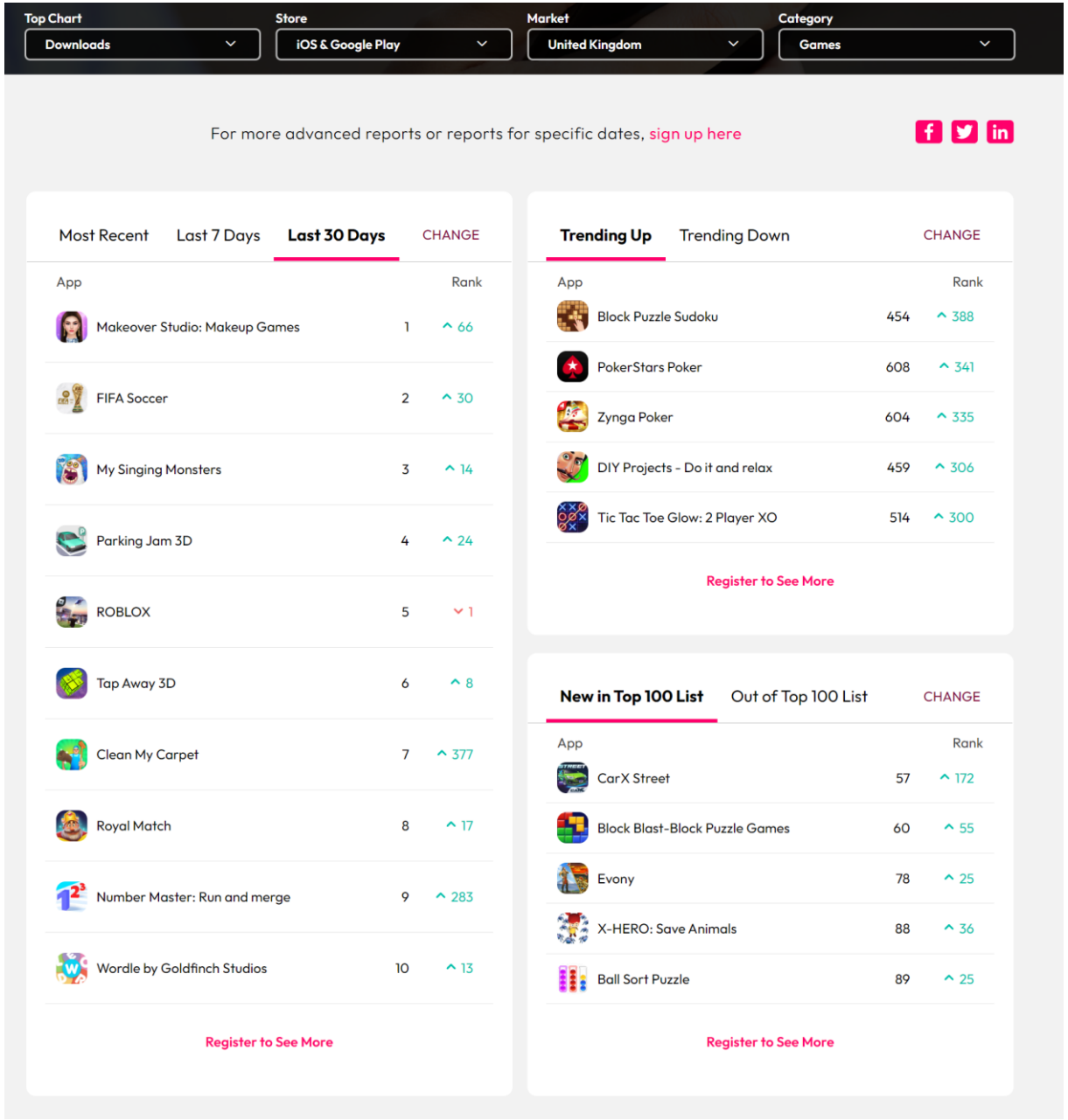
Just as an example, let’s look at mobile game segment more closely.

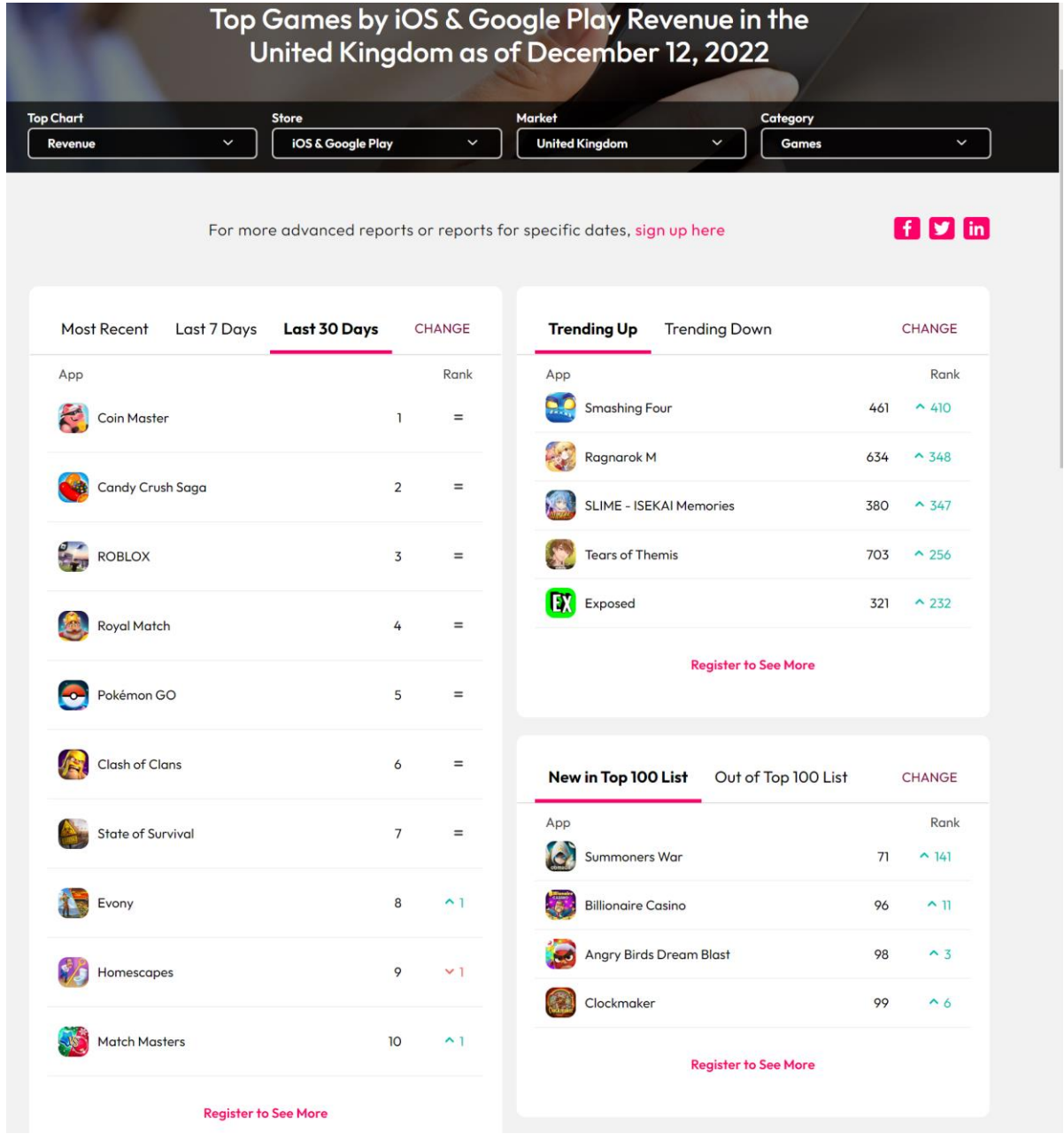



U.S. Mobile Game Genre Revenue Growth from 2020 to 2021
Action
Hypercasual
Tabletop
Strategy
Shooter
Puzzle
Simulation
Arcade
RPG
Casino
Lifestyle
Sports
Racing
Geolocation AR
68.9%
43.1%
35.4%
23.4%
16.7%
14.8%
10.7%
9.1%
6.6%
3.5%
2.6%
1.7%
-3.8%
-5.8%
-20%
0%
20%
40%
60%
80%
SensorTower
SensorTower Data That Drives App Growth
sensortower.com



Wonderful site to follow top grossing games on Steam https://vginsights.com/top-charts


Top Chart
Downloads
Store
iOS & Google Play
Market
United Kingdom
Category
Games
For more advanced reports or reports for specific dates, sign up here
Most Recent
Last 7 Days
Last 30 Days
CHANGE
App
Rank
Makeover Studio: Makeup Games 1 66
FIFA Soccer 2 30
My Singing Monsters 3 14
Parking Jam 3D 4 24
ROBLOX 5 1
Tap Away 3D 6 8
Clean My Carpet 7 377
Royal Match 8 17
Number Master: Run and merge 9 283
Wordle by Goldfinch Studios 10 13
Register to See More
Trending Up
Trending Down
CHANGE
App
Rank
Block Puzzle Sudoku 454 388
PokerStars Poker 608 341
Zynga Poker 604 335
DIY Projects - Do it and relax 459 306
Tic Tac Toe Glow: 2 Player XO 514 300
Register to See More
New in Top 100 List
Out of Top 100 List
CHANGE
App
Rank
CarX Street 57 172
Block Blast-Block Puzzle Games 60 55
Evony 78 25
X-HERO: Save Animals 88 36
Ball Sort Puzzle 89 25
Register to See More


Top Games by iOS & Google Play Revenue in the United Kingdom as of December 12, 2022
Top Chart
Revenue
Store
iOS & Google Play
Market
United Kingdom
Category
Games
For more advanced reports or reports for specific dates, sign up here
Most Recent
Last 7 Days
Last 30 Days
CHANGE
App
Rank
Coin Master 1 =
Candy Crush Saga 2 =
ROBLOX 3 =
Royal Match 4 =
Pokémon GO 5 =
Clash of Clans 6 =
State of Survival 7 =
Evony 8 1
Homescapes 9 1
Match Masters 10 1
Register to See More
Trending Up
Trending Down
CHANGE
App
Rank
Smashing Four 461 410
Ragnarok M 634 348
SLIME - ISEKAI Memories 380 347
Tears of Themis 703 256
Exposed 321 232
Register to See More
New in Top 100 List
Out of Top 100 List
CHANGE
App
Rank
Summoners War 71 141
Billionaire Casino 96 11
Angry Birds Dream Blast 98 3
Clockmaker 99 6
Register to See More

Video games subsectors

Computing platforms

PC,mobile,tv, watches, sensors

Creative tech

PLAY FUSION

NINJA

Dev. platforms

unity

Servers/cloud

Virtual currency

Characters

Live music/Radio

Metaverse

MR/AR/VR

Avatars

Holograms

Art

Broadcasting

twitch

Social media

DISCORD

Analytics

Data science

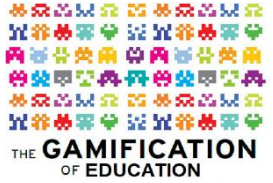
GameAnalytics

Audio

eSports

LPL

Gamification



GAMES FOR HEALTH FINLAND

Movies

Entrepreneurial ecosystems and clusters

PLAYA GAME INDUSTRY HUB

Greater Montréal's World-Leading Video Game Hub

Game dev and biz events

gamescom

GDC

POCKET GAMER CONNECTS LONDON
The Global Mobile Games Industry Conference

Research

DIGRA

Industry support

TIGA
Representing the Games Industry

igda

Education

XAMK

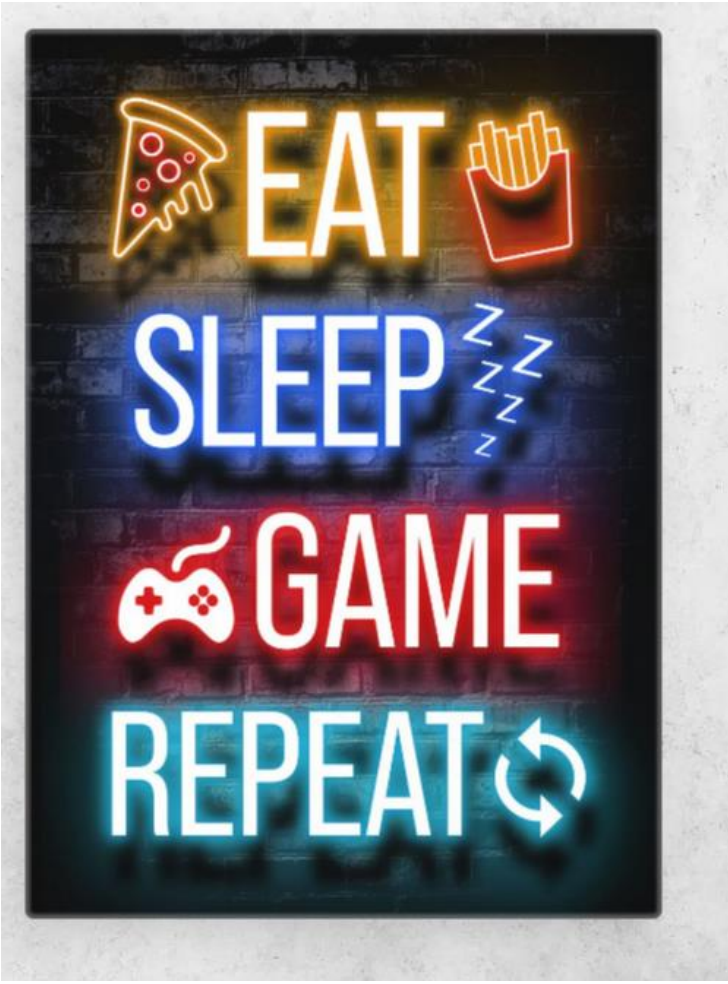
Aalto University

WARWICK
THE UNIVERSITY OF WARWICK

a.r.u. Anglia Ruskin University

CAMBRIDGE ACADEMY OF DIGITAL GAMES AND INNOVATION

Fast growing subsector: game related accessories and ‘stuff’



Gaming Accessories

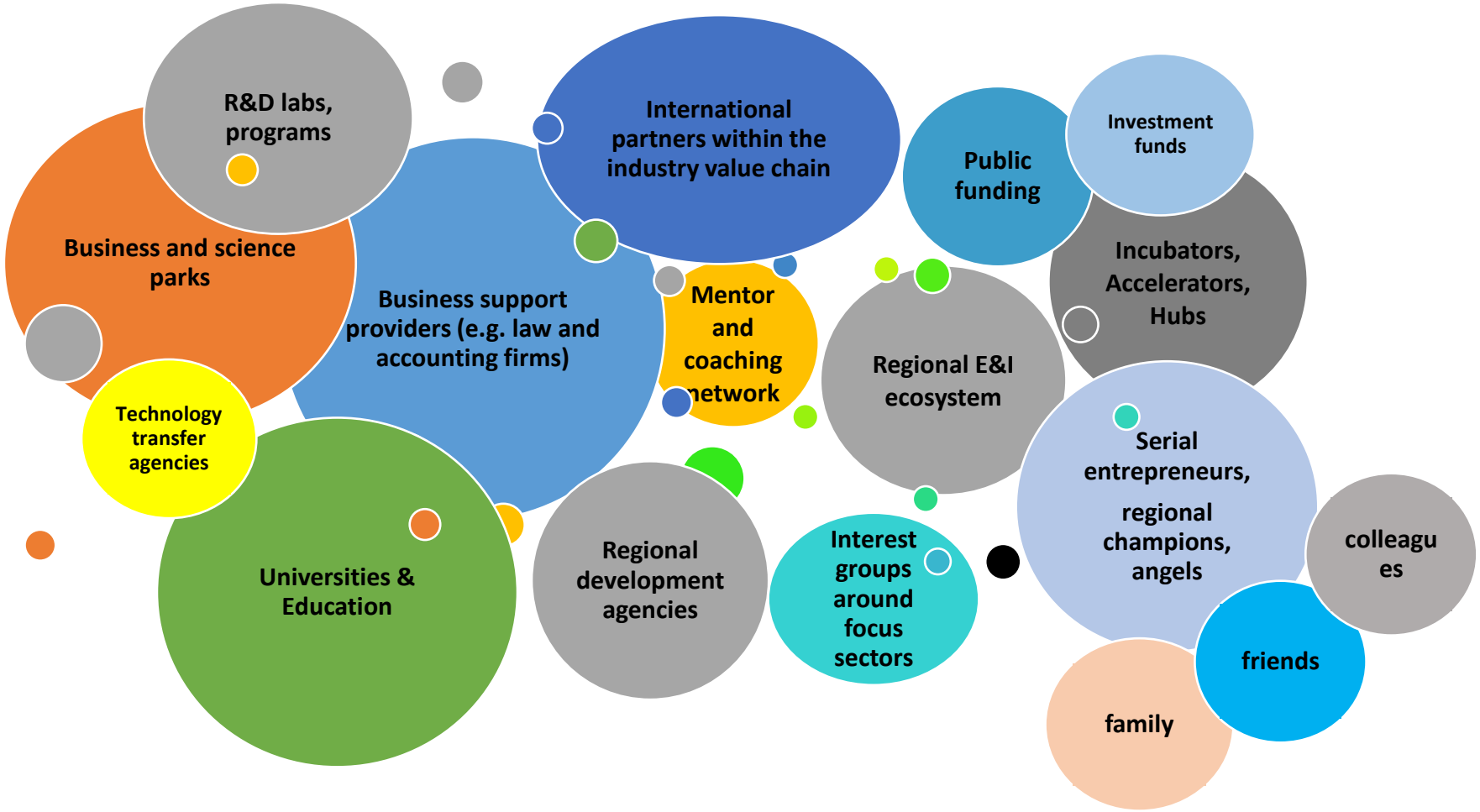
Gaming accessories is a great example of sudden growth of a games subsector that did not basically exist few years ago massively.

People are investing in ‘well-being’ and enhancing the gamer experience by getting such equipment.

As eSports became a worldwide phenomena, and PC gaming was back from it’s downturn such accessories became really popular.

Also, COVID19 had an impact as people stayed more at homes playing games.

Games industry is also an entrepreneurial ecosystem



GAME PLAYER BEHAVIOURS

GROW YOUR GAMES

Most played genres (2022)

1. Action
2. Role-playing games
3. Strategy games
4. Simulation games
5. Puzzle games
6. Sports games

https://sandvox.io/top-gaming-genres-2022/

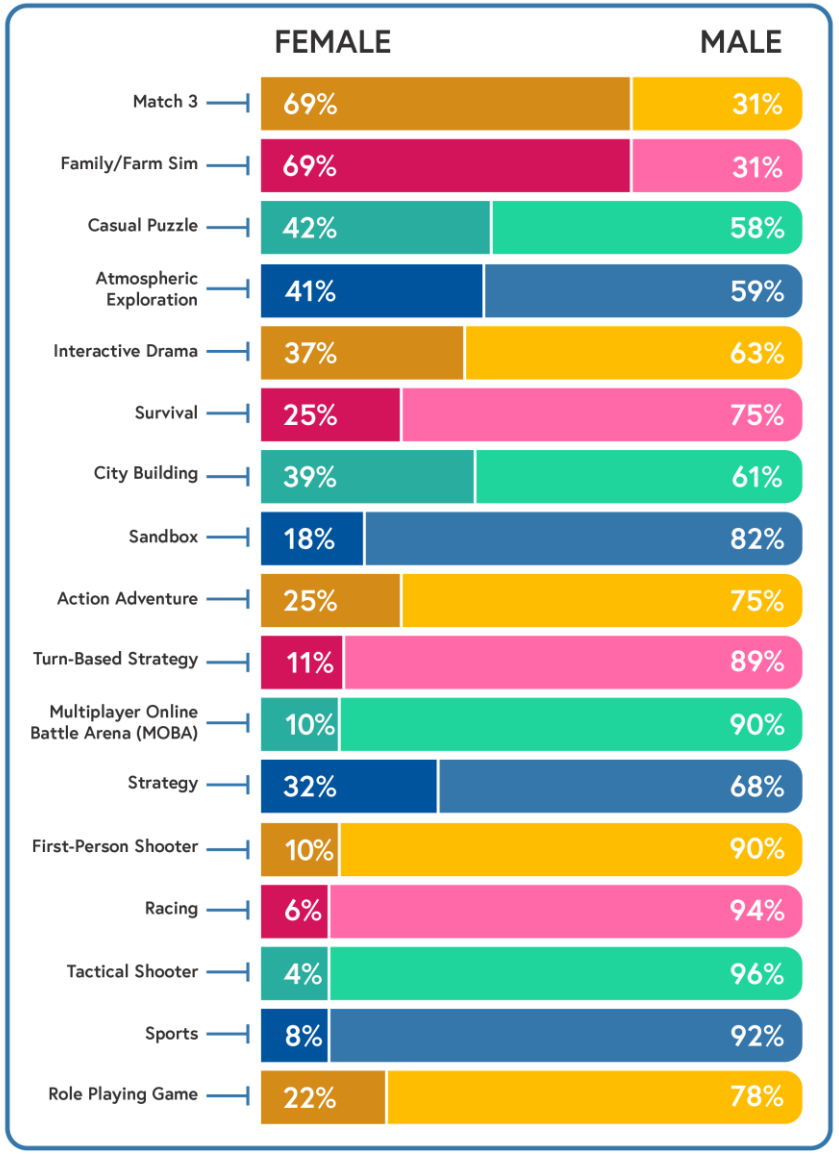
Gamer audiences

Game genre statistics (2021)

Here you see that there are differences between female and male game player behaviours.

No genre is anymore on gender genre, but we tend to prefer different type of games.

Generally speaking, video game playing is now 50%/50% split between female and male players (younger audiences <25years)



https://www.gamify.com/gamification-blog/not-all-games-are-created-equal-pt1

Gaming penetration in the UK by age group and gender

This is a good example how generation has an influence of our game playing behaviours.

Note that we all obviously get older, and it will move people from one age category to another.

If you put myself on this, it would be basically my generation and one older that played games in the 80s (16-24) and the rest of age categories would be empty. According to a survey study **98% of UK** teenagers play games (under 16).

It is rare that those who never played games would start playing games at older age, but of course it happens. Conclusion is that 'older' generations are not the best audiences for developing games.

This is UK only, but it is good to remind that countries and cultures do differ from each other too.

Characteristic	2013	2014	2015	2016	2017	2018	2019	2020/21	2021
Male	46%	47%	44%	41%	41%	44%	46%	61%	63%
Female	38%	41%	39%	32%	31%	32%	32%	63%	56%
16-24	71%	73%	66%	67%	70%	65%	73%	92%	88%
25-34	62%	62%	63%	50%	49%	59%	52%	82%	79%
35-44	45%	51%	44%	42%	40%	36%	41%	76%	73%
45-54	43%	39%	42%	27%	29%	35%	40%	62%	62%
55-64	28%	26%	25%	23%	23%	23%	24%	43%	47%
65-74	13%	19%	17%	21%	16%	23%	-	-	26%
55+	-	-	-	-	-	-	19%	-	-
65+	-	-	-	-	-	-	-	30%	-
75+	4%	7%	9%	13%	14%	9%	-	-	-

Showing entries 1 to 11 (11 entries in total)

https://www.statista.com/statistics/300513/gaming-by-demographic-group-uk/

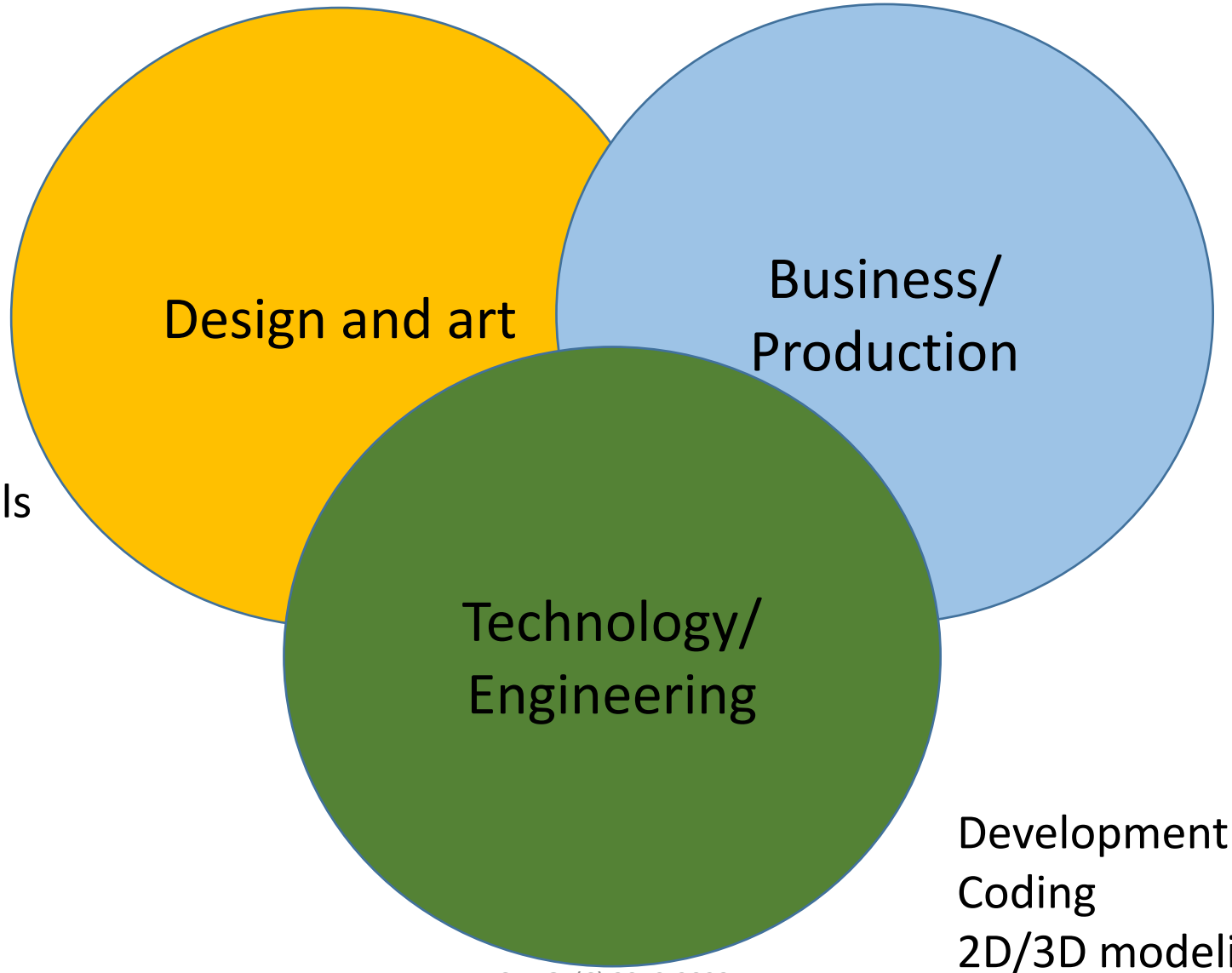
GAMES ARE DIVERSE,
CREATIVE MIX OF DIFFERENT SKILLS REQUIRED

GROW YOUR GAMES

CAMBRIDGE ACADEMY
OF DIGITAL GAMES
AND INNOVATION

Games are

Ideation
Conceptualisation
Design
Graphic design
Audio & Sound
Design and graphic tools



Production
Publishing
Marketing
Customer acquisition
Sales and Revenues
Data analytics

Development platforms and tools
Coding
2D/3D modeling

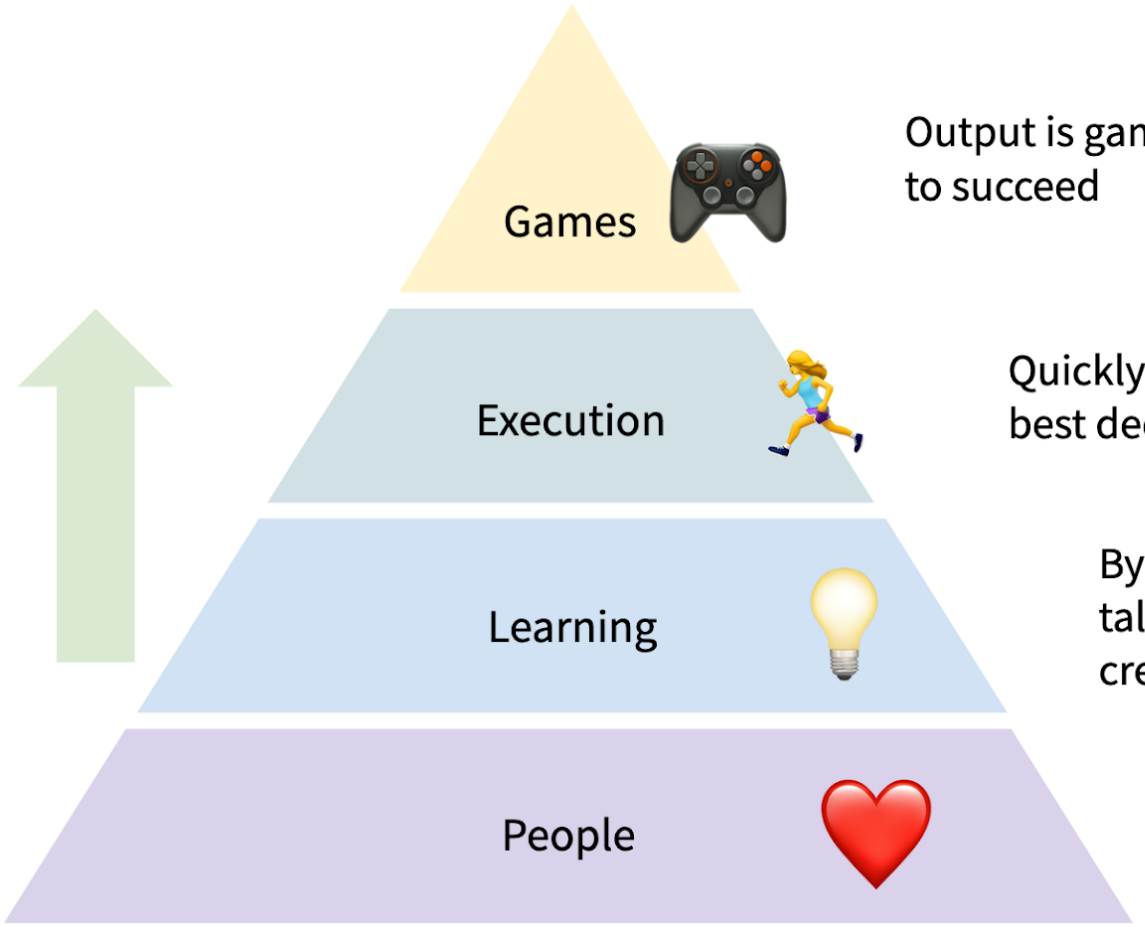

genre
Flow
Characters
Purchasing
methods
Surprise
eSports
Demographics
streaming
emotions
packages
goods
acquisition
options
broadcasting
boredom
Respect
Play
boosts
Big
UX
loot
physics
Pay
segmentation
Revenue
New
Value
crates
NFTs
win
Reviews
effect
Changing
life
Fun
Cross
style
Title
promotion
Gameplay
VIP
Culture
platforms
Story
Beta
Winning
Social
Marketing
cycle
Theory
Blockchain
Virtual
Publishing
Indie
media
design
Crypto
Unpredictable
geogaming
items
Hero
Monetization
levels
changes
theme
campaigns
Development
User
power
strategies
Character
Mechanics
gamification
Retro
platform
Timing
Expanded
behaviours
KPI
Augmented
Distribution
Reality
vs
Wait-time
cosmetics
Branding
testing
community
Pricing
Partnerships
WOM
Resources
Graphics
boxes
Finance
Screens

WHO MAKE GAMES?

GROW YOUR GAMES

CAMBRIDGE ACADEMY
OF DIGITAL GAMES
AND INNOVATION

Games are made by great, skilled people



Output is games that have a chance to succeed

Quickly moving, making the best decisions

By trying things, building, talking, listening, with creativity, with data

Diversity, safety, belonging, service

https://elitegamedevelopers.com/games-company-culture-pyramid/

Entrepreneur

We need many different type of skills to develop a successful video game such as entrepreneurs, scientists and artists.

Let me introduce you to first few types of people the games industry needs.

Many of you have probably read or heard about ‘creative destruction’ (Schumpeter).

The idea simple but difficult to execute. Many of the most know entrepreneurs (and start-ups) are eager to develop something completely novel that never existed before. They take high risks but expect high rewards or big impact.

The games industry has always been in forefront of such developments.

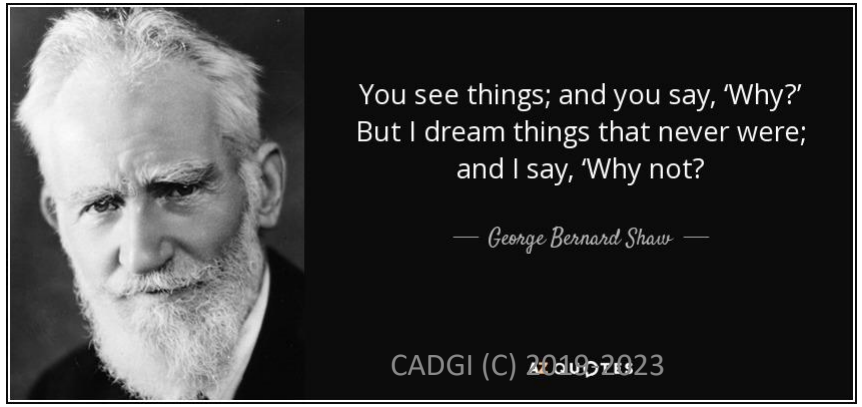
Sir Clive Marles Sinclair

(born 30 July 1940) is an English entrepreneur and inventor, most known for his work in consumer electronics in the late 1970s and early 1980s. He was based in Cambridge, UK.

This is one of the first commercially successful home computers, mostly used for developing and playing games, called ZX Spectrum.

“In 1982 the ZX Spectrum was launched at £125 for the 16 kB RAM version and £175 for the 48 kB version. In March 1982 the company made an £8.55 million profit on turnover of £27.17 million.”

Source:hhttps://en.wikipedia.org/wiki/Clive_Sinclair



Scientists

We also need scientists, people who work hard on research on new topics including computer science, mathematics, engineering to name a few fields.

Without commitment of such people, we would not have scientific innovations and new products, including video games.

As an industry, there are thousands of patents in games, or the technologies that make game development possible.

The most important asset of a game studio is it's IP, that is Intellectual Property. The knowledge the game studio holds to keep the studio (and the game) in the market place and succeed.

Alan Mathison Turing OBE FRS 23 June 1912 – 7 June 1954) was an English computer scientist, mathematician, logician, cryptanalyst, philosopher and theoretical biologist. Development of theoretical computer science, providing a formalisation of the concepts of algorithm and computation with the Turing machine, which can be considered a model of a general purpose computer. Problem of German naval Enigma

Turing is widely considered to be the **father of theoretical computer science and artificial intelligence.**

Fantasy, imagination - art

Games are highly creative products. We need creative thinking such as imagination, thinking of things that do not exist yet using our skills, knowledge and experience.

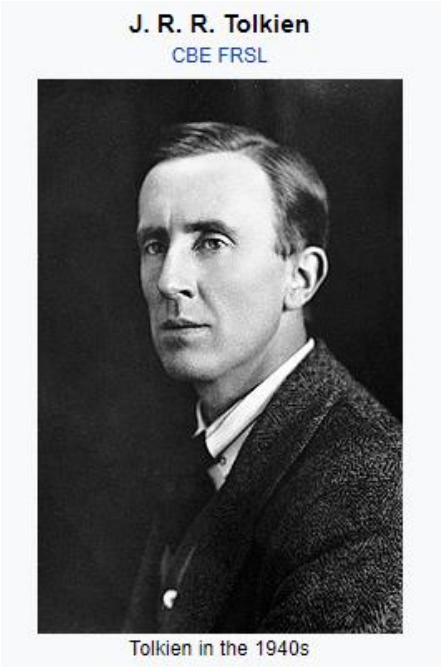
Technology gives us opportunities to develop new ways of playing games but fundamentally games are products of creative minds.

Creativity is not just the privilege of artists which is a typical first thought but there is lot of creativity involved in other areas such as programming and business development.

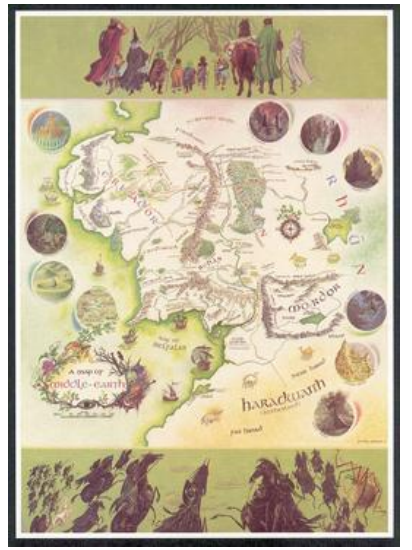
This is why the games industry has become such an amazing field of innovation during its 60+ years of industrial history.

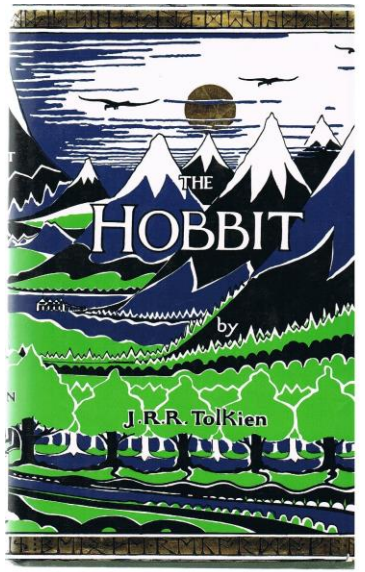
Tolkien in the 1940s

Born	John Ronald Reuel Tolkien 3 January 1892 Bloemfontein, Orange Free State (modern-day South Africa)
Died	2 September 1973 (aged 81) Bournemouth, Dorset, England
Occupation	Author · academic · philologist · poet
Nationality	British
Alma mater	Exeter College, Oxford
Genre	Fantasy · high fantasy · mythopoeia · translation · literary criticism
Notable works	*The Hobbit* *The Lord of the Rings* *The Silmarillion* *Unfinished Tales*
Spouse	Edith Bratt (m. 1916; d. 1971)
Children	John Francis (1917–2003) Michael Hilary (1920–1984) Christopher John (1924–2020) Priscilla Anne (b. 1929)
Signature	



Tolkien in the 1940s





Middle-Earth

Connections to Kalevala (Finnish mythodology)

Technological change

Oftentimes it takes decades to an idea to become commercially viable.

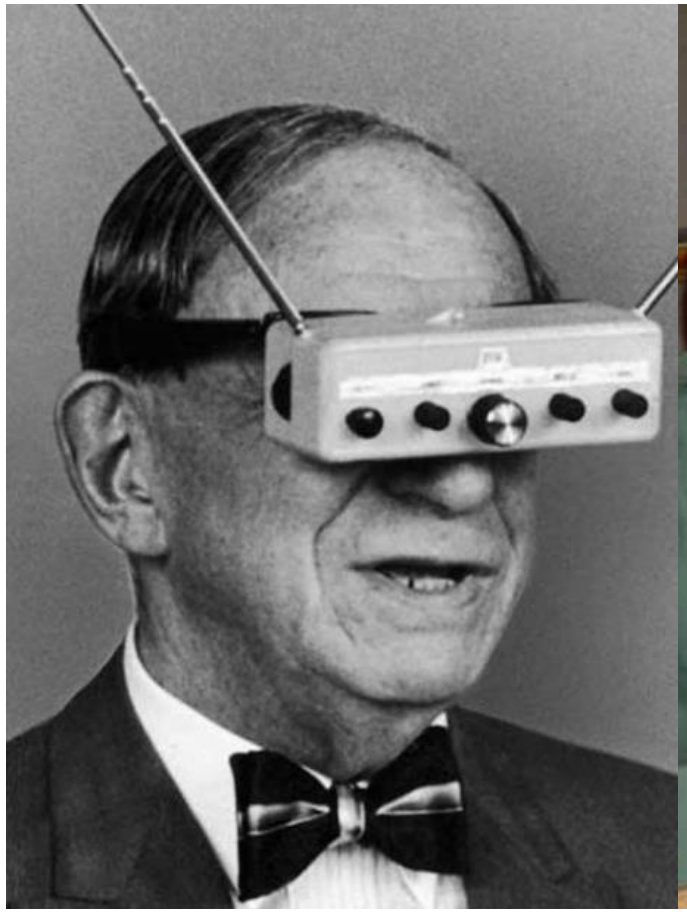
1995 was the year when Nintendo decided to publish first Virtual Reality platform/game console, or ‘Stereorescopic 3D” experience.

Unfortunately, this was a commercial failure. The technology was not ready for consumers.

In 2016, Sony published Playstation VR set. Almost 5 million units have been sold to date and it has been a great success story.

It took almost 60 years (!) to make an idea of a new type of user experience commercially successful.

1960’s



TV

1995

Nintendo Virtual Boy

2016

Playstation VR

Source: https://en.wikipedia.org/wiki/Virtual_Boy https://en.wikipedia.org/wiki/PlayStation_VR

Demographics change – sticking to what we know

We grow with the games we play.

User behaviours are often connected to usual habits such as playing the same genre repeatedly.

The simple reason for this is that we learn to play certain games and genres. When feeling comfortable, we do not want to *learn new things such as about new types of games.* A new game has a learning curve like any technology product which is an obstacle rather than a motivator.

If you like a certain type of chocolate, you probably will buy it again rather than taking a risk of trying new type of chocolate. Tastes change slowly.

Another example, each teenager play games if they have access to them but the older generations 50+ do not start playing games because they never had the habit before.

Innovation diffusion process

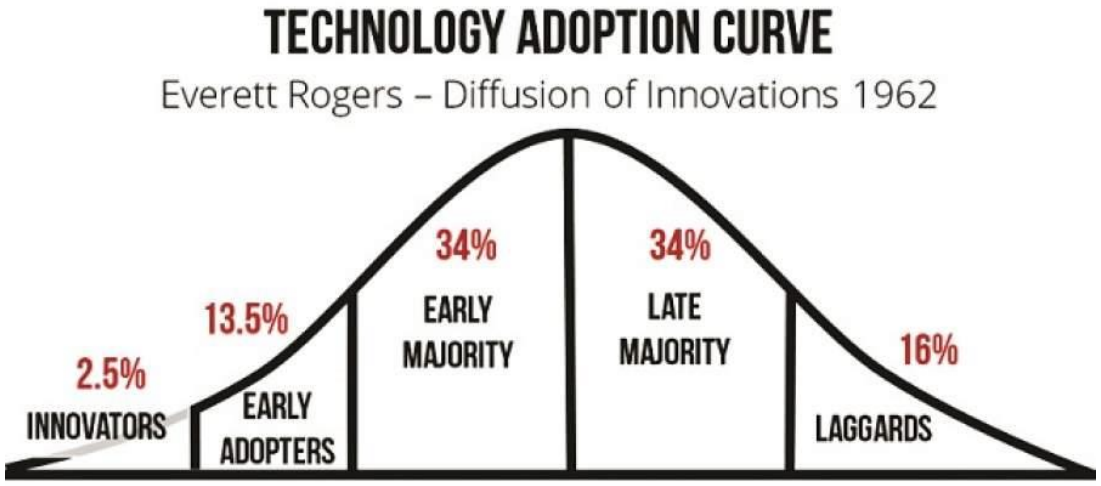
The most famous illustration of innovation diffusion process was developed scientists to understand the sociological model how new innovations are adopted by the users.

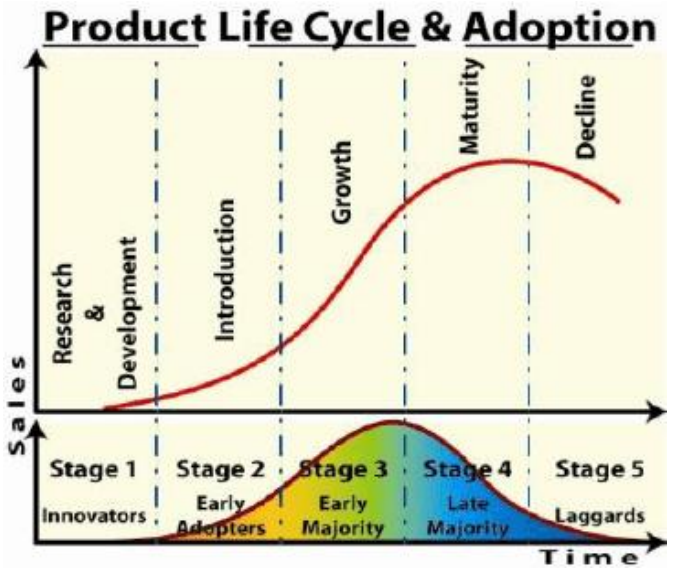
Generally speaking (and there are tens of thousands articles about it), people can be roughly categorized into certaing behavioural groups.

It is important to mention that individuals adopt differently different products at product level (e.g. smart phone, FPS, cryptos).

You might be innovator in first person shooter but then in another product, e.g. owning a PS5 you might be laggard. Theory has not changed but products have. It is often connected to the *product life cycle* (game's life cycle). If after 20 years of existence I start playing World of Warcraft, am I a 'laggard'?

Think of yourself? Where are you in that curve?



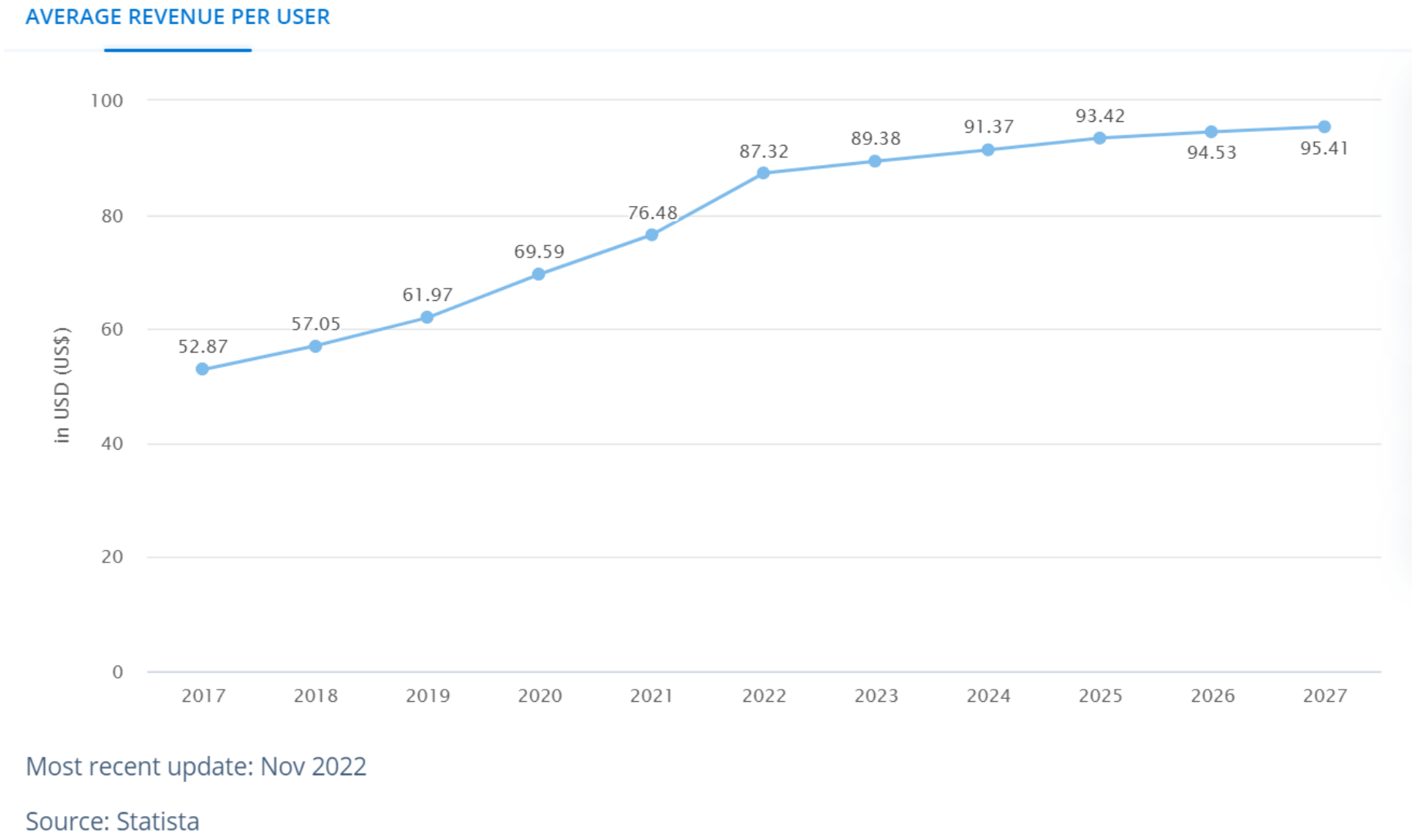


https://en.wikipedia.org/wiki/Technology_adoption_life_cycle
https://www.taylorfrancis.com/chapters/edit/10.4324/9780203887011-36/diffusion-innovations-everett-rogers-arvind-singhal-margaret-quinlan

The average revenue per user (ARPU) in the Mobile Games segment is projected to amount to US$87.32 in 2022.

While there are more players playing mobile games their average spent is increasing too.

It means, different cultures and countries are adopting in-app purchases. In some cases they price points are going up too.



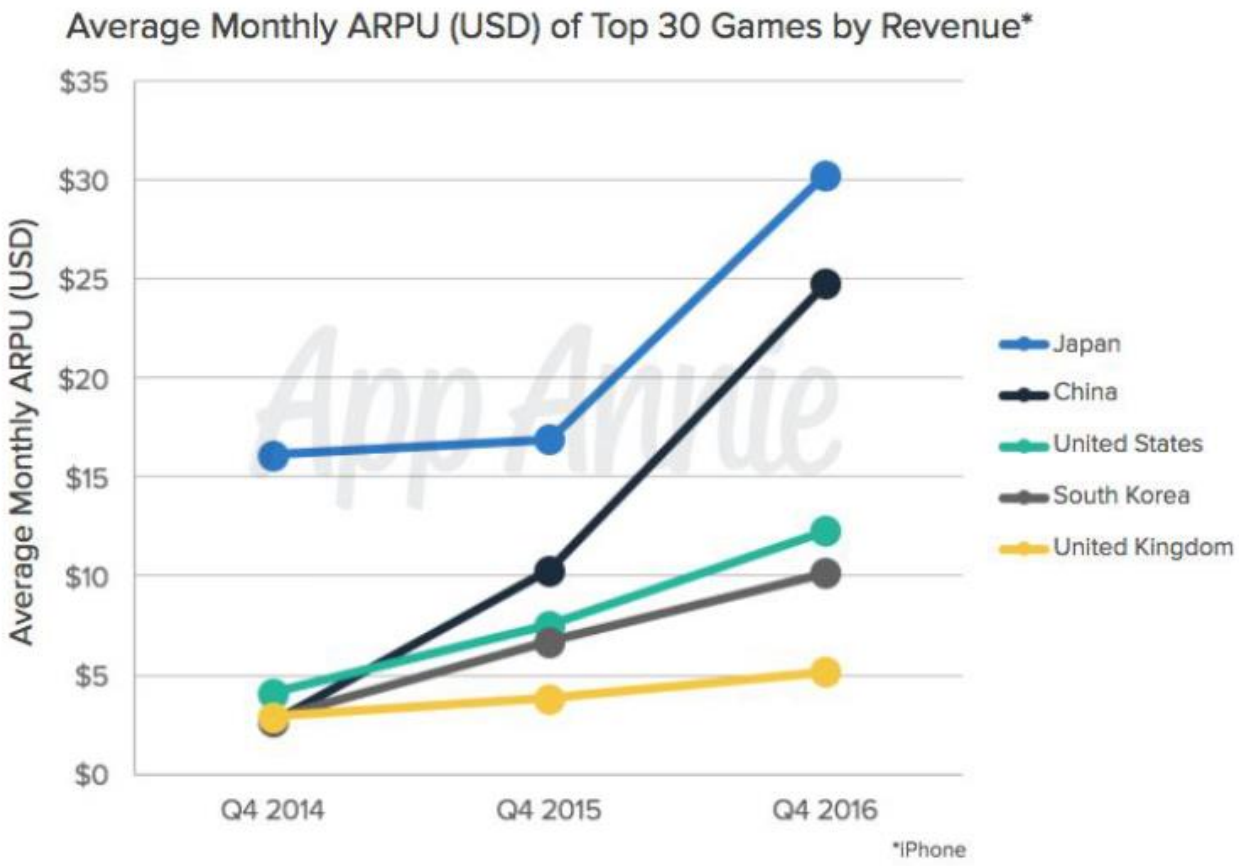
https://www.statista.com/outlook/dmo/digital-media/video-games/mobile-games/worldwide#revenue

Different cultures and countries tend to spend differently money on mobile games. *If you compare this slide with the previous slide there is big increase in spending.*

For instance, Europeans tend to spend less money Than Asian cultures. This can also be debated but It is because Europeans have grown up with a 'pay to play' model where you buy the game once and all content is at least mostly free.

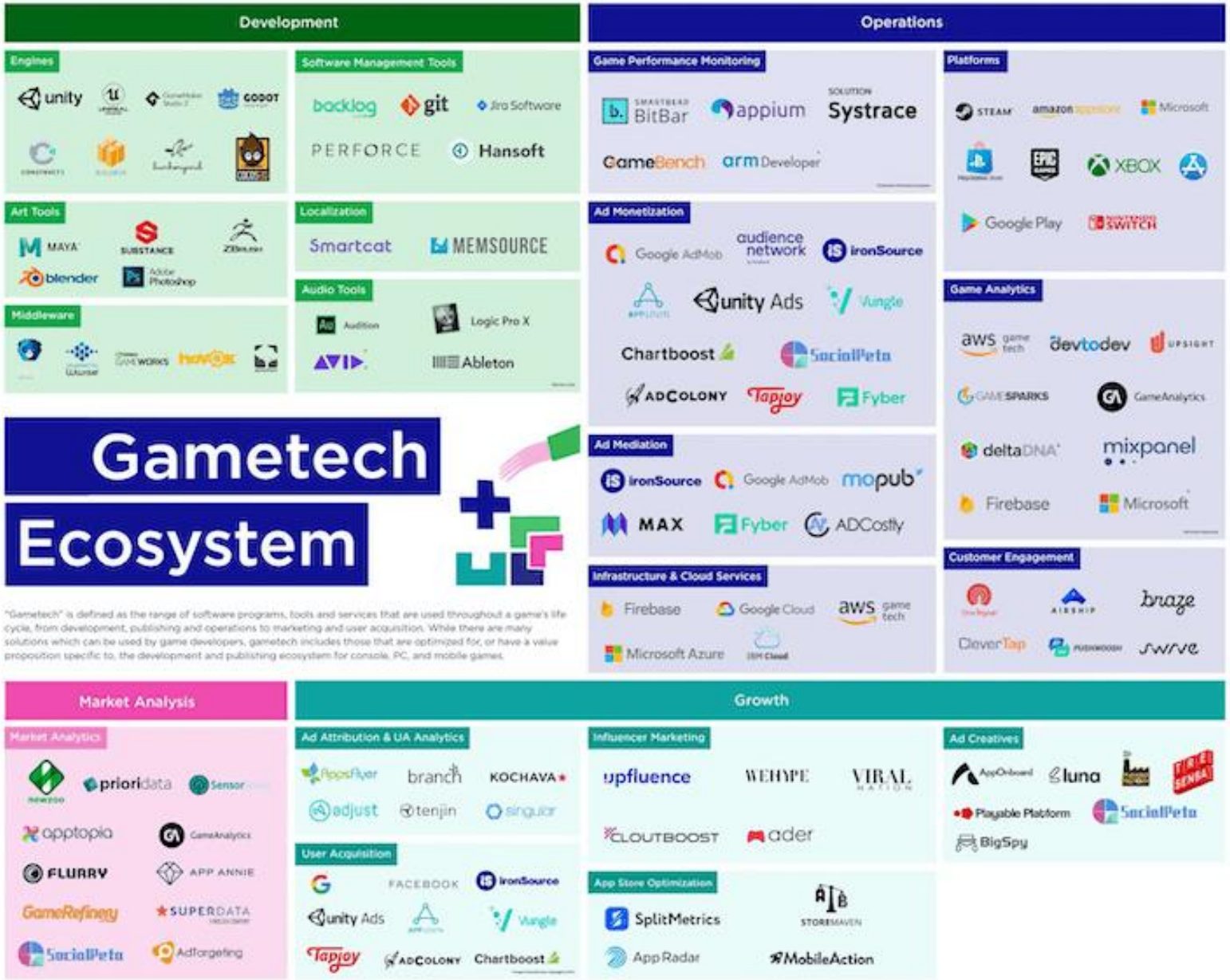
Most Asian countries and cultures are adopting faster the Free-to-play model, where installing the game and starting to play is free But to advance faster or to get access more game content, you have to pay.

Also, a 'pay to win' is a common strategy in the games industry. By paying real money you receive for extra gold, diamonds/ characters/content/weapons etc. you can advance faster and get extra power to beat the competitors. 'Pay to win' is very controversial debated because most players still think you should 'earn your experience' by playing
The game.



Further reading and references: adopted from https://en.wikipedia.org/wiki/Free-to-play
https://www.cnbc.com/2018/05/30/pay-to-win-video-games-differences-between-us-and-chinese-gamers.html

Game technology ecosystem



https://www.businessofapps.com/insights/mobile-gaming-industry-statistics-and-trends-for-2021/

THE GAMES INDUSTRY AS A DEVELOPER

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Value Creation in Games

Management perspective:

Long-lasting intangible value (e.g. IP) that results to **cash** flow and higher share price

Developers' perspective:

Long-lasting intangible value that results

better games in the future

A great game?

Unique characteristics

WOW! → WOM → £

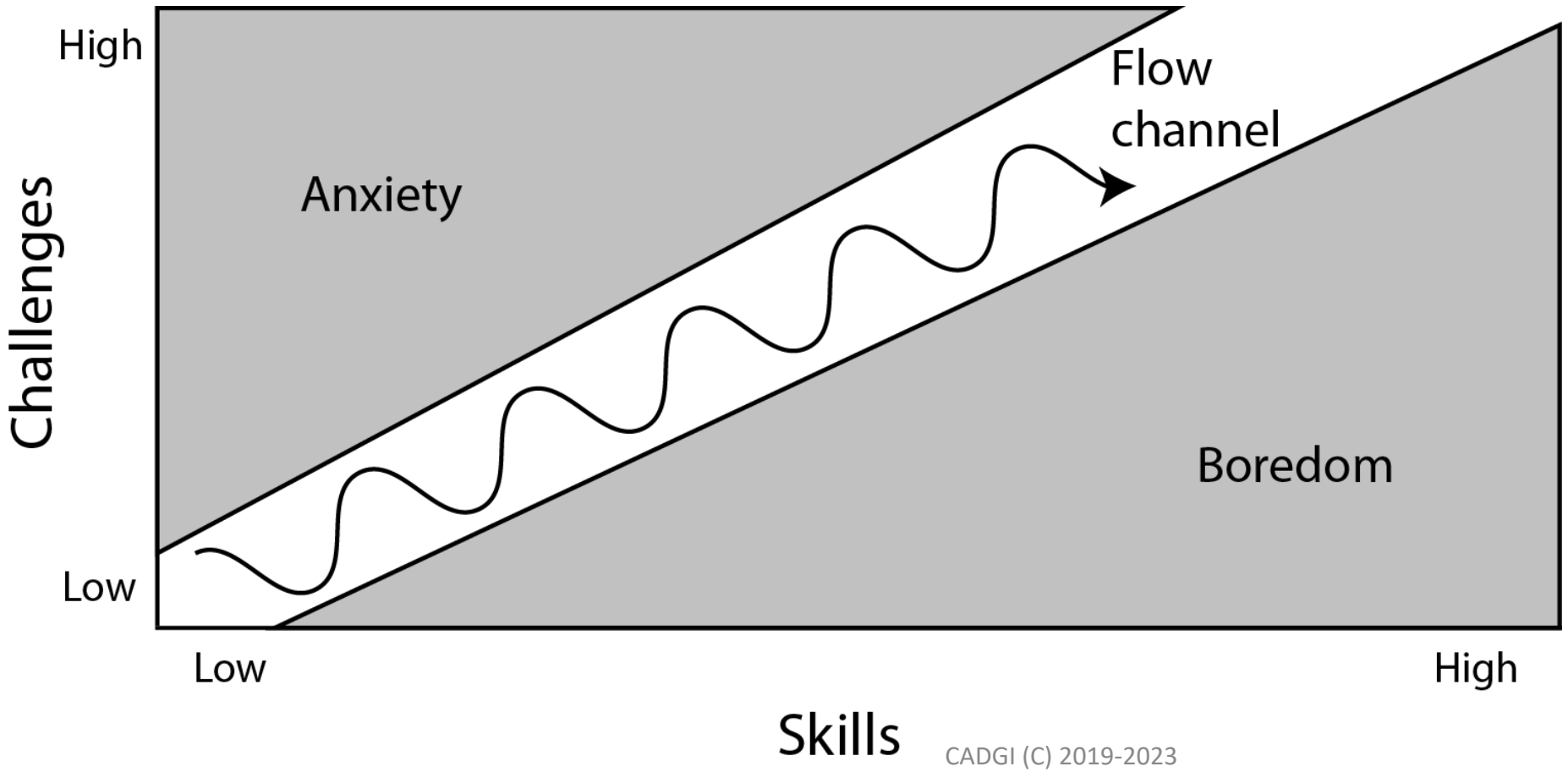
Platform (technology, mechanics)

Type of game (genre)

Demographics and segmentation

Flow theory

In the game development, it is important to understand how the game play flows and how to difficulty level of the game on a zone which keeps the game player engaged.



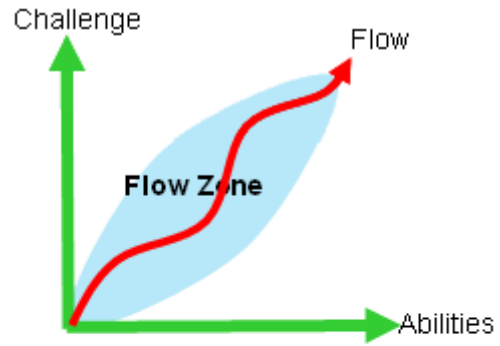


Figure 2 Player in-game Flow experience

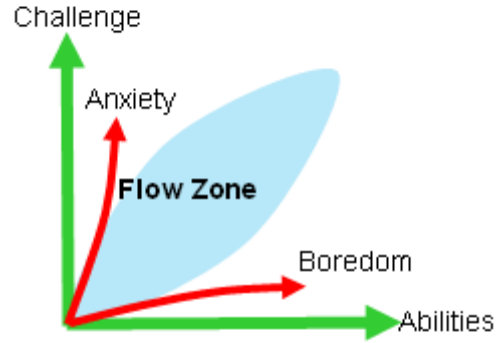


Figure 3 Player encounters psychic entropies

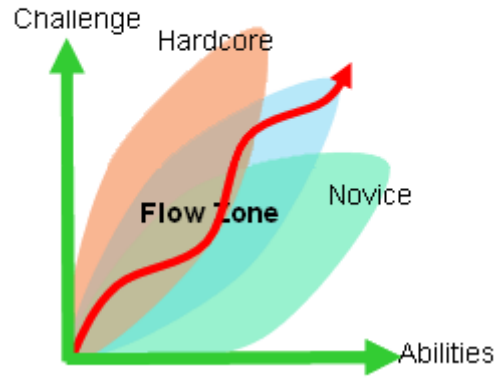


Figure 4 Different players and Flow Zones

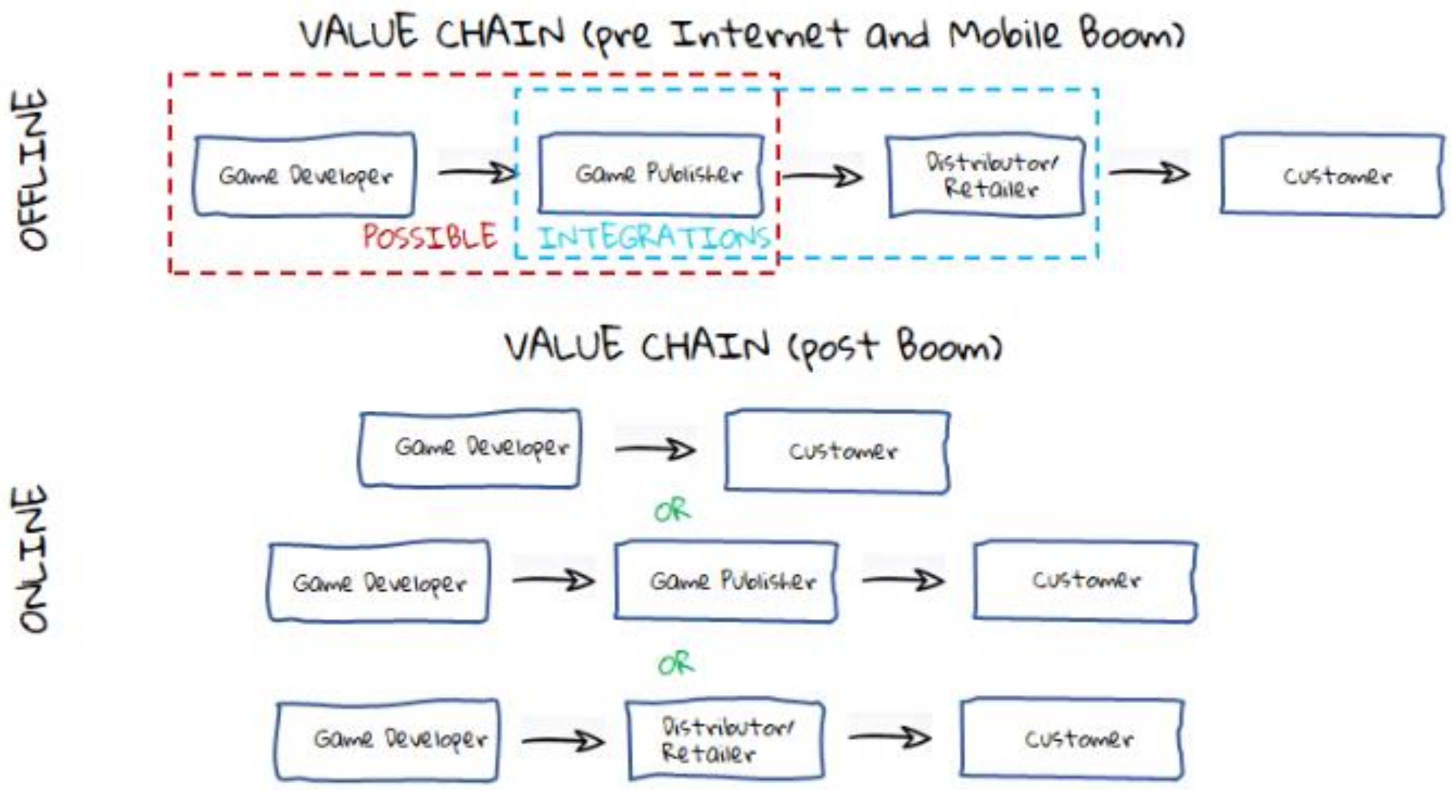
https://www.pursuit-of-happiness.org/history-of-happiness/mihaly-csikszentmihalyi/

An simplified example of Games industry value chain(s) in2020s

Since the birth of the games industry, changes in technology and consumer behaviours have facilitated business models have been invented.

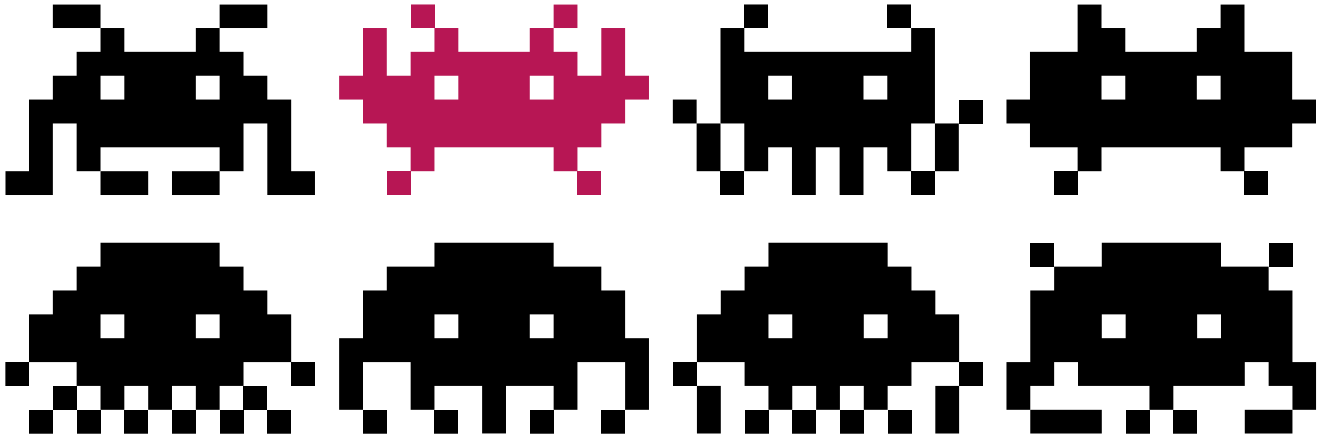
On the right there is a simplified image of how the value chain has changed during the past decades.

Probably the most important change in the value chain happened when internet start to support ‘self-publishing’. Self-publishing means that the game developer takes all responsibility where to publish the game and how do marketing. It also meant that game developer took all responsibility about the games success. Also, it meant that a bigger share of the revenues come directly to the developer.



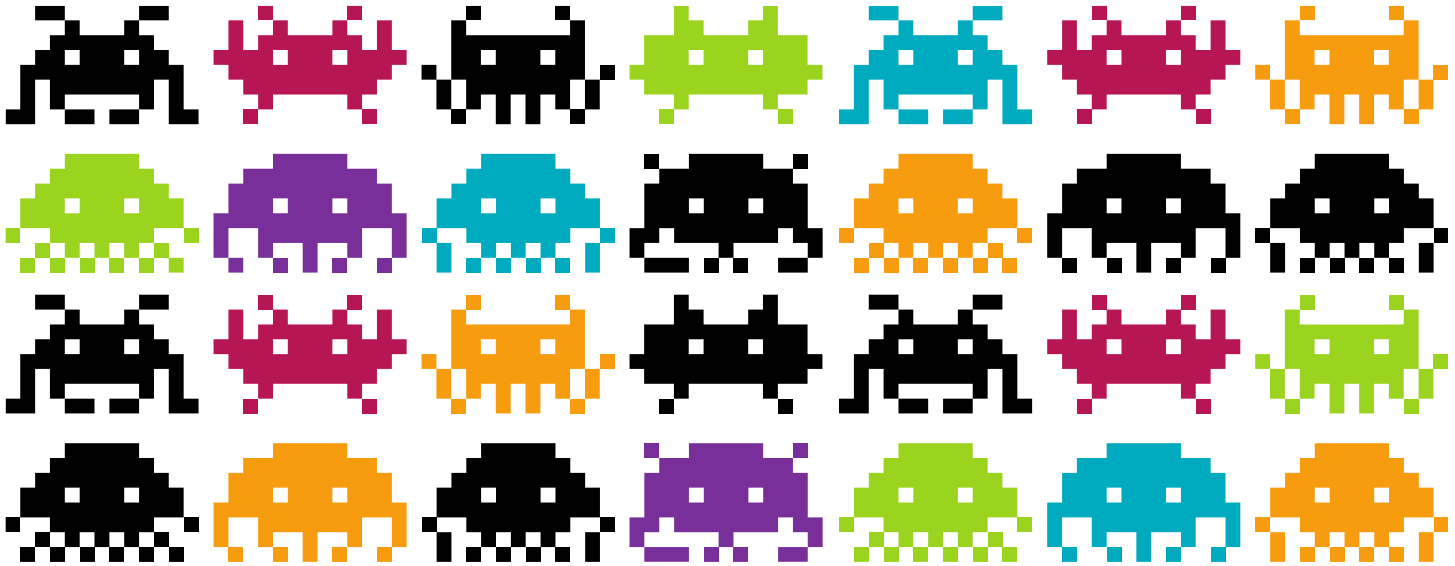
Adapted from reference: https://hackernoon.com/the-gaming-ecosystem-explained-nk1d32ts

Stand out from the mass



me too!

Paradox is that we are like-minded similar but we want to stand out from the mass and still belong to a group.



One statistical analysis development company categorize steam developers by their published games.

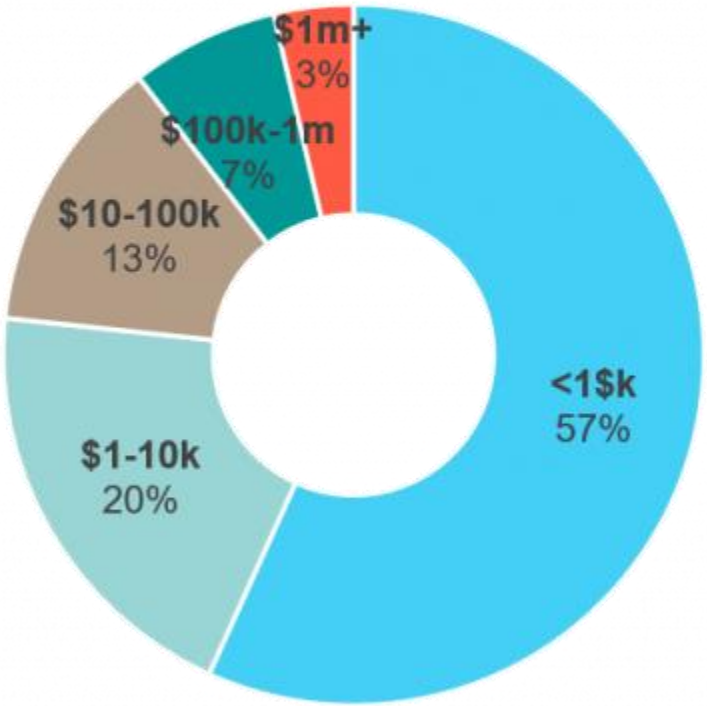
You can notice how the ‘success’ is split between different types of developers.

VGI Video Game Insights

Number of Developers by Lifetime Gross Revenue,

As of Feb 2022 (# of Developers on Steam)

	Revenue	# of Developers
The Learner	<$1k	25,190
The Hobbyist	$1-10k	8,834
The Indie	$10-100k	5,698
The Full-timer	$100k-1m	3,031
The Success Story	$1m+	1,622

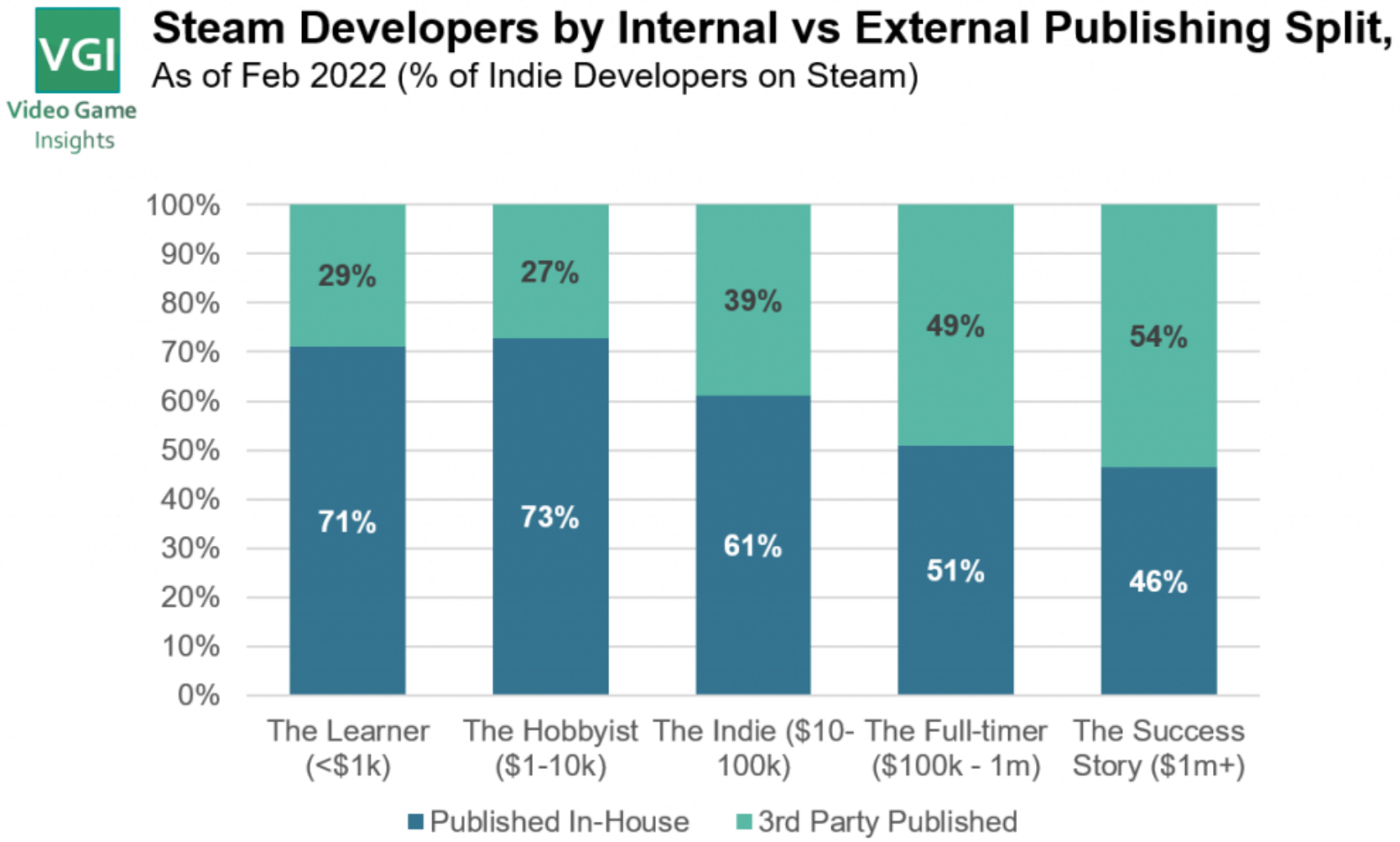


https://vginsights.com/insights/article/what-are-the-highest-earning-developers-doing-on-steam-that-you-arent

Self-publishing has increased significantly since past 20 years.

However, as you see, partnering with a publisher or organisations that can promote your game in the marketplace can be an important source of success.

Partnering is a lot to do being part of the industry ecosystem, knowing people, knowing other developers, sharing ideas and even resources.

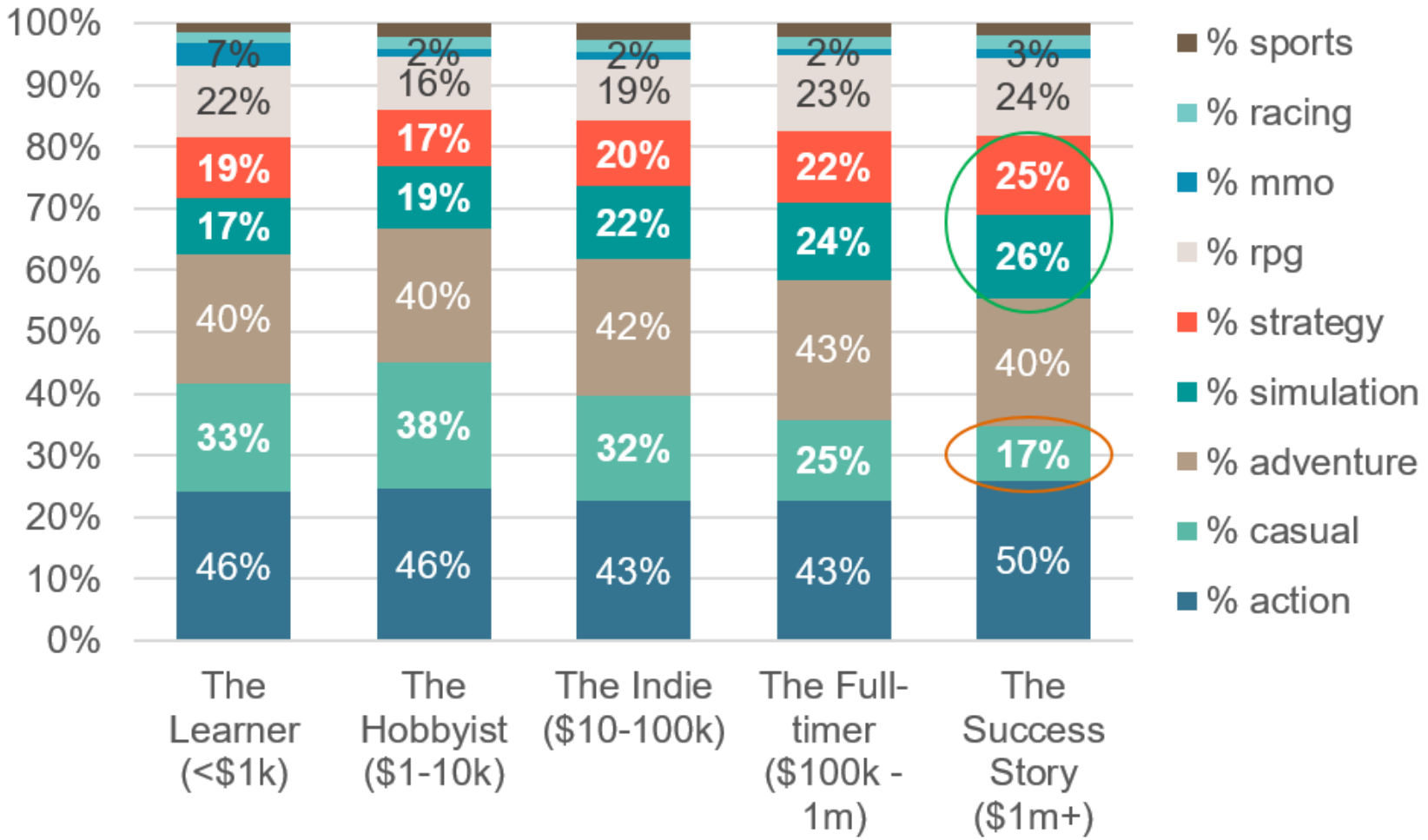


https://vginsights.com/insights/article/what-are-the-highest-earning-developers-doing-on-steam-that-you-arent

Genre Mix by Indie Developer Groups,

As of Feb 2022 (# of Developers on Steam)

Video Game Insights



https://vginsights.com/insights/article/what-are-the-highest-earning-developers-doing-on-steam-that-you-arent

Here you see some statistics from IVGC students.

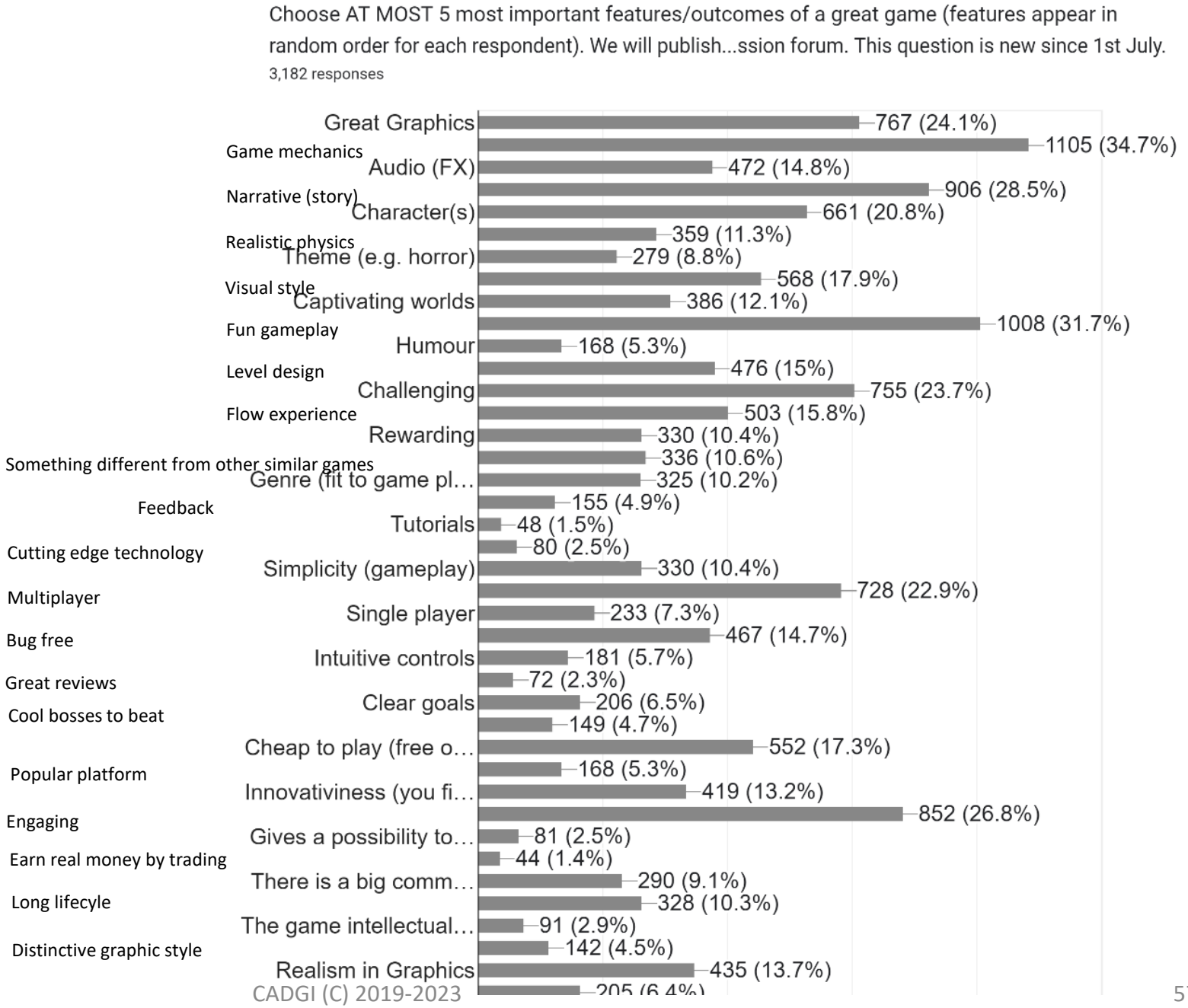
I have asked you to choose 5 most important features of a video game.

Of course, the list of features is a ‘mix’ of different types of things. Also, we cannot generalize this to all population except people similar to these 3000+ respondents.

Have a look. What do you think are the most important features of a video game?

During your game design process, you must make difficult choices about where you put your available resources and what are the best way to use your and your teams’ skills.

Question is would this mix of priorities make a great game?



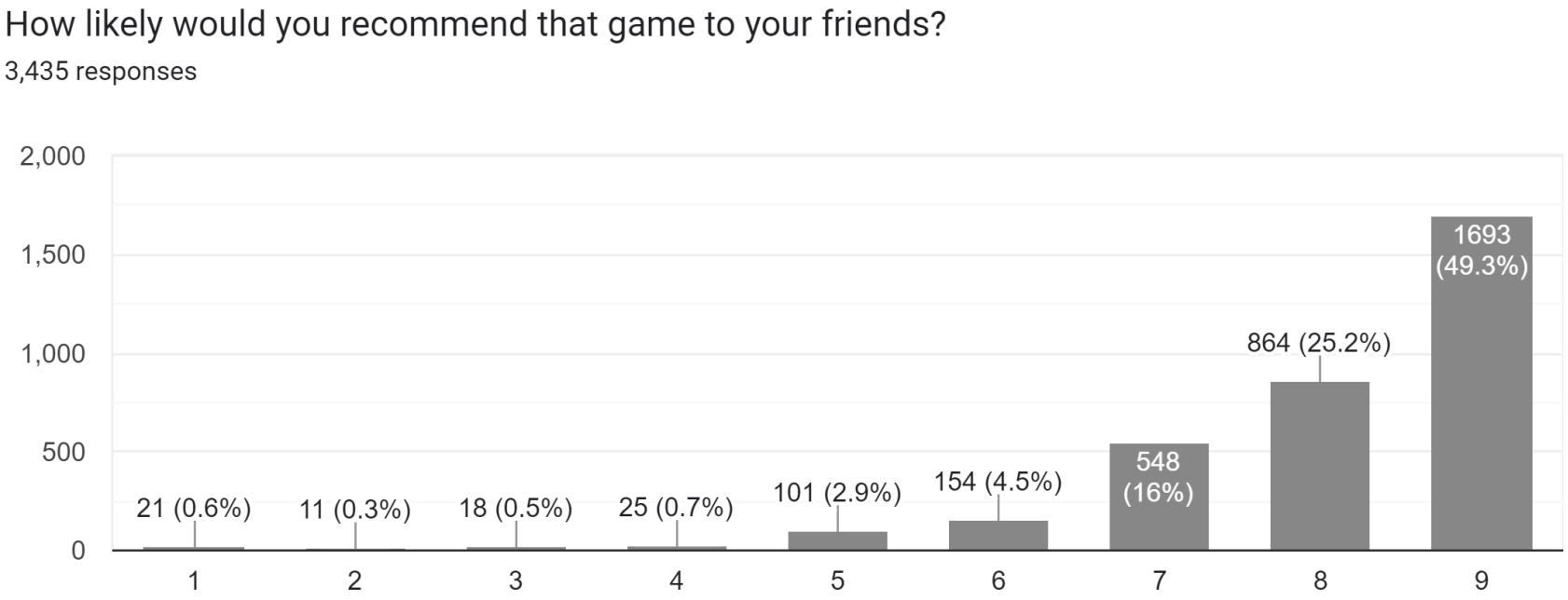
Product recommendation bias by a user

From Module 14: The Game I play now module where you write an essay about the game you are playing at the moment; I ask you a question of you would recommend your game to your friends.

Here you see a very clear **choice bias**. We tend to recommend the products we have chosen because it would be strange to admit a ***bad*** **decision**. Also, we would not tend to play long time a bad game that **doesn't fit to our liking**.

We tend to choose a game we are familiar with as well as what fits to our choice behaviours. Therefore, our recommendation is more likely to happen for the products we consume. As discussed, games are **experience information goods**, they are difficult to assess without trying!

Product recommendation question is #1, the **most important question** you should ask from your user as they are willing to put their own choice in stake.



Similarities among successful developers

“There’s no magic formula to being a successful developer, but the trends are pretty clear.”

1. Successful developers make a **lot of games**
2. Successful developers find publishers, so they can **focus** on what they’re good at
3. Successful developers **specialise**
4. Successful developers focus on **genres that do well**
5. Successful developers adapt to changing **player preferences**

https://vginsights.com/insights/article/what-are-the-highest-earning-developers-doing-on-steam-that-you-arent

MONETIZATION AND DATA ANALYTICS

GROW YOUR GAMES

Monetisation and data

Now you know the statistics of the industry and some of gamer behaviours. Next, you need to think of your own game and how you will position it in the marketplace.

Video game monetisation is the process that a video game publisher/developer can use to generate revenue from a video game product/service. Beyond hobbyists, no revenue means no games made in longer term.

Monetisation strategy is the most important task to plan when considering how to make money out of a game. There are plenty of types of monetization available, it is often a mix of several types. Some of them are very 'creative' such as selling loot boxes or NFTs.

Monetisation of a game is largely based on understanding user behaviours and data analytics (statistics). Most of the successful games do not only publish great games (user experience) but know what the game players like and how they behave while playing a game.

Applied from: https://en.wikipedia.org/wiki/Video_game_monetization

General level monetisation methods

- Retail
- Digital distribution
- Subscription
- Microtransactions
- Downloadable content
- Season Passes
- Player trading
- Advertising

https://en.wikipedia.org/wiki/Video_game_monetization

Different **game play** monetisation strategies

- **Pay to win** (pay for get an advantage compared to other players)
- **Play to win** (advance by completing tasks)
- **Free to play,** no upfront cost to play but usually in-app purchases
- **Buy-to-play**, pay once, play forever
- **GaaS** (Games as a service), e.g. monthly payment
- **Play-to-Earn**, reward players for their time spent
- **Play-to-Earn Crypto**, also NFTs
- **Loot boxes, Call of Duty (skin, that people could not recognize)**

https://en.wikipedia.org/wiki/Video_game_monetization

https://www.business2community.com/cryptocurrency/best-crypto-games

Paying to Win

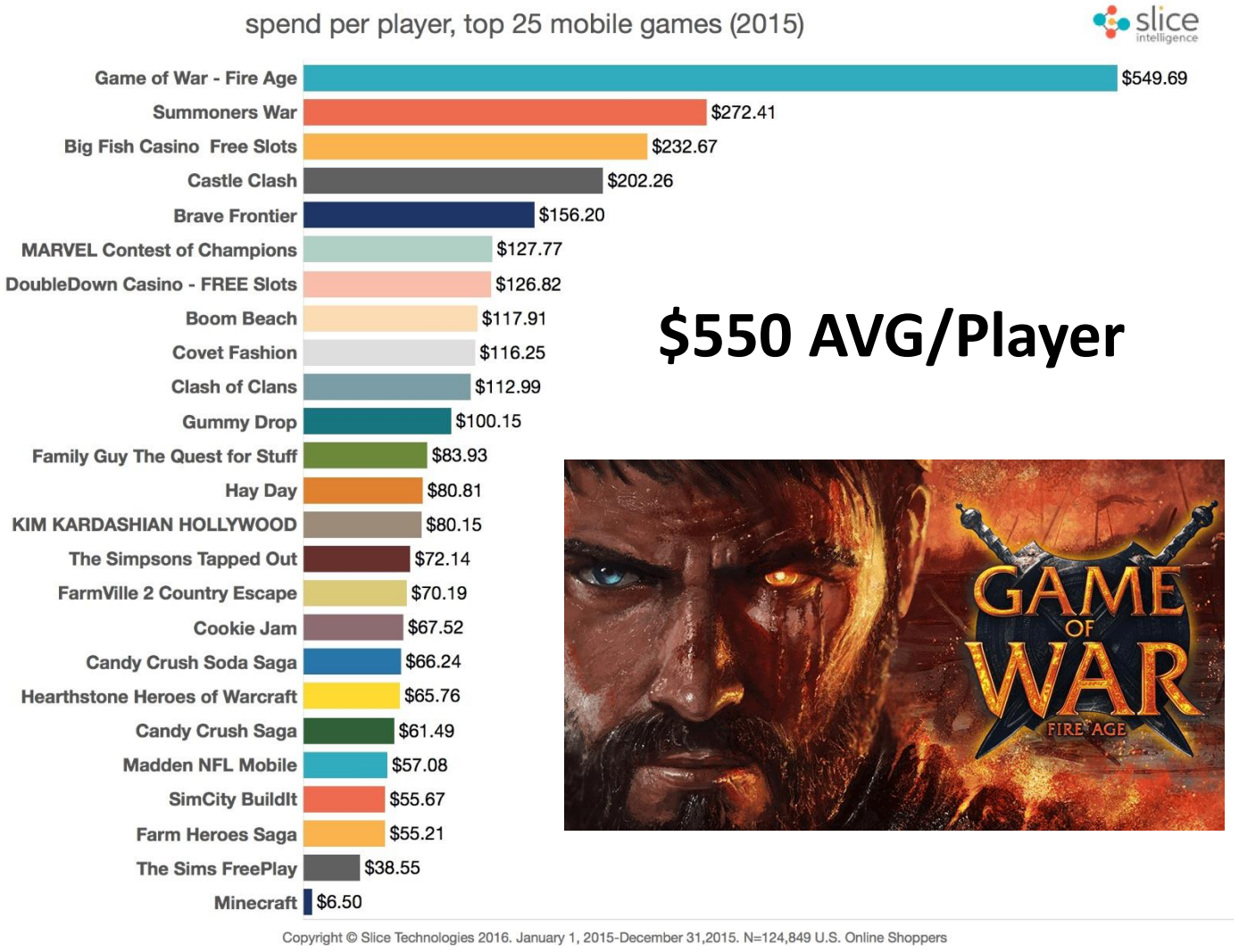
The point of this graph is to show
That each game has a different ‘pay to win’ profile.

In some genre and games people are willing to play a lot of real money to win in the game.

Marketing play a important influence on people’s choice behaviors.

“Game of War: Fire Age is a freemium mobile massively multiplayer online strategy video game developed and published in 2013 by Machine Zone (now known as MZ). The game had a high-profile advertising campaign and was one of the top-grossing apps in 2014 and 2015.”

References:
https://en.wikipedia.org/wiki/Game_of_War:_Fire_Age



$550 AVG/Player

Examples of reasons for Willingness to Pay

- Innovation&fun
- Consumer purchasing power
- Changing behaviors
- Game genre
- The life cycle of the game
- Monetisation logic
- Relevant game mechanics
- Timing
- Big Data

– Reviews and respect
– Pricing, Value
– Give a reason to pay
– Target group
– Long, 5+ years
– Smart, existing
– Engaging
– By type
– Analysis, implementation

Extension to other platforms and other types of software products

Data Analytics, definition

In simple terms, games data analytics, is about analysing the numerical data gathered from the game for the use of

1) Improving game **play experience** (retention)
2) Improving **monetisation** possibilities (revenue)
3) Understanding game play **behaviours** (e.g. difficulties)

Data is #1 source to understand game player behaviours.

It is a complex science, and you need to have skills in statistics to analyse and understand data properly.

Data analytics is closely connected to **Key Performance Indicators** (calculations about user behaviours) and **Monetisation strategies** (making money from the game product and selling virtual goods)

Further reading

https://medium.com/activewizards-machine-learning-company/top-8-data-science-use-cases-in-gaming-de1f429ae651

A game's success is often measured with a selected set of KPIs (Key Performance Indicators)

It helps a game studio to understand the success and also the problems the game might have. There are MANY indicators to look at.

It is commonly accepted (can be debated, but depends on the context) that the most important KPIs for games are

ARPU – Average Revenue Per User. This describes how much money the player is spending in the game. Check stats from previous slides.
LTV – Lifetime Value. This describes how much money in total each player spends in the game. Can be during several years of time!
CAC – Customer Acquisition Cost. This is the money that you need to spend to acquire a new paying user/download or any other conversion target. Very important measure for the marketing department.

Retention Rate – The number of users that come back to play the game, in calendar time. This is about your customer loyalty. A bad retention rate means the game has serious issues; a good retention rate means it is engaging.

There are many more statistics game studios/publishers follow of course, including the most important one which is the actual **sales** and at large, **profit**.

Further reading and formulas can be found e.g. from this source
Adopted from https://gameanalytics.com/blog/50-kpi-measure-mobile-game-app.html

70b$ in Virtual Goods worldwide

Virtual goods are non-physical objects and money purchased for use in online communities or online games. It is the most common way nowadays to monetise a game.

Habbo Hotel (https://www.habbo.com/ / https://en.wikipedia.org/wiki/Habbo) was probably the first ever game like social networking service that invented virtual goods which are now used as the main source of revenue for games.

Their strategy was very simple but extraordinary at the time of creation in year 2000. They gave a free access to anyone to get a 'hotel room' for room. However, the hotel room was empty without any furniture. The magnificent idea was that users must pay real money for credits to spent on virtual furniture to decorate their hotel room.

They also had other types of virtual currencies like Diamonds and seasonal currencies.

For instance, Habbo Hotel made revenue over $74 million in 2009 by selling virtual furniture.

The service is still open, even it went through some serious trouble about Moderation of the discussions. Changes were made and it is a 'safe environment' for teenagers to play.

https://techcrunch.com/2009/03/30/habbo-pulled-in-74-million-in-real-revenues-last-year-from-virtual-goods-and-advertising/

Paying for what? Examples of where game players spend real money

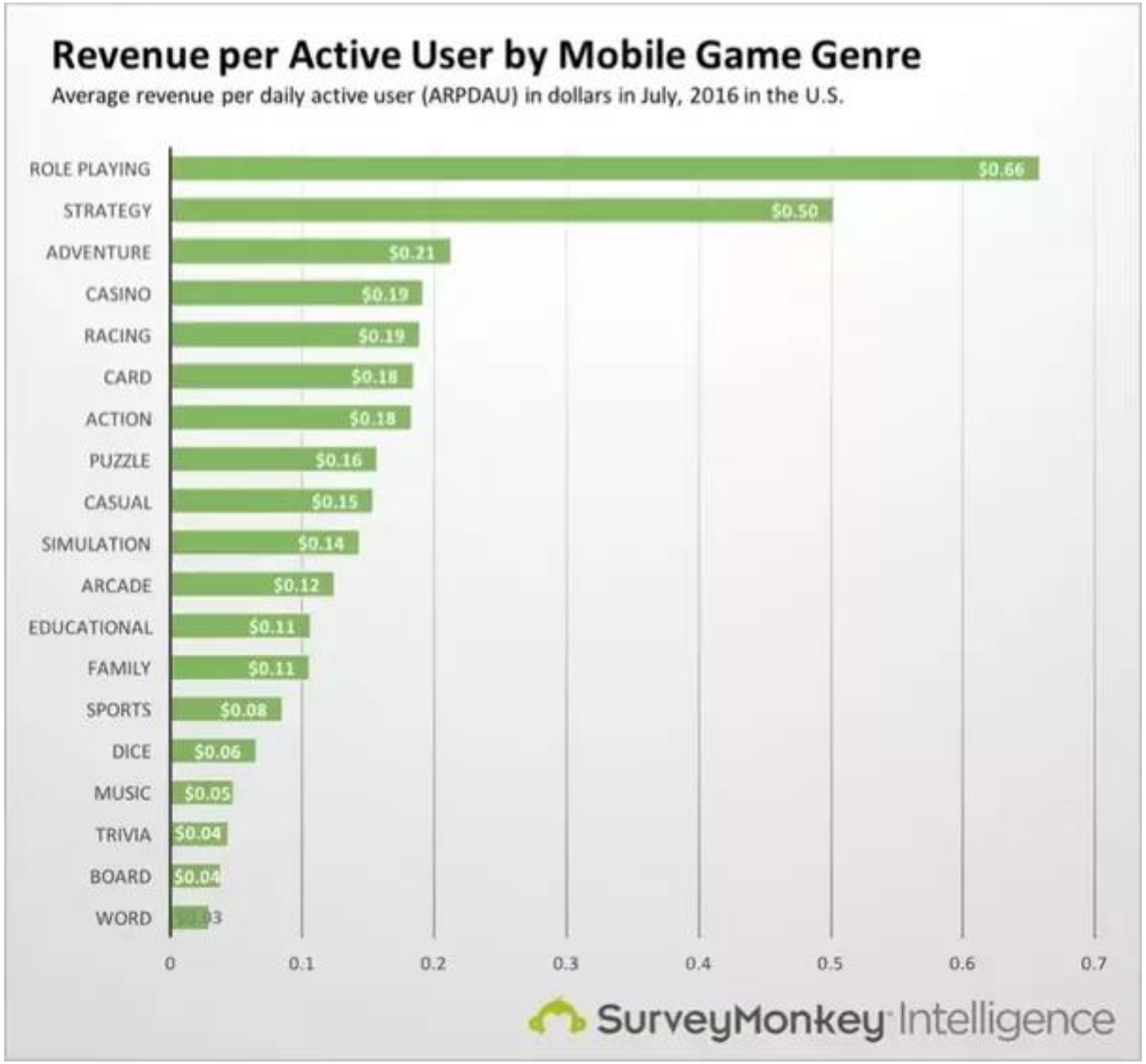
- New levels, content
- Resources
- Permanent game-affecting items
- VIP access
- Expanded options
- Progress and performance boosts
- Wait-time reduction
- Permanent cosmetic items
- NFT (non-fungible tokens)
- …new items coming all the time

The reason for choosing the image on the right is to show that different game genres tend to have different consumer spending profiles.

As you can see, role playing often make in average higher revenue per user than for instance trivia games.

The point is, that you need to carefully look at different game genres (type of games), their potential and then position YOUR game into the market place.

The reasons for differences between genres vary of course. Most often it is the game player profile behind the scenes that matters the most. E.g. on 30 year old man spends more in games than a 57 year old woman.



Why games studios that successfully sell virtual goods are so profitable?

There is NO a simple answer as the games industry is **brutally competitive.** From economics point of view it is all about MARGINAL COST and MONOPOLISTIC competition in the game.

Loose definition is that Marginal Cost **is the cost added by producing one additional unit of a product or service which in software business like games approaches to zero cost (no cost at all to add a unit in the market place).**

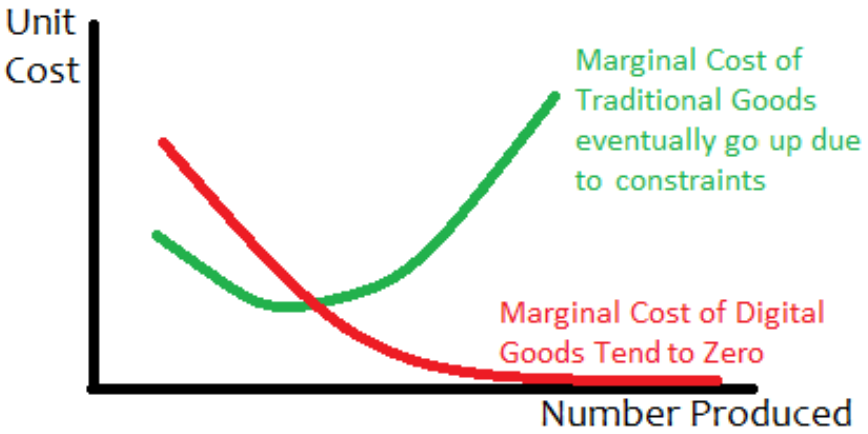
Monopolistic competition characterizes an industry in which many firms offer products or services that are similar, but not perfect substitutes. Barriers to entry and exit in a **monopolistic competitive** industry are low, and the decisions of any one firm do not directly affect those of its **competitors**. (https://www.investopedia.com/terms/m/monopolisticmarket.as)p

So producing or publishing a new game is almost zero cost to the game publisher. However, this is not completely true because high expenditure spent on marketing nowadays.

When the game player is in the game, and if the experience is good, the game owns the user and there is **NO competition** in the game for the demand and supply of in game virtual goods.

Therefore game publisher can manage the internal economy alone and price the goods according whatever the users are willing to pay.

Supercell (https://www.ft.com/content/a0ac39d6-2ec0-11e9-8744-e7016697f225) is probably the most successful mobile gaming studios taking advantage of this idea. For instance in 2018 an amazing 1.37 billion euro with only 283 employees.



Further reading about Marginal Cost of Production
https://www.investopedia.com/terms/m/marginalcostofproduction.asp
Adopted from
https://ckluis.com/the-marginal-cost-of-software-approaches-zero-7fda166f219f
https://praxtime.com/2013/12/16/average-is-over-could-use-more-zero-marginal-cost-economics/

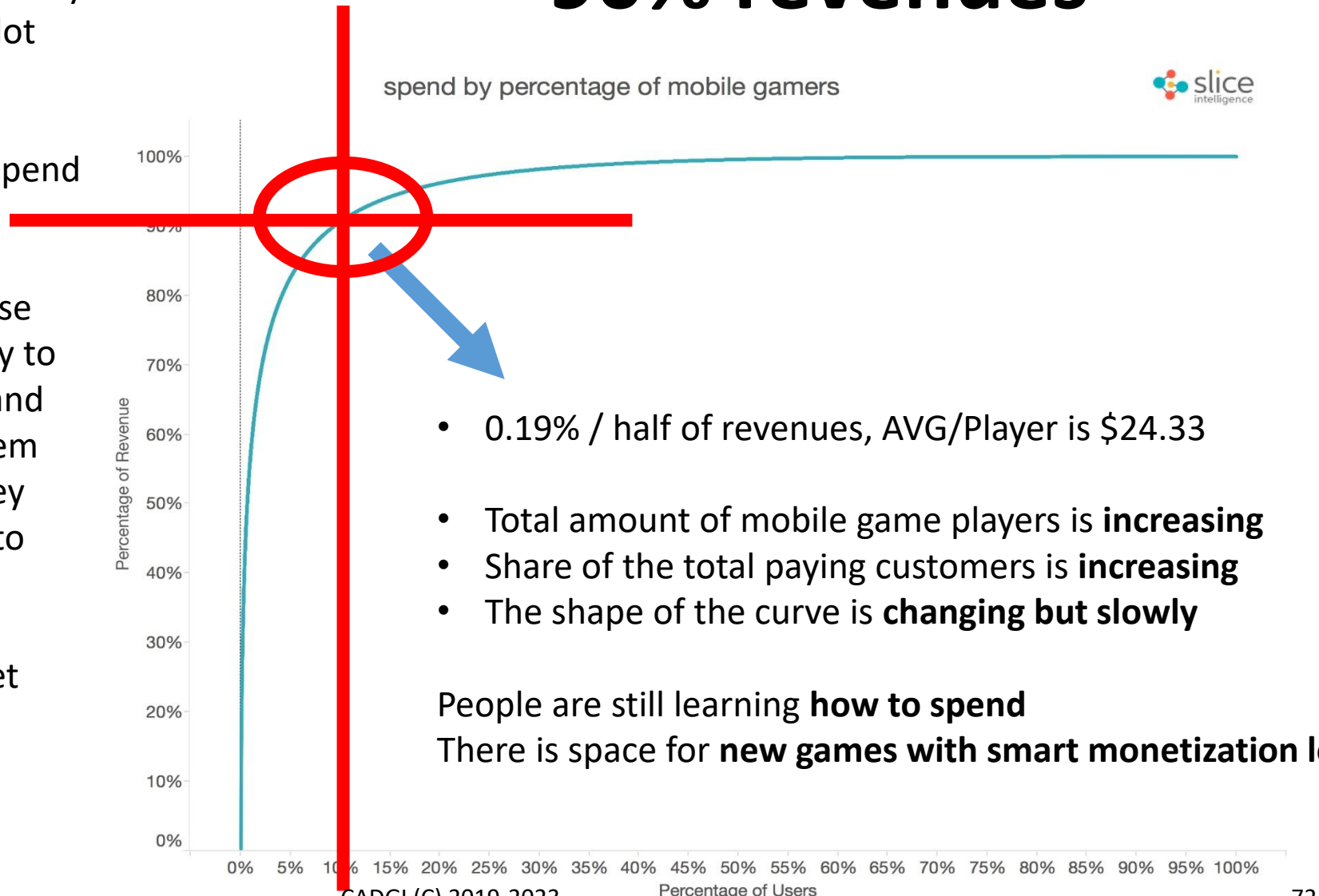
“10% players pay for 90% revenues”

People are getting used to spend money on in-app purchases but there is a lot room for growth.

Most of the game players do NOT spend money to in-app purchases.

The point is, you need to know those players who spend the most and try to attract such players to **your game** and make those who do not pay get them items that are so attractive that they change their behaviours (not easy to do!).

Whales who spend a lot and can get even like VIP access, and special.



- 0.19% / half of revenues, AVG/Player is $24.33

- Total amount of mobile game players is **increasing**
- Share of the total paying customers is **increasing**
- The shape of the curve is **changing but slowly**

People are still learning **how to spend**
There is space for **new games with smart monetization logic**

THE ECONOMICS OF VIDEO GAMES (A BYTE OF IT)

GROW YOUR GAMES

CAMBRIDGE ACADEMY
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AND INNOVATION

Simple Finance: Risk vs. Reward

Typically, **the more risk you take the more reward** you should get for your investment. The games industry is a good example of an industry where the cost of producing a game is mostly **upfront** without knowing if the game will make the investment back. There is a high risk taken which might end up losing the investment (time, money). Movies and music are similar industries.

High risk but potentially high reward!

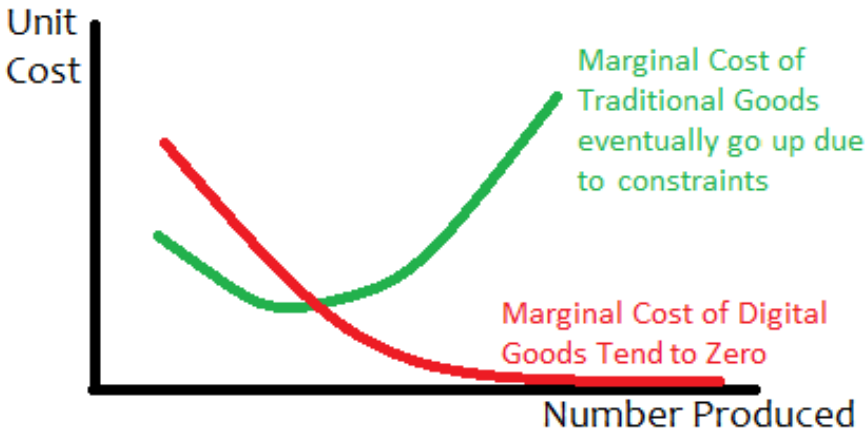
When the game is ready to be published it is relatively easy make copies of it, that means the cost of producing a new copy will come down quickly.

Simplified example:

For instance, if the cost of the game was 1.000.000$, producing one copy means a cost of $1m/1 copy, 2 copies $0.5m and producing 1m copies would make the cost $1/game. **The more copies you sell the cheaper a copy gets (until to a certain limit)!**

Digital distribution has revolutionized the way games are made available to game players. That is why there is practically no ‘waste’ product produced or sold (vs. discs).

Obviously, there are other costs than production, specially; marketing (user acquisition) and maintenance.



In-game economy is a ‘monopoly’ - NFTs

One of the most common, if not the most common way of making money with games is to include **in-app purchases** in them.

It means something sold in the game against **real money** such as power-ups, time reductions, skins, level-ups and enhanced other features. Just to mention, there are other “payments” than just real money e.g., playing (spending time with the game to earn in-game currencies and being loyal to a game).

In-game economy is basically in the **hands of its developer.** Developer (e.g. game studio) has full rights to design, develop and decide how the in-game economy works. The reason why it is a in-game monopoly, is the reason that there is no external power, real competition between developers’ items and services and external party’s supply.

It is an interesting phenomenon for many reason. Firstly, there is **no** usual **market** level supply-demand based pricing. The games do compete for the gamers fiercely but when the gamer is in the game, gamer **can only buy and use what is available** in the game. E.g. you cannot carry Pokemon XP/Items to World of Warcraft XP/Items. Each of these in-game elements has a value in money for the developer. Such market opening and transparency would **disturb the in-game economy and spoiling the in-game monopoly of items and sales.** To mention, there are currently discussion how such exchange would happen in a way that it would benefit all. However, game-play perspective speaking all games are different in many ways and their items as such are not realistically transferred (as now) as they are but there should be value-based exchange organised between them (conversion).
Pricing strategy is based on behaviors of the players and price points are designed to match gamers purchase power and traction.

Secondly, the **scarcity of the products depend on the decision made by the developer**. They can make decision such as there is only 100 certain items available which, for game players mean more prestige by owning them. This phenomena called NFT (Non-Fungible Tokens) is now growing fast. In a market economy it means that rarity of an item makes it more desirable, wanted, valuable and if in demand, more expensive to get. Good analogy is for instance Pokemon cards and The Bored Ape Yacht Club.

THE TRENDS

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Video Games Industry Trends

1) Cross platform video games, games that work on e.g. PS/PC/Android
2) NFT Games and blockchain, games that let you trade items and earn them
3) AR and VR Games, VR games are coming now faster thanks to ‘metaverse’
4) AAA games, high budgets, high returns, most expensive game $500m budget.
5) MMORPG, yes, still
6) Hypercasual games, very easy to start and play, even play automatically
7) Games in movies, plenty of examples
8) Competitive mobile multiplayer games, Apex and others.
9) Unity3D development goes strong, most used development platform.

https://www.ediiie.com/blog/gaming-trends/

https://moonmana.com/blog/video-game-development-trends/

Immersion – *Fortnite* and *Animal Crossing* are the best examples of gamers looking for more immersive worlds. As seen by the increases for simulation, battle royale, and open-world games, gamers are increasingly looking to persistent virtual worlds as places they can inhabit.

Competition – Genres based on competitive multiplayer, like MOBAs, and particularly battle royale, have seen rapid growth. It's difficult to overstate the impact of *Fortnite*, not just in its own right but in how it's inspired other franchises. Servers are now much more comfortable hosting hundreds, if not thousands of players at once, creating more powerful social experiences through gaming software.

Cognition – Gamers are going a step beyond casual play. Characterized by problem-solving and reward mechanisms, these games are more of a "lean-forward" experience. Party and rhythm/music games have fallen in popularity as the pandemic has reduced the scope for local multiplayer. There are still plenty of casual gamers, but on the whole, we're seeing gamers look for more mentally stimulating experiences, likely exacerbated by the need to fill free time during lockdowns.

Trending genres

% growth of internet users who have played a game in the following genres in the last 12 months, since 2018

GWI Core Q3 2018-Q4 2020 1,218,817 internet users aged 16-64

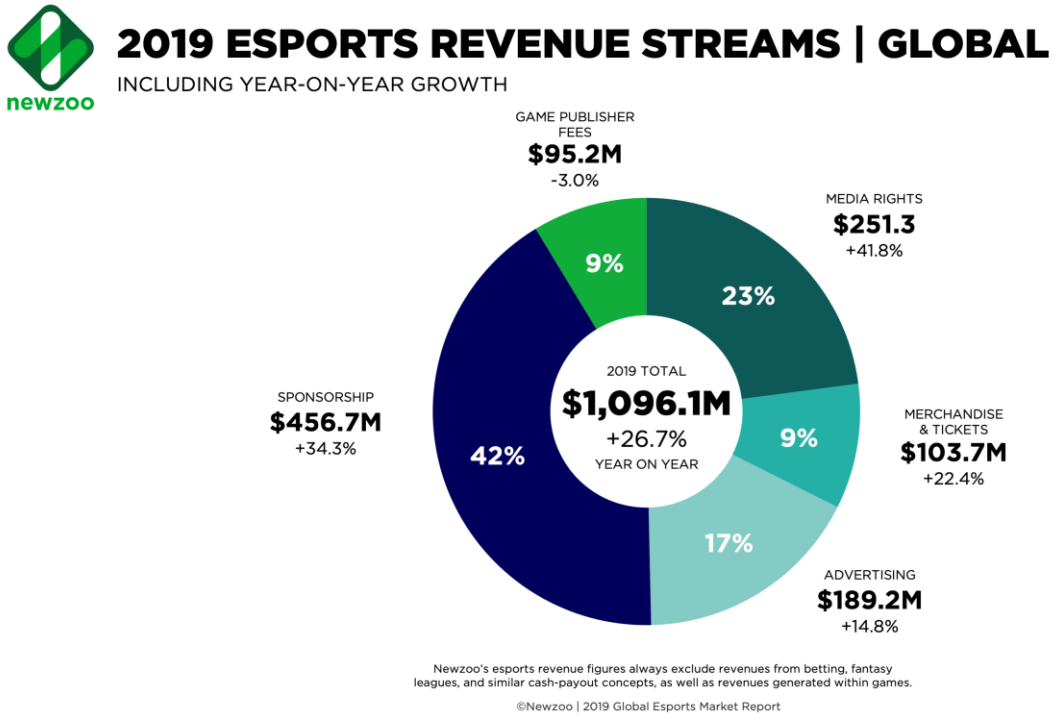
How about eSports?

Growing fast, fan base and ‘commodised’ among hard core gamers.

1) Sponsorship money is going to support eSports professionals
2) More and better eSports games are published
3) Competitive games sector will grow

(instead of single player campaings)

4) eSports is actually a sport, not just playing a game.



As an example, the most popular sports to play or follow among young people (<30) in Finland is **eSports.**

StarCraft2 – Joona “Serral” Sotala
1st ever non-South Korean
World champion in StarCraft2

Follow the games industry

I have shared many useful links about games industry at IVGC.course Discord group

Chat with your fellow students at IVGC.Course Discord community

Games Business News / Jobs
https://www.gamesindustry.biz/

Game consumer behaviour data
https://www.limelight.com/resources/white-paper/state-of-online-gaming-2018/

About the games industry, conclusion

Video games were always intended to be ‘massively multiplayer’ but the technology did not support that philosophy well until the internet came around. Thanks to the internet, billions of people every day share their game play experiences with friends. It is an amazing industry, but not easy to enter, that keeps reinventing itself again and again.

The ultimate purpose of video games, in my opinion, is to be social and learn how be social, share fun experiences. During this course we are trying to inspire YOU, rather than only play games to DEVELOP your games and learn new skills which will support your career whatever you will do, even beyond games.

Dr. Jan Storgårds

Course Leader

Introduction to Video Games Creation

Module 13: The Games Industry and Data Analytics, 1 ECTS

Dr. Jan Storgårds (c) 2021
Course Leader