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40 years of innovations and economic models learnings in the video game industry

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My research and my interests

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GLOBAL EVOLUTION

- **In 40 years, th video game industry evolved**
  - From geek to long tail and global industry
  - From physical to digital online distribution (& full digital)
  - From one gaming platform to multiple platforms
- **This had in turn significant impacts on**
  - The industrial organization: structure, competition and strategies.
  - The business models
  - The ecosystem

Plan

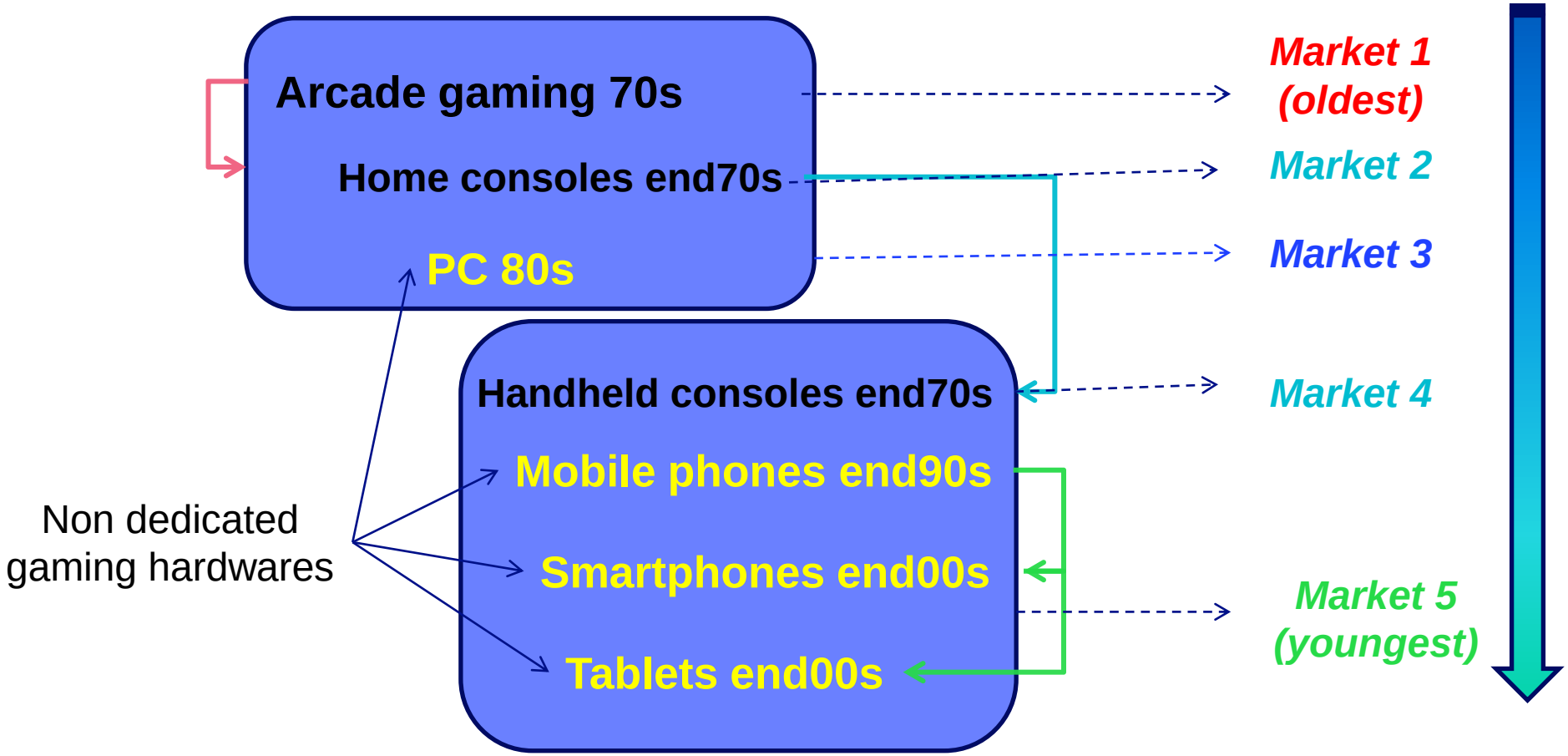
1. Markets, actors and competition
2. Learnings and breakpoints and from innovations
3. Conclusion: Evolution of the ecosystem

1. Markets, actors and competition

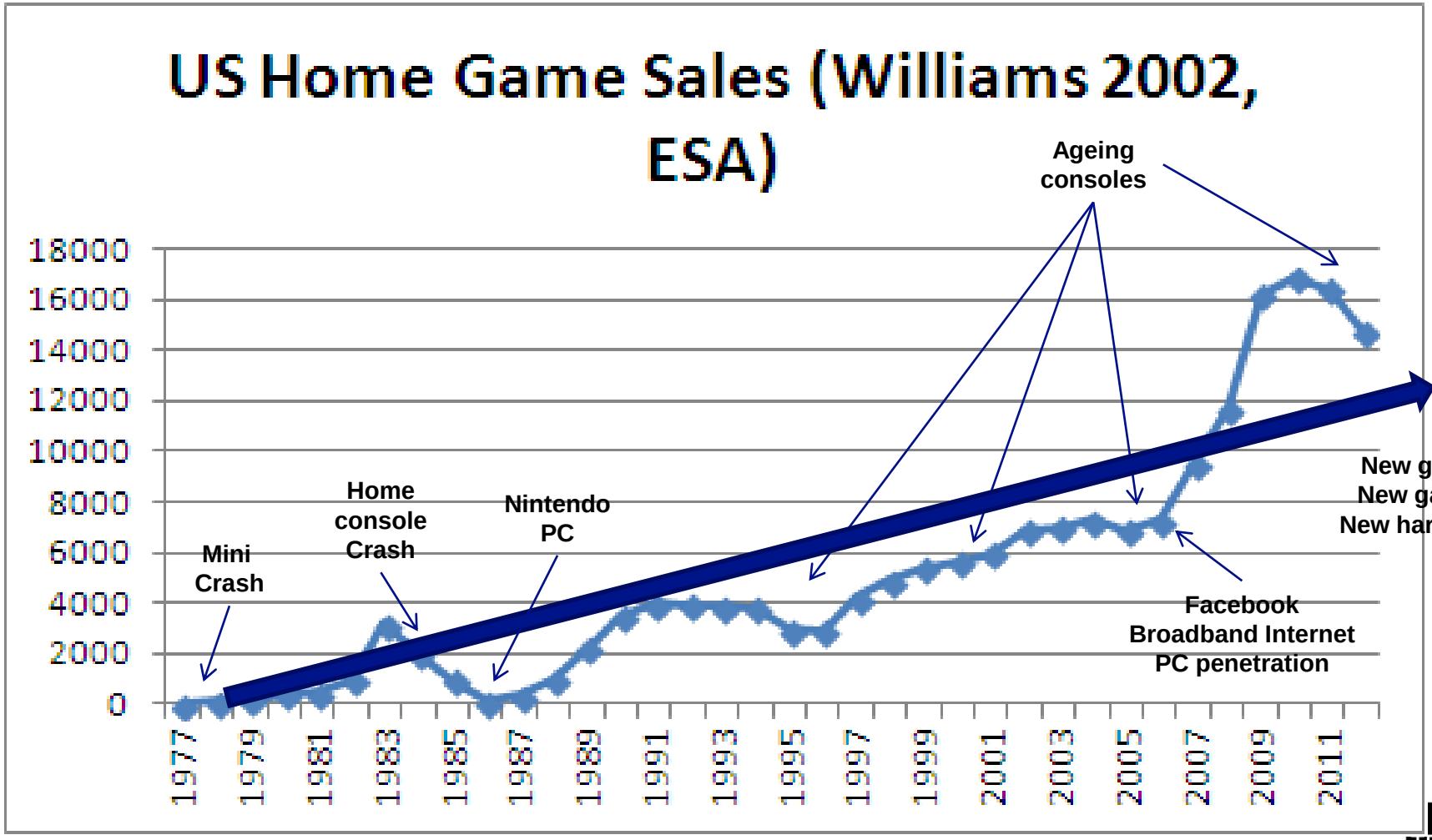
Reminder: some definitions

- The VGI is an interactive media industry
- A video game is an entertainment software used on different technological platforms or hardwares and some peripheral devices.
- Each time a new hardware appears, creation of a new market (arcade, console, PC, handhelds, mobile and social platforms) with its technological specificities => impact on the game design
- The game software is produced, published and distributed by different firms or the same firm
- Sometimes firms produced soft *and* hardwares (home/handheld consoles)
- Industry highly dependent on innovations

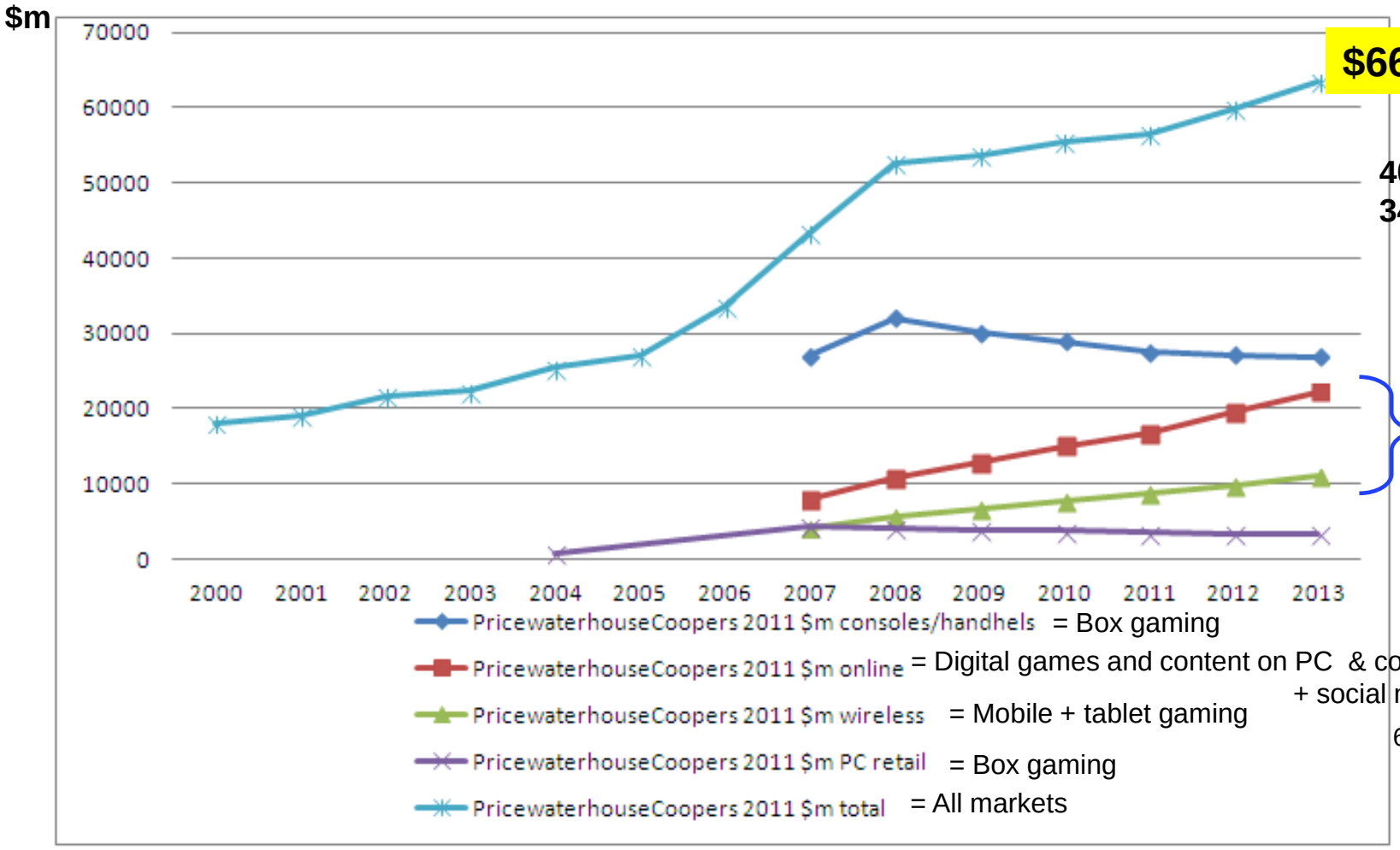
Genealogy of competitive hardware markets



A growing software industry



Global revenues by markets (except arcade)



$66b in 2013

40% US
34% China

2 growing segments

= Box gaming

= Digital games and content on PC & consoles + social network

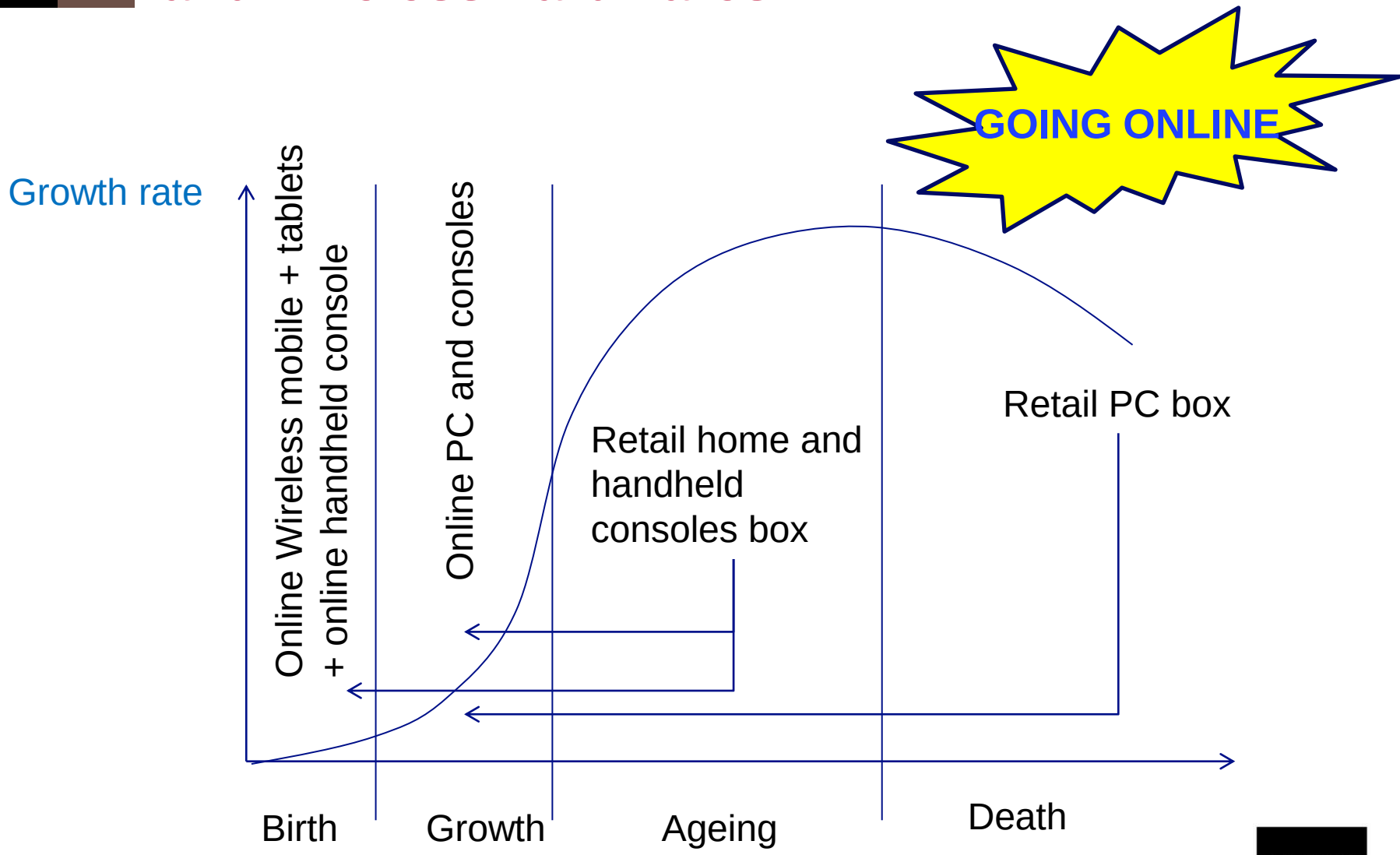
60% Asia Pacific

= Mobile + tablet gaming

= Box gaming

= All markets

Lifecycle of soft markets for PC, console and wireless hardwares



Actors' dynamics in software: concentration and IP franchise

- **3 types of developers** : First Party Publisher (FPP), Third Party Publisher (TPP), Indies
- Increase in developing/production costs from 90s and mainly 00s
- **2 trends in software innovations** :
  - **High cost** / High immersion / Cinematic / Long development time (linear management, middlewares) => Franchise strategy with Hollywood-like production)and sequels.
    - Consequence => search for scale economies to reach profitability via M&A => increase in TPP concentration *(see next slide).*
    - Today, the video game industry has a major impact on the economy through the sales of AAA IP franchise (Cod, GTA, Assassin's Creed, WoW, Battlefield) *(see slide 13).*
  - **Lower cost** / Short session gaming / short time development => Shorter game, creative gaming, prototyping => new wireless markets with many indies as new entrants.

Main actors in games soft and hardwares

(sources: annual reports, Internet)

Software

New actors

Actors	Billions $ 2012	Main markets
Activision-Blizzard	4.856	PC / Consoles
Namco Bandai	4.741	PC / Consoles
Electronic Arts	4.143	PC / Consoles
Ubisoft	1.256	PC / home+handheld consoles
Take2	1.214	PC / Consoles
Nexon	1.200	PC
Gameloft	0.208	Mobile/Tablets
Mojang	0.237	PC/Mobiles
Rovio	0.195	Mobiles/Tablets
King	0.164 / **1.88** (2013)	Mobiles/Tablets
Supercell	0.105/ 0.892 (2013)	Tablets

Hardware

Nintendo, Sony and Microsoft

Example: GTA franchise value (1997-2013)

- **Cost Records (dev+marketing): $265m**
  - Avatar ($450m) and Pirates of the Caribbean 3 ($300m) are the only Hollywood blockbusters to cost more.
- **Revenues Guinness World Records for GTA V (sept 2013): $1b after 3 days**
  - 11.21 million units sold generating $815.7m revenue in its first 24 hours
  - $1b revebues after 3 days.
  - the fastest entertainment property to gross $1 billion (previous record held by Call of Duty: Black Ops II game ($650m in 5 days) and blockbuster movies including The Avengers and Avatar.
- **Rockstar made the money back on pre-orders alone**

Software production costs by markets (marketing costs not included)

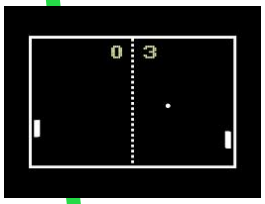
- ***MMO PC games:*** or Hollywood-like budgets > $50m (design and technological complexities).
- ***Standard PC games:*** between $10m and $50m.
- ***Home console games:*** between $10m and $25m (less on Nintendo consoles).
- ***Handheld console games:*** between $160k and $3.7m for DS and PSP for 8 to 12 months of development.
- ***Free online PC games:*** multiple of $10k.
- ***Mobile casual/social games:*** between $100k and $500k for 8 to12 months development (*e.g.* $150.000 for Angry Birds).

Actors' dynamics in hardware

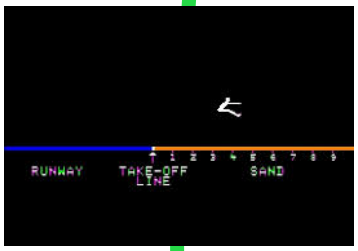
- **Techno-pull and techno-push dynamics on PC**
  - Processing and graphics (CPU + GPU) : Hardware cycles on console vs. Continuous improvements on PC *(see next slide).*
  - Networking / Home and mobile low speed and broadband Internet
  - New markets (smartphones and tablets)
  - Peripherals and interaction game/gamers

Integrating technological evolutions : a visual

70s



80s



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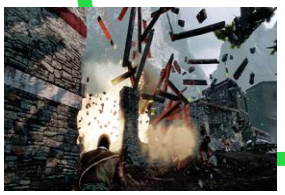

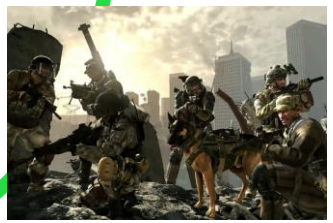

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Actors' dynamics in hardware

- **« Love&Hate » home consoles relationships with PC**
  - Dedicated or hybrid consoles ?
  - New competitors in home consoles : Ouya, Zeebo.
  - Competoitors on Cloud gaming services on TV : Bbox games, Steam Machine, Onlive, Gaika (Sony)
- **Console and impacts on soft developers**
  - 2-sided market: value of hardware = value of dedicated games => bundling hard+soft.
  - Profits on soft, losses on hardware: need a killer ap and lots of attractive games to convince consumers to buy the hardware
  - Exclusivity titles and backward compatible strategy
- **Wireless : the end of Nintendo domination ?**
  - Nintendo is dominant on handheld devices but smartphone and tablets are cannibalizing the handheld market.

2. Learnings and breakpoints from success and failure of innovations

- ☞ Mix of technological, economic and artistic innovations create breakpoints (breakthrough innovations)
- ☞ Internet based innovations

Impacts of video games on technology and spillovers

- **Innovations in PC platform**
  - Softwares are most demanding applications on PC resources (simulation and RTS genres)
  - They are a means to demonstrate the computer's capabilities
    - Example: *« Flight Simulator pushed hardware to the limit …PC designers used Flight Simulator as a benchmark for PC compatibility »* explained Artwick who worked with Compaq on the first PC clones, and in the process, actively found a bunch of bugs in the IBM machines (Source : http//fshistory.simflight.com/fsh/artwick.htm).
- **Technical Spillovers**
  - Computer color screeen
  - Graphic cards
  - Increase in CPU
  - UNIX langage (Ken Thompson Bell Labs, 1972)
- **Design spillover**
  - « Battlezone » (Atari, 1980): a pilot drives a tank in a battlezone => into simulator for US military training ***(first serious game ?)***

Learnings from technological innovations

- **1981: Wireless peripheral** (based on radio waves) (Atari console 2700 => never commercialized => learning by Wii Nintendo)
- **1987: Mouse controller for PC** (Apple) but used in VGI in 1996 (Duke Nukem 3D) (useful in 3D graphics and useable with specific coding of game engine)
- **1989 : Color handheld consoles** (Lynx, Atari => problems of battery => success of GB monochrome sold 70m units) => GBA 1998
- **1992/1995: Downloading games on home consoles via satellite television** (1992 Taito WOWOW with card payment in console and 1995: Nintendo with satellite adaptator for SuperFamicom only in Japan only)
- **1996: Connexion to low speed internet too early for console** (Pippin, Apple 96) => learning for MS 2001 Xbox internet connected

Learnings from design innovations

- **Gaming success comes from alleviating constraints on players** (battery, weight, connection waiting, easy to find friends (from cassette, to floppy disc, cd, etc..) **and from integrating technological innovations but not only !**
  - Game design can be « simple » (ex: Minecraft pixel-designed is successful because it has created a new genre)
- **Importance of soft variety and quality : Crisis 1983 and Atari Bankruptcy**
  - MS Xbox caught 30% of home console market (agreement with 150 dev, 20 titles available at launch, high capacity hard drive and broadband or cable connection).
  - Nintendo GB success is based on design reputation of the company and killer app at launch (Tetris).
- **User-friendly gaming (easy access and easy to use): from Ngage failure to Appstore success**
  - Before iPhone
  - Ngage experiment
  - After iPhone
- **2 trends on XPs design**
  - PC/Consoles High budget games => immersive/complex mechanics/long session
  - PC/Facebook/Wireless low budgets => Light games/short session/easy mechanics/creative features.

Learnings from economics/business models

- **2-steps innovation: Prototyping Leader vs. Innovating Follower**
  - First a firm has a new idea (new genre, new console, new service)
  - Second a follower improves the prototype and reaps the market
    - Exemple 1: First MUD and first MMO (Meridan 96, Ultima Online 97) and dominant actors = Blizzard, Nexon
    - Exemple 2: First RTS (Dune II Westwood), RTS dominant design = Warcraft (Blizzard)
    - Exemple 3: First handheld console with cartridge (Microvision , Bradley 79) and dominant handheld = Game Boy (Nintendo, 1989)
- **Focus on quality and selection (and get royalties)**
  - From arcade crisis (1977), console crisis (Atari 1983), Nintendo strategy (1985), Steam (2004) to Appstore (2007).
- **Home consoles weakness = few games and/or too expensive and/or dedicated**
  - Pippin (Apple 1996): few games and expensive ($599).
  - Dreamcast (Sega 1998): good Internet connexion but too expensive.
  - Example 1: Nintendo NES received support from TPP, high techno and low priced console with Mario branding strategy (60m units sold worldwide 1983-2003).
- **Distribution, QoS and platform economics importance (from Nintendo, Steam, Ngage to AppStore)**
  - Easy access for consumer and developer (open access, lower costs of publishing, quality control) and low cost gaming.
  - Impacts on microtransactions and on home consoles.

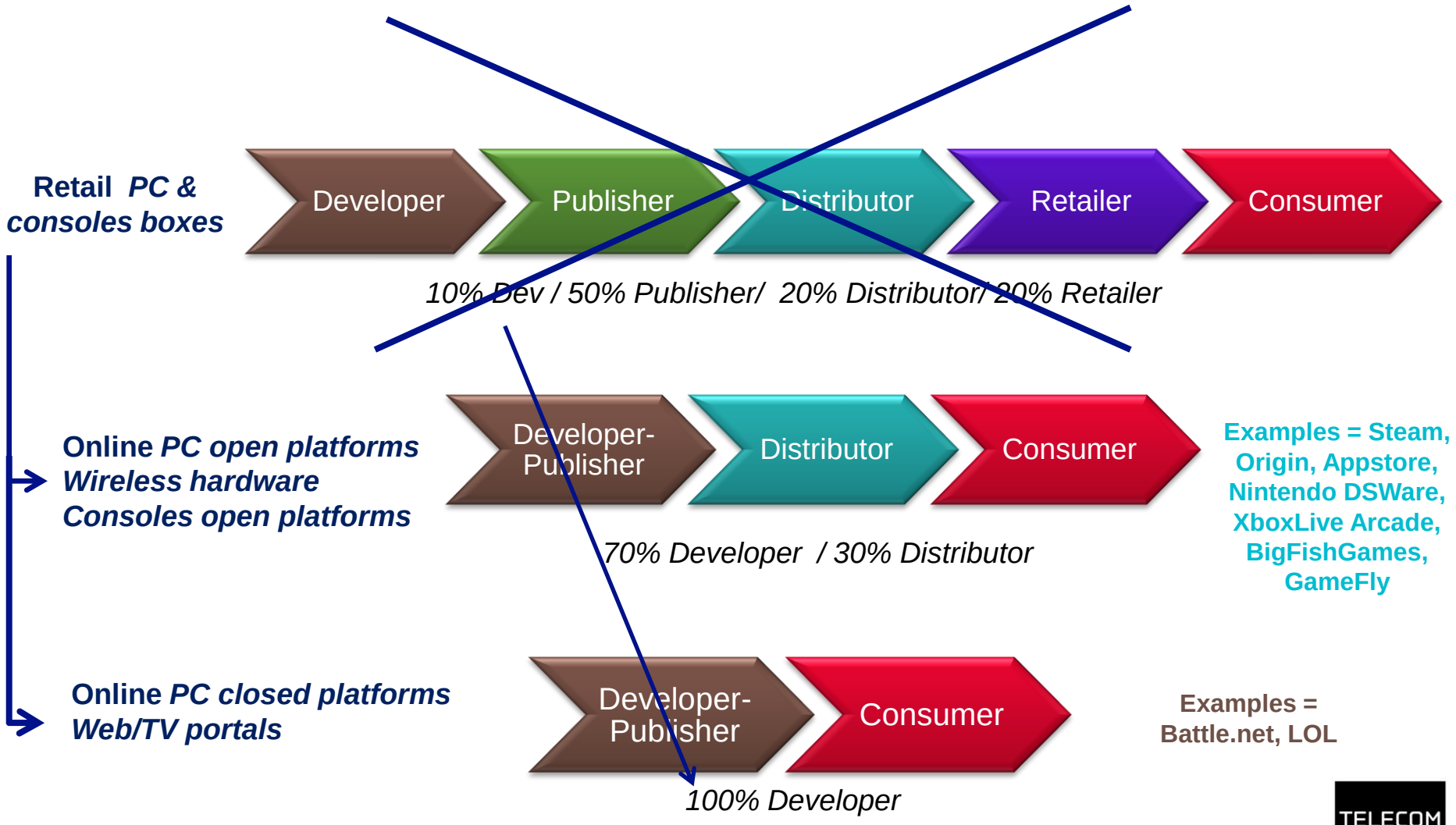
Incremental Internet innovations

- **Social gaming => incremental**
  - Mechanics of Arcade gaming = social gaming, coins-gaming with possibility to earn some extra « lifes » => close link to social and microtransactions model
  - BBS games
  - Internet put an end to « social » advantage of arcade rooms
  - New BM : F2P (to capitalize on massive potential players on social networks) => redefinition of wireless marketplace => entry of small independent developer
- **MMO => incremental**
  - First non commercial MUD (1978), First MMO 2D (Neverwinternights aol 91), Lineage (first broadband MMORPG°
  - Not new genre (BBS and MUD games) but new real-time management (game+community) and new BM
  - Massivity MMO => new genre (now main revenues for PC market en 2008 with $3,5b)
  - Extra services to permanent connected gamers and long life games (micro-transactions, updates, informations)
- **MMO + social gaming = new marketplace organization (distribution and management (real-time development and permanent contact with players, BM))**
- **Introducing « social and multiplayers » in PC gaming (already a feature of arcade and console)**

Breakthrough Internet innovations

- **Open innovation with players**
  - Easier access to softwares and SDK to mod games and easier valorization of mods inside players' community and towards developers.
  - New business models with players' creations:
    - To sell mods via microtransaction e-shops (platform strategy)
    - To increase attractivity of the « vanilla » software (WoW) or make creators subscribe VIP account to to share their maps (Minecraft) or sell items (TF2).
- **Digital distribution on platforms**
  - Real-time services (automatic upgrading and debugg of soft, close community management, microtransactions inside the game)
  - Subscription to games bundles
  - Private *vs.* public platforms *(see next slide)*

Evolution of value chains in the VGI: the value is going upstream and online



3. Conclusion: evolutions of the ecosystem

Conclusion

- **More actors in VGI ecosystem in Supply *and* Demand**
  - Massive diffusion of gaming today.
  - New markets, new entrants and fragmentation of industry.
  - Ecosystem around platforms (hardware and software)
  - Online/wireless games => new dynamics of creativity (not only high-budget games but small games are viable) but also « overcrowded » market and lessons (clones competition) from past crisis.
- **More competition, contextual gaming and new business model**
  - Today leader actors master Techno/Design/Business value chain
  - Multi-hardwares owner
  - 2 cross-over strategies : complementary *vs.* substitute hardwares


THANK YOU