An introduction to the video games world

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- Each cycle start with a new technology, a fast growth, a much faster collapse with a prefiguration of the next cycle.
- End of the 60 some pong and spacewar games as computer demonstrators
- The following conditions are fulfilled in the early 70:
  - A powerful toy industry
  - TV sets in many family
  - Practice of mechanical games (flippers) in arcade rooms
  - Growth of the chlidrens purchasing power
  - Computer are used for other purposes than business ans scientific computation

- In 1972 Intels presents the first micro processor.
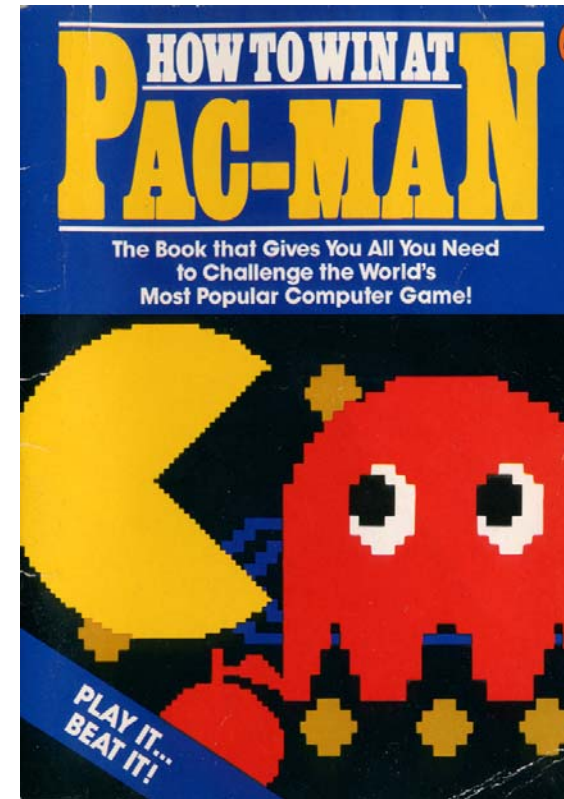- The Video Game history can start

1972-1976: Atari 1

- 1972 Nolan Bushnell creates the first VG company Atary and the first commercial CG: Pong (arcade) 100000 pieces are sold in a few months
- 1976 the Pong Console: great and immediate sucess. Warner buys Atari for 28 millions $
- 1977 increasing number of one game consoles with poor games
- Xmas 1977 first fall out of the CG industry
- 1976 Apple II
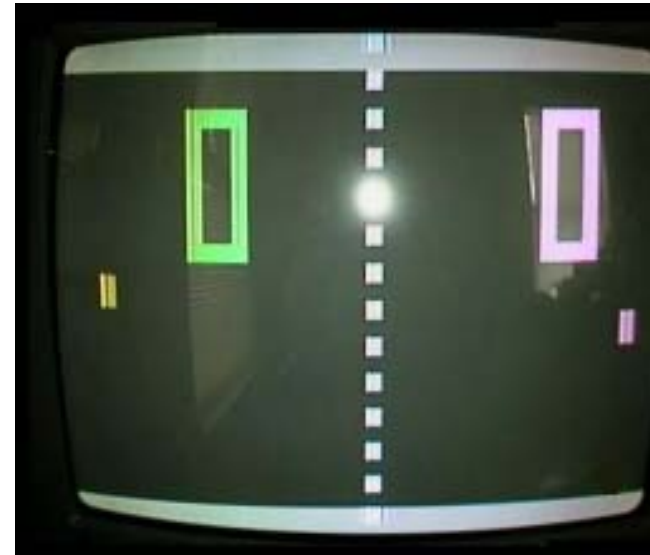
- 1977 Atari VCS, 323 millions $ sales, 20 millions profit
- 1978 Pac Man 22 millions game will be sold
- 1983 too much poor games, compared to micro computers, VG looks as an old fashioned gadget: "the end of VG"
- 1983 Nitendo NES

- In Japan instantaneous success of the NES: low price, licensing and quality control by Nintendo, games for 8-10 child
- In US and Europe, growth of the home computer market: Commodore, Sinclair, Amstrad et in 1986 l'Atari-ST
- New game genre and style (lateral scrolling, sound synthesis, 2D animations…)
- End of the cycle: development of game illegal copy and hacking, home computer are not well positioned between PC and Consoles
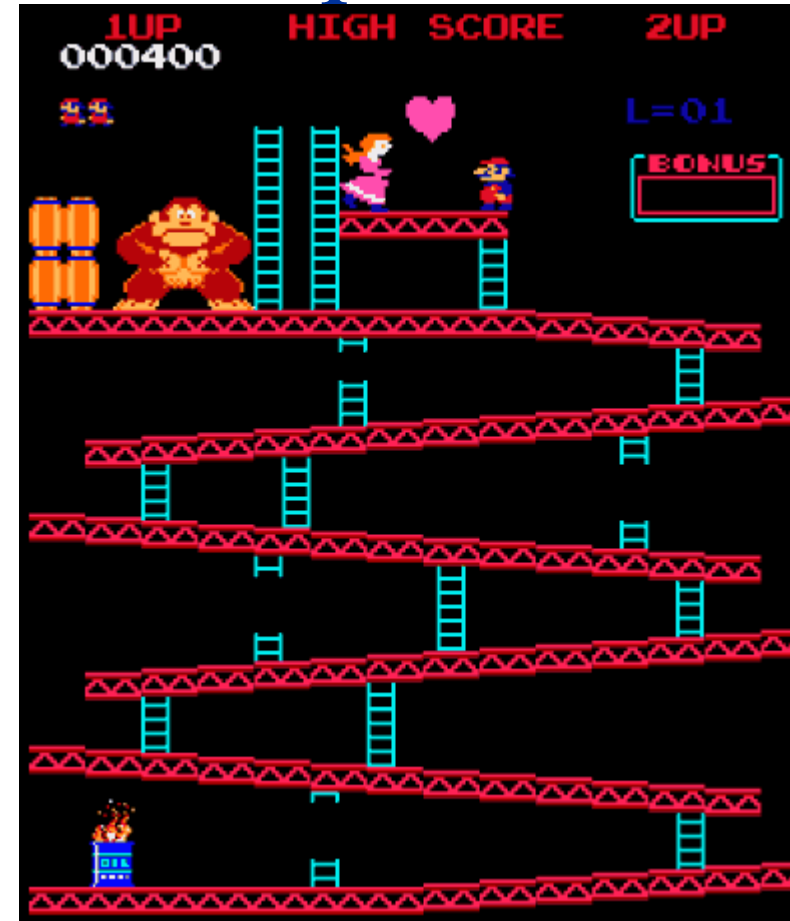
1989-1995
Nintendo vs Sega

- Big fight between Nintendo and the challenger Sega

- New generation of computer games: adventure, strategic

- At the end of the cycle Sega seems to win, computers are becoming multimedia

Broderbund

MYST

The Surrealistic Adventure
That Will Become Your World

ENJMIN

ECOLE NATIONALE
DU JEU ET DES MEDIAS
INTERACTIFS NUMERIQUES
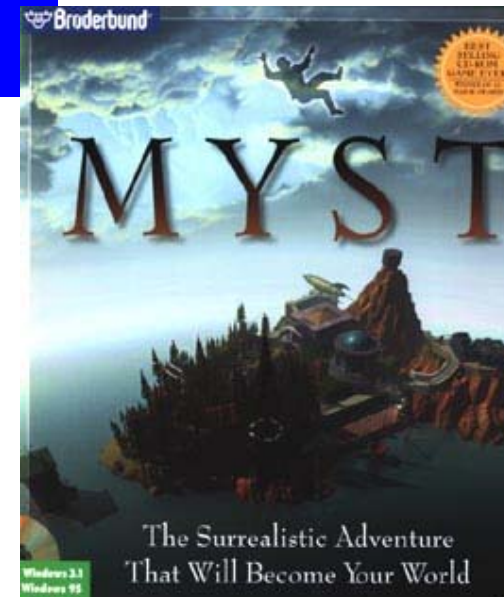
- Use of CD, real time 3D, parallel processing, LAN and Internet in games
- Sony and the PS1, the fall of Sega
- Games as a part of the audiovisual industry
- 2001 the end of the new economy, the new console generation…

2001-2006: A world of games

Digital Age

Custom Civilization
Dock
+ 2000
4000/4000
11679   14179   3897   304   2173   252/315
Upgrade to Fishing Boat - Digital: Food: 130 Wood: 130

- PS2, XBOX, Game Cube
- Persistent game
- Mobile games
- 2006 NG, cross media platform pro-active gam ?

LINEAGE II

2-A short presentation of the computer game economy

Evolution factors

- Technology (Interfaces, AI…)
- Complexity of the content
- Complexity of the production process

The game industry

- The most important fields of the interactive multimedia industry

- Generates efficient and low cost tools

- Used in other fields :images and sounds synthesis, network technology for collaborative work, interactive writing, e-learning, artificial intelligence...

The Game Market

- computer games (one player or LAN games)
- Console (video) games (PS2,Xbox, Game Cube)
- Small console, mobile phone, PDA games…
- Massive Multiplayer On line Games

22 Billions $ in 2002
3 millions MMOG subscribers in 2002
1 million subscribers forecasted for On line Star Wars or the Sims
The third Media Industry (TV,CD/video Edition, CG, Cinema (tickets)

Main video games titles in 2003 (Source ESA)

TOP 20 SELLING VIDEO GAMES OF 2003 by units sold:

RANK	TITLE	PLATFORM	PUBLISHER	RATING
1	Madden NFL 2004	PS2	EA	E
2	POKEMON Ruby	GBA	Nintendo	E
3	POKEMON Sapphire	GBA	Nintendo	E
4	Need for Speed: Underground	PS2	EA	E
5	Zelda: The Wind Waker	GCN	Nintendo	E
6	Grand Theft Auto: Vice City	PS2	Take2	M
7	Mario Kart: Double Dash!!	GCN	Nintendo	E
8	Tony Hawk's Underground	PS2	Activision	T
9	Enter the Matrix	PS2	Infogrames	T
10	Medal of Honor Rising Sun	PS2	EA	T
11	NCAA Football 2004	PS2	EA	E
12	Halo	XBX	Microsoft	M
13	True Crime: Streets of LA	PS2	Activision	M
14	Final Fantasy X-2	PS2	Square Enix	T
15	NBA Live 2004	PS2	EA	E
16	SOCOM II: US Navy Seals	PS2	SCEA	M
17	Grand Theft Auto 3	PS2	Take2	M
18	NBA Street Volume 2	PS2	EA	E
19	The Getaway	PS2	SCEA	M
20	Mario Brothers 3: Mario 4	GBA	Nintendo	E

Source: The NPD Group / NPD Funworld* / TRSTS*

Main computer games titles in 2003 (Source ESA)

Source: The NPD Group / NPD Techworld™

Who plays what

Average game player age 29

- 34 % age<18
- 46% 50>age>18
- 17 % age>50

59 % Male, 41% Female

BEST-SELLING VIDEO GAME GENRES
(by units sold)

- 4.7% Family entertainment
- 6.9% Fighting
- 8.6% First-person shooters
- 8.7% Role-Playing
- 11.3% Racing
- 27.1% Action
- 17.6% Sports
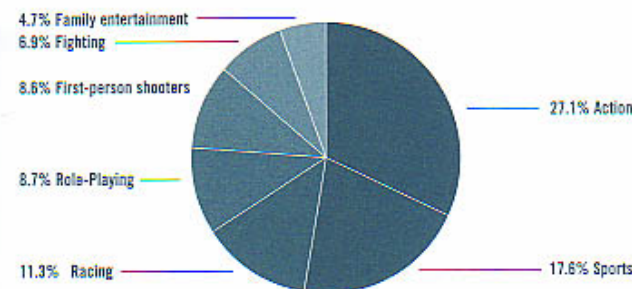
Source: The NPD Group / NPD Funworld® / TRSTS®

BEST-SELLING COMPUTER GAME GENRES
(by units sold)

- 3.5% Simulation
- 4.3% Racing
- 5.2% Adventure
- 5.9% Sports
- 8.7% Role-Playing
- 10.0% Family entertainment
- 12.2% Children's
- 27.2% Strategy
- 13.5% Shooter
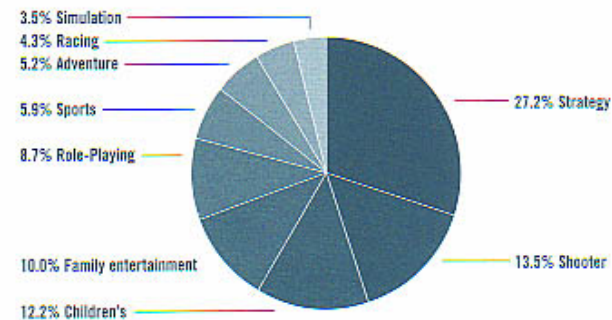
Source: The NPD Group / NPD Techworld™

Who plays what
On Line Games

What Kind of Games are Played Online Most Often?

- 3.3% Other
- 7.8% Persistent Multi-Player Universe
- 13.1% Shockwave/Flash/ Browser-based Mini Games
- 21.1% Action/Sports/ Strategy/Role-Play
- 54.7% Puzzle/Board/Game Show/Trivia/Card
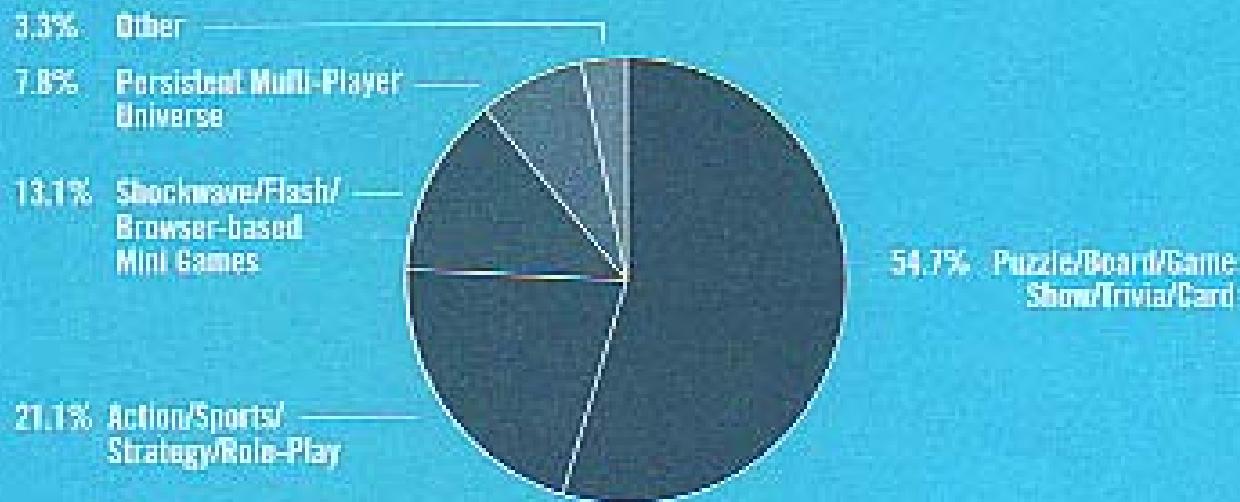
- Studio

- Publishers

- Retailers

- Console manufacturers

- Game device manufacturers

- Dedicated software editors (Game engine, multimedia configuration management…)

Mean price of a console game (source Fries report)

- Development   5M€ 16%
- Marketing   5M€ 16%
- Manufacturing   10M€ 33% (for the console manufacturer)
- Marketing/licensing   2M€ 7%
- Distribution   6M€ 20%
- Margin (before taxes)   2M€ 7%
- Total   30M€ 100%

Selling price repartition (video games)
in France without taxes
(source Lediberdère report)

- 35% Retailers
- 51% Publisher
- 14% Studio

Publisher pays 22% of the price to the console Manufacturer

Average price 45 euros

The game development process

Specification & planning	Pre-production game design	Development	Validation & testing

Specification & planning
- target audience
- genre
- platforms
- planning
- cost evaluation
- main features

Consulting & decision making

with the studio editor

Pre-production
game design
- Context of the game
- Global scenario
- Look & feel
- Ergonomic principles

Development

Creation of the game's elements (images, sounds, video, programs, …)

Tools Examples

3ds max, ed. Discreet

Sonic Foundry, ed. Sony Foundry

Direct Music Producer Microsoft

Renderware Studio ed Criterion

Visual Studio, ed. Microsoft

Alienbrain ed NXN

Validation & testing

Test Alfa:

Functional testing of the principles, game play, interface, market needs, etc.)

Test Beta:

Debugging process

Takes from 6 months to three years

Cost from 100 000$ to 1,5 M$

The process model

- Not a classical SE V process
- Specification in constant evolution according to the gameplay and interface evolution
- The game is a constantly evolving prototype (spiral model)
- The development can be stopped at any time
- No re-usable software (except engines)

Development team

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┌─────────────────────────┐          ┌─────────────────────────┐
│   Lead Game designe     │          │ Project manager/producer│
│    Game designer        │──────────│                         │
│    Level Designer       │          │                         │
└─────────────────────────┘          └─────────────────────────┘

┌─────────────────────────┐          ┌─────────────────────────┐
│       Assitants         │          │  Administrative staff   │
│ Information officer..    │          │                         │
│      Scénaristes        │          │                         │
│ Gestion de la documentation │      └─────────────────────────┘
└─────────────────────────┘

┌─────────────────────────┐  ┌─────────────────────────┐
│     Programming         │  │        Graphics         │
│  engine programmers     │  │  Drawmen (main, 2D, 3D) │
│   game programmers      │  │       Animation         │
│                         │  │     Characters, set     │
└─────────────────────────┘  └─────────────────────────┘

┌─────────────────────────┐  ┌─────────────────────────┐
│     Sound Design        │  │      Audio visual       │
│                         │  │    video/photo/sound    │
│                         │  │         Mixing          │
└─────────────────────────┘  └─────────────────────────┘

┌─────────────────────────┐  ┌─────────────────────────┐
│    Technical staff      │  │        Tests            │
│      script-girl        │  │     and validation      │
│         ....            │  │                         │
└─────────────────────────┘  └─────────────────────────┘
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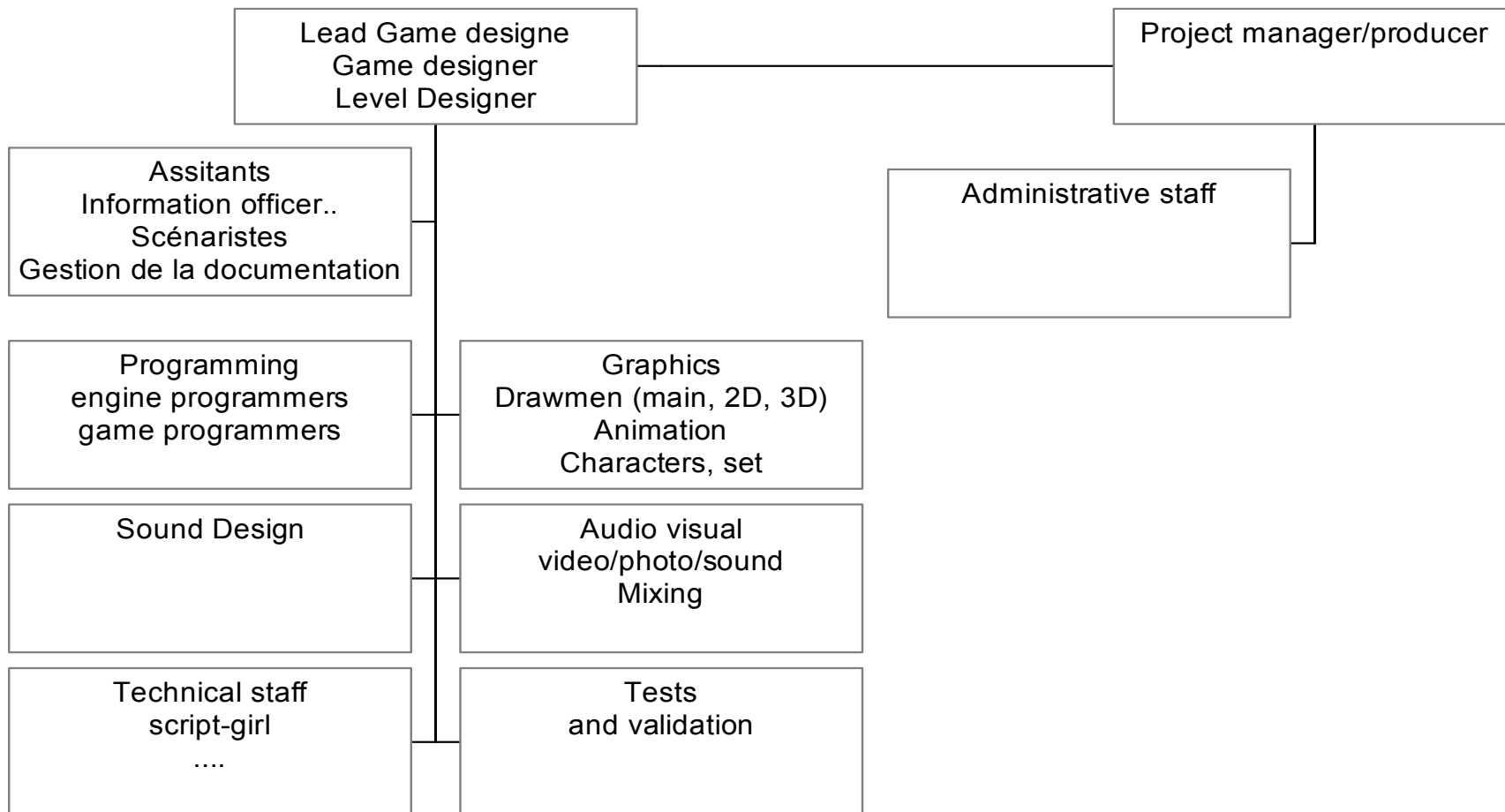
Trends

- Increasing division of sectors
- Game Middleware companies
- Impact on other fields of the computer industry
- On line games
  - MMOG
  - Mobile phone and PDA
- Social events activities (Game as a sport)…

Problems

- Immature industry sector=> Weakness against other sect
(audiovisual, telecommunication).
- Game industry organization (tools editors, distributors, produce
studio)
- Dominant position of console manufacturers
- Lack of cultural background (from education to critic)
- Legal issues (status of the work and the artists, right
protections…)
- Time to deliver (1.5 to 3 years)
- Cost (up to 20 M euros)
- Adaptability and reusability of tools and contents
- On line games: from the scenario to the economy

Some key research issues

- Methods for game analysis and evaluation
- Game history memory and culture
- Processes and tools for writing games
- CASE for games: principles and tools
- General game engines for heterogeneous plat- form
- Rights protections principles and mechanisms
- Advance in new technology for games (AI, real time sounds and images, physics, networks,)
- Organization and funding (education, independent producers, help to creation…)