

10/13/06

# Computer Game Business



# The Industry

- About 45 (or 30) years old now
- Employs 144,000 people in North America (3/2006)
- Annual salary: \$86K for experienced programmer, \$64K for artists/animators, \$64K for game designers

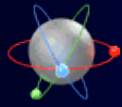


# Shape of the Industry

- Hardware:
  - Sony, Nintendo, Intel, IBM, Microsoft
- Software
  - Publishers
    - Electronic Arts, Activision, Sony, Microsoft, UbiSoft, THQ, Vivendi, Atari, Warner Bros.
  - Developers
    - Electronic Arts, Sony, Microsoft (Bungie), Firaxis, Creative Assembly, Blizzard, Lucas Arts, id, Namco, Square, Valve, Raven, Relic, Red Storm, High Voltage, Breakaway Games, ...
- Internet
  - Sales, updates, multiplayer versions of games, massively multiplayer games

# A Hit-Driven, Entertainment Business

- The interactive entertainment business is ENTERTAINMENT
  - It is NOT a packaged goods business
  - 70% of teenage boys have played Grand Theft Auto
- Consumers say, “I have to *have* the next *WarCraft* game from Blizzard!”
  - No one says, “I have to *have* that next razor blade from Gillette!”
- Games generate emotional responses, and are designed to fulfill fantasies, provide escape from reality, and stimulate the senses



# Industry Statistics

## [Top-10 Facts](http://www.theesa.com/facts/top_10_facts.php)

[http://www.theesa.com/facts/top\\_10\\_facts.php](http://www.theesa.com/facts/top_10_facts.php)

## [Sales, Demographic, Usage data](http://www.theesa.com/archives/files/Essential%20Facts%202006.pdf)

<http://www.theesa.com/archives/files/Essential%20Facts%202006.pdf>

# **Dubious Claims About Video Games**

# Games don't influence behavior

- Certainly, study after study has shown that playing video games will not incite the player to violent acts. This is generally true of all media effects research. The causal link between media consumption and predicted outcome is difficult, if not impossible to make. Those looking for a direct connection between game violence and real violence will come up short.
- But we need to be very careful not to argue that games have no influence. If games cannot move us to tears or get us out of our seats in anger, if they cannot push us to think differently or to reconsider the choices we have made in our lives, then truly they are the diet soda of media—all taste, no calories.
- Books, movies, theater, even television may not make people kill each other. But they do deeply affect us. The reason not to single out video games for censorship is because they are like other media—they can affect us deeply and profoundly—not because they are harmless.

# Games are bigger than the movies!

- I like the way David Kushner puts it in his book *Masters of Doom* when he writes, “...Americans spend more money on video games than on movie tickets.”
- It’s a provocative statistic and clearly indicates something is going on. But as Seamus Blackley so eloquently put it, “The reality is that for all this bravado, if you actually go and look at the numbers, games really still are the ugly step-child of the popular media.”
- As it turns out, Hollywood makes boatloads of money on VHS and DVD sales and rentals and such. End-to-end, movies are still a much bigger business. Which leads to ...



# Games are big business

- It's not just comparisons to Hollywood that put the video game industry into its place. Look at [Microsoft, for example](#). Bill and company generated \$32 billion last year in revenue compared to the \$10 billion or so in revenue generated by the domestic video game industry.
  - To be fair, Microsoft's revenue is for the whole globe. But, they would have actually made more money if not for the significant losses on their home entertainment (Xbox anyone?) division.
  - If you looked down the Fortune 500, you'd find scads of individual companies that make more on their own than the entire video game industry combined. Even [Starbucks made \\$3.2 billion](#) slinging latte. Compared to almost any other industry, video games are still pretty small potatoes.
- Video games are big entertainment business. And a cultural force. But we should look rationally at the industry instead of trying to boost the image through cockeyed comparisons.

# Games are a social activity

- Everyone that takes games seriously laughed when [Pew](#) spent money to tell us that video game players prefer to play with people around. Still, it would be a gross mischaracterization to say that video games are a social activity. The fact is, most of us spend most of our time playing games looking at our own screen with our own eyes by ourselves. If we prefer to play games with friends, this is an artifact of our social natures. I'd say that if we prefer games in social situations it is because we are social creatures rather than anything games are doing in particular to pull us out of our shells.
- Then again, watching movies is not a social activity. They routinely show reels before films reminding people to sit still and be quiet—i.e., don't be social during the flick. Sit down and shut up. This is a part of the experience of the medium.
- The fact that video games allow any social interaction is a great advance in modern media. But it is still a stretch to try and characterize video games as a great social activity. Video games can be social. But so can knitting and reading. That doesn't mean they are deeply or purposefully social.

# Video games is a young medium

- If we pick 1961 as the starting point for the video game era--the date that Steve Russell and company created *Spacewar* at MIT -- then we've had the medium in development for 42-odd years.
- If we pick 1927 as the birth of television, when Milo Farnsworth transmitted the first TV signals, then we can look at what that medium did in its first four decades of life. Some of the highlights include the *I Love Lucy Show*, the Kennedy-Nixon debates, the creation of PBS and the widespread use of color TV. By 1969, they were watching a man walk on the moon.
- The video game medium is past the point where it can excuse any behavior due to its adolescence. Critics should not be held at bay while the medium matures. While video games have much room to grow and improve, it's an exaggeration to call the medium "new" or "emerging".

# Video games are art

# Video games are not art

- These claims go together because both confuse artistic expression with the medium. Are movies art? The question is, “Is the *Godfather* art?” or “Is *Ace Ventura: Pet Detective* art?” It’s like asking whether painting is art. If you are painting the *Mona Lisa* sure, it’s art. If you are painting your house, maybe not.
- There are some good reasons to blur the line between media and art. It helps raise the credibility of the entire medium. But in more precise terms, media convey expression and emotion, ideas and information. What is communicated may, or may not, be artistic.

# Old people play video games

- Well, no they don't. I suppose one day they will. But assuming the fact that older women playing *Bridge* online (like my mother-in-law) can be generalized into broad statements about the general appeal of games lack a sense of perspective. Yes, *Bridge*, *Bookworm* and *Bejeweled* belong in the nation of video games. And both *Solitaire* and *Star Wars: Knights of the Old Republic* serve a similar purpose by entertaining people sitting in front of their computers. So, it's natural to want to circumscribe the full range of people touching the electronic entertainment medium and label them the tribe of video game players.
- Still, it seems worth considering that my mother-in-law wants to see the same Academy Award nominated films that I do. And whether or not she plays online *Bridge* does not seem to affect her lack of desire to join me in a round of *Halo*. That's because something about the broader video game medium is simply not appealing to all age groups. The eddies of interest by demographics above age 30 are the exception that proves the rule old people don't play video games.

# Current State of Industry

- Good games sometimes don't sell
- Bad games sometimes sell
- Still no magic formula except, ...
- Two reasons that games sell
  - Marketing
  - Brands – Licensed [Incredibles] vs. internal [Warcraft]
- Similar to Film Industry
  - ~1 in 10 titles breaks even or makes money
  - Sequels and franchises are popular: EA Sports, Sims, Star Trek, ...
  - Few self-published titles
  - Fewer small developers as development costs go up

# Money and Games

- Individual games
  - \$10-\$60 for PC
  - \$20-\$70 for consoles
  - Game rentals: \$800M in 1999
- Consoles
  - \$299 [New console introduction] - \$99 [Final years]
- Controllers:
  - \$20-40
- Graphics cards
  - \$80-\$400
- PCs
- Internet subscriptions
  - ~\$10/month

# Business Models

- Shareholders
  - Stock price
- Publishers
  - \$\$'s from game sales
- Software developers
  - Owned by publisher [Bungie, Raven, Maxis, ...]
  - Independent: Advance for development – charged against future royalties
- Console developers
  - Proprietary media delivery
  - Lose money on consoles
- Internet games
  - Initial game & monthly fee
- Tool developers
  - Create “engines” and “middleware” and sell to game developers
- Contract services:
  - Motion capture, art, cut-scenes, audio, ...



# What was Selling?

- Source: *PC Data*
- Sample: 1600+ games at \$9+, selling 100+ copies in August
- 1 game represents 8% of total revenue
- Top 20 games represent 30% of total revenue

For the Month of August, 2000:

Rank	Title	Units	Dollars	\$ Share	ASP
1	Diablo 2	129,300	\$6,677,917	7.9%	\$51.65
2	The Sims	101,405	\$4,303,712	5.1%	\$42.44
3	MP Roller Coaster Tycoon	67,510	\$1,822,861	2.2%	\$27.00
4	Who Wants To Be A Millionaire 2nd Edition	62,110	\$1,137,948	1.3%	\$18.32
5	MS Age Of Empires II: Age of Kings	38,446	\$1,649,013	2.0%	\$42.89
6	MP Roller Coaster Tycoon Corkscrew Follies Expa	34,101	\$658,252	0.8%	\$19.30
7	Sim City 3000 Unlimited	32,518	\$1,202,015	1.4%	\$36.97
8	Unreal Tournament	28,358	\$682,650	0.8%	\$24.07
9	Deus Ex	27,259	\$1,046,490	1.2%	\$38.39
10	Starcraft/Battlechest Bundle	27,215	\$809,757	1.0%	\$29.75
11	Who Wants To Be A Millionaire	26,274	\$244,894	0.3%	\$9.32
12	Sim Mania Pack	25,345	\$447,834	0.5%	\$17.67
13	MS Age Of Empires II: Conquerors Expansion Ac	24,196	\$722,817	0.9%	\$29.87
14	Return to Kronдор	23,613	\$431,570	0.5%	\$18.28
15	Icwind Dale	21,923	\$1,052,433	1.2%	\$48.01
16	Sim Theme Park	20,941	\$608,690	0.7%	\$29.07
17	Hoyle Casino 2000	19,778	\$524,591	0.6%	\$26.52
18	Crystal Key	19,079	\$358,984	0.4%	\$18.82
19	Scooby Doo Mystery Of The Fun Park Phantom	18,979	\$309,879	0.4%	\$16.33
21	EverQuest: Ruins Of Kunark	18,004	\$704,264	0.8%	\$39.12

- There's a lot of money to be had, but few seem to get it
- Therefore, the business is ruthless, with executives and producers desperately trying to replicate hits and determine the "secret formula" for success
- Like movies, there are massive, expensive bombs that were expected to succeed (*Messiah*), and surprise hits that cost very little to make and have very little marketing support (*WarCraft*)

# Business Model - Factors

- Units (forecast vs. actual), with returns considered
- Costs of Goods: Packaging, CDs, ...
  - PC: \$4-5, *PlayStation 2*<sup>TM</sup>: \$3-4
- Advances & Royalties
  - 1<sup>st</sup> party hardware manufacturers (Sony, Sega, etc.) get \$7.00 per unit
  - Developers typically get anywhere from 10% to 40%, depending upon track record
  - Licensors (Marvel, Star Trek, etc.) typically get anywhere from 5% to 15%
- Product Development
  - PD can run anywhere from \$10-30M
  - Programming, artwork, cut scenes, engines, sound, etc.
  - Massive 1<sup>st</sup> party games like *Final Fantasy* can be way over \$20M
  - Costs of AAA next generation titles expected to double
- Marketing
  - Marketing budgets can run from \$2-5M
  - TV advertising can cost an additional \$2M
- G&A
  - General and administrative, i.e., management, legal, HR, finance, etc.

# Sample Profit & Loss

*Return to  
Castle ???*

Gross Units	583,800	
Net Units	505,420	
Avg. WSP	\$ 28	
<b>GROSS REVENUE</b>	<b>\$ 21,756,900</b>	
<b>NET REVENUE</b>	<b>\$ 18,731,210</b>	
COGs		
Manufacture & Distribution	\$ 1,459,500	
Royalties		
Gray Matter Studios	\$ 2,620,149	
Gray Matter Studios Not Earned Out	\$ 614,851	
Id Software	\$ 4,342,005	
Total COGs & Royalties	\$ 9,036,505	48%
<b>GROSS PROFIT</b>	<b>\$ 9,694,705</b>	<b>52%</b>
OP-EX		
Variable Product Development	\$ 125,000	
Fixed Product Development	\$ 927,000	
Studio Central	\$ 236,000	
Localization	\$ 43,200	
Variable Sales and Marketing	\$ 2,540,429	14%
<b>GROSS CONTRIBUTION</b>	<b>\$ 5,823,076</b>	<b>31%</b>
Fixed Sales and Marketing	\$ 936,561	5%
G & A	\$ 842,904	5%
<b>NET PROFIT</b>	<b>\$ 4,043,611</b>	<b>22%</b>

# Key Issues in Console Success

- Overall Software Portfolio
  - Number of quality games
  - Number of quality exclusive games
- *Size of installed base*
- Overall Game System Cost
  - \$299 is a critical price point for consoles
- Game Cost
  - Delivery media, expected market, development costs
- Game development cost
  - Was a problem with Nintendo 64, PlayStation2
  - Xbox, Gamecube
- Delivery media
  - Capacity, speed, cost
  - Cartridge, CD, DVD, Internet

# Key Issues: Technical

- Hardware Stability
  - Consoles are fixed
  - PCs are extremely variable
    - Goal of DirectX is to provide stability
- Display quality
  - TV vs. Monitor vs. HDTV?
- Input devices
  - Keyboard, game controllers, joy sticks, steering wheels, revolution?
- Memory systems
  - ROM, RAM, and hard drives
- Networking capabilities
  - Local, modem, cable modem, ...

# Changing Markets

- Platform shifts will change the balance of power among developers and publishers
- The conflict between hardcore gamers and the mass market will continue to increase
- Addition of completely new markets
  - Cell phone/gamepad hybrids?

# The Studio System: Vertical Structure

- Publishers
- Producer
- Designer
- Developers
  - Managers
  - Programmers
  - Artists
  - Testers
- Distributors
- Retailers
- Much like a mini-Hollywood.

# Publishers

- Funding Development
- Manufacturing
- Marketing/PR
- Distribution
- Customer Support
  
- Publishers assume all the risk, they also take most of the profits
  - Star developers can often bully publishers, because publishers are desperate for content
  - Most developers are at the mercy of the almighty Publisher



# Publishers

- Originally grew out of developers
- Massive consolidation in recent years
- Most also develop games

# Greenlighting

- Most Publishers have a “Greenlight Process” that they use to determine which projects go forward
- Because development cycles are so long (1½-3 years), games have to submit to the greenlight committee at five independent stages:
  - Concept
  - Assessment
  - Prototype
  - First Playable
  - Alpha
- At each stage, the committee reviews progress, decides whether or not to continue funding the project, and evaluates the market potential of the product and adjusts unit forecasts and marketing spends accordingly

# The Producer

- Projects are assigned by studio management to an Executive Producer, who will have any number of Producers and Associate Producers working for him or her
- Producers oversee the production aspects: manage Developers toward their milestones, and often provide additional resources, creative input, management advice, etc.
- The Developer delivers “milestones” each month, and don’t get paid unless the milestones meet strict definitions. Most developers are unlikely to receive any royalties, because the funding they receive is an advance against future royalties; if their game is not a hit, then the Developer may not even be able to “pay back” the advance

# Producer

- External Producer works for publisher
- Internal Producer: project manager, project lead, director
- Game's champion to the rest of the company
- Management's champion to the development team
- Gets the team what they need
- In charge of risk management
  - What if devkits are late?
  - What if engine developer is late with key feature
  - What if key hire cannot be found in time
  - What if AI programming takes longer than scheduled

# External Producer

- Have multiple projects
- Select external developer
- Contribute to game design based on publishers goals
- Track milestones
- Approve payments
- Handle hardware request
- Pull the plug

# Internal Producer

- Manages development team
- Work with art and tech lead to staff project
- Manage project plan
  - Check milestones
  - Make tradeoffs
  - Work with external producer
  - Manage bug-list

# Assistant Producers

- Manage Assets
  - *Data Wrangler* – make sure latest files are used
- Supervise the daily build
- Maintaining the design web site
- Generate screenshots for PR
- Review milestones with a group
- Everything else
  - The music
  - The videos

# The Game Designer

- Usually the vision guy
- Writes the design document
  - with help from level designers, tech. lead, and art lead
- Must continue to make design decisions during development
- Sometimes involved in development
  - Mostly at scripting level
- Keep up on current games



# I am a designer

- I think about the game and how it plays
- I think up the key elements of the game
- I think of how the gamer will play the game
- I am crucial to the success of the game

# The Developers

- Design and implement the game, including programming, art, sound effects, and music
- Historically, small groups
- Analogous to book authors
- Typically work for royalties & funded by advances
  - Do not have the capital, distribution channels, or marketing resources to publish their games.
- Very unstable
- Level Designers

# I am a manager

- I help the artists and programmers get their job done
- I track their tasks
- I know what they are doing
- I am crucial to the success of the game

# Programmers

- Technical Lead – create and manage technical spec., define interfaces, ...
- Programmer tasks
  - Rendering Engine
  - AI
  - Physics
  - Tools
  - Database
  - Networking
  - Sound effects
  - Scripting language
  - Special graphic effects
  - Asset management and integration
- Must have lots of communication

# I am a programmer

- I program the game
- I make the characters interact
- I write tools for the artists
- I manage the data in the game
- I am crucial to the success of the game

# Distinctive Features of Game Development

- Must be willing to rip out features that don't work
- Designers will create things that you never thought of
- Game development can require a lot more research and experimentation than some other software development
- More ideas than time will allow

# Art

- Art Lead
  - Define the *style* and codify it in a style guide (the *Bible*).
  - Hire, coordinate, manage art assets
- Concept Artists
  - Early sketches of characters, backgrounds, storyboards
- Character Modeling
- Animation
- Background Modeling
- Textures
- Writer
  - Writes dialog, expositions, ...

# I am an artist

- I make the art
- The worlds, the textures
- I use commercial software
- I talk to programmers about the game
- I set the mood for the game
- I am crucial to the success of the game



# I am an artist

- I studied classic art
- I learned about animation
- I then learned the 3D stuff
- I am part of a team

# Testing

- Test lead
  - Create testing methodology
  - Provide fast, useful feedback to development team
- Testers
  - Is it fun? Game play
  - Is it easy to use?
  - Does it make sense?
  - Does it work? Bugs

# Cabal Approach

- Popularized at Valve during Half-Life
- Organize work by game parts with representatives from every area:
  - Interface design – art, design, programming

# Distributors

- Originally modeled on book distribution
- Becoming less important as the retail market changes

# Retailers

- Started with mail-order and computer specialty stores
- Shift in 80's to game specialty stores, especially chains
- Shift in 90's to mass market retailers
- Internet sales big but still not huge

# Retailers

- 70% big stores (Target, Best Buy, WalMart)
- 25% specialty game stores
- 5% Internet/mail order

# Retailers

- Shift to mass market distribution has resulted in a more hit-driven market
- Recent years have shown a broadening of the market, mostly via genre shifts

# Independent Development Stages

- Develop original design
- Shop to publishers
- 12-24 month schedule
- Work by milestones
- After game published, hope people like it



# The Future of Game Development

- Development teams will be larger
  - As the technology gets better, it can run more code per second, so you need more code
    - This is why middleware helps
  - Higher polygon count and higher res textures require more artists to create
  - More memory means more animations
- Larger teams need more management
- All these people mean development costs will continue to increase

# Development Team Size

- As late as the mid-80's teams as small as one person
- Teams today ranging from 20-100 people
- Programming now a proportionally smaller part of any project

# Development Team 1988

Sublogic *JET*

- Three Programmers
- One Part-Time Artist
- One Tester

# Development Team 1995

## *Descent*

- Six Programmers
- One Artist
- Two Level Designers
- One Sound Designer
- Off-site Musicians

# Development Team 2002

## *AlterEcho*

- Executive Producer
- Producer
- Programmers (4)
- Game Designers (2)
- Writer
- Level/World Designers (3)

- Character Modelers & Animators (3)
- 2D & Texture Artist
- Audio Designer
- Cinematic Animator
- QA Lead & Testers

# Online Development Teams

## *Star Wars Online*

- Development team: 44 people
  - 50% Artists
  - 25% Designers
  - 25% Programmers
  - 3 Producers
- “Live” Team (starting at Beta, 6 months before done)
  - 8 Developers
  - 50-60 Customer support (for 200K users)
  - 1000 Volunteer staff (for 200K users)

# Changing Economics

- The increasing size and cost of projects will make it hard for small developers to survive
- Further consolidation of publishers will change the types of games produced
- Globalization affects products

# Next Trend: Episodic Games

Traditional, monolithic games:

- Modern games take several years and up to \$10m to create, with 50+ hours of gameplay
- 20% of *Halo 2* players haven't finished the game => 80% are paying for content they'll never consume
- Twice as much content takes 4 times as much resources to develop

Enter *episodic games*:

- Sequel to *Half-Life 2* released as a trilogy of shorter episodes, each costing \$20, instead of the usual \$40-60, and provides 5 hours of gameplay
- *The Elder Scrolls IV: Oblivion* has several add-ons which can be downloaded online



# Next Trend: Episodic Games

## Pros:

- Half-Life 2 took 6 years to develop, each episode of the trilogy took a year or so
- Cheaper episodes allow for more risk taking in gameplay

## Cons:

- Just a way to lock in the players, at very high margins
  - *Grand Turismo*: costs \$800(?) to buy the whole game
- Are shorter games really cheaper? Most of the investments go into character and artwork and engines---all initial investments
- episodes == sequels?