

## The Game Development Process

John E. Laird  
University of Michigan  
EECS 494  
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## Independent Development Stages

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

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## 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.

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## Development Team Size

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

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## Development Team 1988

*Sublogic JET*

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

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## Development Team 1995

*Descent*

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

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## 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

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## 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)

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## Computer Game Business



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## Random Statistics

- Who plays
  - 75% of heads of households play video or computer games
  - 55% of players are male, 43% are female
  - Average age of most frequent game purchaser is 37
  - Average women player plays 7.4 hours/week
  - Average man player plays 7.6 hours/week
- Sales
  - U.S. Computer sales:
    - 2003: \$1.2B, 52.8M Units
    - 2004: \$1.1B, 45.0M Units
  - U.S. Video game sales:
    - 2003: \$5.8B, 186.4M Units
    - 2004: \$6.2B, 203.0M Units

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## Online Statistics

- Online play
  - 56.8% puzzle/board/gameshow/trivia/card
  - 19% action/sports/strategy/role-play
  - 9.5% shockwave/flash/browser minigame
  - 9.1% MMOG
- 4 million subscribers worldwide for WoW
  - 1 M in US & 1.5 M in China
  - Do the MATH!
  - Annual revenue > \$700M
  - Matrix Online: ~50,000

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## Shape of the Industry

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

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## 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.

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## 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

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## 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

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## 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, ...

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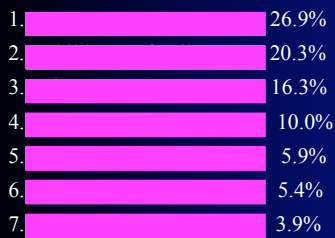
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## Computer Game Genres



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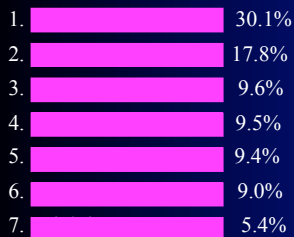
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## Video Game Genres



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## Top 10 Selling Video Games: 2004

1.		PS2
2.		XBX
3.		PS2
4.		PS2
5.		PS2
6.		GBA
7.		PS2
8.		PS2
9.		XBX
10.		XBX

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## Top 15 Selling Computer Games: 2002

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## What's was Selling?

For the Month of August, 2000:

Rank	Title	Units	Dollars	DollarShr	ASP
1	Diablo 2	129,305	\$6,677,917	7.9%	\$51.63
2	The Sims	101,403	\$4,303,712	5.1%	\$42.44
3	MP Roller Coaster Tycoon	67,519	\$2,282,861	2.2%	\$33.90
4	Who Wants To Be A Millionaire 2nd Edition	62,119	\$1,137,948	1.3%	\$18.33
5	MS Age Of Empires II: Age of Kings	38,445	\$1,649,013	2.0%	\$42.89
6	MP Roller Coaster Tycoon Corkscrew Fol	34,101	\$658,232	0.8%	\$19.30
7	Sim City 3000 Unlimited	32,518	\$1,209,015	1.4%	\$36.99
8	Unreal Tournament	28,353	\$682,650	0.8%	\$24.07
9	Deus Ex	27,235	\$1,046,490	1.2%	\$38.39
10	Starcraft/Battlechest Bundle	27,213	\$809,757	1.0%	\$29.74
11	Who Wants To Be A Millionaire	26,274	\$244,894	0.3%	\$9.32
12	Sim Mana Pack	25,345	\$447,834	0.5%	\$17.66
13	MS Age Of Empires II: Conquerors Expan	24,199	\$722,817	0.9%	\$29.88
14	Return to Kronador	23,613	\$431,570	0.5%	\$18.28
15	Icewind Dale	21,923	\$1,052,433	1.2%	\$48.01
16	Sim Theme Park	20,941	\$606,690	0.7%	\$29.00
17	Hoyle Casino 2000	19,773	\$524,591	0.6%	\$26.53
18	Crystal Key	19,073	\$358,984	0.4%	\$18.84
19	Scooby Doo Mystery Of The Fun Park Phi	18,973	\$309,879	0.4%	\$16.33
21	EverQuest: Rains Of Karant	18,004	\$704,264	0.8%	\$39.11

- 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.

- 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 I*).

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## Business Model - Factors

- Units (forecast vs. actual), with returns considered
- Costs of Goods: Packaging, CDs, ...
  - PC: \$4-5, PlayStation 2™: \$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.

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## Sample Profit & Loss

Return to  
Castle ???

Gross Units	583,800	
Net Units	505,420	
Avg. WSP	\$ 28	
GROSS REVENUE	\$ 21,756,900	
<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>82%</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>

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## 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

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## Key Issues: Technical

- Hardware Stability
  - Consoles are fixed
  - PC are extremely variable: Goal of Direct-X 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, ...

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## News

- “Xbox 360 will top 2.5M by 2006” – U.S. & Europe.
- 51M PS2 in U.S. and Europe
- 18M Xbox
- 13.2 Xbox
- Wedbush Morgan predicts that Sony will slash the PS2's price tag from USD 199 to USD 149 on or near the Xbox 360 launch date
- “... focusing on next generation too quickly will destroy what the firm has built with those platforms, and we don't doubt that Microsoft's name is cursed daily in Sony's offices for trying to force the console giant's hand in this manner.”

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## The Future of Game Development

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## 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

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## John Carmack says:

- John Carmack discussed the next 5 years of game development at his 2004 GDC keynote
- He was asked him the question, “Do you think that there’s a ceiling for the development cost of a game?”
- He said, “No, I could easily see games costing \$100 million in 5 years.”

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## 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?

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## 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.

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