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**IMGD 1001:**  
Game Development Timeline

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### Outline

- Game Timeline (next)
- Team Sizes

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IMGD 1001 2




### Game Development Timeline (1 of 5)

- Inspiration
  - getting the global idea of the game
  - duration: 1 month (for a professional game)
  - people: lead designer, team discussion
  - result: treatment document, decision to continue
- Conceptualization
  - preparing the "complete" design of the game
  - duration: 3 months
  - people: designer + prototype programmers/artists
  - result: complete design document
  - (continued next slide)

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### Concept


- Define game concept
- Define core game features
- Find/Assign developer
- Estimate budget & Due date

• *Van Helsing*

- 3rd person shooter for the PS2 and Xbox
- Released 2004
- Developer: *Saffire*
- Publisher: *Vivendi*


• Key:

- Guns and ammo as upgrades
- Finishing move – 5 kills? → single kill after 1 hit



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### Concept: Van Helsing (1 of 4)



Gameplay: Still firing after being hit

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### Concept: Van Helsing (2 of 4)



Gameplay: Finishing Move

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## Concept: Van Helsing (3 of 4)

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Van Helsing  
Pre-Production Video

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## Concept: Van Helsing (4 of 4)

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Van Helsing  
Finished Concept Video

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## Game Development Timeline (2 of 5)

- Prototypes
  - Build prototypes as proof of concept
    - Can take 2-3 months (or more)
    - Typically done a few months after project start
  - In particular, used to test game play
  - Throw prototype away afterwards
    - Don't expect it to evolve into game!
    - The Pancake Principle (Fred Brooks)
      - "Plan to throw one away, you will anyway."
  - Pitch to Publisher
- (Continued next slide)


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## Prototype or 1<sup>st</sup> Playable

- Game Design Document & Technical Design Document = "The Bibles"
- Production budget & detailed schedule
- Working prototype, with game mechanics
- Focus test
- Submit concept to Sony, etc.
  - Part of "pitch process" (next)
  - You'll do this at the end of this course!




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## The Pitch Process: Presentation

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- Key pitch presentation content:
  - Concept overview & genre profile
  - Unique selling points
    - What makes it stand out from its competitors
  - Proposed technology & target platform/s
  - Team biographies & heritage
  - Outline marketing information, including potential licensing opportunities

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## The Pitch Process: Prototype

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- Key game prototype features:
  - Core gameplay mechanic
  - Game engine / technological proficiency
  - Artistic / styling guide
  - Demonstration of control / camera system
  - Example gameplay goals

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## The Pitch Process: Project Schedule & Budget



- Schedule & budget must:
  - Be detailed and transparent
  - Allow for contingency scenarios
  - Have several sets of outcomes for different size publishers
  - Be realistic

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## The Deal: Choosing a Publisher Research



- Publishers screen Developers
- But Developers should also research prospective Publishers:
  - Are they financially stable?
  - Do they have appropriate reach for target?
  - Do they market / PR their games well?
  - Is there a history of non-payment of milestones or royalties?
  - Have they produced many titles?
- Sometimes you take what you can get!

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## The Deal: IP Rights



- Intellectual Property Rights include:
  - Game name
  - Logos
  - Unique game mechanics & storyline
  - Unique characters, objects & settings
  - Game Source Code including artwork & associated assets
  - Unique sounds and music
- Developers may not have much power
  - And it probably doesn't matter as many games don't succeed, anyway

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## The Deal: Payment Negotiation (1 of 2)



- Current approximate development costs:
  - \$10+ million for AAA multi-platform
  - \$5 million for AAA PlayStation 2 only
  - \$1 million for A-quality single platform
- Royalties
  - Percentage payments of profits made after recoup of development costs
  - Developer royalties range 0% ("work for hire") to 40%
- Other considerations:
  - Rising-rate royalty: more units sold = higher percentage
  - Clear royalty definition of 'wholesale price' (i.e., including cost of goods etc.)
  - Right to audit publishers books
  - Currency/exchange rate/VAT figures

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## Moving Projects Forward

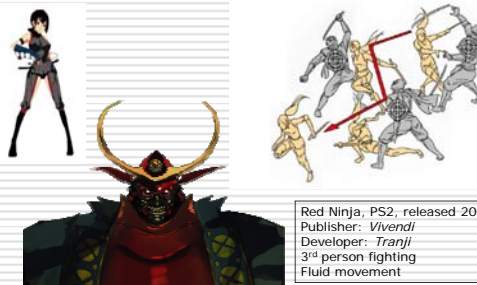


- Most Publishers have a "Green-Light Process"
  - Used to determine which projects go forward
- Developers submit to committee at five, mostly independent stages:
  - Concept
  - Assessment
  - Prototype
  - First Playable
  - Alpha
- At each stage, committee:
  - Decides whether or not to continue funding
    - Developers then get next "lump" of money
  - Evaluates market potential
  - Adjusts unit forecasts accordingly
- Then, additional stages:
  - Beta
  - Gold Master

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## Prototype: Red Ninja (1 of 3)



Red Ninja, PS2, released 2005  
 Publisher: Vivendi  
 Developer: Tranji  
 3<sup>rd</sup> person fighting  
 Fluid movement

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## Prototype: Red Ninja (2 of 3)

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Red Ninja  
Pre-Production Video

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## Prototype: Red Ninja (3 of 3)

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Red Ninja  
Final Production Video

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## Game Development Timeline (3 of 5)

- **Blueprint**
  - separate the project into different tiers
  - duration: **2 months**
  - people: lead designer, software planner
  - result: several mini-specifications
- **Architecture**
  - creating a technical design that specifies tools and technology used
  - duration: **2 months**
  - people: project leader, software planner, lead architect
  - result: full technical specification

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## Game Development Timeline (4 of 5)

- **Tool building**
  - create a number of (preferably reusable) tools, like 3D graphics engine, level builder, or unit builder
  - duration: **4 months**
  - people: project leader and 4 (tool) programmers
  - result: set of functional tools (maybe not yet feature complete)
- **Assembly**
  - create the game based on the design document using the tools; update design document and tools as required (consulting the lead designer)
  - duration: **12 months**
  - people: project leader, 4 programmers, 4 artists
  - result: the complete game software and toolset

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## Other Milestones: Alpha Definition

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- At **Alpha** stage, a game should:
  - Have all of the required features of the design implemented, but not necessarily working correctly
  - Be tested thoroughly by QA to eliminate any critical gameplay flaws
  - Still likely contains a certain amount of placeholder assets
  - (Continued next slide)


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## Alpha Definition

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- Feature complete
- "Localization" begins
- Focus test
- Play testing
- Marketing continues



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## Alpha: Crash Bandicoot (1 of 2)



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## Alpha: Crash Bandicoot (2 of 2)

Crash Bandicoot Video

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## Game Development Timeline (5 of 5)

- Level design
  - create the levels for the game
  - duration: 4 months
  - people: project leader, 3 level designers
  - result: finished game with all levels, in-game tutorials, manuals
- Review
  - testing the code, the gameplay, and the levels
  - duration: 3 months (partially overlapping level design)
  - people: 4 testers
  - result: the gold master

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## Other Milestones: Beta Definition


- At Beta stage, a game should:
  - Have all content complete
  - Be tested thoroughly for bugs and gameplay tweaks
  - Be shown to press for preview features
  - (Continued next slide)

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## Stages of Development: Beta

- Polish, polish, polish
- Game balancing
- Localization continues
- Demo versions



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## Other Milestones: Gold Master Definition

- At Gold Master stage, a game should:
  - Be sent to the platform holder/s (where applicable) for TRC (Technical Requirements Checklist) testing
  - Be sent to press for review
  - Be sent to duplication for production
  - Be backed up and stored
  - (Continued next slide)

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## Final/GMC/Gold

- ❑ The Game is "Done"
- ❑ Testing, testing, testing
- ❑ Intense pressure
- ❑ Submit to console developers
- ❑ Manufacturing timing




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## Post-Mortem

- ❑ Analysis of PR, marketing
- ❑ Analysis of production, source Code
- ❑ What went **right**
- ❑ What went **wrong**
- ❑ Archive all assets
- ❑ Kick-off the Sequel!



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## Outline

- ❑ Game Timeline
- ❑ Team Sizes (next)

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## Development Team Size

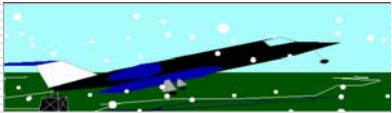
- ❑ As late as the mid-80's teams as small as one person
- ❑ Today, teams ranging from 10-60 people
- ❑ Programming now a proportionally smaller part of any project, artistic content creation proportionally larger
- ❑ See Gamasutra, ([www.gamasutra.com](http://www.gamasutra.com))
  - Search for "**post mortem**"
  - Game data at bottom includes team size and composition
- ❑ But it depends a lot on the genre

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Laird and Jamin, EECS 494, Umich, Fall 2003

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## Development Team 1988

- ❑ Sublogic's *JET* (early flight sim)
  - Sublogic later made scenery files for Microsoft flight simulator
- ❑ 3 Programmers
- ❑ 1 Part-Time Artist
- ❑ 1 Tester



**Total: 5**


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## Development Team 1995

### Interplay's *Descent*

- Used 3-D polygon engine, not 2-D sprites
- ❑ 6 Programmers
- ❑ 1 Artist
- ❑ 2 Level Designers
- ❑ 1 Sound Designer
- ❑ Off-site Musicians



**Total: 11**

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## Development Team 2002

**THQ's *AlterEcho***

- 1 Executive Producer
- 1 Producer
- 4 Programmers
- 2 Game Designers
- 1 Writer
- 3 Level Designers
- 3 Character Modelers and Animators
- 1 2d and Texture Artist
- 1 Audio Designer
- 1 Cinematic Animator
- 1 QA Lead and Testers

**Total: 19+**



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## Development Team 2007

**2K's *Bioshock***

- Boston:
  - Programmer: 1
  - Artists and Animators: 15, plus 2 borrowed from Firaxis
  - Designers: 6 in-house, 1 contract
  - Audio Developers: 2 in-house, 7 contract
  - Producers: 3 in-house, 2 contract
  - Testers: 13 contract, plus 8 on-site publisher testers
- Australia:
  - Programmers: 12
  - Artists And Animators: 10
  - Designers: 5
  - Audio Developer: 1
  - Producers: 2
  - Testers: 1 in-house, 7 contract
- Shanghai:
  - Artists And Animators: 12
  - Designers: 3
- At peak: ~90 developers, 30 contractors, 8 on-site publisher testers



[http://www.gamasutra.com/view/feature/3774/postmortem\\_2k\\_boston2k\\_php](http://www.gamasutra.com/view/feature/3774/postmortem_2k_boston2k_php)

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## Development Teams for Online Games

- Star Wars online (~2003)
  - 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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## A (Larger) Developer Company Today

- Designing and creating computer games is serious business
  - Large budgets (\$10 million+)
  - Large number of people involved
  - Large risk
- Wisdom
  - Use modern software development techniques
    - And maybe not the ones we just talked about
  - Keep creativity where it belongs
    - In the design
    - Not during the programming

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