Game Production: the production process

Fabiano Dalpiaz

f.dalpiaz@uu.nl
Outline

Lecture contents

1. Game production overview
2. Pre-production
3. Production
4. Testing
5. Post-production
6. Teams
7. Becoming a producer
Acknowledgment

- Mainly based on Chapter 2 of Chandler’s book
  - Focuses mainly on AAA games (with detailed planning, etc.)
One of the students is nominated indie-dev advocate, and can interrupt the lecturer (raise your hand!) to explain how the process differs for indie game production.
1. Game production overview

What is it?

- The set of activities through which a game idea/concept is turned into a game, its release, evolution, and retirement
  - Informal definition, but captures the essence
1. Game production overview

A producer, roughly

- Main responsibility is ensuring that a **game is created** and that **code is released on time**.
- In other words:
  - Help converging towards the same vision
  - Manage/coordinate the development team
  - Set the deadlines
  - Monitor progression
  - Cope with technical problems
  - Cope with personnel issues
  - Interact with third-parties (outside the team)
1. Game production overview

A producer in action

- Game development team
- Producer
- Management / publisher
- Artists
- Designer
1. Game production overview

A producer in action

Sure, the designer should know this is not feasible in a week. How long do you guys need?
1. Game production overview

A producer in action

Game development team

Producer

Management / publisher

Artists

Designer

Why not keeping that new level for the expansion pack?

Last-minute ideas
1. Game production overview

A producer in action

It is not that the team doesn’t like your masterpiece, they are too busy to appreciate it now.
1. Game production overview

A producer in action

A penalty? No worries, we will deliver on time.

- Game development team
- Artist
- Designer
- Budget and deadlines
- Producer
- Management / publisher
1. Game production overview

Production cycle

- A set of activities: from pre-production to wrap-up
1. Game production overview

Production cycle

- This is a very *iterative* process
  - From prototype to alpha to ...
1. Game production overview

Production cycle

- The production cycle, version by JP van Seventer (managing director of the Dutch Game Garden, 2013-2014 edition of the course)

Degree of freedom /creativity in the team

100% playable milestone

Time
2. Pre-production

Let’s get the game started!

- Defines the essence of the game
  - What is the game?
  - How long will it take to make it?
  - How many people are needed?
  - How costly will it be?

- Duration may vary significantly
  - Estimate (book): 10-25% of the total development time

- Main outcome: **game plan**
  - A roadmap for finishing the game
  - Two key components of the game plan are
    A. game concept
    B. game requirements
2. Pre-production

A. Game concept

- The concept is a **solution to a problem**
- So, what is the **question/problem**?
  - Would a Formula 1 game in absence of gravity work?
  - Can we make success with a Fruit Ninja-like game?
- Who comes up with this?
  - Publisher, team member, producer, brainstorming, ...
  - Ask around in the industry
- **Role of the producer**
  - Help **concretize** an abstract concept
  - Goals, main game play elements, genre, platforms, mission
  - Come up with a **prototype**
  - Deliver to studio management and publisher
2. Pre-production

B. Game requirements

- **What features** shall the game support?
  - Art, design, engineering, project constraints, documentation
- **Team members should be involved** to develop a sense of ownership of the game
- Requirements are **prioritized**
- **Milestones and deliverables**
- Requirements need **approval by the decision-makers**
  - Studio management
  - Publisher
  - Marketing
# 2. Pre-production

## Pre-production checklist

### CONCEPT
- Is initial game concept defined?
- Are platform and genre specified?
- Is mission statement completed?
- Are basic game play elements defined?
- Is prototype completed?
- Is risk analysis completed?
- Is the concept pitch ready for approval?
- Have all stakeholders approved the concept?
- Is project kick-off scheduled?

### GAME REQUIREMENTS
- Are "must have," "want to have," and "nice to have" features defined?
- Are constraints defined and accounted for in feature sets?
- Are milestones and deliverables defined?
- Has technology been evaluated against the desired feature set?
- Are tools and pipeline defined?
- Is basic design documentation completed?
- Is basic technical documentation completed?
- Is risk analysis completed?
- Have all stakeholders approved the game requirements?

### GAME PLAN
- Is budget completed?
- Is initial schedule completed?
- Is initial staffing plan completed?
- Have core team members approved the schedule and staffing plan?
- Have all stakeholders approved the game plan?
2. Pre-production

Some artifacts from pre-production

**Metal Gear Solid 2**
Grand Game Plan
Translation

"It is a great honor to at last be able to share with all fans of MGS this translation of Hideo Kojima's original vision for Metal Gear Solid 2. Sincere thanks go to Jesse for getting the screen captures of the document, which allowed for a much easier translation process, and Bamesh for hosting it. While it does contain a few contradictions and ambiguities, which I feel a duty to bring to your attention here so you don't think they were due to any carelessness of mine, I do not believe these detract from its merits. They are most likely due to the fact that the version of the document released was a work-in-progress and also never intended to be seen by the public. Mr. Kojima and Konami have been deservedly applauded for bringing out the first stand-alone 'video game' that offers a look behind the scenes at the game creation process and shares intimate details of MGS2's development." - Marc Laidlaw

Translation by Marc Laidlaw
Screen Captures (Game Plan) by Jesse Johnson

Game pitch, a concise summary of the game idea to convince the publisher and to attract funding.
2. Pre-production

Some artifacts from pre-production

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<td>New HP</td>
<td>10 to 11</td>
<td>Outcome</td>
<td>Dead</td>
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Game mechanics, explaining how the game evolves in response to player actions
2. Pre-production

Some artifacts from pre-production

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**PRODUCTION SCHEDULE**

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**Check Production**: Update the project’s blog with what you have been working on.

**Deadlines**: There are three major deadlines, aside from the test dates. These are depicted with red text and bolded font.

**Meeting**: Meet with the group to go over current tasks, deadlines, and other important information; meetings via Skype are acceptable.

**Play Test Dates**: Critiques wanted for each test and what is necessary to run them are described in the general production pipeline.

**Game schedule**, a summary of production activities
2. Pre-production

Some artifacts from pre-production

Art sketches (from Pac-Man)

Many more artifacts exist:
- Budget
- Team composition
- Technical requirements
- Pen-and-paper prototype
- Risk analysis
2. Pre-production

Pre-production phase, visually
3. Production

The production phase

- The team begins producing **assets and code** that will end up being **part of the game**
- Thin line between preproduction and production
  - Throw-away prototyping VS evolutionary prototyping
- Ideally, production starts when the decision-makers approve the prototype
  - But, sometimes, no formal approval is given
- **If all is well planned in pre-production, then production will go smooth**
  - Really?
3. Production

Cancelled games

- Only for PS3, 99+ cancelled games (Wikipedia, 10-8-2015)

Category: Cancelled PlayStation 3 games

From Wikipedia, the free encyclopedia

Pages in category "Cancelled PlayStation 3 games"

The following 99 pages are in this category, out of 99 total. This list may not reflect recent changes (learn more).

1
- 100 Bullets (video game)

A
- Afterfall: Insanity
- The Agency: Covert Ops
- AionGuard
- Ashes Cricket 2013

B
- Baroque (video game)
- Beautiful Katamari
- Bomberman Live: Battlefest
- Bonk: Brink of Extinction
- Fourth Doctor (video game)
- Final Fantasy XV
- Fortress (Grin)
- Furious 4

G
- Grand Slam Tennis
- Gravity Rush

H
- Happy Tree Friends: False Alarm
- Heist (video game)
- Highlander: The Game
- Hospital Hustle
- Hot Wheels: Beat That!

I
- Indiana Jones and the Staff of Kings
- In the Fertile Crescent

J
- Just Cause 3

K
- Killer 7
- Koi (video game)

L
- L.A. Noire
- Last Stop

M
- Madagaskar
- Magic 
- Mad (video game)
- Max
- Mercenaries: Unchained
- Metroid Prime: Federation Force
- Metroid: Samus Returns
- Metroid

N
- NBA Street Homecourt
- Need for Speed: Undercover
- Need for Speed: World
- Neverwinter Nights: Shadows of Undrentide
- New Super Mario Bros. U Deluxe
- New Supe
- NCAA Football 12 (video game)

O
- Onimusha: Warlords
- Oddworld: Abe's Oddysee
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P
- Poncote
- Possess
- Postal III
- Prey 2
- Project G

R
- Rat Race
- Rayman
- Reich (video game)
- The Ripp

S
- Saints Row: The Third
- SBK-07
- Scvelata

T
- Tera (video game)
- TimeShift

U
- Ultimate Marvel vs. Capcom 3

V
- Velocity:二期 Overture
- Vision of FFX

W
- Walking Dead
- Warhammer 40,000: Space Marine
- Warriors: Legends of Troy
3. Production

Cancelled games: why?

- **Official reports**
  - “The quality was not adequate for our standards”

- **Truth**
  - No certainty

- **Guesses**
  - Too many bugs (some reports exist on that)
  - Team clashes
  - Key developers leave
  - Bad planning (too optimistic)
  - Bad reception by testers
  - Others?
3. Production

Plan implementation

- The **producer communicates** the **final plan** to the **team**
  - Make it publicly available
  - Include schedule and milestones
  - **Keep it updated!**
- The project plan is the **main point of reference**
- **Feature creep** (avoid it!)
  - Ongoing addition of new features
  - Typical in early phases
  - Control it, or the project will fail
- **Resolve plan dependency issues**
3. Production

Tracking progress

- Use a **tracking tool** to **monitor tasks**
  - Keep track of task completions and reward the team
- However...
  - Tracking tool works with **known knowns**
- There are also **known unknowns**
  - Hard-to-solve bugs whose fixing time cannot be estimated
  - People leaving the team
- But also **unknown unknowns**
  - Experience teaches to account for those
  - How? Allow for extra time
Q: Could I follow up, Mr. Secretary (i.e., Donald Rumsfeld), on what you just said, please? In regard to Iraq weapons of mass destruction and terrorists, is there any evidence to indicate that Iraq has attempted to or is willing to supply terrorists with weapons of mass destruction? Because there are reports that there is no evidence of a direct link between Baghdad and some of these terrorist organizations.

http://www.youtube.com/watch?v=GiPe1OiKQuk
3. Production

Production checklist

PLAN IMPLEMENTATION
- Is game plan clearly communicated to team?
- Is game plan in publicly accessible place?
- Can plan be easily updated with changes by producer?
- Does everyone on team have the necessary resources to do their work?
- Is process in place for controlling feature creep?
- Is risk assessment happening on a regular basis throughout production?
- Is process in place for managing task dependencies?

PROGRESS TRACKING
- Is there a game plan to track progress against?
- Is process in place for producer to track all task progress?
- Is progress posted in visible areas in the team rooms?

TASK COMPLETION
- Does each task have clearly defined exit criteria?
- Are these exit criteria publicly available to the team?
- Are all stakeholders in agreement on what the exit criteria are?
3. Production

A counterpoint: Scrum (Indie-dev advocate?)

- No complete planning beforehand
- Do a partial planning based on the most wanted features
- Conduct a “sprint” where the most urgent features are implemented
- Review the result with the stakeholders
- Do another partial planning...

More details in the lecture on agile development
3. Production

Production phase checklist, visualized
4. Testing

Also known as Quality Assurance

- A critical phase for any software artifact
  - Even more **crucial for games**
  - A buggy game is not going to be bought
  - A buggy word processor is going to be bought, then fixed
  - Avoid **crash bugs**

- A quality assurance team is needed
  - Continuous check, at every milestone

- Key principles
  - Testers are disjoint from developers. Why?
  - Involve external testers on alpha/beta versions. Why?
4. Testing

Plan validation

- The QA team’s main responsibilities are to
  - Write the test plan
  - Validate the game against the plan
- Test plan based on assets and features in the game plan
  - If the game plan is outdated, QA cannot derive adequate tests
- **Testing shall be conducted in all conditions**
  - For each supported language
  - Different operating systems, sound cards, video cards
- Duties
  - Report bugs
  - Verify bug fixes
4. Testing

Code release

- Not a one-shot activity, it is actually a process
- **Code release shall be scheduled by the producer**
  - After all major bugs are fixed
  - Allowing ample time for the QA to make final checks
  - Ideally, the entire test plan shall be run against the **Code Release Candidate** version
  - If all right, then release
- If console game, the manufacturer will need to approve
## 4. Testing

### Testing phase checklist

#### VALIDATE PLAN
- Is test plan written?
- Is game plan updated for QA?
- Has test plan been updated with any changes to the game plan?
- Are testing milestones accounted for in the schedule?
- Is bug-tracking software available for the testers and development team?
- Are all areas of the game tested?
- Are all bugs regressed and closed?

#### CODE RELEASE
- Has development team submitted a final code release candidate?
- Is there ample time in the schedule for QA to complete the test plan on the code release candidate?
- Has QA approved the product for code release?
- CONSOLE ONLY: Has code released game been submitted to console manufacturer for approval?
- CONSOLE ONLY: Has console manufacturer approved game for final replication?
4. Testing

Testing phase, visualized
5. Post-production

We have released the game... aren’t we done?

- **Post-production is as important as the other phases**
  - Don’t overlook it
  - Why? Learn from experience
- **Conduct a postmortem**
  - What were the strengths of the project?
  - What were the weaknesses?
  - Important for everyone in the team
  - **Fundamental for the producer**
- **Archive the plan**
  - Create a closing kit
  - This contains documentation, code, art, assets, music, ...
5. Post-production

Some publicly available postmortems
5. Post-production

Resident Evil 4 (2005) – what went right


- **Cutscene Integration**: how to shift playable portions of games into atmospheric pre-rendered movies
- **Improved technology**: current consoles key enablers for some features of the game, e.g., complex facial animation
- **Improved workflow**: enabled designers to contribute more frequently and more directly
- ...

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![Diagram](image_url)
5. Post-production

DrinkBox Studio’s Guacamelee! – what went wrong


- Managing personalities and leadership
  - Some personalities were very strong
  - Fights in the team
  - The studio had a too informal structure
  - The structure was revised while the project was running

- Memes and references offended some people
6. Teams

Roles on the team

- In a game production project, there are **many roles**
  - In large projects, every person plays one role
  - In small projects, everyone plays multiple roles
  - Still, the roles do exist

- Some data about team sizes
  - 10 to 100 people, for most games
  - Smaller teams exist for casual games
  - Larger teams too. Extreme case: **GTA V**
    - 1,000 people
    - Multiple studios in different countries
    - Development cost: US$137 Million
Aside remark

US$ 137 Million? So what?

GTA V is the Fastest-Selling Entertainment Product Ever
Number of days it took the following games/movies to reach $1 billion in revenue

- GTA V: 3 days
- Call of Duty - Black Ops 2: 15 days
- Call of Duty - Modern Warfare 3: 16 days
- Avatar: 17 days
- Harry Potter: The Deathly Hallows Pt. 2: 17 days
- The Avengers: 19 days
- Iron Man 3: 24 days
- Transformers 3: Dark of the Moon: 34 days
- The Dark Knight Rises: 44 days
- Skyfall: 51 days

Source: Take-Two Interactive, Statista Research
6. Teams

The developer-publisher relationship

- Most large games are developed according to the developer-publisher paradigm
  - **Developer**
    - The organization that actually creates the game
    - **Programmers** reside here
  - **Publisher**
    - The organization that pays for the game
    - Public relationships and marketing
    - Sometimes gives the incipit for the game
  - The key issue: will the developer team manage to deliver the product that the publisher wants in time?
6. Teams

Production roles

- Producers are in charge of managing the team that develops the game
  - Keep them happy
  - Not involved in asset creation
  - Monitor work
  - Resolve conflicts
  - Deal with the hiring process
  - Track schedules
  - Manage external relationships
6. Teams

Two types of producers

- **Developer producer**
  - Manages the development team
  - Works closely with art, engineering, design, QA leads
  - Involved in the day-to-day production of the game

- **Publisher producer**
  - Represents the publisher’s interests
  - Oversees non-production departments
    - Sales
    - Marketing
    - Localization

- These two producers are in **tight contact**
  - It is very important that they are in good relationships
6. Teams

Art, audio, and engineering roles

- **Art**
  - Art director (gives the vision)
  - Lead artist (the manager)
  - Concept artist, world builder, level designer, asset artist, animator, technical artist, marketing artist

- **Audio**
  - Sound designer
  - Composer

- **Engineering**
  - Technical director
  - Lead engineer
  - Engineer: network (multiplayer), sound, graphics, tools (for scripting, localization, engine), Artificial Intelligence
6. Teams

Design and testing roles

- **Design**: responsible for a compelling and immersive gameplay
  - Different functions depending on the phase
    - Pre-production: transform ideas into game elements
    - Production: script missions, write dialogue, play testing
  - **Main roles**
    - Creative director
    - Lead designer
    - Designer: systems, UI, level, script
    - Writer
- **Testing**
  - Lead QA Tester
  - QA Tester
6. Teams

Organization: small teams

- Minimal structure
- Usually, one person playing more roles
  - E.g., the producer is also the lead designer
6. Teams

Organization: large teams, producer-as-a-leader
6. Teams

Organization: large teams, with executive producer
6. Teams

Counterpoint: indie development

- Indie game development means that there is no video game publisher financial support

- Quite a different setting
  - The teams are usually smaller
  - The role of the publisher is internal
  - The producer is often also a designer or developer
7. Becoming a producer

How-to guide

- There is no single way to become a producer
- Some are **more technical**, others **more managerial**
- Very diverse backgrounds
- Start from lower ranks
  - Most producers started in QA, development, design
  - Others moved from other industrial field

Akira Yamaoka, Silent Hill, musician
Leslie Benzies, GTA III to V, programmer
Hironobu Sakaguchi, Final Fantasy, designer
7. Becoming a producer

Must-have characteristics

- **Strong leadership**
  - Motivation, conflict resolution, consensus building, guidance

- **Effective communication**
  - Clear, diplomatic, timely

- **Superb organization skills**
  - Creation of schedules, delegation, tracing tasks

- **Desire to work with others**
  - A producer serves a team, not the other way around
References

Mandatory


These papers provide an overview on how researchers study the process of producing a game.