# Computer games Development

Concept

# Development Process: Overview

Basically: Standard practice, same as “normal” software development

- Preproduction
  - Game concept
  - Requirement analysis
  - Risk analysis and management
  - Project plan
- Production
- Testing
- Deployment
- Postproduction (Maintenance)

# Development Process: Overview

Basically: Standard practice, same as “normal” software development

- Preproduction
- Production
  - Implementation
  - Tracking
  - Risk analysis and management
- Testing
- Deployment
- Postproduction (Maintenance)

# Development Process: Overview

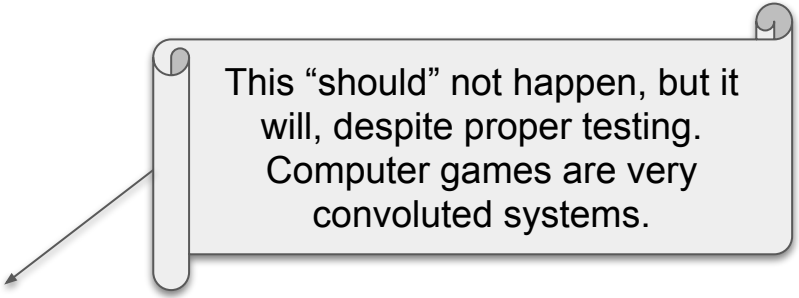
Basically: Standard practice, same as “normal” software development

- Preproduction
- Production
- Testing
  - Validation of key factors
- Deployment
- Postproduction (Maintenance)

# Development Process: Overview

Basically: Standard practice, same as “normal” software development

- Preproduction
- Production
- Testing
- Deployment
  - Not just “kick it out the door”
  - “Do not release on Friday”
  - Messy phase of fixing the most pressing bugs (e.g., Players can’t log in; get stuck, etc.)
- Postproduction (Maintenance)

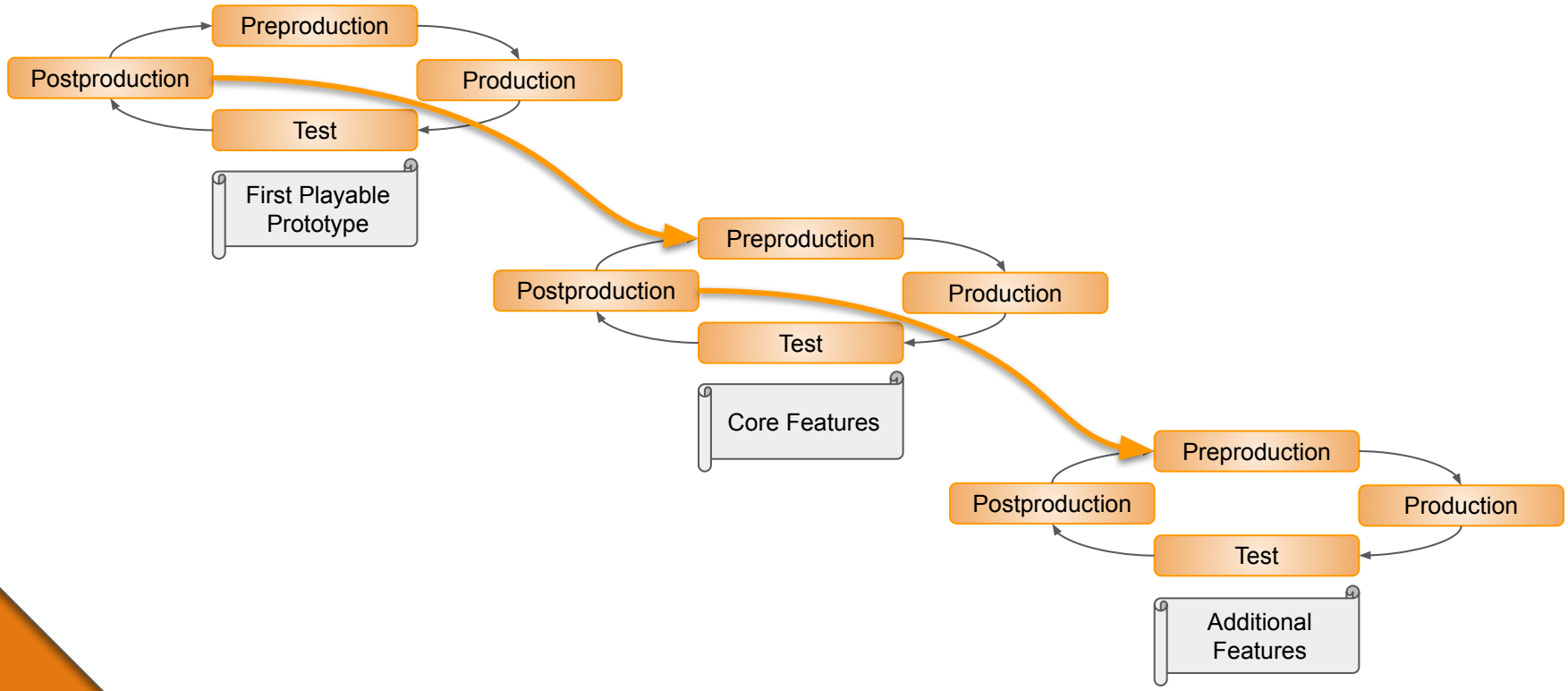


# Development Process: Overview

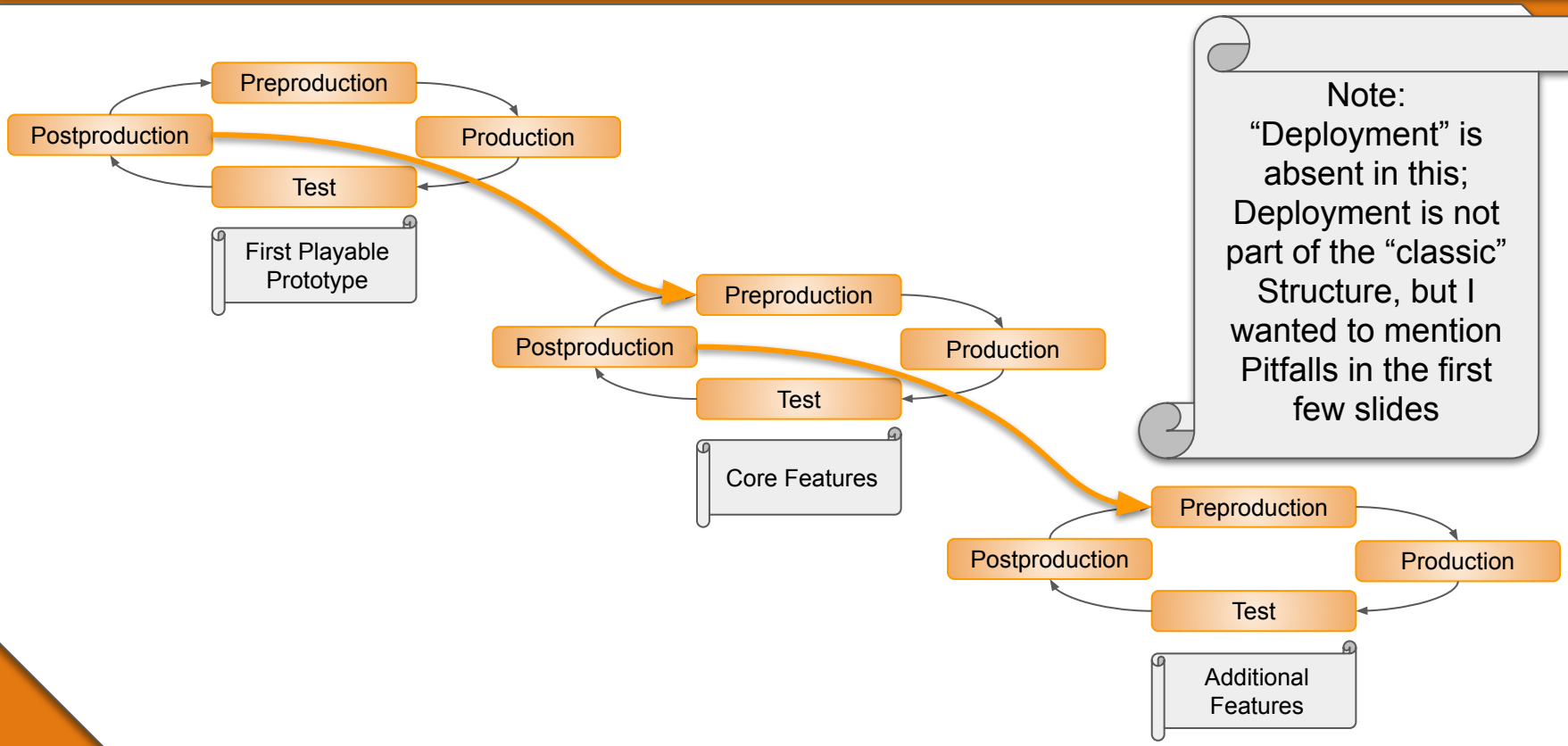
Basically: Standard practice, same as “normal” software development

- Preproduction
- Production
- Testing
- Deployment
- Postproduction (Maintenance)
  - Live Service: different animal altogether, but for “classic” games:
  - Postmortem — Lessons Learned ()
  - Archiving

# Development Process: Overview



# Development Process: Overview



# Preproduction: Thinking about the Game “Product”

- Goal of the Game
  - What does the game do? Where does it lead?
  - Why would anyone play this game? (More on this later)
  - What kind of service is provided? (Story / Action / Education etc.)
- Target Audience
  - Who is playing this kind of game?
  - How much do people in this age group play?
  - How much money do they have
  - How much money do they spend on games on average?
- Genre
  - Does the genre meet the target audience's expectations?
  - What freedoms does the chosen genre give me artistically
- Plattforms
  - What are the technical constraints?
  - What user interface constraints and opportunities do I have? (Keyboard / Mouse / Gamepad / Kinect etc.)
  - (Publishing incentives / How big is the cut? / etc.)
- Analyzing what’s already out there (or in production)
  - Strengths / Weaknesses of competing games
  - Rough sales numbers (Especially important later on, if you want investors)

# Thinking about Game Design

- The Game World: Fantasy, Steampunk, Modern, History
  - Think about design implications (Freedoms / Constraints)
  - Are you “breaking the mold?” (positive AND negative implications)
- Game Mechanics: Challenges, Rewards… (that has its own chapter)
- Rough Story Sketch: The hero’s journey (this too)
- Artistic Concepts
  - Character / world design
  - Art style (with implications on performance, etc.)
  - Important: think how the visuals fit the theme (make it believable)
  - Is the theme “on the nose”? (*Generally you want it on the nose, but sometimes keep it on the down low… depending on the audience and the game*)
  - *Can we **produce it***? (some artists can not do certain styles well)
- User Interface / Input
  - How complex can the interaction get?
    - Continuous Testing and Evaluation
- Audio Elements / Audio Design
  - Does every character have it’s own voice?
  - Style of Music / Is there Music? and if so, is it everywhere? How is music used artistically?
  - Are there sound effects and when are they used? What kind of Sounds are there?

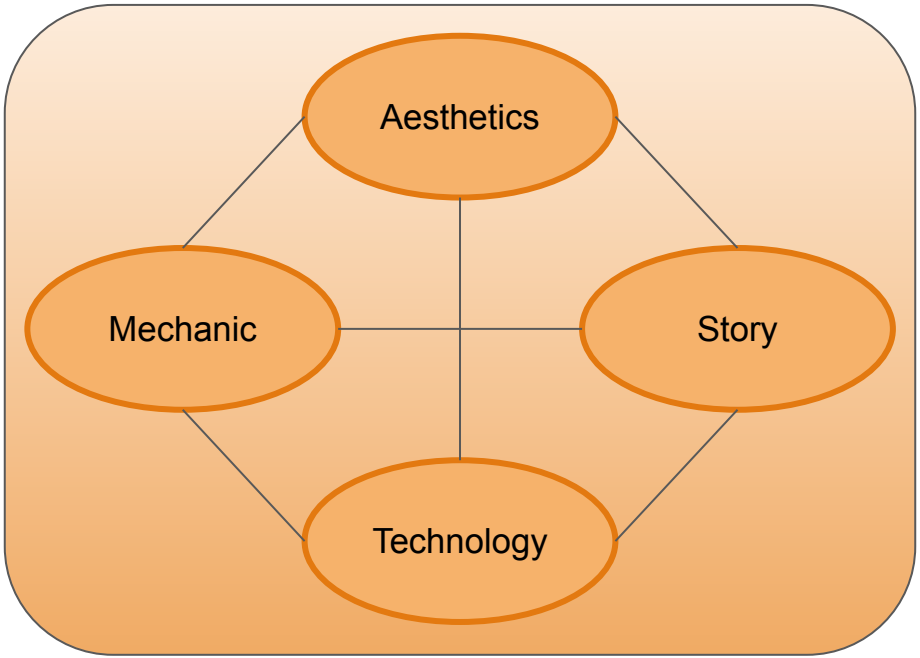
# Forming the thoughts into an experience

It says “thoughts” here, but we have already documented and structured those in a design document, of course

- Chose a Software (Game Engine) as a building Platform
  - If you have experience, pick the one that works best for the Genre and so on
  - If not, go with one and evaluate your experience (Which we will do anyway after the Prototype is done)
- Build a Prototype
  - Does not need to be digital (as in a Computer Game)
  - Build a Paperprototype (Paper figurines or a Model, or something like a tabletop approximation)
  - Act it out with Actors or test some mechanics in real life first. (Do not hit people with a real sledgehammer, but shooting them is fine, if you do paintball or something with protection)
- Risk analysis
  - What pitfalls could there be, given your deepened understanding?
  - Does the Engine do what you expect? Is there a risk of it not supporting your game?

# Crash course on Game Design

- Elemental Tetrad by Schell




Visible

Less visible

# Elemental Tetrad: Mechanic

- Rules and procedures of games
- Describes:
  - The goal of the game and how to reach it / and also how not to
  - What happens when you do <insert Action taken>
- Mechanic makes the game an actual **GAME**
  - Generally speaking, books and movies do not have a mechanic; there are exceptions, but then those might actually be considered games of some sort

# How “Mechanic” connects to the others

- Technology
  - Technology facilitates the mechanic
- Aesthetic
  - Communicates the mechanic clearly to the player
- Story
  - Gives the mechanic a reason to be there; even weird or odd mechanics are fine, given the right context.
    - Example: Sorting apples according to their color hue. Story: There is going to be a banquet and as a welcome gift, the marque hands out apples, which are traditionally eaten on the spot as a sign of trust towards the marque. It is your job to make the marque look good in the eyes of the visitors. Therefore, you have to sort the apples, so the guests arriving first get the most vibrant apples. As the sunlight fades, the visitors cannot see the apples as clearly anymore, so they won’t know these apples are less vibrant. Do your task well and make every visitor believe the marque only hands out the most vibrant of apples.

# Elemental Tetrad: Story

- Order of events in the game
  - Linear / predefined or branching
- EVERY game has a story of some sort

**About the argument of Tetris not having a Story:** In Tetris, the sequence of events created by the player's actions can be seen as a form of emergent storytelling, offering an abstract interpretation of what 'story' means in Schell's framework.

# How “Story” connects to the others

- Mechanic
  - Story gives mechanics a frame, in which they do not feel out of place
- Technology
  - The Technology is the framework for all the aspects. However, there might exist a technology, which is able to portray and support the story better than other technologies. Therefore, the technology should be suitable to the story being told (or is to be experienced)
- Aesthetic
  - Aesthetics gives the elements in the story more weight and portrays these story elements better to the player

# Elemental Tetrad: Aesthetic

- Most direct contact to the player
- Look and Feel, Music

Do not confuse “**Aesthetic**” and “**Graphics**”:
Graphics refer to the technological means of rendering an image, such as ray tracing. Aesthetics, on the other hand, describe how the game ultimately looks to the player and what emotions it evokes.
For example, Minecraft has a simple, low-resolution graphical style, but its aesthetic is highly distinctive and can be very appealing.

# How “Aesthetic” connects to the others

- Technology
  - Technology enables the Aesthetics to be seen and can strengthen what the games' creator tries to do with Aesthetics
- Mechanic
  - Aesthetics and mechanics done right convey the feeling to the player of actually being in the game world
- Story
  - Story controls the speed in which events are shown to the player, and also in which order aesthetic elements are able to influence the player. This way, it is possible for Aesthetic elements to achieve the maximum effect on the player.

# Elemental Tetrad: Technology

- Not necessarily High-Tech
  - Paper, wood, and plastic when looking at a board game
  - In Tag, it is the people themselves and their surroundings (basically just real life)
- In Computer games specifically:
  - Game Engine
  - Servers
  - GPS and additional sensors (Pokémon Go etc.)
  - Gamepads
  - Dance Pads
  - Computers
  - Phones
  - Code etc.

# How “Technology” connects to the others

- Technology is the medium in which all other aspects of the game exist

# Demographics

The demographics discussed here are based on a study and represent only a part of the whole picture. While they indicate statistical tendencies, they do not imply strict individual preferences. Extrapolations, especially in the form of personal assumptions, should therefore be avoided.

Games are always connected to childhood

Therefore, games targeting a specific demographic are generally advised to draw inspiration from games which were popular during the childhood of that demographic

# Demographics

- **0–3 Years** old: Baby
  - Very interested in simple toys
  - Games tend to be too complicated

# Demographics

- **4–6 Years** old: Preschoolers
  - Start to get interested in games
  - Parents are very often the other players in these games (e.g., board games)

# Demographics

- **7–9 Years** old: Children
  - Can write and read
  - Often decide for themselves what they like (not parents)
  - Can think things through very deeply and can also solve more difficult puzzles

# Demographics

- **10–13 Years** old: Pre-Teens
  - Have been defined as a group rather late
  - Think things through even deeper and are able to differentiate even better
  - In this age range, Children become more passionate about their hobbies and interests

# Demographics

- **14–18 Years** old: Teenagers
  - Significant differences between boys and girls
    - Girls: Focus more on the real world, communication, and social aspects
    - Boys: Focus more on competition and mastering skills
  - Both genders are very interested in new experiences

# Demographics

- **18–24 Years** old: Young Adults
  - First Adult group
  - Do not play as much as Children and Teenagers
  - Adults usually continue to play games regularly
  - Have developed a specific taste for game genres and types of games
  - This group has time and money and is therefore a **big target audience**

# Demographics

- **25–35 Years** old: Adults
  - Time is a rare commodity
  - Prefer to play games in a more sporadic fashion (casual games)
  - Play games together with their children
- Hardcore Gamers as an exception:
  - Buy tons of games
  - Communicate what they like and what they don’t like very openly
  - Have a big influence on other people and can influence their social circle's buying decisions massively

# Demographics

- **35–50 Years** old: Adults
  - Very preoccupied with career
  - Prefer casual games
  - Decide what kinds of games their children get to play
  - Tend to buy games which can be played with the entire family (Mario Kart etc.)

# Demographics

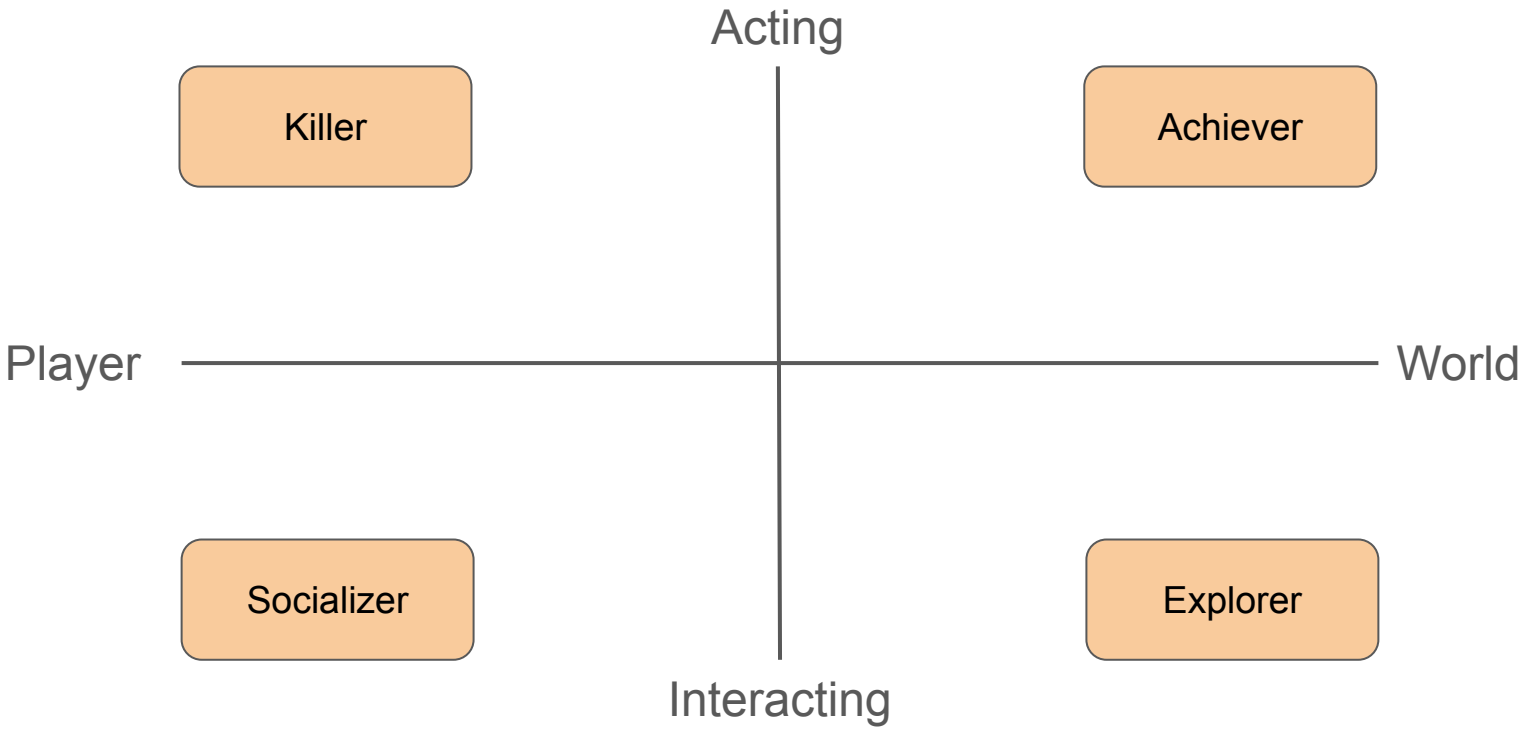
- **50+ Years** old: Adults
  - Have more free time (Children are out of the house and retirement is coming closer)
  - Have a heightened interest in games with a big social component to them (Golf, Tennis, online multiplayer games)

# Bartle taxonomy of player types

Describing player types according to psychological traits or segments:

- Achiever
  - Want to beat the game
  - Primarily motivated by challenges
- Explorer
  - Want to explore every aspect of a game (not just the world, but also mechanics etc.)
  - Primarily motivated by exploration
- Socializer
  - Interested in socializing with other people
  - Motivated by becoming important or loved in their community and also socializing in general
- Killer
  - Interested in challenging other players and besting them in combat
  - Primarily motivated by a mixture of competition and destruction (also often motivated by being able to do things, which would lead to heavy repercussions in the real life)

# Bartle taxonomy of player types

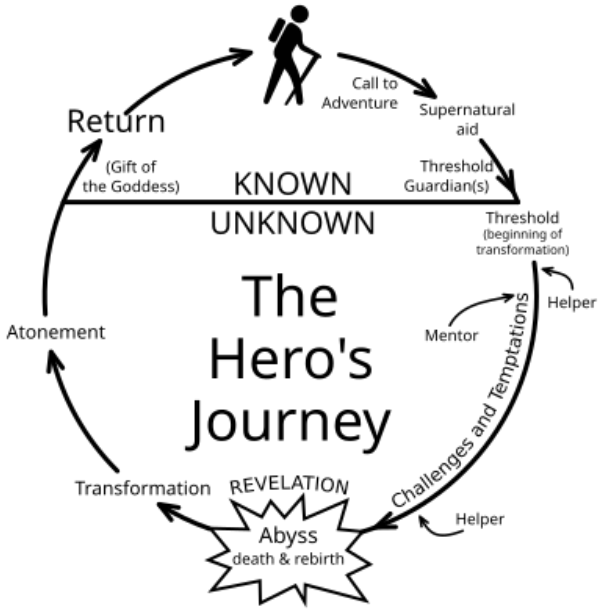


# Hero’s Journey

Cycle of the Hero’s Journey by Vogler

There exist different versions, but very commonly the journey is divided into 3 Acts (Which is in turn divided again in different sections):

- Departure / Separation
- Initiation (Descent and then Initiation)
- Return



# Hero’s Journey: Departure

Cycle of the Hero’s Journey by Vogler

- Protagonist lives a peaceful life
- Something happens, and the protagonist is called on an adventure
- The protagonist refuses the call to adventure
- A wise mentor appears and helps to accept the call to adventure
- The Protagonist crosses the first threshold, where there is no turning back

# Hero’s Journey: Initiation

Cycle of the Hero’s Journey by Vogler

- Tests, allies and enemies
  - The protagonist encounters strife and finds adversaries, friends and sometimes companions
- Approach to the inmost cave
  - The protagonist reaches the deepest parts of the cave; the most dangerous area and encounters the big bad guy
- The ordeal
  - The protagonist takes on the big bad guy (or something more abstract) and rises to the challenge and surpasses it
- Reward
  - The hero gets the treasure, “holy elixir”, the “forbidden knowledge” or something along those lines

# Hero’s Journey: Return

Cycle of the Hero’s Journey by Vogler

- The road back
  - The hero travels back out of the cave, out of the clasps of death and nears his “resurrection”
- The resurrection
  - The hero is resurrected as in he is in a new form of his self and returns as a big hero with the elixir
- Return with the elixir
  - The hero is praised and celebrated

# Game Pitch Document

- Document or Presentation containing the most important Information about your Game
- Contents:
  - Mechanic
  - Aesthetic
  - Story draft (outline)
  - Technology
  - Position in the Market or what it is similar to
  - Art Style
  - Possibly some key visuals
  - Description of the theme (or visualization)

# Game Pitch Document Examples:

## Button City

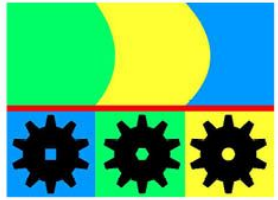
Button City is a low poly single-player narrative adventure game about cute animal kids on a high jinx escapade to save their local arcade. The game is a mix of adventure game exploration and puzzles, alongside action gameplay with arcade mini games.


### Key Features

- Explore a funny light-hearted story inspired by Saturday morning cartoons. Featuring animated cutscenes and engaging character quests.
- Soak in eye-catching low poly art style with cute animal characters.
- Play three full-featured arcade games with action, racing, and rhythm gameplay.
- Collect items that unlock enhanced ways to play arcade games, new characters, costumes, and additional challenges.
- Engage in high jinks filled mini-games, puzzles, and side quests.

# Game Pitch Document Examples:


## Rainbow Gears



Author: William Keeping
Date: 3/20/12

### Overview:

Rainbow Gears is a simple flash game in which a player will match gears with their corresponding axel shape and color. Once the gears have all been placed correctly they will all spin signifying the completion of a level.

### Purpose:

The purpose of this will be to create a short flash game to teach children to recognize a varaiety of geometirc shapes and learn how to complete simple puzzles.

### Walk Through:

The game starts with three gears at the bottom of the screen resting their ow color slot within a “tool box” area. Each gear is movable by clicking and dragging to where a player would like to drop them. On a “workbench” area will be 3 pegs that correspond to the shape punched through the center of the gear, however, the pegs will not be in the same order as the gears in the “toolbox”. Once each gear as been placed with the corresponding gear/color peg they will all spin and the player will progress to the next level.

### Similar Games:

Many puzzle game exist that involve both shape and color along with pegs. However not many use gears as the pieces and these game tend to color their movable pieces. To make the game more difficult a player will need to recall the color slot each gear belongs with adding a memory challenge.

# Game Pitch Document Examples: