The
Iterative Level Design Process
which helped us ship
Fallout 3 & Skyrim
(on time)
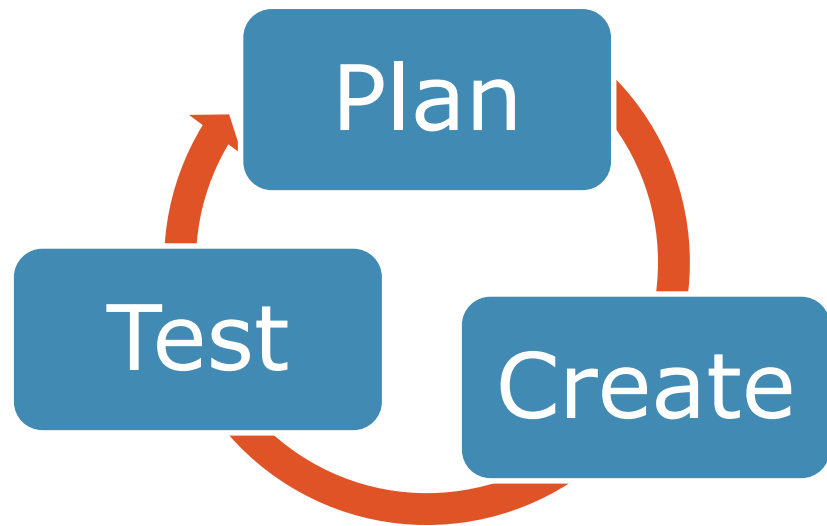
Joel Burgess
Senior Designer, Bethesda Game Studios

Iteration in Game Development

- Progressive Improvement
- Widely Embraced
- Proven

Iterative UI Design Study

- J. Nielsen, '93

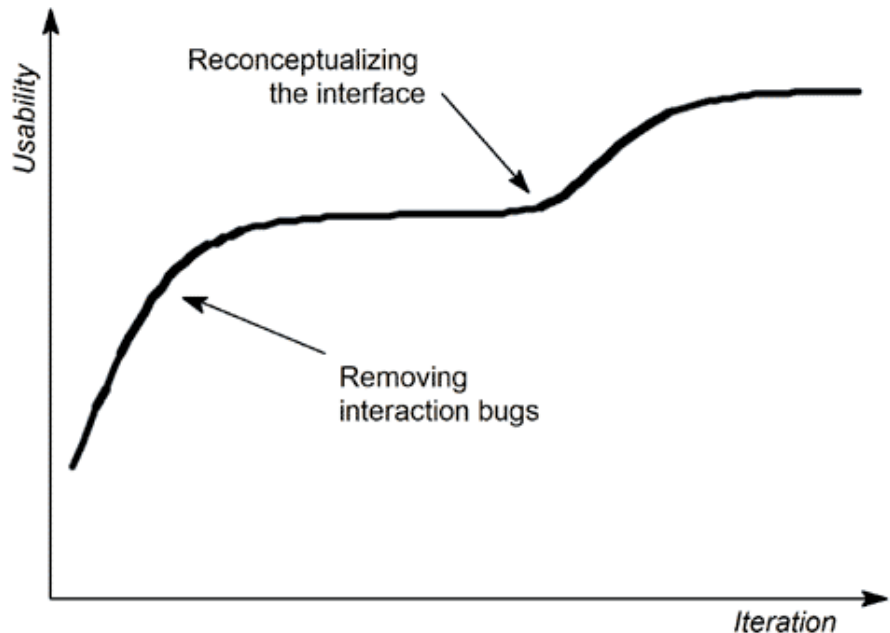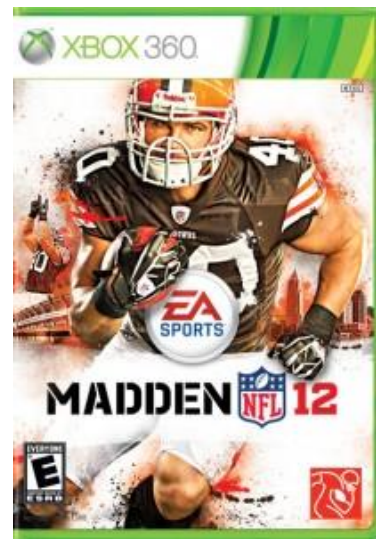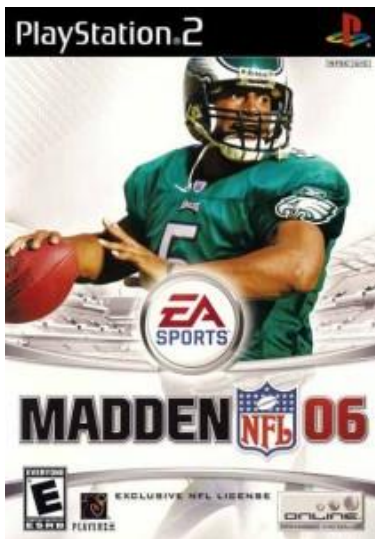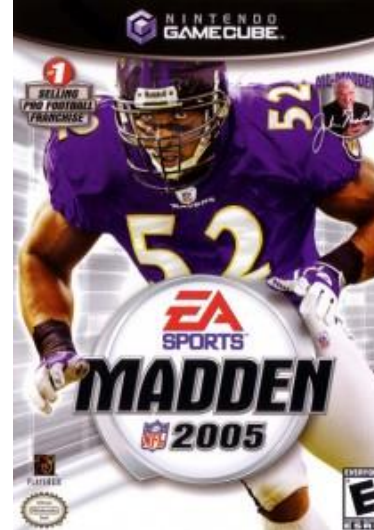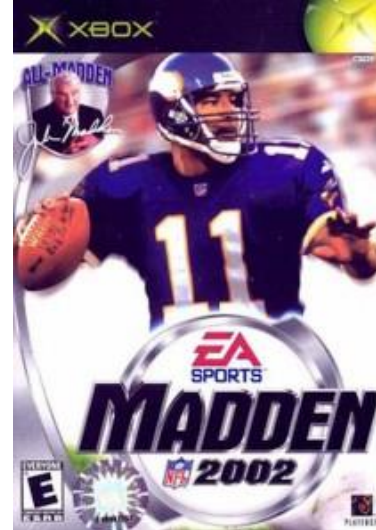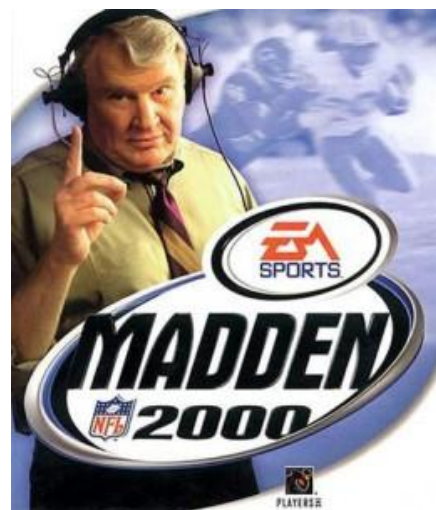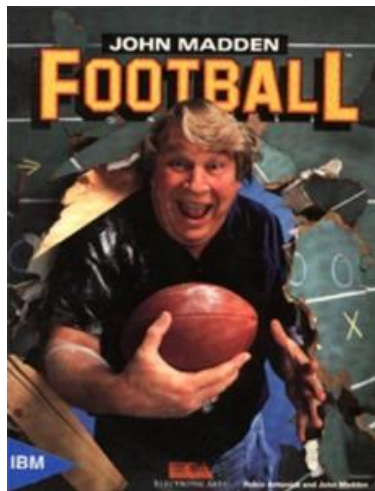**Figure 1.** *Interface quality as a function of the number of design iterations: Measured usability will normally go up for each additional iteration, until the design potentially reaches a point where it plateaus.*

Iteration in Game Development

- Progressive Improvement
- Widely Embraced
- Proven
- Many Meanings

JOHN MADDEN FOOTBALL

IBM

EA SPORTS MADDEN NFL 2000

PLAYERS

XBOX

ALL-MADDEN

John Madden

EA SPORTS MADDEN NFL 2002

E

NINTENDO GAMECUBE

#1 SELLING PRO FOOTBALL FRANCHISE

ALL-MADDEN

EA SPORTS MADDEN NFL 2005

E

PlayStation 2

EA SPORTS MADDEN NFL 06

E

EXCLUSIVE NFL LICENSE

ONLINE

MADDEN XX

EA SPORTS MADDEN NFL 09

RP

NFL PLAYERS

XBOX 360

EA SPORTS MADDEN NFL 12

E

XBOX 360

BETTER WITH KINECT SENSOR

EA SPORTS MADDEN NFL 1989 25 2014

RP

NFLPA

THE
SPY

Hats.
Everybody loves Hats

+30% Cloak on Kill
-25 Max HP on user

Stealthier Killing
Cannot use Disguise Kit

Iteration in Level Design

Iteration in Level Design

STRUCTURAL ITERATION

Plan → Build → **?** → Final

Iteration in Level Design
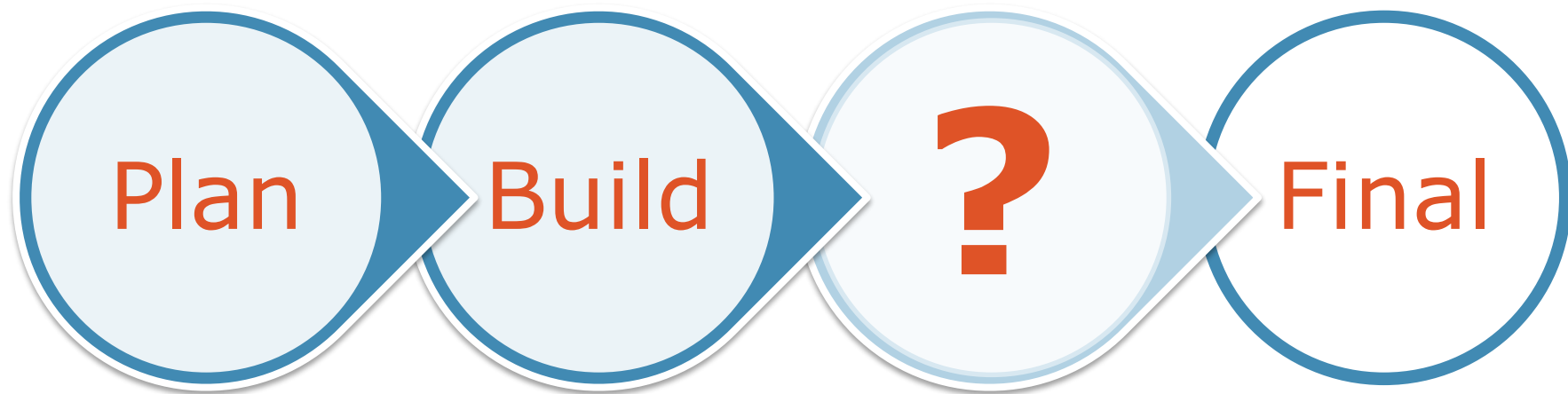
STRUCTURAL ITERATION

Plan

Build

Playtest

Final
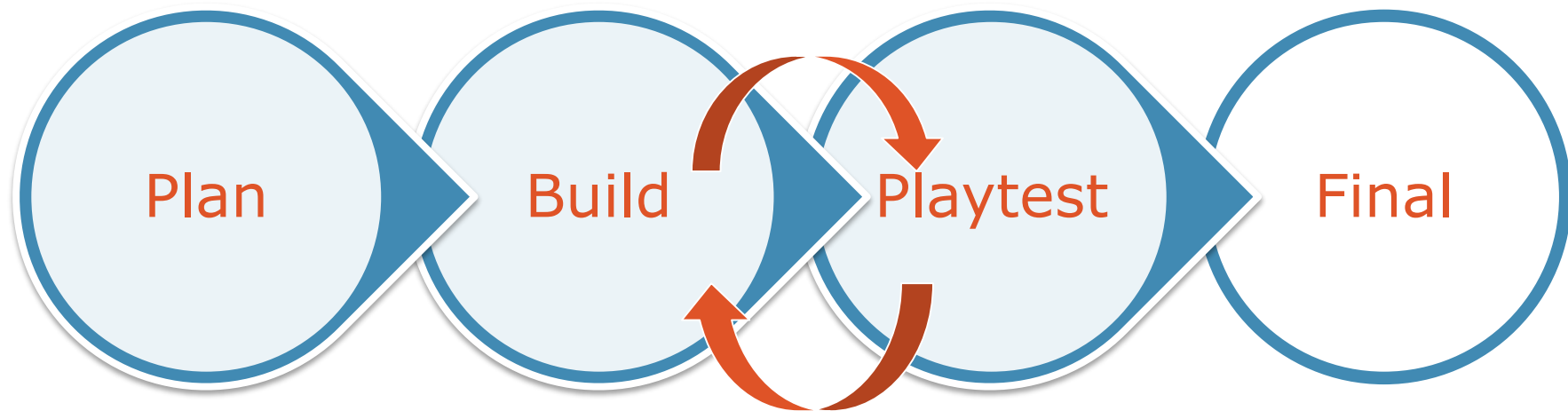
QUALITATIVE ITERATION

The Importance of Process

- Make the game you Want

  …the way you want to make it.

- Iteration is a Process Choice

- Process itself can be iterated upon

The Bethesda LD Process

- Begins w/Fallout 3
- New Level Design Team
- Existing Tools/Workflow
- Iteration as Core Value

Parameters of our Situation:

- *Massive amount of content*

Parameters of our Situation:

- *Massive amount of content*
- *Desire to Increase LD Quality*
- *Known Scheduling Dates*
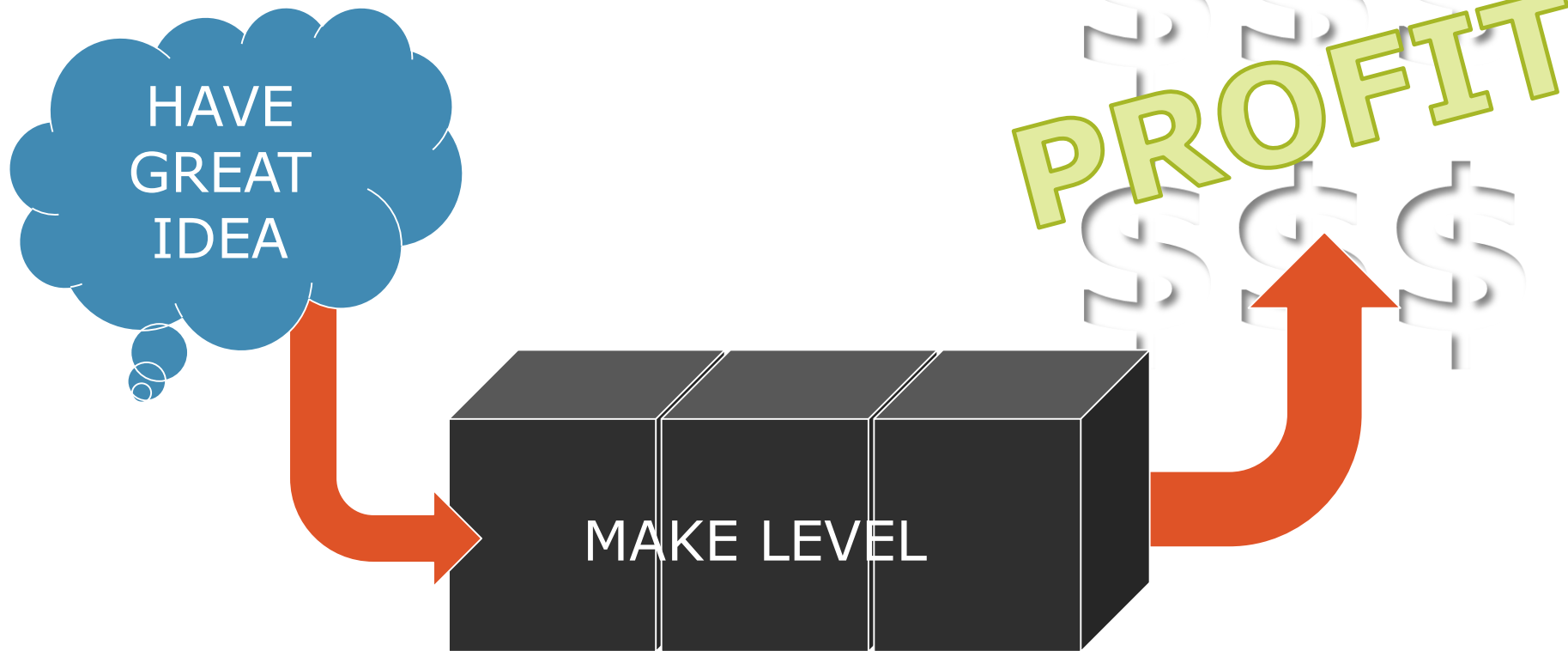
Parameters of our Situation:

- *Massive amount of content (150+ Levels)*
- *Desire to Increase LD Quality*
- *Known Scheduling Dates*
- *Known Inter-Dependencies*
- *Little or no staff fluctuation*
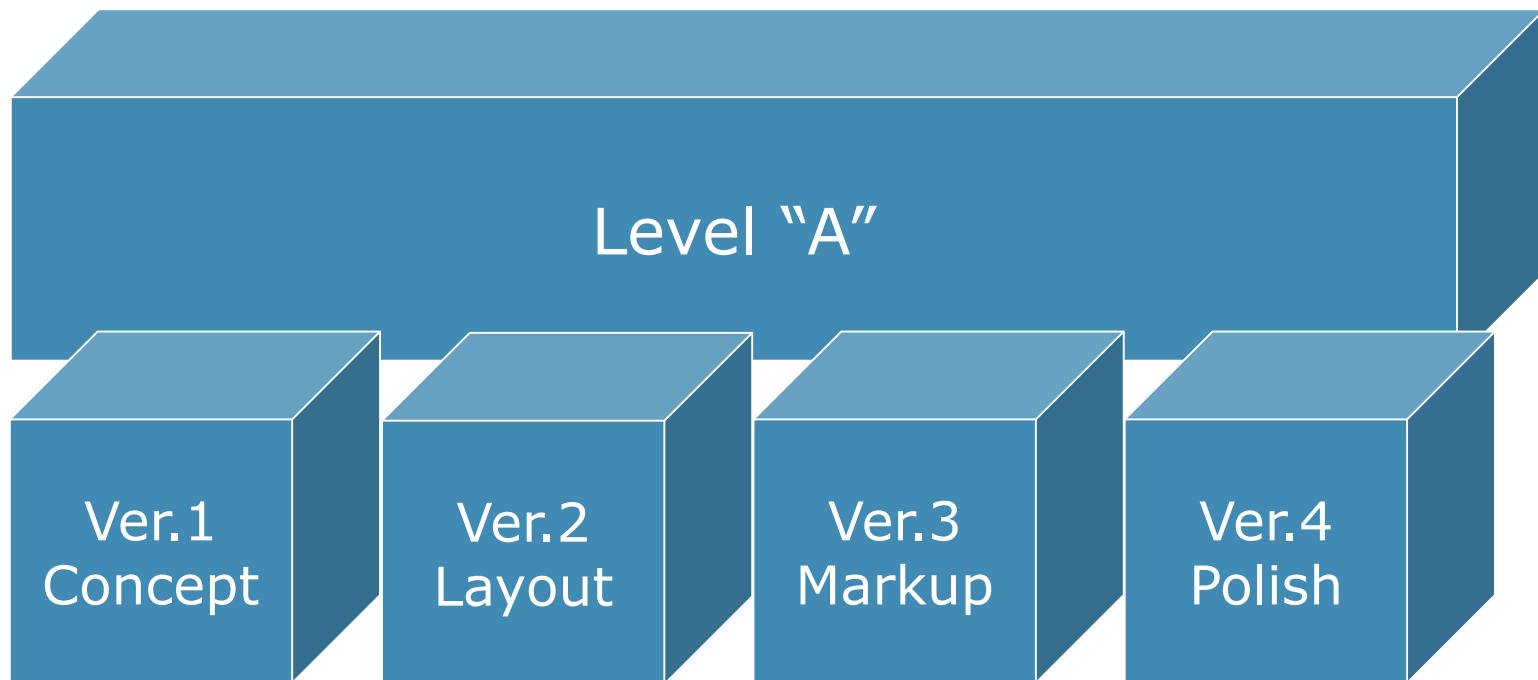- *Desire for Healthy Quality of Life*
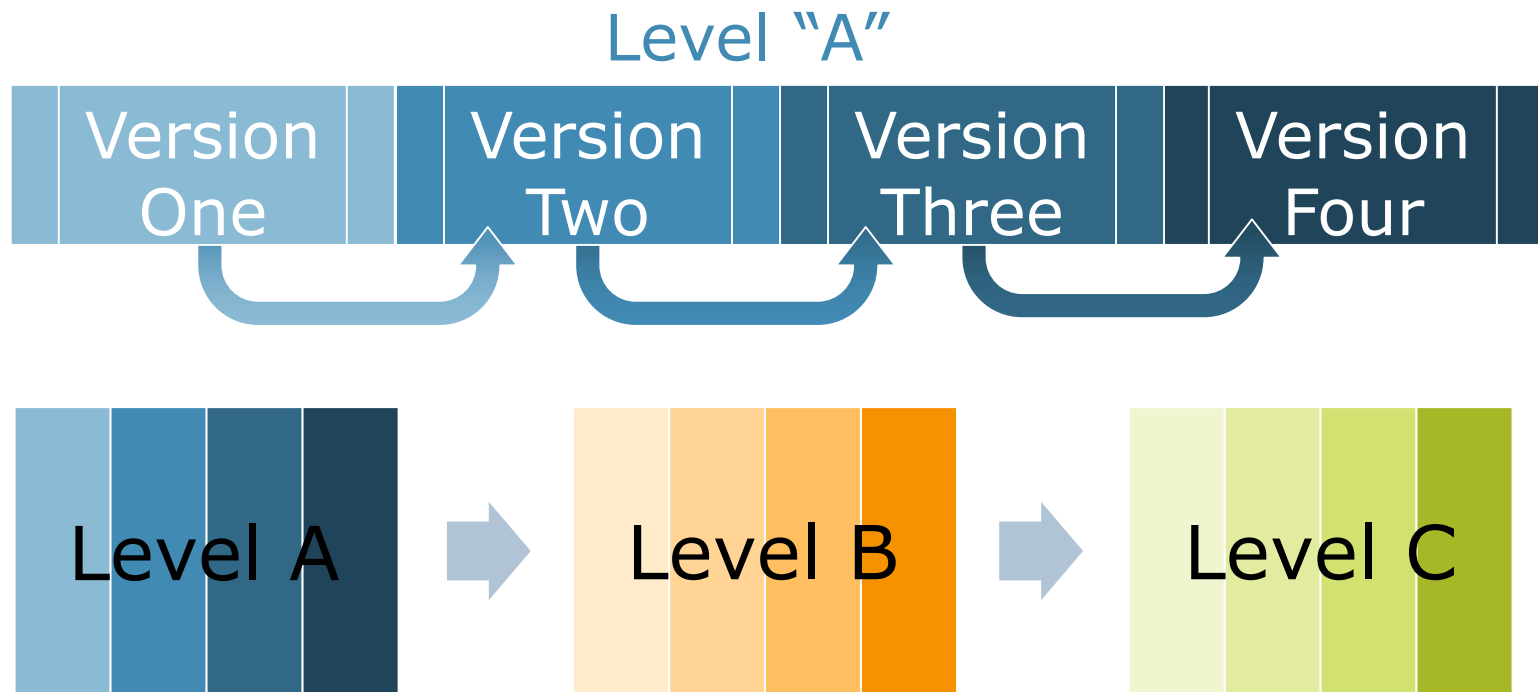
APPLYING
ITERATION

No Iteration – What if?

Adding Iteration

Breaking Workflow Down

Continuous Iteration

Continuous vs Spaced Iteration

Benefits of Spaced Iteration

- Keep Fresh, Prevent Boredom
- Incrementally Work on Strong Foundation
- Time to Get, Assess, Incorporate Feedback
- Focused Efforts per Iteration
- Copes With Growth of the Project

Game Development is Chaos

- Many Moving Parts
- Interconnected Dependencies
- Timing & Context Matter

Inter-Dependency

- Great Code + Great Art = Great Levels
- Great Code & Great Art Take Time

What can Level Designers do early on?

Early in the dev cycle

- Less to Work With
- Everything is Possible
- Focus can be Difficult
- Little Known or Proven

Good Design is Difficult

Late in the Dev Cycle

- Lots to Work With
- Possibilities Narrower
- High Focus Attainable
- Ideas have been Proven or Failed

Best Stuff Happens Here
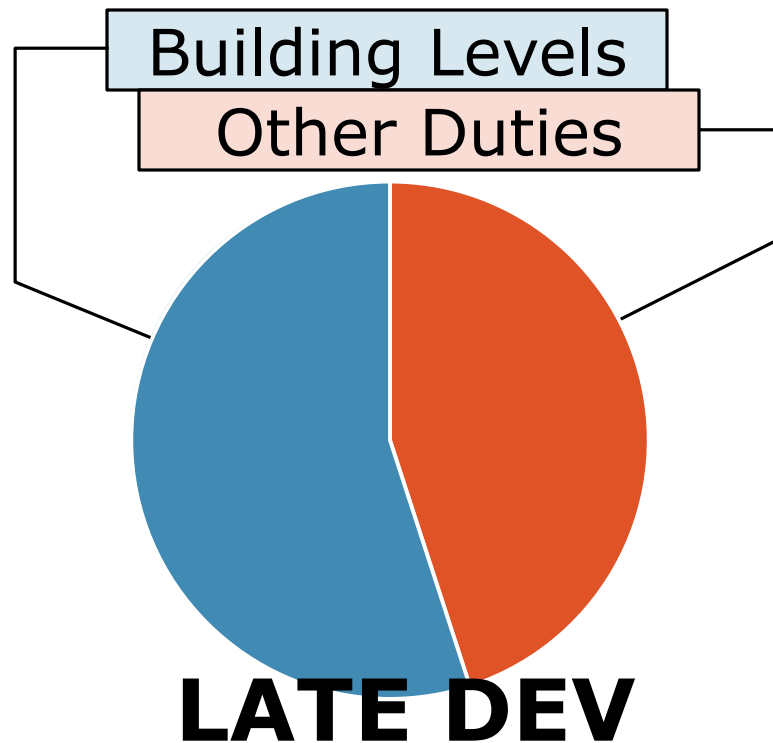
The Bethesda Level Designer

- Core Skillset
  - Layout, Gameplay, Markup, Scripting, Performance

The Bethesda Level Designer

- Core Skillset
  - Layout, Gameplay, Markup, Scripting, Performance
- Additional Responsibilities
  - Writing, Systems, Prototyping, Tools, more...
- Split Focus Benefits:
  - Personal Growth as a Developer
  - Maximizes Productivity

Level Designer Role Split
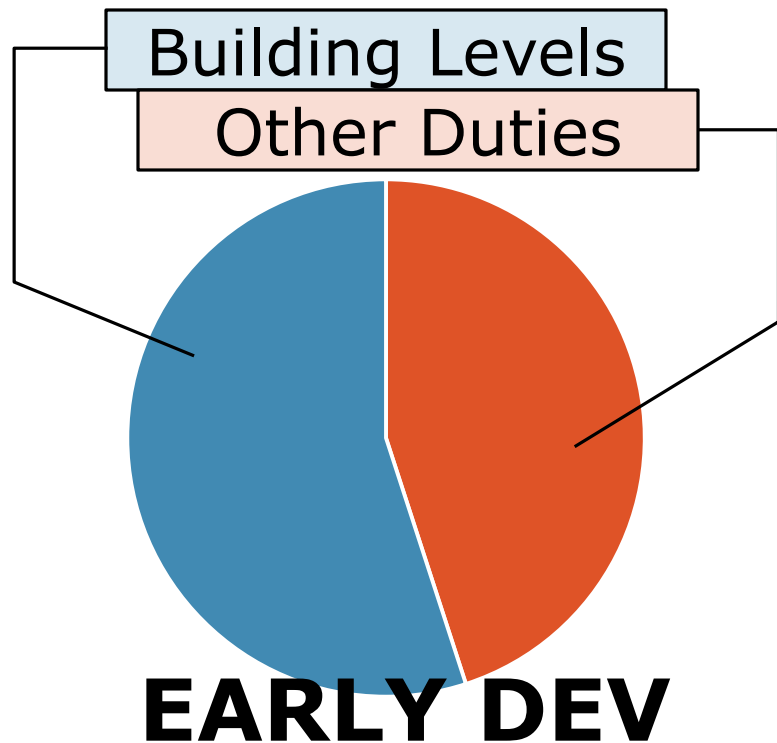
Level Design Opportunity Time

- Best Design Happens @ the End
- Identifying Opportunity
- Content Cram vs Opportunity Time

How do we create opportunity time?

Iterative Passes = Laying Foundation

Bethesda LD Passes

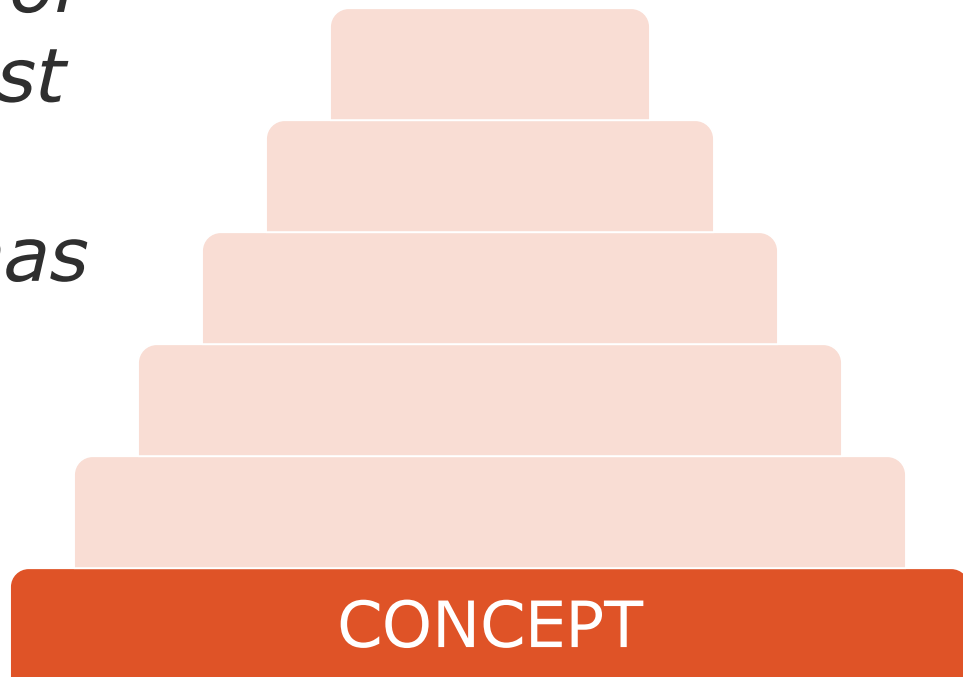- Structured, Iteration-Focused Passes
- Progressive Foundation
- Timing & Context

Pass Zero: Planning

The Game is just out of pre-production; almost nothing exists yet. A master list of levels has been generated and assigned.
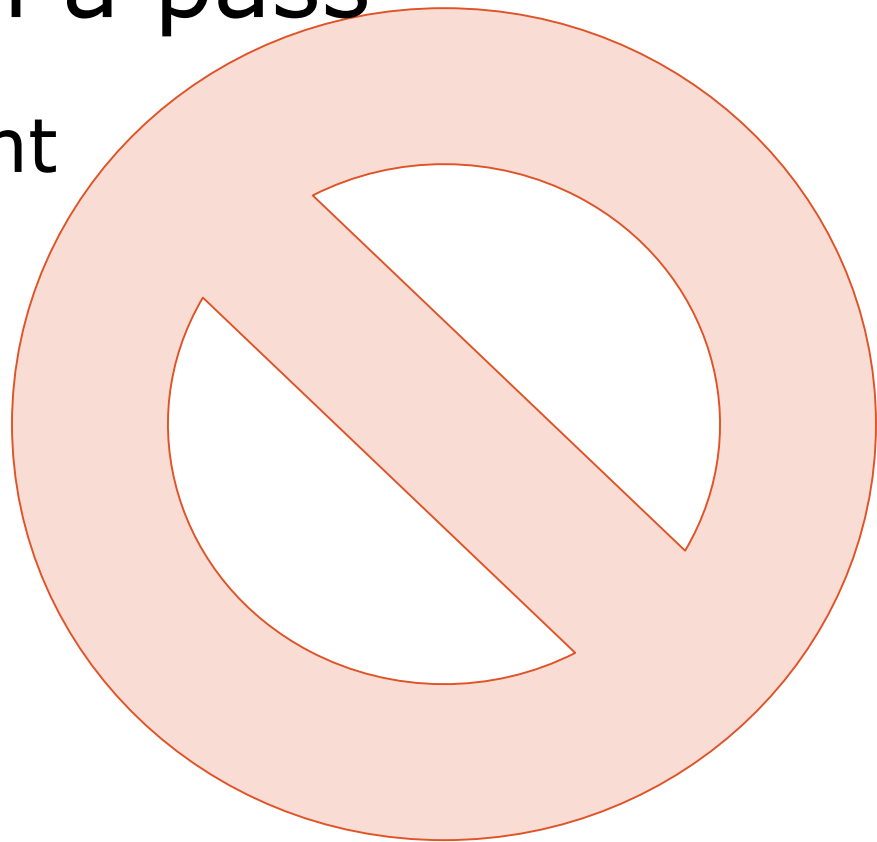
CONCEPT

Pass Zero: Planning

- One-Sheet Wiki Pitch
- Keep It Short
- Focus on One Unique Thing
- Story: Purpose, History, Current Event
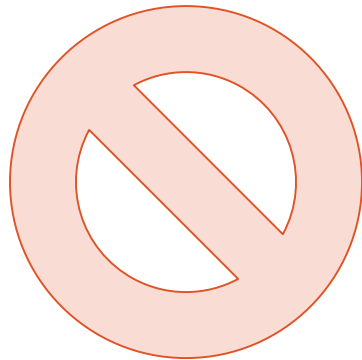- Generate Asset Request List

What NOT to do on a pass

- Importance of Restraint
- Avoid Needless Work
- What's Efficient NOW?

What not to do @ Pass Zero

- No Editor Layouts
- No Detailed Paper Maps
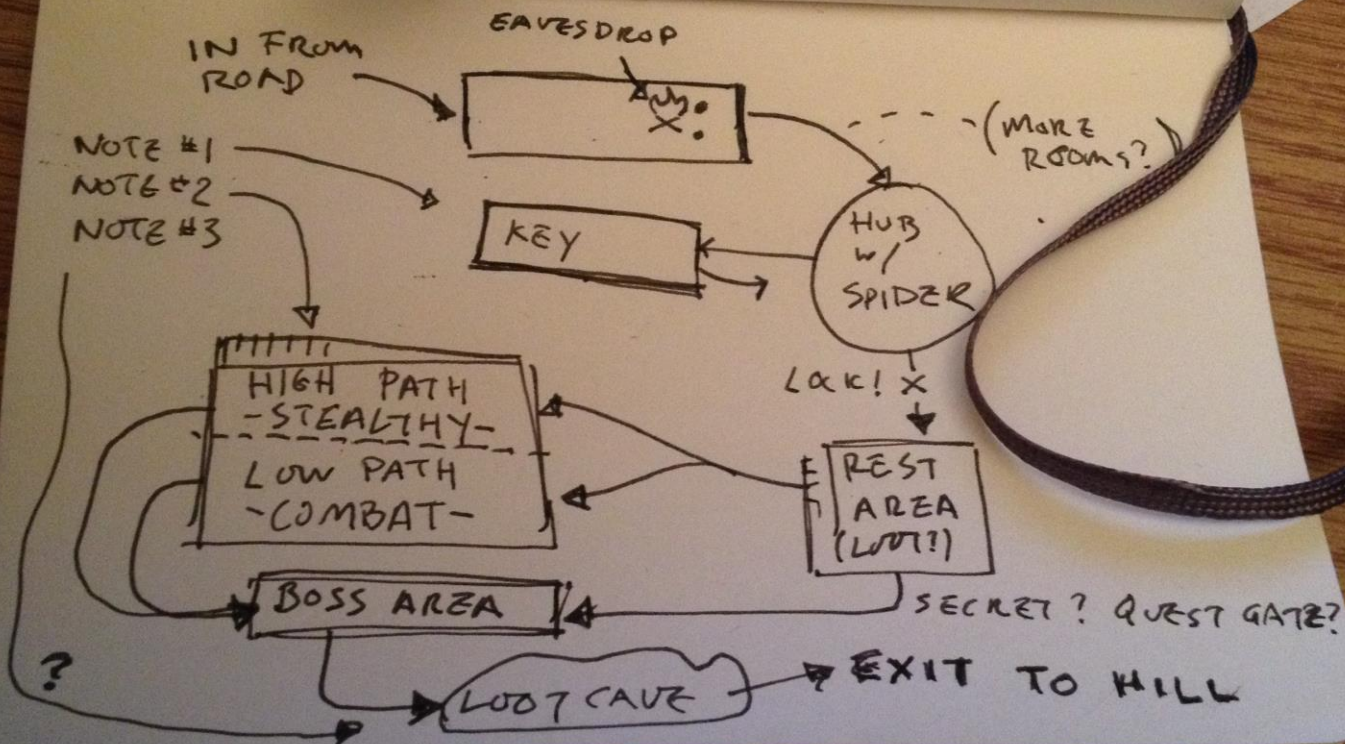
What not to do @ Pass Zero

- No Editor Layouts
- No Detailed Paper Maps
- No Fluff Documentation
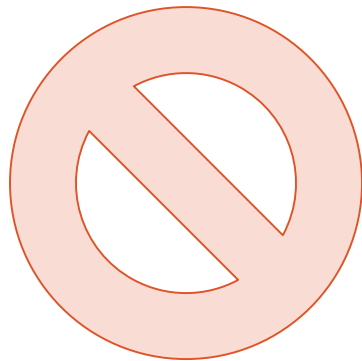
Time Passes...

Pass One: Layout

Full production is ramping up, but core mechanics are still missing. Level Design and Art have worked together to make Level "kits" available.

LAYOUT

CONCEPT
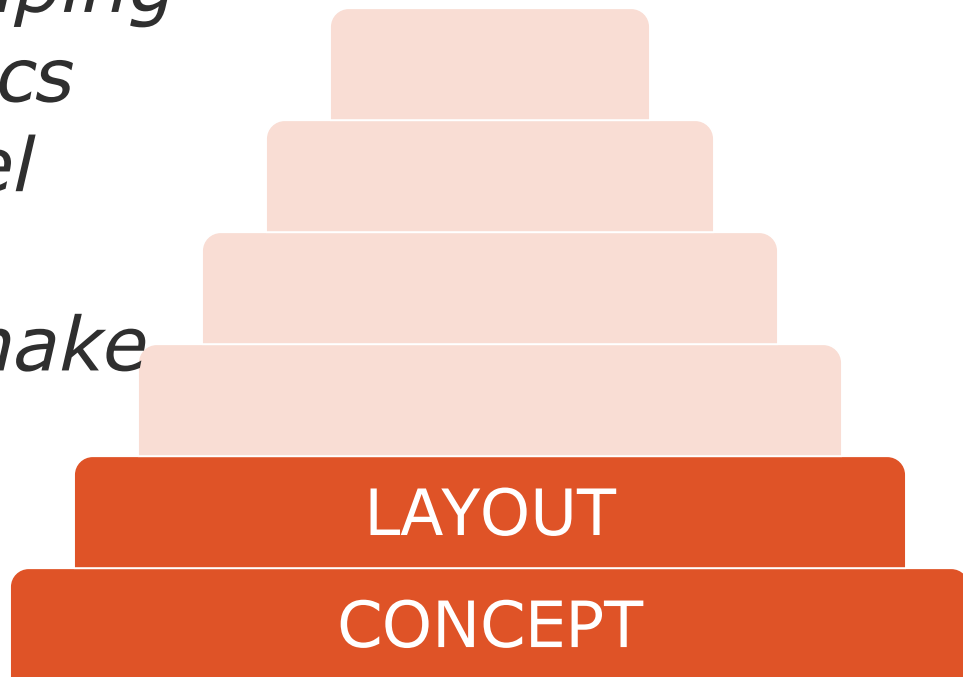
Pass One: Layout

- Build up a Complete Layout
- Basic Rhythm and Flow
- Learning & Stress Testing the Kits
- Incidental Writing
- Connectivity & World Data

What not to do @ Pass One

- No Optimization
- No Navmesh or Encounters
- No Lighting or Cluttering
- No Kitbashing & Arthacks
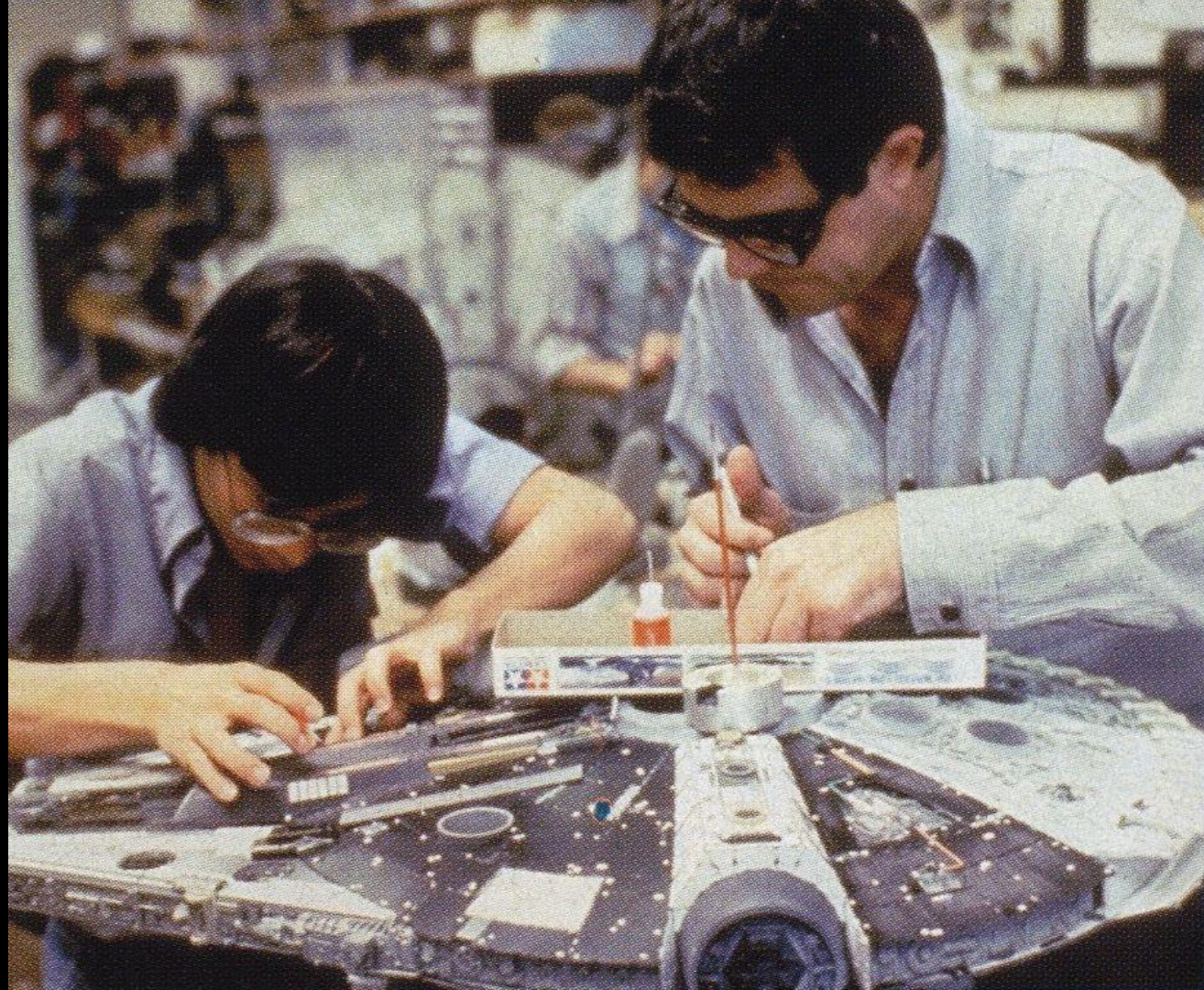
TIL how Bethesda made most of the tables of Skyrim

Bethesda rules!

Kitbashing & Arthacks

- Don't Do This On Early Passes
- Expose Problems – Don't Cover Up
  - "Putting Lipstick on the Pig"
- Last Resort? Different Story.

Pass Two: Gameplay

Core Mechanics are taking shape, and the game is playable - even fun, under the correct circumstances. Primary enemy types and weapons are available, although unpolished.

GAMEPLAY

LAYOUT

CONCEPT

Pass Two: Gameplay

- Enemies, Patrols, Loot, Scenes
- Navmesh: AI Pathing Support
- First Pass Revisions (if Applicable)
- Non-Combat Beats (Placeholder Okay)
- Early Optimization Bounds

Why Optimize Now?

What not to do @ Pass Two
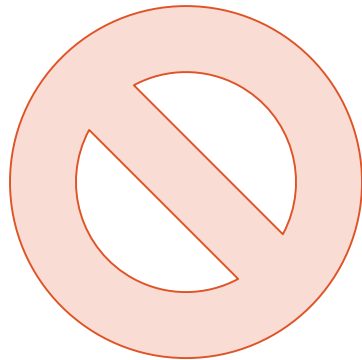
What not to do @ Pass Two

- Don't Blow it all up and start over
  - Tempting! New art, new ideas, sick of it, etc
  - "Different, Not Better."
- No In-depth scripting or handling
  - Proof-of-Concept functionality
  - Minimize pain of later changes

Gathering Feedback

- Anecdotal feedback
- Group Critiques, Peer Review
- Artist & Lead Notes
- Compile, Collate, Look for Trends
  - Reserve Reactions for Later

Pass Three: Content Complete

Almost all gameplay systems are functional. The majority of non-unique art is complete. The Home Stretch is just within sight.

COMPLETE

GAMEPLAY

LAYOUT

CONCEPT

Pass Three: Content Complete

- Nothing Temp, Missing or Unaccounted For
- Detail & Refine Gameplay
- Reconcile w/Systems Design Goals
- Work in Feedback Pairs

Every Third Pass is Different
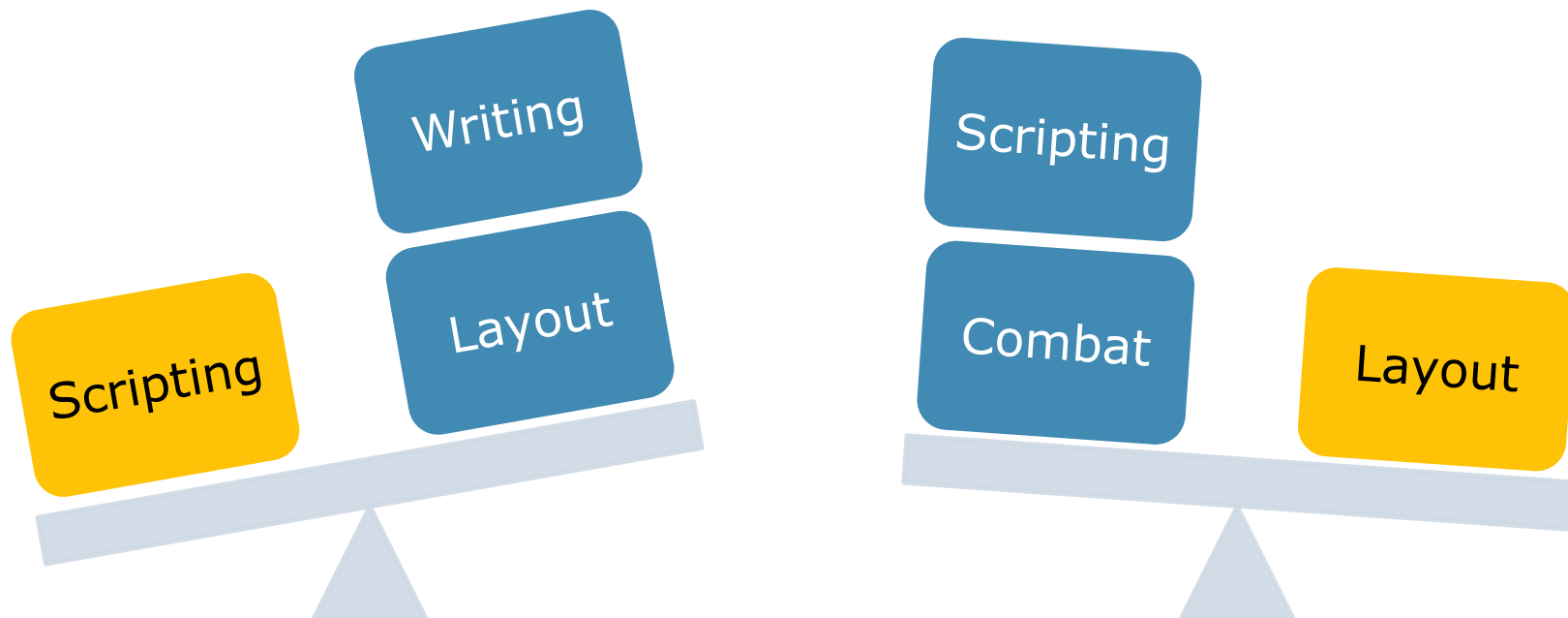
What not to do @ Pass Three

- No Detailed optimization
  - Wait for final lighting/clutter
- Don't Neglect Non-Golden Path
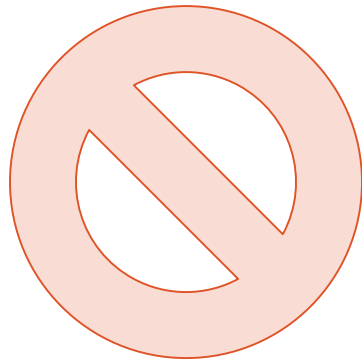
Okay, so a minor confession…
We don't really call it that.

The "Ship With Shame" Pass

- Complete doesn't mean Quality
- Cementing Confidence in the Level
    - Confidence it will get done
    - Confidence it will be good
- Onward To Opportunity Time

When It Just Isn't Working

- Re-Design Not Taken Lightly
- Repurposing, Down-Scoping
- Mulligan Pass
- Cuts
- Strike Teams

When It Just Isn't Working

- Re-Design Not Taken Lightly
- Repurposing, Down-Scoping
- Mulligan Pass
- Cuts
- Strike Teams
- Crunch

Bonus Pass: Lighting, FX, Clutter

The project focus is shifting to polish and optimization, and artists now have bandwidth to pitch in to help visually polish the levels we've created.

BEAUTY

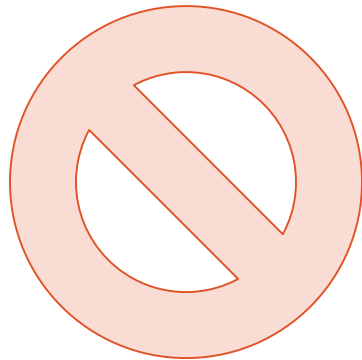COMPLETE

GAMEPLAY

LAYOUT

CONCEPT

Beauty Passes

- Lighting, Clutter, Effects, Sound
  - Artists Do this Better & Faster
  - Level Designer is *Mostly* Hands-Off
- Communicate Needs and Intent

What not to do @ Beauty Passes

- Don't Disengage

Final Pass: Polish, Polish, Polish

The Game is feature-complete and nearly done. Things will be finalized soon, and this is the time we have to polish and make sure everything is top quality by ship.

POLISH
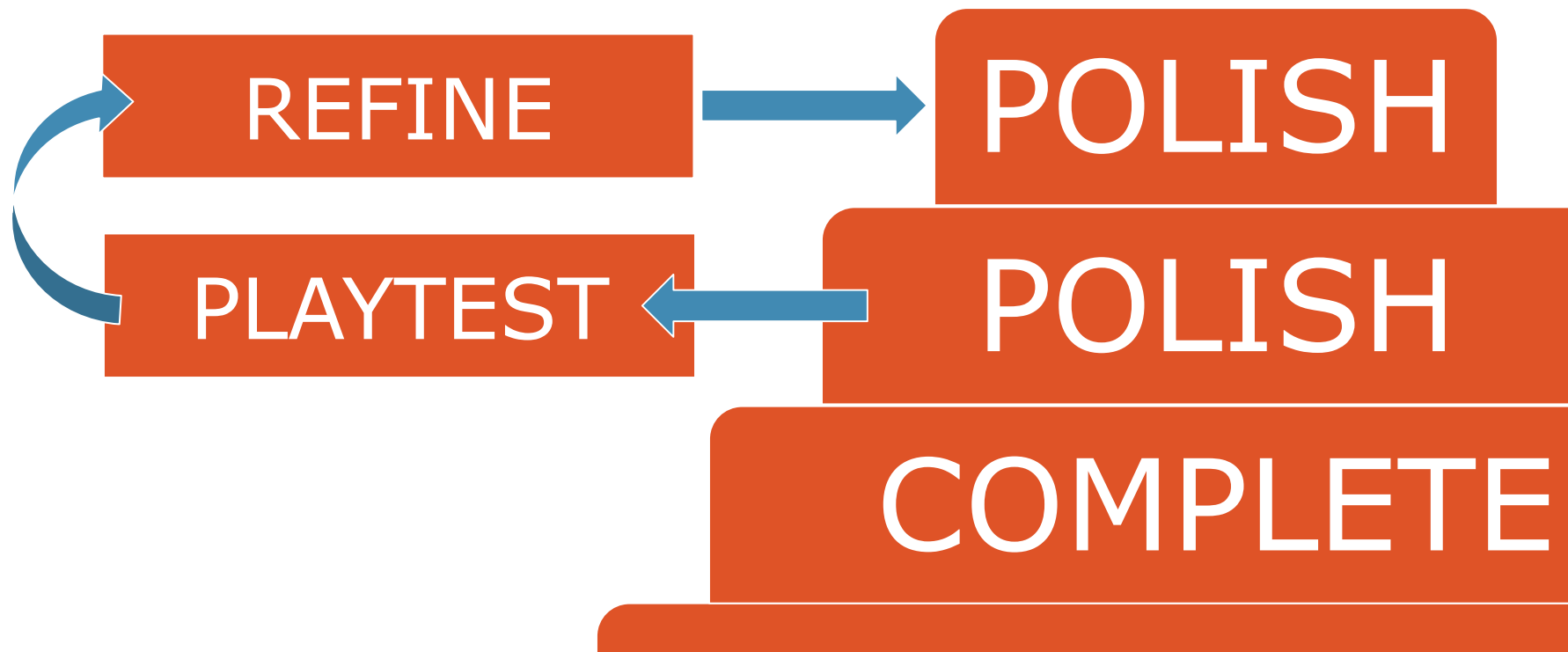
COMPLETE

GAMEPLAY

LAYOUT

CONCEPT

Final Pass: Polish

- Identify Opportunities and Improve
  - Respond to Accumulated Feedback
  - React to Late-Dev Realizations
  - Low-Hanging Fruit
- Incorporate Final Assets
- Test on Target Platforms
- Final Navmesh & Optimization

Another Confession –
Fourth Pass is Not *Always* Final Pass

Qualitative Iteration as Polish

REFINE → POLISH

PLAYTEST ← POLISH

COMPLETE

OPPORTUNITY TIME

POLISH

POLISH

POLISH

POLISH

POLISH

COMPLETE

Structural Iteration

GAMEPLAY

LAYOUT

CONCEPT

Keep the Big Picture In Sight

- Polish Parity
- No Game Gets Finished
- Do the Best You Can While You Can
- Work Healthy, Be Healthy
- Make Great Things - For A Long Time

Thanks!

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@JoelBurgess

Nielsen Group Iterative Design Study:
http://www.nngroup.com/articles/iterative-design/
Gunpoint Development Blog & Overview
http://www.pentadact.com/2013-10-15-gunpoint-development-breakdown/
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