



Transitioning From Linear to Open World Design with Sunset Overdrive

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GAME DEVELOPERS CONFERENCE®

MOSCONE CENTER · SAN FRANCISCO, CA

MARCH 2-6, 2015 · EXPO: MARCH 4-6, 2015

INSOMNIAC GAMES

1994

2014

20TH ANNIVERSARY





LINEAR GAMEPLAY

Overview

Overview

- *What do we mean by **linear** and **open world**?*

Overview

- *What do we mean by **linear** and **open world**?*
- *How did the **roles and responsibilities** of designers change?*

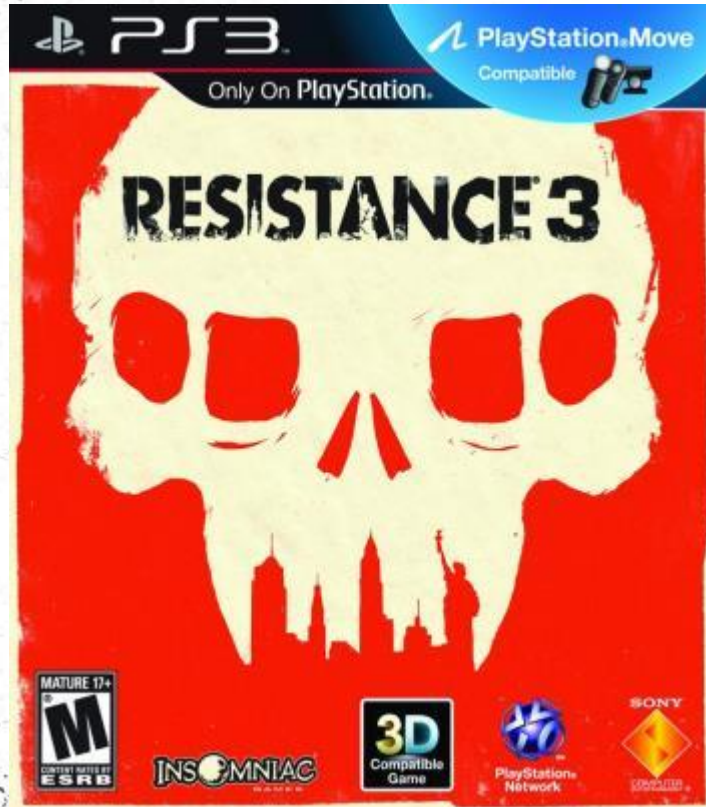
Overview

- What do we mean by **linear** and **open world**?
- How did the **roles and responsibilities** of designers change?
- How did our **workflow** change in implementing systems, spaces, and content?

Overview

- What do we mean by **linear** and **open world**?
- How did the **roles and responsibilities** of designers change?
- How did our **workflow** change in implementing systems, spaces, and content?
- What were the **side effects** of these changes?

Linear



Open World





PART 1:

Linear vs. Open World

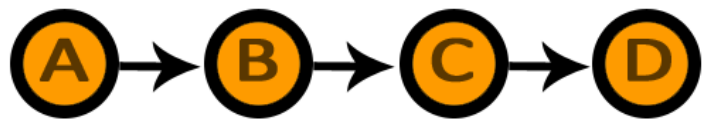


Linear

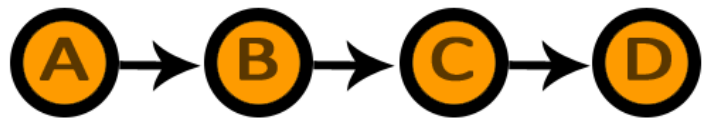
Open World

Linear

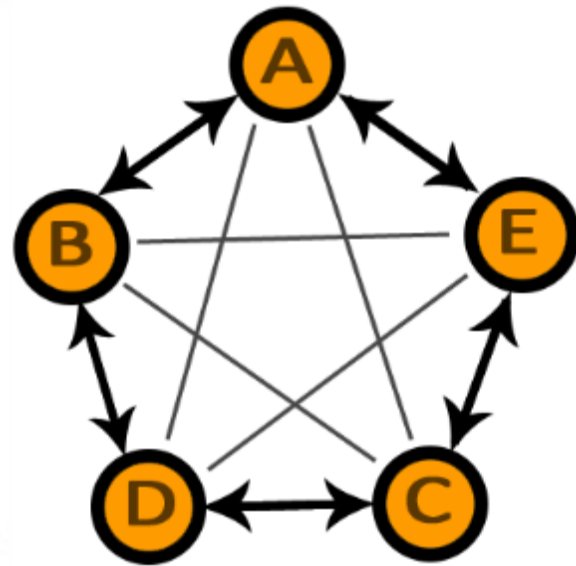
Open World

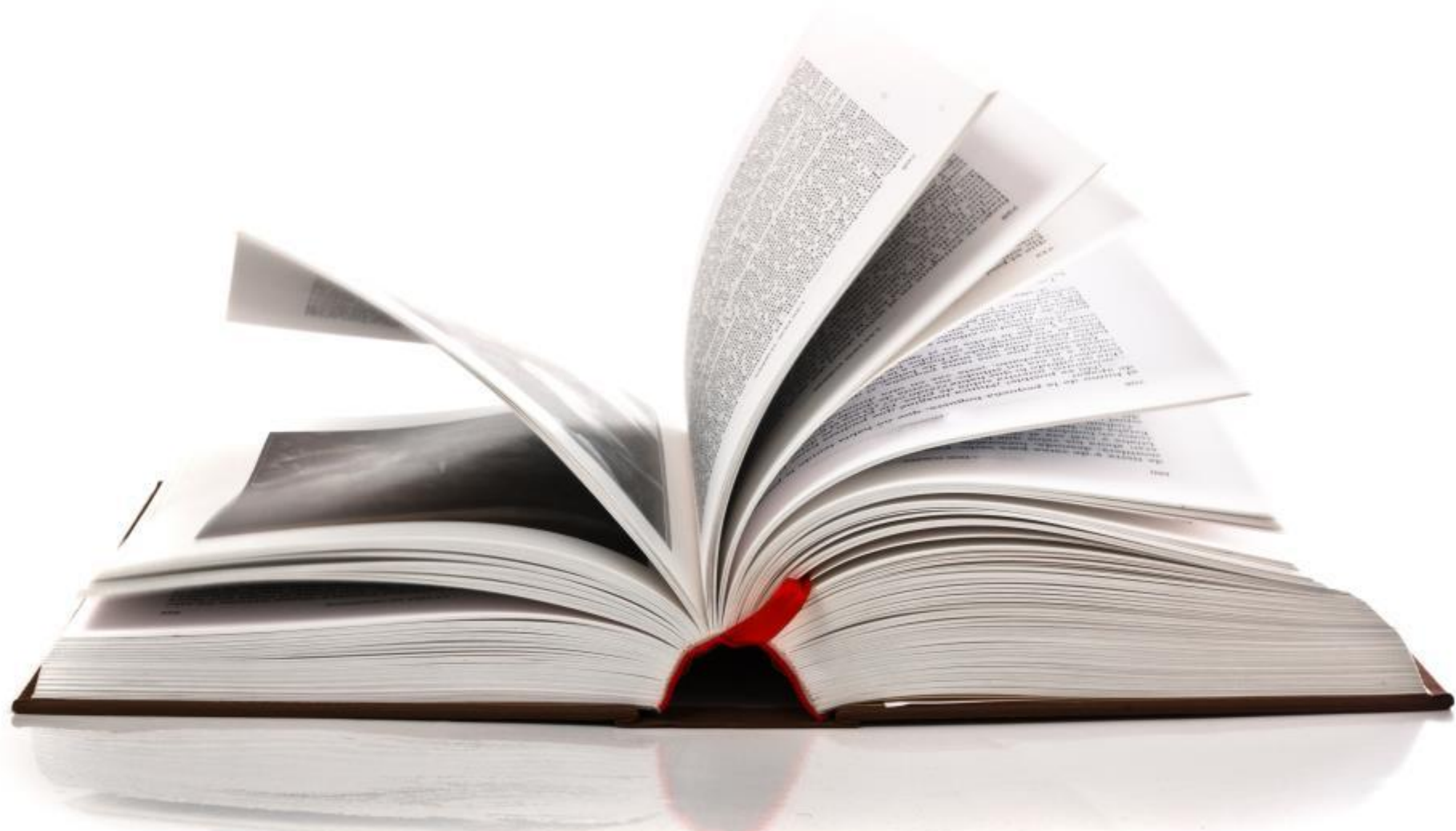


Linear



Open World







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The Free Encyclopedia

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Open world

From Wikipedia, the free encyclopedia

For other uses, see [Open world \(disambiguation\)](#).

An **open world** is a type of [video game level design](#) where a player can roam freely through a [virtual world](#) and is given considerable freedom in choosing how or when to approach objectives.^[1] The term **free roam** is also used, as is **sandbox** and **free-roaming**.^{[2][3]} "Open world" and "free-roaming" suggest the absence of artificial barriers,^[4] in contrast to the [invisible walls](#) and [loading screens](#) that are common in linear level designs. Generally open world games still enforce many restrictions in the game environment, either because of absolute technical limitations or in-game limitations (such as locked areas) imposed by a game's [linearity](#).

Contents [hide]

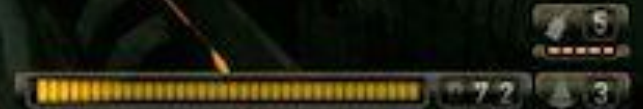
- 1 [Gameplay and design](#)
 - 1.1 [Procedural generation and emergence](#)
- 2 [History](#)
 - 2.1 [21st century](#)



What is a **page** in a video game?



“Based on **where** the player is, what do we know about the game state?”



KNOWN

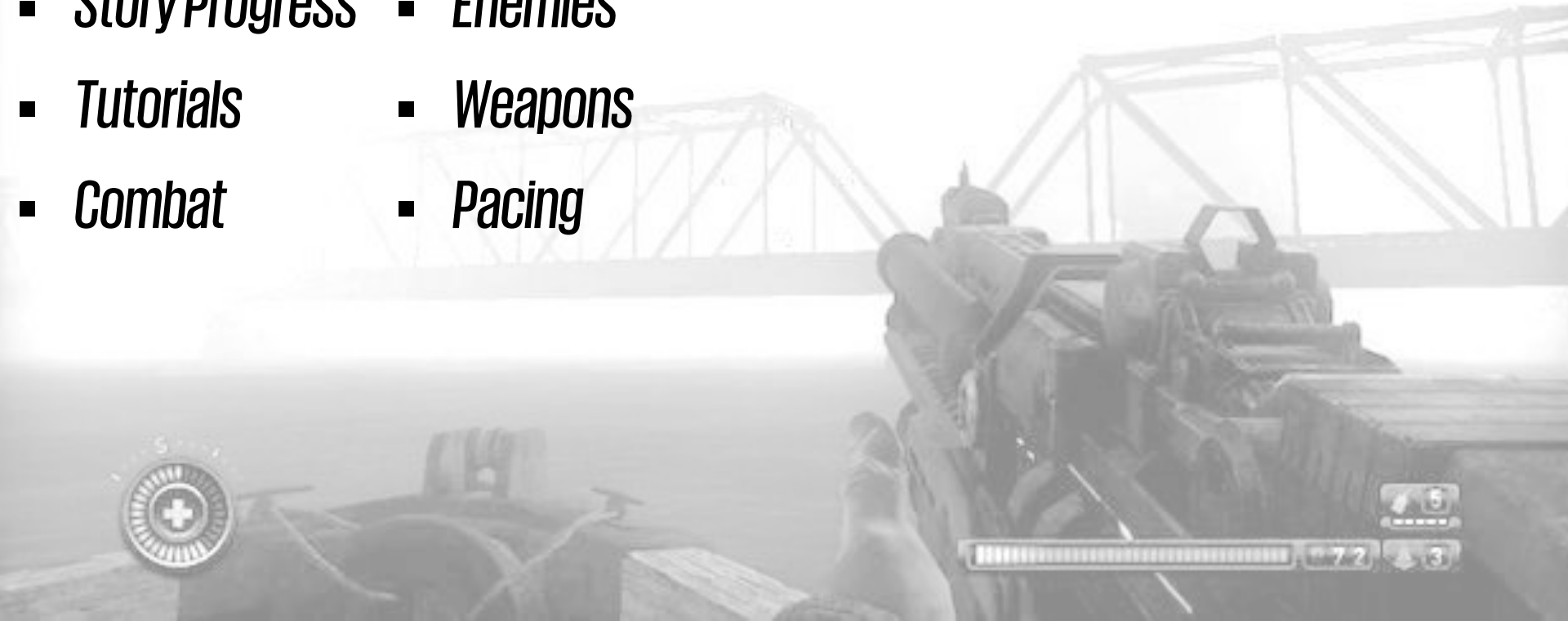
UNKNOWN



KNOWN

- *Time into game*
- *Story Progress*
- *Tutorials*
- *Combat*
- *Level Content*
- *Enemies*
- *Weapons*
- *Pacing*

UNKNOWN

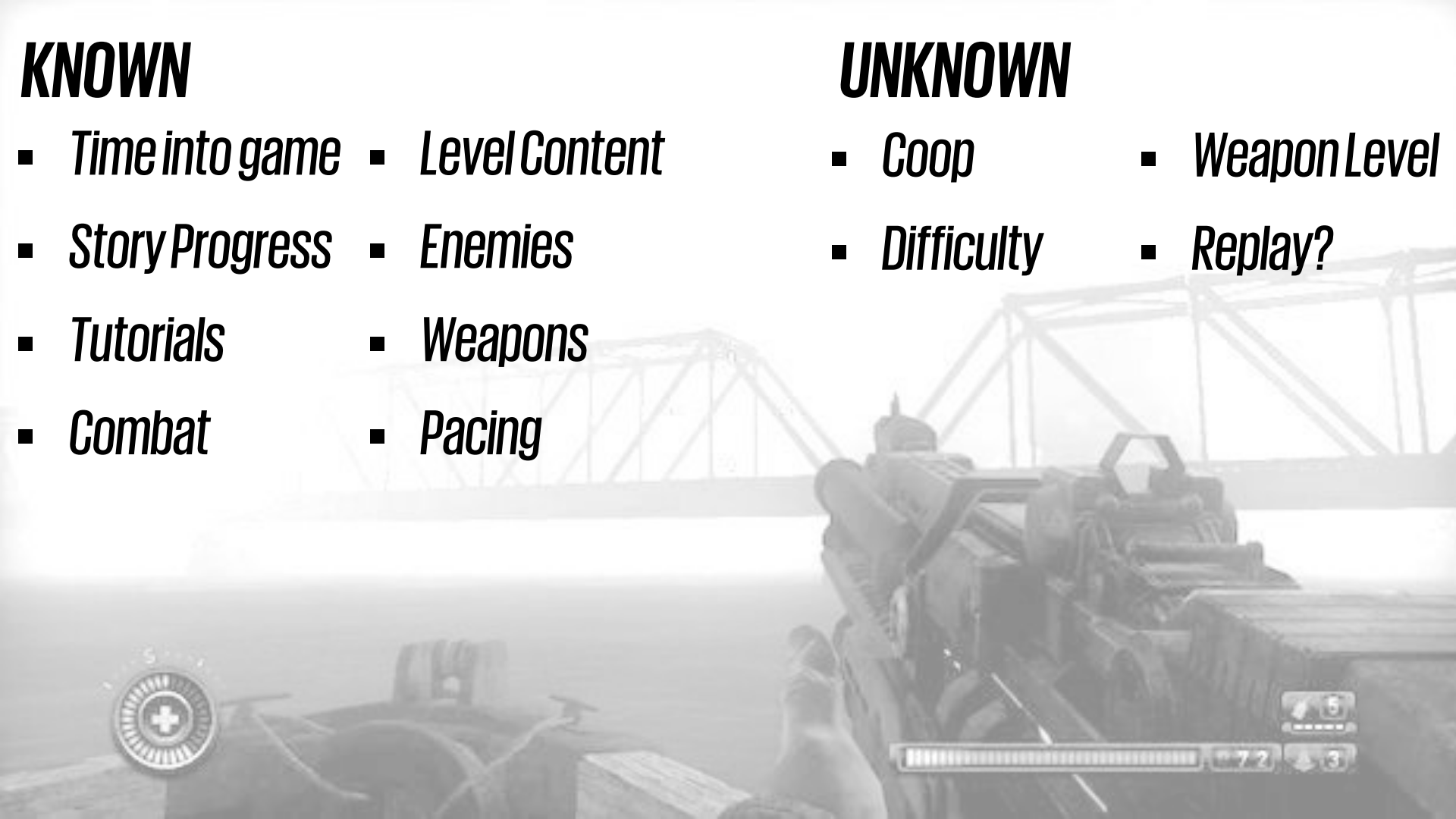


KNOWN

- *Time into game*
- *Level Content*
- *Story Progress*
- *Enemies*
- *Tutorials*
- *Weapons*
- *Combat*
- *Pacing*

UNKNOWN

- *Coop*
- *Weapon Level*
- *Difficulty*
- *Replay?*



Sunset Overdrive

SUBSCRIBE



KNOWN

UNKNOWN



KNOWN

- *Completed tutorial*

UNKNOWN



KNOWN

- *Completed tutorial*

UNKNOWN

- *Time Played?*
- *Story Moments?*
- *Mission?*
- *Weapons?*
- *Abilities?*
- *Areas Explored?*
- *Allies?*
- *Multiplayer?*
- *Pacing?*
- *Combat?*
- *Difficulty?*



PART 2:

Role of the Designer

Resistance 3 / Linear

Resistance 3 / Linear

- *Designers are **generalists***

Resistance 3 / Linear

- *Designers are **generalists***
- *Owned discrete **spaces***

Resistance 3 / Linear

- *Designers are **generalists***
- *Owned discrete **spaces***
- *Implemented **all gameplay** in that space*

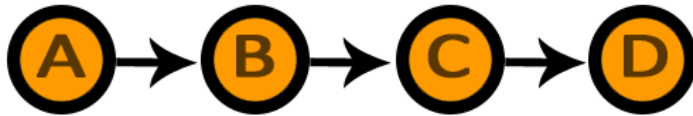
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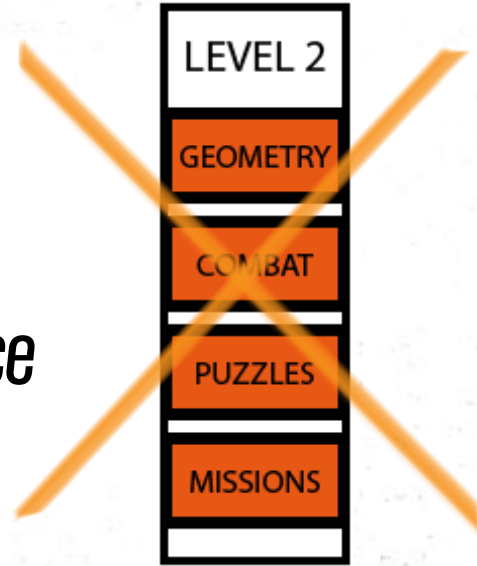
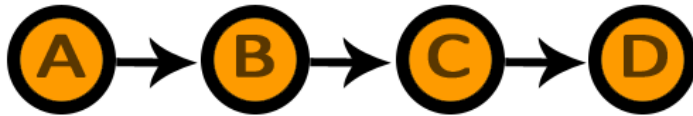
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Resistance 3 / Linear

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design generalists
became
design specialists

Sunset Overdrive / Open World

- *Designers are **specialists***

Sunset Overdrive / Open World

- *Designers are **specialists***
- *Owned **systems** not spaces*

Sunset Overdrive / Open World

- *Designers are **specialists***
- *Owned **systems** not spaces*
- *Implemented **one system in all spaces***



Vertical

Horizontal



Vertical

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
GEOMETRY	GEOMETRY	GEOMETRY	GEOMETRY
COMBAT	COMBAT	COMBAT	COMBAT
PUZZLES	PUZZLES	PUZZLES	PUZZLES
MISSIONS	MISSIONS	MISSIONS	MISSIONS

Horizontal

Vertical

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
GEOMETRY	GEOMETRY	GEOMETRY	GEOMETRY
COMBAT	COMBAT	COMBAT	COMBAT
PUZZLES	PUZZLES	PUZZLES	PUZZLES
MISSIONS	MISSIONS	MISSIONS	MISSIONS

Horizontal

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
GEOMETRY			
COMBAT			
PUZZLES			
MISSIONS			



What is a **system**?



What is the player **doing** in a space?

“Moving through it” →

traversal system

“Moving through it” →

traversal system

“Fighting enemies” →

combat system



“Moving through it” → traversal system

“Fighting enemies” → combat system

“Completing objectives” → mission & quest system



“Moving through it” → traversal system

“Fighting enemies” → combat system

“Completing objectives” → mission & quest system

“Searching for loot” → open world system

"Moving through it" → traversal system

"Fighting enemies" → combat system

"Completing objectives" → mission & quest system

"Searching for loot" → open world system

"Competing" → multiplayer system

LEVEL 1

LEVEL 2

LEVEL 3

LEVEL 4

GEOMETRY

COMBAT

PUZZLES

MISSIONS



Why specialists?

Why specialists?

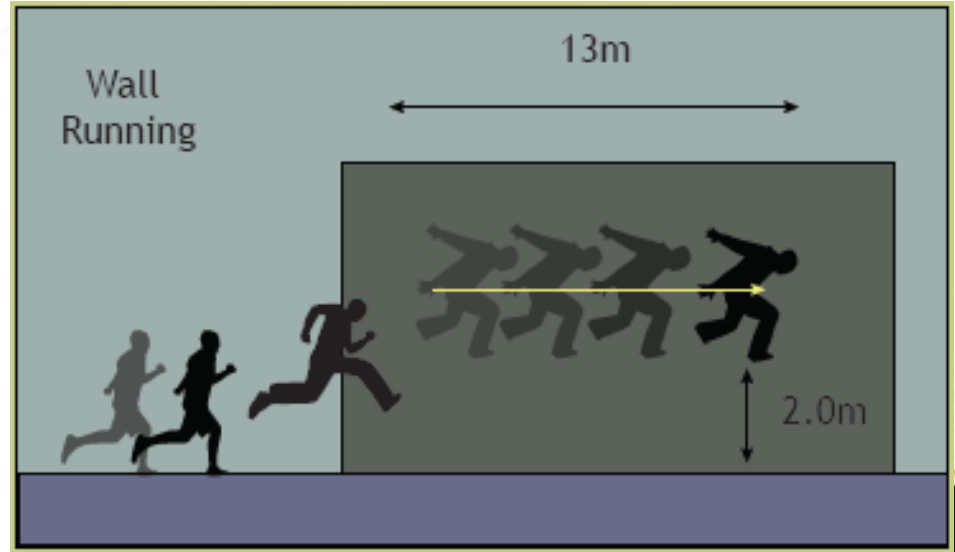
- *rise of **systems***

Why specialists?

- *rise of systems*
- *importance of **metrics & rules***

Why specialists?

- *rise of systems*
- *importance of **metrics & rules***



Why specialists?

- *rise of systems*
- *importance of metrics & rules*
- ***coordination*** *with departments*



IGGY PRESENTS TRAVERSAL

THE CITY IS YOUR PLAYGROUND



RUN

JUMP

BOUNCE

SWING

VAULT

CLIMB

WALL RUN

CORNER CLIMB

GLIDE

SLIDE

GRIND

UNDER GRIND

GOALS

- + ACTION ORIENTED
- + EXPLORATION
- + REQUIRES PLAYER ACTION
- + ACTIONS SELL ATTITUDE

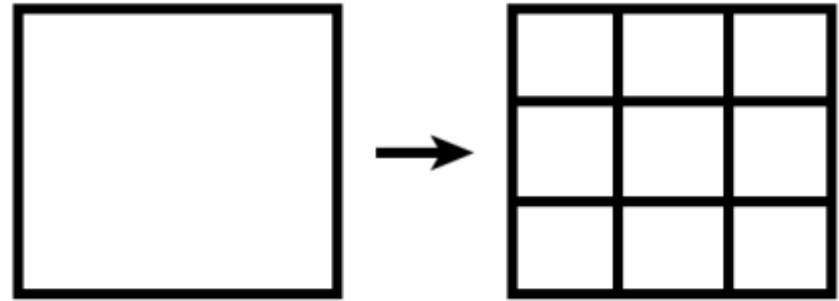
Why specialists?

- *rise of systems*
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- *new **tech** specific to open world*

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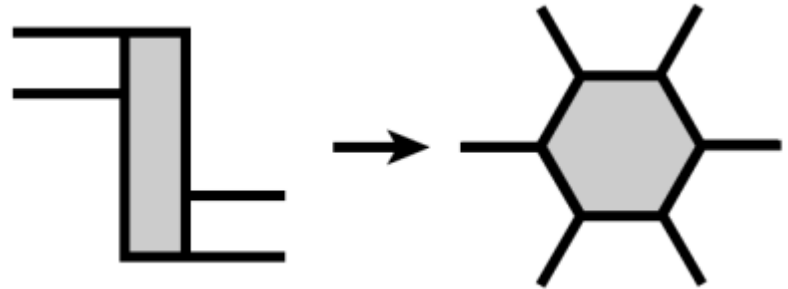
modularized art system



Why specialists?

- *rise of systems*
- *importance of metrics & rules*
- *coordination with departments*
- *new **tech** specific to open world*

hex-based streaming



Why specialists?

- *rise of systems*
- *importance of metrics & rules*
- *coordination with departments*
- *new **tech** specific to open world*

tool to generate roads



Why specialists?

- *rise of systems*
- *importance of metrics & rules*
- *coordination with departments*
- *new tech specific to open world*
- *tradition of **hand-scripted** gameplay*

Why specialists?

- *rise of systems*
- *importance of metrics & rules*
- *coordination with departments*
- *new tech specific to open world*
- *tradition of hand-scripted gameplay*

} full time job!



PART 3:

Workflow

Recap!

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
GEOMETRY	GEOMETRY	GEOMETRY	GEOMETRY
COMBAT	COMBAT	COMBAT	COMBAT
PUZZLES	PUZZLES	PUZZLES	PUZZLES
MISSIONS	MISSIONS	MISSIONS	MISSIONS

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
GEOMETRY			
COMBAT			
PUZZLES			
MISSIONS			

Systems Workflow

Resistance 3

Sunset Overdrive



Systems Workflow

Resistance 3

Sunset Overdrive

DESIGNER

Systems Workflow

Resistance 3

Sunset Overdrive

DESIGNER



define system

Systems Workflow

Resistance 3

Sunset Overdrive

DESIGNER



define system

PROGRAMMER



create system

Systems Workflow

Resistance 3

Sunset Overdrive

DESIGNER

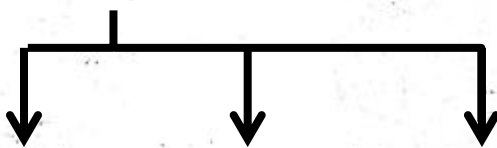


define system

PROGRAMMER



create system



DESIGNER

implement

DESIGNER

implement

DESIGNER

implement

Systems Workflow

Resistance 3

Sunset Overdrive

DESIGNER



define system

PROGRAMMER



create system



implement implement



DESIGNER

DESIGNER



DESIGNER



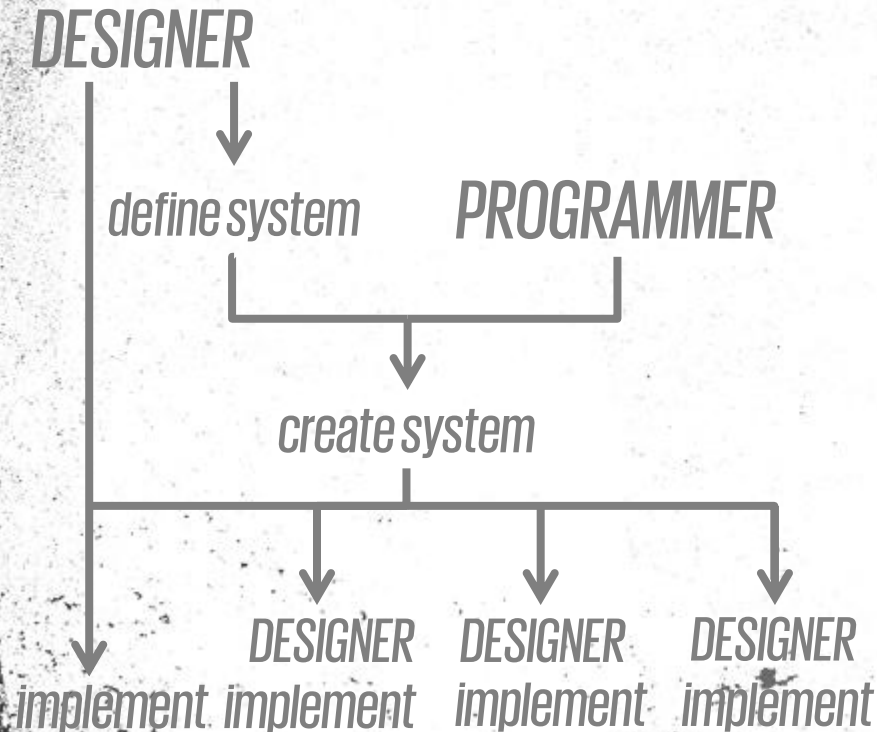
DESIGNER

implement implement

Systems Workflow

Resistance 3

Sunset Overdrive



Systems Workflow

Resistance 3

Sunset Overdrive

DESIGNER

DESIGNER

PROGRAMMER

define system

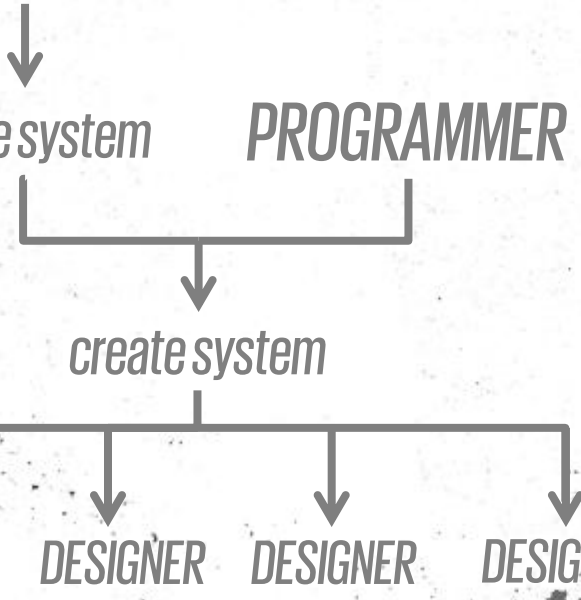
create system

implement implement implement implement

DESIGNER

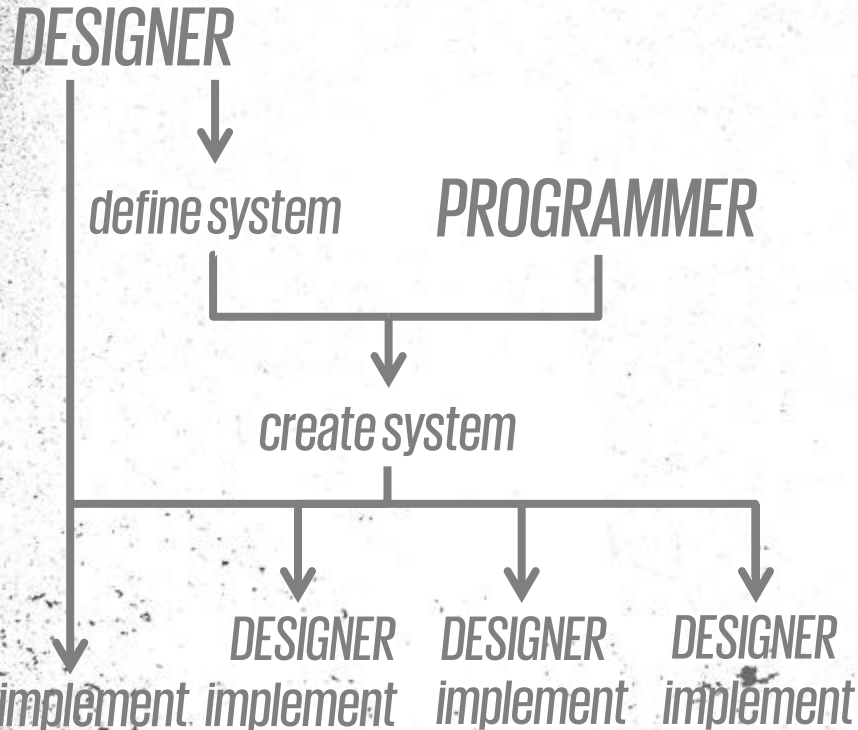
DESIGNER

DESIGNER

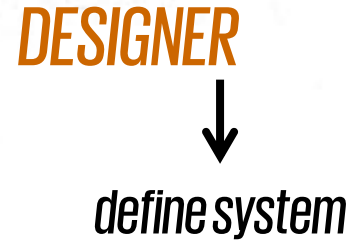


Systems Workflow

Resistance 3

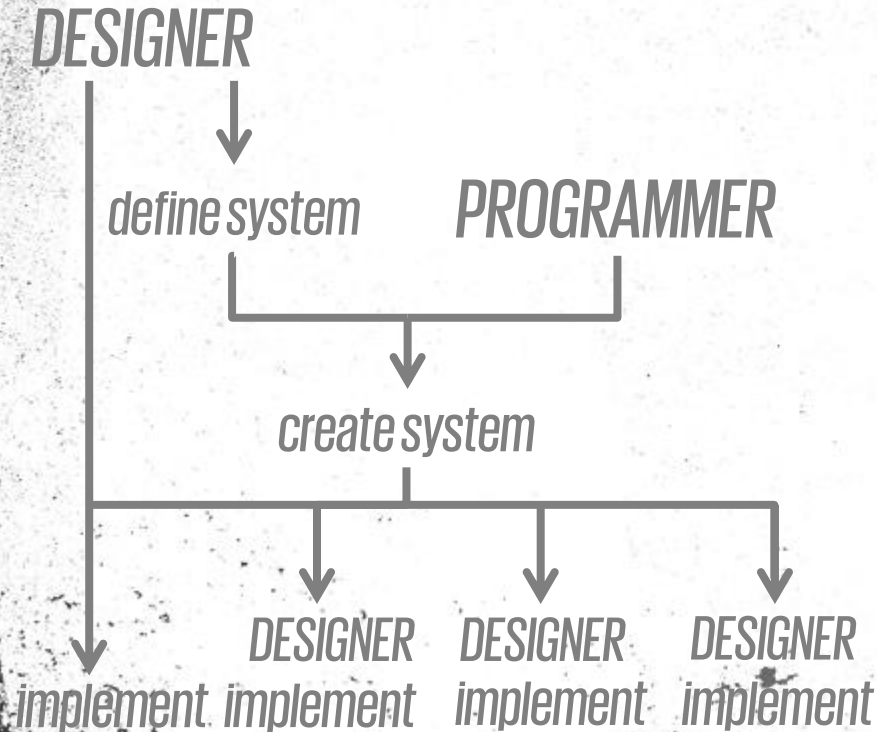


Sunset Overdrive

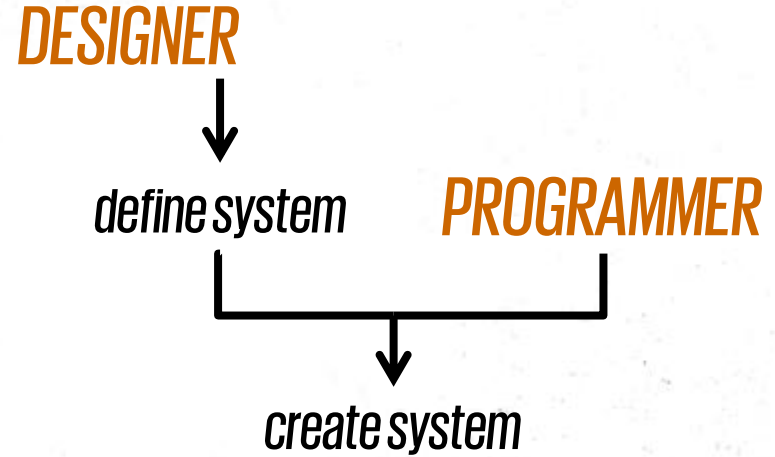


Systems Workflow

Resistance 3

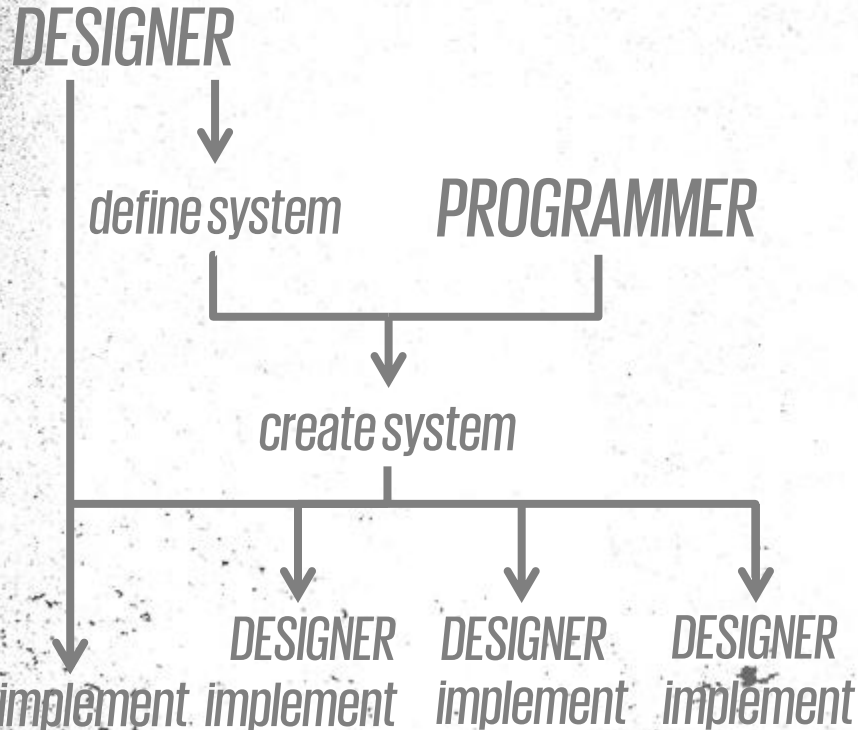


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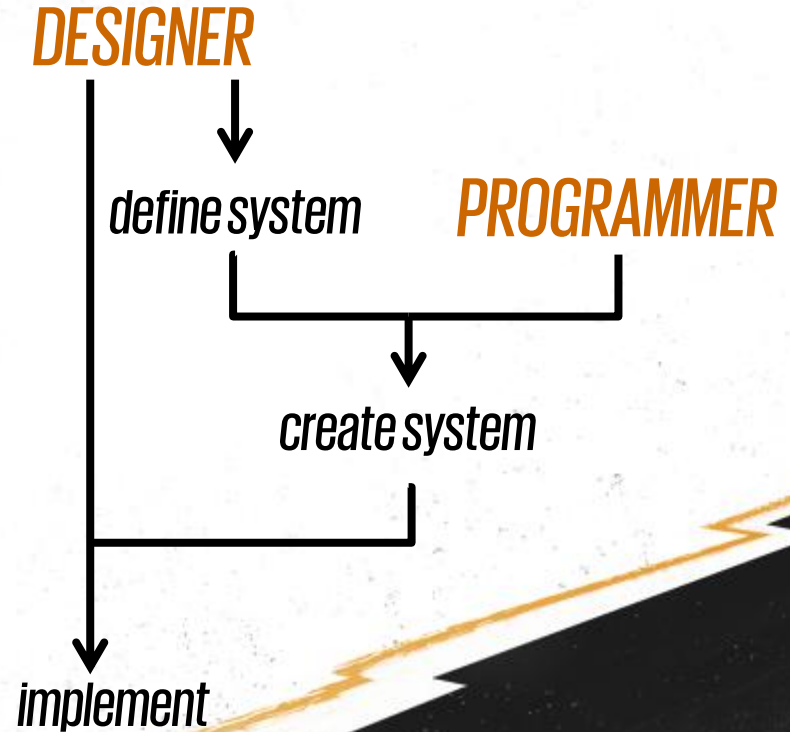


Systems Workflow

Resistance 3



Sunset Overdrive



Spaces & Content Workflow

Spaces & Content Workflow

Resistance 3



Spaces & Content Workflow

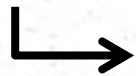
Resistance 3

DESIGNER

Spaces & Content Workflow

Resistance 3

DESIGNER



whitebox spaces

Spaces & Content Workflow

Resistance 3

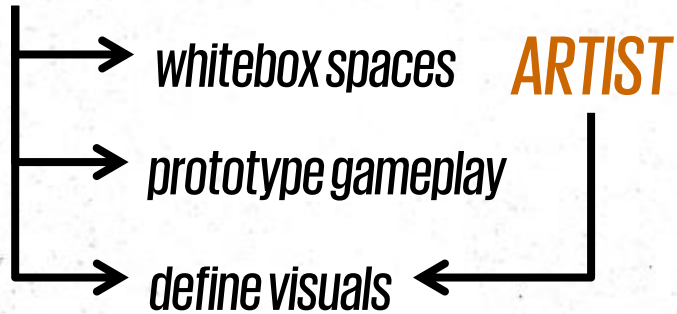
DESIGNER



Spaces & Content Workflow

Resistance 3

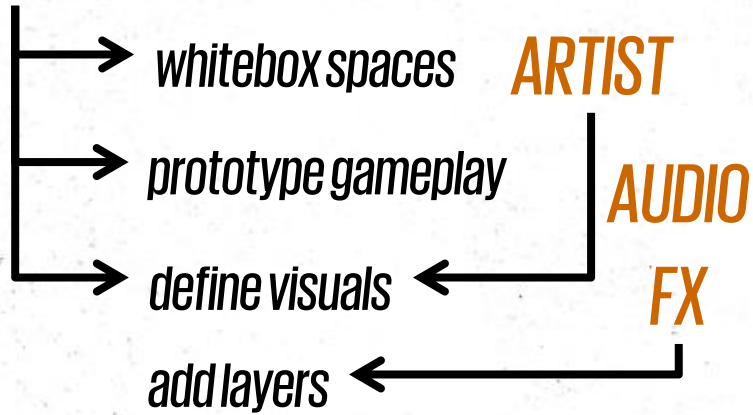
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Spaces & Content Workflow

Resistance 3

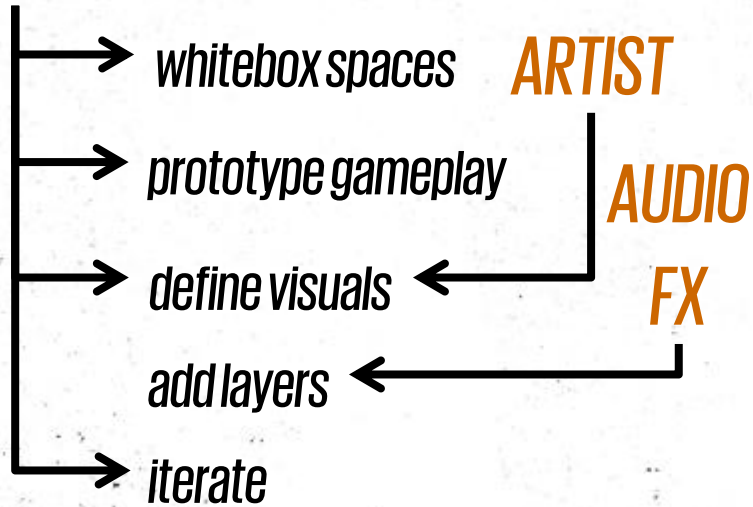
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Spaces & Content Workflow

Resistance 3

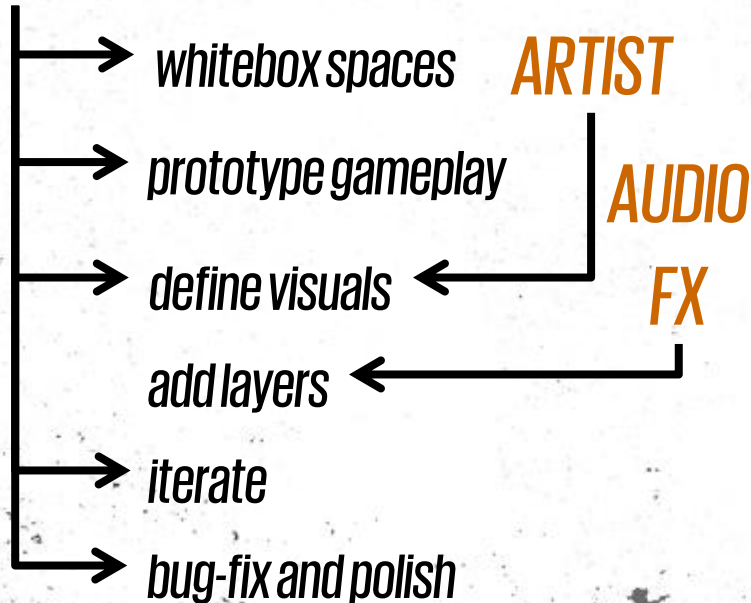
DESIGNER



Spaces & Content Workflow

Resistance 3

DESIGNER





Spaces & Content Workflow

Sunset Overdrive



Spaces & Content Workflow

Sunset Overdrive

WORLD BUILDER

Spaces & Content Workflow

Sunset Overdrive

WORLD BUILDER

└─→ *whitebox spaces*

Spaces & Content Workflow

Sunset Overdrive

WORLD BUILDER



Spaces & Content Workflow

Sunset Overdrive

WORLD BUILDER

- *whitebox spaces*
- *traversal layer*
- *split area into blocks*



Spaces & Content Workflow

Sunset Overdrive

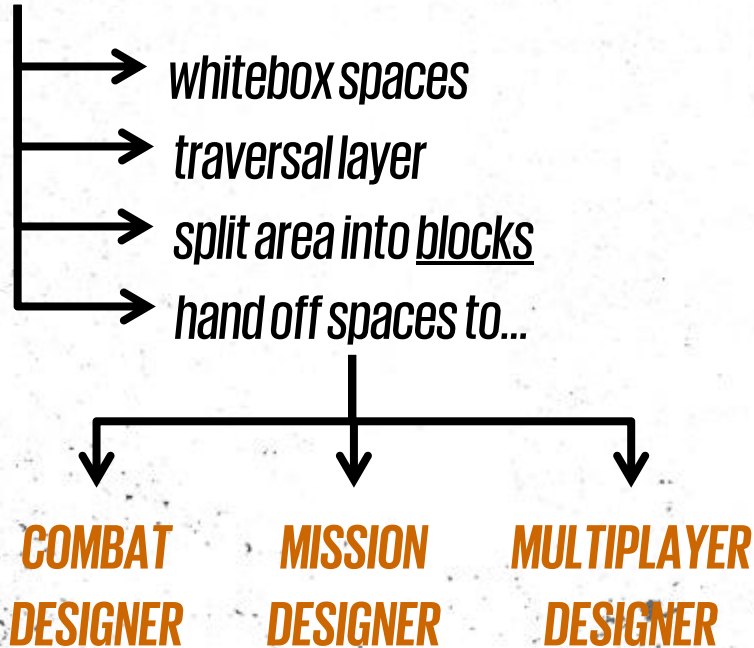
WORLD BUILDER

- 
- *whitebox spaces*
 - *traversal layer*
 - *split area into blocks*
 - *hand off spaces to...*

Spaces & Content Workflow

Sunset Overdrive

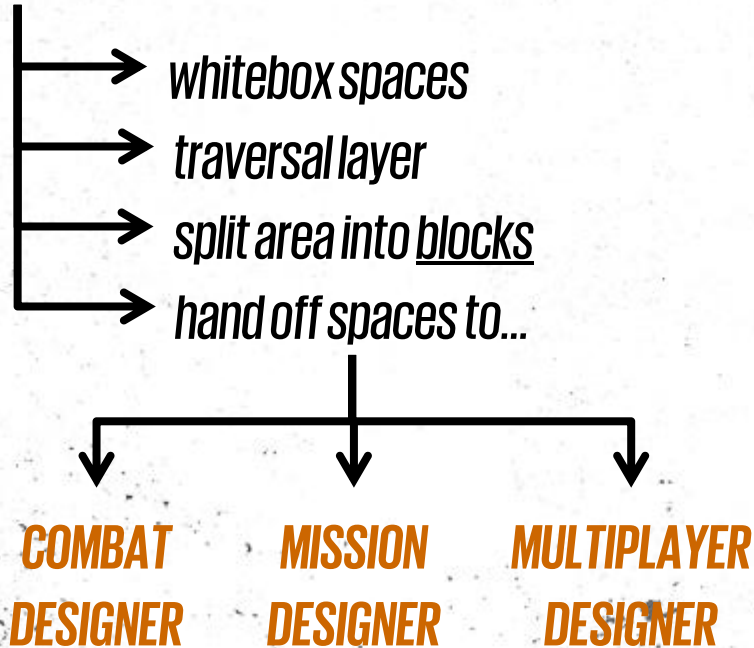
WORLD BUILDER



Spaces & Content Workflow

Sunset Overdrive

WORLD BUILDER

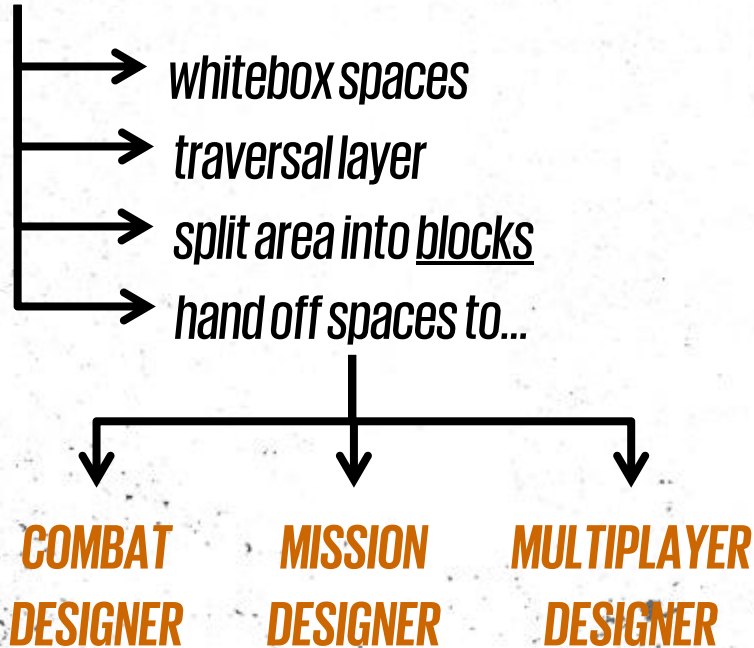


EACH SPECIALIST...

Spaces & Content Workflow

Sunset Overdrive

WORLD BUILDER



→ EACH SPECIALIST...

↳ optimizes the space



Spaces & Content Workflow

Sunset Overdrive

WORLD BUILDER



**COMBAT
DESIGNER**

**MISSION
DESIGNER**

**MULTIPLAYER
DESIGNER**

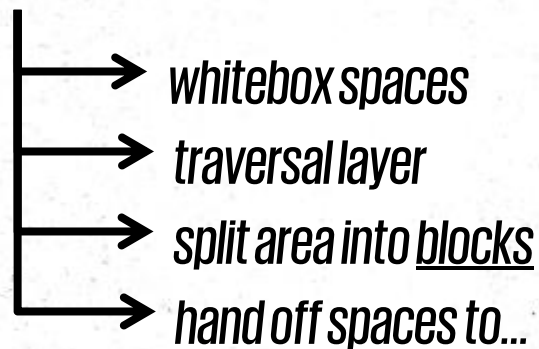
EACH SPECIALIST...



Spaces & Content Workflow

Sunset Overdrive

WORLD BUILDER



**COMBAT
DESIGNER**

**MISSION
DESIGNER**

**MULTIPLAYER
DESIGNER**

EACH SPECIALIST...



the space is
ready for gameplay...

***Gameplay content are instanced
layers called “overlays”***



Height
10 M

High-Rise
Penthouse
A1 M
HIGH RISE
APARTMENTS

Virtual Dog
Park
A1 M

Radio
Station
A2 M

Garbage
Truck
A2M

EMPIRE BLVD

Train
Station
A2 M

YANG DRIVE

ONTARIO BLVD

BAMBOO BLVD

WATERFRONT

OFFICE PARK
HIGH TECH

PARKING
GARAGE

TRANSIT CT

OLD LITTLE
TOKYO
BUCKIES
TREEHOUSE

HOTELS

HOTELS

HOTELS

Farmers
Market
43 M

UNKNOWN

OFFICE?

OFFICE?

LITTLE TOKYO
SHOPPING

LOTUS LANE

Q2

EMPIRE BLVD

CHERRY BLOSSOM ST

GYOZA DR

BONSAI PLACE

WATER DRIVE

KIMONO LANE

MOAR BUILDING

HIGH RISE
APARTMENTS

HIGH RISE
APARTM

BAMBOO BLVD

BUSHIDO ST

WATER DRIVE

C1

C2

C3

C5

C3

C6

C1

C7

C4

E1

E1

R2

R1

E2



High Rise
A1/06
HIGH RISE
A1 M
HIGH RISE
APARTMENTS

Train
A2/17
TRAIN STATION
A2 M

Virtual Dog
A1/07
FIND DOG
A1 M

A3/23
ROAST PIGEONS
OFFICE?

A2/12
MEET SCOUTS
OFFICE?

A2/20
DRAGON BOSS
BUCKIES
TREEHOUSE

Rad
station
A2 M
LTK_RAD_MISSION

Garbage
A2/09
MAIL TRUCK
HOTELS

A2/11
GLIDER
DESTROYED
OFD_OVP_MISSION

OFD_GOC_MISSION





High Rise
A1 / 06
HIGH RISE
A1 M
HIGH RISE APARTMENTS

Train
A2 / 17
TRAIN STATION
A2 M

Virtual Dog
A1 / 07
FIND DOG
A1 M

A3 / 23
ROAST PIGEONS
A3 M

A2 / 12
MEET SCOUTS
A2 M

LTK_RAD_MISSION
A1 / 08
FIZZIE BOY
A1 M

A2 / 09
MAIL TRUCK
A2 M

LONG
COMIC
A1 M

COMBAT
A1 M

OFD_GOC_MISSION

MINOR
COMBAT
BREAKING
A1 M

AM II
GLIDER
DESTROYED
A1 M

MINOR
COMBAT
BAGS OF MONEY
A1 M

OFD_OVP_MISSION

FLOYD 2
A1 M

LOOT
A1 M

TRAVERSAL
A1 M

PARKING GARAGE
A1 M

Farmers Market
A3 M

MINOR
COMBAT
A1 M

TRANSIT C1
A1 M

BUCKIE'S
TREEHOUSE
A1 M

DRAGON BOSS
A2 M

TRAVERSAL
A1 M

DESTINATION
A1 M

WATERFRONT
A1 M

OFFICE PARK
HIGH TECH
A1 M

WATER DRIVE
A1 M





Spaces & Content Workflow

Sunset Overdrive

- *Basic open world structure*
- *Traversal markup*
- *Create identity for space*
- ***Gameplay Layers***
- *Geometry Iteration*
- *Bug-fix & Polish*



Missions
Quests
Challenges
Multiplayer
Open World
Combat

Do designers hand off work?

	<i>Linear</i>	<i>Open World</i>
<i>Systems</i>		
<i>Spaces</i>		

Do designers hand off work?

	<i>Linear</i>	<i>Open World</i>
<i>Systems</i>	YES	NO
<i>Spaces</i>	NO	YES



Recap

Recap

- *What do we mean by **linear** and **open world**?*

Recap

- *What do we mean by linear and open world?*
- *How did the **roles and responsibilities** of designers change?*

Recap

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Recap

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- *How did the roles and responsibilities of designers change?*
- *How did our workflow change in implementing systems, spaces, and content?*
- *What were the **side effects** of these changes?*



PART 4:

Side Effects



The Bad

The Good

The Bad

- *feedback lag from leads*

The Good

The Bad

- *feedback lag from leads*
- *bottlenecks*

The Good

The Bad

- *feedback lag from leads*
- *bottlenecks*
- *prototype levels delayed transition into open world thinking*

The Good

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- *orphaned systems*

The Good

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- *"hot-potato" bugs*

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The Good

- *rapid content creation*

The Bad

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The Good

- *rapid content creation*
- *faster ramp up for new team members*

The Bad

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The Good

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- *Communication between designers*

The Bad

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- *orphaned systems*
- *"hot-potato" bugs*

The Good

- *rapid content creation*
- *faster ramp up for new team members*
- *Communication between designers*
- *Communication with art*

The Bad

- *feedback lag from leads*
- *bottlenecks*
- *prototype levels delayed transition into open world thinking*
- *invisible conflicts between layers*
- *orphaned systems*
- *"hot-potato" bugs*

The Good

- *rapid content creation*
- *faster ramp up for new team members*
- *Communication between designers*
- *Communication with art*
- *Communication with gameplay programmers*






Are these changes permanent?



Are these changes permanent?

No.





Q & A