GAME DESIGN DOCUMENT

GAME OVERVIEW

Title

- Working Title: *Heximperium*

Genre

- Casual 4X Puzzle (Single-Player, Turn-Based)

Platforms

- PC - Steam

Engine

- Unity

Pitch

- A **streamlined single-player 4X** (Explore, Expand, Exploit, Exterminate) that **replaces warfare (Exterminate) with a tactical puzzle** for the final scoring. The player **manages scouts**, **claims tiles**, **invests in infrastructures**, and **positions entertainers** to maximize his score.
- Marketing :
  Single-player, **miniaturized 4X game** in a low fantasy universe where the player **grows his empire and scores** through smart **entertainers placement**—**replacing** the traditional "**exterminate**" phase with an "**entertain**" puzzle. Explore a **procedurally generated map**, expand your territory to gather new resources, exploit them to develop your economy, and then entertain your domain with entertainers and festivals to earn points (**Explore, Expand, Exploit, Entertain**).
  Designed as a **fresh take on the 4X genre**, it introduces **newcomers** to 4X mechanics while offering **regular** players a more **relaxed, streamlined experience**—without sacrificing deep strategic planning.
- Elevator :
  A concise single-player 4X experience that replaces traditional warfare with a puzzle-like scoring system.

- Key selling points:
    - **"Experience Streamlined 4X"**: Fewer mechanics, same strategic depth—making it more accessible.
    - **"Stress-Free Game"**: No competitors, no defeat—just score as much as you can.
    - **"Rich Replayability"**: Procedurally generated maps and various strategies keep each session fresh.
    - **"Master Scoring"**: Optimize your scoring with a unique scoring system that rewards creativity and planning.
    - **"Single Player & Adult-Life Friendly"**: Play whenever you want and finish a full session in just 1–2 hours.

Pillars

- **Strategic Optimization**: Every decision (tile claiming, resource investment, entertainer placement) has a lasting impact.
- **Minimalist 4X Experience**: Captures the essence of 4X in a compact, approachable format.
- **Puzzle Scoring**: No warfare; instead, the player uses puzzle-like mechanics for scoring points.
- **Clarity**: All costs, incomes, and information are clearly communicated to the player.

References

- Classic 4X games (*Civilization*, *Humankind, Endless Space*) for the overarching structure.
- Board games (*Carcassonne* & *Pulsar 2948*) for tile management and various scoring strategies.
- *Dorfromantik* & *Islanders* as a reference for simplicity and clarity.

GAME DESIGN

3C (Character, Camera, Controls)

- **Character** :
    - The player takes on the role of an unseen ruler managing the empire's expansion, resource acquisition, and entertainment growth. There is no avatar or persona—this is a purely strategic perspective, allowing the player to interact directly with the hex map and its resources.
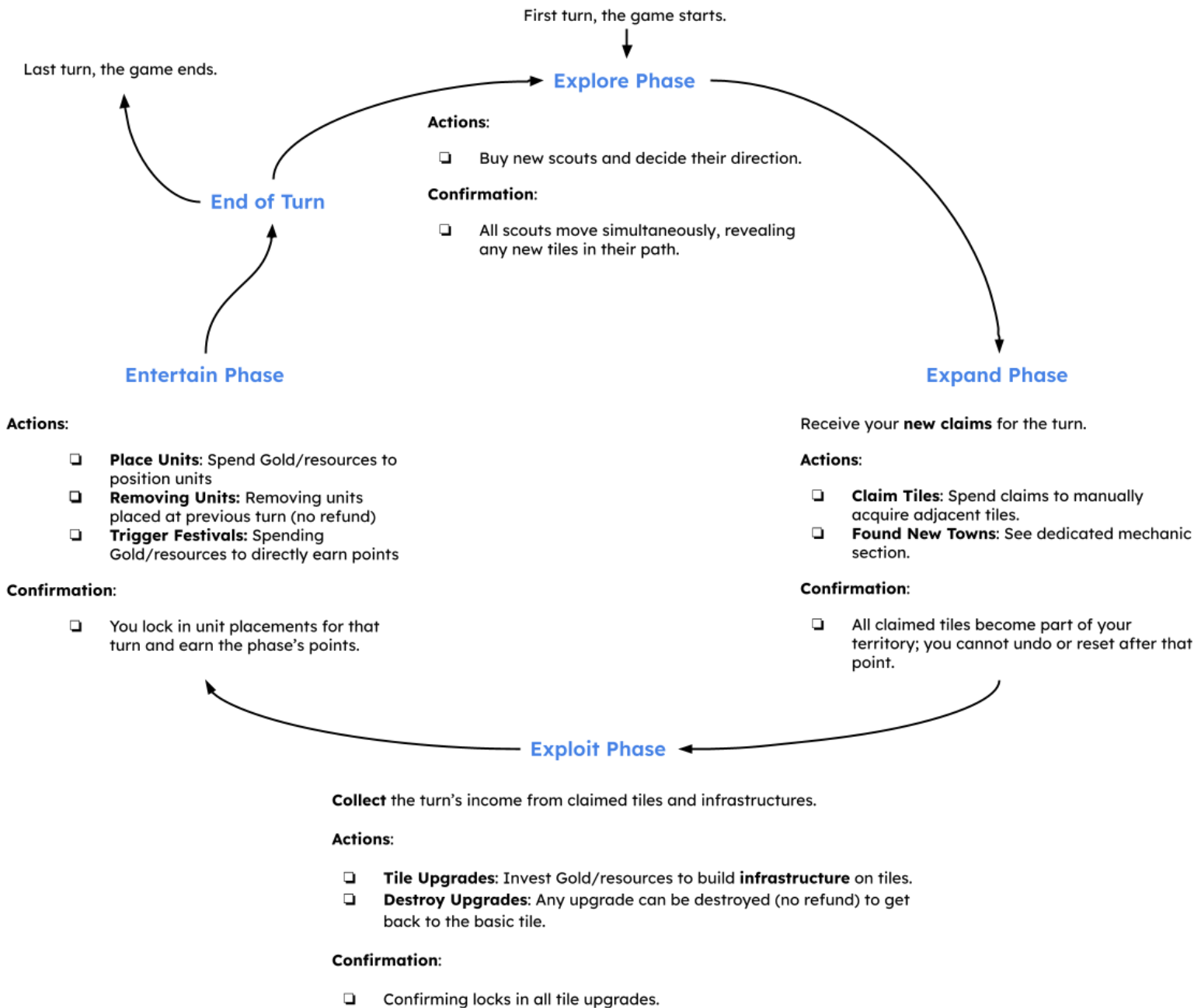
- **Camera** :
  - **Orthographic**
    - **Top-down** view of the hex grid.
    - No rotation or tilt; the map is always oriented in a fixed direction with an angle of 65° on X.
  - **Zoom**
    - **Continuous, linear zoom** controlled by the **mouse wheel**.
    - **Minimum Zoom**: Focus on a small cluster of tiles (around a dozen).
    - **Maximum Zoom**: Overview of the entire discovered map.
    - The zoom speed and exact values will be **fine-tuned** during prototyping.
  - **Panning**
    - **Keyboard**: Move the camera using **WASD** or **directional arrow** keys.
    - **Edge-Scrolling**: Moving the mouse cursor to the screen edges also pans the camera.
    - **Click-and-Drag**: **Right-click** and drag the mouse to move the view.
    - The camera is **locked within the map bounds**, preventing scrolling into void space.
  - **Accessibility & Rebinding**
    - **All camera controls** (keybinds for panning, zoom speed, etc.) are fully **rebindable**.
  -
- **Controls** :
  - **Mouse**
    - **Left Click**: Select/interact with tiles, confirm actions in UI (e.g., building infrastructure).
    - **Right Click**: Camera panning (as already noted under "Camera").
  - **Keyboard**
    - **WASD / Arrow Keys**: Camera panning.
    - **Enter**: End turn / proceed to the next phase.
    - **Escape**: Open pause menu or settings.

Gameplay Loop

Each **turn** is split into four **phases**, in the order of **Explore → Expand → Exploit → Entertain**. The player must **finish** each sub-phase before moving on to the next turn.

First turn, the game starts.

Last turn, the game ends.

Explore Phase

Actions:

- ❏ Buy new scouts and decide their direction.

Confirmation:

- ❏ All scouts move simultaneously, revealing any new tiles in their path.

End of Turn

Expand Phase

Receive your **new claims** for the turn.

Actions:

- ❏ **Claim Tiles**: Spend claims to manually acquire adjacent tiles.
- ❏ **Found New Towns**: See dedicated mechanic section.

Confirmation:

- ❏ All claimed tiles become part of your territory; you cannot undo or reset after that point.

Entertain Phase

Actions:

- ❏ **Place Units**: Spend Gold/resources to position units
- ❏ **Removing Units:** Removing units placed at previous turn (no refund)
- ❏ **Trigger Festivals:** Spending Gold/resources to directly earn points

Confirmation:

- ❏ You lock in unit placements for that turn and earn the phase's points.

Exploit Phase

Collect the turn's income from claimed tiles and infrastructures.

Actions:

- ❏ **Tile Upgrades**: Invest Gold/resources to build **infrastructure** on tiles.
- ❏ **Destroy Upgrades**: Any upgrade can be destroyed (no refund) to get back to the basic tile.

Confirmation:

- ❏ Confirming locks in all tile upgrades.

Available during all phases:

- **Reset**: allow the player to **undo all actions** in the current phase, as long as he hasn't confirmed it yet.
- **Upgrade tree**: Available in a dedicated menu at every phase, offering upgrades for expansion, economy, and entertainment.
- **Trade**: Manually sell or buy resources if desired. Available at any given phase in a dedicated menu.

Mechanics

All written values are subject to change.

Tiles

Each tile on the grid is defined by its type, which can be one of the following.

Basic Tiles

Simple tiles that only **generate Gold**. They can be **upgraded** (see below) once to **increase income** or **add a special effect**.

- Meadow → 1 Gold
- Hill → 1 Gold
- Forest → 2 Gold

Resource Tiles

Specific tiles, bringing **unique resources** if upgraded.

- Minerals vein → access to pigment
- Stone deposit → access to stone
- Horse breeding ground → access to horse
- Flowery glade → access to essence
- Dragon graveyard → access to emberbone
- Crystal cave → access to magic crystal

Hazardous Tiles

Harsh terrain that **slows scouts** and **provides no income**. They **cannot be upgraded** unless a Special Tile grants a unique effect.

- Mountain
- Desert
- Water
- Swamp
- Ice

Special Tiles

Specific tiles, with **powerful effects** unlocked once the tile is claimed. Rarity is variable. Can't be upgraded.

Tile Name	Biome	Effect	Rarity
Marble Vein	Mountain	+3 Gold, +1 Point on each Artist in your empire	Rare
Oasis	Desert	+3 Gold, surrounding desert tiles can be upgraded as they were meadows	Common
Aurora Sanctuary	Ice	+6 Points	Very Rare
Ancient Bog	Swamp	+3 Gold, +1 Point on each Mystic in your empire	Rare
Ancient Stone Circle	Grassland	+2 Gold, for each other Ancient Stone Circle you own, this tile gains an additional +2 Gold	Common
Faery Pond	Deep Forest	+3 Gold, +30 Gold when claimed	Rare
Sunken Ruins	Any (-mountain & desert)	+4 Gold, +2 Points	Very Rare
Mage Tower	Any	+4 Gold, +1 Point for surrounding and on tile entertainer	Very Rare
Starlit Grove	Any	+3 Gold, +1 Point on each Performer in your empire	Rare
Nomad's Trade Hub	Any (-ice)	+3 Gold, increase trade limit	Rare

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Scouts

Scouts are **specialized units** designed to **explore the map**, uncovering new tiles and resources. They play a crucial role in expanding the player's domain and ensuring access to valuable territories.

Acquisition

- **Purchasing Scouts**
  - Cost: Scouts are purchased using Gold. Firsts scouts are free, the number depends on the game settings.
  - New Scout Cost: 30 Gold

- **Starting Scouts**
  - Configuration: The number of starting scouts is a variable in game configuration, directly impacting the game's difficulty.

Scout Variables

Scouts are governed by **three variables**, all of which are **upgradable**:

1. **Speed**
   - Definition: Number of tiles a scout can move per turn.
   - Base Value: 3 tiles per turn
2. **Lifespan**
   - Definition: Number of turns a scout remains active before vanishing.
   - Base Value: 4 turns
3. **Reveal Radius**
   - Definition: Number of tiles revealed around the scout's current position.
   - Base Value: 1 (the tile the scout is on and adjacent tiles)

Mechanics

- **Direction Assignment**
  - The player assigns a starting point and direction for each scout.
  - Scouts move in a straight line along their assigned direction each turn.
- **Interaction with Hazardous Tiles**
  - Movement Cost: Moving into a hazardous tile doubles the movement cost (i.e., costs 2 instead of 1).
  - Effect: Scouts are slowed but do not detour; they continue in their assigned direction unless they hit the edge of the map, in which case they vanish.
- **Starting position**
  - Default: Scouts can only start in towns.
  - Infrastructure: Certain infrastructures will allow scouts to start from new positions, enabling access to additional scouting areas.
- **Autonomous exploration**
  - Once dispatched, scouts operate autonomously until their lifespan expires.
  - Scouts vanish automatically after their lifespan expires.
- **Permanent reveal**
  - A revealed tile stays revealed for the whole game.

Claims

Claims are a fundamental mechanic that allows the player to **expand his empire's territory** by acquiring new tiles. Each turn, the player earns a certain number of claims, which he can use to **manually select** and add **adjacent tiles** to his domain. Claimed tiles also reveal their neighbors.

Earning Claims

- **Base Claims per Turn**: The player gains a fixed number of claims at the start of each turn.
    - Initial Value: 4 claims per turn at the start of the game.

Using Claims

- **Manual Selection**: The player uses claims to select adjacent tiles and add them to his empire.
    - Adjacent Tiles Only: New tiles must be directly adjacent to already claimed tiles.
- **Claim Cost**
    - Basic & Resource Tiles: 1 claim per tile.
    - Hazardous Tiles: 3 claims per tile (reflecting their role as obstacles).
    - Special Tiles: 2 claims per tile (aligned with their higher rarity and powerful effects).

Towns

Towns serve as key **expansion points**, allowing the player to establish new territories **without relying solely on adjacent tile** claims. Unlike other infrastructures, towns can be **placed directly on unclaimed tiles**, effectively creating **separate regions** that remain part of the same empire.

Mechanics

- **Placement**: New towns can be established during the *Expand Phase*.
- **Tile Restrictions**: Towns can only be placed on basic tiles. There are no other placement restrictions.
- **Unlocking Towns**: The number of towns a player can found starts at zero and increases through a specific upgrade.
- **Cost**: Founding a new Town cost 100 Gold.
- **Confirmation & Permanence**: Once a town is placed and the *Expand Phase* is confirmed, it cannot be destroyed or relocated.

Functionality

- **Expansion Hubs**: Towns can create a new territory not linked to the initial one, and so avoid claiming too many Hazardous Tiles.
- **Income Boost**: Towns increase the Gold income of all adjacent infrastructure by +2 but remove base tile income.
- **Scouting Points**: Towns serve as starting points for scouts, identical to the initial town. There is no concept of a "capital"; all towns function equally.
- **Festivals**: Possibility to spend Gold and resources to start a festival, more details into dedicated section.

Resources

Resources are divided into **two categories**: **Gold**, used for general actions, and **Resources**, which serve specific strategic purposes.

Gold

- **Primary currency** used for:
    - Recruiting scouts
    - Constructing infrastructure
    - Placing entertainers
    - Unlocking upgrades
    - Trading resources
- **Income Source**: Gold is generated passively each turn from claimed tiles and can be increased through infrastructures and upgrades.

Resources

Resources **accumulate passively** per turn **once the appropriate infrastructure has been built** on a resource tile. They are used for specialized functions such as entertainer recruitment, specific infrastructures, and some upgrades.

There is two level of rarity:

- Common
    - Stone
    - Essence
    - Horse
- Rare
    - Pigment
    - Crystal
    - Emberbone

Infrastructures

Infrastructure represents **tile upgrades** that unlock **resources**, increase **Gold yield**, or provide **special effects**. Each infrastructure is **tied to specific tile types**, meaning it can only be built on compatible terrain. Some infrastructures are available in a **limited number** (can be upgraded).

Infrastructure	Allowed Tiles	Effect	Cost	Available copy
Farm	Meadow, Hill	+2 Gold	5 Gold	
Hunter's Cabin	Hill, Forest	+2 Gold	5 Gold	
Lumber camp	Forest	+4 Gold	10 Gold	
Stone Quarry	Stone Deposit	+3 Stone	10 Gold	
Floral Atelier	Flowery Glade	+3 Essence	10 Gold	
Horse Ranch	Horse Breeding Ground	+3 Horse	10 Gold	
Chroma Forge	Minerals Vein	+3 Pigment	20 Gold	
Crystal Mine	Crystal Cave	+3 Crystal	20 Gold	
Emberbone Refinery	Dragon Graveyard	+3 Emberbone	20 Gold	
Tavern	Meadow, Hill	+2 Gold, Scout Starting Position	15 Gold	2
Windmill	Meadow, Hill	Remove base tile income. +2 Gold to surrounding Farms	30 Gold	
Smokehouse	Hill, Forest	Remove base tile income. +3 Gold to surrounding Hunter's Cabin	40 Gold	
Village	Meadow, Hill, Forest	Remove base tile income. +X Gold (X equal the sum of the income of adjacent tiles)	50 Gold	3
Workshop	Meadow, Hill	Remove base tile income. +3 Points for surrounding and on tile Artists	30 Gold & 5 Stone & 5 Pigment	

Enchanted Pavilion	Meadow, Forest	Remove base tile income. +3 Points for surrounding and on tile Mystics	30 Gold & 5 Essence & 5 Crystal	
Amphitheater	Meadow, Hill	Remove base tile income. +3 Points for surrounding and on tile Performers	30 Gold & 5 Horse & 5 Emberbone	
Showcase Plaza	Meadow, Forest	Remove base tile income. +2 Points for surrounding and on tile Entertainers	40 Gold	

Entertainers

Entertainers are **placed on claimed tiles**, it does not matter if the tile has infrastructure or not. Each entertainer has four variables, **cost ,points, family and synergy**.

Entertainer	Cost	Points	Family	Synergy
Sculptor	20 Gold + 5 Stone	2	Artists	Magician & Fire eater
Painter	30 Gold + 5 Pigment	4		Aroma weaver & Equestrian dancer
Aroma weaver	20 Gold + 5 Essence	2	Mystics	Painter & Equestrian dancer
Magician	30 Gold + 5 Crystal	4		Sculptor & Fire eater
Equestrian dancer	20 Gold + 5 Horse	2	Performers	Painter & Arowa weaver
Fire eater	30 Gold + 5 Emerbone	4		Sculptor & Magician

- **Families:** Each entertainer belongs to one family, families are boosted by specific infrastructures and upgrades.
- **Synergies:** For each adjacent entertainer sharing a synergy, the entertainer scores 2 more points.

Festivals

During the Entertain phase, the player has the opportunity to **initiate festivals** in his **towns**. Festivals are grand, costly events that yield **substantial points** but only **for one turn**.

Mechanics

- **Types**: There are six distinct festival types, each aligned with a specific resource:

Festival	Cost	Points
Stonecraft Jubilee	200 Gold & 30 Stone	100
Canvas Extravaganza	400 Gold & 20 Pigments	150
Floral Fête	200 Gold & 30 Essences	100
Arcane Spectacle	400 Gold & 20 Crystal	150
Equestrian Gala	200 Gold & 30 Horse	100
Blazing Carnival	400 Gold & 20 Emberbone	150

- **Towns**: Each town can host one festival at a time.
- **Cooldown**: Each festival type has a cooldown period of 5 turns without upgrades, the cooldown is linked to the town, not the festival type.

Celebrations

Celebrations are an **automatic reward** for achieving a **specific goal**, giving a **great amount of points** to the player.

- Each celebration can only be done **once per game**. All possible Celebrations are listed in a dedicated menu.
- A pop-up appears when a Celebration is realized and the Celebration is marked as done in the menu.
- Some conditions can be adjusted depending on the game length.

Name	Condition	Reward
Great Founder	Found 3 Town	200 Points
Unified Realm	Reach the last turn without founding a new Town	1000 Points
Master Cartographer	Reveal 90% of the map	750 Points
Conqueror	Claim 150-250-400 tiles	750 Points
Austere Governor	Reach the last turn without initiating one festival	1500 Points

Unpopulated Streets	Reach the last turn without placing one entertainer	2500 Points
Agricultural Star	Build 25-50-80 Farms	500 Points
Artists' Patron	Place 25-50-80 Artists	500 Points
Mystic Scholar	Place 25-50-80 Mystics	500 Points
Performers' Aficionado	Place 25-50-80 Performers	500 Points
Infrastructure Magnate	Build at least one of every type of infrastructure	200 Points
Parsimonious Leader	Reach the last turn with more than 750-1000-1500 Gold available	750 Points
Scout Commander	Have 8-12-16 active scouts at any point in the game	300 Points
Festival Maestro	Initiate each type of festival at least once	300 Points
Upgrade Virtuoso	Purchase all available upgrades	1500 Points
Trade Baron	Trade for more than 250-500-1000 resources units worth	1000 Points
Harmonious Empire	Reach the last turn with at least 15-20-30 entertainers of each family (Artists, Mystics, Performers)	500 Points
Gala Enthusiast	Initiate a total of 15-20-30 festivals throughout the game	750 Points
Psychorigid Boss	Reach the last turn with an equal number of Artists, Mystics, and Performers	2000 Points
Multicultural Nation	Build a Village in each biome (Grassland, Deep Forest, Mountain, Desert, Swamp, Ice)	2000 Points

Upgrades

Upgrades enhance different aspects of gameplay and are divided into **three categories**:

- **Expansion:** Improves scout efficiency and expansion mechanics.

- **Economy**: Enhances economic infrastructures.
- **Entertainment**: Strengthens entertainers and scoring infrastructures.

Upgrades can have different properties:

- **Tiered**: Can be purchased multiple times to increase their effect.
- **Exclusive**: Two upgrades can be exclusive, meaning choosing one locks the other.
- **Conditional**: Requires specific achievements (e.g., having X entertainers placed, owning a specific infrastructure).

Expansion Upgrades				
Upgrade	**Effect**	**Type**	**Cost**	**Unlock Condition**
Scout speed	On all scouts, +1 tile per turn	Tiered (x3)	50 Gold	
Scout sight	On all scouts, +1 reveal radius	Tiered (x2)	100 Gold	
Scout lifespan	On all scouts, +1 turn	Tiered (x3)	50 Gold	
Mounted Scout	On all scouts, +2 tiles per turn	Exclusive	50 Horse	Building 3 Horse Ranch
Trained Scout	On all scouts, ignores hazardous tile speed penalty		250 Gold	Building 1 new Town
Final Sight	When a scout reaches the end of its lifespan, it reveals all tiles in a 6-tile radius.	Exclusive	40 Crystal	
Wandering Minstrel	When a scout reaches the end of its lifespan, it scores 2 Points for each revealed tile.		400 Gold	
Claim Authority	Gain +1 additional claim per turn.	Tiered (x5)	50 Gold	
Claim Conservation	Allows saving 1 additional unused claim per turn	Tiered (x10)	30 Gold	Claiming 10 tiles in total
Pioneer Settlement	Allows placing 1 additional Town.	Tiered (x3)	200 Gold & 35 Stone	Claiming 100 tiles in total
Urban Expansion	Each town generates +1 additional claim per turn.	Tiered (x3)	100 Gold	Building 1 new Town
Famous Wanderer	On all scouts, score 1 Point when walking on a claimed tile.	Tiered (x3)	150 Gold	

Economic Upgrades

Upgrade	Effect	Type	Cost	Unlock Condition
Tavern Licensing	Allows building 1 additional Tavern	Tiered (x5)	50 Gold	Owning 1 Taverns
Settler's Boom	Allows building 1 additional Village	Tiered (x5)	200 Gold	Owning 2 Village
Improved Farm Techniques	Farms generate +1 additional Gold	Tiered (x3)	30 Gold	Owning 3 Farm
Lumber Processing	Lumber camps generate +1 additional Gold	Tiered (x3)	30 Gold	Owning 3 Lumber camps
Master Trappers	Hunter's Cabins generate +1 additional Gold	Tiered (x3)	30 Gold	Owning 3 Hunter's Cabin
Market Place	Villages generate +2 additional Gold	Tiered (x3)	30 Gold	Owning 4 Village
Industrial Process	Resource infrastructures generate +1 additional resource	Tiered (x3)	50 Gold	Owning 1 Stone Quarry, Floral Atelier, Horse Ranch
Itinerant Caravan	Each Village increases the trade limit.	Tiered (x3)	250 Gold	Owning 1 Village
Golden Crossroad	Towns increase the Gold income of all adjacent infrastructure by +4 Gold.	Exclusive	250 Gold	
Cultural Hub	Towns increase the Points income of all adjacent infrastructure by +2 Points.			
Commercial Advertising	Taverns gain +1 Point income after each 50 resources units worth traded.	Exclusive	30 Pigment	Owning 1 Tavern
Tavern Trade Route	Taverns gain +4 Gold income after each 50 resources units worth traded.		300 Gold	
Magocratic Courriers	Each Town increases the Gold income of all infrastructures by +1 Gold.	Exclusive	500 Gold & 50 Horse & 30 Crystal	Building 1 new Town

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Arcane Ambassador	Each Town increases the Points income of all infrastructures by +1 Point.		500 Gold & 50 Pigment & 30 Crystal	
Dragon fertilizer	Windmills increase surrounding Farms Gold income by an additional +4 Gold.	Exclusive	100 Gold & 50 Emberbone	Building 1 Windmill
Flower Farm	Windmills increase surrounding Farms Points income by an +2 Points.		100 Gold & 50 Essence	
Floral Seasoning	Smokehouses increase surrounding Hunter's Cabins Gold income by an additional +4 Gold.	Exclusive	100 Gold & 50 Essence	Building 1 Smokehouse
Renowned Caterer	Smokehouses increase surrounding Hunter's Cabins Points income by an +2 Points.		100 Gold & 50 Emberbone	

Entertainment Upgrades				
Upgrade	**Effect**	**Type**	**Cost**	**Unlock Condition**
Improved Materials	Artists gain +1 Point.	Tiered (x5)	50 Gold & 10 Stone & 10 Pigment	Place 5 Artists
Scholars Meeting	Mystics gain +1 Point.	Tiered (x5)	50 Gold & 10 Essence & 10 Crystal	Place 5 Mystics
Intensive Rehearsal	Performers gain +1 Point.	Tiered (x5)	50 Gold & 10 Horse & 10 Emberbone	Place 5 Performers
Eclectic Troupe	Synergies gain +1 Point.	Tiered (x3)	150 Gold	Place 1 Artist, 1 Mystic & 1 Performer
Festival Frenzy	Reduce the cooldown of Festivals by 1 turn.	Tiered (x3)	150 Gold	Initiate 1 Festival
Efficient Organization	Increase the Festivals Points by +50 Points.	Tiered (x2)	250 Gold	Initiate 1 Festival
Private Gallery	Workshops gain +2 Points per surrounding and on tile Artists.	Exclusive	100 Gold & 25 Stone & 25 Pigment	

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Artistic Exhibition	Showcase Plazas gain +1 Point per surrounding and on tile entertainers.			
Garden Extension	Enchanted Pavilions gain +2 Points per surrounding and on tile Mystics.	Exclusive	100 Gold & 25 Essence & 25 Crystal	
Mystic Marquee	Showcase Plazas gain +1 Point per surrounding and on tile entertainers.			
Dynamic Marketing	Amphitheaters gain +2 Points per surrounding and on tile Performers.	Exclusive	100 Gold & 25 Horse & 25 Emberbone	
Spontaneous Performance	Showcase Plazas gain +1 Point per surrounding and on tile entertainers.			

Trade

The player can **buy and sell resources** every turn.

Trade actions per turn are limited:

- **Buy Limit:** 10 units of resources.
- **Sell Limit:** 100 Gold worth of resources.

The **trade limit** can be **increased**. Every time something increases it, it is by **10 units of resources** and **100 Gold worth of resources** (like the Itinerant Caravan upgrade).

Fixed Pricing:

- **Common resources** (Stone, Essence, Horse) → **5 Gold per unit**.
- **Rare resources** (Pigment, Crystal, Emberbone) → **10 Gold per unit**.

Scoring

This game is a **score-based experience with no traditional victory or defeat**. The goal is to **optimize the score** using all tools available.

Scoring tools

- **Entertainers :** entertainers are the basing tool to generate score, at the end of every turn, all entertainers generate Points according to their value and their synergies.
- **Infrastructures:** Some infrastructures generate Points naturally or with the right upgrade. As for entertainers, infrastructures generate Points at the end of each turn.
- **Festivals:** Initiating festivals allows the player to earn a substantial amount of Points but only for one turn.
- **Celebrations:** Reaching specific objectives gives a lot of Points, only once.
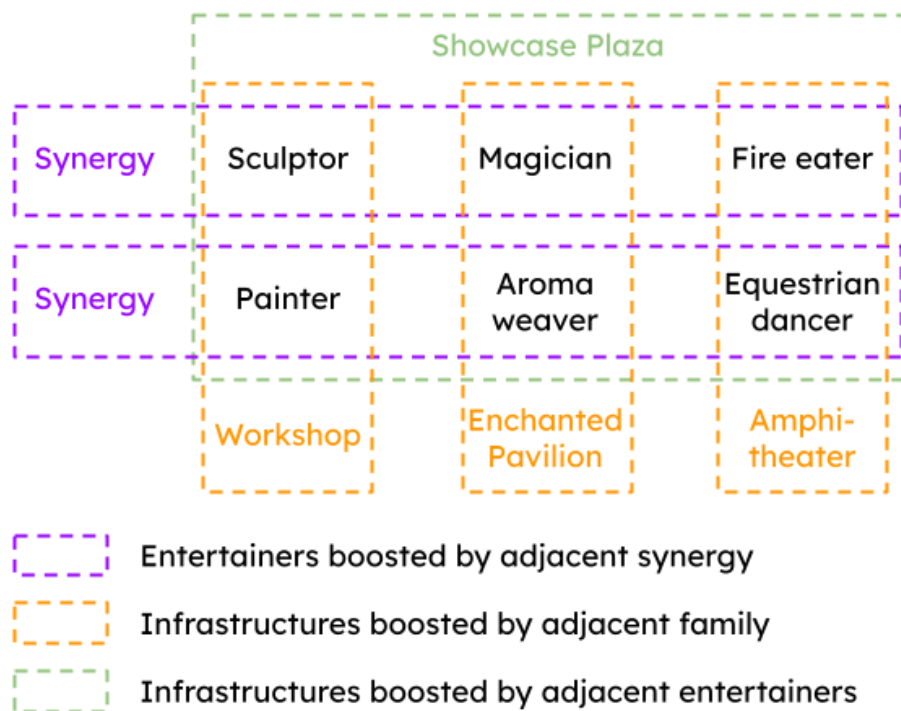
Adjacency bonus system

Game Completion & Score Evaluation

- A **standard game lasts 50 turns**.
- Once the final turn is reached, the player's **total score is calculated**.
- The **final score screen** includes a breakdown of:
  - Total Score from Entertainers
  - Total Score from Infrastructures
  - Total Score from Festivals
  - Total Score from Celebrations

Replayability & Optimization Challenge

- **Map Seeds are recorded**, allowing players to **retry the same map** for a better strategy.
- Every session is **procedurally generated**, ensuring **unique challenges** each time.
- Players can experiment with **different entertainer compositions, infrastructure layouts and upgrade choices** to refine their strategies.

Leaderboard

- A **leaderboard system** is planned for future development.
- **Score categories may use specific seed-based maps** for fair global rankings.
- Further adjustments may be made to encourage **competitive score chasing**.

Game Settings

Heximperium is designed to be **approachable for newcomers** while still offering **meaningful challenges for veteran** 4X/puzzle players. To accommodate different playstyles and schedules, players can select both the **session length** and the **challenge level at the start**. By focusing difficulty adjustments on a few core parameters, the game fosters a balanced experience that remains easy to understand and compare across multiple runs. Since Easy mode grants faster expansion and typically higher final scores, **separate leaderboards** for each difficulty level ensure fair competition.

Game Length

- **Short**: 30 turns
- **Standard**: 50 turns
- **Marathon**: 100 turns

Game Difficulty

Difficulty	Starting Scouts	Base Claim per Turn	Pre-Claim Territory
Wealthy Heir (easy)	5	6	2-hex radius around the starting Town
Ambitious Merchant (medium)	3	4	1-hex radius around the starting Town
Self-Made Man (hard)	1	2	None

Tutorial

The tutorial uses a **predefined map** where the player must complete **specific actions**. This controlled environment ensures that new mechanics are introduced in a **deliberate sequence**. Each mechanic is explained via **detailed pop-ups**, allowing the player to **learn step-by-step** while maintaining a consistent pace throughout the onboarding experience.

Save system

The player has access to a saving system. Allowing him to **save mid-game**. The save saves the game state at the **start of the current phase**.

Multiple save slots are available, and each slot has its **seed clearly specified**.

MAP DESIGN

Overview

Purpose of the Map

In *Heximperium*, the **map is central** to the player's strategic journey and puzzle-like experience. A diverse spread of biomes, each offering a unique combination of terrain and resources, ensures that no two expansions play out the same. By carefully **balancing resource variety**, **special tiles** and **terrain constraints**, the map layout challenges players to plan their claims, upgrades, and entertainer placements with precision. The result is a **dynamic board** that supports **replayability**, fosters engaging tactical decisions, and highlights the game's core 4X-meets-puzzle identity.

Biomes

List of Biomes

- Grassland
- Deep Forest
- Mountain
- Desert
- Swamp
- Ice

Biome Characteristics

Biome	Basic Tiles	Resource Tiles	Hazardous Tiles	Special Tiles
Grassland	Meadow Hill Forest	Stone deposit Flowery glade Horse breeding ground	Mountain Water	Ancient Stone Circle Sunken Ruins Mage Tower Starlit Grove Nomad's Trade Hub
Deep Forest	Meadow Hill Forest	Stone deposit Flowery glade Horse breeding ground	Mountain Water Swamp	Faery Pond Sunken Ruins Mage Tower Starlit Grove Nomad's Trade Hub
Mountain	Hill Forest	Stone deposit Minerals vein Crystal cave Dragon graveyard	Mountain Water Ice	Marble Vein Mage Tower Starlit Grove Nomad's Trade Hub
Desert	Hill Forest	Minerals vein Crystal cave Dragon graveyard	Mountain Desert	Oasis Mage Tower Starlit Grove Nomad's Trade Hub
Swamp	Hill Forest	Flowery glade Horse breeding ground	Water Swamp	Ancient Bog Sunken Ruins Mage Tower Starlit Grove Nomad's Trade Hub
Ice	Forest	Minerals vein Crystal cave Dragon graveyard	Mountain Water Ice	Aurora Sanctuary Sunken Ruins Mage Tower Starlit Grove

Biome Distribution Rules

Biomes	Min Size (in tiles)	Max Size (in tiles)	Representation on the map	Potential Neighbors	Shape
Grassland	15	30	35%	Grassland Deep Forest Mountain Desert Swamp Ice	Anything, to fill blank between biomes
Deep Forest	10	25	20%	Grassland Deep Forest Mountain Swamp Ice	Anything, to fill blank between biomes
Mountain	10	20	17.5%	Grassland Deep Forest Desert Swamp Ice	Anything, to fill blank between biomes
Desert	5	20	15%	Grassland Mountain Swamp	Clustered "round"
Swamp	5	15	7.5%	Grassland Deep Forest Mountain Desert	Clustered "round"
Ice	5	20	5%	Grassland Deep Forest Mountain	Clustered "round"

Biome Tiles Frequency

Detailed biome tiles frequency available here:
📊 Heximperium - Biome Tiles Frequency

Special rules

Starting position

The starting position is the **center of the map**. It must be on a **Grassland tile**, and within two hexes of that position (i.e., the 18 surrounding tiles), there can be **no special tiles and at most four hazardous tiles**. The center tile is replaced by a Town at game start, and the ring of tiles within that one-hex (**depending on difficulty**) radius is automatically included in the player's territory .

Special tiles restrictions

Each tile should appear at least one time and no more than one Special tile per biome patch.

Tile Name	Minimal Required Neighbor	Maximum (linearly scale depending on map size)
Marble Vein	None	3 to 6
Oasis	Desert x3	4 to 8
Aurora Sanctuary	None	2 to 4
Ancient Bog	None	3 to 6
Ancient Stone Circle	None	4 to 8
Faery Pond	Forest x1	3 to 6
Sunken Ruins	Water x1	1 to 3
Mage Tower	None	2 to 4
Starlit Grove	None	3 to 6
Nomad's Trade Hub	None	3 to 6

High-Level Map Generation Algorithm

Basic algorithm, it will be further detailed on a technical document.

Step-by-Step Process

Step 1: Define Map Dimensions

- **Map Size**: Define the map size in terms of the number of hex tiles. The map should be circular with a specified radius.
    - **Radius**: Determine the radius of the circular map, which dictates the total number of hex tiles. 12 to 22 (469 tiles to 1519 tiles)
    - **Total Hex Tiles**: Calculate using the formula: Total hex tiles=3×Radius×(Radius+1)+1Total hex tiles=3×Radius×(Radius+1)+1.

Step 2: Generate Biome Layout

- **Central Grassland Patch**: Start by creating a central Grassland patch as the starting position for the player. This ensures a consistent starting point.
- **Noise Functions or Voronoi/Perlin Noise**: Use noise functions or Voronoi/Perlin noise to generate natural-looking biome patches. These algorithms help create organic shapes and distributions.
    - **Biome Distribution**: Define the global distribution of biomes based on predefined percentages or rules.
    - **Patch Size Constraints**: Ensure that each biome patch respects minimum and maximum size constraints.
    - **Adjacency Rules**: Implement rules for biome adjacency to ensure realistic and varied transitions between biomes.

Step 3: Populate Tiles

- **Tile Type Determination**: Within each biome, determine the type of each tile based on predefined probabilities and restrictions.
    - **Basic Tiles**: Assign basic tiles (e.g., Meadow, Hill, Forest) according to biome-specific probabilities.
    - **Hazardous Tiles**: Place hazardous tiles (e.g., Mountain, Desert) according to biome-specific rules and constraints.
    - **Special Tiles**: Distribute special tiles (e.g., Oasis, Ancient Stone Circle) sparingly and ensure they meet rarity and placement criteria.
    - **Resource Tiles**: Randomly assign resource tiles (e.g., Iron vein, Stone deposit) within biomes where they are likely to occur.

Step 4: Validate/Adjust

- **Fairness Checks**: Implement checks to ensure the map meets basic fairness criteria, such as resource distribution and tile variety.

- ○ **Rebalance**: If the map fails fairness checks (enough Resource/Special Tiles), consider or re-rolling certain tiles to meet the criteria.
- ○ **Biome Occurrence**: Ensure that each biome appears at least once on the map to maintain diversity.

Step 5: Finalize & Save

- **Lock Map Data**: Once validated, lock the map data to prevent further changes. This finalizes the map layout and tile properties.
- **Save Map**: Save the map data, including tile types, biome layout, and any special features, for use during gameplay.
- **Seed Storage**: Store the seed used for generation to allow players to replay the same map if desired.

Visual Representation

Healthy biomes distribution (469 tiles)

Grassland Deep Forest Mountain Desert Swamp Ice
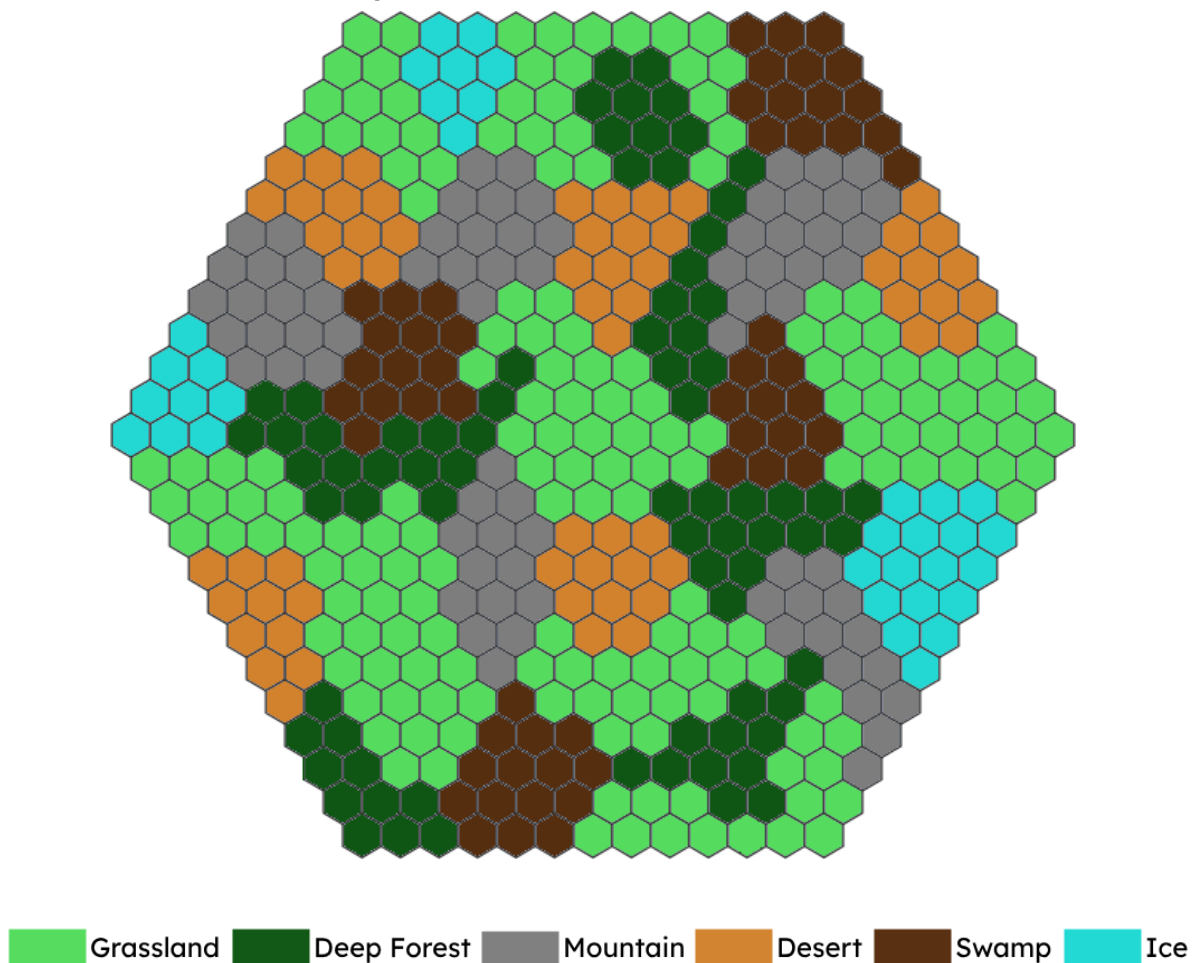
UI

UI Overview & Goals

Core Principles

- Clarity and Minimalism: Emphasize easy navigation, show only relevant information.
- Phase-Based Separation: Only show actions relevant to the current phase.

Color-Coded Phases

- Each phase has a unique color tint, to guide the player.
    - Explore → Blue
    - Expand → Green
    - Exploit → Yellow
    - Entertain → Purple
- This quick color association makes it instantly clear which phase the player is in, supporting the game's emphasis on sequential, phase-by-phase gameplay.

Menus Structure

Menu Flowchart
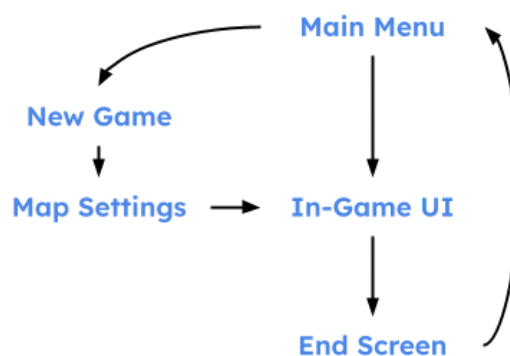
Menu Roles

- **Main Menu:** Start a new game, load a saved game, access settings, exit.
- **Map Settings:** Let the player select map size, difficulty, seed, etc.
- **In-Game UI:** The main gameplay interface, described in detail below.
- **End Screen:** Displays final score and offers restart or main menu options.

In-Game UI Layout

This section details the standard HUD elements visible during gameplay.

Global

Resource Bar

- Shows current Gold and each resource.
- Show current available Claims.
- Show current score.
- Hovering a value opens a tooltip explaining current income.
- A trade button is present right under the bar to open a dedicated menu.
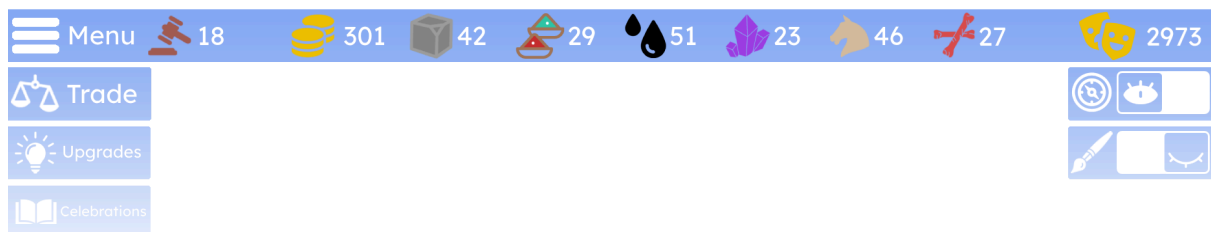

Resources Bar Mock-up

Upgrades Menu

- A button is available below the resource bar to open the Upgrades Menu.
- The menu is divided in three categories: Expansion/Economy/Entertainment.
- All upgrades are visibles, but locked ones are clearly marked as, on hovering them the player can see the condition to unlock them.
- Hovering an upgrade shows all the information, its effect, its cost and if it is unique or tiered.
- Each upgrade has a unique icon, to help navigate between upgrades.
- Bought upgrades are filled, proportionally if they are tiered.
- Exclusive upgrades are linked by a chain, when one is bought the other becomes red.
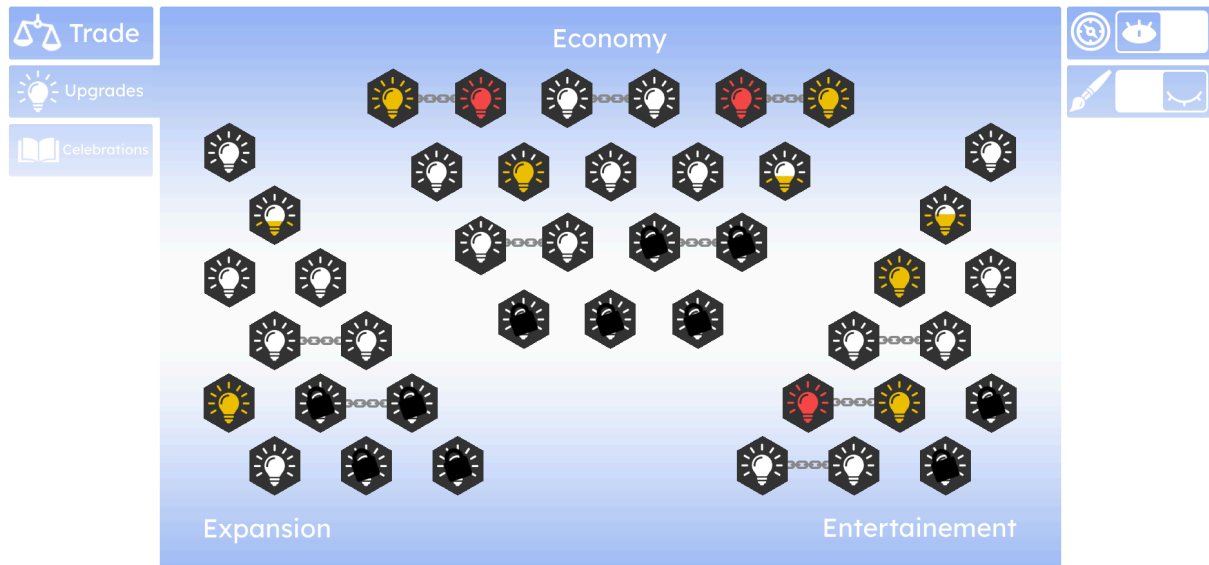
Upgrades Menu Mock-up

Phase Indicator

- A clear "Phase Title" label showing the active phase (Explore, Expand, Exploit, Entertain).
- The whole UI change is color depending on the current phase.
- A button "End Phase" is present to confirm the phase and pass to the next.
- A button to reset the current phase is present, restarting the phase, cancelling all actions done.
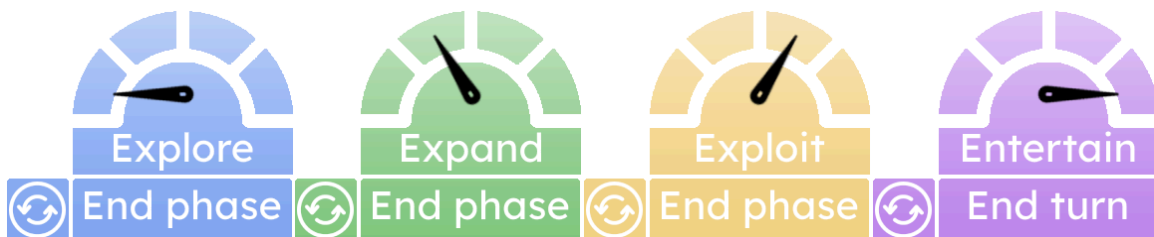
Phase indicator Mock-up

Color palette

Information Pop-up

- Appears when hovering on a tile or an entertainer.
- Displays tile type, current income and claim cost (if not claimed) or entertainer's points.

Celebrations Compendium

- A button is available below the resource bar to open the Celebrations Compendium.
- It shows all possible Celebrations, with their name, their triggering condition and their reward.

Scouts and Entertainers visual ON/OFF

- Two buttons are available to hide or show Scouts and Entertainers.
  - Scouts are by default shown during the Explore Phase, and hidden during other phases.
  - Entertainers are by default shown during the Entertain Phase, and hidden during the other phases.

Explore Phase

All tiles serving as starting positions for scouts are highlighted.

Clicking on those tiles shows a button to buy a scout at this position. By doing so the player has a new scout and has to choose a direction.

Expand Phase

Clicking on an unclaimed tile locks the pop-up and adds a button "Claim" (grayed out if not enough claims) and a button "Found new Town" (if available).

Exploit Phase

Clicking on a claimed tile without an infrastructure shows a radial menu listing all possible infrastructures for the tile. Hovering those infrastructure buttons, shows a pop-up detailing the infrastructure (cost, effect and what the player will actually gain with it). Clicking on a button builds the infrastructure.

Clicking on a Town shows a radial menu listing all the festivals, if a festival is in cooldown the remaining turns are written on the button.

Clicking on a claimed tile with an infrastructure locks the pop-up and adds a button "Destroy".

Infrastructure menu Mock-up

Unavailable infrastructures (or festivals) are in red (not enough resources or cap reached).

Entertain Phase

Clicking on a tile shows a radial menu listing all entertainers. Hovering those entertainers buttons, shows a pop-up detailing the entertainer (cost, points, synergy, family and points at this position). Clicking on a button places the entertainer.

End Screen & Score Breakdown

- **Final Tally**
  - Summarizes:
    - Score from Entertainers
    - Score from Infrastructures
    - Score from Festivals
    - Score from Celebrations
- **Replay Options**
  - Option to replay the same map seed for a better score or to return to the main menu.

Design Note: Details (icons, exact panel layout, pop-up styles) may evolve during implementation or user testing.

ART DIRECTION

Moodboard

The art direction for Heximperium aims to be **clear and readable**, with each biome and tile type visually distinct. The initial release will use a **simple, stylized look** (as shown in the "First version moodboard") for easier production and a consistent, uncluttered experience. A **richer, more detailed art style** (see "Final version moodboard") is planned for later, pending the availability of an artist.

First version moodboard
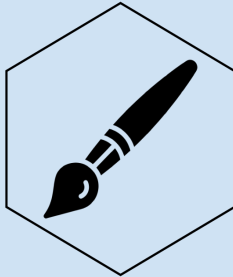
Final version moodboard

Biomes identity

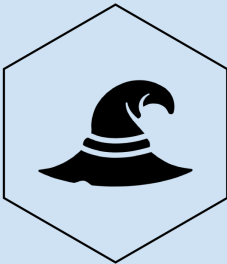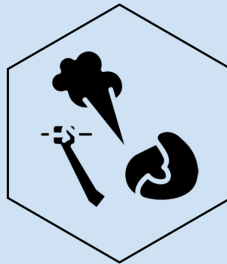| Biome	Main color	Color tone	Base
Grassland	Light green	Light colors	Grass visible on each tile
Deep Forest	Dark green	Dark colors	Trees visible on each tile
Mountain	Grey	Dark colors	Rocks visible on each tile
Desert	Orange	Warm colors	Sand visible on each tile
Swamp	Brown	Dark colors	Water pools visible on each tile
Ice	Light blue	Light colors	Snow visible on each tile

Tiles variations

Tiles and infrastructures appear in **biome-appropriate variants** to reinforce each region's identity. For example, a Farm in Grassland shows a grassy field, while a Farm in Desert might have a more arid, sandy look. Some biomes or tile types require **multiple variants** if they are more common on the map. Each tile is designed **without** connecting borders (e.g., roads or rivers) to avoid orientation issues and streamline production.

Units icons

Entertainers and Scouts **aren't shown as physical models** on each tile. Instead, they appear as **floating icons above the tile**. If both a Scout and an Entertainer occupy the same tile, the icons are scaled down and positioned side by side so both remain visible.

Scout	Sculptor	Painter

Aroma weaver	Magician	Equestrian dancer	Fire eater

VFX & Animations

Type	Trigger	Details
VFX	Scout/Entertainer spawn	Sparks around the tile
Animation	Scout/Entertainer spawn	Fade in icon
Animation	Tile revealed	The tile spins on itself (one side fog of war, the other the actual tile) then stops on the actual tile side
Animation	Claim tile	Borders spawn as a point in the center of the tile, then expand to reach the edges
VFX	Claim tile	Sparks around the tile when the animation is complete
VFX	Build or destroy infrastructure	Big dust cloud over the whole tile, hiding the transition
VFX	Initiating a festival	Fireworks around the town initiating the festival
VFX	Realizing a Celebration	Fireworks around a pop-up showing the Celebration info
VFX	Score reveal at the end of the game	Big fireworks around the score
Animation	Hover a tile or a entertainer	Highlight around the tile (or entertainer icon)

UI Style

The interface adopts a **minimalist**, **flat-colored** design with **slight transparency**, inspired by titles like *Humankind*. Its key elements include:

- **Light, Neutral Background Panels**: Softly tinted panels that allow a partial view of the map underneath.
- **Clean Iconography and Typography**: Straightforward, modern icons and a clear, readable font to minimize visual clutter.
- **Consistent Layout**: UI components are grouped logically, ensuring important information stands out without overwhelming the player.
- **Reduced Ornamentation**: Minimal gradients and borders, focusing on function over form to keep the player's attention on the board.

NARRATION

Heximperium is primarily a strategic and puzzle-focused experience, with **no story elements**. There is no linear campaign or scripted narrative, and gameplay does not hinge on a plot-driven progression. Instead, the world is presented as a **low-fantasy setting** where remnants of draconic magic (e.g., emberbone) and rare fantasy landmarks (e.g., Faery Pond, Mage Tower) hint at a broader mythical background.

SOUND DESIGN

Sound needs

Trigger	Details	Superposable
Ambient music	Chill medieval music, various instruments, long loop	No
Scout/Entertainer spawn	*Tudum*, with festive vibe	Yes
Tile revealed	Flip sound fitting the animation	No
Claim tile	Clear *tadam*	Yes
Build or destroy infrastructure	Wood and stone construction noises	Yes
Initiating a festival	Firework sounds and trumpets (subtle sound)	No
Realizing a Celebration	Firework sounds and trumpets	No
Score reveal at the end of the game	Firework sounds and trumpets (long sound)	No
Hover a tile or a entertainer	Subtle *woosh* to accompany the highlight	Yes
Click on UI button	Simple *click*	Yes