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# X8

## DESIGN DOCUMENT – TEST

### X8 – Overview

X8—is a team-based competitive heroic shooter that’s playable in only VR. Inside this document is:

- In-depth answering of high-level questions.
- A weapon proposal for X8.
- Answering a series of questions on a Ranked System.
- Designing a new Hero for X8.

*This is all relevant public information related to the game. All condensed inside of this document for the design test for a speedy, efficient and organized delivery.*

*Platforms:* Steam, Meta App Store

*Gameplay References:*

- Valorant
- Rainbow Six Siege
- Counter Strike

*Audience:* 10 – 60

Links:

[X8 Website](#)

[Ability Banking & Ability Gesture System](#)

[VRCore Mechanics](#)

[X8 – Main Narrative & Art](#)

## High Level Questions

### **System(s) to introduce to retain players–**

*Retaining players requires giving a sense of progress, a type of event and a type of a social stratagem.*

#### 1.) Short Term:

##### **a.) Karma System Rewards —**

###### i.) Positive Reinforcement:

- (1) As long as the 'karma' stays within the good threshold, the player will earn a 'good sport' weekly reward. This can be in the form of XP, a weapon skin or 'x' item.

###### ii.) Negative Reinforcement:

- (1) The player misses out on the 'good sport' weekly reward.
- (2) The player can have a grace period of '3' completed matches without quitting early, earning bad karma and have at least one 'weekly karma' reset.

##### **b.) Weekly Challenge System —**

- i.) Every week there would be challenges to complete to earn in-game items. This system would, of course, hinge on if there is enough of a content output to add this in.
- ii.) This system would be [10] challenges completed in a week to unlock and claim the weekly reward.
  - (1) Halo: Infinite's Live Service is a good example of this—as I've played it extensively. In this, the [weekly challenges](#) can also act as a type of mini-event and the system adds onto the Battle Pass feature.
    - (a) Rewards are various player in-game cosmetics and player identification vanity items.
- iii.) This allows players something to progress through short term—and may add a social stratagem to it, to link up with other players with the purpose of helping complete challenges for the week.

#### 2.) Long Term:

##### **a.) Weapon Mastery System —**

- i.) A sense of progress can be achieved by adding a weapon mastery system. This is an individual endeavor. Player's earn weapons xp the current weapon they have equipped when they get kills with it and complete objectives. Rewards would be weapon skins. This gives players something to strive for. *This can allow for integration of Weapon Mastery challenges. Something akin to this: [!](#).*
- ii.) The weapon mastery would give players the ability to get to know weapons as they are likely waiting for a friend to join, or to kill time in the game if there is time pressure.
- iii.) Weapon mastery could also extend to learning and using the ability gesture system.
  - (1) The system could negate the need of a completely static shooting range type of area.

##### **b.) Dynamic Seasonal Events —**

- i.) This could start and end with Ranked Seasonals or be a bit separate and have its own life outside of it. It can use X8's overall story to facilitate in-game events or take part of its own separate level as a type of Ghost In The Machine allusion to the AI. This has the added benefit of being able to have special interactions and gameplay modes as a test case in live to determine if it's something to keep.
- ii.) This could be automatic—a type of thing all players can use or— this could use a type of 'ticket' system as in playing 3 games gives an access to play a round in this event.
  - (1) This means that whatever reward that is a part of this event—a mathematical function can be created to determine how active a player needs to be to gain 'x' reward for helping complete the event.

**3.) *What approach would you take to balance gunplay in a VR PvP game? What instruments would you use and how would you apply them?***

First I would determine what it is about the gunplay that needs balancing by taking an aggregation of player survey data, and if given, game match data and analyzing the results using Google Sheets. When set up correctly can be a great preliminary simulation. This can help raise some questions that need to be answered such as but not limited to— is the balance of the gunplay also taking into account different playstyles?

Secondly, I would analyze the data associated with guns. Using X8's Arsenal as an example, are the pistols fulcrum-balanced using the 'Sidearm' as a baseline—which means that the 'Cyclone' and 'Predator' weapon data are tuned using the 'Sidearm' as its base comparison. So, the 'Predator' might have more damage, a slightly lower fire-rate and more recoil and a few bullets less in the magazine than the 'Sidearm' and the 'Cyclone' might have more range, less damage, a higher fire-rate and less recoil than the 'Sidearm'.

Something that I noticed while playing some VR games, is that— generally speaking, the weapon handling when hip-firing can be pretty hit or miss. Because VR is more 'natural' in a sense, there should be specific weapons where hip-firing and not aiming down the sights is preferable—even more so with specific attachments on a gun. It should be a bit difficult. In my experience when I was in JROTC and I often went to the rifle range—when literally aiming down with a scope you are supposed to keep one eye closed when aiming. For myself, it's weird—I'm right hand dominant but my left eye is the dominant eye. This means that in VR, I'll aim best with the gun in my left hand and keeping my right eye closed.

Heavier weapons should be balanced to be functionally the best stationary with the player using both controllers to hold it rather than hip-fire unless the character the player picks is supposed to be able to use per se, an LMG while mobile. Even then, aiming down the sights with the LMG should be better than hip-firing for a correct balance.

Then, once the balancing changes are thought of and iterated through some internal playtesting. If viable, an external playtest server that utilizes an NDA could also be used to get more specific feedback from players on how the gunplay changes feel. This external playtest should be picked by players who: are not great at the game, are great at the game and all inbetween for the sample size. This would be iterated on until the balance feels as optimal as it can get for the game's current iteration.

Finally, once everything has been sufficiently investigated, tweaked and tested enough, it would be applied during an update that's been pushed through the game.



## New Weapon Proposal — X8

### RECURVE BOW (& KALLIAS' BOW HERO ITEM)

#### Concept

##### Game References:

- [https://store.steampowered.com/app/629730/Blade\\_and\\_Sorcery/](https://store.steampowered.com/app/629730/Blade_and_Sorcery/)
- Biotic Rifle, Ana (Overwatch) – <https://overwatch.fandom.com/wiki/Ana>
- Storm Bow, Hanzo (Overwatch) – [https://overwatch.fandom.com/wiki/Hanzo#Weapons & Abilities](https://overwatch.fandom.com/wiki/Hanzo#Weapons_and_Abilities)

##### Outline & Purpose:

- Satisfies a special / unique weapon type that brings home the fact the game is a crossover of sorts.
- Adds a novel weapon to the game that can bring back old players.
- Adds another natural feeling weapon to the game—that's more special to use in VR.
- (Hero Item) Provides for an interesting synergy with gadgets that reveal enemies and obtain a wallbang.
- Compared to weapon statistics-wise it's a bolt-action sniper or a pump action shotgun.

##### Design Goals:

- Create a weapon that feels natural to use inside of VR in X8.
- Design a special weapon type to add to the arsenal.
- Design a unique variant of the special weapon type of the designed Hero: Kallias.
- Design a weapon that is easy to use and difficult to master.

## **Technical**

### ***Normal Recurve Bow:***

- Has a linear arch for longer distances as the projectile drops.
- Player will have to use their free hand to pull back a notched arrow
- (in the tutorial / range) it's predicted path trajectory will be shown
  - outside of the tutorial, it's predicted path will NOT be shown
- If the player pulls the arrow back all the way, they can then wallbang with the arrow.
- If the player pulls the arrow back all the way, they can also get a penetration.
- It has a 'sweet' spot to draw back where it won't be a dud arrow.
- There is no penalty for keeping an arrow notched.
- Usage of the recurve bow is silent compared to the rest of the arsenal in X8.
- Releasing an arrow would be pressing the trigger on the controller that is holding the arrow.
- Will have 12 arrows as its quiver size.
- Unique reload where the player will have to put their left or right hand and reach behind towards the neck arrow to 'grab' another arrow. This is whichever hand is not holding the bow.
  - The player will have to press the trigger on the controller to retrieve an arrow so they can initiate a reload.
- Due to the nature of this being a bow and the fast paced nature of the game, while doable, long range should require more skill.
- Haptic feedback for drawing and releasing the bow.
- Collision detection for when the arrows hit the environment and players
  - If the arrow hits something in the environment it might be able to be retrieved.

Damage Output	Medium (Far), High (Medium)
Range	Min: Medium → Max: Far
Ammo	1 / 11 (In Use / Quiver)

### ***Kallias' Bow Variant — Hero Item Variant:***

- If a teammate is at full health, it can 'equip' light armor, otherwise it has no effect.
- Using the Biotic Rifle as a reference:
  - The arrow has an assist to it when it's shot at a teammate, and when it's shown at an enemy there is no assist in targeting.
- Always shows the predicted path when an arrow is drawn back.
- The military parts on the recurve bow are weathered.
- Lacks the sighting scope that the standard version has.
- Only will have six arrows available to shoot, in the quiver size.
- The arrow damage is just a bit weaker on Kallias' bow in comparison.
- VFX should have a (purple, red or pink) hue alluding to Kallias' father being one of the Erotes.
- The texture and material for Kallias' arrows are different from the standard one.

Damage Output	Medium (Far & Medium) – Reduced Damage Output
Range	Min: Close → Max: Far
Ammo	1 / 5 (In Use / Quiver)

## **Breakdown**

### Engineering

- Creating player interaction and input mapping
  - Integrating haptic feedback for additional player aid when using the bow
- Integrating bow physics simulation
  - Additional bowstring rigidbody
- Integrating the Recurve Bow into the existing system
- Create logic for Kallias' Hero Item.

### VFX

- Create the visual effects for the arrows passing through the air "transparent smoke trail"-- this acts as a 'tracer'.
- Design the visual effects for the predicted path trajectory.
- Develop the unique visual effects for Kallias' arrows that reflect ancient Greek motifs.

### SFX

- Design sound effects for the arrows:
  - Release
  - Impact
  - Reload
- Create audio cues for the bow's unique mechanics such as:
  - Pulling the arrow back
  - SFX for Kallias' variant being used

### Animation

- Develop animations for the bow being "ready" with the arrow knocked on the inside of the bow, instead of outside, as specified here: [knocked](#)
- Develop animations for the players hand placement on the bow


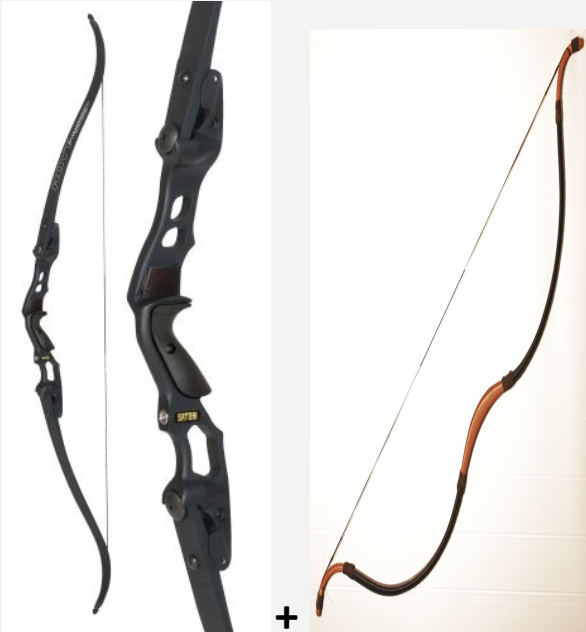
### Art

- Design the textures and materials for both the standard arrows and Kallias' arrows.
- Create the ancient Greek motifs for Kallias' bow and associated visual elements.
  - Kallias' Bow is a Scythian bow typed—it should feel as if it's been taken from the opulent halls of Olympus and made more militaristic / so like a wood / machined aluminum hybrid look
  - Motifs are likely wings, meander mosaic, laurel wreath.
  - Has an engraving in greek script: Ἐρωτες – "Erotes"
- Create 3D Models for:
  - Recurve Bow
    - Recurve Bow Optics
  - "Olympic / Scythian / Ancient Greek" parts
  - Arrowhead
  - Arrow Spine
  - Quiver

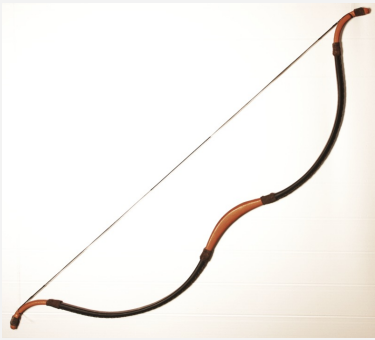


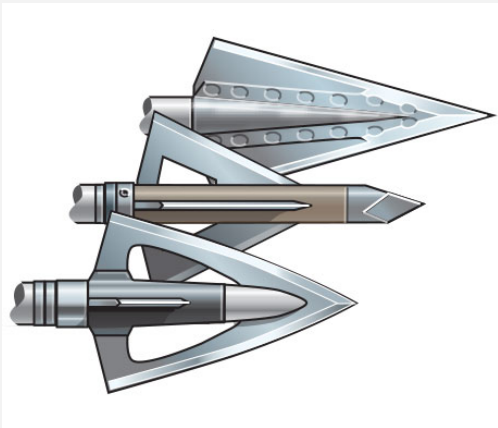


References

Recurve Bow Variant – Standard & Kallias’ Hero Item Variant – Color Palettes

Recurve Bow	Recurve Bow Variant — Kallias Hero Item
	
<div><div>A7A7A7</div><div>1D1C1D</div><div>0E0D0C</div><div>000000</div><div>FF101F</div></div> <div>Standard Recurve Bow</div>	<div><div>A7A7A7</div><div>1D1C1D</div><div>F0E9D6</div><div>2D1C13</div><div>5E4261</div></div> <div>Kallias Recurve Bow</div>
Has a way more militaristic feel to it– the red would be the sighting for the standard.	Visually, the colors should feel a bit more opulent and extravagant.

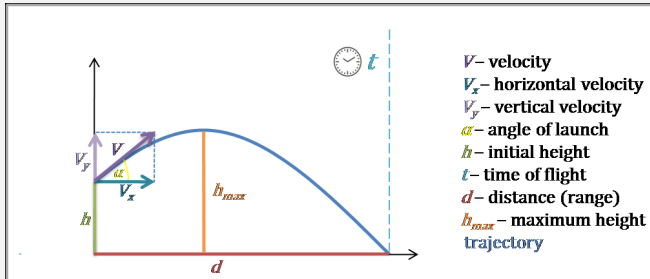
## References for Breakdown

Image	Reference
	<p>Scythian Bow</p> <p>—</p> <ul style="list-style-type: none"><li>• Kallias' variant would take some of the wooden parts that make a traditional mediterranean bow and parts would be spliced to make a hybrid.</li></ul>
	<p>Recurve Bow</p> <p>—</p> <ul style="list-style-type: none"><li>• Standard Recurve Bow</li><li>• <a href="#">Hoyt-Satori Takedown Recurve</a></li></ul>
	<p>Arrow Spines</p> <p>—</p> <ul style="list-style-type: none"><li>• <a href="#">Arrow Spine</a></li><li>• Arrow Sizing – <a href="#">Spine Chart</a></li></ul>
	<p>Arrowheads</p> <p>—</p> <ul style="list-style-type: none"><li>• Arrowheads</li><li>• Different Types:<ul style="list-style-type: none"><li>○ <a href="#">Sharpshooter</a></li><li>○ <a href="#">Spiral</a></li><li>○ <a href="#">Traditional Fletched</a></li><li>○ <a href="#">More</a></li></ul></li></ul>



## Meander Greek Mosaic & Other Motifs

- [Meander \(art\)](#)
- [Origins & Meaning](#)
- [Erotes](#)
- [Eros Iconography](#)
- Other: [I](#), [II](#), [II](#)



## Trajectory Prediction

- [Nock: Bow + Arrow Game](#) (*Bows can be competitive and fast-paced*)
- [Creating a Bow and Arrow Experience in VR](#)



## Recurve Sighting–

- [RL-1 Carbon Single & 3 Pin Bow Sight](#)

## Tasks

Below are the tasks for the X8 design test. Designing a Ranking System & a Hero.

## Questions:

### **1.) Rank Progression**

- a.) As it's a team-based game the player's rank should be determined using a combination of both individual and team performance but weighted way more towards individual performance. This should take into account that one of the current goals is with player retention.
- b.) Top Percentage of Players > Top > middle > low > Bottom Percentage of Players > Unranked
  - i.) Five Ranks | Unranked
    - (1) Each of the five ranks is split into 3 different sub-categories: lower, middle, top.
  - ii.) Progression is dependent on the player's performance, the system would:
    - (1) Place players in matches that fit their skill-level based on the MMR and past averages.
    - (2) Depending on what ways a player is unskilled they will go down a sub-rank before an entire rank.
    - (3) Likewise, the best way to get ahead in rank would be queuing solo and performing optimally.

### **2.) Matchmaking**

- a.) It should prioritize what's needed for the game first: if the goal is player retention, it should focus on minimizing wait times. But assuming that the game has a steady amount of players that routinely play, the following factors should be considered:
  - i.) the player's skill level (SBMM / MMR),
  - ii.) what region they are playing in: then the next nearest region and the next following regions,
  - iii.) the player's averaged ping (or their current).
- b.) If a person is playing with a friend then it would account for that friend to and weigh more in the first part "MMR" using the top players' or an average of the two friends—or however many other friends they are playing with.
  - i.) This means that if a player is playing with a friend who is most skilled—the system should ideally find a similar or higher skill group of players to match with as allies and the opponents that are being selected.

### **3.) Ranking System Transparency**

- a.) There should be a visible rank badge silhouette with an integrated number. Care needs to be taken due to the fact that some players are colorblind as well as other players having dyscalculia.
- b.) As it's a heroic competitive shooter, at least some of the following should factor into rank :
  - i.) Individual-Information: Kills/Deaths, Assists, Ability Usage Count, Accuracy, Time Played (Objective), Matches Won, Matches Lost, Opening Kill, Opening Death, Percentage for how often a player actively pursues the objective.
  - ii.) At least some of these should be converted into points, that will determine what rank. The system should split it and show the stats that matter with rank and the stats that are pure vanity. As Opening Kill, Opening Death and Time Played (Objective) are purely vanity stats.

#### **4.) Competitive Seasons**

- a.) Seasons. It's very reliable, you know when it starts and when it ends. That would help motivation especially when it comes to getting possible end of competitive season rewards.
  - i.) Season End: Vanity items will be rewarded to the top players.
- b.) Ranks should reset to unranked and player's should complete placement matches again. There should probably be the stipulation that the top percentage of players will be bumped more towards a middle rank rather than unranked. That way it stays fair and might also mitigate players having too many smurf accounts.

#### **5.) Leaderboards and Rankings**

- a.) Yes. It would be categorized by Ranked / Unranked – Leaderboards will be structured by Platform < Game Mode. It would start on the player's current positioning but overall the leaderboard is Ascending to the Top Players.
- b.) Top Players would get a special badge for seasons depending on score placed.
  - i.) Top Players for each Platform.

#### **6.) Penalties and Rewards**

- a.) Discouraging negative behaviors:
  - i.) Cheating should be viewed on a case-by-case; as in it depends on what system is used to evaluate. If it's detecting a specific running application– that should be an automatic ban or suspension. Two strike rule rather than three. First time is an instant suspension for 'x' time and the second time is an account ban– when the account is banned rank should be purged, if available the time a suspension happens, the rank should reset to unranked.
  - ii.) Griefing – Consistent griefing should be met with reduced rank XP gain for a specific amount of matches, further after that should be met with a three day suspension and then a week suspension.
  - iii.) Feeding – This would be somewhat hard to determine if it's deliberate or not; the player should simply lose their current rank and be dropped down to the next bottom one. I would also likely suggest reduced XP gain. Figuring out if it's deliberate will require an algorithm that's likely comparing a players' overall, average– and most recent player match metrics. But is likely only enacted with an extreme outlier and/or if enough reports are made about a specific player.
- b.) The players who consistently achieve higher ranks should receive exclusive cosmetics and in-game currency. To keep it fair, players who consistently play should also receive a more middle to lower quality variant of a cosmetic that is akin to the exclusive one.

## Hero Design:

### **Hero Name:**

## **Kallias**

**Hero Concept:** This hero is from a concept-dlc character from an 'XTNT' niche and multiplayer Warlock-FPS game. In this game, Kallias is a demi-god character within the game who ran from Olympus to stay with his mother and in doing so, later joined up with an occult pmc group. He is considered an 'edge' character despite the beloved, positive personality of his father. A trap-based hero where opposing players can either wait OR do a gesture ability to quickly release themselves from the ultimate ability trap. This can add retention by using the ability gesture—or an ability in the bank. Using Kallias can help create an opening in a situation where a 3v1 as well as a 2v1 might seem a bit more risky—if the other teammate is someone such as Shinya or Jaguar—Kallias will synergize well provided the other player communicates.

“Halting speed, stopping—self-affliction”

**Playstyle:** Close – Medium

**Role:** Battle Alternator / Redirect Battle Flow

**Difficulty:** Medium

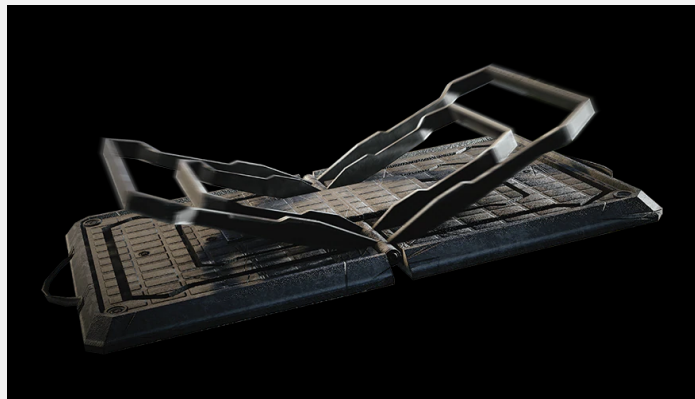
### **Game References:**

[Spellbreak](#) –

[Project Warlock](#) –

Rainbow 6 Siege – [Frost](#), Welcome Mat

Overwatch – [Ana](#), Biotic Rifle



“Welcome Mat”, Rainbow Six Siege, [Frost](#)

**Ability:** – Pandora’s Configuration

**Function:** At the cost of some health points, it will do one of the following:

- Slow down an targeted enemies speed
- Reduce “x” / accuracy
- Deplete opponents current mag / half the mag

**Purpose:** This will be a trickster type of ability that helps with alternating the battleflow. Its other purpose is to be an interesting enough skill that it will increase the probability of a player remembering to use the skill.

**Limitations:** Direct contact with the opponent ‘it technically seeks’ but can miss, the player needs to not be critically damaged and can be used at least twice per life.

**Ability:** – Loveline

**Function:** Briefly see the aura of enemies in the location.

**Purpose:** Will help against players who use specific abilities that will block or obscure vision. Helps with callouts.

**Limitations:** Self, Unique to the user who casted / Doesn’t last too long

### **Ultimate Ability – Ensnarement**

Function: The ability will be launched at a wall or floor, and preferably can extend but will only be used against one “hero”, if a player notices it in time they can shoot or use a banked ability to disarm / nullify it.

Purpose: Instead of slowing an enemy, it will temporarily functionally halt them. Fully completing the purpose of a hero whose function is to change the flow of a battle. As in, if an opponent like Shinya or Jaguar is used, it will be a good halt to stop them for a brief moment. It's an ultimate that feels ultimate, as it differs from the other abilities because it's a stopper.

Limitations: It must be on a ground or a vertical wall.

### **Hero Item:**

Kallias' hero item is a special weapon that he stole from his father from Olympus that he uses on special occasions when things get dicey (in the Warlock FPS Multiplayer game) but now it has way more usage now that he's been sent to X8. He would be the only operator that uses a bow / crossbow.

Functionality: When activated the player will be equipped with a recurve bow and [6] arrows. When the player shoots the arrows at a teammate, it will heal them otherwise, if it's an enemy. It will make them vulnerable to a critical hit though its arrows won't do too much damage as opposed to the standard Recurve Bow.

Purpose: The purpose of Kallias' hero item is that it will help with synergies and add a bit more balance to the game via situational advantages: with the correct communication, the player could likely heal teammates with the bow or make opponents more susceptible to a devastating attack.



*Using the Plaza Map as an example: The circled locations are areas the Kallias is designed to be the most optimal at with engagements—areas that could typically be considered a chokepoint or a more strategic position to hold.*

*Kallias is also designed to be suited with playstyles that opt for a more aggressive approach to defending an objective whilst staying in and near the area of the objective.*

*A good death with Kallias means that the player will have succeeded in a trade-off—and given their team a favorable advantage in the round.*