

# Defense Report 1

*Tribz*



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# 1. Introduction

## 1.1. Our Project

This report aims to present in detail the progress made in the development of our video game **Tribz**, a 2D adventure game mixing exploration, survival, and cooperation. Set in a vast and open universe, the player takes on the role of a tribal chief struggling to survive in a wild and ruthless world. *Tribz* offers an immersive experience focused on resource management and the evolution of a community in a hostile environment.

We will begin with a review of the state of the art, analyzing the games and concepts that inspired the development of *Tribz*, particularly those addressing survival in an open environment and cooperation. We will also highlight the game mechanics that influenced our approach, as well as the main references in terms of *gameplay* and artistic direction.

We will then present the composition of our team, taking into account recent changes in the group structure and new skills integrated to successfully carry out this project.

We will also explain the objectives set for this defense, detailing the specific elements we have succeeded in accomplishing and the challenges encountered so far. This includes the design of the *gameplay*, resource management, as well as the creation of a convincing group dynamic essential to the gaming experience.

Finally, we will detail the project design by following the progress of the tasks assigned to each member of the team, emphasizing how each aspect of the game (mechanics design, environment, audio, AI, etc.) was developed and integrated into a coherent framework. Thus, this report illustrates not only the steps taken but also the next steps to successfully complete the **The Tribu** project.

## 1.2. State of the Art

The *Tribz* concept draws inspiration from several major titles in the management and real-time strategy genre, such as *Norland*, *Manor Lords*, *Anno 1800*, *Civilization*, or *Jurassic World Evolution 2*. These games served as references for:

- Resource management (wood, stone, food, etc.) and the progressive development of a base or city.
- Exploration of new areas and resource discovery, similar to the expansion mechanisms in *Civilization*.
- Taming and breeding mechanics, alluding to the idea of domesticating dinosaurs as in *Jurassic World Evolution 2*.
- Multiplayer aspects and interactions between players, inspired by modern *city-builders* or RTS that offer online features (resource exchanges, alliances, confrontations).

By taking these strong points, we intend to propose our own approach: place the player in a prehistoric context, enhanced by imaginary creatures, in order to refresh the traditional *city-builder* formula.

### 1.3. Our Team

The development of *Tribz* is carried out by a group of five members, each bringing specific expertise:

- **Thomas CHEN – Sound Designer:** responsible for sound design (sound effects, music, ambiance).
- **Martin Doillon – AI / Game Balancer:** in charge of programming NPC (villagers, raiders...) behaviors, and balancing resources or game mechanics.
- **Marie-Jasmine Andres-Yosrungruang – 2D Artist:** creation of visuals, 2D/3D modeling, development of immersive environments.
- **Emile Lassalle – UI/UX Designer / Network Engineer:** development and improvement of the user interface, user experience, and implementation of network (multiplayer) features.
- **Adrien Le Berre – Game Designer:** definition of game mechanics (construction, resource management, progression systems), ensuring coherent *gameplay*.

Each of us has complementary skills in programming, graphic art, sound design, and game mechanics, covering most of the needs for creating a functional prototype.

### 1.4. Expected Outcomes

Within the scope of this first defense, our objectives are as follows:

- Present the technical foundations of the project: setting up the building construction mechanic, initial resource management, and the prehistoric environment.
- Propose an already playable and intuitive interface: a **Main Menu** and a **Shop** that are easy to navigate, to help players become familiar with the game's world and features.
- Demonstrate artistic and sound coherence: first 2D/3D visuals, sound mockups, and sound effects to enhance immersion.
- Outline prospects for future development: upcoming addition of new building types, interface improvements, and adding animations and multiplayer features.

Through this introduction, we hope to provide a clear overview of the direction we intend to give *Tribz*. The following sections will detail more precisely the design of each aspect (AI, UI/UX, *game design*, *sound design*, graphics) as well as the achievements made so far, before concluding with our priorities for the rest of the development.

## 2. Project Design

### 2.1. Martin - AI Development / Game Balancer

As part of the development of the artificial intelligence (AI) and *Game Balancing* for *Tribz*, my main goal is to create an immersive and strategic ecosystem. This involves programming complex behaviors for NPCs (non-player characters) and ensuring the balancing of resources (wood, stone, food, etc.), so that every decision the player makes has a direct impact on the tribe's operation.

Initially, we planned to devote the early stages of the project to advanced AI development, laying the groundwork for autonomous behaviors and interactions between villagers and their environment. However, due to the need for a professional promotional showcase, we chose to prioritize the creation of a website. This strategic, though unexpected, decision allowed us to provide an essential medium for communicating about the progress of the project and attracting attention to *Tribz*. Therefore, together with Adrien and Thomas, I created the game website.

#### Completed Progress

##### NPC AI

- **Specialized roles:** Implementation of autonomous roles such as lumberjacks, miners, and gatherers, each with unique priorities and skills.
- **Autonomous behavior:** Initial development of mechanisms enabling NPCs to determine their tasks based on the tribe's needs, resource availability, and surrounding dangers.
- **Dynamic events:** Design of a basic architecture to integrate events such as raider attacks or natural disasters.

##### Resource Balancing

- **Progressive adjustments:** Calibration of gathering, construction, and consumption rates, ensuring balanced progress.
- **Global coherence:** For example, food gathering has been fine-tuned to support dinosaur breeding while maintaining a strategic challenge.

##### Website Participation

- **Prioritizing the site:** Although originally planned for a later stage, it became a priority to meet the project's communication needs.
- **Creation and implementation:** Design of the main pages (Home, Team, Progress) with an interactive view.
- **Continuous updates:** Integration of tools to track the project's progress.

## Future Prospects

- **Resuming and advancing AI:** Managing NPC needs (hunger, fatigue, etc.) and more dynamic interactions (building construction, defending against raiders).
- **Testing and tuning:** Ensuring natural and rewarding progression by refining resource collection.
- **Advanced features:** Integrating mechanics such as capturing and domesticating dinosaurs, or even rare events.

AI development and *Game Balancing* are key steps in providing an immersive and strategic gaming experience. Although the website took precedence at the beginning, this choice laid a solid foundation for promoting and communicating about the game. With these foundations in place, work on AI and advanced mechanics will now resume more intensively.

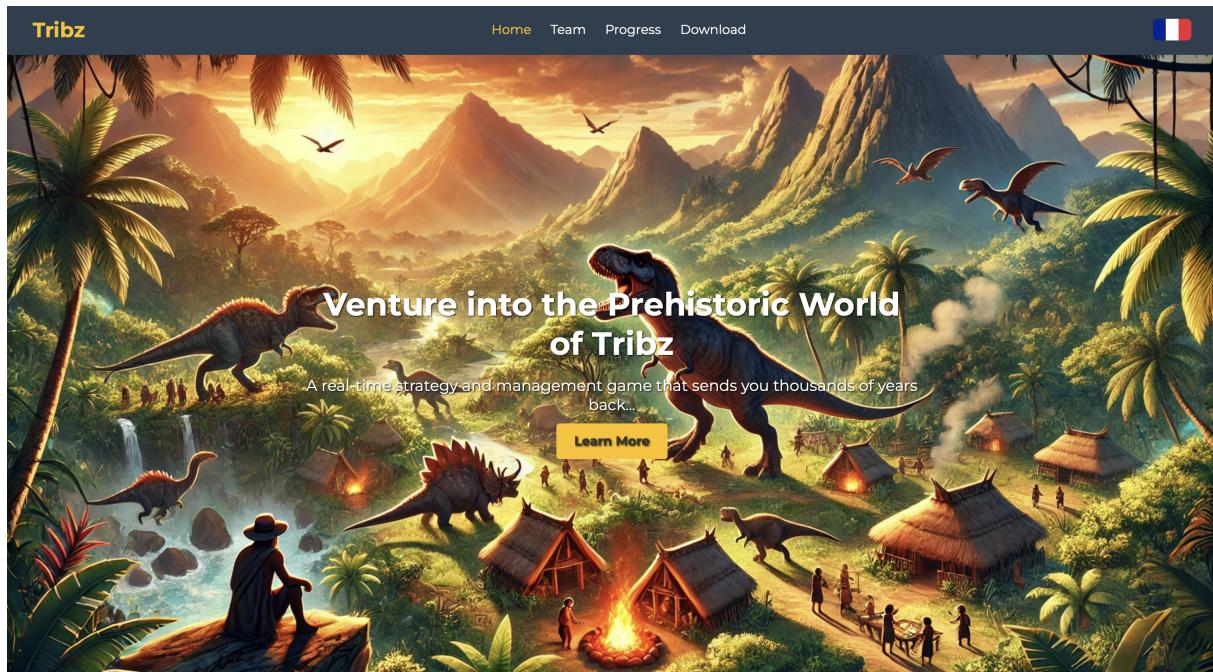


Figure 1: Tribz website homepage

The Tribz game website is available at the following address:  
<https://martin-rhs.github.io/Tribz-Site>

## 2.2. Emile - UI/UX Designer / Network Engineer

As part of the development of our management game, I am in charge of the UI/UX (*User Interface* and *User Experience*). My role is to make the interface pleasant, easy to understand, and intuitive.

For me, it is essential to create a coherent universe where the welcome screen (**Main Menu**) and the in-game interfaces (like the **Shop**) make players want to explore the management mechanics. I rely on the team's feedback and early testers to refine these interfaces and provide a smooth experience.

### The Main Menu

#### First Version Presentation

When the player launches the game, they arrive at this welcome screen. I chose a dynamic illustrated background to immediately immerse the player in the somewhat fantastical universe of the game. In the center, there are three essential buttons: *Play*, *Options*, and *Quit*.

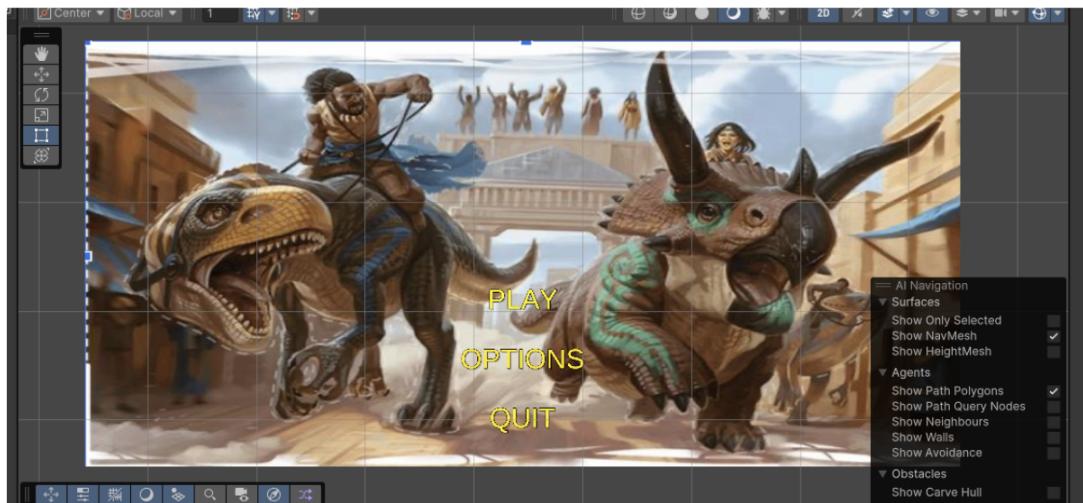


Figure 2: Current Main Menu in Unity

#### Technical Operation

From a technical point of view, each button is linked to a small C# script. For instance, clicking “Play” triggers the `OnNewGameClick()` method and loads the main scene of the game using Unity’s *SceneManager*.

#### Planned Improvements

- **Subtle animations:** slightly moving the background, adding an animation on hover for buttons.
- **Revised layout:** testing different alignments for better ergonomics and readability.
- **Sound feedback:** adding a discreet sound when hovering or clicking, as well as background music to immerse the player in the universe.
- **Additional options:** a “Credits” or “About” tab to highlight the team, perhaps a “Tutorial Mode” to introduce basic game mechanics.

```
using UnityEngine;
using UnityEngine.SceneManagement;
using UnityEngine.UI; // Or using TMPro if using TextMeshPro for scripti

0 references
public class MainMenuUI : MonoBehaviour
{
    [Header("Buttons")]
    1 reference
    public Button newGameButton;
    1 reference
    public Button loadGameButton;
    1 reference
    public Button settingsButton;
    1 reference
    public Button exitButton;

    0 references
    private void Start()
    {
        // Assign button listeners (if you don't assign via Inspector One
        newGameButton.onClick.AddListener(OnNewGameClick);
        loadGameButton.onClick.AddListener(OnLoadGameClick);
        settingsButton.onClick.AddListener(OnSettingsClick);
        exitButton.onClick.AddListener(OnExitClick);
    }

    1 reference
    private void OnNewGameClick()
    {
        Debug.Log("New Game Clicked");
        // Load your Game scene. Example:
        SceneManager.LoadScene("GameScene");
    }

    1 reference
    private void OnLoadGameClick()
    {
        Debug.Log("Load Game Clicked");
        // Load a scene or open a save/load panel
        SceneManager.LoadScene("LoadGameScene");
    }
}

1 reference
private void OnSettingsClick()
{
    Debug.Log("Settings Clicked");
    // Load a settings scene or panel
    SceneManager.LoadScene("SettingsScene");
}

1 reference
private void OnExitClick()
{
    Debug.Log("Exit Clicked");
    Application.Quit();

    // Note: Exit will not work in the Editor. You'll see the log me
    // but the Editor won't close. It works in a built application.
}
}
```

Figure 3: Main Menu code excerpt

## The Shop

### Concept

In a management game, the **Shop** is crucial: it allows the purchase of buildings, resources, or other elements useful for the tribe's development.



Figure 4: Current Shop in Unity

### Slide System (or scrolling)

To avoid overloading the interface, I plan to implement a horizontal scroll, allowing more buildings to be displayed. The player can drag the mouse or use arrow keys to browse multiple object pages.

### Planned Improvements: a “Slide” Shop

- Illustrations and icons:** adding icons for each resource and building.
- Feedback:** a confirmation sound and visual effect when purchasing, an error message in red if resources are insufficient.
- Categories:** creating a system of tabs (buildings / units / bonus) if needed to organize numerous objects.

The goal is to make the **Shop** practical, intuitive, and pleasant to use, while maintaining the clarity required for a management game.

## 2.3. Adrien - Game Designer

As a **Game Designer**, my mission is to define the game mechanics of *Tribz*. For this first defense, we set goals on three areas: the AI for the villager NPCs, the construction mechanic, and resource management.

### 1. Villager AI

The idea was to develop an AI that differentiates behaviors according to special characteristics (the village madman, Nael the merchant, bandits, etc.). Each villager was meant to react autonomously based on their role (food gathering, construction, etc.) and random attributes, thus providing an immersive and strategic environment.

### 2. Construction Mechanic

We aimed to allow the player to construct buildings through an intuitive interface, central to the “city builder” aspect of the game. The player can thus select structures, place houses or other infrastructure while respecting certain constraints (exploitable areas, resources, etc.).

### 3. Resource-Zone Management

Finally, we wanted to integrate the selection of specific zones to be exploited to collect resources (wood, stone, food) for the village’s development. The goal was a simple interaction (for example, a land selection tool), while managing villager travel and storage in warehouses.

## Current Achievements

- **Building construction system:** the player can construct a building, deduct the required resources (wood/stone), and place it on a visually validated grid. Unity's architecture places buildings under a `mapGrid` parent.



Figure 5: Construction mechanic

- **Basic resource management:** counters for wood, stone, food, updated dynamically on-screen.
- **Object selection:** a click highlights buildings or resources (green outline), with multiple selections in progress (planned).



Figure 6: Resource selection mechanic

## Future Improvements

- **Resource harvesting:** enabling villagers to automatically collect wood, stone, food in designated areas, including animations and timed mechanics.
- **Character AI:** assigning roles (lumberjack, miner, gatherer, etc.) and priorities to balance needs (hunger, construction materials, etc.).
- **Construction fluidity and realism:** previews in transparency, building animations or delays, terrain constraints, etc.
- **Graphical and interface evolution:** more aesthetic and intuitive interface, adding progress bars and improved icons.

## Time Management and Learning Unity

We have encountered technical and organizational challenges, notably time management alongside academic exams. Despite these difficulties, we remain motivated to develop *Tribz* into a playable and engaging version.

## Next Defense

With solid foundations already in place, we will focus on improving interactive features and on user experience. Our priority is to provide a complete and captivating *gameplay*.

## 2.4. Thomas - Sound Designer

*Sound Design* in French means the art of creating a sound environment. It involves designing sound effects, soundscapes, and musical atmospheres that reinforce player immersion in this prehistoric environment.

### Software Used: Audacity and FL Studio

- **Audacity:** This software allows the Sound Designer to record sounds directly with a microphone. Once recorded, they perform initial edits and cleaning of audio tracks using various tools:
  - *Amplification:* To adjust the volume of the recordings.
  - *Pitch shifting:* To transform the pitch of sounds and give them a new texture.

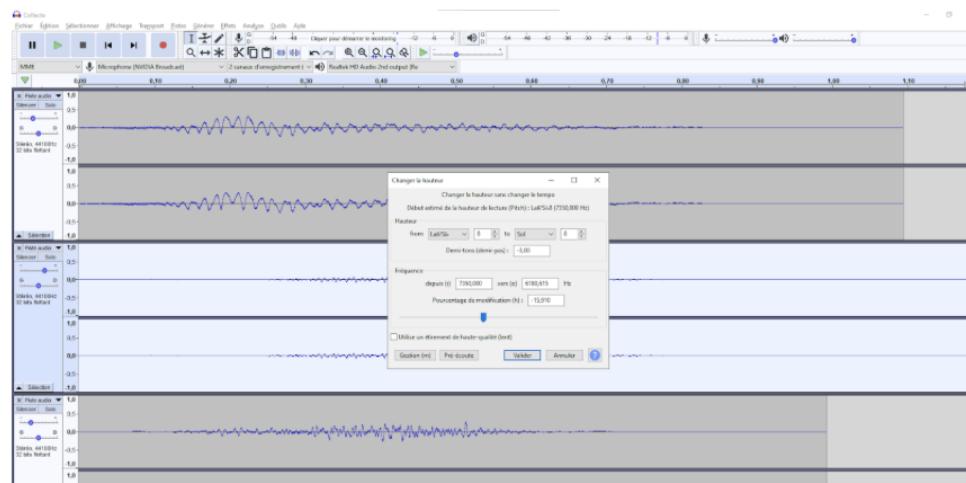


Figure 7: Audacity, Pitch Shifting

- *Noise reduction:* To remove background noise and obtain clear tracks.
- *Speed increase:* To create dynamic effects on certain sounds.
- *Bass and treble boost:* To enrich sounds and adapt them to their context.
- **FL Studio:** Originally used for music production, this software is used for more complex modifications and for creating digital sound effects as well as ambient music. For example:
  - *Music creation:* For game opening sequences or for sound effects involving instruments like flutes and synthesizers.
  - *Plugin usage:*
    - \* **LABS (Spitfire Audio):** For realistic instruments like strings or pianos, often used for cinematic effects.
    - \* **Synth1:** A powerful synthesizer for retro and modern sounds.
    - \* **Fruity Parametric EQ 2:** Included in FL Studio, it allows for fine-tuning sound frequencies.



Figure 8: FL Studio, Plugin Fruity Parametric EQ 2

### Techniques and Equipment Used

- **Sound effect recordings:** The Sound Designer uses a microphone to capture various real-life sounds. Direct recording makes it possible to create authentic sound effects suitable for the game's prehistoric universe.
- **Layering audio tracks:** For instance, to create a dinosaur's roar, multiple sounds (breath, snore, throat scraping) are layered. Similarly, for the sound effect of building a shelter, brushing sounds and metallic percussion are combined.

## Work Approach

The sound creation process follows several steps:

1. **Recording:** Capture raw sounds with a microphone, paying attention to recording quality.
2. **First edit with Audacity:** Clean up tracks and adjust basic parameters (noise reduction, amplification, pitch, etc.).
3. **Creation and mixing in FL Studio:** Add more complex effects, mix different tracks, and incorporate digital instruments.
4. **Testing and integration into the game:** Ensure that the sounds fit harmoniously with the gameplay and the visual universe.

The biggest challenge is making sure the sounds remain consistent with the situation and environment of the game. The aim is to create an immersive atmosphere for the player. This sound harmony is achieved through close collaboration with the entire team, which provides outside opinions to optimally adjust sound effects.

## 2.5. Marie-Jasmine - 2D Artist

For this initial phase of *Tribz* development, a management game with fake 3D taking place in the prehistoric era, several objectives were defined for the 2D design part.

### Creation of Main Designs

- **Conceptualization:** The goal is to provide clear concepts for characters, scenery, and interactive elements. Most of them were hand-drawn, forming a solid foundation before digitizing them.
- **Characters:** In order to design the main characters of the game, it was necessary to define their postures, clothing, and accessories, while staying consistent with the prehistoric universe.
- **Scenery:** The decor elements include huts, rudimentary tools, rocks, and vegetation specific to the imagined biomes.
- **Graphic style:** Each drawing was designed to fit the desired style: an accessible and immersive aesthetic that recalls the prehistoric universe while remaining stylized in a *cartoon* style.



Figure 9: Sketches of the first characters

## Digitizing Paper Sketches

Acquiring a graphics tablet was a crucial step in the project. I mainly use the *Sketchbook* application to bring my drawings to life. This process offers great flexibility to refine details and experiment with visual effects.

- **Conversion and coloring:** Paper sketches have been converted into digital designs and colored. A specific palette, incorporating natural tones (green, ochre, brown), was developed to reflect the prehistoric era, with brighter touches to draw attention to certain objects or characters.
- **Fake 3D effect:** By playing with shadows, gradients, and perspectives, I enhanced the impression of depth and volume. This allows characters and scenery to come to life without losing the 2D style.



Figure 10: First colored version of “Naël the merchant.”



Figure 11: Two digital sketches of buildings

## Game Map Design

Designing the map combines both artistic and functional aspects. At this stage, an initial test area was created, containing a patch of land and a body of water. This helps explore visual interactions and scale requirements for gameplay.

- **Test area:** This initial version is used to test interactions and validate the first design ideas.
- **Adding new biomes:** Future steps will include creating distinct zones such as forests, plains, and rocky areas, in line with planned mechanics.
- **Visual details:** Adding elements such as reliefs, landmarks, or pathways to make the map more lively and immersive.
- **Gameplay optimization:** Ensuring these zones are functional and usable by the technical team for developing game mechanics.



Figure 12: Plain biome ground texture

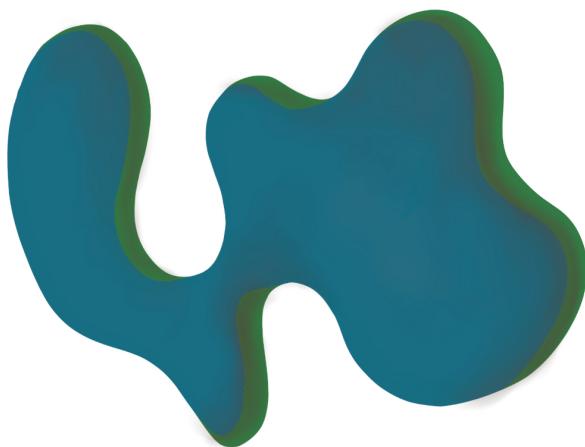


Figure 13: Lake design

## Perspectives and Priorities

Although some objectives, such as the complete design of the map, remain to be achieved, the foundations laid allow for efficient progress in upcoming steps:

- Finalizing the map, with varied biomes and interactive elements.
- Enhancing graphical interactions to strengthen immersion and the prehistoric *cartoon* style.

Despite the challenges encountered, I am confident in our ability to provide a rich and functional visual universe for *Tribz*.

## Conclusion

At the end of this first defense, we have established solid technical and artistic foundations for *Tribz*. The project is structured around:

- An AI under development, aimed at providing realistic behavior and resource balancing.
- Interfaces (Main Menu, Shop) ready to be enriched for a better user experience.
- Basic mechanics (construction, resource management) on which the *gameplay* will rely.
- A coherent sound and image artistic direction, reinforcing immersion in the prehistoric world.

The next steps include further AI implementation, *game design* improvement, and extending the game's universe. We thank all the readers and supporters of this project and remain open to your feedback to refine *Tribz* and make it a captivating gaming experience.

## End of Defense Report 1: *Tribz*

