

Fortress - Arena

(White Paper v1.0)

1. Disclaimer

This white paper is a document that presents the current status and future development plans for Fortress-Arena. The sole purpose of this white paper is to provide information, and is not intended to provide a precise description of future plans. Unless explicitly stated otherwise, the product is still under development and some features are yet under discussion which can be changed on any day.

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2. Industry

a. Industry Overview

Since the first commercial video game release in 1972, video games have been continuously developed alongside our daily lives.

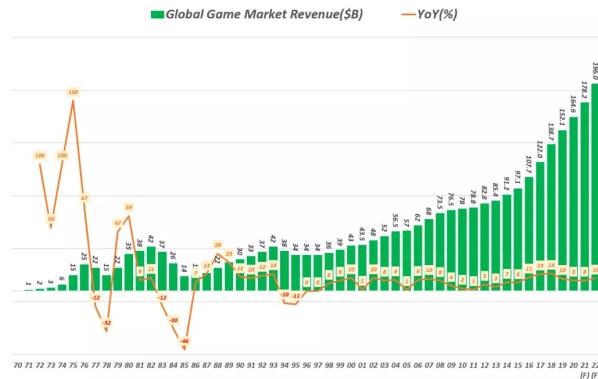
Video games are intimately tied to the development of their underlying technology. In the early days when graphics of any kind were near impossible to implement, most video games were text-based MUD (“multi-user dungeon”) games. With the development of graphics technology, the trend had shifted to MUG (“multi-user graphic”) games. The widespread adoption of the personal computer and subsequently the Internet have completely transformed games that were once limited to a single-player into a format that enables players to compete with each other online in real-time.

Since the emergence of the blockchain in recent years, games employing blockchain technology have also been released, and NFT-based games that combine blockchain and token economies are now in the spotlight like never before.

b. Video Game Market

The video game market has been continuously growing since the first commercial game was introduced in the early 70s. Wireless internet was widely adopted in the early 21st century, followed shortly thereafter by Steve Jobs’ announcement of the iPhone’s imminent release. It wasn’t long before the smartphone became a part of our everyday lives, completely transforming

how we interact with the world around us. This transformation also affected the way we play video games, with mobile games now dominating the market.



<Figure 2-b-a>

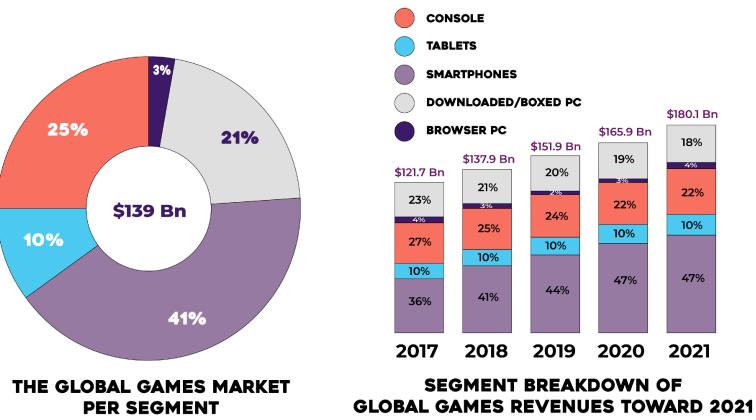
The video game market has achieved an astounding exponential growth of more than 10% every year. In particular, after 2020, games employing blockchain technology are in the spotlight more than ever, and are projected to grow at an even higher annual rate of 20% for the next 5 years.



1

<Figure 2-b-b>

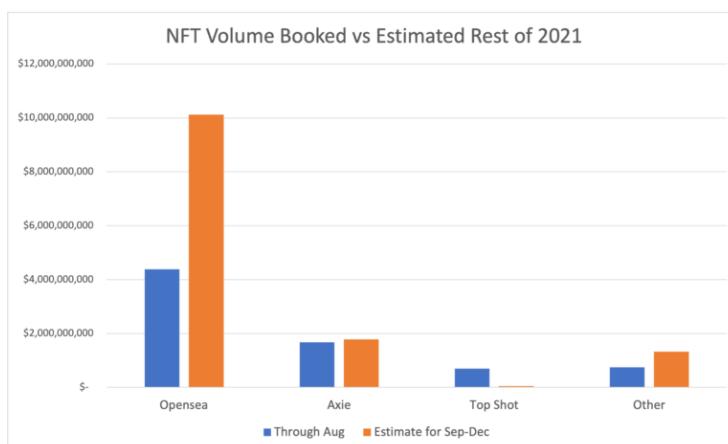
¹<https://newzoo.com/insights/articles/newzoo-games-market-numbers-revenues-and-audience-2020-2023/>



<Figure 2-b-c>²

Initially, mobile games were largely developed by small and medium enterprises until major corporations stepped into market prevalence. The higher performance and reliance on smartphones and mobile devices drew leading game developers into mobile games, drastically expanding the mobile game sector's market growth.

c. NFT Market Overview



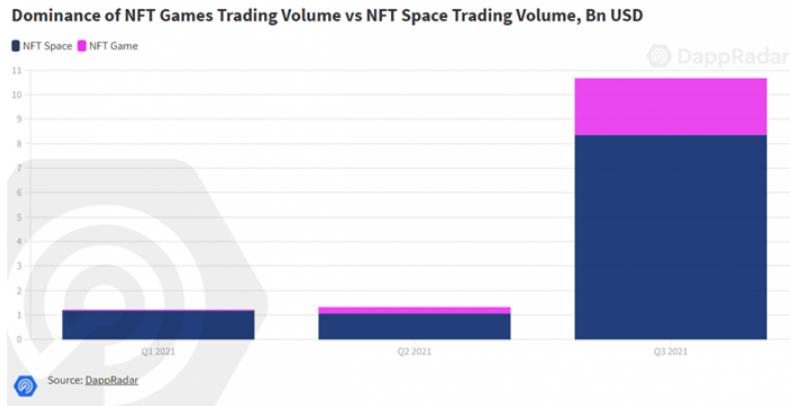
<Figure 2-c-a>³

The NFT (non-fungible token) phenomenon skyrocketed from nothing to a market size of \$1 billion (USD) as of August 2021. Axie Infinity, a leading example in the field of NFT-based games, grew to an \$8 billion (USD) market

² <https://gourmetgalaxy.medium.com/nfts-market-size-research-b9da85743650>

³ <https://loupfunds.com/the-1-trillion-nft-market/>

capitalization, proving the potential of the market and attracting multiple venture capitalists towards the allure of blockchain games.

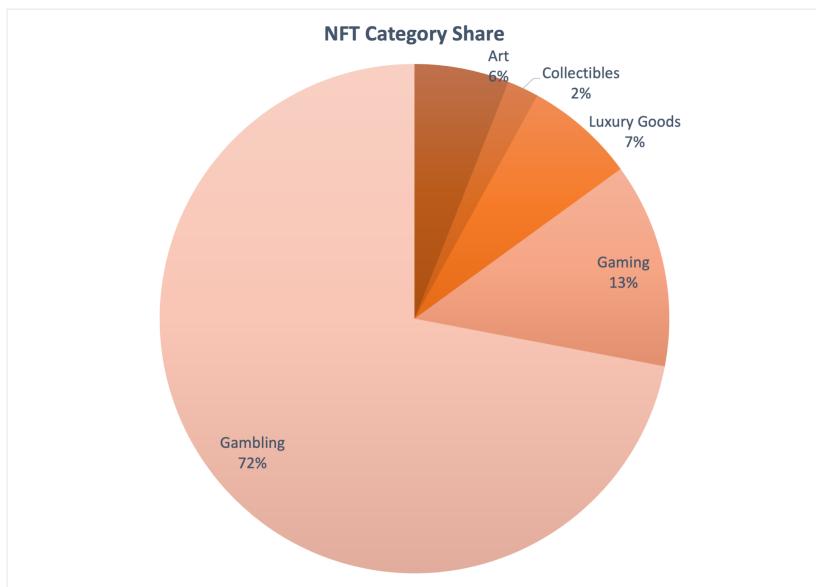


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<Figure 2-c-b>

It is notable that the market volume of NFT games accounted for over 20% of the transaction volume in the third quarter of 2021, bringing about significant repercussions in the existing game industry. NFT games are projected to expand explosively due to in-game player reward schemes such as “play to earn” (P2E) and “win to earn” (W2E).

⁴ <https://dappradar.com/blog/bga-blockchain-game-report-q3-2021>



<Figure 2-c-c>⁵

Speculative buying accounts for more than half of the current NFT market share. Moreover, the quality of NFT game content contrasted with excessive valuation is a matter of concern. However, these issues are expected to be resolved with the participation of existing game developers and redistribution of the shares.

d. Why NFT Games?

The financial ecosystem of existing games can be broadly expressed in two ways:

- 1) Item transactions between users and game companies (B2C)
- 2) Item transactions between users (C2C)

In existing games, it has become commonplace for users to exchange items obtained in-game for money. However, in the existing pay-to-play or pay-to-win games, the effort and costs to obtain items were often much higher than the money earned.

P2E (Play to Earn) games have firmly established a new paradigm in the way games incentivize their players. Players of P2E games can enjoy gaming while earning rewards for their effort.

Considering the potential value it could bring to the players, the NFT game market is only in its infancy with many successful use cases as evidence of its viability.

⁵ <https://loupfunds.com/the-1-trillion-nft-market/>

3. Fortress Overview

a. Introduction

i. Introduction to Fortress-Arena

Fortress-Arena is an upgrade of the existing game called “Fortress V2,” originally developed and serviced by game developer Retiad including a blockchain version. Fortress-Arena will be developed, operated, and serviced by Play Factory, and the blockchain developer Atomrigs Lab will be tasked with the blockchain component of the development. Fortress-Arena is designed as a complete game that will not only add blockchain elements to Fortress V2, but form an ecosystem around the token to provide utility and motivation to players.

ii. Gameplay

The basic rule for Fortress-Arena is simple. Tanks are randomly dropped at locations on different terrains of the map. Each tank takes turns to attack and destroy other tanks. Tanks can maneuver a short distance to have a better angle for a shot or to look for cover, but tanks can also travel longer distances using a teleport item.

Players achieve victory when the player or team has destroyed all non-ally tanks. In order to destroy enemy tanks, the player must either directly hit the tank to reduce the hit points to zero, or attack the terrain to drop the tank outside the map.

iii. Distinguishing Features

There are several features that differentiate Fortress-Arena from Fortress V2

- 1) Users must own or rent a **Tank-NFT** (ERC-721) in order to play the game
- 2) TANK Token will initially be used to purchase in-game items or to repair damaged tanks. Token usage will be expanded to other areas such as investing in other NFT based games released within the ecosystem
- 3) Users can earn tokens through victory in the game (W2E). ERC-20 tokens will be distributed between the users and the Tank-NFT owners by the predetermined ratio.

iv. Tanks

Tanks in Fortress-Arena are diversified based on the established 20 tank types active in Fortress V2. Tanks are differentiated from one another by the factors described in Figure <2-1-1-4-a>

Race	Tank Character												
Grade	Class(Normal/Superior/Rare/Epic/Legendary)												
Property	Element												
Color	Color												
C_type	Material												
Sockets	<p>All tanks have sockets with number variations. Each socket holds a 'Crystal' that improves a certain skill of a tank. The number of sockets differs according to the tank's tier.</p> <table border="1"> <thead> <tr> <th colspan="2">Number of Max. Sockets by Tank Tiers</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>3</td> </tr> <tr> <td>Superior</td> <td>3</td> </tr> <tr> <td>Rare</td> <td>4</td> </tr> <tr> <td>Epic</td> <td>4</td> </tr> <tr> <td>Legendary</td> <td>5</td> </tr> </tbody> </table>	Number of Max. Sockets by Tank Tiers		Normal	3	Superior	3	Rare	4	Epic	4	Legendary	5
Number of Max. Sockets by Tank Tiers													
Normal	3												
Superior	3												
Rare	4												
Epic	4												
Legendary	5												

<Figure 3-1-4-a>

Approximately 4,000 to 5,000 types of unique NFT-tanks will be introduced initially through the NFT Presale. New NFT-tanks will also be introduced at a time frame of 6 to 8 weeks.

v. Combination System

Like other NFT-games, Fortress-Arena will also adopt the Combination system to provide additional motivation and accomplishments to the Tank-NFT Owners.

In order to combine the tank, the owners will need to stake two of their own Tank-NFTs for a duration of between 24 hours to 120 hours. Each Combination will require TANK tokens. The amount of tokens needed for Combination will increase in proportion to the number of Combinations done using the Tank-NFT.

Once the Combination is done, the user will obtain a new random tank. The users will have a better chance of acquiring a higher-tier tank if it takes a longer time in Combination.

vi. Items

The mechanics of in-game items need not be much different from those already offered in the existing Fortress series. However, we are considering diversifying the types and effects of items.

vii. Guild and Clans (TBD)

Fortress-Arena will eventually have a guild and clan system to further motivate players to enjoy the game with more friends and users. However, it is our priority to release additional game modes which are included on our roadmap. Detailed updates on Guild and Clan features will be shared shortly following initial release.

viii. Game modes

To give players more challenges in the gameplay, Fortress-Arena is plans to provide several game modes that the players can enjoy.

1. PvP mode

In PvP (player versus player) mode, a given number of players will join a game with options to select which Tank-NFT to use and which map to play. Each player will be dropped in a random location, and will need to destroy other tanks with the ultimate goal of being the last one standing. The players will be ranked according to the duration of their tank's survival, damage done to other tanks, and their overall ranking in the kill order once the game is over.

2. PvE mode

Fortress-Arena will have a PvE (player versus environment) mode which will be renewed every season. The player or the owner will be required to stake the tokens in order to enjoy PvE mode. In PvE mode, the player will earn rewards by fighting AI bots as opposed to other players. To motivate the players, PvE mode will have a different compensation system from PvP mode.

3. Deathmatch mode (TBD)

Deathmatch mode is currently in a conceptual stage. However, Deathmatch mode is under development for the purpose of providing the players with additional motivation and rewards.

ix. Maps

Various maps backed by NFT (ERC-1155) will be introduced, and players are required to pay modest fees in TANK tokens in order to enjoy the map.

Below are just some of the initial NFT maps:

- Special maps advantageous for certain tanks
- Extreme Zone
- Whirlpool

- Poison Swamp
- Volcanic Zone
- Frozen world
- Infinite Space
- Multi-Gravity Universe

The operation policy for maps is still under development and may change at any time.

x. Repair Shops

If a given tank is damaged in battle, it must be repaired in order to join the next battle. Players with high TANK token stakes at a certain minimum may run repair shops, and players must pay tokens in order to repair the tank.

b. Tank-NFT

i. Overview

The Tank-NFT is a prime feature that differentiates Fortress-Arena from its previous versions. A tank with a unique ID will be given to each holder in the form of ERC-721. The first batch of the Tank-NFTs will be named a “Generation Zero,” and approximately 4,000 to 5,000 Tank-NFTs will be available during the presale.

The two main usages for the Tank-NFT are

- 1) Combination
- 2) In-game rewards (P2E)

ii. Tank-NFT Combination System

Owners of the NFT will want to secure at least 2 Tanks to participate in the Combination. Therefore approximately 2,000 to 2,500 couples will be the first to start the Combination. It will initially be tradable on the OpenSea NFT marketplace, and Tank-NFT Marketplace will shortly follow successful launch. It is incumbent upon the owner to decide between Combination and tank rental in order to extract the maximum efficiency out of NFT-tanks.

iii. Tank-NFT Rental

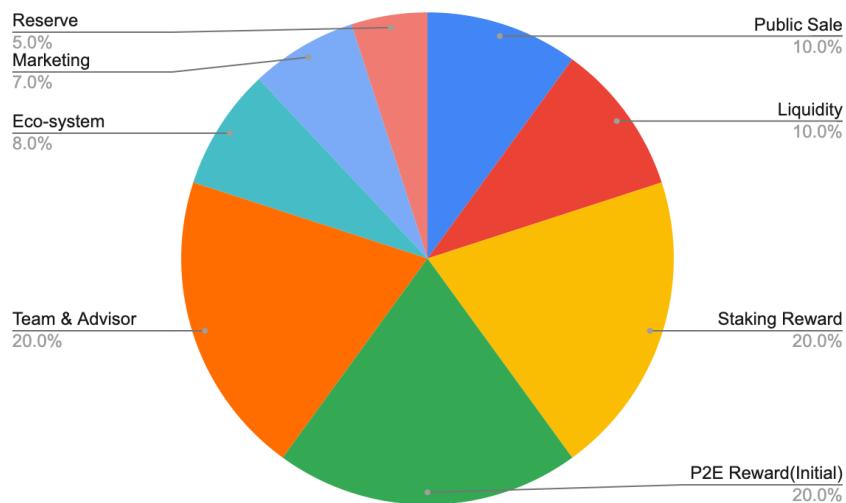
Users who don't own a Tank-NFT may rent a tank through a rental shop. Each tank in the ‘Tank Rental Shop’ is provided by different NFT owners. The renter and the Tank owner reach an agreement on revenue sharing for the duration of the rental, with the rental agreement secured via smart contract. The smart contract also includes each user's wallet address and the profit share ratio which automatically distributes tokens earned from the gameplay.

c. Tank Token

i. Overview

TANK Token is an ERC-20 based token used within the Fortress-Arena Ecosystem. It is initially and mainly used only in-game. However, TANK token usage will also be expanded to the Fortress-Arena web application, and be made available for use in investing in other NFT game projects within the ecosystem.

ii. Allocation



	Percentage	Number of Tokens
Public Sale	10.00%	30,000,000
Liquidity	10.00%	30,000,000
Staking Reward	20.00%	60,000,000
P2E Reward(Initial)	20.00%	60,000,000
Team & Advisor	20.00%	60,000,000
Eco-system	8.00%	24,000,000
Marketing	7.00%	21,000,000
Reserve	5.00%	15,000,000
		300,000,000

* Team & Advisor vesting Plan : 20% of token allocation will be released after 24 months, The rest will be released linearly for 24 months

* USDCs gathered from TANK token sale will be provided to liquidity pool with TANK tokens

* Liquidity : All the LP tokens(TANK-USDC) will be locked for 4 years

iii. Token Utilization

TANK tokens are designed for use within the Fortress-Arena's ecosystem. Users can obtain tokens by winning in the PvP mode and

will use them in-game. Below are some of the initial ways players can use their TANK tokens.

Primary Token Usage

- Combination tanks
- Repairing damaged tanks
- Staking to run a Repair Shop
- Random Box and other Gacha systems
- Governance

iv. Extension of Usage

TANK tokens will initially be available only for in-game usage. However, Play Factory is looking to expand the circulation of TANK tokens within the Play Factory's ecosystem. The next release of Play Factory will have a Pool allocated for the TANK token. Also, TANK token holders will be registered for events such as NFT Airdrop in upcoming game releases.

d. Business Model

i. Holder Benefits

Users who have two or more TANK-NFTs can combine them using the Fortress-Arena Web App. This is of course contingent on the user having met a minimum TANK token consumption requirement. Users can also earn additional tokens in-game by winning using the new Tank-NFT created through Combination (P2E), and are entitled to then freely trade in the MarketPlace.

To ensure long-term operation, TANK Token is recovered through combination and transaction fees to refinance P2E. This is with the goal of protecting the rights and interests of those users who own Tank-NFT and TANK Token as much as possible.

- NFT-tank Combination and Sales
- Token rewards
- Repair shops

ii. Funding Plan

Total Tank-NFT(Gen-0) : 5,000 NFTs

(Remaining NFTs will be reserve for additional sale, partnership and marketing)

Phase 1 Tank-NFT Pre-sale	- Amount : 3600 NFTs - Sale Price : 0.1 ETH(TBD) - Date : 21.12.28(TBD)
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Phase 2 Tank-NFT Auction on Opensea	- Amout : 400 NFTs - Initial Price : 0.12 ETH(TBD) - Date : Jan. 2022(TBD)
Reserve Marketing, Additional Sale, Partnership	- Amout : 1000 NFTs - Sale Price : ? ETH (TBD) - Date : ? (TBD)
Phase 3 Tank-NFT Sale on BSC	- Amount : ? NFTs (TBD) - Sale Price : ? BNB or BUSD (TBD) - Date : ? (TBD)
Token Sale For Providing Liquidity Pool	<ul style="list-style-type: none"> - Amount: 30Milion Tokens (10% of Total Supply) - Initial Price: \$0.1 - Date: Jan. 2022(TBD) - Token accepted: USDC - How to Participate: Send USDC to the created pool through your personal wallet - Allocation plan <ul style="list-style-type: none"> 1. Fixed token amount - 30M 2. USDC fundraising - The higher the amount raised, the higher the token price with reduced personal quotas 3. Cancellation is possible up to 3 days before the end of the sale 4. Cancellation is not allowed from 2 days (48h) before the end of the sales 5. TANK tokens to be distributed after the sales 6. All collected USDC to be provided as liquidity along with TANK Tokens allocated to liquidity (TANK - USDC)

iii. Funding plans for Operation Fee

In order for Fortress-Arena to function consistently with no down time, the operating budget must be secured. Fortress-Arena will expend the funds to cover the future operating costs according to the following schedule.(The schedule might be changed)

	Methodology	Details
1	Combination Fee	Tokens collected while combining Tank-NFTs Release Date: Mar 14. 2022
2	NFT Trading Fee	ETH(or Matic) collected while trading Tank-NFTs between users in exclusive marketplace Release Date : Sep 5. 2022

3	Fees from Liquidity Pool	ETH(or Matic) collected while using swap function Release Date: 3Q 2022
4	Repair Shop	Tokens collected while running the repair shop that is not owned by the token staker Release Date: TBD
5	Gacha System	Tokens collected while selling Gacha items for tokens Release Date: TBD

e. Roadmap & Development Plan

Q4 2021	<ul style="list-style-type: none"> - Landing Page Open - Tank-NFT(ERC-721) Pre-Sale
Q1 2022	<ul style="list-style-type: none"> - TANK Token(ERC-20) Sale - Combination System - Bridge Integration - Fortress-Arena(Alpha Biuld)
Q2 2022	<ul style="list-style-type: none"> - Launch Fortress - Arena MVP - Launch exclusive wallet - Fortress-Arena Free Open Beta - Arena 1st Main Update - Arena 2nd Main Update
Q3 2022	<ul style="list-style-type: none"> - Fortress-Arena Final Open Beta Test Update - Uniswap Pool - ERC20 Staking - Setting Game Data Processor - Contract SDK - Wallet and Game login integration - NFT-Register - Marketplace - Lending - Market(Rental Shop)
Q4 2022	<ul style="list-style-type: none"> - Governance and Planning&Development of the next release
H1 2023	<ul style="list-style-type: none"> - Release strategic map

f. Team

i. Retiad

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ii. Atomrigs Lab

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Play Factory Ltd.	Jay Byun	
Play Factory Ltd.	Teddy Lee	https://www.linkedin.com/in/taedong-teddy-84181539/

g. Partner & Investor

- i. Game Partner - To be released
- ii. Blockchain & Market Partner - To be released
- iii. Investor - No investment for Ecosystem