RichCoinNFT – WhitePaper

Get richer or the richest

The first decentralized solution to shill-bidding

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Glossary

Continuous reward	Formula to calculate the amount of RCT every owner in the auction history is rewarded by with each purchase
DEX	The exchange where our token supply will be deployed on to be freely traded on the market
DEX-Contract	Smart-Contract that is deployed together with the NFT in every auction, which handles the approvals, the distributing of the funds and the transfer of the asset. It is destroyed when the auction is closed.
Extant reward	Formula to calculate the amount of RCT to compensate the offset deficit of RCT, so there is no disadvantage in selling the piece on our platform
ICO	Initial coin offering, the event in which we want to offer our platform currency RCT for the first time. The ICO will be executed in three stages
IPFS	Interplanetary file system, a peer-to-peer file storage
One-Time reward	Formula to calculate the amount of RCT an individual is funded after the initial purchase after the own
Paid	Formula to calculate the amount of RCT paid for a certain owner
Profit	Formula to calculate the profit for a certain auctioneer at a certain owner number
RCT	RichCoinToken, the platform currency
Shill-bidding	A tool used by scammers to connote a large group of interested people in order to virtually inflate the prices of their asset.
Web2	The internet as we know it today. It is marked by user-generated content and usability
Web3	The internet of tomorrow. It is marked by crypto applications and stands the individual into the foreground.

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1 Introduction

In the first chapter we will introduce the motivation and philosophy behind RichCoin and its first product RichCoinNFT to you.

1.1   Preamble

This whitepaper will explain the concept of RichCoinNFT. Acronyms and abbreviations will be written out on first use. They will be highlighted as well as technical terms which are further explained in the glossary. Disclaimer: The project RichCoinNFT is at its very beginning and not an established, high-standard platform yet and we can therefore not with certainty exclude the possibility of fund-losing owing to for example errors in the development of the platform or smart-contracts. In the case of investment-loss in any height we do not grant liability. This white-paper explains only the project and its key points and should not be seen as an investment advice. Use at your own risk.

1.2 Vision

The name RichCoin is there to polarize, but it also represents our vision spot-on. We want to enrich people, not only in a monetary way, but also in a way where we empower the people back to decide what happens with their data, money and decisions and also bring value to the volatile NFT market. The first step to achieve our prospective goals is to provide an innovative NFT platform including our first example of how we want to enrich people by presenting our unique distributing system which is built around the individuals. This platform will act as the base for all future projects such as the building of a social network, our advertisement program and the combining of our real world with our digital world.

Our vision is to have a trustworthy, profiting and innovative trading platform for physical and digital assets which is built around individuals and their possessions by providing unique auction and linking systems and where they also profit from advertisement that they chose.

2 Concept

This section elucidates the concept of the project, including the problem, our solution and what our aim is.

2.1 The Problem

As we all know the internet as we know it today with all its innovations does not only bring advantages. Today it is possible for almost everyone to start auctioning private assets in the global E-commerce market on **Web2** sites like eBay and Yahoo! but also in the present times of **Web3** on usual NFT platforms. There is a big shadow behind every benefit that consists of people who try to misuse those systems created in good manner in order to fuel their own shady businesses by scamming other people, with the tendency rising every year. The auction-system is based on a so-called "non-cooperative" model. This means that the system is designed to be a monopolistic competition, where every participant has an independent price preference (uncertainty about each other's true interest and the uncertainty about the quality of the asset is influencing this preference) with the asset-provider trying to get the biggest revenue. This uncertainty creates a black box for participants where only experienced bidders can see through by "reading" their opponents. The traditional system of auctioning worked for a very long time but is starting to serve out with the beginning of our connected world. While coalitions in real-life auctions are easy to spot, people overlooked the potential of auction-fraud by using the anonymity of the internet making it even harder to break this black box because of its lack of physical attendance. One of the tools used by questionable people is **shill-bidding**. Shill-bidding is one of the most studied types of auction-fraud but at the same time one of the most unknown. It is a dangerous tool that can be used by dubious auction creators to exploit the non-cooperative auction model.

It is accomplished by creating multiple, digital identities to connote a large amount of people sharing a counterfeited interests in an asset, making other participants reevaluate their interest in the asset by the seemingly high amount of demand which results in a virtual inflation of the price. Shill-bidding may be strictly prohibited by auctioning platforms, but this prohibition is connected to us relying on trust into these institutions being able to anticipate and stop these scams. Unsophisticated buyers usually notice the scam when reselling the asset thinking a big market is waiting. Realization hits hard when discovering there is no actual interest in the asset one paid much money for. In usual auctions bidders on the other hand also do not profit from their real interest which is especially frustrating when the asset they seek for is taken away last second. This is the reason why there needs to be a change to our obsolete auction system. Our platform prevents shill-bidding by implementing a unique, verifiable and decentralized auction system. Therefore, we do not have to put trust into third parties anymore, because we trust in the smart contracts that everybody on the platform agrees on.

2.2 The solution

We developed a solution around the described problem. The solution is implemented by the smart contracts that are deployed with every auction creation. We remove the uncertainty by limiting every address to buy the artwork only once while the auction is running to the price one individual thinks is right. We liquidate the black box of knowing if the interest represents the value of the asset by making every participant pay their bidding price directly. The creator is not able to deceive fake interest in an asset since it would not be profitable to participate in the auction with different addresses all paying every respective interest price.

In exchange for paying the interest directly we created a distributing algorithm of the earned funds which will make participants profit with the side-effect of the tokens having a high circulation. This multilateral winning strategy will revolutionize the Web3 auction ecosystem. How the calculations exactly work is described in the section "Distributing system". This system is profiting due to the significantly decreased chance of participating in a rigged auction, where the price does not represent the value of the artwork, and also in a monetary way by enabling bidders to gain funds from their given interest.

2.3 Aim

RichCoinNFT – "Get richer or the Richest" is a NFT platform backed by our vision. RichCoin initiates a new way of how NFT auctions are working in the blockchain ecosystem. We developed a unique system that fights auction fraud while additionally making also the auction participants profit by distributing funds back to the them. The distribution system will be further explained in this document. The goal of RichCoinNFT is to increase the potential of rise in value by its unique algorithm in a safe way that has not been seen before. We prospectively want to back the NFT community by the popularity of the projects deployed on our platform and emphasize the people behind the artworks by allowing them to create a community around them and their assets.

The future goal of the platform is to connect the digital world of blockchains with our physical world. We therefore want to provide the possibility of creating certified, watermarked, real-life images off NFTs which can be validated on the blockchain by their link. Vice-versa we want to make it possible for people to put validated real-life collectibles and rarities in their wallet and showcase it on the platform by creating certified NFTs off them. The assets can be sold on the platform and the new owner can transfer the connected NFT into their archive by approving the purchase after they collected the real-life asset. In this way we want to prevent frauds by trading fake assets and also make it possible for users to show their inventory in public while still being anonymous. We want to be cooperating with advertisers who have to pay our platform users who can choose which ads to see so they can profit from their attention to a product. The plans are marked in our roadmap. The future goals are not part of this whitepaper but will be explained further at the given time after the success of the first project on our roadmap.

3 The platform

You will get an overlook of the platform, how auctions work and the technical key points of the smart contracts and their implementations.

3.1 Auctions

The current key element of the platform are the NFT auctions. The following section will explain how the you can create and participate in them.

3.1.1 Creating an auction

Auctions can easily be created by uploading an image (.jpg, .png, .gif etc.) up to 3 megabytes, setting the NFT's name, symbol, description and the initial price (the initial price does not have to be paid by the creator). Specifying the price increase and deadline distinguishes our platform from others. The price increase defines how much the price of the created NFT increases after each purchase. The deadline defines how long a buyer has to hold the NFT until they keep it. If someone else bids higher within the deadline, it is transferred to the new buyer by the decentralized exchange-contract (**DEX-contract**) and the deadline is restored. When the deadline expires, the winner will be able to close the auction.

The NFT is persisted by us on the **IPFS** (interplanetary file system) beforehand to make it stay online forever.
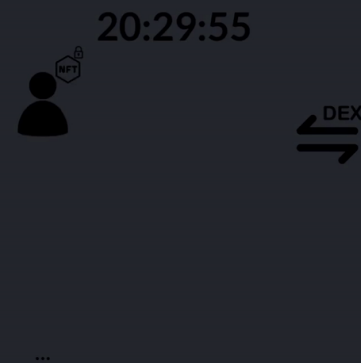
Click the image to load the animation

Animation 1: Creating an auction

3.1.2 Participating in an auction

To participate in an auction, you have to have the given amount of RichCoinToken (**RCT**) which is described in section 3.3. You can then bid for the asset for the given price. We added a feature so that you can type in a message which can be seen by everyone in the auction to increase publicity. But be careful, messages are validated by the auction contracts, so a longer message will result in higher transaction fees. Messages can also be hashed and signatures will be supported in the future. After the execution of the transaction, the asset will automatically be transferred to your address. The token will stay in your wallet until another participant purchases it for a higher price within the deadline. The token will then be transferred to the new owner by the DEX-contract automatically and every owner will earn their revenue. Profits are distributed depending on your

Click the image to load the animation

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Animation 2: Participating in an auction

owner number in each participated auction. You can read more about it in the "Distribution" section. Notice that a NFT can only be purchased once per address. If the deadline is exceeded you are the winner of the auction and able to close it in order to use the NFT freely.
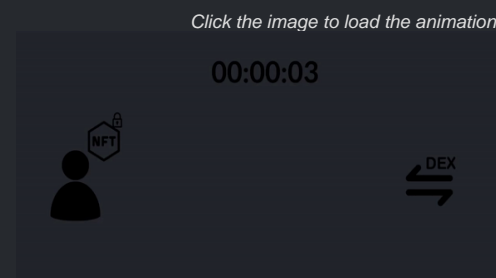
3.1.3 Closing the auction

When the deadline expires, the winner will be able to close the auction. By closing the auction, the DEX-contract will notice the exceeded deadline and self-destruct as well as all restrictions in the NFT. This results in the winner being able to approve other addresses and transfer the asset freely. After the restriction's resignation, the ERC-721 requirements are fulfilled.

Closable auctions can be seen in the profile section as well as won NFTs. NFTs that are won in an auction can be used as a profile picture for the user which can be differentiated from normal profile pictures.

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Animation 3: Closing the auction

3.2 Smart Contracts

We created three smart contracts for the platform. The first one being the token itself which is the platform currency and the two auction contracts that are deployed when an auction is created.

3.3 The token RCT

RichCoinNFT will introduce its own ERC-20 compliant token **RCT** (RichCoin-Token).

Supply:

The token limit will be set to 21,000,000.

Blockchain:

The project will initially be run on the Binance Smart Chain. Additional blockchains will be supported in the future.

Distribution:

33% can be initially bought by participating in our **ICO** (initial coin offering). Another 33% will be provided in a liquidity pool on a Decentralized Exchange after the ICO ended. The rest of the token will be held by the RichCoinNFT-team.

Liquidity:

The earned funds of the ICO will be used to cover liquidity in the pool and to move on the project (building the website, advertise and distribution).

Price:

The token will have a starting price depending on the current ICO stage. The price of the token will initially be 0.0001 BNB and will rise to 0.0005 BNB in the ICO process. You can find out more about it in the section "ICO". Afterwards the token will be published on a Decentralized Exchange backed with the earnings from the ICO where the price will then be regulated by the market when it is free to be traded. To ensure safety for the investors the LP tokens from the Liquidity-Pool will be locked away for a certain amount of time. You can find out more about it in the section "ICO". Make sure to be early to profit from the success of the project.

Use-Case

The token will be the currency which you can participate in NFT auctions with. It is also the token which will be distributed by our unique algorithm. You can find out more about it in the "Auction" section.

Technical aspects:

In order to save fees when participating in NFT-auctions we programmed that the auctions can trade tokens from users in their behalf when they want to buy an NFT without approving every contract separately. To participate in auctions, an allowance has to be set for the "RCT"-contract to transfer "RCT"-token in your behalf when buying an NFT. We recommend to set the allowance high to save transaction costs. The allowance can't be exceeded and can also be reduced.

Token safety:

The "PAY"-contract will check the bytecode-signature of the contract that enquires it to avert spoofing attacks and to make sure it's an authorized DEX-contract requesting the funds. By setting the permission for new contract versions (for example in the events of updates) to transfer funds, this process also ensures maintainability and sustainability.
New authorized contracts can be added and old contracts can be updated or removed. This makes sure that the funds are not in danger when a safety issue should be noticed in one of the authorized contracts and is also useful for the continuous development of the project in case of adding new contracts. We secured the auctions against Reentrancy attacks and retain on token security standards.

GitHub:

https://github.com/RichCoinNFT/RichCoinSmartContracts/blob/main/PayToken.sol

3.4 Auction-Contracts

When creating an NFT-auction two parameterized contracts will be deployed to the blockchain. These two smart contracts are the key essence of every auction running on our platform.

3.4.1 DEX-Contract

Every ERC-721 issued on our platform will have a corresponding DEX-contract which takes care of the NFT while the auction is running. It makes sure that every address buys the corresponding ERC-721 only once, renews the deadline and distributes the earnings according to our distributing algorithm described below. When deploying the auction, it also makes sure that the given price increase and starting price are applying due to float values not being supported by blockchains. For example, the constellation of the price increase 10% (1.1x) with the initial price of 5 RCT would not work because you can't spend 0.5 RCT. We limited the deadline length to 365 days because in our opinion a longer deadline would have no real use-case. The DEX-contract is protected against Reentrancy-Attacks and its efficiency has been continually increased that we got the transaction fees down to about 0.01 BNB. After the auction the winner of the NFT is being able to close the auction, which will signal to the DEX-contract that the auction ended so that it self-destructs. With the DEX-contract self-destructed the NFT restrictions fall away.

GitHub: https://github.com/RichCoinNFT/RichCoinSmartContracts/blob/main/Dex.sol

3.4.2 ERC-721

The ERC-721 will hold the NFT. It will have restrictions for the time of the auction. The owner history will be written into the contract which is used by the DEX-contract to distribute the earnings in the right manner. The image, persisted in the NFT, will be pinned to the IPFS by us. **Every image can only be uploaded once.** The restrictions will fall away after the auction has been closed by the winner.

GitHub: https://github.com/RichCoinNFT/RichCoinSmartContracts/blob/main/RichCoin.sol

3.5 Distributing System

Here we explain our unique distributing system, that prevents shill-bidding while at the same time making every participant profit. The commission of 2% is not taken into account for calculations for simplicity reasons. The commission applies for every purchase on the platform.

3.5.1 Formulars

The system persists of the formulas that are further elaborated in this section.

3.5.1.1 Paid

Definition:
The price someone has to pay depending on the owner number.

Formula:
$Paid(n_{ownerNumber})$
$= \text{Initial Price} * \text{Factor}^n$

Explanation:
The price depends on three values. The owner number, the initial price and the factor. The initial price and the factor are constants for each auction and set initially. The owner number is used to calculate the price for every owner in the auction with the first owner being "1", the second owner being "2" etc.

3.5.1.2 One-Time Reward

Definition:
One-time reward earned when someone buys the NFT off of you.

Formular:
$OneTimePayback(n_{ownerNumber})$
$= Paid(n-1) + (\ (Paid(n) - Paid(n-1))\ /\ 2)$

Description:
The one-time reward is earned by the first purchase made after yours. It ensures that the owner before always makes profit after the first buy off. It ensures that people are engaged to participate in auctions at a later time and higher price because of the higher reward.

3.5.1.3 Continuous Reward

Definition:
Continuous reward is paid back to you with every purchase made after you.

Formular:
$ContinuousReward(x_{ownerNumber}, n_{totalOwners})$
$=(\ Paid(n) - (OneTimeReward(n))\ *\ 2^{-x}$
$= (\ Paid(n) - (\ Paid(n-1) + (\ (Paid(n) - Paid(n-1))\ /\ 2\ )\ )\ )\ *\ 2^{-x}$

Description:
Continuous reward ensures people are engaged to participate in auctions early due to the high revenue given to them. It is depending on your owner number and the number of total owners. It is calculated by multiplying 2 to the power of -x, with x being the owner number, with the subtraction of the total price and the *one-time reward*. If you participate early in the auction, the revenue will be higher for future purchases.

3.5.1.4 Extant Reward

Definition:

Reward which compensates the deficit of the rest tokens.

Formular:

$ExtantReward(n_{ownerNumber})$
$= \text{Paid(n)} - (\text{OneTimeReward(n)} + \sum_{x=1}^{n-1}(ContinousReward(x, n)))$

Description:

Ensures that there are no disadvantages for creators in selling NFTs on our platform by equalizing the initial price by adding the left-over tokens. The **extant reward** is calculated by subtracting the one-time reward and the sum of all continuous rewards with the total amount paid. It is paid once to the last owner and is usually the same as the last owner's continuous reward at the buy-off.

3.5.1.5 Profit

Definition:

The formula you can calculate the total profit with.

Formular:

$Profit(x_{ownerNumber}, n_{totalOwners}))$
$= \text{OneTimeReward(x)} + \sum_{y=x}^{n-1}(ContinuousReward(x, y)) + \text{ExtantReward(x)}$

Description:

To calculate the whole profit of an auction you participated in, you need your owner number "x" and the number of total owners when the auction ended "n". The profit is then calculated by summing up your one-time reward with all of your continuous rewards with "x" being your static owner number and incrementing y to n-1 with y being the number of total owners for each purchase. Then the extant token are added which are paid with the initial buy-off.

3.5.2 Practical example

Following a practical example with the initial price being at 20 RCT and a price increase of 2.0x.

First price:

Initial price	=	20 RCT
*Price increase	=	2.0
^Owner number	=	1
= First price	=	40 RCT

To get the first price the initial price of 20 RCT has to be taken and multiplied with the factor of the price increase 2.0x to the power of the new owner number 1.

Creator reward after first purchase:

$OneTimeReward(1)$	20 RCT + ((40 RCT – 20 RCT) / 2)	=	30 RCT
$ContinuousReward(1)$	40 RCT – (20 RCT + ((40 RCT – 20 RCT) / 2))) * 2^{-1}	=	5 RCT
$ExtantReward(1)$	40 RCT – (30 RCT + 5 RCT)	=	5 RCT
= Reward of first purchase:		=	40 RCT

The sum of all rewards is given back to the last owner by the DEX-contract automatically. The first purchase in the auction shows the importance of the extant reward. It ensures that there is no disadvantage for the creator on the initial sell compared to other platforms by equalizing the offset. The next price can be calculated again by taking the last price (40 RCT) and multiply it with the fixed price increase (2.0x).
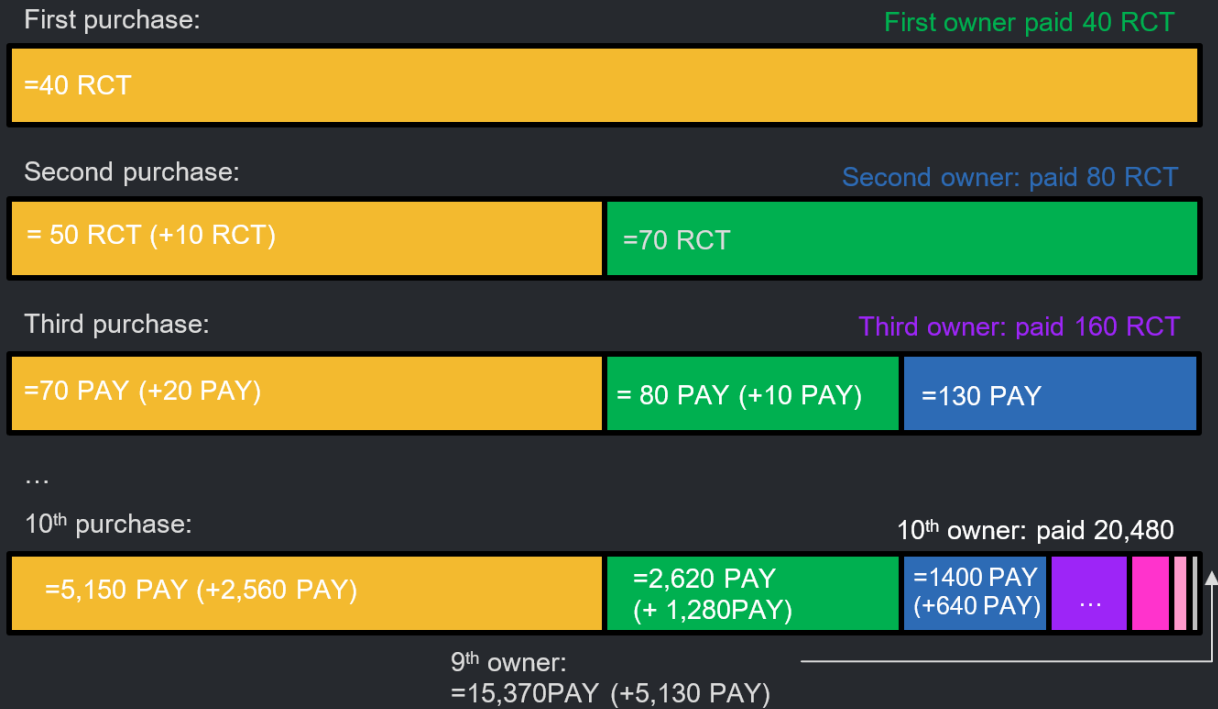
Following this example graphically:

First purchase: First owner paid 40 RCT

=40 RCT

Second purchase: Second owner: paid 80 RCT

= 50 RCT (+10 RCT)	=70 RCT

Third purchase: Third owner: paid 160 RCT

=70 PAY (+20 PAY)	= 80 PAY (+10 PAY)	=130 PAY

…

10th purchase: 10th owner: paid 20,480

=5,150 PAY (+2,560 PAY)	=2,620 PAY (+ 1,280PAY)	=1400 PAY (+640 PAY)	…		

9th owner:
=15,370PAY (+5,130 PAY)

Figure 1: Distributing system illustrated

Don't be misled by the seemingly disproportionate earning of the 9th owner after the tenth purchase. You have to take in account that the creator of the auction made slightly more, just not in one transaction. After 10 transactions the owner earned 5,150 RCT, the 9th owner 5,130 RCT. You also have to consider that the last owner has to show a big interest in the asset by paying 10,240 RTC in advance, in exchange for the high return on investment earned through someone's bigger interest.

As the illustration shows you can say in general, that buying early gives you a big percentage for the whole auction, but little immediate reward in the case of a buy off. On the other hand, buying late gives you a smaller percentage, but a bigger immediate reward but with a higher number of tokens to invest in order to obtain the NFT you seek for.

To prevent the piling of interest, every address can buy an NFT only once as mentioned above.

4 ICO

The following section will explain the course of the ICO and an outlook of what we will be heading to after the ICO has successfully completed.

4.1 Stages

The ICO will be executed in three stages. We will deploy a smart contract which will be in charge of the ICO where you can buy the tokens according to the stage, we're in.

4.1.1   Introducing the RichCoin

RCT Price:
In the first stage of the ICO the RCT will start at 0.0001 BNB.

Hard-Cap:
The maximum number of tokens that can be issued in this stage is 1,000,000.

Advertisement:
The advertisement in this stage will consist of peer-to-peer advertisement on Instagram, Telegram, Bitcoin-Talk, Reddit etc.

Event: The RichCoin
We will introduce the RichCoin-auction which is an example of an auction which everybody will be able to start in the future.

Spending:
The raised funds will be used for advertising and improving the web-site with the key focus being on bug fixing.

Goal:
The goal is to dispose all stage 1 tokens. The goal for the project is to have a growing amount of people and to be rid of all priority 1 bugs.

Migration to next stage:
After selling off all the tokens or exceeding the stage time of 3 months, we will migrate to stage 2 with a growing amount of people. We expect this to be possible after approximately 1-2 months.

4.1.2   Pioneer-Access

RCT Price:
In the second stage of the ICO the RCT will be fixed to 0.0003 BNB.

Hard-Cap:
The maximum number of tokens that can be issued in this stage is 2,000,000.

Advertisement:
In this stage we try to get bigger investors on board by pitching to them with a growing number of followers backing up our vision.

Event: Pioneer-Access
In this stage early-access will be available to stage 1 investors who hold an amount of at least 1,000 RCT of stage 1. Those investors will be able to create their own auctions and profiles as reward for their trust and in order to submit feedback to the team.

Spending:
Half of the earnings will be reserved to cover the liquidity in the future liquidity pool. We will raise the budget for marketing. The development focus will be set on the design of the website and back-end improvement.

Goal:

The goal is to dispose all stage 2 tokens. After finishing stage 2 we want to have enhanced the design in order to build a brand to attract more people. We will also take the feedback of the community serious to be able to improve the web-site and smart contracts in your needs.

Migration to next stage:

After selling off all the tokens or exceeding a stage time of 2 months, we will migrate to stage 3 with a growing amount of people. We expect this to be possible after approximately 1 month.

4.1.3   Access-all

RCT Price:

In the last stage the RCT will be sold at 0.0005 BNB.

Hard-Cap:

The maximum number of tokens that can be issued in this stage is 4,000,000.

Advertisement:

We will continue the improved advertisement on all social medias. The advertisement should then be a self-runner.

Event: Access-All

In this stage everyone will be able to create auctions on our platform and create profiles.

Spending:

80% of the raised capital will be used to cover the liquidity in the pool after stage 3. We will get more colleagues on board who want to work on the project with us and will found the RichCoin Inc. We will also increase the advertising and development expenses by hiring advertisement and technical consultants in the company.

Goal:

The goal is to dispose all stage 3 tokens. After finishing stage 3 we want to have a company and brand to proceed with our roadmap.

After Stage 3:

After selling off all tokens or exceeding the stage time of 2 months, we will deploy the liquidity pool with all the LP tokens locked away for at least half a year with around half a million USDC in coverage to give safety to investors. Afterwards a liquidity-pool will be created on a **DEX** (Decentralized exchange) where the token is then free to be traded with the market deciding the price. The ICO is then finished.

4.2 After the ICO

This section will explain what happens after the ICO including the evaluation.

4.2.1   Evaluation

After the ICO we will evaluate it and update the roadmap according to the success of it. We set our Soft-Cap goal to 3,000,000 sold RCT with an average value of about 200,000 USDC to allow us to further proceed the project. This amount is necessary since the rest of the vended tokens is there to cover liquidity as we want to give later investors protection by that. In the evaluation phase we will update the roadmap to give investors a realistic look onto what we're working on and when we will reach our targets. If we don't manage to raise the funds needed, it will of course be possible for investors to retrieve their funds.
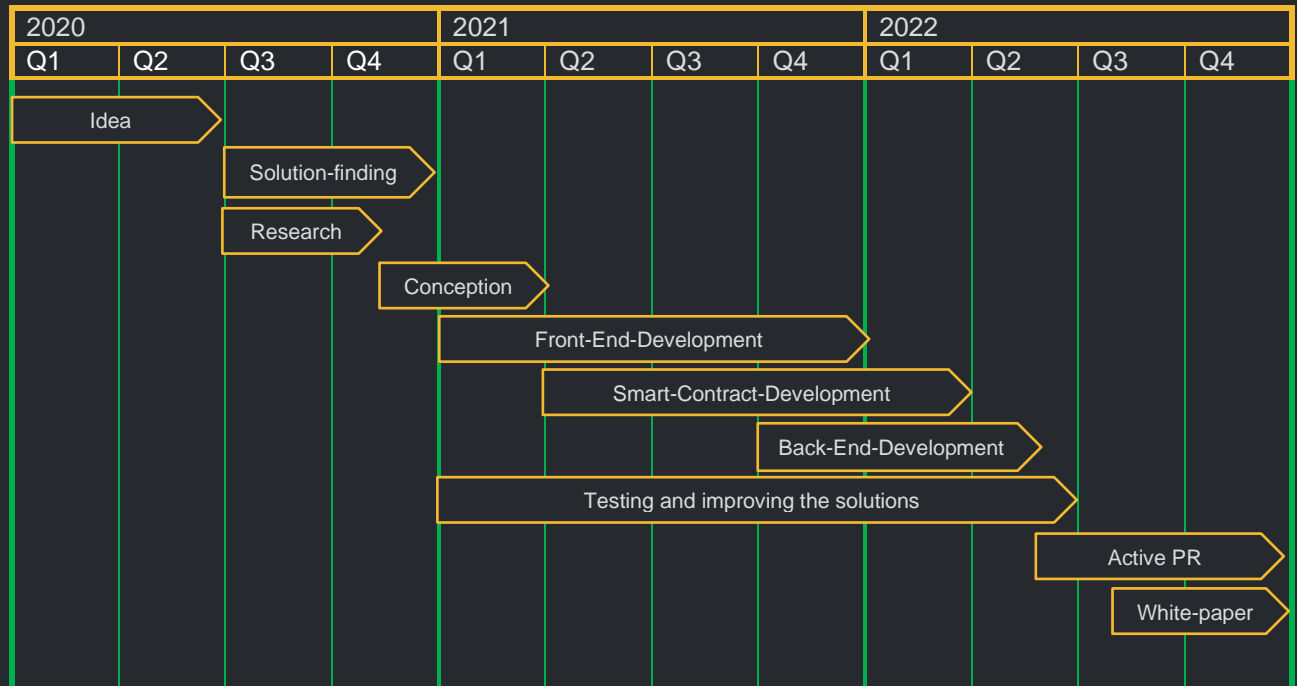
4.2.2   RoadMap

4.2.2.1   Process

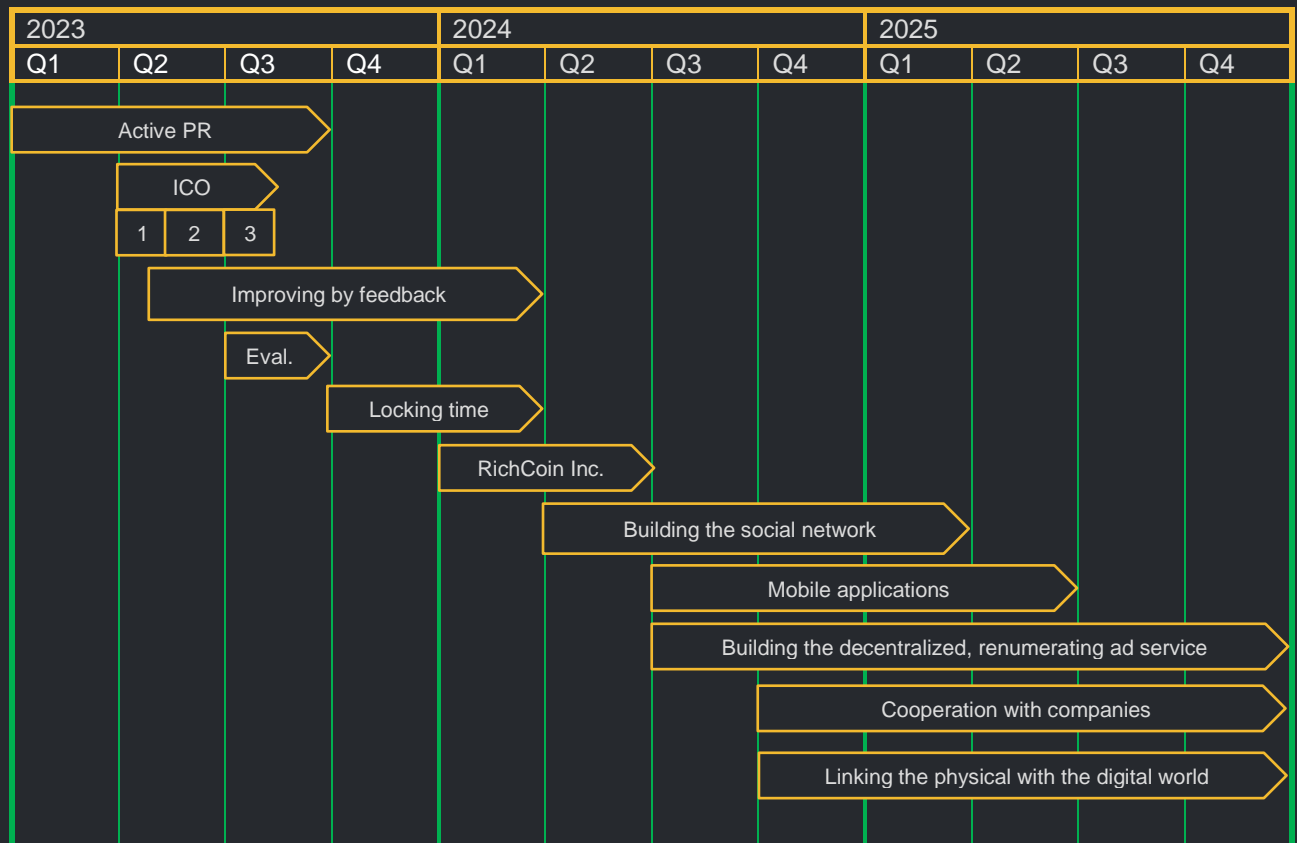*Figure 2: Roadmap process*

4.2.2.2   Future

Figure 3: Roadmap future

5 Closing Word

We would like to thank everyone who has read this white paper and appreciated our work and effort put into the RichCoinNFT project. As an entrepreneur in the RichCoinNFT project, you will have the opportunity to be a key player in a groundbreaking and rewarding project, and you will have the chance to shape the direction and growth of the project as we strive to make a meaningful impact and drive positive change in the world of cryptocurrency and NFTs. You will be part of a project that is dedicated to developing innovative solutions and pushing the boundaries of what is possible with cryptocurrency and NFTs.

The cryptocurrency and NFT markets are constantly evolving and presenting new opportunities, and as an entrepreneur, you will have the opportunity to stay ahead of the curve and lead the way in shaping the future of this exciting and rapidly growing market. You will have the opportunity to drive innovation and positive change in the industry and be a part of the revolution that is transforming the way we transact and exchange value.

In closing, we hope that this white paper has provided a clear understanding of the RichCoinNFT project and the potential it holds for entrepreneurs. We believe that RichCoinNFT is a rewarding opportunity with a bright future, and we are confident that our project has the potential to make a significant contribution to the industry by providing innovative solutions that bridge the gap between the real world and the digital. We invite you to join us on this exciting journey and be a part of the RichCoinNFT project. Together, we can shape the future of cryptocurrency and NFTs and make a positive impact in the world.

Contact

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We welcome your feedback and suggestions on how we can continue to improve our platform. Connect with us on social media to stay updated on the latest developments and news related to RichCoin.