
TERRAN
POWERING THE BLOCKCHAIN WORLD

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# EXECUTIVE SUMMARY

This document presents the basis, features, technology, use cases, and roadmap of Terran and its underlying blockchain network. It explains how the cryptocurrency industry can benefit from a decentralized and distributed system that could resolve the issues of scalability, interoperability, sustainability, and flexibility.

Terran will introduce a blockchain-based solution that will benefit the global community including developers, merchants, and investors. Through the decentralized structure of the Terran blockchain, the launch of the platform will become more scalable and secure.

TRR will be the utility token used for the services deployed within Terran. The target audience and use cases for Terran involve developers and buyers. All prospect participants will benefit from the robust and secure cryptocurrency ecosystem, and monetization opportunities.

In the latter part, we provided the timeline of Terran's development. This provides an overview of what Terran aims to do as it progresses through time, such as the launch of its platform, exchange listings, and blockchain development.

We continue by laying out the structure of TRR, a decentralized autonomous organization (DAO), that will be managing funds dedicated to further its development, server infrastructure, and new experimental projects based on the Terran platform. We created TRR DAO to improve its transparency and community participation.

# INTRODUCTION

## What is Terran?

Without a doubt, the use of cryptocurrencies has surged over the past couple of years. However, a number of cryptocurrencies have experienced chaotic growth trajectories. The majority of cryptocurrencies have suffered from scandals, hacks, and disagreements by co-founders leading to closure or a bad reputation for the company.

With all this, Terran utilizes blockchain technology to enhance efficiency in sending, receiving, and trading cryptocurrencies. Yes, some blockchain companies have tried to solve discrepancies that are found in the cryptocurrency industry. However, there has not been much progress and Terran seeks to bring solutions to problems being faced in the cryptocurrency industry.

### Affordable, Proficient, and Swift Transactions

Terran blockchain aims to ensure that there is no scaling limit in transaction processes. The ever-growing number of cryptocurrency users has redacted transaction speed by a lot over time. Cryptocurrency projects like Ethereum, among others, have been struggling with slow transaction speed and increasingly high gas fees.

With transaction fees on Ethereum skyrocketing, developers have been looking at alternative networks. Terran is a project built to be a solution to such problems. Transaction costs in the cryptocurrency world of late have been extraordinarily high. As a result, this slows down transactions.

The Ethereum blockchain has even been referred to as the blockchain for 'rich guys' due to its high fees. Though other blockchains can already process more than 1,000 transactions per second (TPS) that is still much lesser than the required transactions that can be processed. Currently, the majority of decentralized solutions lack behind VISA's TPS, which is still significantly faster.

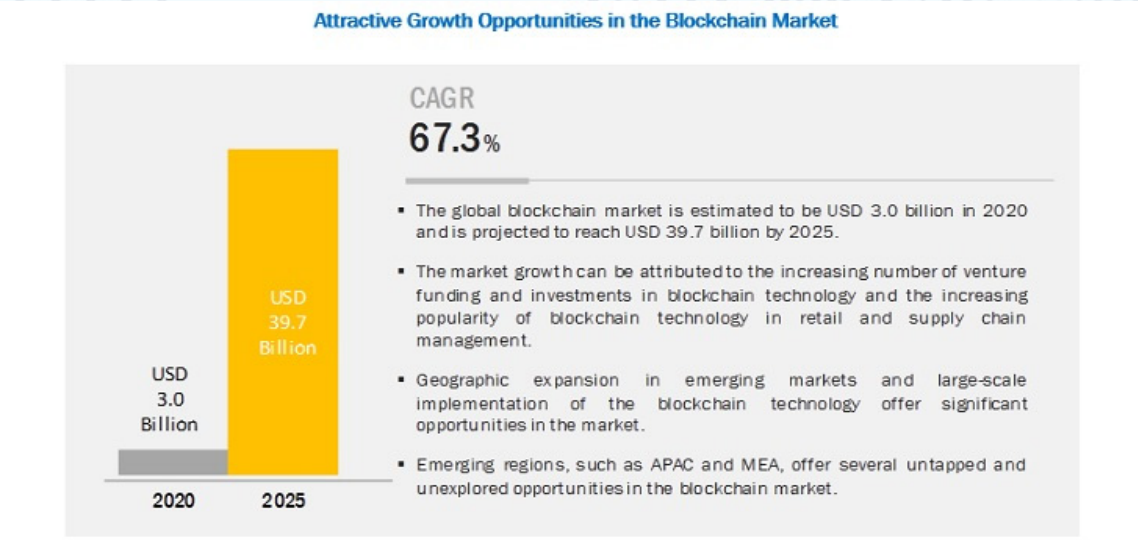
Terran's goal is to bring enhanced solutions to improving scalability problems. In the cryptocurrency industry, scalability is the ability to crunch transactions on a blockchain. That is to say, higher scalability is being able to process more transactions in a shorter time frame, however, it is also presented as 'transactions per second'.

## Secure Crypto Transactions

Cryptocurrencies use encryption to verify transactions. As such, advanced coding is involved in storing and transmitting cryptocurrency data between wallets and to public ledgers. Terran aims to provide security and safety for its platform's mainstream users through enhanced blockchain technology.

Blockchain technology and cryptocurrency use have simplified the business processes. Supply chain management applications integrated with blockchain technology will drive the overall blockchain market.

The blockchain market size across the globe is expected to grow from USD 3.0 billion that was recorded in 2020 to USD 39.7 billion by 2025. More so, calculations show that it will increase at an impressive Compound Annual Growth Rate (CAGR) of 67.3% during 2020 - 2025.




*Blockchain Market Size*

The purpose of Terran and its underlying technology is to make storing, spending, and transferring 'digital money' secure, super-fast, and efficient.

## Durability and Compatibility

Some cryptocurrency projects have surfaced and within a space of a few months or a year, they ceased to exist. Websites get closed and companies vanish with people's digital assets.

Nonetheless, Terran is a long-term project that seeks to keep running and availing advanced blockchain and cryptocurrency features to its users. More advanced technologies will be introduced to users in the future.

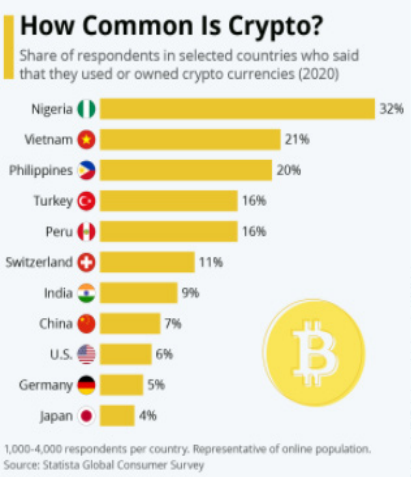
## Who Benefits from Terran

Terran will benefit many users and projects in the cryptocurrency industry. People will be able to trade, send, and receive cryptocurrency smoothly. In the near future, users who buy goods and services online from merchants will be able to make transactions more smoothly.

Organizations and individuals who are interested in providing some relevant offers to the customers who want to engage in business with them will also be using cryptocurrency. This will ensure enabling additional payment methods, hence, getting new customers or more added value from existing customers.

## What are Cryptocurrencies?

Cryptocurrencies are best defined as digital financial assets. They have developed to function with the purpose of acting as a medium of exchange.




*Source: Statista*

They use the science of cryptography to secure transactions, create global currencies, eliminate government control and exchange rate issues, and control the creation of additional units of the currency.

Using blockchain technology, all payments are highly encrypted, making them more secure than traditional online payments. The benefits of using cryptocurrencies include borderless transactions, highly secure payment transactions, and no centralized control.

## Current Trends

Based on blockchain technology, Ethereum is an open-source software platform that allows developers to create and deploy smart contracts and decentralized applications (DApps). It was founded by computer programmer Vitalik Buterin who previously worked for Bitcoin.

***Ethereum*** uses Proof-of-Work (PoW) to make sure that transactions are recorded safely and correctly, computers solve complex algorithmic problems and do it as quickly as possible in order to receive a mining reward. However, with the developments of ETH 2.0, it will be moving to Proof-of-Stake (PoS). Ethereum is used more for DeFi applications and various blockchains are built on its network.

***Cardano*** is a network that cares about user experience. More so, it aims to deliver enhanced security for its customers. Actually, it offers value-generating projects with lower fees, increased decentralization, and higher scalability for its users. Its cryptocurrency ADA built its PoS specifically on a consensus protocol called Ouroboros.

However, the ADA Ouroboros protocol validates crypto transactions without any high energy costs. In particular, earlier this month, Cardano went through its much anticipated 'Mary' update which paved the way for users to be able to create unique tokens, including non-fungible tokens (NFTs).

These are digital files that represent ownership of a certain asset and have also become the latest crypto craze. That factor might explain the renewed interest in Cardano better than anything else.

***Polkadot*** provides unprecedented economic scalability by enabling a common set of validators to secure multiple blockchains. Polkadot provides transactional scalability by spreading transactions across multiple parallel blockchains. Users can connect their chain to Polkadot and get interoperability and security from day one. This ease of development helps the Polkadot network grow.

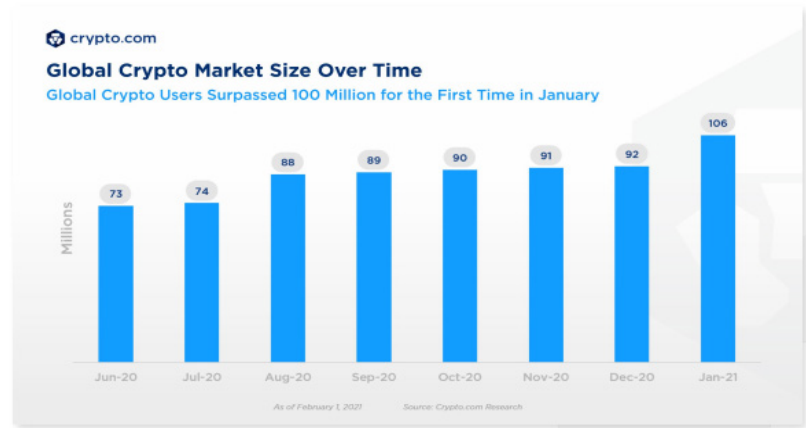
## Conditions of the Market

### Global Cryptocurrency Market Size

As of January 2021, around 106 million people are now using cryptocurrencies around the world, according to a report from Crypto.com. Even baby boomers and Gen X are showing more interest in Bitcoin and other tokens.

Specifically, the rally in cryptocurrency adoption is also a result of the continuous investments made by multi-billion dollar companies and individuals. Since 2020, investments in various cryptocurrencies have been on the rise. Suddenly, corporate investors are showing an increased interest in adopting crypto. This interest has become the driving force for cryptocurrency adoption.

Every now and again institutions are openly announcing their investments. This has ultimately pushed more people to invest in crypto assets. Therefore, growing institutional interest is among many of the key factors that contribute to the huge increase in the cryptocurrency market and size.




*Source: Crypto.com*

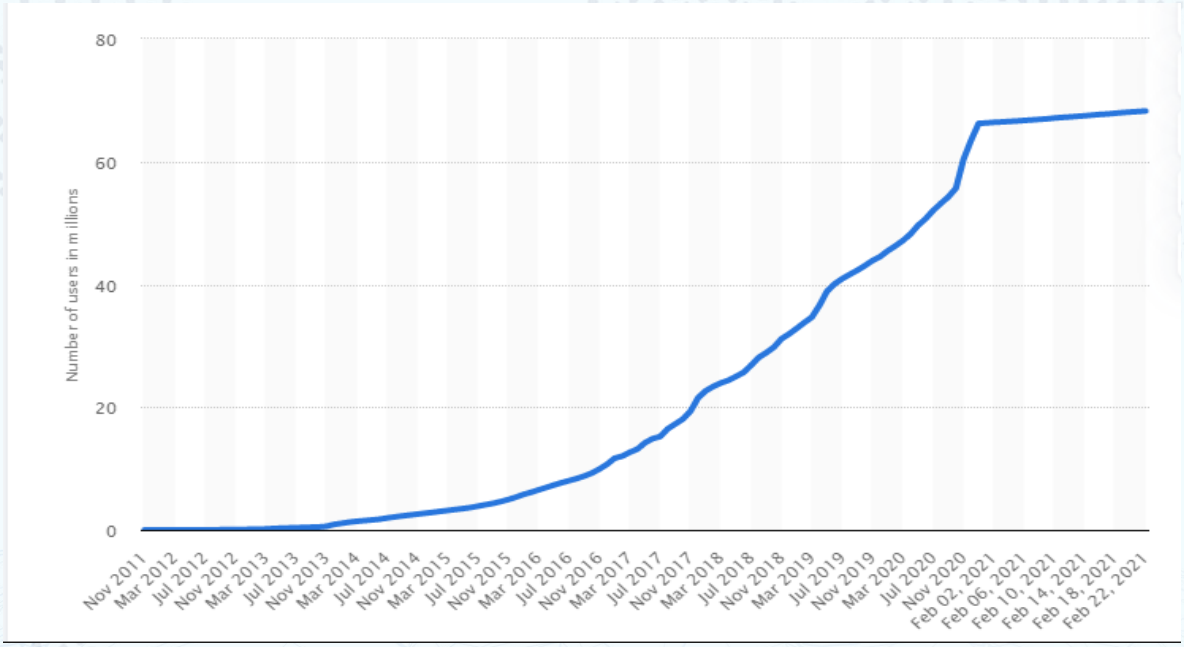
The advantages of using cryptocurrencies are a lot. The first would be immutability. No third party can change or delete data recorded on a blockchain. Following this is security. Blockchains are protected by cryptography and have proven that they are immune to fraud or hacking. Additionally, there is identity protection while being transparent in all transitions. All entries are available to everyone.

## Blockchain Wallet Users

The number of blockchain wallet users has reached over 65 million in 2021 according to Statista. As the number of cryptocurrencies in the world increases so do the blockchain wallet users. There is an ever-growing number of people who are using blockchain wallets.

Furthermore, blockchain technology has the potential to securely transmit payments and that resulted in increasing the number of digital wallet users.

Statistica revealed that the total transaction value in the digital payments segment estimates to US$6,685,102m in 2021. Total transaction value is expected to show an annual growth rate (CAGR 2021-2025) of 12.00% resulting in a projected total amount of US$10,520,219m by 2025.




*Number of Blockchain wallet users worldwide from November 2011 to February 2021*

# CHALLENGES IN THE INDUSTRY

There are several benefits to blockchain technology, but there are also some challenges to overcome in this industry. These range from low scalability to lack of regulation and a limited number of qualified people.

## Lack of Scalability

Large blockchain networks like Bitcoin and Ethereum are not able to handle the limited rate at which transactions are being processed on the blockchain. This lack of scale issue is especially a problem for companies that have to process massive transactions and need networks that enable high transaction throughput while maintaining low latency.

## Privacy Concerns

Another existing challenge is the privacy issue. Blockchain is built in such a way that all transactions are transparent while its actors can be identified. This is a problem for public blockchains where all transactions are transparent and the network ledger is open to anyone. This means that they can be tracked. This lack of privacy can be an issue for some transactions, and an example is those confidential corporate deals.

### Unconnected Blockchain Ecosystem

While blockchain was formulated as a decentralized technology, individual blockchain networks are not open and cannot communicate properly with each other. Right now, there are many blockchain projects, all of which have different features. From the type of transactions to hashing algorithms, and consensus models.

Meanwhile, these challenges are further deepened by different networks and financial institutions implementing different governance rules, blockchain technology versions, and regulatory controls. This has resulted in a series of unconnected blockchain ecosystems operating alongside, but kept in isolation from each other, preventing the industry from reaching its full potential. Isolated inter-blockchain communication can put tension on blockchain scalability and mainstream adoption.

## Solutions by Terran

To solve these challenges, several cross-chain and off-chain technologies that could help blockchains are being explored by Terran. Several features are also introduced by Terran to overcome such hindrances in this industry. It is deemed significant to have such dependable flexibility, upright sustainability, and superior scalability. We will tackle these notable features in detail later on in this whitepaper.

### Off-chain Technologies

Many view scalability as something to be achieved off-chain. While decentralization and security should be maximized on the blockchain itself. The off-chain scaling approach allows transactions to be executed without overcharging the blockchain.

Off-chain technology allows users to send and receive funds, without the transactions appearing on the main chain.

## Multi-layered Structures

Another solution to improve scale is the use of multi-layered structures, which is the isolation of transaction processing and data storage. Having a multi-layer structure facilitatesthedetectionofcompromisedentitieswithintheentirenetworkineachlayer.Each transaction in the system can be verified by implementing a consensus algorithm.

In addition to that, a multi-layered architecture allows upgrading the existing server. This means that it will make large-scale deployments possible.

## Transparency of Transactions

Giventheprivacyconcerns,Terranprovidessecurityandanonymitytoenabletheprotection of personal information. A sample scenario is when we are sending money to someone online, we have to rely on third-party services to complete the payment.

With Terran, we can reduce the need to trust third parties to conduct a transaction. Anyone can make payments using their public and private keys in a peer-to-peer fashion, without having to provide personal information to a third-party application. It comes with added security to the financial data.

# CONSENSUS MECHANISM

## Delegated Proof of Stake (DPoS)

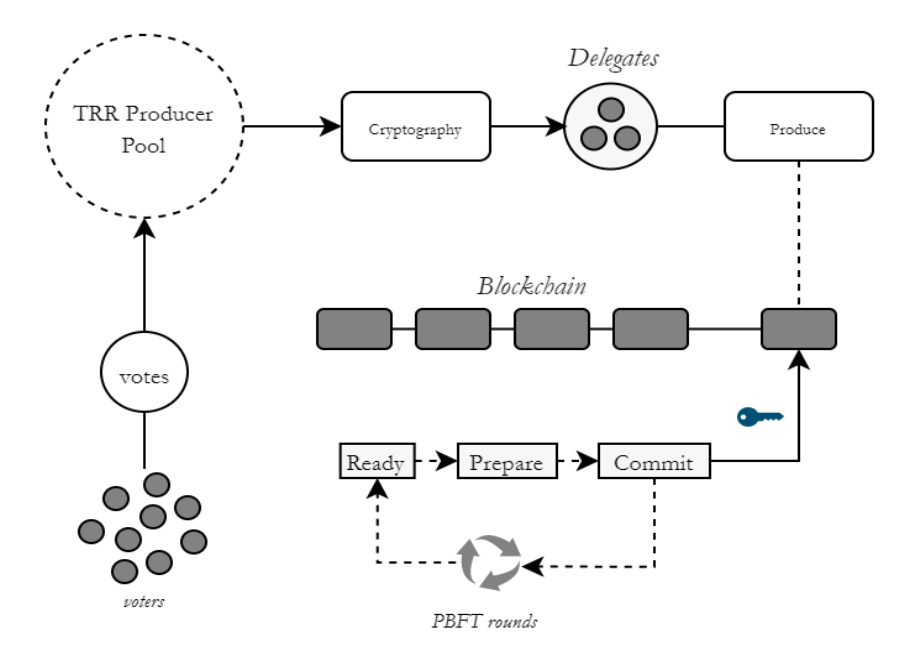
### How Does DPoS Work?

With DPoS, it will enable blocks to be produced exactly every 0.5 seconds. One producer is authorized to produce a block at any given point in time and if the block is not produced at a scheduled time, then the block for that time slot is skipped. When one or more blocks is skipped, there will be a 0.5 or more second gap in the blockchain.

Using this software, blocks will be produced in rounds of 126. It's 6 blocks each, times 21 producers and at the start of each round 21 unique block producers will be selected by casting votes. The selected producers will be scheduled in an order agreed upon by 15 producers or more.

If in case a producer misses a block and was not able to produce a single block within the last 24 hours they will be removed from consideration. They can be included again if they notify the blockchain of their intention to start producing blocks again. This helps ensure that the network can operate smoothly by limiting the number of blocks missed and by not scheduling producers who are proven to be unreliable.

### What to Expect from Terran's Consensus



Terran software makes use of the decentralized consensus algorithm. This software that Terran uses is capable of meeting the performance requirements of applications for a blockchain which is known as Delegated Proof of Stake (DPoS).

With this algorithm, holders of any blockchain that adopt this software can select block producers through a continuous approval voting system. Anyone may opt to participate in block production and they will be given the opportunity to produce more blocks. This is if they can persuade token holders to vote for them.

Moreover, under normal conditions, a DPoS blockchain does not encounter forks because block producers usually cooperate to produce blocks rather than compete. If there will be any fork, consensus will just automatically switch to the longest chain.

This kind of process works since the rate at which blocks are added to a blockchain fork directly corresponds to the percentage of block producers that share the same consensus.

In short, a blockchain fork with more producers will grow faster than one with fewer producers. This is simply because more producers will experience fewer missed blocks.

More so, no one should be producing blocks on two forks at the same time which is also called double-production. A block producer that will be caught doing this may be voted out. Any cryptographic evidence of this kind of production may also be used to automatically remove abusers.

# NOTABLE FEATURES OF TERRAN

Neverending discussions and improvements with scalability, flexibility, and sustainability have been one of the common challenges for many blockchains. In this section of the whitepaper, we will discuss the notable features of Terran and what makes it special for people to attract investors.

## Superior Scalability

Blockchains are built on a distributed network that requires a majority consensus to change its data. This greatly complicates scalability, as the decision must ideally be made in several places at a given small period of time.

Terran introduces an expansive improvement in terms of scalability. Aiming 100,000 transactions per second (TPS) with the help of the sharding mechanism. This enables parallel execution by splitting the blockchain into pieces.

Terran has been designed since the beginning with scalability in mind. This is achieved by enabling parallel transaction processing while keeping the number of block producers small. Terran's scalability is expected to achieve an estimated 4,000 transactions per second on its launch.

Terran aims to implement developmental strategies that would be solutions to discrepancies found in other blockchain platforms. With scalability being part of its main objectives, Terran will maintain the transaction speeds it handles.

## Upright Sustainability

For Terran, we thought carefully about what factors promote centralization and what techniques could be applied to encourage the protocol to gradually have upright sustainability.

Cryptocurrencies are all designed to be difficult to change, but just like all other technology, they need to change to address design flaws and advancements. Blockchains are intended to prevent centralization, yet require strong actors to lead changes or maintain the code.

Funding has to be diversified. With that, Terran makes sure to have the speed on improving the needs for everything to be systematic and have deliberate pacing. Hence, Terran's funding opts to avoid cultural-linguistic, and geographic bias.

Moreover, the incentives behind the maintenance of Terran's blockchain shall be directly aligned with the aggregate desires of all users. Terran will not permit a cabal of specialized actors to emerge.

## Dependable Flexibility

Inspired by the growing popularity of decentralization, we decided to build a community-driven and smart user platform capable of digitizing virtual activities. Terran will then be one of the fastest blockchain engines with highly optimized in-memory storage and security guarantees for user-supplied smart contract systems.

With this feature, a technological platform was designed to handle various financial applications around the world. This makes it possible to run direct and fast transfers.

This approach is unique in the space itself because it was created in layers through scientific philosophy and academic research. This provides flexibility to the system that will surely lead to easier maintenance and upgrades through soft forks.

In addition to that, it has its own TRR cryptocurrency which will be supported by Terran's team of researchers, academic experts, and scientific professionals. These people have made great contributions to the development of the Terran blockchain.

They make the advanced consensus algorithm, DPoS, an enhanced consensus algorithm in the crypto space.

## Reliable Interoperability

Interoperability is another key piece missing in most cryptocurrencies today. For the adoption of crypto to become a reality, cryptocurrencies should connect to other cryptocurrencies and the outside world. Financial institutions are seeking interest in crypto, but one major roadblock for a lot of them is Interoperability.

Terran recognized these issues and is now working on the solution. Through side-chains, it will allow meta-data to those institutions that need it and abstain from providing such sensitive information for certain kinds of transactions/applications where it is not essential, to maintain user privacy and security.

There are also other cryptocurrency projects trying to connect the decentralized and centralized worlds, a major one being Chainlink. Chainlink is basically a decentralized middle agent between traditional parties and smart contracts.

## Mainnet Development

Terran will first use a testnet before it can proceed to go to the mainnet. Currently, Terran is built on the Ethereum blockchain but it will migrate to its own mainnet soon. Also, TRR is currently an ERC-20 token but it will also move later on. Terran's mainnet will allow the blockchain to handle more transactions per second.

Testnet is basically used by programmers and developers to test and troubleshoot all the aspects and features of a blockchain network to ensure that it is secure and ready for the mainnet launch.

After performing bug fixes and depending on the performance of the testnet, the team will then launch the mainnet version of the blockchain, which is (ideally) fully deployed and functional.

Meanwhile, mainnet is when a blockchain protocol is fully developed and deployed, meaning that cryptocurrency transactions are being broadcasted, verified, and recorded on a blockchain.

The mainnet swap by Terran will give users the freedom to leave their TRR tokens on their Terran account, so the swap could be automatically done by the Terran team. In fact, the swap will be performed through withdrawal requests. Therefore, ERC-20 TRR token holders will replace their tokens with the newly issued Terran cryptos.

## Optimized Low Latency

A great user experience demands reliable feedback with a delay of no more than a few seconds. Longer delays frustrate users and make applications built on a blockchain less competitive with existing non-blockchain alternatives.

Hence, the Terran platform supports low latency in transactions. In this part, latency can refer to two different time delays. The first is the latency in the network of a blockchain, and the second is the latency on an exchange.

Simply put, Terran network latency is the time between submitting a transaction to a network and the first confirmation of acceptance by the network. Meanwhile, the latency of an exchange is a measure of their ability to process and execute large volumes of transactions in their order books.

## Stake Pool Operation

Stake pools are run by a reliable operator. This is an individual or business with the knowledge and resources to run the node on a consistent basis. TRR holders can delegate to public stake pools if they wish to participate in the protocol.

Stake pools may be either public or private. A public stake pool is a Terran network node with a public address that other users can delegate to, and receive rewards. Private stake pools only deliver rewards to their owners.

Extensive research and development has gone into ensuring a fair, competitive marketplace that proportionately incentivizes participation, and rewards the investment of time, energy, and resources.

# TRR USE CASES

TRR is a standard digital cryptocurrency that will be used on the Terran platform. It is the chief asset for all use cases that will be conducted on the Terran network. For now, it will be issued on the Ethereum platform as an ERC-20 token.

The Terran platform will maintain strict control over the circulation of the TRR cryptocurrency. TRR will have monetary value once it has been listed on cryptocurrency exchanges. Once this happens, it can be traded to different fiat and digital currencies.

### What are the use cases for Terran?

Below we will show the use cases for TRR ecosystem participants. TRR is the chief asset that will enable the platform to run through coin sales, market gain after new exchange listings, ad revenues, and transaction fees.

### Trading and Swapping

Terran's system runs on its underlying cryptocurrency — TRR. The cryptocurrency holds value and can be traded in various top global crypto exchanges. TRR is among the rapidly growing digital assets in the cryptocurrency industry.

Users on the platform can trade TRR on selected cryptocurrency exchanges. TRR also has various trading pairs. Whether you want to diversify your long-term investment portfolio or go after short-term profits, TRR can be a strategic fit for your trading plans.

More so, they can swap TRR with other cryptocurrencies. TRR can be swapped without using a cryptocurrency exchange, all that is needed is a smart contract address.

### Reward Stakers and Validators

As the Terran network utilizes a delegated Proof of Stake (DPoS) consensus algorithm users will have the opportunity to stake their TRR and earn rewards, either as validators or through staking providers.

Staking on Terran is similar to an interest-bearing savings account. Stakers receive interest (rewards) for validating blocks on the Terran protocol.

Staking TRR provides TRR holders with rewards. The more TRR you stake, the more rewards you can earn. There are two ways a TRR holder can earn rewards: by delegating their stake to a stake pool run by someone else, or by running their own stake pool.

When a validator is done validating the Terran Network it receives TRR tokens. Additionally, it may receive a reward for helping to secure the network by validating.

## Network Maintenance and Service Fees

Terran aims to provide a robust blockchain-based platform for its users. More so, with users eager to utilize a platform that is secure and technologically advanced there is a need to develop and upgrade the network consistently. With TRR, network participants can pay for all the required fees to maintain the operations on the Terran network.

Service fees will be used for a variety of purposes such as platform upgrades, partnerships, rewards, listing, etc.

## Transaction Fees

The Terran network will take a percentage fee of all financial transactions (payments) on the blockchain. Terran will be charging its users a minimal fee for making transactions. It is generally affordable than the traditional payment methods. This can be reduced even further in case that most users adopt TRR as their preferred cryptocurrency.

This is done for successful deliveries of services provided to any concerned party. When you send TRR, transfer tokens, interact with smart contracts and so on you need to pay TRR as the transaction fees. So TRR will be used as the form of payment for all services.

### Third-Party Services

When Terran provides its platform for services such as advertisements, we will take a certain fee. We can serve relevant advertisements, within the Terran app, depending on the agreements between Terran and the other party. A fee will be paid for the recommended/sponsored list of services within the app, with a commission automatically given to the Terran network.

## Terran (TRR)

TRR coin is an ERC-20 cryptocurrency that was created via an Ethereum smart contract. As an ERC-20 standard crypto, TRR will utilize the Secp256k1 curve.

To protect the cryptocurrency against brute force attacks, it will also use the Keccak-256 algorithm. It also implements OpenSSL ecparam command to generate an elliptic curve private key.

In the future, TRR will be used as a payment cryptocurrency across the globe. The cryptocurrency is designed to support transactions that happen between customer-to-customer (C2C), business-to-customer (B2C), and business -to-business (B2B) interactions.

Terran has a number of features that will help users make fast peer-to-peer (P2P) transactions for online purchases. Users can shop around and make seamless transactions using TRR.

1. totalSupply () public view returns (uint256 totalSupply) [Get the total token supply]

2. balanceOf (address _owner) public view returns (uint256 balance) [Get the account balance of another account with address _owner]

3. transfer(address _to, uint256 _value) public returns (bool success) [Send _value amount of tokens to address _to]

4. transferFrom(address _from, address _to, uint256 _value) public returns (bool success) [Send _value amount of tokens from address _from to address _to]

5. approve(address _spender, uint256 _value) public returns (bool success) [Allow _spender to withdraw from your account, multiple times, up to the _value amount. If this function is called again it overwrites the current allowance with _value]

6. allowance(address _owner, address _spender) public view returns (uint256 remaining) [Returns the amount which _spender is still allowed to withdraw from _owner]

function Transfer(address indexed from, address indexed to, uint256 value);
function Burn(address indexed from, uint256 value);
function _approve(address owner, address _spender, uint256 amount)
function burnFrom(address Account, uint256 _value) public returns (bool success)
function transferFrom(address _from, address _to, uint256 _value) public returns (bool success)
function approve(address _spender, uint256 _value)
function approveAndCall(address _spender, uint256 _value, bytes memory _extraData)
function allowance(address _owner,address _spender)
function UserLock(address Account, bool mode)
function LockTokens(address Account, uint256 amount)
function UnLockTokens(address Account)

## TRR Token Allocation

TRR will have a total supply to be allocated for different uses on the platform.

### Marketing

Part of the TRR token allocation will be used for the marketing efforts. This assists the TRR team to ensure mass adoption of the token as soon as it is launched. Through marketing TRR, many cryptocurrency users will be able to trade it and make profits. This will maintain and increase the market value of the token.

### Company

Another part of the total supply will be allocated to the company to ensure the maintenance of the consensus within the network. Founders of the Terran platform will also be compensated for their contributions to the TRR ecosystem, they will be rewarded for their pioneering efforts. Business partners will also receive a certain percentage of the cryptocurrency.

### Development

Funds raised by the TRR team through sales and investments will be appropriated for the following: making sure that the token economy will remain afloat regardless of any market changes in the future. Terran aims to develop its own mainnet soon. More so, its goal is also to create smart contracts.

A percentage of the token allocation will go towards developing the mainnet and smart contracts. If any other developments arise, expenses will also be catered for by the funds. A detailed allocation percentage regarding TRR will be announced later.

## TRR Architecture

TRR is an ERC20 token that functions as the native asset and a store of value for the Terran network. As an ERC20 token, TRR has similar specifications and will also function as the other tokens that fall under the ERC-20 category.

Currently, TRR is using the Ethereum blockchain and it will create and use its own mainnet in the future. Terran aims to develop an independent blockchain that will run its own network with its own technology and protocol.

The live blockchain will utilize its own TRR cryptocurrency, as compared to a testnet or projects running on top of networks such as Ethereum. The TRR team will be applying for a token listing on selected cryptocurrency exchanges across the globe.

TRR also implements the Elliptic Curve Digital Signature Algorithm (ECDSA) for public-key cryptography. This provides convenience due to smaller key lengths even though it provides roughly the same level of security.

DRS users will not have to worry about giving away their private keys to others when their public keys are exposed because of this algorithm.

The Terran team will develop and integrate its own wallet that will be a cryptocurrency storage platform for TRR. This will assist users who want to store the cryptocurrency and those who want to, later on, convert part of their revenues.

## Terran Blockchain

TRR uses blockchain technology, particularly smart contracts to facilitate seamless peer-to-peer (P2P) transactions. Transactions that occur are stored via blockchain to maintain data immutability. TRR blockchain is initially based on Ethereum.

Based on Ethereum, Terran has modified a number of functionalities for its blockchain. These will help it prevent any server overload in case of many transactions that occur at the same time. All transaction information will be stored in TRR's public blockchain. This will ensure transparency and stability for all transactions that will be happening within the platform.

## TRR Benefits

TRR is a priority asset that will be used for diverse purposes on the platform. It is the chief asset that is used to fund the ecosystem and reward all those who contributed to the development of the platform.

TRR eliminates the need for intermediaries because payments will be completely done in a peer-to-peer (P2P) manner. Anyone who uses the platform does not need to go via a third party. This means lower prices and payments.

Through its blockchain technology, transactions will be easier as it allows seamless and decentralized item tracking. Unlike traditional payment portals, blockchain uses a decentralized database, guaranteeing transaction data integrity.

### For Buyers

TRR is used for different purposes. In general, the TRR cryptocurrency can be spent, sold, or kept as an investment tool. The TRR cryptocurrency can be used as a transfer of value in a similar way that fiat currency is used. However, it has more advantages as it is secure through utilizing blockchain technology. In addition, the ability to send and receive payments instantly, for minimal fees, is an advantage for buyers.

Buyers should note that using TRR as a payment system is purely peer-to-peer (P2P). This means that users are able to easily send and receive payments to or from anyone on the network across the globe. This does not require approval from any external source or authority.

These payments undergo Know-Your-Customer (KYC) and Anti-Money Laundering (AML) procedures to ensure compliance with applicable laws. The TRR team will be applying for a token listing on selected cryptocurrency exchanges and will apply for more in the future when the need arises.

It is likely that the cryptocurrency will see more use overall. All information is stored on a public blockchain for transaction stability and transparency.

## For Developers

Through TRR, developers have the authority to suggest changes and developments within the platform. They are well able to propose changes and those within the ecosystem take votes on it. Tokens such as Ethereum and Bitcoin have faced issues such as hard forks and developer disputes.

Hence, Terran seeks to avoid such disputes. Therefore, this means when a new change or development is proposed to the Terran network, TRR crypto holders can vote on these proposals. This way, there will be no developer disputes and everyone is able to partake in the development of the platform.

# SMART CONTRACTS

The Terran network aims to advance its technology at rapid speed and will soon overtake other blockchain companies that have been there for years. It uses blockchain technology, particularly smart contracts, to facilitate fiat and cryptocurrency for product payments.

With smart contracts, there is no need for a third party to verify as done by the banks, notary, or government officials. Specifically, a cryptographic code is attached to the contract verifying that this is the one true version of the contract, agreed upon by the two parties.

Smart contracts are used for various purposes. Firstly they are a great way to exclude any third party from the transaction. This means transaction prices get lower, as they need no validation. The Terran network implements smart contracts to control the transfers of digital currency, establish governance, and a lot of other things.

Smart contracts can define rules, like a regular contract, and automatically enforce them via the code. They can be used in voting, management, machine-to-machine interactions in the internet-of-things. Furthermore, real estate and in the building of personal data storage with specific access policies, e.g., medical databases.

The Terran network is working towards developing an efficient smart contract functionality. If a smart contract or decentralized application is created on the Terran platform, it uses the TRR cryptocurrency as its native currency. Terran will take a unique approach to build smart contracts on its project.

Smart contracts are developed to assist people to exchange money, property, shares, or anything of value in a transparent, coflict-free way while avoiding the need for a middleman.

## Throughput

Bitcoin and Ethereum handle few transactions per second and that is a challenge in the financial system. This is because projects such as Bitcoin use Proof-of-Work (PoW). Hence the inefficiencies in throughput.

| Proof-of-Work (PoW) | Proof-of-Stake (PoS) |
|---|---|
| The process consumes a lot of energy. | Less energy consumption. |
| The process is not fair to everyone. Organizations and people who can afford faster and more powerful ASICs have a better chance of mining than others. | The process is fair for everyone. |
| The reward is given to the first miner who solves each block's problem. | Miners take the transaction fees, there is no block reward. |

Terran aims to solve issues of scalability in smart contracts and offers enhanced solutions that enable faster transitions for all users.

## Data Scaling

The number of transactions continues to increase as crypto users also surge. Transactions conducted carry data. As the number of transactions increases so does the need for resources that enable fast and smooth transactions.

Blockchains store data for eternity and it cannot be deleted. As the system scales up and more people come in, the sheer influx of data the blockchain gets bulkier.

As the blockchain system is scaling up millions of users, the data is also increasing. Therefore Terran offers resources that will asist in handling the influx of data on the blockchain system.

### Programming Languages

To enhance efficiency the Terran platform will introduce efficient programming languages that will assist in creating smart contracts. Programming languages implemented in other cryptocurrency projects have been found with diverse vulnerabilities that have caused significant money losses in the cryptocurrency industry.

The platform offers scripting languages that will assist in solving the challenges that software bugs face on other blockchain platforms. The smart contract development language is flexible to use for both technical and non-technical users. More so, the languages can be used in various industries.

## Terran DApp Platform

Terran blockchain's development will add the ability to build decentralized applications (DApps) on the platform and create the utility of the blockchain. This means that developers, entrepreneurs, and enterprises will be able to build their solutions on the blockchain, so we will start to see the first real-word use cases for Terran.

One of the significant drawbacks in blockchain technology becoming mainstream is scalability. Currently, transactions are slow and gas fees are high. Users have to pay the Gas fees to use any of the DApps built on the platform. Terran provides a secure and scalable platform to run thousands of transactions every second.

Terran DApp platform aims to be a safe, rapid, and affordable alternative to most blockchains. The platform is developed using advanced technology that offers immense benefits to its mainstream users. Moreover, its robust underlying infrastructure provides efficient tools for building DApps.

## Advantages of Using Terran DApp platform

| Advantage | Reason |
|---|---|
| A solution to high transaction fees | Terran DApp platform seeks to be a solution to users affected by high transaction fees on other DApp platforms. |
| Supports a wide range of users | The Terran DApp platform is built to be scalable. It can support millions of users without facing any challenges. |
| Low latency | The DApp runs with the lowest possible latency to provide a good user experience. |
| Parallel and sequential performance | Parallel processing distributes the workload and saves time. Meanwhile, sequential performances assist to avoid errors like double-spending. |
| Less energy consumption | The Terran DApp platform is a less energy-intensive platform compared to others thanks to DPoS. |

Decentralized autonomous organization (DAO) (a venture capital fund initiated by Ethereum) lost one-third of its funds in 2016 due to a code vulnerability that was exploited on its network. Terran DApp provides technologies that offer security from such vulnerabilities because of the DPoS mechanism.

For DApp faults or attacks, the elected block producers can freeze the DApp until the system is restored. All the DApps deployed on the Terran blockchain platform are upgradeable. Moreover, developers can renew their applications without being permanently attached to a bug.

Terran is designed with a permission system to create custom permission schemes for various business situations. For example, you can create a custom permission to protect a specific feature of a Terran smart contract.

You can also split the authorities required to invoke a Terran smart contract function, across multiple accounts with different authority weights. This feature enables developers to build robust DApps without reinventing the wheel.

# REGULATIONS

The reality of the modern financial system is that as they scale, they have a need and a desire for regulation. This is generally the outcome from collapses due to the negligence of some cabal of actors in a marketplace.

For example, when the Knickerbocker Crisis of 1907 happened, it resulted in the creation of the Federal Reserve System in 1913. Another example is the excesses of the 1920s in the United States that resulted in a terrible financial collapse — the Great Depression. This collapse led to the creation of the 1934 Securities Exchange Commission in order to hold bad actors accountable and prevent it from happening again.

One can reasonably question the need for scope and efficacy of regulation, but one cannot deny its existence and the passion with which major governments have enforced it.

In a world where millions of assets can be controlled with nothing more than a secretly held 12-word mnemonic passphrase, how do you enforce effective regulation? Improvements in privacy have created a digital race where technology becomes more difficult to even understand who has participated in a transaction, much less who owns a particular store of value.

Like all financial systems, the Terran protocol must have an opinion in its design over what is fair and reasonable. Individuals should always have sole access to their funds without coercion or civil asset forfeiture. This right has to be practiced because not all governments can be trusted. It means some are abusing their sovereign power for the personal gain of some corrupt politicians, just like what happened to Venezuela and Zimbabwe.

Terran believes that markets have the right to openly state their terms and conditions, and if an individual agrees to do business within this market, then they must be held to those standards for the sake of the entire system's integrity.

One of Terran's goals is the creation of a modular regulation DAO that can be customized to interact with user-written smart contracts in order to add mutability, consumer protection, and arbitration. The scope of this project will be outlined later in this whitepaper.

## Authentication and Compliance

When a money service business opens an account for a new customer, it is usually required to collect basic facts about the customer and where he acquired his funds from. The challenge, technologically speaking, is in the process of submitting this legally required information. The user sending it will then have no guarantee on how it will be used, stored, and if it will ever be destroyed. Compliance information is commercially valuable. It could be stolen for identity theft or resold where regulations permit.

With Terran, we aim to innovate as much as possible. We are exploring using Sealed Glass Proofs (SGP) alongside a sharing policy to permit the safe transmission of compliance information to a verifier who in turn is forced to comply with the policies it was transmitted under. We believe that these standards could emerge and such methods will reduce risk to verifiers by preventing the loss of customer data from hackers.

If the computation layer is run by regulated entities (like exchanges), then they would need to conduct compliance checks and potentially enforce tax policy on users.

Using SGPs, the user can send funds alongside personally identifiable information without concern that it will leak into the broader internet or be preserved by the consensus nodes of the computation layer. In addition to that, the computation layer will gain certainty that all users transacting are legitimate and authenticated.

This paradigm also allows exchanges to transfer balances and accounts for customers instantly through these safe channels and also share data with regulators where policies permit.

## Decentralized Autonomous Organizations (DAO)

Smart contracts enable a new level of commercial system where relationships are free of ambiguity and self-enforcing. They can be used to create certain rules for marketplaces. This includes arbitrarily complex structures such as event-driven refunds and revelation of facts given for special conditions.

We call these smart contract enforced structures Decentralized Autonomous Organizations (DAOs). With DAOs, it does not require special protocol support nor mutability to be embedded in the ledger. Furthermore, they can be constructed just by using interdependent smart contracts.

The architectural concept of this is to design a collection of commercial templates inspired by contract law. This kind of template can be wired into a developer's smart contract to impose specific standards upon the marketplace.

With Terran's unique architecture and usability, the platform is designed to capture many of the most exciting use cases for blockchains. These are namely, gaming, NFTs, fully on-chain DEXs, decentralized social networks, and more. Terran is suited for anything that needs a database that a single company cannot control.

A Marketplace DAO could be established specifically for crowdsales and legal standards. Things such as refunds, reallocation of funds, or freezing of payment could be utilized using this. It allows everyone to have a macro discussion on how a marketplace should be controlled for the protection of consumers.

More so, it can be discussed here how to model transactions in a way to automatically ensure legal protection and rights within specific jurisdictions, like in New Hampshire.

Terran is a DAO that provides a decentralized operating system for applications built on a distributed ledger. Like all other businesses, these DAOs must compete with others in the market to offer the best goods and services to a set of potential users. Terran must compete with other blockchains and other DAOs that offer similar services. This includes Ethereum, EOS, and Dfinity.

If any one of these chains failed to meet user expectations, then stakeholders will sell, and users will go elsewhere. Whether it's because of collusion, centralization, poor technical performance, chaotic governance, or anything else, stakeholders will surely consider other options.

While everyone in the industry is still learning about how blockchain governance models should work, systems that have purely financial use cases seem to function better with off-chain governance that doesn't take into account users' stakes. DAO-like systems, on the other hand, can potentially benefit from stake-weighted governance.

Currently, Terran is the most reliable software in existence for decentralized applications. It is one of the most user-friendly blockchain platforms, having features like human-readable account names, zero individual transaction fees, customizable account permissions, low latency, high-throughput, deferred transactions, and more.

Terran only hopes that insurance and regulatory markets can form around these DAOs and that they will be self-evolving based upon outcomes.

# CONCLUSION

Terran is a credible project that gives significant blockchain and cryptocurrency real-world uses for all its users. The network is developed on a blockchain and operates using its native cryptocurrency TRR. As per the Terran roadmap, the platform aims to continuously introduce new services and features that will help users work in an ecosystem designed with scientific principles and scalability. Developers and buyers can take advantage of Terran's smart contracts and tokenization. Lastly, Terran opens up a field of opportunities for users to finally get their brilliant innovations and ideas up and running from utilizing blockchain power for real use cases.

# ROADMAP

## 2021

**Q1 - Launch ERC-20 TRR Token**

Launch TRR Token

Publish Terran's whitepaper

**Q2 - Listing of the TRR**

List TRR on several cryptocurrency exchanges

Establish partnerships with various crypto exchanges

**Q3 - TRR Trading**

Introduce TRR's trading rules

Trade TRR on various crypto exchanges

**Q4 - Begin Terran Staking**

Introduce Terran Staking Benefits

Begin Staking of TRR

## 2022

**Q1 - Launching of Terran Mainnet**

Introduce Terran's Mainnet

Switch of ERC-20 TRR to its own blockchain

**Q2 - Scalability and Performance Improvements**

Aiming 4,000 TPS - 100,000 TPS

Targeting its goal transaction per second (TPS)

**Q3 - Smart Contract Developments**

Introduce Terran's Smart Contract

# PRIVACY POLICY

Our Terran Privacy Policy gives an account of how we collect, use, and handle your personal data whenever you use our services. Using the Terran website, mobile applications, and other products and services means that you agree to the collection, use, and storage of your data in accordance with this Policy. Data security is of the uttermost importance to us. We will take all the necessary precautions to prevent unauthorized access, loss, misuse, or alteration of customer information.

## Data Collection

We will collect data pertaining to your usage of our website and services. Data collected is used for administrative purposes, to operate the platform effectively, and to provide you with the best experiences on our network. We take the responsibility of protecting your personal data seriously. We will never use your information to make a profit in any way by sharing it with third-party organizations and companies affiliated with Terran.

## Service Providers

We may hire third-party companies and individuals to perform services or assist us in analyzing how our service is used. These third parties may have access to your data only to perform these tasks on our behalf and are obligated not to disclose or use it for any other purpose.

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