



A Democratized Ecosystem for the Music Industry

Tune Software:

www.tunetoken.io

White Paper Version 1.0

Abstract

PLEASE REVIEW THE SECTIONS BEGINNING ON PAGE 63 CAREFULLY AS THEY SET FORTH ANTICIPATED RISK FACTORS AND DISCLOSURES IN RELATION TO TUNE AND THE TOKENS AS WELL AS ACKNOWLEDGEMENTS AND WARRANTIES DEEMED MADE BY EACH RECIPIENT OF THIS WHITEPAPER.

The whitepaper outlines the systematic use case and application of a blockchain enabled distributed platform for the music community. Tune has proposed an economic model where every participant in the creation and distribution process including: producers, artists, songwriters, users and music fans are incentivized through internal platform cryptocurrency rewards. Tune hopes that its TUNE Platform and the creation of the Tokens will be the driving force for redefining the music industry.

The Tokens will serve as the primary method of exchange for goods and services across our decentralized music ecosystem. Tune anticipates that its first licensing partner will be the award-winning application, RecordGram Inc., a Delaware corporation, which is expected to be the first application to adopt Tune's proposed tokenized music ecosystem.

We hope to democratize what should have been democratized in the first place. We are here to implement blockchain technology that creates a

self-sustaining ecosystem that rewards all parties involved in the creation and discovery of music while compiling a music rights database built on transparency.



Erik Mendelson
CEO



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Introduction & Vision



Introduction

Tune is a software development and management company primarily focused on creating blockchain based technology, smart contract design and digital tokenized applications. Tune's primary mission is to solve digital songwriter rights and royalty transparency issues for the music industry. Furthermore, the establishment of our tokenized products will enable applications the ability to offer user tipping and user/community incentivized rewards through the sharing, creation and engagement of content, as well as other features. Tune anticipates announcing a licensing agreement with the TechCrunch Disrupt Cup award winning RecordGram application.

In a day and age where access to resources, material or otherwise, is becoming increasingly egalitarian; we see access to curated music content and appropriate compensation, as no different. We are trying to create the first international songwriter database for new music creations by redefining the future of music rights and royalty transparency on the blockchain. RecordGram is seeking to revolutionize the way music content is distributed and made available. Tune has the same goals, intertwining them with the power and efficiency of cryptography, decentralization and immutability.

We hope the existing RecordGram community will act as the catalyst in the application and practical utility of the Tokens to demonstrate, build and grow community.



Vision

Tune seeks to disrupt the current music industry in several ways:

1. The introduction of Tokens which are anticipated to provide a monetized means of exchange for stakeholders and participants across the Tune ecosystem including musicians, producers and others to derive new revenue streams. The Tokens will power transactions such as sale and lease of beats, artist rewards, tipping artists by fans, purchase of advertising and more.
2. The tokenized application of a blockchain enabled platform will create a semi-decentralized economy of musicians, producers and followers, utilizing the open-source nature of the community to embrace this disruptive technology.
3. As the first decentralized mobile application expected to utilize Tune's protocol, Record-Gram seeks to democratize music collaboration and talent discovery, while providing those users who generate value on the TUNE platform an opportunity to be compensated for their involvement through the integration of Tune's blockchain technology and the acceptance of Tokens.
4. Tune believes its protocol aligns the interests of all stakeholders in the media consumption cycle. By creating a new medium of exchange, consumers get more choice in how they pay for music; creators and curators get a new form of compensation and advertisers benefit from a more transparent accounting and audience information.



The \$2.5B Problem



The \$2.5B Problem

It is estimated that any given point, there is \$2.5B outstanding in uncollected music royalties. This astronomical number manifests in two ways:

1. The historic and perpetual lack of transparency in the music industry
2. The lack of an international database for songwriter rights

Tune contends that new artists simply don't have the time, the wherewithal or the legal understanding to enter into contractual agreements with other industry stakeholders. Major label signed artists are largely beholden to the arbitrary whims of major label companies that dictate how and when an artist will be compensated and even with whom the artist can engage.

Furthermore, Tune believes that there are millions of aspiring artists around the world that have a burning desire to pursue a career in music. However, they either don't have access to quality music producers or they can't afford to pursue a career in music. Additionally, the cost of owning or even renting a studio is beyond the range of most people and learning how to use the equipment and technology necessary to properly produce or record on a beat is a complicated process to master, heightening the barrier to entry even further.



The Tune Solution



The Tune Solution

Serving as an integration platform, the Tune Platform seeks to become the decentralized data and contract mechanism that will serve as an immutable ledger and integration hub to store all relevant data regarding contractual agreements between artists, producer and fans.

The objective of having a platform that houses all songwriter contracts is two-fold:

1. It grants transparency to the industry, in that any party can access and view the contractual relationship between them
2. Payments to rights holders becomes equally transparent because each party is now bound to TUNE smart contract that automates the payment process based on certain sets of pre-agreed upon conditionals, smart contract logic and compensation algorithms (see [Calculating TUNE Token and TUNC Rewards](#))

Launch: Current Integration

The TUNE Platform is an evolving ecosystem that seeks to apply current technology and leverage the innovation it offers. Current plans call for RecordGram to be the first DApp to use the Tune Platform, potentially providing application for several on and off-chain solutions to accommodate shifting demands both internally and within the market. The Tokens will be used as a method of exchange to all stakeholders across the Tune Platform, initially within RecordGram, and in the future possibly with other integrated DApps to further add growth to the community.

Scale: Protocol and Utility

The next immediate goals of our current technical plan is to further enhance the Tune protocol, as outlined in this whitepaper, to attract additional DApps and expand the user base of RecordGram and any other early adopter to further democratize the music landscape.

The community contribution of users across the Tune Platform will be assessed using the algorithms described below in conjunction with existing blockchain technology to log in each transaction with Tune Smart Contract integration that will eventually distribute Tokens, credits and log contribution data after meeting a certain set of predefined conditions.



Content Storage

Initially, we plan to utilize Filecoin for decentralized content storage. For the purposes of RecordGram, of our first use-case, the content will be stored centrally until we can further test on other networks, such as InterPlanetary File System (IPFS), to determine its viability and scalability. For our initial technical assessment, we have drawn out an integration with IPFS (see Long-Term R&D). Though we see the value in IPFS and have successfully tested on it and value its utility, it is not robust enough for us to say with confidence that it is the solution of choice for streamlined decentralized content storage.

Filecoin serves as a good alternative because it is a tokenized platform built on top of the peer-to-peer distributed file system, IPFS. Being able to utilize a decentralized storage network (DSN), maintained by the interoperable IPFS protocol and sustained by its token-driven marketplace, appears ideal for a platform like the Tune Platform and for most platforms that are leveraging decentralized content storage. By using Filecoin, we will be interacting with another tokenized platform, which may further solidify the decentrally controlled private economy.

Transaction Scalability

Tokens will be implemented on the public Ethereum blockchain as an ERC-20 token. We believe Ethereum has become the industry standard for custom digital token and asset creation and smart contract integration. The Ethereum network is built for the deployment of both DApps that function to drive cryptocurrency and digital asset management and market generation, as well as smart contracts that define and execute terms and conditions through, for and with, tokens. Tune believes that Ethereum's custom compatibility with existing infrastructure makes it an ideal platform for the deployment of digital tokens.

We recognize the limitations of the Ethereum network in terms of transaction speed and costs. We plan to leverage off-chain solutions (state-channels) such as Raiden Network for micro-payments in alternate payment channels to alleviate the stress from the main-chain resulting in decreased fees and smoother transactions. Raiden is the Ethereum version of the Bitcoin Lightning Network, enabling scalable, low-fee and near-instant transactability and privacy protection. Off-chain payment channels should allow for near-unlimited transfer between parties in a closed channel that is only committed to the main-chain at the end of a transaction session. Raiden's balance proof is a binding agreement enforced by the Ethereum blockchain with digital signatures verifying the integrity of the participants.



Transaction Scalability

Furthermore, Tune intends to utilize the power of Hyperledger Fabric. Hyperledger is an open-sourced project sponsored and supported by a wide array of technology and business organizations, created to advance cross-industry blockchain technology. It features a modular architecture that seeks to adapt to different industries and their diverging requirements in terms of scalability, confidentiality, workflow complexity, compliance, speed and security. Hyperledger Fabric takes a novel approach to the original blockchain concept, by managing the admission of participants at its core: in other words, it establishes itself as a permissioned shared ledger. With its evolved concept, Tune believes that Hyperledger allows for true scalability, providing a solution to a multitude of industrial use case requirements and offers a robust model for identity, auditability and privacy.



Tune Overview



Tune Overview

Tune, via the TUNE Platform will seek to create a decentralized community of stakeholders in the music ecosystem, seeking to disrupt the status quo and revolutionize the way music rights are stored, verified and royalties distributed.

However, some elements of the Tune Platform will likely remain centralized until other decentralized options become more feasible or desirable. Tune will collaborate in its strategic partnerships by potentially allocating the Tokens to platforms, DApps and apps on the ecosystem, thereby creating developer extensions that provide visibility into the use of the apps within the ecosystem (such as reporting on and visualization of activity), propagating the Tune Ecosystem to developers and content partners and bringing promising and diverse platforms and apps into the ecosystem and more.

We plan to decentralize as much of the TUNE Platform as possible as the technology becomes more available and as we continue further testing.

Economic Incentives

RecordGram will likely be the first application to utilize the Tune platform to give its users a way to participate in this new ecosystem driving content creation, user engagement and advertiser purchasing power. RecordGram's early adopters should spark growth across the TUNE Platform.

This is achieved by first launching the Tokens. Contributors to the TUNE Platform will be rewarded with Tokens that unlock functionality, value and status within the Tune Platform (see [Tune Utility and Protocol Dynamics](#)).

We then anticipate creating TUNE Credits (TUNC), which will be the internal method of consumption and compensation across the TUNE Platform. We expect that TUNE Tokens will be exchangeable for TUNC for use on the TUNE Platform. TUNE Credits are how every stakeholder will be compensated (artists, producers, fans, curators) for the entire spectrum of engagement (see more in [Tune Utility and Protocol Dynamics](#)).



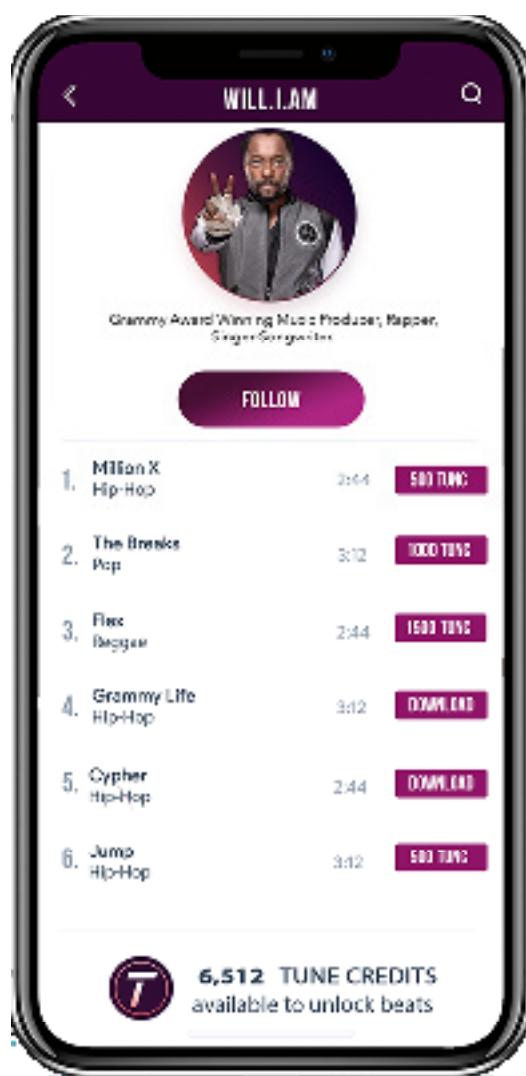
User Onboarding

Developing a frictionless transaction process and wallet set-up will be crucial for user onboarding because, for many, this will be the first time they interact with cryptocurrencies. The design will need to be seamless and will allow flawless entrance into the Tune ecosystem, irrespective of experience or even knowledge of cryptocurrencies.

The fact that most of our users will not have had any experience with cryptocurrencies, tokens or digital assets, represents an opportunity to introduce a whole user base to the world of decentralization and cryptocurrency.

The first interaction a user must have when interfacing with cryptocurrencies or tokenized platforms is the wallet setup. Taking a user-first approach, we will seek to make that process as frictionless as possible. User wallets will be created the moment a user signs up for RecordGram, making onboarding into the TUNE Platform no different from any other app. Our goal is that the wallet will be fully modular, in that users will also have the option to take their Tokens off-device and hold them in whatever storage option they

deem fit. We will also attempt to introduce API integrations, minimizing the burden on the user to understand and independently interface with multiple different platforms.



Token Utility & Protocol Dynamics



Token Utility & Protocol Dynamics

Protocol

The primary objective of the Tune protocol is to evolve based on market demands and adoption in conjunction with community feedback and, therefore, we anticipate that portions of our protocol will be rolled out incrementally. Tune's protocol was designed to fulfill three main objectives in the interplay between consumption and contribution:

1. Verify the participant interacting with the smart contract
2. Calculate contribution to the ecosystem
3. Calculate compensation based on such interaction

Tune Credits and Network Tokens

One of our primary objectives, beyond developing a music rights database and transparent royalty accounting model on the blockchain, is that community engagement will define the TUNE Platform. That is why we have developed a compensation system that will hopefully incentivise all parties to participate in the network by having stakeholder compensation commensurate to their contribution in the community. This will be tracked and executed by integrating Ethereum with Hyperledger's Fabric.

The TUNE Platform will be comprised of three types of tokens:

- TUNE Token - TUNE (fungible)
- TUNE Credits - TUNC (fungible)
- Content Credits - CC (non-fungible)
 - CC - standard digital asset
 - eCC - encrypted-Content Credit (required to access content)

Tokens will be freely exchangeable on the Tune Platform for TUNC, and holders of Tokens will be able to transfer Tokens to ERC-20 compatible wallets outside the TUNE Platform. TUNC will serve as the TUNE Platform's internal currency as a medium of exchange between artists and fans for content curation and consumption and between artists and producers for content collaboration, royalty and music right compensation. At least initially, TUNC will not be transferable outside the TUNE Platform.



Stakeholders

Artist - this is the creative talent who authors the music or lyrics

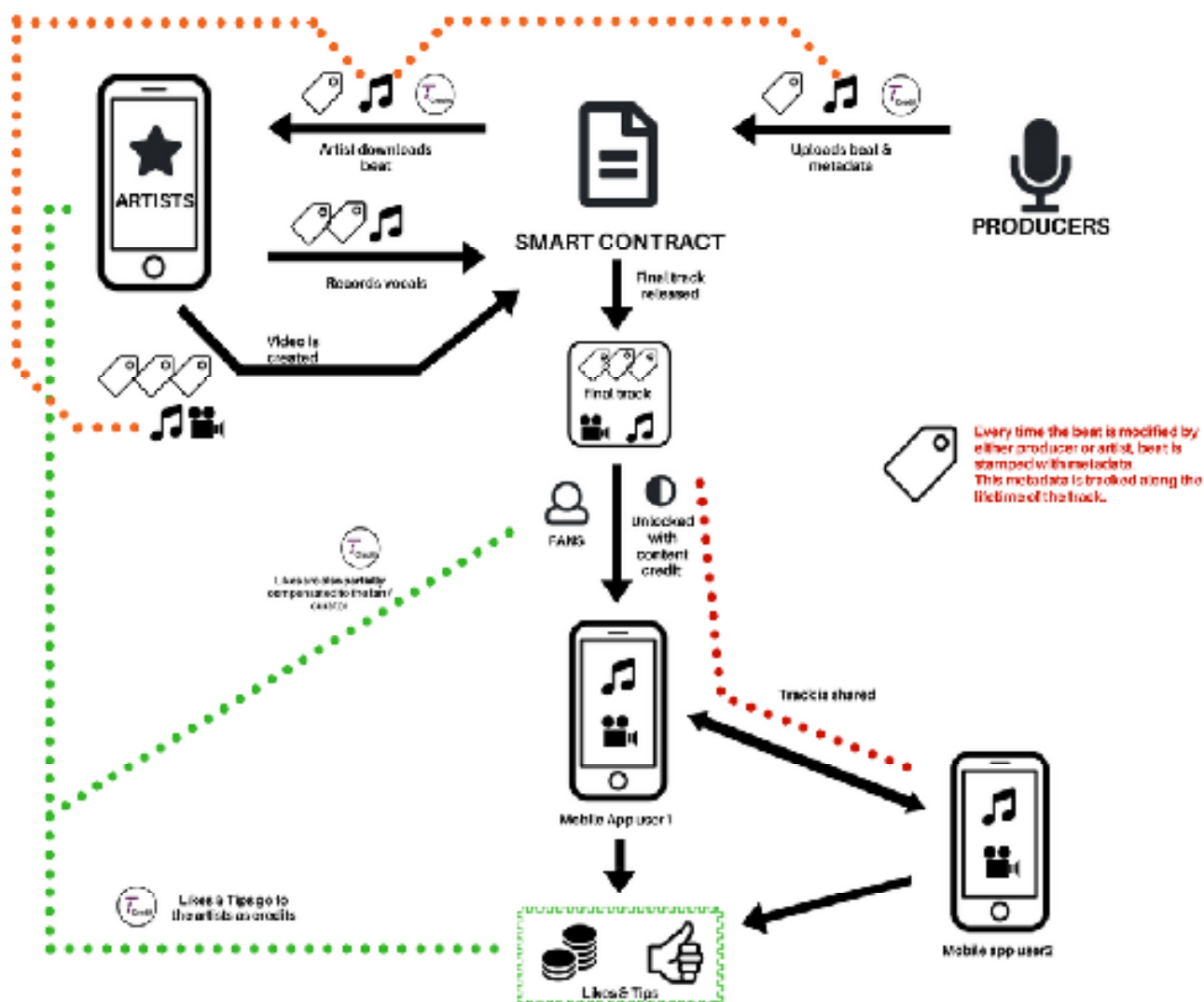
Producer - this is an individual who finances a project and leases or sells beats

Fan - this is the person who downloads the app and uses it to consume content

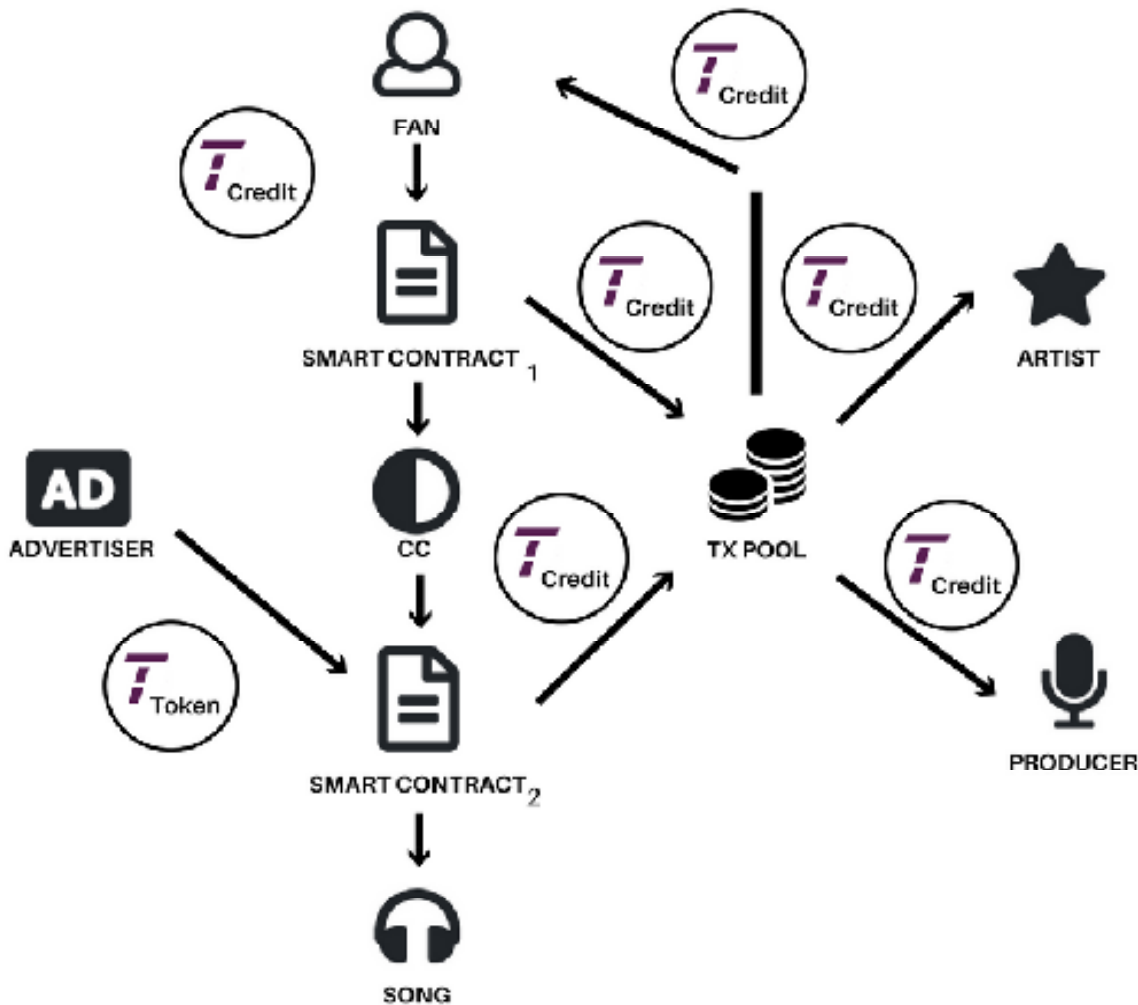
Advertiser - this is an entity that advertises its product(s) or service(s) on the Record-Gram network

Curator - this category is not mutually exclusive and is a person who curates content either passively (liking playlists) or active (building a follower base based on curated content)

Follower - this is a person who follows another person in the platform (could be a artist, fan, curator or producer)



Stakeholders



A fan, in the above case, which illustrates the anticipated fully-developed TUNE Platform, interacts with TUNE Smart Contract (1) through the utilization of TUNC and in return gets non-fugible Content Credits (eCC). The fan will then engage with another TUNE Smart Contract (2) specific for the content being accessed. Each eCC will be burned for the part of the song / video being listened to / watched. The advertiser is already engaged with the second TUNE Smart Contract for the content requested with preset distribution metrics for the other stakeholders (in this example the artist and producer).

Advertisement is optional within the TUNE Platform, depending on the subscription model of the stakeholder (see *Payment Service*).

It is important to remember that the interactions with TUNE Smart Contracts are being designed on the backend and the user will only interface with the app.

Technology Stack



Technology Stack

We have split our tech stack into two phases:

1. The immediate implementation of our TUNE Platform with the available tested technology at hand
2. Our projected application of what we will leverage after completion of the Token Launch through research and development

Immediate Implementation Hyperledger

We believe the Tune Platform will have a perpetually high volume of microtransactions. This is problematic for a platform exclusively using Ethereum due to high gas costs (transactions fees) in the Ethereum network. Thus, we anticipate using Ethereum judiciously for financial transactions but eventually migrate to Hyperledger Fabric for micropayments and TUNE Smart Contract logic. That said, we expect that initial transactions on the Recordgram application will use the Ethereum blockchain for a period of time.

— Fabric

Tune has initially chosen Hyperledger Fabric for the following reasons:

1. Some transactions can be stored on Hyperledger Fabric to avoid incurring transaction fees on the Ethereum network.
2. It provides privileged access to users allowing them the ability to store and share some of the data privately on the blockchain. In contrast with other platforms, Hyperledger Fabric is a permissioned blockchain, which means that information stored in blocks is not available to the public, but only to their participant nodes. This allows data storage on the blockchain with the protection of privacy and personal information.
3. Hyperledger Fabric is customizable, allowing more functionality to be implemented in further versions of RecordGram or other DApps joining the ecosystem. Its modular architecture has been intentionally developed with the aim of making it compatible with differing industry needs. Besides this, Hyperledger Fabric should be adaptable to the evolving requirements of an online music platform as it grows in number of users and strategic partners.

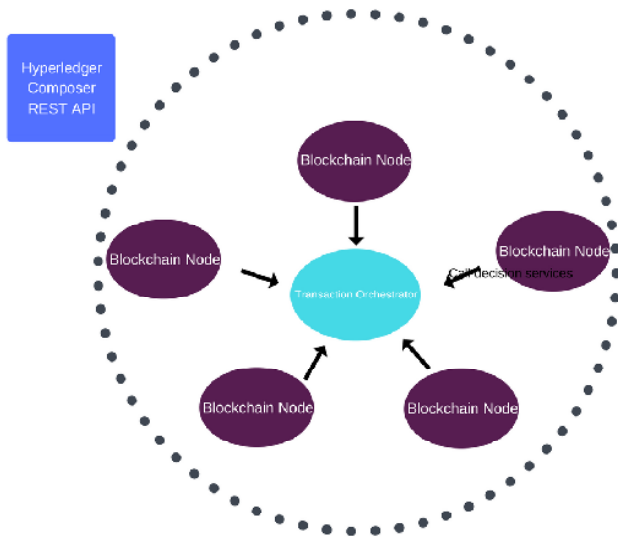


— Composer

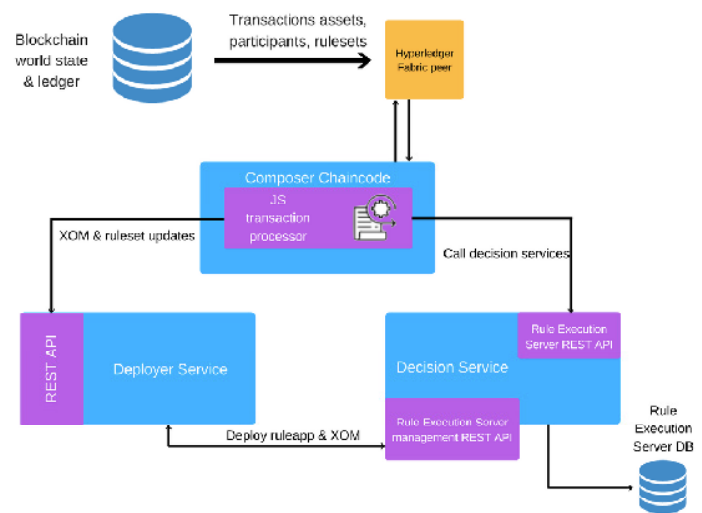
Hyperledger Composer is a toolset and framework designed to build and run applications on top of Hyperledger Fabric. Hyperledger Composer supports the existing Hyperledger Fabric blockchain infrastructure and runtime, which supports pluggable blockchain consensus protocols to ensure that transactions are validated according to policy by the designated business network participants. Hyperledger Fabric is the network-level framework, and Hyperledger Composer is the application-level build.

We believe the main benefits of Hyperledger Composer are:

1. The ability to define assets that are exchanged in a blockchain-based use case
2. Define the business rules around what transactions are possible
3. Define participants, identity and access controls for what roles exist and which roles can execute which types of transactions
4. The ability to model custom, reusable, core components in a business network
 - a. assets, participants, transaction logic, and access controls for the business network, which can then be shared across multiple organizations within a given network
5. Generate JavaScript and REST APIs based on the business network definition that can be used to interact with applications, integrate legacy systems, create skeleton applications and run analytics on the blockchain
 - a. users of such applications don't have to run a local node and can interact with a remote node through an RPC or HTTP REST if needed



Each node has a copy of the transaction ledger and assets stored in the database, called world state. The Hyperledger Composer includes a standalone Node.js process that exposes a network as a REST API. The Transaction Orchestrator houses the ACL (Application Control List) and all relevant permissions of the network.



Each Composer application in the business network is represented by a chaincode process with a JS interpreter that executes logic for processing the transaction. Each blockchain node is deployed with Docker Compose. Compose allows you to define and run multiple Docker applications.

— Composer

```
87
88 abstract transaction BeatTransaction identified by beatID {
89     o String beatID
90     --> Beat beat
91 }
92
93 transaction PrivateBeatTransfer extends BeatTransaction {
94     --> Person seller
95     --> Person buyer
96     o String specialNotes optional
97 }
```

The PrivateBeatTransfer class represents the transaction in Hyperledger Composer

Below is a Composer transaction. The PrivateBeatTransfer transaction points to the buyer, the seller and the beat, the entire object is serialized as a JSON response. It is sent to the decision service when calling the Hyperledger Composer post() API.

```
{
"$class" : "org.acme.beat.lifecycle.decision.TransferDecisionService" ,
"$id" :
"resource:org.acme.beat.lifecycle.decision.TransferDecisionService#isTransfer" ,
"dsId" : "Transfer" ,
"transaction" : {
"$class" : "org.vda.PrivateBeatTransfer" ,
"$id" :
"resource:org.vda.PrivateBeatTransfer#4302c409-96f1-4660-9772-400875e5e2e2" ,
"seller" : {
"$class" : "composer.base.Person" ,
"$id" : "resource:composer.base.Person#blackout" ,
"ssn" : "blackout" ,
"firstName" : "Winston" ,
"lastName" : "Thomas" ,
"gender" : "MALE" ,
"nationalities" : [
"USA"
],
"contactDetails" : {
"$class" : "composer.base.ContactDetails" ,
"email" : "blackout@acme.org" ,
"address" : {
"$class" : "composer.base.Address" ,
"city" : "Miami" ,
"country" : "USA" ,
"region" : "North America"
}
}
}
},
```



```

"buyer": {
  "$class": "composer.base.Person",
  "$id": "resource:composer.base.Person#tina",
  "ssn": "tina",
  "firstName": "Tina",
  "lastName": "Smith",
  "gender": "FEMALE",
  "nationalities": [
    "French"
  ],
  "contactDetails": {
    "$class": "composer.base.ContactDetails",
    "email": "tina@acme.org",
    "address": {
      "$class": "composer.base.Address",
      "city": "Paris",
      "country": "France",
      "region": "Europe"
    }
  },
  "specialNotes": "DJ Blackout selling a beat to Tina Smith",
  "beat": {
    "$class": "org.vda.beat",
    "$id": "resource:org.vda.beat#156478954",
    "vin": "156478954",
    "beatDetails": {
      "$class": "org.vda.beatDetails",
      "genre": "hiphop",
      "ISRC": "90827345983242344",
      "VST": "Nexus",
      "DAW": "ProTools",
      "PRO": "ASCAP",
      "beatDuration": "120",
      "ownershipPercentage": "0.70"
    },
    "beatStatus": "ACTIVE",
    "owner": "resource:composer.base.Person#blackout",
    "logEntries": [
      {
        "$class": "org.vda.beatTransferLogEntry",
        "beat": "resource:org.vda.beat#156478954",
        "buyer": "resource:composer.base.Person#tina",
        "timestamp": "2018-07-30T13:57:13.652Z"
      }
    ]
  },
  "transactionId": "4302c409-96f1-4660-9772-400875e5e2e2",
  "timestamp": "2018-07-30T13:57:23.121Z"
}
}

```


Ethereum

Payment transactions performed on RecordGram initially will be handled by the Ethereum main net (networkid 1). Ethereum is a platform for decentralized applications with the Ethereum Virtual Machine (EVM) at its heart. EVM executes smart contract logic through its Turing-complete scripting language, Solidity, and stores the resulting data in the logs. EVM also maintains consensus for Blockchain. A smart contract can be invoked by receiving a transaction to its address. Transactions changing the state of a smart contract (storing data in smart contracts) require gas fees in Ether to cover mining process expenses. There are two primary protocols that define Ethereum tokens at the moment: fungible ERC-20 (Ethereum Request for Comments) and non-fungible digital asset tokens, ERC-721.

The Tokens will follow the ERC-20 standards.

ERC-20

- **Preamble**

```
ERC: 20
Title: Token standard
Status: Draft
Type: Informational
Created: 19 -11.2015
```

- **Methods**

- **name**

```
function name () constant
returns ( string name)
```

- **symbol**

```
function symbol () constant
returns ( string symbol)
```

- **decimals**

```
function decimals () constant
returns (uint8 decimals)
```

Returns the number of decimals the token uses - e.g. 8 , means to divide the token amount by 100000000 to get its user representation.

- **totalSupply**

```
function totalSupply () constant
returns (uint256 totalSupply)
```

Returns the total token supply.

- **balanceOf**

```
function balanceOf (address _owner)
constant returns (uint256 balance)
```

Returns the account balance of another account with address `_owner` .

- **transfer**

```
function transfer (address _to, uint256
_value) returns (bool success)
```

Transfers `_value` amount of tokens to address `_to` , and must fire the Transfer event. The function should throw if the `_from` account balance does not have enough tokens to spend.



Ethereum

ERC-20

- **transferFrom**

```
function transferFrom (address
_from, address _to, uint256 _
value) returns (bool success)
```

Transfers `_value` amount of tokens from address `_from` to `address _to`, and must fire the `Transfer` event. The `transferFrom` method is used for a withdraw workflow, allowing contracts to transfer tokens on your behalf. This can be used for example to allow a contract to transfer tokens on your behalf and/or to charge fees in sub-currencies. The function should throw unless the `_from` account has deliberately authorized the sender of the message via some mechanism.

- **approve**

```
function approve (address _spender,
uint256 _value) returns (bool success)
```

Allows `_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`.

- **allowance**

```
function allowance (address _
owner, address _spender) constant
returns (uint256 remaining)
```

Returns the amount which `_spender` is still allowed to withdraw from `_owner`.

- **Events**

- **Transfer**

```
event Transfer (address indexed _from,
address indexed _to, uint256 _value)
```

Must trigger when tokens are transferred, including zero value transfers. A token contract which creates new tokens should trigger a `Transfer` event with the `_from` address set to `0x0` when tokens are created.

- **Approval**

```
event Approval (address indexed
_owner, address indexed _
spender, uint256 _value)
```

Must trigger on any successful call to `approve(address _spender, uint256 _value)`.



Long Term R&D

IPFS

Whilst the Tune Platform may initially use Filecoin for decentralized storage, we are considering whether the InterPlanetary File System (IPFS) would be a better alternative. IPFS is a peer-to-peer network connecting remote servers in a single global decentralized storage platform. A significant amount of storage capacity will be required to store all the compositions in a decentralized manner and this can be achieved through IPFS.

Tune is planning to utilize customized Clustered IPFS Swarm for the TUNE platform. Clustered IPFS nodes should create the necessary storage capacity for storing beats, compositions and videos, while providing faster access to them. Files stored in IPFS are divided into smaller chunks and each chunk is encrypted with keys. Based on our experience, storing files as chunks can significantly reduce download time and make them more secure.

We anticipate that the Tune community will be involved in the storing and streaming of compositions and may be able to receive reward compensation in return. An additional layer is added on top of Clustered IPFS, which will provide a Proof-of-Streaming (see below) reward system for the users who run IPFS nodes, store and stream files.

At the IPFS protocol level, the system is fully neutral and the nodes can run over any transport protocol. IPFS nodes can run through different network architectures such as NDN (Named Data Networking), XIA (eXpressive Internet Architecture) and CCN (Content-Centric Networking). IPFS nodes do not have to be referenced by a centralized IP. This transport-neutral network protocol will ensure that IPFS can be transmitted through any network and resist censorship.

This implementation also introduces other participants to the ecosystem including IPFS Node Operators, Content Hosters and Content Streamers.

Node Operators: A person who operates a Full node in the decentralized network

Node Hosters: A person who operates a Node that hosts content chunks on the network

Node Streamer: A person who operates a Node that streams audio and video from a Host to the end user



Long Term R&D

IPFS

— Proof-of-Streaming

Proof-of-Streaming (PoS) is a layer that may be added at some point in the future on top of IPFS, extending the standard features of decentralized file storage. The central part of IPFS is the Merkle Directed Acyclic Graph (Merkle DAG). Besides hashed links, the Merkle DAG also contains certain properties for stored files. Public key infrastructure identity (PKI identity) is used in every IPFS network for the purposes of identifying nodes. IPFS bitswap is the data trading module containing a messaging protocol. Messages include want-lists or blocks. Bitswap manages requests of sending blocks between peers. It locates the right blocks, and sends them to other peers down the chain culminating at the user requesting the file.

Merkle DAG, PKI identity and bitswap are key components of the PoS layer. A Hoster is a peer which hosts the first chunk in a chain. Nodes which stream chunks to the user will be considered as Streamers. Hosters and Streamers will be required to broadcast PoS to the network. When consensus is

reached and PoS is deemed valid, that stream will be added to the next block. Under this scenario, which will not be immediately available, Hoster and Streamer would likely be rewarded with TUNC. By the end of a streaming session, Hosters and Streamers would have the option of exchanging their TUNC for TUNE Tokens. Such TUNE Tokens will likely be drawn from the token pool (which is the aggregation of payment from advertisers).



Long Term R&D

Content Security

We are testing other security measures that will serve as initiatives in the growth of our Proof-of-Streaming concept. Among those being tested are:

— Trusted Timestamping

Trusted timestamping is a process of proving that certain data existed at a certain time. Trusted timestamping is explained by RFC 361 Time-Stamp Protocol (Adams et al., Aug., 2001) and the ANSI ASC X9.95-2016 standard (American National Standards Institute), which expands RFC 361 with data-level security requirements. These requirements make a standard for trusted time stamping authority (TSA) to issue and validate timestamps.

— Content Identification Marking

In this section, we compare two common methods of Content Identification techniques that may be employed in the Tune protocol. There are a few ways to mark music files. First, by steganography and second, by tracking fingerprint.

Steganography

Steganography is the science of hiding information in plain sight; hiding a secret message within a regular message and only revealing / accessing the information once at destination. The information is hidden, as opposed to being unreadable. Steganography encrypts certain data into the audio file and makes it impossible to extract, while allowing the original content to be accessed and consumed.

Advantages:

- Sound will contain unique ID
- Difficult to remove embedded data (depending on the algorithm)

Disadvantages:

- Noise can appear on some frequencies (depending on the algorithm)

Long Term R&D

Content Security

Fingerprint

Each track has a unique fingerprint, which can be extracted by analyzing the spectrum of the track.

Advantages:

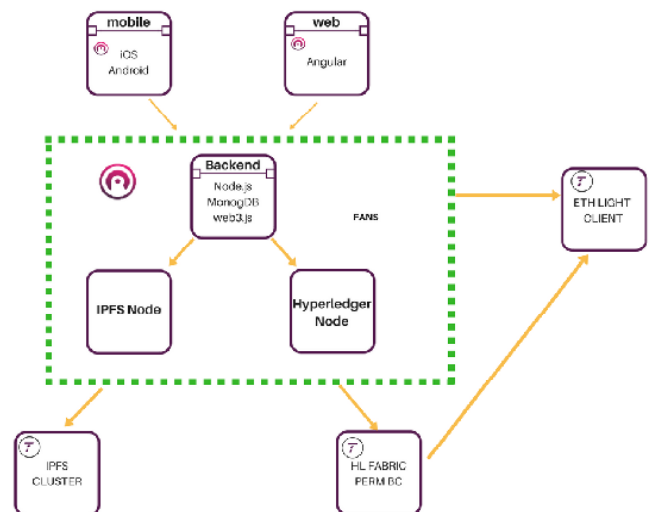
- Fingerprints are imperceptible to human ears, and do not alter the sound of the track
- Fingerprints can be potentially stored on blockchain for identification purposes
- Multiple algorithms can be applied simultaneously, since it makes no impact on the quality

Disadvantages:

- Fingerprints are not embedded into the music file Streaming Service.

DApp Architecture

For DApp architecture we plan to use MongoDB, Hyperledger Full Node and Node.js running with Docker Swarm, allowing the project to scale easily and dynamically. MongoDB clusterization is handled by MongoDB itself when configured in production mode. Hyperledger Full Node will be connected to a private Blockchain network, with a predefined default channel. Each peer will be connected to Fabric's Certificate Authority to handle user creation and authentication and to grant and revoke privileges.



The diagram above shows the architectural relationship between RecordGram and Tune. This same relationship applies to partner applications that become a part of the TUNE Platform.

Angular will be used for the web app and web3.js will be used to interact with a local or remote ethereum node, using a HTTP or IPC connection.



Long Term R&D

DApp Architecture

Applications that manage large volumes of data are often challenged with cost, capacity, bandwidth and latency issues. We believe implementing IPFS would be a strong competitive advantage because it allows for the minimization of operational costs, and makes the service more affordable to the end consumer.

Tune eventually envisions incentivizing the community when they participate in storing and streaming files, decreasing the overhead cost for storing fees. Through this decentralized system, there won't be a single computer or server that holds all the data as it will be spread across multiple nodes.

Tune believes IPFS solves several problems:

1. Eliminates the need of having a central server for content hosting and streaming
2. Download speed is not limited by the remote server bandwidth channel
3. Simultaneous download from multiple nodes
4. Solve content-addressing and content-signing security issues
5. DDOS attacks are inefficient



Payment Service



Payment Service

All DApps and other platform integrations will be required to accept and utilize the Tokens. the Tokens eventually will be exchangeable on the platform for TUNC, the Tune platform's internal currency. Producers uploading beats will have the ability to sell or lease them for a certain price established in TUNC to an unlimited number of users. The price, payable in TUNC, to unlock a beat and the rights associated with it will be executed through TUNE Smart Contract logic that will ensure that all producers, regardless of their professional accomplishments, will be treated equally.

The Token is being designed as an ERC-20 utility token on the Ethereum blockchain to be used on the Tune Platform. Immediately subsequent to the token generation event, we anticipate that TUNE Tokens may be used on the RecordGram application to pay for beats uploaded by producers, to pay for advertising on RecordGram or to tip artists. At least initially, TUNE Tokens will not need to be converted into TUNC to be used on the RecordGram application, as this conversion feature remains under development. We envision that the TUNE Token eventually will be exchangeable on the Tune platform for TUNC, which is being designed to serve as the internal currency across the Tune platform.

Holders of the Tokens will have no role in the management of Tune, the TUNE Platform or RecordGram and will have no right to receive dividends or any other distribution from them. For the avoidance of doubt, the Tokens do not convey any form of ownership rights in Tune or RecordGram or their respective affiliates, products or services.

Upon final completion of the Tune Platform, the Tokens, TUNC and CC's are anticipated to have different use-cases, as described below, although they are being designed to work together.



Payment Service

TUNE Token - TUNE (fungible)

- **Subscription** - Producers will be able to upload and sell/lease their beats by subscribing to RecordGram. A limitation will exist on the number of uploads for each producer based on the subscription package and there may be options available to expand said package, defined by the app and accepted by the community.
- **Artist rewards** - The most popular artists, as defined by the Tune community, can be rewarded in Tokens.
- **Buying ad space** - Advertisers will be able to use Tokens to buy ad space on the RecordGram platform, and contributing users should be able to also buy ads to boost their social media post or to highlight a record they're promoting.
 - Advertisement is part of the Tune Platform, but its consumption is not a requirement for content consumption, based on the subscription model of the stakeholder.

TUNE Credits - TUNC (fungible)

- **User rewards** - Rewarding regular users for viewing ads or sharing content (through TUNC).
- **Tipping artists** - Users will be able to support artists they like by sending them TUNC.
- **Entering into agreements** - TUNC will drive the TUNE Smart Contract agreements between stakeholders and between all parties over content and engagement.
 - RecordGram anticipates keeping 20% of TUNC when an Artist unlocks a beat with the other 80% distributed to the Producer's as a royalty.
 - Any credits earned after will be split 50/50 between Artist and Producer.

Content Credits - CC & eCC (non-fungible)

- **Unlocking content** - Users will be able to make payments in TUNC to unlock beats, music or videos that they wish to use in their composition or consumption by using eCC's in the backend as part of their content purchase
- **Unlocking content** - Users will be able to make payments in TUNC to gain access to non-fungible digital assets (CC) released by their favorite artist or producers for promo purposes or otherwise

We currently plan to airdrop a certain number of Tokens to current RecordGram subscribers immediately subsequent to the Token Launch. These early adopters will be able to claim their Tokens and begin utilizing them on the Recordgram application almost immediately after the Token Launch. For the avoidance of doubt, functionality associated with TUNC and eCC remains under development



Technical Assessment of Tokens



Technical Assessment of Tokens

(RecordGram -> Tune)

Content Credits:

eCC - encrypted Content Credits

Tune is trying to solve a major problem within the entertainment industry, specifically with respect to musicians and original content providers. Piracy has beleaguered the music industry since its inception. The difficulty in securely transferring content across platforms, or even internally without fear of theft and copyright infringement has become overwhelming and must be resolved. We propose one such solution that is encrypted, unique non-fungible sub-tokens called eCC's (encrypted-Content Credits) that will give participants on the TUNE Platform access to content that is only accessible for that user, for that song, for that session (in the event someone is streaming a song). This may be made possible through Fabric's TUNE Smart Contracts that will process each microtransaction and each interaction as a separate smart contract, delivering eCC's to the user.

This serves several benefits:

1. It more securely grants access to participants specific to the content they are requesting to access
2. It allows for better compensation through smart contract microtransaction logic
3. It allows for better tracking analytics in a decentralized protocol allowing all stakeholders to view and verify the integrity of usage and interaction.

We are seeking to solve several problems with our non-fungible sub-token protocol within Fabric, in that users will utilize several sub tokens (CC) that will represent a multitude of factors within the interchange, sharing and promotion of content within the platform. More specifically, the creation of encrypted-digital assets credits (eCC) can represent segments within the given content being streamed or purchased. A song, for instance, that is 1:30 seconds long has 3 different credits that represent the sequential 30-second segments of the song. Each credit is envisioned to be encrypted and synchronously used to unlock the next segment of the song. The logic for credit generation and definition will work in conjunction with the algorithms defined below (see [Calculating TUNE tokens and credit Rewards](#)). A user must have access to all the credits of the content for which they are requesting access to in order to consume the content.



Content Credits:

eCC - encrypted Content Credits

The credits will be automatically generated when a user interacts with a function that calls the TUNE Smart Contract, respective to their given request. When content is being used, the session interacts with a TUNE Smart Contract that was automatically generated specific for that session with that user that will only trigger functions within the contract when the tokens are transferred to the contract on the backend. This integration will be designed to be seamless and the user will not even be aware of the complexity running in the background as they listen to their new favorite song, or lease out beats from a producer to compose through the apps user interface.

The Tokens, TUNC & Smart Contracts

In addition to the eCC required to use / view / listen to a song / video / beat, the user is compensated in fungible TUNC that can be used to make in-app purchases, listen to and curate more content. TUNC will have a fixed supply of 1 billion, which is the same as the fixed supply of the Tokens.

Artists and producers will be able to use TUNC in contractual relations with each other, in addition to other goods and services provided on the Tune Platform. Advertisers will be able to further engage in the ecosystem by purchasing ad-time in TUNE Tokens before content play or usage. We

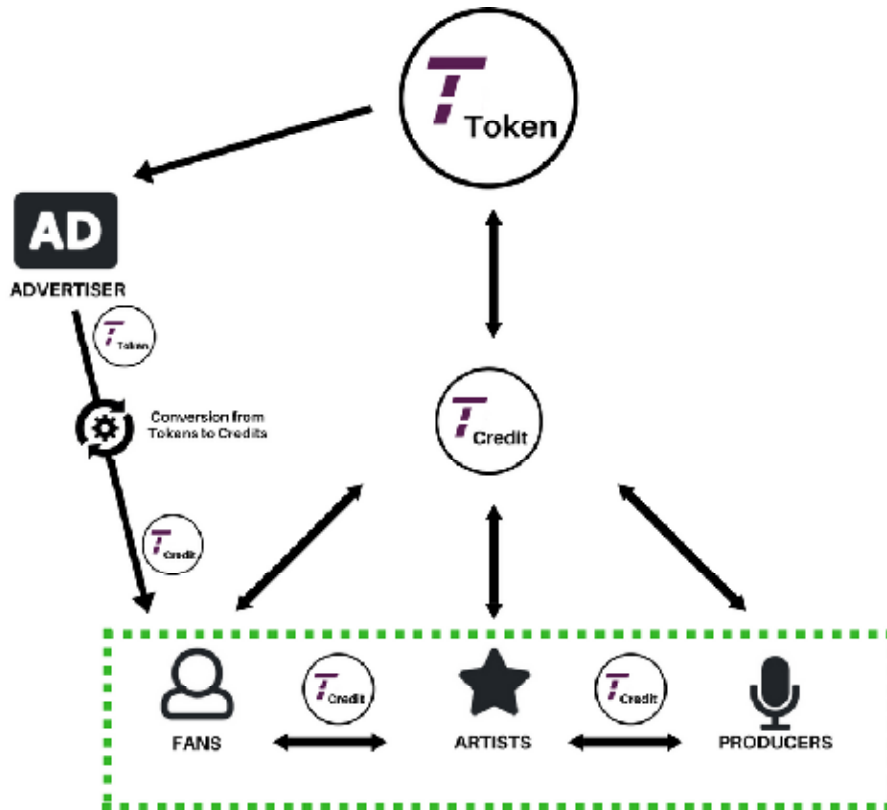
envision that such TUNE Tokens would then be automatically converted to TUNC, which would, in turn, be deposited into the token pool. From there, the TUNC is allocated among stakeholders based on their activity on the TUNE Platform. Any exchange of the Tokens for TUNC on the TUNE Platform may first require the satisfaction of Tune's AML and KYC procedures to its satisfaction

Eventually fans can tip artists in TUNC, although on the RecordGram application, such tipping will initially be done in Tokens, meaning that the fungible TUNC will be the primary means of exchange within the interplay of content. TUNC is being designed as to be exchangeable for Tokens on the TUNE Platform, and Tokens can then be transferred to any ERC-20 compatible wallet.

Redefining the music industry starts with making the integration of the TUNE Platform seamless, including entering into TUNE Smart Contracts with other stakeholders that can be requested, denied, modified and optimized for the participant at hand.



The Tokens, TUNC & Smart Contracts



The Tokens grant a participant access to the TUNE Platform. Advertisers will contribute Tokens in exchange for advertising, and such Tokens will be distributed to stakeholders after their conversion to TUNC from the token pool. Stakeholders will engage with one another using TUNC which will be convertible to Tokens on the TUNE Platform. Tokens can be transferred outside the TUNE Platform to any ERC-20 compatible wallet. The proposed transferee will need to complete Tune's KYC and AML procedures to its satisfaction.

The Tokens & TUNC Rewards Calculations

Below is a proposed version of the reward algorithms that mathematically determines the compensation for the participants and stakeholders participating in the TUNE Platform.

Tune is seeking to create a self-sustaining ecosystem that rewards all parties involved with the creation, curation, promotion and dissemination of content. The algorithms below will power the Tune Smart Contract logic that rewards all participants, creating a network effect that scales growth and the user adoption of the TUNE Platform.

TUNE Credit “Mining” Protocol

Stakeholders (these titles are not mutually exclusive. Users can fit into more than one of these categories--every user is a fan)

- Artists
- Producers
- Fans
- Curators

Finite number of TUNCs.

1 Billion

Some different ways to “mine” TUNC.

- Consumption of content.
- Sharing of content (either individual songs/videos and/or curated user playlists)
- Referral of content

Token Credit rewarded in one session C_r

$$C_r = \Gamma \times (C + S)$$

Γ = supply and demand function

C = value of content consumption

S = value of content sharing

Supply/Demand Function - Γ

Function is necessary so that TUNCs are always available to mine.

Mining of credits is divided into different sessions. Once a certain amount of credits have been mined a new session starts.

Parameters used to calculate Γ

$TU_i = 1,000,000,000$ TUNCs

This is the maximum number of TUNCs that will ever exist.

TU_m = The current amount of TUNCs that have been mined in session.

TU_f = The current amount of TUNCs that have not been mined.

$TU_m + TU_f = TU_i = 1 \text{ Billion TUNCs}$

TU_g = The amount of TUNCs that has been added back to TU_f at end of session

φ = Session Coefficient

This coefficient is used to control the value of Γ . It is recalculated each time a session ends.

Γ will change depending on all these factors. Value will decrease as TU_m increases

$$\Gamma = \frac{(TU_f - TU_m) + TU_g}{TU_i} \varphi$$



TUNE Token & TUNC Rewards Calculations

Value of content consumption, C

$$C = T \times F_v$$

T = Consumption Session time value

F_v = Fan value coefficient

Content consumption for a session will be based on several factors

Length of consumption session, T

This will create a maximum value for C and will decay as time increases. This is so that C does not grow infinitely large if the session goes on for perpetuity.

Fan Value, F_v

Fan value coefficient is used to quantify the value of a certain fan. The more value a fan has the larger that C can be. F_v is a number between 0 and 1.

Example: If the fan clicks on the ads and interacts they will have a higher F_v .

Example: Curators with many followers will also have a higher F_v .

Value of Content Sharing, S

$$S = H \times F_v \times S_v$$

H = Traffic Generation value

F_v = Fan value coefficient

S_v = Share value coefficient

Traffic generating value, H

This will create a maximum value so that infinite shares will not generate an infinite value of H . Like T it will also decay as the number of shares increases.

Fan Value, F_v

Fan value coefficient is used to quantify the value of a certain fan. The more value a fan has the larger that S can be. F_v is a number between 0 and 1.

Example: If the fan clicks on the ads and interacts they will have a higher F_v .

Example: Curators with many followers will also have a higher F_v .

Share Value, S_v

Share value coefficient is used to quantify the value of the share. The more value a fan has the larger that S can be. S_v is a number between 0 and 1.

Example: If the share reaches users with a high F_v then S_v will be higher.



TUNE Token & TUNC Rewards Calculations

Fans “mine” TUNC by interacting in the app and a certain value of C_r is issued Distribution of mined TUNCs.

R_a = TUNC ratio given to artists

$C_r \times R_a$ = TUNCs gained by artist

R_p = TUNC ratio given to producers

$C_r \times R_p$ = TUNCs gained by producer

R_f = TUNC ratio given to fans

$C_r \times R_f$ = TUNCs gained by fans

R_c = TUNC ratio given to curators

$C_r \times R_c$ = TUNCs gained by Curators

R_r = TUNC ratio for referrals

$C_r \times R_r$ = TUNCs gained through referrals

R_t = TUNC ratio for to be put back into TU_f

$C_r \times R_t$ = TUNCs gained by TU_f

$R_a + R_p + R_f + R_c + R_r + R_t = 1$

Referrals

$R_r = x + y$

x = ratio for person referring

y = ratio for person referred

x and y are of equal value, $x=y$

when x and y is equal to zero R_r is added to R_t

Premise

Fan A joins TUNE without a referral.

Fan B is referred by Fan A.

Fan C is referred by Fan B.

Scenario 1: Fan A consumes and mines a certain amount of TUNCs.

Fan A Credit Ratio:

$$R_A = R_f + x + y$$

$$x = 0, y = 0$$

Scenario 2: Fan B consumes and mines a certain amount of TUNCs.

Fan A Credit Ratio:

$$R_A = x + y$$

$$x = \frac{R_r}{2}, y = 0$$

Fan B Credit Ratio:

$$R_B = R_f + x + y$$

$$x = 0, y = \frac{R_r}{2}$$

Scenario 3: Fan C consumes and mines a certain amount of TUNCs.

Fan A Credit Ratio:

$$R_A = 0$$

Fan B Credit Ratio:

$$R_B = x + y$$

$$x = \frac{R_r}{2}, y = 0$$



TUNE Token & TUNC Rewards Calculations

Fan C Credit Ratio:

$$R_C = R_f + x + y$$

$$x = 0, y = \frac{R_r}{2}$$

Scenario 4: Fans B, C consume and mine a certain amount of TUNCs

Fan A Credit Ratio:

$$R_A = x + y$$

$$x = \frac{R_r}{2}, y = 0$$

Fan B Credit Ratio:

$$R_B = R_f + x + y$$

$$x = \frac{R_r}{2}, y = \frac{R_r}{2}$$

Fan C Credit Ratio:

$$R_C = R_f + x + y$$

$$x = 0, y = \frac{R_r}{2}$$

TUNE Credit Reward Protocol

Subscription Fee

Stakeholders and Advertisers are charged a subscription fee for usage in TUNE Tokens.

USF = Universal Subscription Fee

$$USF = A + P + C + F + Ad$$

A = Subscription fee for Artists

P = Subscription fee for Producers

C = Subscription fee for Curators

F = Subscription fee for Fans

Ad = Subscription fee for Advertisers

At the end of certain amount of time (t), the value of USF in TUNCs is redistributed

$$USF = (X + Y + Z + V + W) \times USF$$

X = percentage of USF for Artists

Y = percentage of USF for Producers

Z = percentage of USF for Curators

V = percentage of USF for fans

Artist redistribution of TUNCs

$$(X \times USF) = (\alpha_a + \beta_a)(X \times USF)$$

$$\alpha_a + \beta_a = 1$$

α_a = percentage of $(X \times USF)$ to be redistributed to artists based on content consumption

β_a = percentage of $(X \times USF)$ to be redistributed to artists based on content sharing



TUNE Token & TUNC Rewards Calculations

Producer redistribution of TUNCs

$$(Y \times USF) = (\alpha_p + \beta_p)(Y \times USF)$$

$$\alpha_p + \beta_p = 1$$

α_p = percentage of $(Y \times USF)$ to be redistributed to artists based on content consumption

β_p = percentage of $(Y \times USF)$ to be redistributed to artists based on content sharing

Curator redistribution of TUNCs

$$(Z \times USF) = (\alpha_c + \beta_c)(Z \times USF)$$

$$\alpha_c + \beta_c = 1$$

α_c = percentage of $(Z \times USF)$ to be redistributed to artists based on content consumption

β_c = percentage of $(Z \times USF)$ to be redistributed to artists based on content sharing

Fan redistribution of TUNCs

$(W \times USF) = \text{TUNC revenue from annual fees.}$

TUNE redistribution of TUNCs

$$(V \times USF) = (\alpha_f + \beta_f)(V \times USF)$$

$$\alpha_f + \beta_f = 1$$

α_f = percentage of $(V \times USF)$ to be redistributed to artists based on content consumption

β_f = percentage of $(V \times USF)$ to be redistributed to artists based on content sharing

Artist Revenue not including mining

Sponsored Artists

Sponsorship with advertisers through TUNE Smart Contracts creates revenue for artists.

Un-sponsored Artists

Revenue is gained through TUNE Smart Contracts with curators if curators are sponsored and through USFs

Artists can have the freedom to have sponsored and unsponsored content if they wish.

Sponsored Artist

Revenue sources come from:

- Content consumption by fans
- Content sharing by fans
- Content consumption/sharing from curators
- Tipping by fans



TUNE Token & TUNC Rewards Calculations

Artist Revenue- a_r

$$a_r = c_r + s_r + g$$

c_r = value of content consumption

s_r = value of content sharing

g = value of tipping

Content consumption- c_r

$$c_r = \sigma_d + \sigma_{in} + X_a$$

σ_d = direct revenue from content consumption by fans

The value of content consumption by fans is decided by Smart Contracts between sponsors and artists. It can be based on the number of "consumptions". It can also have caps etc.

σ_{in} = indirect revenue from content consumption by fans

The value of content consumption by fans is decided by Smart Contracts between artists and curators. It can be based on the number of "consumptions". It can also have caps etc.

$$X_a = (X \times USF \times a_a) \times \rho_a$$

$$\rho_a = \frac{\text{FAN CONSUMPTION OF SPECIFIC ARTIST}}{\text{TOTAL FAN CONSUMPTION}}$$

Content sharing- s_r

$$s_r = \epsilon_d + \epsilon_{in} + Y_a$$

ϵ_d = direct revenue from content sharing by fans

The value of content consumption by fans is decided by smart contracts between sponsors and artists. It can be based on the number of "shares".

ϵ_{in} = indirect revenue from content sharing by fans

The value of content consumption by fans is decided by smart contracts between artists and curators. It can be based on the number of "shares".

$$Y_a = (X \times USF \times \beta_a) \times \gamma_a$$

$$\gamma_a = \frac{\text{FAN SHARING OF SPECIFIC ARTIST}}{\text{TOTAL FAN CONSUMPTION}}$$

Artist tipping- g

Un-sponsored Artist

Fans have the ability to tip artists if they like their work.

Revenue sources come from:

- Content consumption by fans
- Content sharing by fans
- Content consumption/sharing from curators.
- Fan tipping

Artist Revenue- a_r

$$a_r = c_r + s_r + g$$

c_r = value of content consumption

s_r = value of content sharing

g = value of tipping

Content consumption- c_r

$$c_r = \sigma_d + \sigma_{in} + X_a$$

$$\sigma_d = 0$$

σ_{in} = indirect revenue from content consumption by fans

The value of content consumption by fans is decided by Smart Contracts between artists and curators. It can be based on the number of "consumptions". It can also have caps etc.

$$X_a = (X \times USF \times a_a) \times \rho_a$$

$$\rho_a = \frac{\text{FAN CONSUMPTION OF SPECIFIC ARTIST}}{\text{TOTAL FAN CONSUMPTION}}$$



TUNE Token & TUNC Rewards Calculations

Content sharing- sr

$$s_r = \epsilon_d + \epsilon_{in} + Y_a$$

$$\epsilon_d = 0$$

$$\epsilon_{in} = \text{indirect revenue from content sharing by fans}$$

The value of content consumption by fans is decided by smart contracts between artists and curators. It can be based on the number of "shares".

$$Y_a = (X \times USF \times \beta_a) \times \gamma_a$$

$$\gamma_a = \frac{\text{FAN SHARING OF SPECIFIC ARTIST}}{\text{TOTAL FAN CONSUMPTION}}$$

Artist tipping-g

Fans have the ability to tip artists if they like their work.

Artist Expenses

Artist Expenses will come from two main areas:

1. Smart Contracts with Producers.
2. Smart Contracts with TUNE.

Smart Contracts with Producers

$$a_p = p_i + c_p + s_p$$

$$a_p = \text{total artist expenses with producers}$$

$$p_i = \text{initial cost of production}$$

$$c_p = \text{value of content consumption}$$

$$s_p = \text{value of content sharing}$$

c_p and s_p are determined by a smart contract between artist and producers. It can be based on number of consumptions and shares.
Smart Contracts with TUNE

$$a_t = A + c_f + s_f$$

$$a_t = \text{total artist expenses with TUNE}$$

$$A = \text{Annual fee}$$

$$c_f = \text{loss due to fan consumption}$$

$$s_f = \text{loss due to fan sharing}$$

c_f and s_f are determined by a smart contract between artist and TUNE it is taken from the advertisement revenue and given to fans. It can be based on number of consumptions and shares.

Artist Profit

$$a = a_r - a_p - a_t$$

$$a = c_r + s_r + g - (p_i + c_p + s_p) - (A + c_f + s_f)$$

$$a = \sigma_d + \sigma_{in} + g + X_a + \epsilon_d + \epsilon_{in} + Y_a - (p_i + c_p + s_p) - (A + c_f + s_f)$$

$$a = \sigma_d + \sigma_{in} + \epsilon_d + \epsilon_{in} + g + [(X \times USF)((a_a \times \rho_a) + (\beta_a \times \gamma_a))] - (p_i + c_{pr} + s_{pr}) - (A + c_f + s_f)$$

$$\rho_a = \frac{\text{FAN CONSUMPTION OF SPECIFIC ARTIST}}{\text{TOTAL FAN CONSUMPTION}} \quad \gamma_a = \frac{\text{FAN SHARING OF SPECIFIC ARTIST}}{\text{TOTAL FAN SHARING}}$$

Producer Revenue

A producer is basically an artist that also allows their content to be edited by other artists.

Producers and artist will agree on smart contract that will decide their revenue split.

Revenue sources come from:

- Content consumption by fans
- Content sharing by fans
- Content consumption/sharing from curators

Producer Revenue- p_r

$$p_r = p_i + c_{pr} + s_{pr}$$

$$p_i = \text{initial cost of production}$$

decided by producer (can be zero)

$$c_{pr} = \text{value of content consumption}$$

$$s_{pr} = \text{value of content sharing}$$



TUNE Token & TUNC Rewards Calculations

Content consumption- cpr

$$c_{pr} = c_p + X_p$$

c_p = direct revenue from content consumption by fans

The value of content consumption by fans is decided by Smart Contracts between artists and producers. It can be based on the number of "consumptions". Can also be equal to zero.

$$X_p = (Y \times USF \times a_p) \times \rho_p$$

$$\rho_p = \frac{\text{FAN CONSUMPTION OF SPECIFIC PRODUCER}}{\text{TOTAL FAN CONSUMPTION}}$$

Content sharing- spr

$$s_{pr} = s_p + Y_p$$

$$s_p = \text{direct revenue from content sharing by fans}$$

The value of content consumption by fans is decided by smart contracts between artists and producers. It can be based on the number of "shares".

$$Y_p = (Y \times USF \times \beta_p) \times \gamma_p$$

$$\gamma_p = \frac{\text{FAN SHARING OF SPECIFIC PRODUCER}}{\text{TOTAL FAN SHARING}}$$

Producer Expenses

Producer Expenses come from:
Smart Contracts with TUNE

Smart Contracts with TUNE

$$p_t = P$$

p_t = total producer expenses with TUNE

P = Annual fee

Producer Profit

$$p = pr - pt$$

$$p = pi + cpr + spr - P$$

$$p = pi + cp + Xp + sp + Yp - P$$

$$p = pi + cp + sp + [(Y \times USF)(ap \times \rho_p) + (\beta p \times \gamma p)] - P$$

$$\rho_p = \frac{\text{FAN CONSUMPTION - SPECIFIC PRODUCER}}{\text{TOTAL FAN CONSUMPTION}} \quad \gamma_p = \frac{\text{FAN SHARING - SPECIFIC PRODUCER}}{\text{TOTAL FAN SHARING}}$$

Curator Revenue

Curator is sponsored to share their choice of music. A fan is a curator that is not sponsored.

Revenue sources come from:

- Content consumption by fans
- Content sharing by fans
- Tipping by fans

Curator Revenue- u_r

$$u_r = c_c + s_c + g$$

$$c_c = \text{value of content consumption}$$

$$s_c = \text{value of content sharing}$$

$$g = \text{value of tipping}$$

Content consumption- c_c

$$c_c = \pi_c + X_c$$

$$\pi_c = \text{direct revenue from content consumption by fans}$$

The value of content consumption by fans is decided by Smart Contracts between sponsors and curators. It can be based on the number of "consumptions". It can also have caps etc.

$$X_c = (Z \times USF \times a_c) \times \rho_c$$

$$\rho_c = \frac{\text{FAN CONSUMPTION OF SPECIFIC CURATOR}}{\text{TOTAL FAN CONSUMPTION}}$$



TUNE Token & TUNC Rewards Calculations

Content sharing- s_c

$$s_r = \omega_c + Y_c$$

ω_c = direct revenue from content sharing by fans

The value of content consumption by fans is decided by smart contracts between sponsors and curators. It can be based on the number of "shares".

$$Y_c = (Z \times USF \times \beta_c) \times \gamma_c$$

$$\gamma_c = \frac{\text{FAN SHARING OF SPECIFIC PRODUCER}}{\text{TOTAL FAN SHARING}}$$

Curator Expenses

Curator Expenses will come from two main areas

- Smart Contracts with Artists
- Smart Contracts with Tune

Smart Contracts with Artists

$$u_p = \sigma_{in} + \epsilon_{in}$$

u_p = total curator expenses with artists

σ_{in} = value of content consumption

Determined by smart contract with artist

ϵ_{in} = value of content sharing

Determined by smart contract with artists

Smart Contracts with Tune

$$u_t = C + \pi_f + \omega_f$$

u_t = total artist expenses with TUNE

C = Annual fee

π_f = loss due to fan consumption

Determined by smart contract between curator and TUNE. It is taken from advertisement revenue and given to fans.

ω_f = loss due to fan sharing

Determined by smart contract between curator and TUNE. It is taken from advertisement revenue and given to fans.

Curator Profit

$$u = u_r - u_p - u_t$$

$$u = c_c + s_c + g - (\sigma_{in} + \epsilon_{in}) - (C + \pi_f + \omega_f)$$

$$u = \pi_c + X_c + g + \omega_c + Y_c - (\sigma_{in} + \epsilon_{in}) - (C + \pi_f + \omega_f)$$

$$u = \pi_c + \omega_c + g + [(Z \times USF)(a_c \times \rho_c) + (\beta_c \times \gamma_c)] - (\sigma_{in} + \epsilon_{in}) - (C + \pi_f + \omega_f)$$

$$\rho_c = \frac{\text{FAN CONSUMPTION - SPECIFIC PRODUCER}}{\text{TOTAL FAN CONSUMPTION}} \quad C = \frac{\text{FAN SHARING - SPECIFIC PRODUCERS}}{\text{TOTAL FAN SHARING}}$$

Fan Revenue

A fan is an unsponsored curator

Revenue sources for fans come from:

- content consumption
- content sharing

Fan Revenue- f_r

$$f_r = c_{pf} + s_{pf}$$

c_{pf} = value of content consumption

s_{pf} = value of content sharing



TUNE Token & TUNC Rewards Calculations

Content consumption- c_{pf}

$$c_{pf} = c_f + \pi_f + X_f$$

c_f = direct revenue from content consumption by fans

The value of content consumption by fans is decided by Smart Contracts between artists and TUNE. It is taken from the ad revenue of sponsored artists.

π_f = indirect revenue from content consumption by fans

The value of content consumption by fans is decided by Smart Contracts between curators and TUNE. It is taken from the ad revenue of curators.

$$X_f = (V \times USF \times a_f) \times \rho_f$$

$$\rho_f = \frac{\text{CONSUMPTION BY SPECIFIC FAN}}{\text{TOTAL FAN CONSUMPTION}}$$

Content sharing- s_{pf}

$$s_{pf} = s_f + \omega_f + Y_f$$

s_f = direct revenue from content sharing by fans

The value of content consumption by fans is decided by smart contracts between artists and TUNE. It is taken from ad revenue of artists.

ω_f = indirect revenue from content sharing by fans

The value of content consumption by fans is decided by smart contracts between curators and TUNE. It is taken from ad revenue of curators.

$$Y_f = (V \times USF \times \beta_f) \times \gamma_f$$

$$\gamma_f = \frac{\text{SHARING BY SPECIFIC FAN}}{\text{TOTAL FAN CONSUMPTION}}$$

Fan Expenses

Fan Expenses come from

- Smart Contracts with TUNE
- Tipping

Smart Contracts with TUNE.

$$f_t = F + g$$

f_t = total producer expenses with TUNE

g = value of tipping

F = Annual fee

Fan Profit

$$f = f_r - f_t$$

$$f = c_{pf} + s_{pf} - F - g$$

$$f = c_f + \pi_f + X_f + s_f + \omega_f + Y_f - F - g$$

$$p = c_f + \pi_f + s_f + \omega_f + [(V \times USF)(a_f \times \rho_f) + (\beta_f \times \gamma_f)] - F$$

Advertisers Expenses

Advertisers have three expenses:

Smart Contracts with Artists

Smart Contracts with Curators

Smart Contract with TUNE

Expenses

$$d_e = \sigma_d + \pi_c + Ad$$

σ_d = direct revenue from content consumption by fans

The value of content consumption by fans is decided by Smart Contracts between sponsors and artists. It can be based on the number of "consumptions". It can also have caps etc.

π_c = direct revenue from content consumption by fans

The value of content consumption by fans is decided by Smart Contracts between sponsors and curators. It can be based on the number of "consumptions". It can also have caps etc.

Ad = Annual fee



Anticipated Token Economics & Distribution

Anticipated Token Economics & Distribution

Token Launch:

Token: Tune Token

Symbol: TUNE

Total Supply: 1,000,000,000 TUNE

Payment forms: ETH, BTC

Soft Cap: \$10M

Hard Cap: \$40M

Token Contract Address: TBA

Private Sale: March 9th*

Crowdsale: April 3rd* (if needed)

Wallet Airdrops of the Tokens for existing RecordGram application users will be distributed after the Token Launch.

Tokens will be distributed via TUNE Smart Contracts.

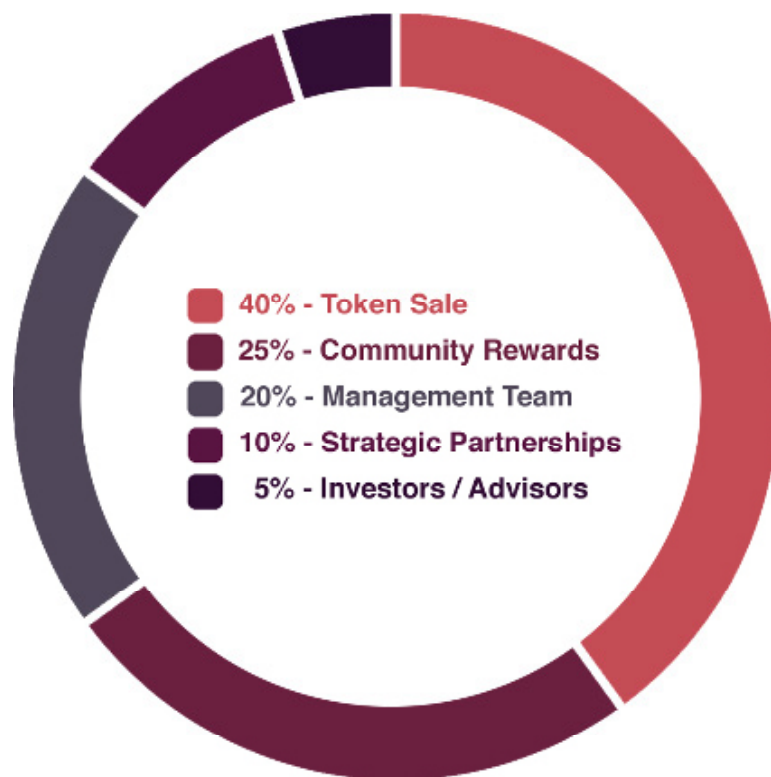
***dates subject to change**

Token Sale

Private and Pre-Sale: Targeting \$30M

Public Sale: Targeting \$10m (\$0.38 cents/Token)

Total Token Distribution: 400,000,000 Tokens



Token Sale

For the funding of research and development, engineering, business development, legal, administrative and miscellaneous expenses that will enhance the TUNE Platform.

Early Investors and Advisors

Funding for early investors and advisory members that provide the direction and expertise in business, media and blockchain, delivering on the vision of Tune.

Management Team / Founders

Founders, Management Execs, early employees.

Community Rewards

Funding for incentivized programs for both existing community participants and those seeking entrance into our platform, including Tokens to be airdropped to existing Recordgram subscribers. Rewards will be dispersed over a 3 year time-span (8.5%, 8.5%, 8%).

Strategic Partnerships

Funding for incentivized programs for both existing community participants and those seeking entrance into our Tune Platform.



Token Sale



Development and Research

Funding for full-time salaried employees that will be working to create and maintain the TUNE Platform

Marketing

Funding to build a dependable and robust marketing campaign designed to draw in participants from several different demographics and geographical areas

Corporate Development

Funding to deliver on business objectives that includes strategic partnerships that drives user growth and adoption

Legal and Administrative

Funding for legal, accounting and other third party service to run the organization

Timeline

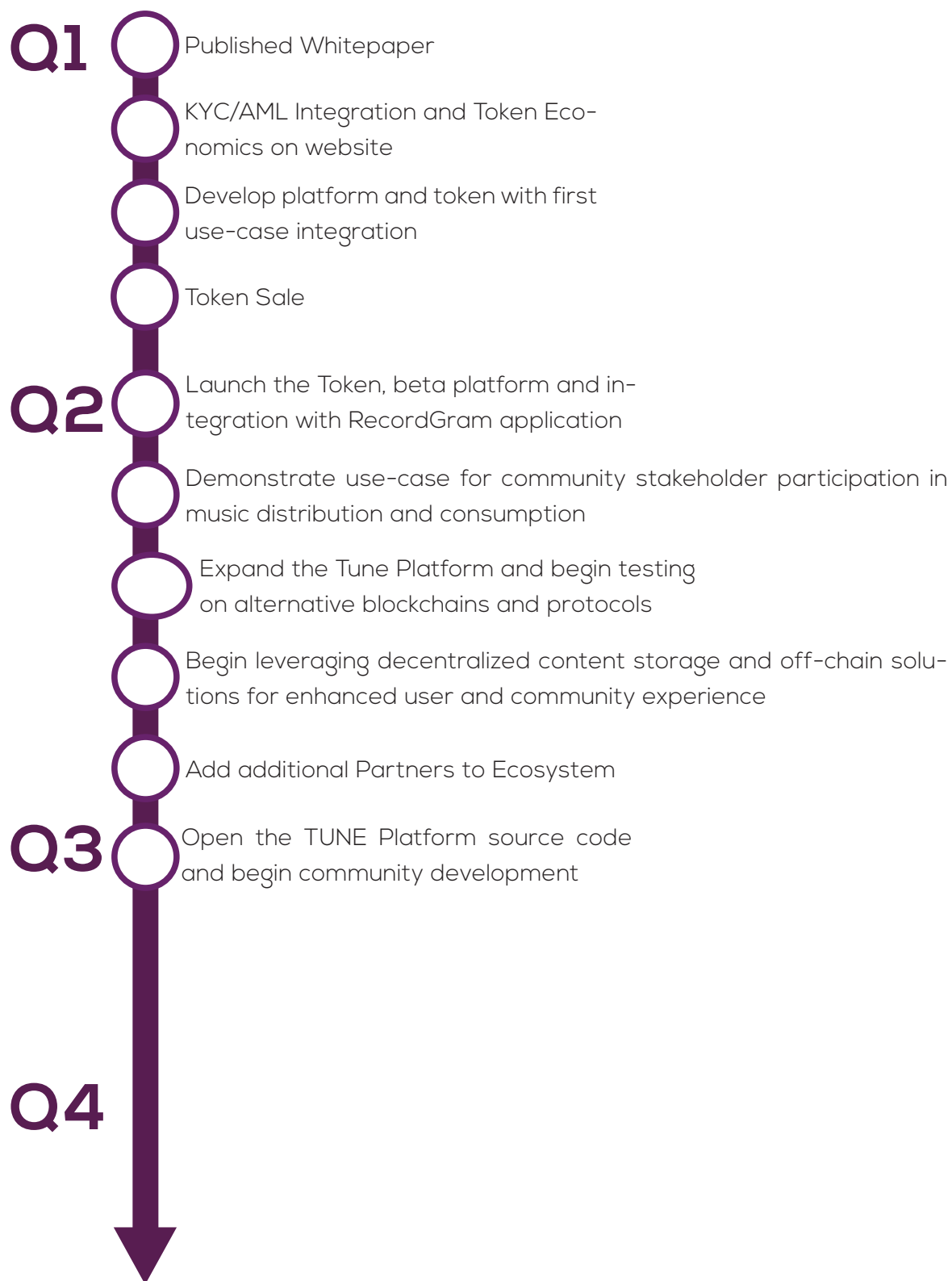


Recordgram Timeline



Tune Timeline

2018



Team



Team

The Founders



Erik Mendelson
CEO / CoFounder

As an Executive Music Producer and artist manager, Erik has signed, managed, and developed 3 platinum recording artists, generating over \$20 million in gross revenue under his direction.



Shawn Mims
Co-founder / Creative Director & Celebrity

Shawn Mims or p/k/a, MIMS is a multi-platinum recording artist, Grammy award winning writer, well-known for his global #1 single This Is Why I'm Hot, and engineer who has generated over \$16 million in gross revenue for EMI/Capitol Records.



Winston Thomas
Co-founder / Product Manager

Winston Thomas or p/k/a DJ Blackout is a Grammy Award Winning music producer and international DJ who has produced over 30 commercial records including a recent #1 single in India and previous #1 global record.

Team Music Business Advisors



Monique Mosley

Music Business Advisor

Globally recognized entertainment executive, Angel investor with Reign Venture Capital—One of Gotham Magazine's Powerful 100 names to know.



Brian Zisk

Music Business Advisor

Creator of the Future of Money & Technology Summit, Creator of San Fran Music Tech Summit, and Partner at SF Music Tech Fund.



Ryder Lee

Music Business Advisor

Independent law practice with emphasis in Entertainment & Media, Intellectual Property, and Emerging Businesses / Entrepreneurial Ventures.



Cameo Carlson

Music Business Advisor

President mtheory; Previously: Head of Digital Biz Development/ Borman Entertainment, Executive Vice President at Universal Records, Label Relations & Music Programming Manager for Apple



Samantha Saturn

Music Business Advisor

President Digital Marketing Agency; Previously: CMO comiXology (a division of Amazon.com), Senior Vice President Digital Marketing for Columbia Records.



Chris Sloan ESQ

Music Business Advisor

Chair Emerging Companies at Baker Donelson.



Team Music Business Advisors



Bill Brennan

Music Business Advisor

Serial Entrepreneur, Mentor, Angel Investor, Speaker Mr. Brennan has 30+ years business experience as a founder and/or co-founder of 10+ start-ups.



Beth Raebeck Hall

Music Business Advisor

Grammy nominated singer/songwriter with over 20 years in the Music Business.



Team Blockchain / Technology Advisors



Shariar Sikder

Blockchain / Technology Advisor

RecordGram CTO. Technology expert and International Business enthusiast.



Gary Manheimer

Blockchain / Technology Advisor

New World Angels. Seasoned business executive and serial entrepreneur with over 25 years experience. Consultant and Entrepreneur.



Justin Wu

Blockchain / Technology Advisor

Information Architect, Token Advisor and Growth Marketer for Blockchain companies.



Sam Abbassi

Blockchain / Technology Advisor

Blockchain architect and engineer, token economics analyst, ethereum and hyperledger developer.



Christopher Arguello

Blockchain / Technology Advisor

Blockchain engineer, ethereum and hyperledger developer, dApp architect.

Legal



Legal Disclaimer

PLEASE READ THIS SECTION (AND THE WHITEPAPER GENERALLY) CAREFULLY. YOU SHOULD CONSULT YOUR LEGAL, FINANCIAL, TAX, AND OTHER PROFESSIONAL ADVISOR(S) BEFORE TAKING ANY ACTION IN CONNECTION WITH THIS WHITEPAPER.

This whitepaper is intended to present relevant information to potential purchasers (the **"Purchasers"** and each a **"Purchaser"**) in connection with the proposed offering (the **"Token Launch"**) by Tune Software, an exempted company incorporated with limited liability in the Cayman Islands, (**"Tune"**, **"we"** or **"us"**) of cryptographic ERC-20 standard tokens with the symbol 'TUNE' (the **"Tokens"**), including information about the smart contract connected to the Tokens (the **"TUNE Smart Contract"**) and the decentralized ledger technology platform for the music community operated by Tune in connection with the Tokens (the **"TUNE Platform"**).

The information contained in this whitepaper is not intended to be exhaustive and the statements included in this whitepaper are not intended to be relied upon or create or form part of a contractual relationship (unless the context otherwise requires).

Nothing in this whitepaper shall be deemed to constitute a prospectus of any sort, a solicitation for investment or investment advice nor does it in any way pertain to an offering or a solicitation of an offer to buy any securities in any jurisdiction. This whitepaper is not composed in accordance with, and is not subject to, laws or regulations of any jurisdiction which are designed to protect investors. To the maximum amount permitted by applicable law, each of Tune (collectively, the **"Associated Parties"** and each an **"Associated Party"**) expressly disclaim and shall not be liable for any and all responsibility for any direct or any indirect, special, incidental, consequential or other losses of any kind, in tort, contract or otherwise (including but not limited to loss of revenue, income or profits, and loss of use or data), arising out of or in connection with (i) the Purchaser's acceptance of or reliance on any information contained in this whitepaper, (ii) any error, omission or inaccuracy in any such information or (iii) any action resulting therefrom.

All statements, estimates and financial information contained in this whitepaper, made in any press releases or in any place accessible by the public and oral statements that may be made by Tune or any Associated Party that are not statements of historical fact, constitute "forward-looking statements". Nothing contained in this whitepaper is or may be relied upon as a promise, representation or undertaking as to the future performance or policies of Tune.

Further, Tune disclaims any responsibility to update any of those forward-looking statements or publicly announce any revisions to those forward-looking statements to reflect future developments, events or circumstances, even if new information becomes available or other events occur in the future.

This whitepaper, and any sale of Tokens referred to in this whitepaper, will be subject to and governed by any terms and conditions of purchase of such Tokens. Such terms and conditions of purchase will be delivered by Tune to the prospective Purchaser after its receipt of a completed Indication of Interest or such other documents or materials as Tune may require from such Purchaser in connection with the

satisfaction of its AML and KYC procedures.

Where there is any inconsistency between such terms and conditions of purchase and this whitepaper, the terms and conditions of purchase shall prevail and govern.

IMPORTANT NOTICES

The acquisition of Tokens involves a high degree of risk. Before acquiring Tokens, it is recommended that each Purchaser conduct its own careful examination of all relevant information and risks about Tune, the TUNE Platform and Tokens and, specifically, the disclosures and risk factors set out below. If any of the following risks actually occurs, Tune, the TUNE Platform, the Tokens and the Purchaser's Tokens may be materially and adversely affected, including the Purchaser's Tokens being rendered worthless or unusable.

The acquisition of Tokens from Tune does not present an exchange of cryptocurrencies for any form of shares or equity interests in Tune, and a holder of any Tokens, issued by Tune is not entitled to any guaranteed form of dividend or other revenue right. Holders of Tokens are only entitled to the use of the TUNE Platform and certain other rights within the TUNE Platform in accordance with the terms set out herein.

The Tokens are available to Purchasers in exchange for certain other cryptographic tokens (subject to Tune's anti-money laundering ("**AML**") and "know your customer" ("**KYC**") procedures being satisfied (including as to source of funds)) and Tune does not provide any exchange of the Tokens for fiat currency. Tune also does not provide custodial or wallet services for the Tokens.

No regulatory authority has examined or approved of any of the information set out in this whitepaper. No such action has been or will be taken under the laws, regulatory requirements or rules of any jurisdiction. The publication, distribution or dissemination of this whitepaper does not imply that any such applicable laws, regulatory requirements or rules have been complied with.

Any person or entity, including anyone acting on its behalf, being based, being a citizen or resident, domiciled, located or incorporated where applicable laws prohibit or restrict distribution or dissemination of Tune's materials, acquiring Tokens or accessing the TUNE Platform including, but not limited to, the United States of America (unless you qualify as an "accredited investor" within the meaning of US securities laws and are not resident in the State of New York for so long as accredited investors are permitted to purchase Tokens) and any of its lands, the Cayman Islands, New Zealand, Canada, People's Republic of China, Singapore, Republic of Korea or any other country that prohibits the sale of Tokens shall not use the TUNE Platform or acquire Tokens, otherwise this person assumes all the responsibility arising from the continued use of the TUNE Platform and/or Tokens.

All statements, estimates and financial information contained in this whitepaper, made in any press releases or in any place accessible by the public and oral statements that may be made by Tune or any associated party that are not statements of historical fact, constitute "forward-looking statements". Nothing contained in this whitepaper or such other statements is or may be relied upon as a promise,

representation or undertaking as to the future performance or policies of Tune.

Further, Tune disclaims any responsibility to update any of those forward-looking statements or publicly announce any revisions to those forward-looking statements to reflect future developments, events or circumstances, even if new information becomes available or other events occur in the future.

The Tokens may be placed on third-party exchanges, giving future Purchasers an opportunity to openly buy Tokens. A user seeking to enter the TUNE Platform following the Token Launch will have to buy Tokens on such exchanges. Conversely, Tokens may be sold on such exchanges if the holder of Tokens would like to exit the TUNE Platform ecosystem. Existing laws on the circulation of securities in certain countries, such as the United States of America, People's Republic of China, South Korea, Canada and Singapore, may prohibit the sale of the Tokens to the residents of those countries. In addition, proposed transfers of the Tokens may be blocked by Tune in circumstances where the proposed transferee has not already completed Tune's KYC and AML procedures (including, without limitation, verification of identity and source of funds) to its satisfaction. Purchasers should be aware of the restrictions on their subsequent sale.

The Tokens are not redeemable at the option of a Purchaser and are in essence "closed-ended". The Tokens are non-refundable save in the limited circumstances expressly set out in these terms.

There is no minimum aggregate Token purchase amount.

Tune is not currently required to register with the Cayman Islands Monetary Authority because the Tokens are not shares, trust units or partnership interests and accordingly are not currently considered equity interests for the purposes of the Mutual Funds Law (2015 Revision) of the Cayman Islands ("**MFL**"). Additionally, as the Tokens are not redeemable it would, in any event, be considered 'closed-ended'. Purchasers must appreciate that the Cayman Islands Monetary Authority has therefore not reviewed this whitepaper and have not passed any judgment on the merits of Tune or acquiring the Tokens. The Cayman Islands Monetary Authority will have no oversight of the operations of Tune or the Tokens.

This whitepaper does not constitute an offer of the Tokens to the members of the Public in the Cayman Islands. "**Public**" for these purposes does not include a sophisticated person, a high net worth person, a company, partnership or trust of which the shareholders, unit holders or limited partners are each a sophisticated person, a high net worth person any exempted or ordinary non-resident company registered under the Companies Law (2016 Revision) or a foreign company registered pursuant to Part IX of the Companies Law (2016 Revision) or any such company acting as general partner of a partnership registered pursuant to the provisions of the Exempted Limited Partnership Law, 2014 or any director or officer of the same acting in such capacity or the Trustee of any trust registered or capable of registering pursuant to the provisions of the Trusts Law (as Revised).

The Cayman Islands Government has not yet proposed or passed any legislation expressly regulating crypto currencies, cryptographic tokens, initial coin offerings or token generating events and its regulatory intentions are unclear. Each Purchaser should be aware that any new laws imposed in the Cayman Islands (or amendments to the existing laws of the Cayman Islands, such as the MFL) could, among other things: (i) prohibit the sale, purchase or transfer of the Tokens or otherwise make holding them illegal, (ii) require Tune to register itself or the Tokens with the Cayman Islands Monetary Authority and become

subject to its supervision or (iii) adversely affect or destroy the value of a Purchaser's Tokens, and that such new laws or amendments could be imposed very quickly and without warning.

NOTICES FOR PARTICULAR PURCHASERS

Notice to prospective Purchasers in People's Republic of China: For residents of the People's Republic of China (which, for the purposes of this whitepaper, does not include Hong Kong, Macau, and Taiwan) only: the Tokens may not be marketed, offered or sold directly or indirectly to the public in the People's Republic of China (the "**PRC**") and neither this whitepaper nor any corresponding agreement for the purchase of the Tokens ("**Purchase Documents**"), which has not been submitted to the PRC securities and regulatory commission, nor any offering material or information contained herein relating to the Tokens, may be supplied to the public in the PRC or used in connection with any offer for the subscription or sale of the Tokens to the public in the PRC. The information contained in this whitepaper and the Purchase Documents will not constitute an offer to sell or an invitation, advertisement or solicitation of an offer to buy any Tokens within the PRC.

Notice to prospective subscribers in Singapore: this whitepaper and the Purchase Documents has not been registered as a prospectus with the monetary authority of Singapore under the Securities and Futures Act, Chapter 289 of Singapore. Accordingly, this whitepaper and the Purchase Documents and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Tokens may not be circulated or distributed, nor may the Tokens be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore.

For residents of any country subject to sanctions from the United States of America or the Cayman Islands, including without limitation Belarus, Burundi, Central African Republic, Cuba, Iran, Libya, North Korea, the Philippines, the People's Republic of China, Somalia, Sudan and Darfur, Syria and Zimbabwe will not be permitted to enter into the Purchase Documents or other otherwise purchase Tokens.

DISCLOSURES REGARDING THIS WHITEPAPER

Accuracy of Information, No Consent of Parties Referenced in Whitepaper

This whitepaper includes market and industry information and forecasts that have been obtained from internal surveys, reports and studies, where appropriate, as well as market research, publicly available information and industry publications. Such surveys, reports, studies, market research, publicly available information and publications generally state that the information that they contain has been obtained from sources believed to be reliable, but there can be no assurance as to the accuracy or completeness of such included information.

Save for Tune and its respective directors, executive officers and employees, no person has provided his or her consent to the inclusion of his or her name and/or other information attributed or perceived to be attributed to such person in connection therewith in this whitepaper and no representation, warranty or undertaking is or purported to be provided as to the accuracy or completeness of such information by such person and such persons shall not be obliged to provide any updates on the same.

Neither Tune nor any of the Associated Parties has conducted any independent review of the information extracted from third party sources, verified the accuracy or completeness of such information or ascertained the underlying economic assumptions relied upon therein. Consequently, neither Tune nor its directors, executive officers and employees acting on its behalf makes any representation or warranty as to the accuracy or completeness of such information and shall not be obliged to provide any updates on the same.

Terms Used

To facilitate a better understanding of the Tokens being offered by Tune for purchase, and the businesses and operations of Tune, certain technical terms and abbreviations, as well as, in certain instances, their descriptions, have been used in this whitepaper. These descriptions and assigned meanings should not be treated as being definitive of their meanings and may not correspond to standard industry meanings or usage.

Words importing the singular shall, where applicable, include the plural and vice versa and words importing the masculine gender shall, where applicable, include the feminine and neuter genders and vice versa. References to persons shall include corporations.

Forward Looking Statements

All statements, estimates and financial information contained in this whitepaper, made in any press releases or in any place accessible by the public and oral statements that may be made by Tune or any Associated Party that are not statements of historical fact, constitute "forward-looking statements". Some of these statements can be identified by forward-looking terms such as "aim", "target", "anticipate", "believe", "could", "estimate", "expect", "if", "intend", "may", "plan", "possible", "probable", "project",

“should”, “would”, “will” or other similar terms. However, these terms are not the exclusive means of identifying forward-looking statements. All statements regarding Tune’s financial position, business strategies, plans and prospects and the future prospects of the industry which Tune is in are forward-looking statements. These forward-looking statements, including but not limited to statements as to Tune’s revenue and profitability, prospects, future plans, other expected industry trends and other matters discussed in this whitepaper regarding Tune are matters that are not historic facts, but only predictions. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause actual events or results, performance or achievements to differ materially from the estimates or the results implied or expressed in such forward-looking statements. These factors include, amongst others:

- changes in political, social, economic and stock or cryptocurrency market conditions, and the regulatory environment in the countries in which Tune conducts its respective businesses and operations;
- the risk that Tune may be unable to execute or implement its business strategies and future plans;
- changes in interest rates and exchange rates of fiat currencies and cryptocurrencies;
- changes in the anticipated growth strategies and expected internal growth of Tune or the TUNE Platform;
- changes in the availability and fees payable to Tune in connection with its respective businesses and operations and/or the TUNE Platform;
- changes in the availability and salaries of employees who are required by Tune to operate the respective businesses and operations and/or the TUNE Platform;
- changes in preferences of the customers of Tune;
- changes in competitive conditions under which Tune operates, and the ability of Tune to compete under such conditions;
- changes in the future capital needs of Tune and the availability of financing and capital to fund such needs;
- war or acts of international or domestic terrorism;
- occurrences of catastrophic events, natural disasters and acts of God that affect the businesses and/or operations of Tune and/or the TUNE Platform;
- other factors beyond the control of Tune; and
- any risk and uncertainties associated with Tune and its business and operations, the Tokens, the Token Launch, the TUNE Platform and the underlying assets (each as referred to in this whitepaper).

Nothing contained in this whitepaper is or may be relied upon as a promise, representation or undertaking as to the future performance or policies of Tune. Further, Tune disclaims any responsibility to update any of those forward-looking statements or publicly announce any revisions to those forward-looking statements to reflect future developments, events or circumstances, even if new information becomes available or other events occur in the future.

No further information or update

No person has been or is authorised to give any information or representation not contained in this whitepaper in connection with Tune and its business and operations, the Tokens, the Token Launch and the underlying assets (each as referred to in the whitepaper) and, if given, such information or represen-

tation must not be relied upon as having been authorised by or on behalf of Tune. The Token Launch (as referred to in this whitepaper) shall not, under any circumstances, constitute a continuing representation or create any suggestion or implication that there has been no change, or development reasonably likely to involve a material change in the affairs, conditions and prospects of Tune or in any statement of fact or information contained in this whitepaper since the date hereof.

Restrictions on Distribution and Dissemination of whitepaper

The distribution or dissemination of this whitepaper or any part thereof may be prohibited or restricted by the laws, regulatory requirements and rules of any jurisdiction. In the case where any restriction applies, you are to inform yourself about, and to observe, any restrictions which are applicable to your possession of this whitepaper or such part thereof (as the case may be) at your own expense and without liability to Tune or the Associated Persons.

Persons to whom a copy of this whitepaper has been distributed or disseminated, provided access to or who otherwise have the whitepaper in their possession shall not circulate it to any other persons, reproduce or otherwise distribute this whitepaper or any information contained herein for any purpose whatsoever nor permit or cause the same to occur.

Language of whitepaper

This whitepaper may have been prepared in multiple languages. In the event of any inconsistencies between one version and another, the English language version shall prevail.

Risk Factors, Disclosures, Acknowledgements and Warranties by Purchasers

Risk Factors and Disclosures

IMPORTANT NOTICE: PROSPECTIVE PURCHASERS SHOULD CAREFULLY CONSIDER THE RISKS INVOLVED IN DETERMINING WHETHER PURCHASING THE TOKENS IS A SUITABLE INVESTMENT, CERTAIN OF WHICH ARE SUMMARISED BELOW.

In this section, unless the context otherwise requires, the risk factors and disclosures set out below shall also be deemed to apply in relation to TUNC as if references to Tokens were references to TUNC.

Nature of Tokens

Except as explicitly set out in this whitepaper, Tokens do not have any rights, uses, purpose, attributes, functionalities or features, express or implied, including, without limitation, any uses, purpose, attributes, functionalities or features on the TUNE Platform. Tune does not guarantee and is not representing in any way to a Purchaser that the Tokens have any rights, uses, purpose, attributes, functionalities or features. The purchase of Tokens does not provide a Purchaser with rights of any form with respect to Tune or its revenues or assets, including, but not limited to, any voting, distribution, redemption, liquidation, proprietary (including all forms of intellectual property), or other financial or legal rights; is not a loan to Tune; and does not provide Purchaser with any ownership or other interest in Tune.

Tokens are non-refundable

Tune is not obliged to provide Token holders with a refund for any reason and Token holders will not receive money or other compensation in lieu of a refund. The Tokens are also not redeemable at the option of the Purchaser. Statements set out in this whitepaper are merely expressions of Tune's objectives and desired work plan to achieve those objectives. and no promises of future performance or price are or will be made in respect to Tokens, including no promise of inherent value, and no guarantee that Tokens will hold any particular value.

Tokens are provided on an 'as is' basis

The Tokens are provided on an "as is" basis. The Associated Parties and each of their respective directors, officers, employees, shareholders, affiliates and licensors make no representations or warranties of any kind, whether express, implied, statutory or otherwise regarding the Tokens, including any warranty that the Tokens and the TUNE Platform will be uninterrupted, error-free or free of harmful components, secure or not otherwise lost or damaged. Except to the extent prohibited by applicable law, the Associated Parties and each of their respective directors, officers, employees, shareholders, affiliates and licensors disclaim all warranties, including any implied warranties of merchantability, satisfactory quality, fitness for a particular purpose, non-infringement, or quiet enjoyment, and any warranties arising out of any course of dealings, usage or trade.

Tokens may have no value

The Tokens may have no value and there is no guarantee or representation of liquidity for Tokens. Tune is not and shall not be responsible for or liable for the market value of the Tokens, the transferability and/or liquidity of the Tokens and/or the availability of any market for Tokens through third parties or otherwise.

Lack of development of market of Tokens

There are no warranties that Tokens will be listed or made available for exchange for other cryptocurrency and/or fiat money. It shall be explicitly cautioned that if Tokens are made available on an exchange, such exchange, if any, may not be subject to regulatory oversight, and Tune does not give any warranties in relation to any exchange services providers. Because there has been no prior public trading market for Tokens, the Token Launch may not result in an active or liquid market for Tokens, and the price of Tokens may be volatile. Token holders may not be able to dispose of Tokens easily and where no secondary market develops, a Token holder may not be able to liquidate at all. Proposed transfers of the Tokens may be blocked by Tune in circumstances where the proposed transferee has not already completed Tune's KYC and AML procedures (including, without limitation, verification of identity and source of funds) to its satisfaction. Purchasers should be aware of the restrictions on their subsequent sale.

Risks relating to highly speculative prices

The valuation of cryptocurrency in a secondary market is usually not transparent, and highly speculative. The Tokens do not hold any ownership rights to Tune's assets and, therefore, are not backed by any tangible asset. The value of Tokens in the secondary market, if any, may fluctuate greatly within a short period of time. There is a high risk that a Purchaser could lose its entire contribution amount. In the worst-case scenario, Tokens could be rendered worthless.

Force Majeure

The Token Launch and the performance of Tune's activities set out in this whitepaper and the development roadmap may be interrupted, suspended or delayed due to force majeure circumstances. For the purposes of this whitepaper, "force majeure" shall mean extraordinary events and circumstances which could not be prevented by Tune and shall include: changes in market forces or the technology, acts of nature, wars, armed conflicts, mass civil disorders, industrial actions, epidemics, lockouts, slowdowns, prolonged shortage or other failures of energy supplies or communication service, acts of municipal, state or federal governmental agencies, other circumstances beyond Tune's control, which were not in existence at the time of Token Launch.

Insurance

Unlike bank accounts or accounts at financial institutions, Tokens are uninsured unless you specifically obtain private insurance to insure them. Thus, in the event of loss or loss of utility value, there is no public insurer or private insurance arranged by Tune to offer recourse to a Purchaser.

GOVERNMENTAL DISCLOSURES

Tune is not a regulated mutual fund

Tune is not regulated as a mutual fund for the purposes of the Mutual Funds Law (2015 Revision) of the Cayman Islands ("MFL") on the basis that Tokens are not shares and Tune is therefore not a registrable mutual fund. In addition, the Tokens are not redeemable at the option of the Purchaser and so the To-

kens and Tune are considered 'closed-ended'. Accordingly, neither a copy of this whitepaper nor details about Tune have been filed with the Cayman Islands Monetary Authority ("CIMA"). Because Tune is not a regulated mutual fund, Tune is not subject to the supervision of CIMA and Tune is not required to have its accounts audited nor submit such accounts to CIMA.

If Tune were regulated as a mutual fund under the MFL, it would need to comply with regulatory requirements designed to protect investors, including the requirement to limit the minimum aggregate Token purchase amount to US\$100,000 or its equivalent in any other currency in order for it not to be licensed or administered by a licensed mutual fund administrator. Tune would also need to pay a prescribed initial registration fee.

These are matters which would be required in connection with an initial registration under the MFL. Tune would also then have ongoing obligations under the MFL following its initial registration, including the obligation to file with CIMA prescribed details of any changes to this whitepaper; to file annually with CIMA accounts audited by an approved auditor and a fund annual return; and to pay a prescribed annual fee.

If Company were a regulated mutual fund, it would also be subject to the supervision of CIMA, and CIMA would have wide powers to take certain actions if certain events occur.

Risk of unfavourable regulatory action in one or more jurisdictions

The regulatory status of cryptographic tokens, digital assets, and blockchain technology is undeveloped, varies significantly among jurisdictions and is subject to significant uncertainty. It is possible that certain jurisdictions may adopt laws, regulations, policies or rules directly or indirectly affecting the Bitcoin and Ethereum network, or restricting the right to acquire, own, hold, sell, convert, trade, or use Tokens. Developments in laws, regulations, policies or rules may alter the nature of the operation of the blockchain network upon which the Tokens are dependent. There can be no assurance that governmental authorities will not examine the operations of Associated Parties and/or pursue enforcement actions against Associated Parties. All of this may subject Associated Parties to judgments, settlements, fines or penalties, or cause Associated Parties to restructure their operations and activities or to cease offering certain products or services, all of which could harm Associated Parties' reputations or lead to higher operational costs, which may, in turn, have a material adverse effect on the Tokens and/or the development of the TUNE Platform.

Purchaser bears responsibility of legal categorization

There is a risk that Tokens might be considered a security in certain jurisdictions, or that they might be considered to be a security in the future. Tune does not provide any warranty or guarantee as to whether the Tokens will be a security in the jurisdiction of the Purchaser. Each Purchaser will bear all consequences of Tokens being considered a security in their respective jurisdiction. Every Purchaser is responsible to confirm if the acquisition and/or disposal of Tokens is legal in its relevant jurisdiction, and each Purchaser undertakes not to use Tokens in any jurisdiction where doing so would be unlawful. If a Purchaser establishes that the purchase or use of Tokens is not legal in its jurisdiction (or would only be legal if the company had taken additional steps such as registration or licensing), it should not acquire Tokens and immediately stop using or possessing Tokens.

Acquiring Tokens in exchange for cryptocurrency will most likely continue to be scrutinised by various regulatory bodies around the world, which may impact the usage of Tokens. The legal ability of Tune to provide or support Tokens in some jurisdictions may be eliminated by future regulation or legal actions. In the event that Tune determines that the purchase or usage of Tokens is illegal in a certain jurisdiction, Tune may cease operations in that jurisdiction, or adjust Tokens in a way to comply with applicable law.

Purchaser bears responsibility for complying with transfer restrictions

Tokens may be placed on third-party exchanges, giving future purchasers and users an opportunity to openly buy Tokens. A user seeking to enter the TUNE Platform following the Token Launch will have to buy Tokens on such exchanges. Conversely, Tokens may be sold on such exchanges if the holder of Tokens would like to exit the TUNE Platform ecosystem. Existing laws on the circulation of securities in certain countries, such as the United States of America, China, South Korea, Canada and Singapore, may prohibit the sale of the Tokens to the residents of those countries. When buying Tokens, Purchasers should be aware of the restrictions on their subsequent sale.

GENERAL SECURITY RISKS

Risk of theft and hacking

Token generation events and initial coin offerings are often targeted by hackers and bad actors. Hackers may attempt to interfere with the Purchaser's digital wallet, whether located on the TUNE Platform or otherwise, (the "Purchaser's Wallet"), the TUNE Smart Contract or the availability of Tokens in any number of ways, including without limitation denial of service attacks, Sybil attacks, spoofing, smurfing, malware attacks, or consensus-based attacks. Any such attack may result in theft of a Purchaser's Tokens.

Private keys

Tokens purchased by a Purchaser may be held by a Purchaser in the Purchaser's Wallet or vault, which requires a private key, or a combination of private keys, for access. Accordingly, loss of requisite private key(s) associated with Purchaser's Wallet or vault storing the Tokens will result in loss of such Tokens. Moreover, any third party that gains access to such private key(s), including by gaining access to login credentials of a hosted wallet or vault service Purchaser uses, may be able to misappropriate Purchaser's Tokens. Tune is not responsible for and shall be held harmless in respect of any such losses.

Failure to map a public key to Purchaser's Wallet

Failure of the Purchaser to map a public key to such Purchaser's Wallet may result in third parties being unable to recognize buyer's Token balance on the Ethereum blockchain when and if they configure the initial balances of a new blockchain based upon the TUNE Platform.

Risk of incompatible wallet service

The wallet or wallet service provider used for the acquisition and storage of the Tokens has to be technically compatible with the Tokens. The failure to assure this may result in the Purchaser not being able to gain access to its Tokens.

Risk of weaknesses or exploitable breakthroughs in the field of cryptography



Advances in cryptography, or other technical advances such as the development of quantum computers, could present risks to cryptocurrencies, Ethereum and Tokens, which could result in the theft or loss of Tokens.

Internet transmission risks

There are risks associated with using Tokens including, but not limited to, the failure of hardware, software, and internet connections. Tune shall not be responsible for any communication failures, disruptions, errors, distortions or delays you may experience when using the TUNE Platform and Tokens, howsoever caused. Transactions in cryptocurrency may be irreversible, and, accordingly, losses due to fraudulent or accidental transactions may not be recoverable. Cryptocurrency transactions are deemed to be made when recorded on a public ledger, which is not necessarily the date or time when the transaction is initiated.

TUNE PLATFORM DISCLOSURES

No guarantee that the TUNE Smart Contract will be developed

Each Purchaser acknowledges, understands and agrees that such Purchaser should not expect and there is no guarantee or representation or warranty by Tune that:

- the TUNE Platform will ever be adopted;
- the TUNE Platform will be adopted as developed by Tune and not in a different or modified form;
- a blockchain utilizing or adopting Tune will ever be launched;
- TUNC will ever be made available or be exchangeable for Tokens; and
- a blockchain will ever be launched with or without changes to the TUNE Platform and with or without a distribution matching the fixed balance of Initial Tokens (as defined below).

Furthermore, the Tokens initially generated upon the Token Launch (“Initial Tokens”) will not have any functionality or rights on the TUNE Platform and holding Initial Tokens is not a guarantee, representation or warranty that the holder will be able to use the TUNE Platform, or receive any tokens utilized on the TUNE Platform, even if the TUNE Platform is launched and the TUNE Smart Contract is adopted, of which there is no guarantee, representation or warranty made by Tune.

Risks associated with the TUNE Smart Contract and associated software and/or infrastructure

The TUNE Smart Contract is based on the Ethereum blockchain. As such, any malfunction, unintended function or unexpected functioning of the Ethereum protocol may cause the Tokens and/or the TUNE Platform to malfunction or function in an unexpected or unintended manner.

The Ethereum blockchain rests on open source software, and accordingly there is the risk that the TUNE Smart Contract may contain intentional or unintentional bugs or weaknesses which may negatively affect Tokens or result in the loss or theft of Tokens or the loss of ability to access or control Tokens. In the event of such a software bug or weakness, there may be no remedy and Token holders are not guaranteed any remedy, refund or compensation.

On the Ethereum blockchain, timing of block production is determined by proof of work so block production can occur at random times. For example, Ether transferred to Tune’s recipient digital wallet address in the final seconds of a distribution period may not get included for that period.

Purchaser acknowledges and understands that the Ethereum blockchain may not include the Purchaser's transaction at the time the Purchaser expects and the Purchaser may not receive the Tokens the same day the Purchaser sends Ether or Bitcoin⁹. The Ethereum blockchain is prone to periodic congestion during which transactions can be delayed or lost. Individuals may also intentionally spam the Ethereum network in an attempt to gain an advantage in purchasing cryptographic tokens. The Purchaser acknowledges and understands that Ethereum block producers may not include the Purchaser's transaction when the Purchaser wants or the Purchaser's transaction may not be included at all.

Ether, the native unit of account of the Ethereum blockchain may itself lose value in ways similar to the Tokens, and also other ways. More information about Ethereum is available at <http://www.ethereum.org>.

Irreversible nature of blockchain transactions

Transactions involving Tokens that have been verified, and thus recorded as a block on the blockchain, generally cannot be undone. Even if the transaction turns out to have been in error, or due to theft of a user's Tokens, the transaction is not reversible. Further, at this time, there is no governmental, regulatory, investigative, or prosecutorial authority or mechanism through which to bring an action or complaint regarding missing or stolen cryptocurrencies and digital tokens. Consequently, Tune may be unable to replace missing Tokens or seek reimbursement for any erroneous transfer or theft of Tokens.

Amendments to protocol

The development team and administrators of the source code for Ethereum blockchain or the TUNE Smart Contract could propose amendments to such network's protocols and software that, if accepted and authorized, or not accepted, by the network community, could adversely affect the supply, security, value, or market share of Tokens.

Risk of mining attacks

As with other decentralized cryptocurrencies, Ethereum blockchain, which is used for the Tokens, is susceptible to mining attacks, including but not limited to double-spend attacks, majority mining power attacks, "selfish-mining" attacks, and race condition attacks.

Any successful attacks present a risk to the Tokens, expected proper execution and sequencing of Tokens, and expected proper execution and sequencing of Ethereum contract computations in general. Despite the efforts of Tune and Ethereum Foundation, the risk of known or novel mining attacks exists. Mining attacks, as described above, may also target other blockchain networks, with which the Tokens interact with and consequently the Tokens may be impacted also in that way to the extent described above.

COMPANY DISCLOSURES

Legal structure of Token generator

Tune is an exempted company incorporated in the Cayman Islands pursuant to the Companies Law (Revised) of the Cayman Islands. An exempted company is a body corporate which has separate legal personality capable of exercising all the functions of a natural person of full capacity irrespective of any question of corporate benefit, and having perpetual succession. The constitution of an exempted company is contained in two documents, the memorandum of association and the articles of association (the "Articles"). The Articles typically provide that there must be at least one director of a Cayman company. Generally, the Articles will specify that the management of a Cayman company is the responsibility of, and is carried out by, its board of directors. If the Articles permit it, a Cayman company may indemnify officers and directors of the company from all liabilities and expenses incurred by search persons in the performance of their duties.

The memorandum of association of a Cayman Islands company must specify the authorised share capital of such company. The memorandum of association will state the aggregate amount of the authorised share capital, together with details of the number of shares into which it is divided and the par value of those shares. As a Token holder, you are not a party to the memorandum of association or the Articles and are not entitled to any right or interest in or to shares of Tune and have no rights to appoint or remove the board of directors of Tune.

Because Tokens confer no governance rights of any kind with respect to the TUNE Platform or Tune, all decisions involving Tune's products or services within the TUNE Platform or Tune itself will be made by Tune at its sole discretion. These decisions could adversely affect the TUNE Platform and the value and/or utility of any Token you own.

Dependence on management team

The ability of the TUNE Platform project team which is responsible for maintaining competitive position of the TUNE Platform is dependent to a large degree on the services of a senior management team. The loss or diminution in the services of members of such senior management team or an inability to attract, retain and maintain additional senior management personnel could have a material adverse effect on the TUNE Platform and the value of the Tokens. Competition for personnel with relevant expertise is intense due to the small number of qualified individuals, and this competition may seriously affect Tune's ability to retain its existing senior management and attract additional qualified senior management personnel, which could have a significant adverse impact on the TUNE Platform and the value of the Tokens.

Risks related to reliance on third parties

Even if completed, the TUNE Platform will rely, in whole or in part, on third-parties to adopt and implement it and to continue to develop, supply, and otherwise support it. There is no assurance or guarantee that those third-parties will complete their work, properly carry out their obligations, or otherwise meet anyone's needs, any of which might have a material adverse effect on the TUNE Platform and the value of the Tokens.

Insufficient interest in the TUNE Platform and the Tokens

It is possible that the TUNE Platform or Tokens will not be used by a large number of individuals, businesses and organizations and that there will be limited public interest in the creation and development

of its functionalities. Such a lack of interest could impact the development of the TUNE Platform and the value of the Tokens.

TUNE Platform development risks

The development of the TUNE Platform and/or TUNE Smart Contract may be abandoned for a number of reasons, including lack of interest from the public, lack of funding, lack of commercial success or prospects, or departure of key personnel.

Changes to the TUNE Platform

The TUNE Platform is still under development and may undergo significant changes over time. Although Associated Parties intend for the TUNE Platform to have the features and specifications set forth in this whitepaper, changes to such features and specifications may be made for any number of reasons, any of which may mean that the TUNE Platform does not meet the expectations of the Purchaser.

Other projects

The TUNE Platform may give rise to other, alternative projects, promoted by parties that are affiliated or unaffiliated with the Associated Parties, and such projects may provide no benefit to the TUNE Platform.

Disclosures relating to conflicts of interest

Any of the Associated Parties may be engaged in transactions with related parties and conflicts of interest may arise, potentially resulting in the conclusion of transactions on terms not determined by market forces.

Risk Factors, Disclosures, Acknowledgements and Warranties by Purchasers

ACKNOWLEDGEMENTS

By (i) accessing or accepting possession of any information in this whitepaper (or any part thereof) or (ii) transferring payment (whether in fiat currency or cryptocurrency) and agreeing to purchase the Tokens, each Purchaser agrees and acknowledges that:

- the Tokens do not and are not intended to constitute securities in any jurisdiction. This whitepaper does not constitute a prospectus or offer document of any sort and is not intended to constitute an offer of securities or a solicitation for investment in securities in any jurisdiction.
- the Tokens are meant for internal use within the TUNE Platform and are not intended as securities or other assets to be used for speculative trading purposes. Tune does not operate an exchange for Tokens and there is no guarantee of the future value of the Tokens. Tune does not take any responsibility for any trade in Tokens in or through third-party exchanges. The possibility exists that the Tokens could be worth nothing
- this whitepaper does not constitute or form part of any opinion on, any advice to buy or sell, or any solicitation of any offer to purchase any Tokens nor shall it, or any part of it, nor the fact of its presentation, form the basis of, or be relied upon in connection with, any contract or any investment or purchase decision.
- no regulatory authority in any applicable jurisdiction has examined or approved of the information set out in this whitepaper and the publication, distribution or dissemination of the whitepaper to you does not imply that any applicable laws, regulatory requirements or rules have been complied with
- any agreement as between Tune and a Purchaser, and in relation to any sale and purchase, of Tokens is, in the absence of Purchase Documents, to be governed by this whitepaper
- notwithstanding any other section of this whitepaper, and to the extent permissible by applicable laws, Tune shall not be liable for any indirect, special, incidental, consequential or other losses of any kind, in tort, contract or otherwise (including, but not limited to, loss of revenue, income or profits, and loss of use or data), arising out of or in connection with any acceptance of or reliance on this whitepaper or any part thereof by a Purchaser
- no information in the whitepaper should be considered to be business, legal, financial or tax advice regarding Tune, the Tokens or the Token Launch
- they should consult their own legal, financial, tax or other professional adviser regarding Tune and its respective businesses and operations, the Tokens and the Token Launch.

WARRANTIES

By (i) accessing or accepting possession of any information in this whitepaper (or any part thereof) or (ii) transferring payment (whether in fiat currency or cryptocurrency) and agreeing to purchase the Tokens, each Purchaser represents and warrants to Tune as follows:

- that they have read, understood and accepted sole responsibility for the disclosed and undisclosed risks, disclaimers and other disclosures inherent in participating in the Token Launch and the purchasing of Tokens as set out in this whitepaper
- that they are not a citizen or resident of any jurisdiction or territory into which a sale or distribution of the Token would be unlawful (each a "Prohibited Territory") and are not purchasing the Tokens on behalf of, whether directly or indirectly, a citizen of any Prohibited Territory
- that they have the power to enter into, exercise any rights and perform and comply with their obligations under this whitepaper and their entry into, exercise of their rights and/or

performance of or compliance with their obligations under this whitepaper including accessing, distribution or dissemination of this whitepaper, is not prohibited or restricted by the applicable laws, regulations or rules in the Purchaser's jurisdiction or country of residence, and where any restrictions in relation to the aforementioned are applicable, the Purchaser

- accepts sole liability for non-compliance with such applicable laws, regulations and rules in the Purchaser's jurisdiction or country of residence; and
- has observed and complied with all such applicable laws, regulations and rules in the Purchaser's jurisdiction or country of residence at the Purchaser's own and sole expense;
- that all actions, conditions and things required to be taken, fulfilled and done:
 - in order to enable the Purchaser to lawfully enter into, exercise their rights and perform and comply with their obligations imposed by this whitepaper and to ensure that those obligations are legally binding and enforceable; and
 - for the issue of the Tokens on the terms and conditions set out in this whitepaper, have been taken, fulfilled and done;
- that all the Purchaser's obligations under this whitepaper are valid, binding and enforceable on such Purchaser in accordance with their terms;
- that the Purchaser has adequate understanding of the operation, functionality, usage, storage, transmission mechanisms and other material characteristics of cryptocurrencies, blockchain-based systems, cryptocurrency wallets or other related coin/token storage mechanisms, blockchain technology and smart contract technology;
- that the Purchaser is not exchanging cryptocurrencies for Tokens for the purpose of speculative investment or for the purpose of exchanging one form of virtual currency for another, with the present intention of delivering the Tokens to another person, in a coordinated series of steps intended to complete a single transaction;
- that the Purchaser is acquiring Tokens primarily for use in the TUNE Platform; and
 - all of the above representations and warranties are true, complete, accurate and non-misleading from the time of the Purchaser's pre-registration (where applicable) and purchase of Tokens pursuant to the Token Launch.

OTHER NOTICES

AML AND KYC

Measures aimed at the prevention of money laundering and terrorist financing will require a Purchaser to verify their identity and/or the source of funds to Tune. This procedure may apply on all or any of (i) the initial purchase of the Tokens, (ii) the use of the TUNE Platform, (iii) the exchange of the Tokens for TUNC, (4) the transfer of the Tokens, (5) the receipt of any TUNC via the TUNE Smart Contract or (vi) as Tune deems necessary or desirable in connection with its AML and KYC policies and procedures.

By way of example, an individual may be required to produce the original passport or identification card or copy duly certified by a public authority such as a notary public, the police or the ambassador in his country of residence, together with two original documents evidencing his address such as a utility bill or bank statement or duly certified copies. In the case of corporate applicants this may require production of a certified copy of the Certificate of Incorporation (and any change of name) and of the Memorandum and Articles of Association (or equivalent), and of the names and residential and business addresses of all directors and beneficial owners.

The details given above are by way of example only and Tune will request such information and documentation as it considers is necessary to verify the identity and source of funds of a prospective Purchaser.

Each Purchaser acknowledges that Tune shall be held harmless against any loss arising as a result of a failure to provide such information and documentation as has been requested by Tune.

Each Purchaser further acknowledges and agrees that any failure by them to comply with Tune's requests in relation to measures aimed at the prevention of money laundering and terrorist financing, may result in action being taken against the Purchaser in respect of the Tokens including, without limitation, the suspension or withdrawal of the Purchaser's account on the TUNE Platform or the Tokens held by them.