



# Hearo.fm JAM Token Whitepaper

v 2.0

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## Disclaimer

This whitepaper has been prepared solely for the purpose of informing potential purchasers of JAM Tokens (JAM) and a proposed technical implementation of, and architecture for, the hearo.fm JAM token. This whitepaper is non-binding in all respects and does not create any legal obligation of any kind on any person (including hearo.fm Inc. (Delaware Company)). The ultimate implementation of JAM is dependent upon several factors and risks outside of the control of The hearo.fm Company, including regulatory risks, contributor participation, the adoption of blockchain technology and the continued use and adoption of the Ethereum network. Nothing in this whitepaper or otherwise shall require The hearo.fm Company to take any steps to develop or otherwise implement JAM. The hearo.fm Company reserves the right to abandon JAM and/or to change the implementation of JAM contemplated by this whitepaper at any time and for any reason. Prospective users of JAM and other contributors to JAM are advised to evaluate the risks of token purchases and purchase JAM at their own risk and without reliance on any statement contained in this whitepaper.

“Information wants to be free. Information also wants to be expensive. Information wants to be free because it has become so cheap to distribute, copy, and recombine - too cheap to meter. It wants to be expensive because it can be immeasurably valuable to the recipient. That tension will not go away.”

- Stewart Brand, 1987



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## Foreword

This whitepaper serves to elaborate on the vision and technical roadmap for the hearo.fm team and JAM token initiative.

## Abstract

We embarked on this mission to create a global independent music marketplace for artists to collaborate, share their music, and connect directly to their fans. Our goal is to democratize access to music and level the playing field for artists around the world. Today, hearo.fm is a thriving music marketplace where you can discover great independent music from all around the world. The Hearo.fm JAM Token is a Hedera Hashgraph powered music token to enable a global decentralized music streaming marketplace platform for artists and fans. We will utilize the JAM token to create a fully tokenized music economy that allows for micropayments directly between artists and fans for streaming and curating music.

## Music Deserves More

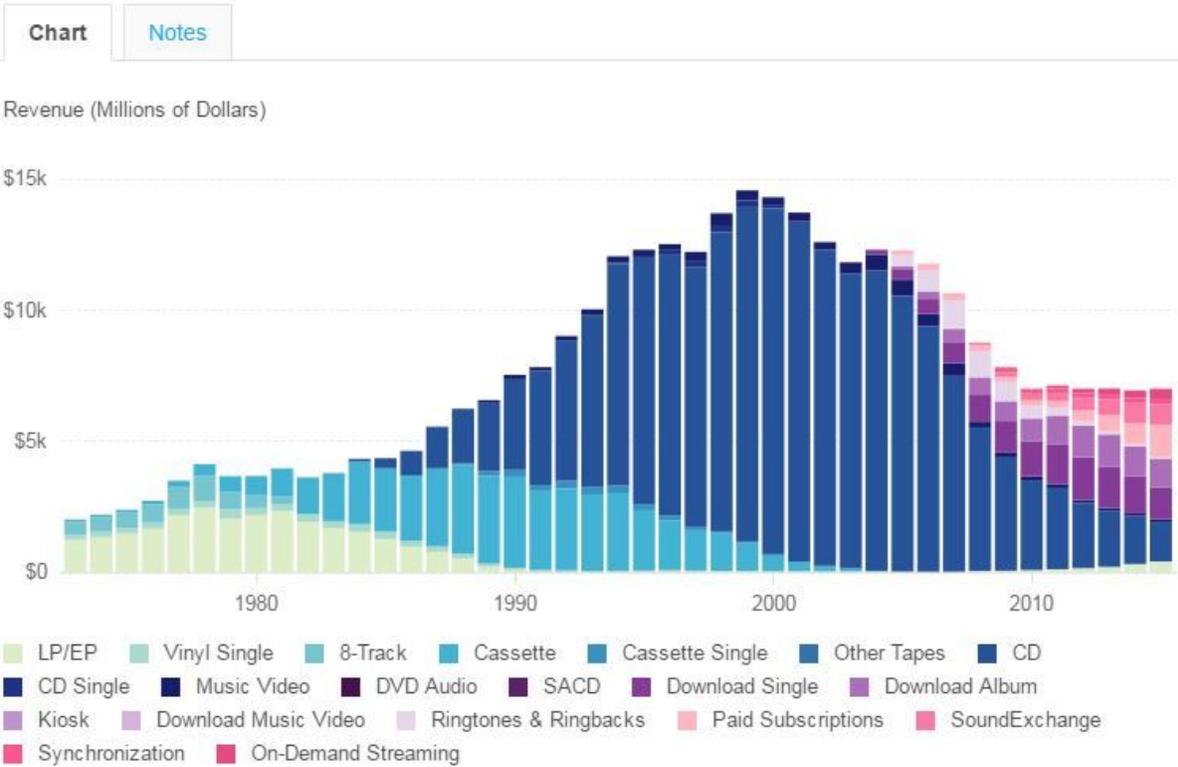
Music is the stickiest form of media in the world and has a long history of connecting people through a common language. It has the power to change moods, stir emotions, unite communities, and change lives. Many neurological studies elaborate on music's profound effects on the brain and the great power it has within our bodies. Yet, music remains one of the least monetized forms of media compared to photos, text, and video, leaving independent music artists at a major disadvantage in the marketplace. The industry has been held in a chokehold by the current licensing paradigm and the major labels supporting them. Millions of artists around the world are struggling to survive and get their music out to the world to be heard. The current digital music landscape is ripe for disruption and change. By bringing together music discovery and cryptocurrency in one cohesive place, we can create a groundbreaking experience that lifts up artists from all around the world and satisfies fans more than ever before.



# Music Market

The music industry has been a long history of technological disruption. As new sound recording and playback devices created physical products with music recordings there became a market for distribution and sales of those musical products and experiences. As terrestrial radio became a huge source of discovery, ways to monetize music broadcast and performance rights emerged as a way to compensate artists. Once the internet showed up and Napster came online, the business model of the music industry changed forever as, all of a sudden, all music became free in a decentralized peer-to-peer file sharing network.

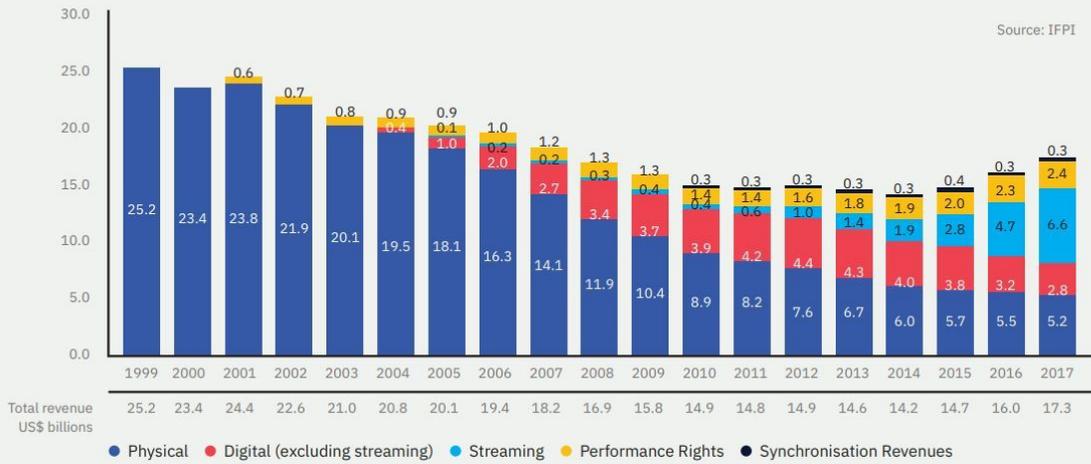
RIAA Year-End Revenue and Shipment Reports



Source: [RIAA](#).



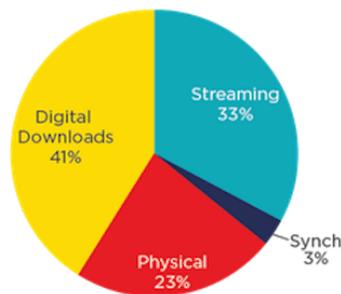
## GLOBAL RECORDED MUSIC INDUSTRY REVENUES 1999-2017 (US\$ BILLIONS)



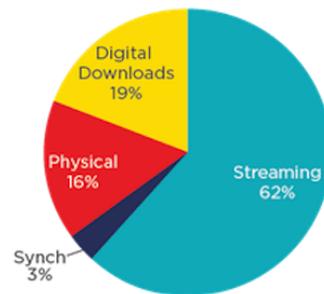
Then the iTunes store tried to save things by monetizing the downloads and creating a marketplace for music that was trusted and curated with proper metadata and a venue to play and curate your music yourself in your library. Once it became apparent that the paywall was way too high and it would cost hundreds of dollars to discover and buy new music regularly, new all-you-can-eat platforms like Spotify emerged so you can pay \$10 a month to stream as much as you wanted. Spotify would handle all those pesky royalty payments to artists on your behalf and subsidize the freemium model with advertisements.

## MUSIC LABELS EMBRACE A RAPIDLY CHANGING BUSINESS

U.S. MUSIC INDUSTRY REVENUES 1H 2015



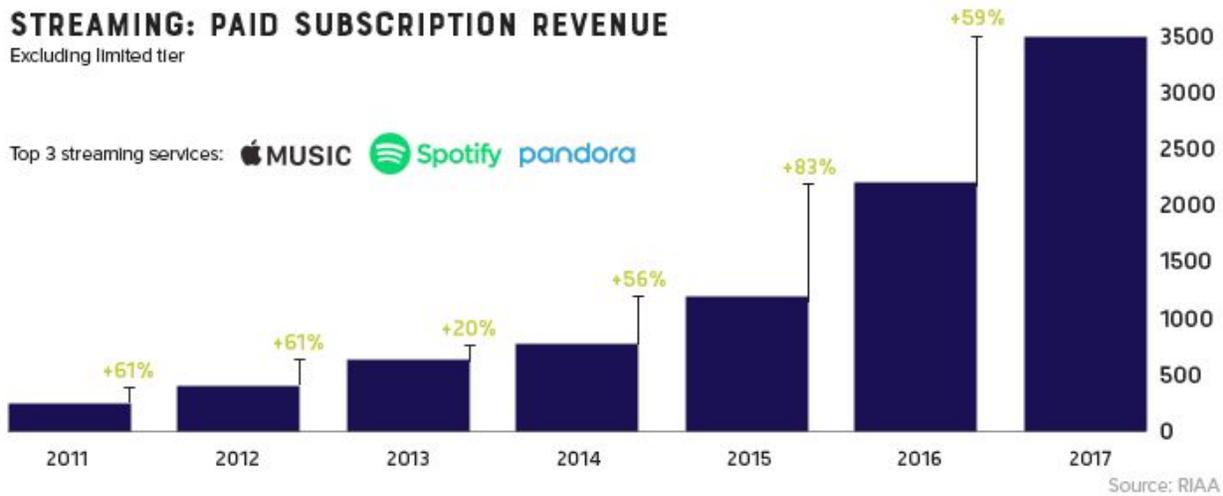
U.S. MUSIC INDUSTRY REVENUES 1H 2017



## STREAMING: PAID SUBSCRIPTION REVENUE

Excluding limited tier

Top 3 streaming services:   



In the past 3 years streaming platforms have been on the rise taking significant market share and leading the charge to increase music industry revenues for the first time in almost 2 decades. As the music industry has tried to recover from an epic multi-year, multi-billion dollar long blow, it has created better more trusted experiences for fans at the expense of artists and expanding access. Gatekeepers and money keep the vast majority of artists out of labels and publishing deals which also squeeze those artists and take the vast majority of their money.

These new platforms in conjunction with rights holders use old frameworks and old ways of thinking to keep artists at bay while keeping all the money for themselves. There must be a way to monetize and democratize access to music distribution and marketing. Utilizing new forms of payments with distributed ledger technology, we can change the game and create a new business model for the music industry never seen before.



## Problems with Music Licensing

The digital music space is littered with many products that focus on singular aspects of the industry. This has created a fragmented space, leaving fans and artists skipping between many platforms. This problem, which is widely known and complained about by prominent artists and music industry veterans, is a result of a deeply flawed, vestigial music licensing model which is perpetuated by the major labels and publishing companies. The available music licenses are essentially digital adaptations of age old physical medium counterparts such as terrestrial radio, and physical CD and record sales. The labels and publishing companies provide blanket licenses to white-labeled companies like Spotify or Pandora who create products that are limited by those licenses' legal restrictions.

### *Publishing Rights*

The *DMCA radio streaming license* stipulates limited skips, no ability to directly play specific songs, no playing the same song in an hour, and limited caching. The license charges the company per play fees in order to access a library of over 30 million songs which needs to be supported by extensive audio and display ads or subscriptions to pay the fees. This license was created to mimic terrestrial radio streaming, in which the user has no control over song selection but is served up songs based on general genre, artist, or mood preferences. This license has created products like Pandora, Songza, and many other discovery and 'radio' streaming digital products on the market.

The *On demand streaming license*, which has created services like Spotify and Apple Music, demands a higher per play fee and takes a percentage of revenue, equity, and cash advances in order to obtain a blanket license covering around 30 million songs that fans can search and play *on demand*. These services require a paid subscription or heavy ads to support and pay artists fractions of a cent per stream. For example, Spotify pays \$0.006 to \$0.0084 per play and an artist would need hundreds of thousands of plays per month to break minimum wage. On average it takes over 2 years to get artists paid these anemic amounts in the first place.



## ***Master Rights***

The *master recording rights* govern all digital and physical music sales. These rights are owned by the record labels, who collect money from sales of downloads and physical records or CDs. The *digital download license* is based on physical sales, which dictate set song prices at \$0.99 and \$1.29 as well as 30 second and 1:30 song previews. This license has created products like iTunes and Beatport and many other digital downloads stores around the web.

The process of music distribution is so complicated with licensing that artists have to pay subscription fees to submit their music to a digital distributor like The Orchard, Tunecore, or cdbaby, who offer to publish the music on all music platforms. The distributors connect to an API from Medianet, a technology company which hosts all of the music content and delivers it to all the licensed platforms while keeping track of all licensing arrangements. Artists then have to use social networks like Facebook and Twitter to communicate with fans since the major music platforms are not social networks and none of the major social networks were built for music. In the end artists and fans have to juggle dozens of services to connect with each other and get what they want.

## ***Need for Hybrid License***

Licensing is the core problem with the music industry. All the licensed music products on the market are similar to each other and their core features are governed by the specific licenses they secured. This is also why licensed artists only account for around 1-5% of the artists in the world. Existing licenses create geographic silos which prevents music from crossing borders. There are an estimated 50 million artists around the world who do not have a good platform to monetize or showcase their music. The laundry list of problems for artists and fans caused by the current music licensing paradigm is endless: inherent complexity, fragmented products, limited access, fees for artists, limited play functions, fixed prices, song previews, audio ads, display ads, subscription billing, and worst of all, little to no revenue to the artists themselves.



Hearo.fm has created a groundbreaking new product and new vision to solve these problems, a non-exclusive hybrid music license for artists that combines both publishing and master rights. The hybrid music license allow the platform to stream, sell, publish, and broadcast the music and accept payments in fiat and cryptocurrency for a wide variety of uses of their music. The non-exclusive aspect allows for artists with labels and publishing deals with existing rights arrangements to still engage with our platform and doesn't prevent artists from making other rights agreements in the future. The non-exclusive hybrid license essentially combines the performance license, mechanical license, synchronization license, download license, and streaming license into one versatile global license that works for artists around the world engaging with our platform to promote and monetize their music.

## **Problems with Fiat**

The reality emerged that fiat currency payment processing was the weakest link of the marketplace technology stack. Exorbitant credit card fees of \$0.30 plus 3% made it impossible for artists to get paid by the stream and made it cost prohibitive to buy individual songs in a simple transaction. We established a song cart to try and alleviate these fees by grouping transactions, but ultimately this was a lesser user experience and the complex logic necessary to account for fees across multiple merchants and song bundles cut deeply into artist payouts. The NATCHA batch file transfer system necessary to make ACH payouts to artists was built on a legacy banking backend system riddled with bugs, and frequently malfunctioned or flat out did not go through. International payments were a huge problem as various banks did not trust certain countries and tons of regulation put up roadblocks to hinder seamless international transactions. Many attempts to handle global marketplace payments have failed and the fee structure makes micropayments impossible.



## Problems with Blockchain

We explored accepting cryptocurrencies like Bitcoin and Ethereum and creating a music credit system to account for smaller transactions, but blockchain fees were higher and speeds were slower than traditional credit cards, so there was no improvement over what we already had implemented. Ultimately the current state of blockchain technology imposed serious limitations. High volatility made it impossible to rely on a stable price and transaction fees are exorbitant, sometimes \$3 to \$30 depending on network congestion. Finally the throughput is very low (3-7 TX/s) on the Bitcoin network which would not meet our throughput needs and the speed for network confirmation is very slow. Clearly blockchain technology is in its infancy, and the idea of slowing down the platform to incur high fees with a volatile asset did not solve any of the original problems caused by fiat.

Once blockchain technology progressed with the creation of smart contracts via a Turing complete programming language, Solidity, we took another look at tokenization and explored the possibility of developing our token and/or cryptocurrency which would meet the needs of the decentralized marketplace. We considered using STEEM and more specifically the SMT (Smart Media Token) project as a way forward, however further research into the underlying technology behind STEEM and its various limitation made it impossible to use. There are timeframes for payouts to content creators and random thresholds that have to be reached. There are also 4 cryptocurrencies within STEEM, adding a lot of unnecessary complexity. There were also concerns about their 21 node consensus protocol would could easily be controlled by a few people and not entirely immune to attack. There was also a lot of uncertainty surrounding the development roadmap for SMT, and general inaccessibility of the core team to do business development necessary to build on the platform.

We also evaluated EOS, which recently went from Ethereum to their own mainnet. Only up to 4000 Tx/s could be supported across the



whole new mainnet network, which could easily be taken over by a dapp going viral and congesting the network. EOS is also not immune to forks and has already experienced security issues around 51% attacks. There is also a much higher fee structure and its PoS protocol is not as secure as Hedera Hashgraph.

## **Hashgraph Technological Fit**

Once we discovered the power of Hedera Hashgraph, we knew that it could have the potential to meet our technological needs and ability to build our own utility token. Hashgraph has the only consensus algorithm that is Byzantine, meaning it solves the Byzantine generals problem in math and achieves a mathematically certain asynchronous Byzantine Fault Tolerant consensus that is unhackable. There is no waiting for network confirmations and mining of a probabilistic consensus, since the Hedera Hashgraph consensus state is provably fair and 100% secure across all nodes in the network. The fee structure is incredibly important as we want to enable nano-scale micropayments and Hedera Hashgraph allows for that level of granularity. In terms of throughput, hundreds of thousands of transactions per second per shard mean that the network is infinitely scalable and able to support many dapps with millions of concurrent users. In all comparative analysis of distributed ledger platforms, Hashgraph consistently came out on top, prevailing as the winner and technology of choice for building the dapps of the future. We believe that Hedera Hashgraph is the platform that can actually enable the next wave of the internet, known as Web 3.0, and truly foster the dapp layer that we all want and deserve.



## Hashgraph DLT for Music

With the emergence of new forms of distributed ledger technology (DLT), notably Hedera Hashgraph, hearo.fm will be able to create new opportunities for artist growth, which were previously impossible. The JAM Token will be a Hedera Hashgraph-based token for music to power a global artist & fan marketplace. We have designed this token to solve the existing issues with fiat currency and blockchain technology for music micropayments. In order to handle seamless borderless micropayments, the platform needs high throughput, low latency, low fees, and a bank-grade secure consensus protocol. Hedera Hashgraph will be able to meet those needs, featuring hundreds of thousands of Tx/s per shard, low fees, and an asynchronous Byzantine Fault Tolerant (aBFT) virtual voting Proof of Stake (PoS) consensus protocol. Thus the Hedera Hashgraph public network will be able to power a consumer music platform token at scale with millions of concurrent users. Also, Hedera Hashgraph will support smart contracts written in Solidity which means existing Solidity smart contracts will run without any changes required. Therefore, Hedera Hashgraph will be able to support ERC20 standard tokens, as well as all the open source software frameworks and tools like Remix and Truffle; frequently used in smart contract development.

## JAM Token on Hedera Hashgraph

The hearo.fm JAM token will be an ERC20 standard smart contract token built to run on the Hedera Hashgraph platform. The token will enable creator and curator rewards to artists and fans in the form of borderless micropayments for streams and reviews. For the first time, artists will be able to monetize individual streams directly from fans around the world via seamless micropayments in the form of JAM token cryptocurrency. No longer will credit card & banking fees get in the way of real earnings. The JAM token will operate as a democratized value exchange between artists and fans around the world. With DLT technology on hearo.fm, you can monetize your music, incentivize reviews and grow your network.



## **JAM Token Ecosystem Incentives**

The hearo.fm JAM token solves the problem of micro-payments in the music industry. Utilizing cryptocurrency and distributed ledger technology, the JAM token enables a direct symbiotic relationship between artists and fans, without the need for middlemen to collect license fees for streams and distribution.

The JAM token creates a global music marketplace and ecosystem where artists can get paid in cryptocurrency for every second of streaming and hi-fidelity downloads of their music. Fans can earn cryptocurrency by listening to tracks that artists and labels wish to promote, as well as reviewing songs and albums. They can then spend those tokens by listening to music of artists they love. After n streams, fans will automatically unlock ownership of the song, which includes unlimited free streams and unlimited hi-fidelity offline plays.

Through this fluid value exchange of micro-payments directly between artists and fans utilizing the JAM token, the hearo.fm network allows a healthy global music marketplace and ecosystem to flourish. Artists can get compensated directly for their music and earn far more than they would through traditional means per stream and download. Fans have an incredible way to get paid instantly for streaming and reviewing new music, and then they can pay it forward to artists they fall in love with by doing a deep dive into their catalog.

The hearo.fm network will reserve a portion of the tokens to distribute back to the community to stimulate the marketplace and incentivize paid music listening and reviewing to continually bolster the marketplace with highly curated content. For the first time fans will be able to earn cryptocurrency merely by listening to music. Both artists and fans will share in the benefits gained from a tokenized music economy.



## Platform Features

### ARTIST & FAN REWARDS

JAM rewards creators and curators. Artists earn tokens as creators when fans stream their songs. Fans earn tokens as curators by reviewing music. Artists can promote their music with tokens for streams, and fans can earn tokens simply by streaming music.

### GLOBAL MICROPAYMENTS

With virtually no fees, [Hedera Hashgraph](#) enables borderless micropayments between artists and fans making it possible for the first time to monetize music streaming direct to fans around the globe without high transaction fees.

### LIGHTNING FAST

With unprecedented throughput speed of hundreds of thousands transactions per second per [shard](#), Hedera Hashgraph's unrivaled performance makes it possible to process transactions from high volumes of concurrent users without waiting for network confirmations.

### BANK GRADE SECURITY

Hedera Hashgraph's DLT (Distributed Ledger Technology) utilizes a [virtual voting](#) consensus algorithm that is [PoS](#) (Proof of Stake) and [aBFT](#) (Asynchronous Byzantine Fault Tolerant), reaching consensus within seconds with 100% certainty.

### MUSIC DISCOVERY PLATFORM

hearo.fm is a fully featured music discovery platform and social network. We will be replacing the fiat marketplace with a fully tokenized economy which will be called [tune.fm](#).

### DEMOCRATIZING MUSIC DISTRIBUTION

We enable artists to go direct-to-fan with global cryptocurrency micropayments for streaming and distribution, so we're cutting out the middlemen and leveling the playing field for artists around the world so we can democratize access to music for all.



## Decentralized Stream Exchange

Artists who are promoting new releases can purchase stream minutes and review bundles from fans selling their provable 1<sup>st</sup> time listening and critique. The price per stream minute is denominated in JAM tokens and set by market supply and demand. We are commoditizing the stream minute to be divisible on a per second basis. If a fan streams 36 seconds of a song, they will either pay or get paid for exactly that period of time. The platform will essentially operate like an ad exchange where the creative is the song itself and the CPC or CPM is actually a CPS, cost per stream (minute). Since the payment is tied to seconds, no one will pay for more than they consume.

Artists and fans are both on the supply and demand size of the stream market. Artists who want to get their music heard for the first time by many different people are able to purchase 1st time streams from new fans all around the world. They can even get granular and purchase streams in certain territories or cities if they are planning a tour or want to boost a region. They can also choose to only pay for streams by verified music critics. Streams will be purchasable in stream minute packages (SMP) like 10, 100, 1000, 10,000 etc. These SMPs can also be bundled with review packages from varying levels of music curators/critics. The price per stream minute CPS is set by the market for what artists and fans are willing to pay for the commodity. Fans are essentially selling their time in minutes spent listening to new unfamiliar music and discovery. If they don't like the song they are getting paid to stream, they can always go to the next track mid-stream and they will only get paid for the exact seconds spent streaming. For any given fan, they can only get paid to stream a specific song once, given the artist paid for stream minutes to market it. The fan can always keep going and listening to only new music that pays them per stream. Once they stream the same song again for a second time, the payment reverses and starts paying out to the artist. If the listener falls in love with a particular song and streams it 10 times total, including the first stream they got paid for and 9 subsequent streams they paid the artist for, they will lock in digital ownership of the song, entitling them to unlimited free streams and high-fidelity in app downloading for available offline play. Fans can purchase stream minute packages



SMPs as well as artists for consumption purposes. Artists are essentially selling 10 streams of their song per fan building up to virtual ownership. Artists can market their product by buying the first stream of a new fan. The first stream of a track from a new verified fan has incredible value to the artist, since if the song is good enough to hook the fan, that artist can win a lifetime customer of their music. Once the fan is hooked, the value of each additional stream of that track switches to have more value to the fan. So the fan goes from getting paid for the first stream to paying the artist for the next 9 streams, while the artist went from paying for the first discovery stream to getting paid for the next 9. Once a fan has streamed a track 10 times, they have proven they love the track by making multiple micropayments to the artist, and they are rewarded by unlocking a virtual ownership privileges for that track. Both artists and fans are buying streaming minutes from each other on the demand side, and the supply side has built in scarcity for each fan (first stream of a song) and artists (10 verified streams of a song per fan). The scarcity creates more value for each stream minute as a fan can only listen to so many new songs in 1 day and an artist can only get paid for up to 10 streams of their song per fan. The supply and demand of provably streamed minutes will regulate the market price in JAM tokens. JAM tokens will also have a corresponding fiat value, so there is an equation that will govern the payout amount to either artists or fans for streaming song:

$$p = .9s \left( \frac{jm}{60} \right)$$

p = payout to artist/fan

s = seconds streamed

j = US dollars per JAM

m = JAM per stream minute

Essentially the payout to artists in dollar will be equivalent to 90% of the amount paid for a specific number of seconds of streaming which is determined by the market price per minute in JAM times the dollar price of JAM divided by 60 to get dollar equivalent per second of streaming.



## **Proof of Stream Audio Protocol**

Artists will get a proof of stream dashboard showing every second of streaming of their music, the identities of their fans, volume and microphone ping validation, and exact payouts of each stream. Fans will also see exactly how much they are getting paid and paying out to artists. Since JAM enables micropayments on the granular level of every streamed second being split among multiple parties, we must maintain full data transparency for every transaction. The dashboard will include rich data visualization including location, average volume, average streamed seconds, and all the various fan engagement with the music. The dashboard will also show if their investment started generating ROI with fans, ie those fans enjoyed the song enough to stream it again or dive deeper into their catalog to listen to other tracks. Since we are able to prove than an individual streamed a certain track at a certain time, location, and volume, we are providing the proof that the track was streamed. We can further validate that proof by pinging the microphone and fingerprinting the ambient sound and checking system volume to make sure the listener hasn't muted or turned off the music. When artists are purchasing provably streamed minutes, they want to have proof of exactly who engaged with their content down to the second. When fans purchase streamed minutes, they want to know exactly how much is being paid out to artists and how many streams need in order to unlock ownership. Fans can also elect to pay upfront for the 10 streams to unlock ownership whenever they please. This digital ownership can also be extended to the album level as well.

## **Artist Controlled Payment Distribution**

Since our market enables artists to control their rights and payments, we allow artists and rights holders to choose exact percentages for payout splits amongst band members, managers, touring agents. The artist or label can take 100% of the payout in JAM and distribute fiat themselves based on existing agreements, or they can elect to have automated distribution based on a certain revenue split. These payments will be paid and accumulated in artists



wallets automatically in JAM tokens. Instead of waiting months or years to get paid, artists and band members will get paid instantly for every stream second as it happens in real time. Artists and rights holders will finally have full control of their payout splits and be able to see micropayments split amongst band members as they choose.

## **Music Economy Gamification**

Using micropayments and behavioral economics as a means of gamification allows us to hard-code economic micro-incentives for our users, both artists and fans, to perform actions that benefit the ecosystem at large. The network effects and economic gains from performed incentivized actions will outweigh the cost in JAM it took to incentivize them. As the treasury and defacto 'federal' reserve of the music economy, we can adjust rates and incentives accordingly to achieve the maximum output of content, user adoption, and price stability. We can also use gamification and reward as a means of verifying our users with varying degrees of expertise and proven identities. For example when a user verifies their email, they will get a JAM reward, and when they perform higher levels of verification like government issued photo ID, they will get a high JAM reward. These different levels of verification establish trust between users and will be displayed as various level badges on their profile which can benefit them in the future. A highly-verified music critic can earn more JAM for their album review than someone less verified, and in some cases certain levels of verification will be necessary in order to earn certain rewards, since verified identity and trust is sacrosanct.

### *Artist Gamification*

Since artists are the supply side of our marketplace, they are always our first and most important focus. Not only do we want to incentivize artists to tell other artists and musicians about the platform, but we also want to incentivize them to use the platform to its fullest extent in order to gain the most value in return. Something as small as filling out profile information will be coupled with a micro-incentive tied to how much information they supplied on themselves. Each additional photo and video uploaded will result in a



JAM reward so the more media they post, the more JAM they will earn which they can turn around and spend on marketing services. The main commodity we will reward for is music. Since it takes an incredible amount of effort to produce, engineer, and master a song, each song uploaded will result in a JAM reward based on its length in seconds. Since our platform only accepts lossless masters directly from production software we can ensure that uploaded audio belongs to the owner. Once an artist uploads all the tracks to an album, when they complete their album artwork, liner notes, and album metadata, we will give an additional Album Bonus reward in JAM. Our goal is to incentive fully loaded profiles that as very engaging for fans and a full representation of the artists' repertoire. Once an artist with multiple studio albums and band members invests the time and energy into curating their page to the fullest with all their content, they will have earned a good chunk of JAM which they can then spend on promoting their music within the platform in order to jumpstart engagement with their music and the economy as a whole.

### ***Fan Gamification***

Fan gamification is critical to the growth of the ecosystem of listeners on the demand side of the marketplace. From initial sign up rewards in incentivized verification, as a platform we want to incentivize trust and real identities. For fans to earn JAM as a music curator or critic, they must achieve a certain level of verification. The more music they stream on the platform will result in badge/ribbon/trophy levels to show how engaged they are on the platform. By proving their identity, fans can get paid in JAM to listen to new releases that artists are promoting and for discovery of new music. As a verified listener a curator, fans can earn increased payouts for their reviews the more highly regarded their opinion is. To get started fans can also engage in writing contests to get their first review rewards and credibility.

### **Viral Coefficient Affiliate Marketing**

We will have a robust affiliate link invitation system with affiliate marketing rewards in JAM. In addition to getting a JAM reward for signing up, new users that are invited as a result of using their



affiliate link will result in an additional JAM reward for each additional signup. We will use these links to track our viral coefficient, which depicts average new users generated as a result of existing users. We will adjust the signup JAM reward and affiliate signup JAM reward amounts accordingly to achieve a viral coefficient of 2, so that for every new users that we onboard, 2 additional users join as a result. This will provide for explosive viral growth of both artists and fans. Artists will invite fellow artists and their fanbase to join, and fans will invite their friends to start earning more JAM rewards.

$$vC = \frac{\Delta n}{u}$$

vC = viral coefficient

(delta)n = new users generated

u = existing users

Essentially the viral coefficient is the measure of new user growth being generated by existing users. For every 1 user on average, X new users join the platform as a result of the existing users marketing on behalf of the platform. That marketing can be word of mouth or active invitations which can be fueled by affiliate links and rewards. If the viral coefficient is over 1, then the platform is technically going viral so the growth takes on a life of its own since each new user on average becomes a net promoter. The degree to which how fast the platform goes viral is determined by how high the viral coefficient is. When a platform has a vC of 2 or 3, then they will achieve viral growth incredibly quickly. A vC of 1.2-1.6 is also very good and the platform has to keep in mind that it must not scale quicker than it can keep up with the growth. Our goal is to scale up and scale down the viral coefficient by changing the values of the new user JAM reward and the affiliate invite JAM reward to achieve a viral coefficient of 2 with the ability to modify if necessary to keep the technology running at optimum performance and growth.



## **Music Social Network**

In addition to a music streaming platform with core audio technology, hearo.fm has a whole social network layer which enables artists and fans to engage directly with each other through fanning, reviewing, and direct messaging. We are creating the music social network of the future with seamless value transfer throughout. Unlike existing platforms which don't have direct relationships with artists, hearo.fm connects artists directly with their fans and fans can connect directly with artists they love

## **Crowdsourced Review Rewards**

Reviews are a critical way that fans can engage directly with the music to add value by providing their commentary, curation, and musical opinions. For the first time ever, we will monetize music reviews by gamifying music critic levels and providing review writing contests with JAM reward payouts based on crowdsourced upvotes and downvotes. Artists will be able to purchase packages of reviews of their music by certified music critics who have achieved a certain level review status and bundle that with stream minutes. Artists can also hold writing contents which any fans can participate in and their answers are upvoted and downvoted so the high ranking reviews receive the higher proportion of the JAM reward. This way new fans can participate in the music review curation process and compete to win JAM rewards which allow them to achieve new levels of music critic status opening new opportunities to earn more JAM for paid expert music critic reviews. Artists paying for these services in JAM will fund the demand side of the curation market with supplemental JAM funding from the JAM treasury reserve to incentivize more activity when necessary and fans will receive 90% of the payout for their reviews.



## **Playlisting**

Playlist will be a key way that fans can earn JAM as curators. Fans will be able to easily build playlists while browsing for music on the platform. Once they publish their playlists they will be able to market them with JAM for listens giving more paid listening opportunities. As the playlists gain more followers, the curators will get paid a portion of the stream revenue of the whole playlists. Different playlists can skew towards paying more towards the artists, more towards the fans, or relatively cost neutral. Either way the curator will get a small portion of the streaming payments going between artists and fans on that playlist.

## **Radio & Broadcast**

Radio and broadcast will be a huge feature to tune.fm. In addition to on-demand streaming, tune.fm will be all about discovery and radio makes discovery effortless. Fortunately, when discovering new music, artists are also trying to get their music out there to new fans, so the symbiotic relationship combined with micro-payments allows for the first of its kind radio that pays you to listen. There will be all kinds of fan curated and artist curated radio stations that play all types of music and listeners will be able to select radio stations that pay them JAM to listen or pay a little JAM out to artists to listen. There will also be stations that balance the two and remain cost neutral so listeners have ultimate control with simple options and sliders. Users will also be able to DJ radio stations and broadcast their voice directly into their microphones to announce various songs, host talk shows and podcasts, and record snippets to play in between songs for station customization.

## **Fiat Onramps / Offramps**

In order to enable direct fiat capitalization of JAM and to make it easier for new users to engage further with the platform, we will features various fiat onramp and offramp features as well as we



simple exchange onramps and offramps to enable ultimate mobility of JAM. The first key fiat onramp is a “pay what you want” monthly credit card subscription featuring a slider where the fan can select how much JAM they’d like to purchase per month to put towards their music. These JAM tokens will accumulate and they will be able to purchase minutes or other products in the marketplace. The tokens will roll over month-to-month so there are no usage requirements and modifying the monthly amount is as easy as swiping the slider. Instead of a 1 size fits all subscription of \$10 per month, tune.fm fans will be able to pay as much as they want, use the platform for free, or get paid to listen to music on the platform allowing them to engage in any way they wish. This credit card fiat onramp will provide recurring revenue, inject fiat currency into the JAM capitalization, and be an easy way to accumulate JAM tokens. In order to mitigate any chargeback and credit card fraud, we will integrate directly with Changelly to create many exchange pairs like JAM to USD and BTC as well as many other cryptocurrencies. Their integration with Simplex mitigates fraud risk associated with handling credit cards. We will make it as seamless and straightforward as possible for users to fund their accounts with JAM in order to participate in all the exciting musical opportunities.

## **Exclusive Content**

TUNE.fm will secure the rights to exclusive content with some of the world’s leading artists. We will be working with some celebrity artists who will release exclusive content just for TUNE.fm which will act as a major draw of fans and new users to the platform hoping to listen in to exclusives top quality music you cannot hear anywhere else.

## **Sync Licensing Portal**

Since the hybrid license allows for many different uses of your music, we will allow any artists to enable their tracks to be sync licensable. This way anyone creating video content with any public use of music on the platform can automatically enter into an agreement to fairly compensate the artist for the use of that music. This synchronization



license portal enables fair payments to the artist when companies and independent producers use music to enhance their video and ads.

## **Master Audio Compression Technology**

The core technology undergirding the hearo.fm platform is a lossless uncompressed master audio file handling system that can seamless upload massive master files and convert them to all the compression formats necessary in order for fans to stream and download the music.

## **Lossless Streaming & Downloads**

We will offer a premium tier for user to pay more JAM per stream minute for lossless quality streaming. Since this takes a significant amount of bandwidth, the limited audience of audiophiles who want this level of listening experience will pay the premium for lossless streaming. The platform will also include high fidelity lossless downloads in an available offline format so the fan can stream the lossless music without reliance on a strong internet connection.

## **API & Major Label Integrations**

The TUNE API will expose all the endpoints necessary to pull relevant public metadata from the platform. The API will also enable us to ingest data like music and profile information to onboard large cohorts of new artists and content through independent licensing and publishing deals as well as marketplaces like The Orchard which represents thousands of independent labels. The TUNE API will also allow us to integrate with the Medianet API in order to ingest all the major labels content once blanket licensing deals are secured with the various parties like Universal, Sony, and Warner.



## **Multi-Client Cross-Platform**

TUNE.fm will be on every platform possible. From web and mobile web to native desktop and mobile application on iOS and Android, we will also get into every place fans listen to music. We will also have smart TV apps with large cable providers and smart TV producers. We will create wearable apps for both watchOS and Android. We will also work to integrate with smart car platforms like Tesla, GM, and Ford.

## **Decentralized Label**

Since TUNE.fm will be the best place to discover new artist and our algorithms will constantly surface new amazing artists, hearo.fm Inc will have the ability to promote artist careers by acting like an internet music label and invest JAM into their music promotion.

## **Tour Tools & Analytics**

Since TUNE.fm will provide rich data analytics into artists' fans and listener statistics, artists will have the ability to leverage the data on the platform to assist with booking tours. Artists will be able to see exactly how many listeners they have in any given city and book venues that are appropriate for their local fanbase. Artists will be able to plan a whole tour through the portal and ensure that they will sell tickets in every venue they play in a geographically sensible route.

## **Booking Tools**

In addition to artists booking various venues to play in on their tours, artists, DJs, producers, engineers, managers, recording studios, and teachers will be able to enable their services to be booked. DJs and bands can be booked for house parties and weddings as well as corporate events. Teachers, producers, engineers, recording studios, and managers will be able to be booked musicians for their services on the platform as well.



## **VIP Experiences**

As fans accumulate large amounts of JAM especially through the fiat onramp and through getting paid to listen, they will be able to spend that JAM on special VIP experiences. These experiences can be a videochat with the artist, backstage passes, signed posters, or any other special exclusive experiences artists want to offer their fans willing to pay more for exclusivity.

## **Tickets & Shows**

Tickets and shows will be a major part of the TUNE.fm platform. We will enable artists to post their show schedule and connect to existing data sources to automatically post their schedule so fans can always see when their favorite bands are in town. We will host an independent ticketing system that any venue can easily create and sell tickets to their shows. We will also sell digital tickets to livestreams and VR experiences.

## **Merchandise**

TUNE.fm will enable artists to easily create listings for merchandise on their profile and sell any type of merchandise for any price they want and collect JAM tokens. They can track their inventory and use existing fulfillment methods for shipping and returns.

## **Music Visualizer**

TUNE.fm will feature a one-of-a-kind music visualizer that will blow anyone's mind. Created by a hearo team member as a side project, the Butterchurn visualizer will be fully integrated into the TUNE.fm streaming platform to create an unrivaled music visualization experience. The visualizer engine was modelled off Milkdrop and built to work leveraging WebGL the graphic engine that runs graphics on the web. There are also thousands of custom coded visualizers that have been salvaged and converted to work, which will be purchasable in packages for JAM. There will be plenty of free



amazing visualizers of course, and premium packs of themed visualizers will be purchasable with JAM tokens.

## **JAMfest**

Every year TUNE.fm will host JAMfest, a massive festival featuring the best musical talents discovered on TUNE.fm. We will feature a competition for artists on TUNE.fm to play along headliner artists in the live festival. Festival passes will be discounted when bought with JAM tokens. We will do a new location every year as we travel around to world to find the best talent.

## **JAMcafe**

In order to connect the digital with the physical, we will open a series of cafes in culturally relevant cities around the world with music from TUNE.fm playing at all times. Patrons will be able to purchase coffee with JAM tokens and learn more about TUNE.fm artists. The JAMcafe is an opportunity to tie the digital music world with the physical tangible world where music discovery happens.

## **Hearo Causes**

Hearo.fm Inc. will always be a champion for social causes and nonprofits and we will partner with hundreds of non-profit causes worldwide to provide an opportunity for both artists and fans to donate a portion of their earnings and/or expenditure to non-profits. With micro-payments we can enable micro-donations to causes you care about every time you stream a song.

## **Technology Architecture**

**Local:** Docker, Gitlab, VS Code, Git, Bash, Shell

**App:** Django, Python, JavaScript, LESS, CoffeeScript, Haml, ElasticSearch, Haystack, Backbone.js, jQuery, HTML5/CSS3, Stripe

**DB:** PostgreSQL, S3, AWS, South, Cron, Mongo.db, node.js, Ruby



**Server:** Rackspace, Akamai API, pyrax API, Open stack API, Nginx, Cloudflare, Amazon S3

**Deployment:** Github, Gitlab, CircleCI, Capistrano, Selenium

**Monitoring:** Sentry, Keen.io, New Relic

## Core Development Team

Andrew Antar and Brian Antar are brothers from the Philadelphia Main Line who grew up playing classical violin and building things on computers together. Andrew went off to Brown University and Brian went off to the University of Pennsylvania. At Brown, Andrew was jamming with friends and started Musicians@Brown which quickly grew to be the go-to place to find musicians on campus to collaborate with. He promptly decided a new social network platform for musicians was in order. Brian was producing beats for rap and hip-hop artists and realized there was a need for a direct-fan marketplace to sell tracks with flexible pricing option. Both brothers set out on their own to build music platforms. Upon realizing their parallel efforts, they joined forces and visions to create the ultimate artist and fan music marketplace.

In addition to both being web developers and designers, Andrew and Brian set out to recruit top engineers at Brown and Penn to help build the platform. Many talented developers have contributed to the project and gone on to work at some of the top tech companies like Google, Microsoft, and Amazon, and we have had the privilege to work with some of the best software developers in the world.

Daniel Nordberg, our CTO and Lead Developer resides in Nairobi, Kenya, and is an expert with Python, Django, Javascript, and uses all the latest tools like Docker and Kubernetes. He has been instrumental in developing our core platform technology and music management services. James Pic, our security expert, resides in Paris, France, and is a top answerer around the world on Stack Overflow for Python and Django. He makes sure we maintain the highest grade security and best practices for server architecture and dev-ops. Since



music is a common passion among developers, many of which are musicians themselves, hearo.fm has always been able to attract the top talent in engineers who want to make a difference and work on a platform that is doing something they really care about.

## **Disintermediating the Music Industry**

We started hearo.fm to democratize the music industry. For far too long, large publishing companies, major labels, and streaming services have squeezed artists and the music industry as a whole by being gatekeepers to distribution. This creates a deadweight loss and the economics of music have suffered as a result. We intend to solve that problem through a direct-to-fan streaming and distribution platform and marketplace powered by cryptocurrency that enables micropayment to artists and fans alike as we incentivize listening and reward artists at the same time.

We algorithmically sort music based on how fans respond so the cream rises to the top and a level playing field is had by all. We are breaking down the silos formed by archaic licensing frameworks with our own music license that allows direct-to-fan music streaming and distribution for anyone around the world. By disintermediating the music industry with a consumer platform powered by cryptocurrency, we can bring hope to artists and a better experience to fans that does justice to a medium that is our only truly global language and so eternally important to humanity.

Our goal is to become a household brand that epitomizes music, authenticity, and tastemaking. Our footprint will extend beyond the web to be in every phone, TV, living room, cafe, and VR headset. Millions of artists around the world will be made whole through fair compensation via cryptocurrency that is proportional to the quality of their art and response by fans. Many artists will find an income stream that enables them to pursue a life in music and focus on their art rather than be shackled by the economics of a failing music industry. Music will once again resume its role as the most important and stickiest form of media that generates the most money for its creators.



## **Timeline & Roadmap**

### **2010 IDEA INCEPTION**

While at Brown University, Andrew Antar started a student group for musicians to collaborate with each other, jam, and form bands. Upon its initial success on campus, Andrew began designing a music social network and recruiting Brown's top engineering talent. Meanwhile at the University of Pennsylvania, Brian Antar was producing beats for local rap/hip-hop artists and recording sessions at Penn Studios. Upon searching for ways to independently distribute tracks while retaining full control, Brian saw it didn't exist and decided to create a direct-to-fan music marketplace where artists can control their pricing and distribute music directly to their fans. Once the brothers realized they were both simultaneously creating music platforms, they combined their ideas and efforts to create the ultimate global social music marketplace platform for artists and fans to share their music.

### **2011 HEARO.FM INC. INCORPORATION**

The company is officially incorporated as a Delaware corporation with Lowenstein & Sandler LLP and a non-exclusive hybrid stream and sell music license for artists is created by top media licensing attorneys for hearo.fm Inc. while the dev team cranks out code at weekly hackathons fueled by pizza and beer. Hearo.fm Inc. brings on its first Advisory Board member Hal Real, owner of World Cafe Live.

### **2012 BROWN VENTURE LABS & SILICON VALLEY**

Hearo.fm is selected to be part of the inaugural class of Brown Venture Labs with a cash grant to further accelerate development of the venture. Upon completion of the accelerator, the hearo team moves out to Silicon Valley to live together for the summer to build the minimum viable product (MVP). The team hacked away day and night while soaking up the tech culture in the SF Bay Area. By the end of the summer they had something cool enough to show to close musician friends.



### 2013 ALPHA LAUNCH & ANDY HERTZFELD

The hearo.fm alpha is launched and hearo.fm Inc. secures its first angel investment from legendary computer software wizard Andy Hertzfeld, co-creator of the original Macintosh with Steve Jobs. The artist marketing team is formed and hearo.fm brings its presence to weekly open mics at World Cafe Live and sponsors shows for local bands with the help of band managers, talent buyers, and artists who believe in our mission. The marketing team spreads the word in a grassroots effort to seed the marketplace with incredible music from around the world.

### 2014 AUSTIN & SXSW BETA LAUNCH

Hearo.fm Inc. moves its headquarters to Austin, Texas and secures its largest investment to date from local angel investor Aniello Callari. Hearo.fm launches its beta streaming platform 'Hearo One' at South by Southwest (SXSW) with an exhibition space and 2 music showcases bringing over 40 bands to Austin. The hearo.fm Rockin' Riverboat Showcase was sponsored by Bose and became the most subscribed event at SXSW with over 10,000 RSVPs on Do512.

### 2015 PARTNERS & PRESS

Hearo.fm partners with the Music Business Association, Fine Gold Music, and Pledge Music. Key music industry veterans Jeff Rabhan and Jonathan Finegold join the Advisory Board as well as business strategy experts Joseph McGrath and Doc Parghi. Hearo.fm is featured in Product Hunt, Hypebot, Music Think Tank, Philadelphia Inquirer, and CBS3 Eyewitness News TV.

### 2016 GROWTH & DEVELOPMENT

The hearo.fm beta platform grows to over 5,000 artists with lossless music and over 50,000 music fans as hearo.fm hosts dozens of local band showcases across the country and recruits independent artists from around the world through guerilla marketing, social media, and content creation. As the platform scaled up, hearo.fm made significant investments into its uncompressed audio file conversion



technology to be able to upload and stream thousands of large original master files seamlessly.

#### 2017 **A TOKEN IDEA**

With the constant challenges of running a fiat marketplace with banks and credit cards, the founders felt that in order to truly fulfill their full vision for hearo.fm, they needed a way to fully tokenize the marketplace to enable micropayments directly to artists and allow for a decentralized music economy to flourish where artists and fans can earn tokens by streaming and curating music. The hearo.fm founders embarked on a search to find the best distributed ledger technology and cryptocurrency software platform available to enable micropayments and tokenization of the marketplace.

#### 2018 **HEDERA HASHGRAPH & JAM TOKEN PRESALE**

Hearo.fm announces the JAM token in London at Creatives Unblocked and puts out a press release on PR Newswire that it signed a strategic collaboration agreement with Hedera Hashgraph and will begin developing smart contracts for the JAM token utilizing the Hedera Hashgraph testnet APIs. The hearo team conducted a private presale SAFT round and launched the JAM token website announcing the public presale on various ICO listing and news platforms including ICO Alert and CCN. Hearo.fm brings cryptocurrency experts Helen Disney and Joe Fisher onto the Advisory Board.

#### 2019 **JAM ICO, EXCHANGES & AIRDROP**

In Q1 Hearo.fm Inc. will conduct the JAM token ICO on the Hedera Hashgraph distributed ledger network generating 1 billion JAM tokens and distributing JAM tokens to presale and ICO participants. The JAM token will subsequently be listed on various decentralized and centralized exchanges with multiple exchange pairs and market makers for maximum liquidity and access. Hearo.fm will also issue an airdrop to all hearo.fm users and hashgraph wallet addresses. Development will ramp up significantly to fully tokenize the marketplace and implement key application features.



## 2020 TUNE.FM LAUNCH

The highly anticipated groundbreaking TUNE.fm platform will launch with web, desktop, mobile, wearable, and smart TV client apps delivering a best in class music streaming discovery experience while fairly compensating artists with global direct instant micropayments. Various gamified opportunities to earn JAM tokens on the platform will be announced. New features such as music vizualizers, radio, broadcasting, shows, gig booking, touring tools, ticketing, analytics reporting, sync licensing, and fiat onramps/offramps will be implemented and launched.

## 2021 MAJOR LABEL INTEGRATIONS

TUNE.fm will sign licensing deals with the top 3 major labels Universal Music Group, Warner, and Sony to ingest their full catalog through Medianet to complement millions of independent artists from around the world already on TUNE.fm. The company will also work with The Orchard to gain access to tens of thousands of independent labels and rights holders so no note is left unheard in gathering all the world's music.

## 2022 GLOBAL MUSIC DEMOCRATIZATION

As TUNE.fm scales across the globe to millions of artists and fans around the world, the music economy will grow exponentially as the music industry disintermediates and artists everywhere can finally earn a decent living from their music. TUNE.fm will host major music festivals around the world showcasing the best new artists and continue to create new products and services for artists to get discovered and fans to fall in love with new music.



## Tokenomics

Standard	ERC20
Symbol	JAM
Supply	1,000,000,000
Presale Hard Cap	5,000 ETH
ICO Hard Cap	50,000 ETH

## ICO Allocation

Public Sale	60%
hearo.fm Inc.	20%
Founders	10%
Engineers	5%
Advisors	5%

## Public Token Sale

Token Sales	Presale 1	Presale 2	ICO
Discount	50%	33%	0%
Price	1ETH = 20,000	1ETH = 15,000	1ETH = 10,000
Date	Q3 2018	Q4 2018	Q1 2019



# Disclosures

## Notices

JAM Token (JAM) is not intended to constitute a security in any jurisdiction. This document is not a solicitation for investment and does not pertain in any way to an offering of securities in any jurisdiction. Ownership of JAM does not entitle the owner to any ownership or rights with respect to hearo.fm Inc., such as distributions or voting rights.

No government entity has reviewed the sale of JAM or the disclosures in this document. Purchase of JAM is final and non-refundable.

Individuals, businesses, and other organizations should carefully weigh the risks, costs and benefits of acquiring JAM before participating in the token sale.

You are not eligible and you shall not purchase JAM through the token sale if you are a citizen or resident (tax or otherwise) of any country, state, or territory where the purchase of JAM or similar crypto tokens may be prohibited. By purchasing JAM, you represent and warrant that the you are legally permitted to purchase JAM and assume the responsibility for complying with your applicable laws and regulations.

You should carefully consider the risks, costs, and any other issues of acquiring JAM, and, if necessary, obtain your own independent advice in this regard. If you are not in the position to accept or understand the risks associated with the sale of JAM (including the risks related to the non-development of the hearo.fm network protocol or any other risks as indicated in this overview), you should not acquire JAM until you have received the necessary independent advice.

## Risks

The purchase of JAM carries significant risk. Prior to purchasing JAM, the purchaser should carefully consider the risks listed below and, to the extent necessary, consult a lawyer, accountant, and/or tax professional prior to determining whether to purchase JAM.

- 1 In the future, JAM may or may not (i) be exchanged for goods or services, (ii) have any known uses outside the hearo.fm network, or (iii) be traded on any known exchange.
- 2 The token sale may not reach the target sale amount or achieve market adoption of the hearo.fm network.
- 3 If hearo.fm Inc. is successful in implementing its business plan, you will not benefit or participate in The hearo.fm Inc.'s growth by virtue of your ownership of JAM.
- 4 JAM will be sent to an Ethereum address of the purchaser's choosing, which can be accessed with a private key known to the purchaser. If a purchaser of JAM does not maintain an accurate record of her Ethereum private key, this may lead to the loss of JAM. If a purchaser's private key protection is weak and it is cracked or otherwise obtained by a third party, this may also lead to the loss of JAM. As a result, purchasers must safely store the private keys in one or more backup locations that are well separated from the primary location. hearo.fm Inc. is not responsible for any purchaser's loss of private key or other credentials.
- 5 The purchaser recognizes that some of the potential expansions and additions to the JAM ecosystem are currently under development, may never be developed and may undergo significant changes before release. The purchaser



acknowledges that any of its expectations regarding the form and functionality of the hearo.fm network and/or JAM may not be met for any number of reasons.

6 The purchaser understands that hearo.fm Inc. undertakes no obligation to further develop JAM.

7 As with other crypto tokens, the value of JAM may fluctuate significantly and become reduced in value for any number of reasons, including but not limited to, supply and demand, overall crypto token market conditions, political and geographical reasons, changes to laws and/or regulations in any jurisdiction, and technical reasons.

8 The ownership of JAM may fall under existing and/or new and unprecedented taxation laws that will erode the benefits of JAM.

9 There is no guarantee that other current or future solutions or technology will not severely depreciate the value of JAM, any part of the hearo.fm network, and/or hearo.fm Inc.'s products and services.

10 JAM will be issued on the Hedera Hashgraph network. As such, any malfunction or unexpected functioning of the Hedera Hashgraph network may impact the purchaser's ability to transfer or securely hold JAM. Such impact could adversely affect the value of JAM.

11 Third parties may bring intellectual property claims regarding the use and ownership of JAM. Such claims may result in litigation and could impair the hearo.fm ecosystem's operations and growth, and the use of JAM

12 It is possible that, due to any number of reasons, including without limitation, the failure of the business relationships, or competing intellectual property claims, hearo.fm Inc. may no longer be a viable business and may dissolve or fail to launch.

13 Token sales have been known to come under malicious attacks from hackers and criminal parties resulting in theft of tokens and massive losses may be inflicted on purchasers and hearo.fm Inc..

14 Many crypto tokens fluctuate in value in tandem with the market price of bitcoin and other tokens. It is possible that JAM will be affected by events that cause bitcoin or other tokens to increase or decrease in value.

15 Regulators continue to provide guidance with respect to ambiguities in existing laws and regulations in the context of token sales. Lawmakers and regulators are also considering and may approve new laws and regulations that govern the offering of crypto tokens. It is possible that a government or regulatory agency will pursue hearo.fm Inc. and require it to suspend or cease its business operations in light of a new interpretation of existing laws or regulations or the passage of new laws or regulations.

16 Crypto tokens are a new and untested technology. In addition to the risks set forth herein, there are risks that hearo.fm Inc. cannot anticipate. Risks may further materialize as unanticipated combinations or variations of the risks set forth above.



## Disclaimer

To the maximum extent permitted by the applicable laws, regulation and rules, JAM, hearo.fm Inc., and its officers and employees thereof 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 overview or any part thereof by you.

hearo.fm Inc. and its officers and employees thereof shall not be liable for your loss of any JAM after it is transferred to you by any reason including but not limited to your failure to maintain or backup an accurate record of your private key or private key cracking by somebody due to your poor maintenance of your private key.

hearo.fm Inc. does not provide any warranty as to the release to any part of the hearo.fm network protocol and assumes no liability or responsibility for any loss or damage that would result from or relate to the incapacity to use JAM.

Regulatory authorities are carefully scrutinizing businesses and operations associated with crypto tokens throughout the world. In that respect, regulatory measures, investigations, or actions may impact hearo.fm Inc.'s business and may limit or prevent it from developing its operations in the future. Any person undertaking to acquire JAM must be aware that hearo.fm Inc.'s business model and/or the hearo.fm network protocol may change or need to

be modified because of new regulatory and compliance requirements from any applicable laws in any applicable jurisdictions. In such case, purchasers and any person undertaking to acquire JAM acknowledge and understand that neither hearo.fm Inc. nor any of its affiliates shall be held liable for any direct or indirect loss or damages caused by such changes.

Neither hearo.fm Inc. nor any of its officers and employees are to be or shall be considered as advisor in any legal, tax, or financial matters.

Acquiring JAM shall not grant any right or influence over hearo.fm Inc.'s organization and governance to the purchasers.

hearo.fm Inc. does not make or purport to make, and hereby disclaims, any representation, warranty, or undertaking in any form whatsoever to any entity or person, including any representation, warranty, or undertaking in relation to the truth, accuracy, and completeness of any of the information set out in this overview.

