SoundArio

/ saʊnˈdɑːriəʊ /

A Music Streaming Paradigm Shift

soundario.io / soundar.io

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Contents

1. Vision

To create a **paradigm shift*** in the music streaming industry by precisely measuring the value of creating, distributing, sharing, and listening to music in order to accurately and fairly reward all contributors involved in the process from creation to consumption.

2. Realization

The creation of the **SoundArio** app will allow us to use a **distributed system** of **blockchain** technology, **dB cryptocurrency** and **smart contracts** to measure and distribute the value of creating, sharing, and listening to music.

* The glossary on page 34 explains all the terms highlighted in bold.

3. Industry

As a form of artistic and cultural activity, music is an essential part of the daily lives of many people. Their demand has created a global music industry that includes music production, distribution, and appreciation. Current business enterprises include streaming, recording, broadcasting, publishing and event companies. Subscription-based streaming services account for the highest market share of recorded music sales.

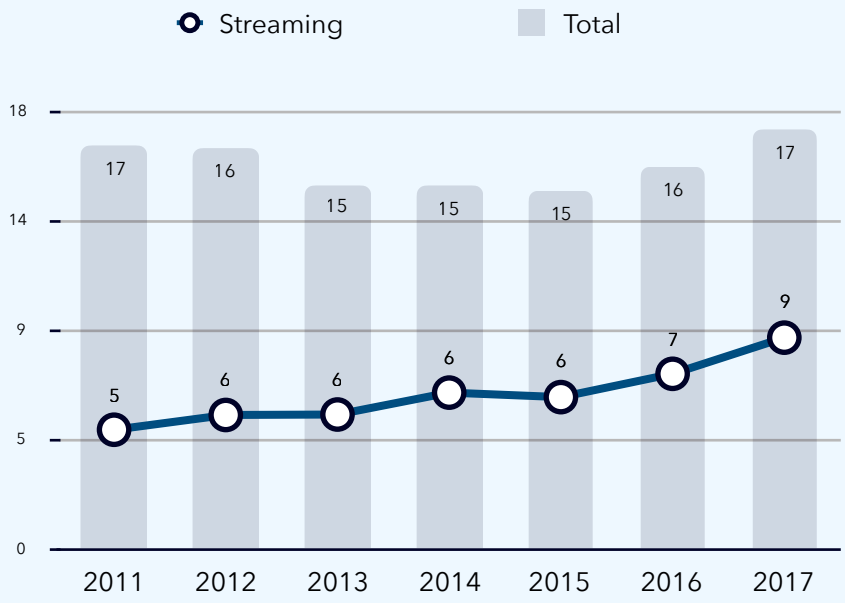


Fig.1: Global music markets total retail value & share of streaming in USD billion.

Several key factors are set to impact the immediate future of the music industry. Advancements in access to education, computer-aided composing, and telecommunications infrastructure will create a highly conducive environment to the successful development of modern music producers. We predict an exponential rise in the number of people actively creating digital music content.

3.1. Problems & Solutions

Problem - Centralization of the music industry and unfair distribution of wealth.

Solution - **SoundArio** will create a **paradigm shift** by decentralizing the music industry and redistributing wealth along with market share precisely according to each contributor's involvement at every stage.

> *Just three global corporations control 71.5% of the entire world's music industry. The income received by musicians accounts for less than 9% of the total revenue generated in this market.*
>
> *The industry relies heavily on outdated business models which were fundamentally challenged with the advent of peer-to-peer sharing. These traditional business models also ignore the real-world value of sharing music.*
>
> *In addition, the time between a musical release and renumeration in the form of **royalties** is a long and tedious process.*
>
> *When signing with a record label or publisher, artists are often faced with lengthy, complicated negotiations and contracts, sometimes accompanied by unfair terms. New musicians are often unable to protect themselves from the current industry with its inherent bias.*
>
> *At the same time, current centralization has by and large created a monopoly. It is more and more difficult for emerging **long-tailed** artists to sustain themselves, let alone get a breakthrough opportunity.*
>
> ***SoundArio**'s use of **blockchain** technology and **smart contracts**, along with its recognition of the value of sharing music, records precisely who should be rewarded and by how much to create a fundamental redistribution of wealth and market share across the entire recorded music industry.*

Problem - Intangible value and lack of transparency.

Solution - Using **blockchain** technology, **dB cryptocurrency** and **smart contracts**, **SoundArio** will create a completely transparent and measurable value chain throughout the global streaming marketplace.

> *Since its inception, the digital music industry has come a long way, but there are still major hurdles to cross. Modern music streaming platforms are a vast improvement over the early days of illegal file sharing and downloading, but the multitude of services and revenue models offered make it difficult to understand their true value and what they can deliver for musicians and music companies. These difficulties are further compounded by the fact that there are fundamental transparency problems throughout the industry caused by outdated technology.*
>
> ***SoundArio** will solve these problems from the ground up. **SoundArio**'s **cryptocurrency dB**'s value will be determined by the number of users and their monthly subscription fees. By using **blockchain** technology as a precise tool to measure and record streaming and sharing, **dB** will be distributed transparently to openly display the inherent value in a contemporary music streaming service at all times.*

4. Implementation

In order to solve these problems and realize our vision, **SoundArio** has implemented the following central concepts and subsequent actions.

4.1. User Actions

In **SoundArio**, basic user actions are a way to accurately recognize and define the fundamental contributors in the process of musical creation and consumption. These are **creating**, **transmitting** and **listening**.

Creating - Users upload their music to make it available for playback.

Transmitting - Users disseminate music to reach a wider audience.

Listening - Users's consumption of music.

4.2. Decentralization

Through open source algorithms, **SoundArio** measures the total volume of subscriptions and **playtime**. This information is automatically recorded on the **blockchain** and made public. A song's **playtime** corresponds to the percentage of time it holds compared with the platform’s total **playtime** in a 24-hour period, and is retrieved from **SoundArio**'s interface. Together with the song's **smart contract** this determines the share in the total revenue to be allocated to the appropriate user's **digital wallet**. **Playtime** is measured as actual listening time in seconds and is verified using our **proof of playtime** (**PoP**) method. This allows **blockchain** technology to make the process of revenue determination and allocation completely **decentralized**.

4.3. Smart Contracts

When a user releases a song on the **SoundArio** platform, the software will automatically generate a **smart contract** with **timestamp** and equity information as a basis for determining rights and sharing revenue.

SoundArio's **timestamp** technology can also provide proof of intellectual property ownership for any user as an effective tool in potential copyright infringement issues.

Smart contracts are created on a song-by-song basis. They save time, energy and costs by protecting user's rights without the need for additional legal advice or representation, and circumnavigate potential conflicts and restrictions that could arise from traditional contracts.

4.4. Tokenomics

The **blockchain** technology **SoundArio** will use to measure **playtime** and provide proof of copyright will also create its own **cryptocurrency dB**, which is deposited into the **digital wallets** of eligible users. The two processes are inextricably linked: streaming of music on **SoundArio** mines **dB**.

All users can access the audio stream for free or obtain additional privileges through subscription. These include features such as the creation of playlists and continuous DJ mixes.

By establishing trust in this **decentralized** equity distribution mechanism, **SoundArio** will allow a new generation of musicians to save time and energy in achieving distribution and profitability.

In addition, sharing music can finally be accurately rewarded for its intrinsic value to the industry.

4.4.1. dB Value

SoundArio's and subsequently **dB**'s value is determined by subscription fees. These fees will be administered by a non-profit foundation to oversea the maintenance and development of **SoundArio**, and assure the value of **dB**. After the costs of running **SoundArio** are met, any remaining net profit from subscription fees will be shared to all holders of **dB** in the same way a dividend would be paid to shareholders in a company.

4.4.2. dB Distribution Calculation

4.4.2.1. Stage 1 - dB Release

The total number of **dB** in **SoundArio** will be capped to 5 billion. In the first year 20% of the total amount will be released. Every subsequent year 20% of the total remaining **dB** will be released. This means in the first year 1 billion **dB** will be released, subsequently 2.7 million **dB** will be distributed every 24 hours.

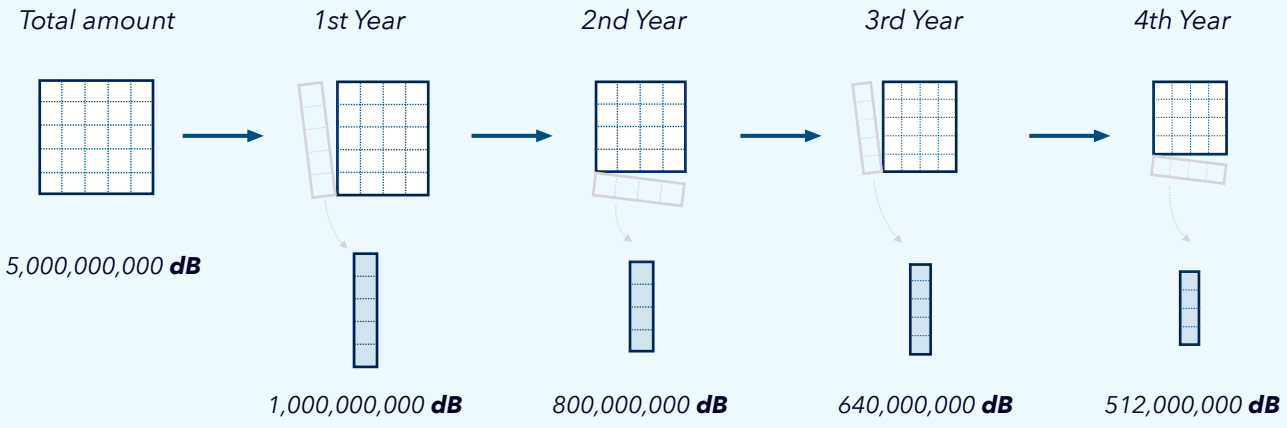


*Fig. 2: Example **dB** release rate per year - 20% of the total remaining **dB**.*

The amount of **dB** to be released each year is calculated as:

$$R(Y) = 5\times10^9 \times (1\text{-}0.2)^{(Y\text{ - }1)} \times 0.2 = 1\times10^9 \times 0.8^{(Y\text{ - }1)}$$

Where Y is the consecutive year and R is the release amount of **dB**.

The amount of **dB** to be released every 24-hours is calculated as:

$$R_d = \frac{R(Y)}{365} \quad \text{, or}$$

$$R_d = \frac{R(Y)}{366} \quad \text{(for leap years).}$$

Where R_d is the release amount of **dB** every 24-hours.

Using these formulas **SoundArio** can calculate the exact amount of **dB** to be released on any day in the future.

*Table 1: **dB** distribution rate over a 4 year period.*

	dB released every year	**dB** released every 24-hours	Remaining unreleased **dB**
0	-	-	5,000,000,000
1st Year	5,000,000,000 × 20% = 1,000,000,000	2,739,726	4,000,000,000
2nd Year	4,000,000,000 × 20% = 800,000,000	2,191,781	3,200,000,000
3rd Year	3,200,000,000 × 20% = 640,000,000	1,753,425	2,560,000,000
4th Year	2,560,000,000 × 20% = 512,000,000	1,402,740	2,048,000,000
…	…	…	…

4.4.2.2. Stage 2 - dB Allocation to Playtime

The total number of **dB** released in each 24-hour period is allocated to each song according to its **playtime** ratio D_s , which is determined by:

$$D_s = \frac{T_s}{T_p}$$

Where T_s is the total **playtime** of the song and T_p is the total **playtime** of all songs across the entire platform within the 24-hour period.

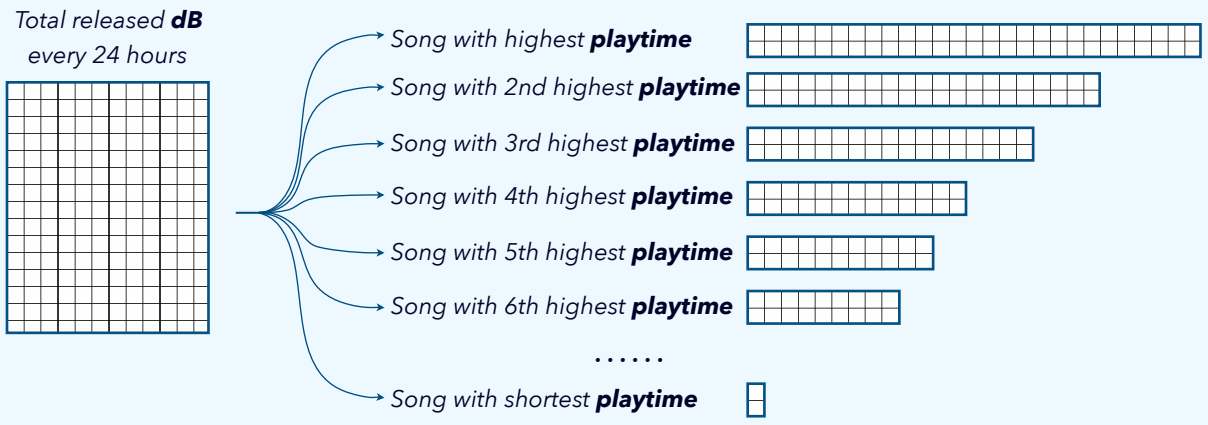


*Fig. 3: **dB** allocation according to **playtime** every 24 hours.*

4.4.2.3. Stage 3 - dB Distribution Between Creating & Transmitting

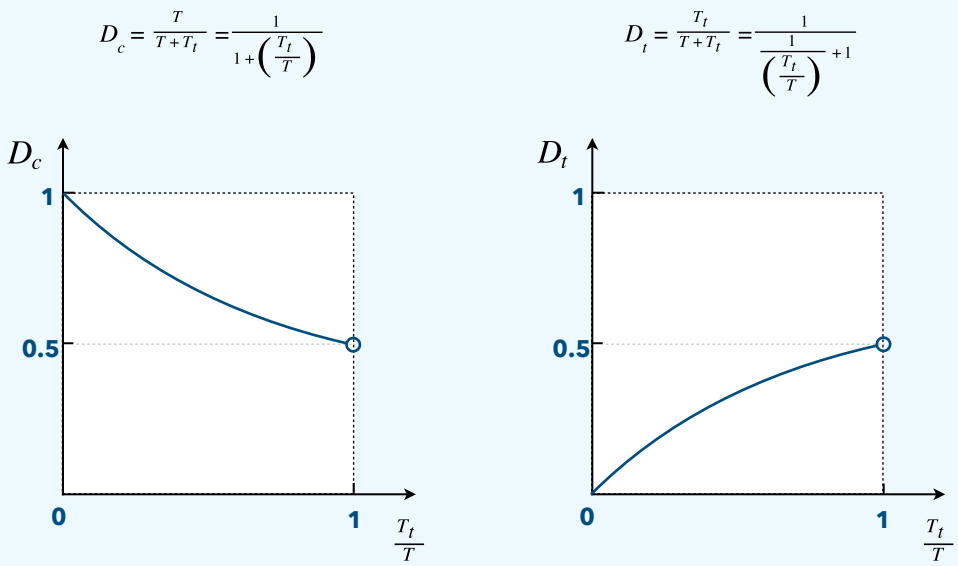
The amount of **dB** allocated to each song is further distributed in between users according to the **dB distribution ratio**, which is a formula used to calculate the distribution of **dB** according to the respective **playtime** generated by **creating** and **transmitting**. Therefore, both actions of **creating** and **transmitting** music are rewarded precisely for the amount of **playtime** they have created.

The respective **dB distribution ratios** D_c and D_t for **creating** and **transmitting** a song are calculated as follows:

$$D_c = \frac{T}{T + T_t}$$

$$D_t = \frac{T_t}{T + T_t}$$

Where T is the song's total **playtime**, and T_t is the song's **playtime** through transmission.



When $T_t = T$,

$\min(D_c) = \max(D_t) = 50\%$.

*Fig. 4: Relationship of **dB distribution ratios** between **creating** and **transmitting**.*

This distribution mechanism has an inherent fairness towards the **creating** users of music, which is the core concept of **SoundArio**. Even if 100% of a song's **playtime** is generated through transmission, the **creating** users are never allocated less than 50% of all revenues.

*Table 2: **dB distribution ratios** for two different cases of **playtime** generated through **transmitting**.*

		Playtime	Total **playtime**	Total **playtime** of **creating** and **transmitting**	**dB distribution ratio**	
CASE I	**Creating**	10000	10001	10002	10001/10002	99.990002%
	Transmitting	1	1		1/10002	0.009998%
CASE II	**Creating**	1	10001	20001	10001/20001	50.002500%
	Transmitting	10000	10000		10000/20001	49.997500%

Table 2 shows a song's dB distribution ratios for two different cases.

> *In CASE I, only 1 minute of the song's total **playtime** of 10,001 minutes is generated through **transmitting**.*
>
> *Therefore, the **dB distribution ratios** D_c and D_t for **creating** and **transmitting** are 0.9999002 and 0.00009998, respectively. The majority of the total **playtime** is generated through direct **listening**, consequently the **creating** users are allocated 99.99002% of the song's **dB**.*
>
> *In CASE II, 10,000 minutes of the song's total **playtime** of 10,001 minutes are generated through **transmitting**. Therefore, the **dB distribution ratios** D_c and D_t for **creating** and **transmitting** are 0.500025 and 0.499975, respectively. Consequently, even though the majority of the total **playtime** is generated through **transmitting**, the **creating** users are still allocated more than half of the song's **dB**.*

4.4.2.4. Stage 4 - dB Distribution According to Smart Contracts

Finally, the **dB** allocated according to the **dB distribution ratio** are automatically divided between all **creating** users according to the terms laid out in the song's **smart contract**. The **smart contract** terms determine the division of **dB** revenue between the **creating** users, and are specified when a song is uploaded.

*Table 3: Typical examples of revenue division according to different **smart contracts**.*

A rock & roll song		An electronic music song		A pop music song	
Bassist	25%	Producer 1	35%	Lyricist	5%
Guitarist	25%	Producer 2	35%	Composer	10%
Drummer	20%	Remixer	5%	Producer	30%
Singer	30%	Vocalist	25%	Singer	55%

4.5. Technology

4.5.1. Whole Architecture

SoundArio's architecture is divided into three layers.

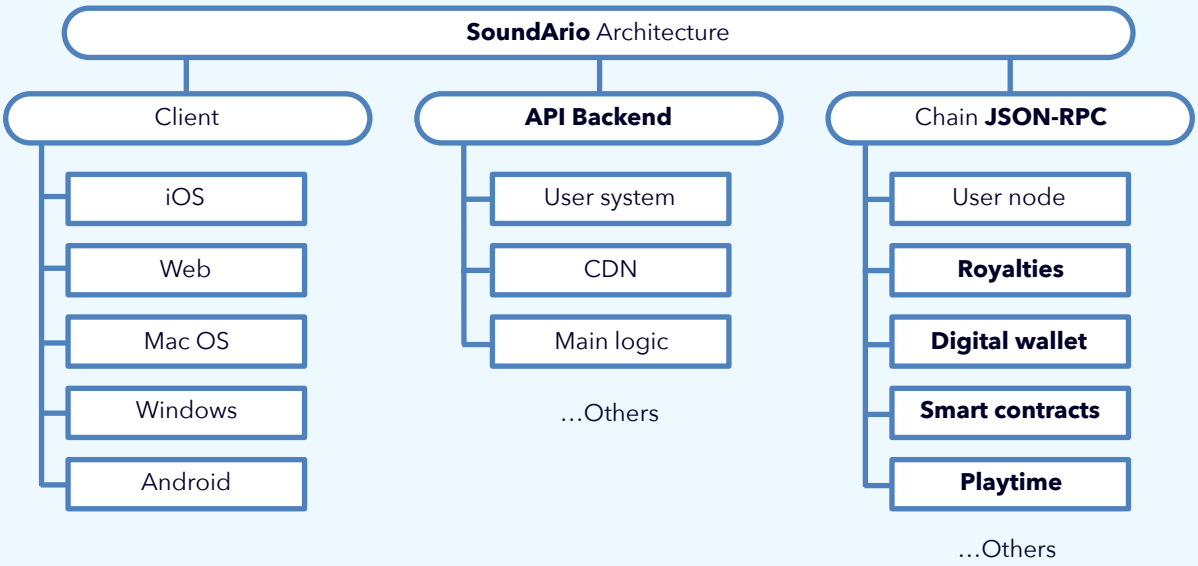


*Fig. 5: **SoundArio**'s architecture tree.*

Client:

The client's layers will first consist of an iOS and web app, then an Android, Mac OS and Windows client.

The API backend:

The **API backend** adopts micro-service architecture and a decoupled design, which makes it fast, secure, and scalable to user demands.

Blockchain:

SoundArio's blockchain is based on **Ethereum** and interacts with the backend interface using **JSON-RPC** technology.

4.5.2. Service Logic

SoundArio's four-part service logic is based around the three basic user actions: **creating**, **transmitting, listening** and the corresponding settlement and distribution of **dB**.

*Fig. 6: **SoundArio**'s service logic tree.*

4.5.2.1. Creating

The following information will be recorded on the **blockchain** when a user uploads a musical work to **SoundArio**:

> *- The **Feature Hashing** of the music file.*
>
> *- Identity information of the **creating** users.*
>
> *- Division of **royalties** to all **creating** users (musicians, remixers, lyricists, etc.) according to the **smart contract**.*
>
> *- **Timestamp**.*
>
> *- **Digital wallet** address.*

At the same time, the music file will be sent via encrypted transmission to a CDN (Content Delivery Network) to provide audio streams.

4.5.2.2. Listening

To record **playback** time on the **blockchain**, **SoundArio** first divides each 24-hour period into 86400 seconds as basic units. These units are then used to record the actual **playtime** created by users in a 24-hour period, and subsequently **dB** is appropriately distributed according to **playtime** ratios and **smart contracts**.

4.5.2.3. Transmitting

A user can transmit music to other users through functions such as the creation of playlists, continuous DJ mixes and charts. **Playtime** generated through **transmitting** functions are also recorded on the **blockchain**, allowing **dB** to be appropriately distributed.

4.5.2.4. Settlement & Distribution

At the end of each 24-hour period the platform's **smart contracts** are settled in three steps:

> *I. Calculation and distribution of **playtime** according to the **dB distribution ratio** (see 4. **Tokenomics**).*
>
> *II. Distribution of revenue in the form of **dB cryptocurrency**.*
>
> *III. Expiration of **playtime** that was created during the 24-hour period.*

As a result of using **blockchain** technology as a tool to facilitate this process, **playtime** is completely traceable to each second and cannot be forged.

4.5.3. Blockchain

SoundArio's **blockchain** technology is based on **Ethereum**, implemented in Go language (https://github.com/ethereum/go-ethereum), and has four main characteristics:

4.5.3.1. Blockchain Server & Node Architecture

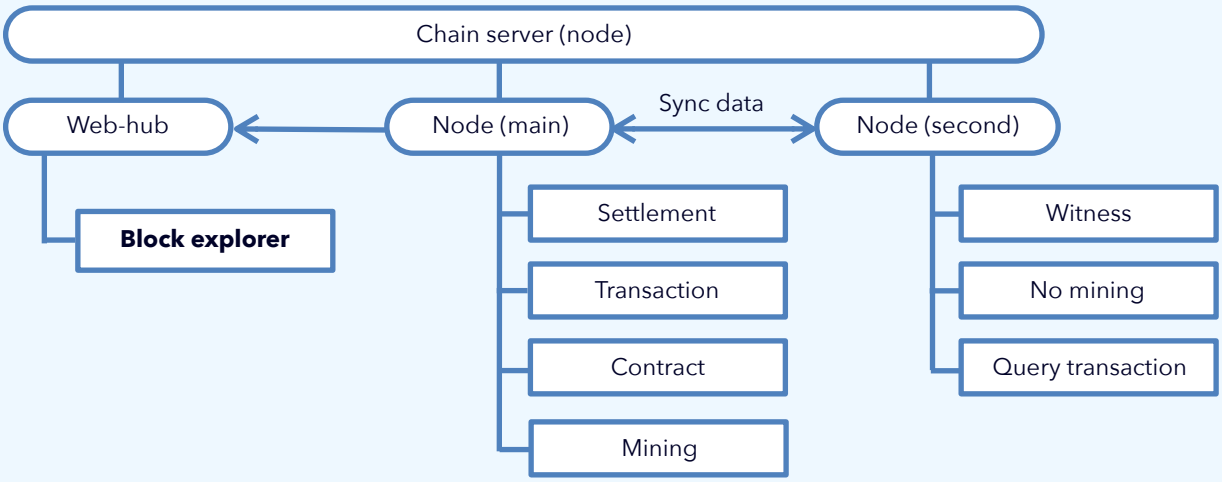


*Fig. 7: **SoundArio**'s server and node tree.*

4.5.3.2. TPS

The TPS (Trade Per Second) of the private chain is about 500, at an estimated average of 3 hours use per user per day, will support millions of paid subscribers. Through parameter optimization, such as reducing the difficulty and block time, the service is able to reach up to 2000 TPS.

SoundArio applies the following methods to ensure TPS is not a limiting factor for **SoundArio**'s user experience and development:

> - *Targeted service logic optimization.*
> - ***Dual Asynchronous Queue** for settlements.*
> - *Standardized data formats and interfaces for future upgrades.*

4.5.3.3. Dual Asynchronous Queue

Revenue settlement based on **playtime** is carried out every 24 hours, involving multiple accuracy checks and verifications. Each song's **playtime** is calculated using the **Dual Asynchronous Queue** between the client and the server backend.

4.5.3.4. Smart Contracts

SoundArio's **smart contracts** are developed in Solidity programming language, and multiple contracts can be queried internally:

Smart contracts are divided into three sub-contracts: **royalties** (including playlist, DJ mix, etc contract logic), subscription and **dB** distribution.

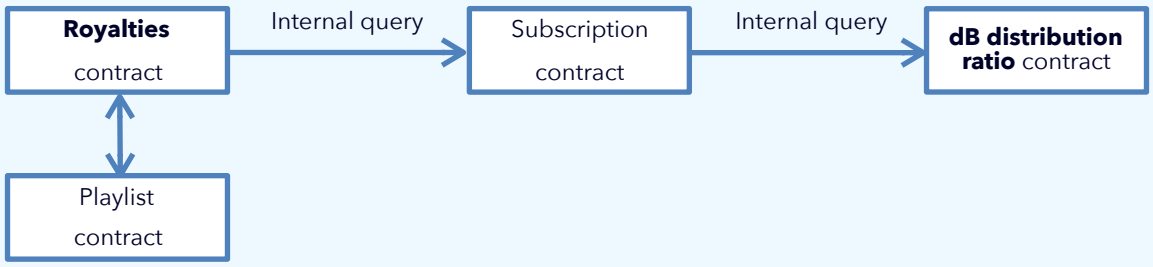


*Fig. 8: **SoundArio**'s contract flow.*

Smart contracts are designed to safeguard against potential corruption. All sections of the **smart contracts** can automatically deploy new versions of themselves should a problem be detected. In that case, changes are implemented and migrated in the shortest time.

The Open Source release of **SoundArio**'s technology will be published in stages on Github starting in January 2019

(https://github.com/Soundario)

4.5.3.5. Scalability & Architecture Design

SoundArio currently uses a private chain based on **Ethereum**. The choice of using **Ethereum** was based on the cost and performance of development and deployment.

However, in light of **the law of accelerating returns**, the exponential growth of technology, it is prudent for any emerging technology based project to apply a design that is easy to upgrade and adapt to technological advances. Therefore, **SoundArio**'s computing (mining), storage, and settlement logic is designed with decoupled architecture. This brings the following three benefits:

I. Rapid implementation of multi chain hosting.

SoundArio can quickly introduce a new public chain to synchronize without changing the settlement logic, or affecting the security of existing data. The new public chain acts as a secondary (sub) node, so **SoundArio** can introduce any number of public chains, synchronize data and conduct **comparative testing**.

II. Smoothly switch the master node.

Any new public chain technology will undergo a period of testing. If all aspects (cost, performance, reliability and stability) are better than **SoundArio**'s existing technology, **SoundArio** only needs to modify some of the contract implementations and call the interface of the main chain, for any new public chain technology to be implemented.

III. All users can certify new chain data.

All users' cloud wallets can be quickly added to the wallet address on the new chain for large-scale **canary releasing**. All users on the **SoundArio** platform can refer to any newly introduced chain's settlement data and the original chain's settlement data to see whether it matches.

4.6. The APP

SoundArio is a mobile and web application as well as a **distributed system** based on **blockchain** technology, each part provides different services for users.

The core features of the mobile app include a music player, **block explorer** and **SoundArio**'s **digital wallet**. They respectively provide a **listening** interface that clearly displays data ranging from individual songs to the platform as a whole, and allow management of users' digital income.

In addition to the core functions of the mobile client, the web application and desktop client provide access to music uploading, editing and content management. The desktop client also forms a **dApp** for **blockchain** technology to form a **distributed system**.

Blockchain technology records core data and builds a database of information enabling music authentication, **smart contracts**, playback data, **dB** mining and distribution to be secure and traceable. Thereby, a solid foundation and complete system for **SoundArio** is established to create a **paradigm shift** in the music industry.

4.6.1. Interface

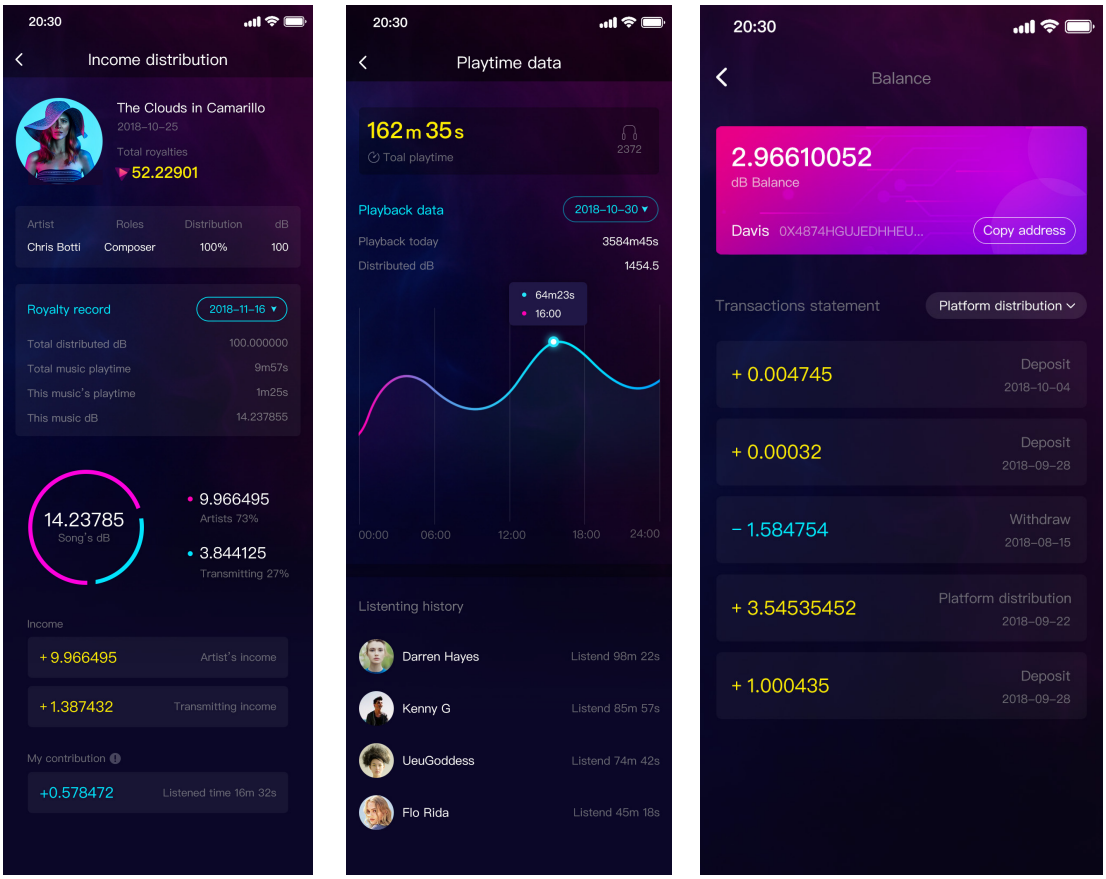


*Fig. 9: **SoundArio**'s iOS app screenshot (demo).*

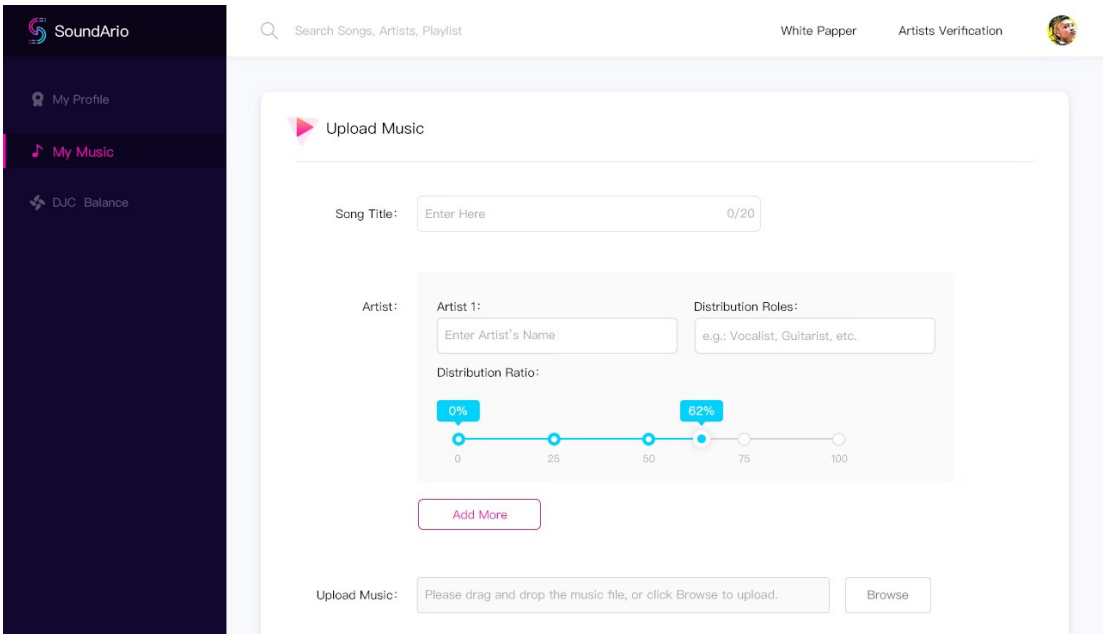


*Fig. 10: **SoundArio**'s web app screenshot (demo). When uploading a song, its **smart contract**'s terms are determined quickly and easily.*

5. Timeline

2018.11 iOS	Mobile music player
2018.12 iOS	Data visualization (**playtime** data/**royalties** distribution record)
2019.01 iOS	Beta app release
2019.01 Website **creating** user management	**Creating** user sign up/upload music
2019.01 Website **creating** user management	**Creating** user management release
2019.01 Website	Website update
2019.02 Website **blockchain explorer**	Finish main **smart contracts** development
2019.03 Website **blockchain explorer**	**Blockchain explorer** release
2019.03 Android	Mobile music player
2019.04 Android	Data visualization (**playtime** data/**royalties** distribution record)
2019.04 Website **creating** user backstage	**Creating** user invitation/upload multiple party music/**smart contracts**
2019.05 Website **blockchain** explorer	On-chain data visualization (**playtime** data/**royalties** distribution/copyrights)
2019.05 Android	Beta app release
2019.07 Website	Website music player
2019.07 iOS	Music e-commerce platform based on **dB**
2019.07 Website forum	Music forum online
2019.08 Android	Music e-commerce platform based on **dB**
2019.09 iOS	Simple auto-mixing
2019.09 Website	Beta app online
2019.10 Android	Simple auto-mixing
2019.11 iOS	Music show recording
2019.12 Android	Music program recording
2019.12 macOS	Desktop app release
2020.01 Smart speakers	Mining/idle bandwidth sharing/CDN node
2020.03 Windows	Desktop app release
2020.06 Linux	Desktop app release

6. Additional Benefits & Future Development

Accurately establish musicians' value:

Currently a large proportion of musicians value is calculated by the amount of fans, followers, or likes they have on a social media platform. Through the use of **playtime SoundArio** can instantly see how many people are actually paying to consume any given song, thereby directly showing value.

Digital Audio Workstation (DAW) plugins:

DAW plugins for **SoundArio** will be developed, in order to facilitate ease of authentication and uploading of music.

Physical SoundArio media player:

The **SoundArio** media player **ALBUM** will be made available for music lovers to purchase. This compact, high quality, physical streaming media device will also mine **dB**. At the same time, any purchaser of **ALBUM** will create distributed storage by sharing its idle bandwidth. The owner will be able to mine **dB** by **transmitting** through the hardware. As owners of **ALBUM** increase, the library will gradually migrate to these P2P nodes, further realizing the distributed process.

Currency exchange program:

dB will be transitioned to a fully exchangeable currency.

7. Financial Strategy

In order for **SoundArio** to create a **paradigm shift** in the music streaming industry, a viable financial strategy is required to support its growth. As well as **creating** and **transmitting** users, investors and the team behind **SoundArio**'s development; operations and maintenance also need to be rewarded for their contributions to the realization of **SoundArio**'s vision.

7.1. Key Contributors

To make such a dynamic change in the industry, contributors from multiple specialized fields are required to perform specific functions. The incentives driving these contributors to interact with each other and the roles they play has been implemented using **mechanism design theory.** This allows **SoundArio** to design a **game theory** that is a self-sustaining, mutually beneficial system for all participants involved.

They can be classified into the following categories:

I. **Creating** and **transmitting** users: **SoundArio**'s source of musical content and bespoke musical dissemination method.

II. Development Team: **SoundArio**'s engineers, programmers, designers and industry specialists.

III. Investors: **SoundArio**'s source of financing.

IV. **dB** Foundation: Specialized institution founded to cultivate the development of **dB** through a polymorphic system in order to ensure, proliferate and maintain its value.

V. **Listening** users: The end consumer of **SoundArio**'s **paradigm shift**.

7.2. Initial Financing

SoundArio's primary funding will be sourced from the 1 billion **dB** tokens generated in the first year. From these tokens, up to 50% will be sold to raise $3 million USD. The remaining 50% will be divided between the initial **creating** and **transmitting** users, development team, project costs and maintenance.

7.3. Allocation of Funds & Reward Mechanism

After the initial fundraising has taken place the remaining 50% of mined **dB** in the first year will be allocated as follows: 24% to the **dB** foundation, 15% to the development team, 10% will be distributed to **creating** and **transmitting** users, with 1% being retained to use as an incentive for early users.

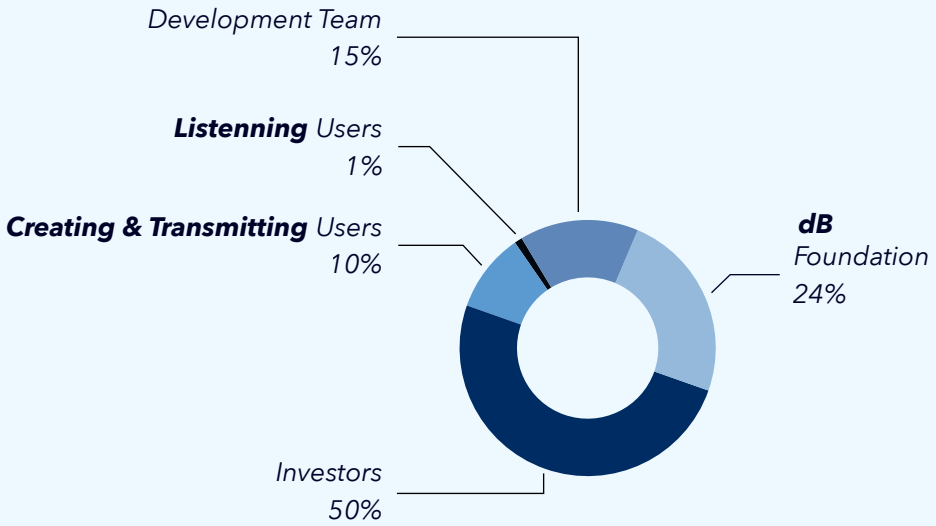


*Fig. 11: Allocation of funds sourced from financing to establish the **SoundArio** platform.*

These values have been carefully calculated according to **SoundArio**'s **mechanism design theory**. Strict **KYC** & **AML** procedures will be followed during all stages of fundraising.

7.4. Token Vesting & Unlocking

A vesting and unlocking schedule will apply to tokens purchased during the **dB** sale in the first year. These tokens will be gradually released commencing from the same point in time **dB** is listed on a coin exchange according to the following schedule:

*Table 4: Vesting schedule of token release in the first year after **dB** has been listed on a coin exchange.*

Key Contributors	Months after **dB** is listed on a coin exchange												
	0	***1***	***2***	***3***	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
Seed Investors	30%	10%	10%	10%	0	10%	0	10%	0	5%	0	5%	10%
Round 1 Investors	30%	30%	0	0	10%	0	0	10%	0	5%	0	5%	10%
Round 2 Investors	30%	40%	0	0	5%	0	0	5%	0	5%	0	5%	10%
Dev Team	0	0	0	0	0	0	50%	0	0	0	0	0	50%
Early Users	0	0	0	0	0	0	50%	0	0	0	0	0	50%

7.5. Founders & Investors

7.5.1. Founders

Zhong Wang: Founder

Former China Radio International DJ on HITFM.

Ex-Anchor & Music Director of Phoenix U Radio, Hong Kong.

Stanley Lau: Founder

Dual Masters of The Hong Kong Polytechnic University and China Academy of Launch Vehicle Technology.

Former Engineer of China Aerospace Science and Technology Corporation.

Peter Donaldson: Co-Founder

Music Producer, 18 years experience in the music industry.

Former Head of Electronic Music at Modern Sky.

Founder, GoaProductions & Spirit Tribe.

Yunpeng Li : Co-Founder

Software & Hardware Engineer.

Ex-System Engineer, Shenzhen Integration Multimedia Technology, IMT.

7.5.2. Prominent Investors

ZhenFund

Established by New Oriental co-founders Bob Xiaoping Xu and Victor Qiang Wang in collaboration with Sequoia Capital China.

Over 600 portfolio companies, including over 10 unicorns based in China.

Ranked “#1 Early-Stage Investment Firm” by Zero2IPO five years in a row 2014-2018.

http://www.zhenfund.com

Linear Venture

Applied-Data-Intelligence fund in China, founded by Harry Wang, one of Facebook's founding employees. Shanghai-based early stage venture focusing on tech-driven startups.

Invested in over 50 startups in China, Silicon Valley and Southeast Asia.

http://www.linear.vc

Genesis Capital

Founded in 2017, Genesis Group is a Chinese financial institution serving the blockchain industry.

Invested in 108 blockchain projects, with more than 20% ranked among the top 100 in market cap (source: CMC), and vast investments in more than ten cryptocurrency exchanges.

http://www.newgenesiscap.com/

8. FAQ

Q1 How will **creating** users find out about **SoundArio**?

> **Creating** users who desire to join **SoundArio** and upload their music can send an application email to creator@soundario.com. We will contact you within 72 hours and complete the relevant verification work. Once the authentication is successful, **SoundArio** will give out an invitation code to use when registering.

Q2 How do **creating** users upload music?

> 1. **Creating** users login to the **SoundArio** official website.
>
> 2. Click the [Upload music] button at the top of the website to enter the upload music page.
>
> 3. Fill in the song information, upload the song's source file (.wav .aiff .mp3) and artwork.
>
> 4. Click the [Submit review] button at the bottom of the page. The status of the review can be checked at [My profile - My music].

Q3 How do **creating** users manage their music?

> 1. **Creating** users login to the **SoundArio** official website.
>
> 2. Click the [Your avatar] in the upper right corner to enter [My profile].
>
> 3. Click [My music] on the left side of the My profile page to enter the work list page.
>
> 4. Here you can check the progress of uploaded music still under review. Songs that have successfully passed this process can be published or unpublished for streaming using the [Publish/Unpublish] operations.

Q4 How do **listening** users pay for **creating** users' music?

> 1. **Listening** users create revenue for **creating** users by subscribing to **SoundArio** and then **listening** to music through the **SoundArio** app.
>
> 2. The platform uses **blockchain smart contract** technology to count the daily **playtime** of all monthly subscribers.
>
> 3. Every day **SoundArio** distributes **dB** based upon **listening** users' **playtime** to **creating** and **transmitting** users according to the exact proportion of **playtime** that was generated for their songs.

Q5 How can someone become a **transmitting** user and create playlists and/or upload DJ mixes and also accumulate **dB**?

> 1. Download the **SoundArio** app and become a paid subscriber.
>
> 2. Click the [My songs] button at the bottom of the app homepage to enter the playlist management page.
>
> 3. Click [Create playlist] in the song list management page, and fill in the information to complete the playlist.
>
> 4. Find songs you want to share on the app, click the [More - Add to] button to add songs to your playlist.

Q6 What is the difference between free and monthly subscription accounts?

Table 5: Comparison chart between monthly subscription and free user accounts.

Privileges	Free account	Monthly subscription
Listening to songs & playlists	yes	yes
Save music collections	no	yes
Save playlists	no	yes
View **playtime** data	no	yes
Loop playlists	Random	Customizable
Playtime limit	< 120min	No limit
Create a playlist	no	yes
Edit a playlist	no	yes
Receive **transmitting** revenue	no	yes

Note: After the subscription expires, the platform still calculates the **dB** revenue of the user's playlist(s), if the user pays the monthly subscription fee within 25 days after the subscription expires they will still receive this revenue; if the user does not renew the subscription within 25 days after the subscription expires, the **dB** revenue generated by any playlist(s) during this period will be invalidated, and the user's playlist(s) will be hidden; the hidden playlist(s) can be activated again if subscription is renewed.

Q7 How can I check the balance of my **digital wallet**?

1. Login to the **SoundArio** app.
2. Click the [My balance] button at the bottom of the app's main page to enter your **digital wallet**.
3. Once inside you can view the balance of your account and any transaction records.

Q8 How can I view historical revenue data of a specific song?

1. Login to the **SoundArio** app.
2. Find the song in question using the search function (**creating** users can find their own songs in [My song list - My music]).
3. Click [Royalty revenue] to enter the song's accrued **royalties** page.
4. The song's accrued royalties page shows: The total song revenue / the **creating** user's share / the **transmitting** user's share / my **playtime** in proportion to the song's total revenue.

Q9 How do **creating** users listen to the music of other **creating** users?

1. **Creating** users login to the **SoundArio** official website.
2. After a paid subscription to **SoundArio**, **creating** users can listen to music uploaded by other **creating** users on the app. A three-month subscription fee waiver is provided to all new **creating** users of **SoundArio**.

Q10 Is it possible to download music?

Currently, downloading music from **SoundArio** is not possible.

9. Contact

Website: https://soundar.io

App Store: http://ios.soundar.io

Creator Portal: http://artist.soundar.io

Block Browser: https://chain.soundario.com

Github Smart Contract: http://code.soundar.io

10. Glossary of Terms

AML - Anti Money Laundering, refers to a set of laws, regulations, and procedures intended to prevent criminals from disguising illegally obtained funds as legitimate income.

API backend - is a way for developers to link their software and application to cloud-based storage, making it easier to link up with software development kits and Application Programming Interfaces (API).

Creating - Source of music on **SoundArio.**

Blockchain - Originally block chain, is a growing list of records, called blocks, which are linked using cryptography. Each block contains a cryptographic hash of the previous one, a timestamp, and transaction data.

Blockchain explorer - An interface that allows users a real-time, dynamically updating view of activities on the blockchain.

Canary releasing - A technique to reduce the risk of introducing a new software version in production by slowly rolling out the change to a small subset of users before rolling it out to the entire infrastructure and making it available to everybody.

Comparative testing - A process of measuring the properties or

performance of products.

Cryptocurrency - A digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank.

dAPP - Distributed application, software that is executed or run on multiple devices within a network.

dB - **SoundArio**'s **cryptocurrency**.

dB distribution ratio - A formula used to calculate the distribution of **dB**.

Digital Audio Workstation (DAW) - Modern music production software.

Digital wallet - Virtual storage for cryptocurrencies.

Distributed system - A number of independent computers linked by a network.

Decentralize - To distribute the administrative powers or functions of (a central authority) over a less concentrated area.

Dual Asynchronous Queue - A programming protocol that allows for two way communication, and multi-tasking processes. Implemented in **SoundArio**, this technology allows for songs to be listened to without having to finish the **playtime** calculation for the previous song first.

Ethereum - An open-source, public, blockchain-based distributed computing platform and operating system featuring smart contract functionality.

Feature Hashing - Use of an algorithm to process and calculate binary music files in order to get a shorter binary value for on-chain recording.

Game theory - The branch of mathematics concerned with the analysis of strategies for dealing with competitive situations where the outcome of a

participant's choice of action depends critically on the actions of other participants.

JSON-RPC - A remote procedure call protocol encoded in JSON. It is a very simple protocol, defining only a few data types and commands. It allows for notifications (data sent to the server that does not require a response) and for multiple calls to be sent to the server which may be answered out of order.

KYC - Know Your Customer, a process by which banks obtain information about the identity and address of the customers. This process helps to ensure that banks' services are not misused.

Listening - User consumption of music on **SoundArio**.

Long-tail - The segment of a market representing a large number of products that sell in small quantities, considered by some to be of greater financial value than the few products that sell in very large quantities.

Mechanism design theory - Is a field in economics and game theory that takes an engineering approach to designing economic mechanisms or incentives, toward desired objectives, in strategic settings, where players act rationally.

The law of accelerating returns - The rate of change in a wide variety of evolutionary systems (including but not limited to the growth of technologies) tends to increase exponentially.

Tokenomics - Token economics (or tokenomics) is the study of a new type of economy that can be defined as the design of a particular ecosystem in a **blockchain** environment.

Transmitting - The dissemination of music between **creating** users and **listening** users on **SoundArio**.

Paradigm shift - A fundamental change in approach or underlying assumptions.

Playtime - The amount of time a song is listened to on **SoundArio**.

Royalties - A sum of money paid to an artist for each copy of a song sold or for each public performance of a work.

Smart contracts - A computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract. **Smart contracts** allow the performance of credible transactions without third parties. These transactions are trackable and irreversible.

SoundArio - A music streaming paradigm shift.

Timestamp - A sequence of characters or encoded information identifying when a certain event occurred, usually giving the date and time of day, sometimes accurate to a small fraction of a second.