



Decentravel

Decentralised TRVL token

Overview of the Travel Industry

Significant inefficiency plagues nearly every segment of the travel industry. Individual travel companies are notoriously out of date in terms of technological adoption: travel companies still rely on fax machines and phones as main communication methods, while others struggle to connect to data sources to power their sales efforts.

The concentrated and centralised state of travel distribution bears a strong cost on consumers, while poor currency exchange solutions inflate consumer prices. The problem is particularly acute for travel startups, the main sources of innovation in the sector. Online Travel Players Five companies in the travel industry control the most of the travel market.

The two largest OTAs (Online Travel Agencies), Priceline Group and Expedia Inc., control 95% of OTA market in the U.S. Amadeus, Sabre, and Travelport, the top three GDSs (Global Distribution Systems), have 99% combined market share in non-direct inventory in the air market. The concentrated structure of travel distribution has also been one of the factors allowing these companies to make record-breaking revenues, with Priceline Group enjoying a decade of year-over-year 40% EBITA growth.

These dominant players lack the economic incentive to innovate because there are only two major intermediaries in the hotel sector and three in the airline sector. Some of these companies still use dated mainframe computers and software written decades ago. Sabre was accused of overcharging customers and employing other dubious tactics to generate increased revenue. Concentrated power held by these intermediaries also allows them to tie hotels into rate parity agreements, making hotels legally liable to provide the OTA with the best rates at all times and causing a breach of contract if they offer direct booking customers a cheaper rate. Rate parity has been ruled anti-competitive and illegal price fixing in Germany, France, Sweden, and Italy.

About this document

This document and any other documents published in association with this white paper relate to a potential token offering to persons (contributors) in respect of the intended development and use of the network by various participants. This document does not constitute an offer of securities or a promotion, invitation or solicitation for investment purposes. The terms of the contribution are not therefore intended to be a financial services offering document or a prospectus. The token offering involves and relates to the development and use of experimental software and technologies that may not come to fruition or achieve the objectives specified in the white paper. The purchase of tokens represents a high risk to any contributors. Tokens do not represent equity, shares, units, royalties or rights to capital, profit or income in the network or software or in the

entity that issues tokens or any other company or intellectual property associated with the network or any other public or private enterprise, corporation, foundation or other entity in any jurisdiction. The token is not therefore intended to represent a security interests

1. Introduction

Decentravel

Decentravel is a decentralized travel distribution network. It is built on top of Ethereum** platform and owned by the community. The network connects buyers and sellers via a set of smart contracts and open-source tools in a non-rent-seeking manner without taking a transaction fee. At the same time, the participants of the Decentravel platform are able to govern the platform collaboratively.

Overview of Decentravel

Decentravel offers a decentralized alternative to GDS and OTA distribution with a reduced cost of distribution and more packaging flexibility than traditional platforms. The following features aim to address current issues and enable an unprecedented surge of permissionless innovation in the travel industry.

The Decentravel team has more than 20 accumulated years of architecture and programming experience in the travel space with leading incumbent travel intermediaries.

We are creating the next-generation decentralized travel platform on Ethereum, allowing for a true peer-to-peer economy to free up creativity and innovation in the travel industry.

Decentravel will not charge suppliers any distribution fees and will only charge a minuscule transaction fee to incentivize miners to give computational power to the network. These fees will be automatically calculated by the blockchain at the time of transaction and will have no correlation with total booking price or complexity.

Suppliers will have the option to set a default referral commission if they wish to do so. If a referral fee is set, any individual who refers a customer to the supplier will automatically receive the referral amount set by the hotel – if they voluntarily decide to set one. Hotels can also set up individual referral rates for different entities if they wish to do so. Decentravel will be deployed on one (or several) of public blockchains, which guarantees 100% uptime. Decentravel is a fully-automated solution, integrating directly with the reservation systems of travel suppliers.

Transactions on our platform happen within a few seconds, determined simply by the time needed for the blockchain to mine a block.

One of our development goals is to build a state channel on top of a public blockchain, in order for participants of the network to make multiple thousands of transactions per second. Travel industry transactions require this level of speed.

Travel is also all about bundling. Whenever you book a trip, it's not just a flight or a hotel room, but often a combination of multiple different segments.

Bundling is extremely simple with Decentravel. Whether you have a pre-existing relationship with a provider of a service that complements yours, or would like to establish one, our platform will help you do so simply given that the provider also uses Decentravel.

Participants in the ecosystem can see how their partners perform over time and how reduced distribution costs affect their financial bottom line and relationship with travel partners.

Decentravel's code is open-source and completely transparent for anyone to study and propose changes. It's the first open-source project in the travel space and the first truly decentralized blockchain solution.

The platform, more importantly, will be owned by the community itself. Participants in the marketplace will be able to create and vote on proposals to change the marketplace code, using governance tools we're currently building for the platform.

All travel firms will soon have to become software companies in order to adapt to rapid change in the industry's technological landscape. Both suppliers and sellers of travel have to embrace this new reality driven by technology; this is why our platform is built by engineers for engineers. Labor cost is the top expense on the P&L of any software company and working with legacy systems slows down software development tremendously.

Security of the data transacted on our marketplace is our top-priority. We use public-key cryptography to ensure that no one but the parties immediately involved in a transaction can see its details.

One of the most important aspects of Decentravel is that it is a public decentralized computing platform with the open consensus model, as opposed to the consortium model or complete centralization. We are convinced that only permissionless architecture, where anyone can freely participate in the network, will solve the problems described above.

The consortium consensus model will inevitably lead to censorship where its members will decide who can or can't access the platform, and the mere need for that process will drastically slow the advance of such platforms. Some of the companies in a union like this will be able to adopt new technologies faster than others. At the same time, however, they will have to use the same standard, leading to the whole consortium moving only as fast as its slowest member.

Decentravel facilitates travel distribution in all of its different aspects by making it cheaper, faster, more enjoyable for consumers, and easier for new business models to emerge in the travel industry.

Some current business practices and models will have to be removed or drastically changed, while some new concepts will finally be given a fertile ground for their growth, in order to achieve this goal.

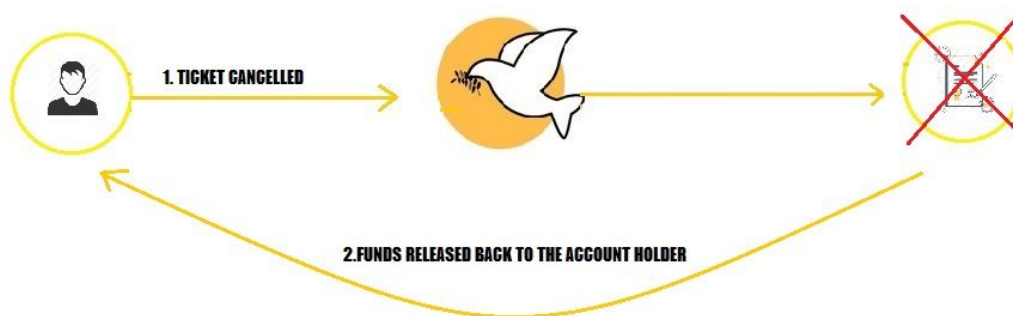
Decentravel, fundamentally, enables the conditions for the perfect competition of travel suppliers and provide perfect information to buyers. This will impact current market players and create new businesses built on top of the Decentravel platform.

Today, booking an international flight involves a **multi-currency** transaction which can span a handful of countries for a simple flight. When booking a flight from India to Barcelona through Reykjavik, a traveler will pay the ticket price in USD, while part of the ticket price will then be exchanged to Icelandic krona and other parts into Euro. The total ticket price also includes airport security charges, bag security charges, government taxes, embarkation tax, passenger service charge, and more. A single booking can involve more than five currency trades for a simple flight if third-party insurance or a car rental is added to a booking at checkout. Often on flight ticket **cancellation**, it usually takes upto 10 days to get the refund back. Ever had a day, where you had a trip planned but just to be cancelled in last minute and you had someone nearby that would be suitable replacement for you but you couldn't transfer your ticket and you had to buy a new one for that person and returned yours? This is just one example of the incompetence of the legacy systems to further improvement. Most Airline PSS's are not suitable for this kind of change and couldn't track the ownership of this asset due to the security reasons. A similar but more favorable situation can be applied to railway or cruise tickets, car hires and hotel reservations

BOOKING



CANCELLATION



Decentravel solves this problem by locking funds in the smart contract and instant refund on the cancellation before the travel date

How Blockchain Enables Decentravel

Blockchains are designed to cut out the middlemen. Bitcoin, for example, is a financial system without one central authority, such as a bank or a government, and Decentravel applies a similar

logic to the travel industry using the universal smart contract platform that Ethereum has provided to decentralize the world economy.

It is important to note that only open, permissionless blockchains can reduce inequalities and change the balance of power because private or consortium-governed blockchains, by definition, are not able to provide the same level of trust and security.

Under today's architecture, the travel industry bears a very high cost of verification. A traveler's information often passes through many hands from the website it is booked, to the airlines, the payment merchants, airports, governments, border control agencies, and others. Not only is it costly to do so under a centralized system, but it also exposes the sensitive data to data leaks. Blockchain, instead, allows for costless verification.

How Decentravel Enables Innovation

Decentravel is a set of smart contracts on Ethereum with a decentralized autonomous organization (DAO) governance platform that allows for the holders of TRVL tokens to participate in the development of those contracts.

Decentravel connects suppliers (hotels, airlines, etc.) and sellers (travel agencies) to a single marketplace. Suppliers will put availability and price information into the database, where it is easily discoverable by sellers. Sellers then have the ability to buy that inventory and pay for it instantly. All these interactions are designed to be performed automatically, without human intervention.

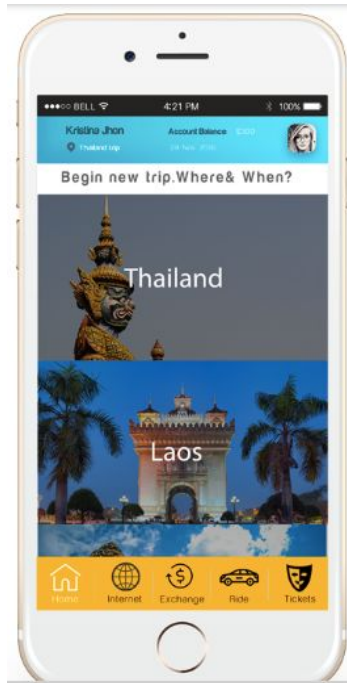
The Decentravel platform is built by engineers for engineers. It's not our goal to build user-facing interfaces for the marketplace. We encourage the creation of those interfaces by third-party developers in order to increase competition and the quality of these products.

We also envision existing software products, like property management systems and travel agent interfaces, connecting to Decentravel. Decentravel faces a few exciting challenges that can be divided into two categories: technical and commercial.

In terms of technology, blockchains are still not capable of supporting the load that the entire travel industry requires. The Bitcoin blockchain can handle a maximum of seven transactions per second, while Ethereum can handle between 10 and 20 per second. The good news is that many people are working on scaling public blockchains and these improvements are well underway, like Lightning Network (Bitcoin) and Raiden (Ethereum)

Another issue that many bring up is the security of Decentravel transactions. Security is our most important focus. All transactions will be encrypted so only the parties that are immediately involved in a transaction will be able to see its details.

One of the factors will be educating people and organizations in the travel industry about the possibilities of the Decentravel platform as part of the decentralized cryptoeconomy.



Decentravel is:

- Exchange
- Tickets
- Events
- Internet- RightMesh technology
- Crypto Friendly
- Local Guide, Local Maps
- Peer-Peer Lending

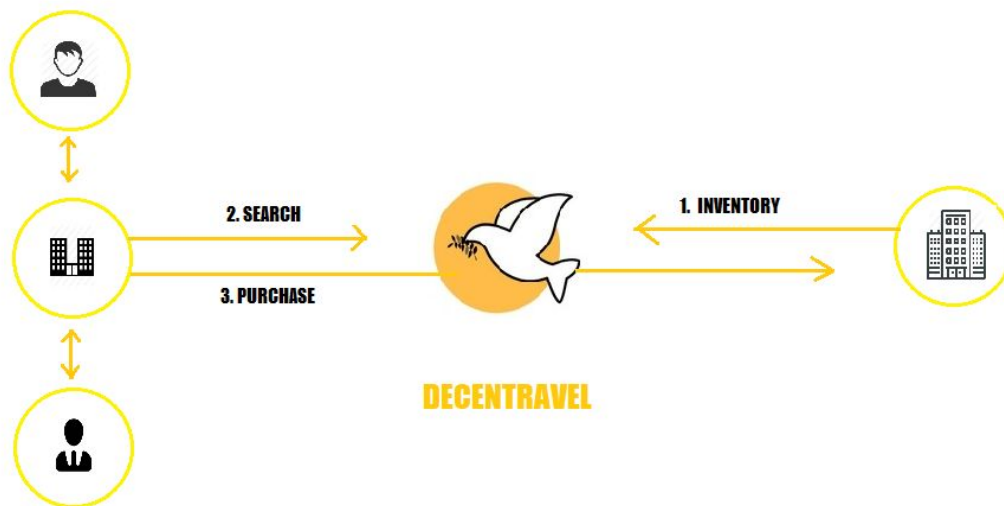
TRVL token

Due to the need for travel companies to send more information than typically handled by smart contracts, we have expanded the TRVL token to be able to handle more data than a typical ERC20 token while still remaining full compatibility with ERC20 standards.

Property manager(PM) will have to spend a tiny amount of TRVL to write information onto the Smart contract, and for travel sellers to be able to find inventory from that hotel. This incentivizes miners to participate in the network and does not represent a platform fee.

Let's say property manager(PM) has a balance of 5 TRVLs. A hotel manager would like to make 10 rooms in the hotel available from May 1 to May 31 for the price of USD \$100 per room per night. One transaction with all that information is dispatched and along with it a fee of 0.01 TRVLs is sent to Decentravel. Now the hotel has its inventory on Decentravel platform.

A travel agency employee (or customer of an online travel agency) then performs a search on Decentravel via software created by software engineers. Let's call them TA1 (Travel Agent). It also has a balance in TRVL, but the search query is free, so the TA balance has not decreased. It is only used when the travel agent decides to book a hotel room for one of their customers. In this case, the correct amount of TRVL has to be sent to the smart contract in order to book a room.



Here is a breakdown of what is being transacted in each step:

1. PM: INVENTORY. Data: room availability and price, fee: 0.01 TRVL
2. TA: SEARCH. Data: search criteria, fee: none.
3. TA: PURCHASE. Data: room and guest information, price: 100 TRVL, fee: 0.02 TRVL.

At the end of this series of transactions, the TA balance is decreased by 100.02 TRVL and the PM spent 0.01 and gained 100 TRVL, while Decentravel has the record confirming that the travel agency customer has the right to stay at the hotel.

At the same time, 0.03 TRVL went towards the miner that confirmed these transactions by putting them in the next block.

Please note that the fees above are hypothetical, the actual fee amounts will be automatically calculated by the marketplace at the time of the transaction.

The usual concern here is the volatility of the currency. We mitigate that risk by allowing parties to convert TRVL to fiat currencies at the time of the transaction

Both PMS and TA users should now be able to verify that that transaction has been confirmed and that the traveler can enjoy her upcoming hotel stay. Decentravel Block Explorer is a website where they may see their (encrypted) transactions if they know their hash. The website will also have statistics about the platform load, TRVL token price, and other information.

TRVL Token Generation Event (TGE)

Brief Overview

We firmly believe that infrastructure projects, like Decentravel, must be supported by the organizations and individuals that will use them. Therefore we will raise money via a token generation event as opposed to funding from traditional investors.

The TGE will be organized by the non-profit Decentravel in **United Kingdom** that aims to promote innovation in the travel industry by funding and promoting collaborative travel technology projects.

Benefits...

For Companies/Agents

- Real-time settlement and payment will reduce the waiting time and reduce the security deposits currently agencies are facing in the current system
- In an example of settlement between two Hotel Wholesalers, the settlement process is still error prone and many disputes occur since the transaction is not validated with a trustable, immutable system. This will definitely reduce the number of disputes and resolution time.
- Big companies will be more agile and have more control over their distribution systems

- Small companies will also benefit from the quick transactions and they would be able to offer their assets that they haven't ever met before.
- These will also lower the operational cost as the transactions and settlements are done autonomously thus requiring less human involvement. ...

For Individuals

- Fellow travelers will benefit from the cost reduction in the travel industry
- New properties like exchanging or transferring the ticket will give more control over the assets and decrease the time spent for these actions
- An exchange market, a peer-to-peer market will emerge within the controlled limits, will be beneficial for the all counterparts
- With TRVL Coin will become like traveler's default currency where Travel Agencies will act as small cash centers like exchange offices to convert to local currency desired.

As a traveler, the money you carry will be more secure and funds can easily be transferred and used in cases of emergency

Roadmap

Decentravel plan to launch an MVP towards the end of 2018. It will include an Identity Service at the Framework Layer, basic libraries on the Integration Layer and the opening of a public facing website through which customers can book hotels, flight and take services from local guides by paying universal TRVL token

Testing and release of the smart contract will form an integral part of the development process and we plan to present a separate paper and bounty programme in the early 2018.

We have already started to onboard hotels into the programme and are working with them to define requirements for the Hotel Management System and how it can be integrated into their existing systems. For example some hotels have a requirement to port over customer reputation and would want to reward the customers on rewards

Longer term, we will also looking into scalability solutions for Ethereum. We will be evaluating how other platforms may support the decentravel ecosystem, be that through state channels or an assessment of blockchain interoperability.

Some key dates:

- Public Launch . 30th December 2017
- White Paper . 30th December 2017
- Token Sale . 24th January 2018
- Partner Onboarding . Q2- Q4 - 2018
- MVP Release . Q4 2018

Total number of token - 120 Mn
Divisible upto 8 decimal place



75% - public sale
18% - founders, advisors, employee pool, etc.
2 % bounty and referral
5% - long-term foundation budget (released according to schedule below)

TEAM

Aman Sanduja

An engineer by chance and an entrepreneur by choice. He has wore multiple hats in the job and is a go-getter person. He has worked with premier institutions like Ashoka, Piramal foundation, Google's vendor etc. He holds a management program from IITD. He is an avid trader and is on the advisory board of Gimmer(trading bot)

Kawal Arora

Kawal holds more than a decade experience in silicon valley consulting on various areas like- IOT, AI, ML etc. He was a former lead engineer at tesla. With his experience and coding skills he would be leading the technical team at TRVL

Vikas Pandey

Vikas is a serial entrepreneur. He was instrumental in developing global sim card company. He is a people's person, understand the market and business very well. He was a distinguished captain in maritime industry.

Vaibhav Saini

An IITD student. He loves mathematics and coding. He consulted 5+ startups in development. Amateur android | Web | ML | Blockchain developer.

Sunil Arora

Maritime consultant, Financial Modelling , chief engineer, Superintendent, Sunil has worn many hats during his distinguished career, he has received numerous awards for his innovation in maritime industry . He has actively involved in maritime investment banking...