



BLOCKCHAIN IN TRANSPORTATION SECTOR

A Quick Summary



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TRANSPORTATION

Transportation industry is the backbone of many industries as raw materials, finished products are all imported, exported from one place to another. Public also utilise different means of in their daily life.

Tracking is one of the main challenges in Transportation Industry. Cargo theft continues to plague the industry and the reports in 2016 showed losses of over \$114 million (Robinson J. , 2020).

Rental cars can be considered as part of transportation fleet. Analogous to trucking and shipping, there are problems concerning tracking the vehicle and record keeping of the people who rented the vehicles.

Transportation of temperature-controlled goods also requires strict rules to be followed by carriers. According to reports, 8.5% of pharmaceutical products shipped go through temperature differences which cannot be accepted at the customs because the temperature at the containers carrying them exceeded the allowed range (Sharma, 2020).

Dispute resolution is another common issue in Transportation sector. Around \$140 billion is tied up in dispute settlement payments in transportation per day (Sharma, 2020). In the absence of reliable freight data, the resolution for these disputes takes a long time.



Transportation industry also suffers from discrepancies between expected and realised freight invoices, which can be as high as 10%. These discrepancies can translate to hundreds of thousands of dollars lost depending on the volume of freights. (Robinson A. , 2020)

Additionally, there are broader issues that can be discussed as part of Transportation sector. For instance, people may not have the sufficient funds to own vehicles and traditionally, owning a portion of a vehicle is not a common practice and there are not enough financial support mechanisms for such options. On the opposite side, for people owning vehicles, the ownership of the data kept in the vehicle should remain with the owner and only she/he should be able to authorise the relevant parties to access this information where as at the moment, manufacturers or even repairmen can possibly access that data.

Specific areas of interest in Transportation Sector and how Blockchain Technology will address these areas are summarised below:

Better Projection

Blockchain allows the demand data as well as the vehicle data to be kept unchanged. The data can be shared with third parties in full or in part without requiring trust, i.e., without the worries of a potential manipulation in data.

This allows owners of vehicles as well as carriers and other transportation ecosystem actors to have access to reliable information to make better load forecasts. Better forecasts lead to better load planning and more effective use of freight consolidation opportunities with consideration of all economical means of transport, including multi-modal transportation. For Truck/Shipping companies, utilisation (available trucking/ship capacity) can be identified and necessary actions can be taken to meet sudden demand changes (Robinson J. , 2020)

Tracking

Blockchain solutions integrated with IOT technologies can offer ample opportunities in terms of tracking vehicles which in turn lead to reduction in cargo theft, disputes and more visibility on the entire transportation process. Especially for temperature-controlled goods, this visibility over the entire supply chain brings enormous benefits in terms of keeping the whole journey within the accepted temperature limits and finding out the root-cause as soon as possible if this is not the case.

The fact that each party validates and records transactions increases the trust among the parties and the system as a whole. This, in turn, reduces the number of disputes as well as the dispute resolution time.

It is worthwhile to note that while blockchain solutions prevent data from being manipulated, they do not necessarily eliminate the possibility of attack if the vehicle data is collected by using an external hardware (IOT sensor, radio-frequency identification - RFID, etc.) For example, a company may be using blockchain for a shipment of drugs with RFID tags to monitor its transfer. Offenders may have access blockchain, yet they could tamper with the connected tagging system (Robinson J. , 2020). Thus, Blockchain solutions keep the recorded data secure, however, data-collection mechanism need further security measures.

Payment

One major benefit of Blockchain solutions is potential use of smart contracts between shippers and carriers or between customers and rental companies/ logistics companies. With smart contracts, payment and carrier conditions are predefined and recorded on the blockchain. As soon as these conditions are met, smart contracts are triggered upon which transactions are recorded and validated on the blockchain and payments are made to relevant parties. This automation of steps streamlines the payment process, eliminates intermediary costs as well as discrepancies between expected & realised costs.

Tokenisation

With the tokenisation of assets, Blockchain solutions allow partial/full ownership of vehicles of any type. The end users can now own a part of rental fleet or a percentage of an exotic car or a ship. Though this may not be a process-related optimisation for Transportation sector, it will certainly ease the fund raising for transportation companies going forward.

Subsectors

Shipping, trucking, car rental, car ownership, vehicle repair

Stakeholders

Shippers, Carriers, Logistics companies, rental companies, end users.

Asset Type

All types of tokens: payment, utility and security tokens are observed in the Blockchain solutions implemented for this sector. Here are some examples of use of tokens in this sector:

- Car owners can earn token rewards for providing data to automotive/transportation companies and in return, receive a more tailored, or reduced pricing based on the data they provide
- Cars can be sourced, acquired and stored by verified agents and users can do peer to peer trading of the tokenised vehicle, thus can partly own it.



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