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Blockchain & Transportation: Home Run or Hype?

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Technology has increasingly served a critical-and sometimes transformational-role for providers and commercial users of transportation and logistics services. Automation, 3D printing, the Internet of Things, mobile applications, and ever more sophisticated transportation management systems and warehouse management systems all contribute to operational efficiency, improved performance, enhanced end-user experience, and, ultimately, the financial bottom line. Will smart contracts that use blockchain technology offer similar benefits?

What is a Smart Contract?

Just as no universally accepted definition of a "3PL" exists, no universally accepted definition of a "smart contract" exists. Indeed, the term "smart contract" is a bit of a misnomer. In general, a smart contract is actually nothing more than a series of business rules that two parties may agree to adopt. In other words, a smart contract does not somehow perform its own reasoned analysis, unilaterally write or modify itself, or eliminate the possibility of disputes. Rather, a smart contract simply implements a series of if-then rules that will be performed at least in part by computers without the need for third-party human interaction.

What is Blockchain?

Blockchain is a decentralized database or spreadsheet (often referred to as a "digital ledger") that is maintained and updated by a network of participating computers. This highly secure technology permits parties to create a record (known as a block) that is timestamped and linked to the previous block such that it cannot be altered retroactively without the alteration of all subsequent blocks. The digital ledger is typically available to the public but can also be made private. Blockchain is the technology infrastructure for cryptocurrencies like Bitcoin. However, just as the internet has many uses beyond email, blockchain has many uses beyond cryptocurrencies.

How Could Smart Contracts and Blockchain Help Transportation and Logistics?

Proponents of blockchain technology have identified a wide variety of potential applications that would benefit the providers and commercial users of transportation and logistics services, such as:

Foiling Imposter Carriers. Shippers sometimes fall victim to schemes whereby a fraudster masquerades as a legitimate carrier. For instance, the criminal intercepts information about a high-value load, arrives at the point of origin ahead of the legitimate carrier, obtains possession of the load with forged documents, and readily vanishes to fence the goods. However, blockchain may permit the shipper to identify a given carrier as an imposter if the carrier lacks the proper credentialing record created through blockchain technology.

Accelerating Load Tenders.

A shipper or freight broker having control of a load could tag the load with an RFID chip containing points of origin and destination, rate, or other criteria. The RFID chip would be connected to a network such that carrier software could automatically search and bid on the transportation of the load based on predetermined rules. The load tender and acceptance would happen without human intervention.

Track and Trace. A pallet or other load tagged with an RFID chip could be tracked and traced via blockchain technology as that particular load moved through various locations having access to the internet, creating a detailed record of the load's pedigree and chain of custody. Having this data is particularly beneficial for those involved in the transportation of pharmaceuticals or food products-even more so when a product recall need arises.

Expediting Payment. Shippers and carriers could enter smart contracts where the rules provide that payment is automatically made when a given load arrives at destination under various conditions. For instance, carriers may no longer need to devote substantial resources to billing and collection efforts if the network itself (rather than a third party) validates the blockchain such that payment is made automatically. This might also mean that certain carriers would no longer need to factor receivables.

Minimizing Claims. The same application of blockchain to track and trace cargo could be used to minimize claims. For instance, whether the load or the truck itself is tagged, a blockchain record will develop showing the time of pick-up and delivery, thereby creating unalterable evidence as to whether a given load was delivered timely or not.

Leveling the Playing Field. Many of the examples above illustrate how blockchain technology will benefit smaller carriers with limited resources by providing them faster payment, more expeditious claims handling, more and easier bid opportunities, and the like. By empowering smaller carriers, blockchain technology promises to make the transportation market more competitive.

Are There Impediments Moving Forward?

Blockchain, like any other technology, has its fair share of challenges. For instance, two significant, primary obstacles include:

No Current Uniform Standards. At present, no uniform standards govern blockchain technology. Various parties are developing their respective sets of standards, coding, and associated applications or other interfaces for deployment of blockchain solutions. For instance, the Blockchain in Trucking Alliance expects to develop broad standards for the trucking industry in the next 12-18 months.

Absence of Network Participants. Even if a robust set of uniform standards is developed, the success of blockchain turns on how many parties adopt it. Specifically, the utility of blockchain technology depends on maximizing the number of network participants. Therefore, the value proposition for early-stage users is not necessarily evident.

While blockchain is not yet a home run for the transportation and logistics industry, it is also far more than mere hype. As suggested above, the transportation and logistics industry is highly likely to find a number of practical uses for blockchain technology. The real question is when and in what context. The bottom line is that forward-thinking companies should begin wrapping their minds

around this technology and how it might add efficiency, increase security, and change the competitive landscape in the transportation and logistics industry.

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