Blockchain 101 and Use Cases in Logistics
About

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BiTA is the world’s largest blockchain standards organization with a specific focus on blockchain and technology applications in freight transportation. In less than six months, it is also the largest transportation organization (bigger than the ATA, TIA, and TCA combined).
Tier-1 Organizational Members
Rapid Industry Growth

In 2017, consulting firm Deloitte said that 10% of global GDP would be built on top of blockchain applications by 2025 -- approximately $12 trillion dollars.

Morgan Stanley suggests that Blockchain in Transportation is a $500 billion dollar opportunity in the U.S. alone.
A decentralized and distributed digital ledger to record transactions across many computers so that the record cannot be altered retroactively without the alteration of all subsequent blocks and the collusion of the network.
For most transactions across industries, each participant currently records their own version of the truth.

With multiple records of the same information across systems, the data is vulnerable to error, fraud and inefficiencies. Frequently, businesses rely on intermediaries and internal processes to mitigate these risks.

With blockchain, transactions agreed by consensus are added to a block, a unique cryptographic code is calculated of the block, and that code is added to the following block creating a unique chain of blocks containing all the transactions.
Blockchain equity funding vs. ICO funding
Q1'16 - Q3'17

Sources: CB Insights, TokenData, CoinSchedule.
Evolution of Contracts

Agreements Enforced by Strongest Tribe
Evolution of Contracts

Agreements Enforced by Institutions
Evolution of Contracts

Agreements Enforced by Smart Contracts
Those blocks of transactions create a distributed ledger.

A distributed ledger is a technological system that is an asset database that can be shared across a network on multiple sites, geographies, or institutions. All within the system can have access to the ledger via copy or connection to the larger database.
Smart Contracts

Computer code, attached to a blockchain transaction, which is executed under predetermined conditions.

Intended to facilitate, verify, or enforce the negotiation or performance of a contract.
Opportunities

- Free up capital
- Lower transaction costs
- Speed up processes
- Provide security and trust
Challenges

- **Scalability**
  - Public blockchains are currently limited to 3-20 transactions per second. Visa is capable of approx 56,000 tps.

- **Data Privacy**
  - By definition, all data is held by all participants, careful protocols have to be agreed to encrypt commercially sensitive data in any ecosystem.

- **Collaboration**
  - Many applications of blockchain require agreement of protocols within industries.

- **Commercialization**
  - Blockchain applications code are generally open source and can be utilised anonymously, so IP is difficult to protect.
Use Cases

**FUEL PAYMENTS AND REPRICING WITHOUT THE NEED FOR A PROCESSOR**

**RECORDING RFPs AND TRANSACTIONS**
Immutable record of agreed economics

**PAYMENT AND SETTLEMENT SOLUTIONS**
Quicker, cheaper payments

**INTERNET OF THINGS**
Odometer recordings, parts warranties & vehicle servicing

**EDI COMMUNICATIONS**
Use Cases II

Self executing Smart Load Contracts
Contracts executed and arbitrated using blockchain, lowering risk and costs for both carriers and shippers.

Proof of Provenance
(chain of custody/bread crumbs)
Verifiable provenance with long supply chains.

Proof of Delivery
Recorded on blockchain, available to relevant parties.
Adoption and Implementation Forecast

2018-2020 - Education, Case Studies, and Early Adoption
● Industry-wide education on use cases outside of crypto-currency
● Develop industry-wide standards and apply to case studies
● Early adoption within innovative startups and pilot programs at large corporations with extensive resources (ex: IBM, Daimler)
● Regulatory authorities develop auditing and compliance practices

2021-2025 - Growth
● Early adopters and standards activity provide greater clarity and minimize uncertainty, driving widespread adoption

2026 and beyond - Maturity
● Blockchain is widely adopted and considered an integral part of the supply chain ecosystem
As blockchain digitizes, decentralizes, secures and incentivizes the validation of transactions, it will fundamentally change the industry.

- Eliminates need for intermediaries
- Expedites payments and settlements
- Automates proof of delivery
- Provides immutable record of agreed economics
Winners and Losers

**Winners**
- Technology providers that enable the proliferation of technology, payment, and IOT
- Blockchain technology startups, specialists, and consultants
- Engineers and Smart-Contract Analysts
- Asset-backed fleets (small and large)
- Attorneys that focus on smart contract concepts
- Data providers and warehouses
- End consumers
- OEMs and Tier-1 suppliers
- Trailer leasing companies
- Sim chip manufacturers
- Large 3PLs and 4PLs with a quantitative business model

**Losers**
- Non-Compliant Shippers and Carriers
- Factoring Companies
- Voice Freight Brokers
- Brokers Not Compliant or Transparent
- Paralegals
The carriers and OEMs have connected the trucks into a permissioned blockchain network.

The carrier solicits freight from 3PLs and shippers connected to the blockchain network.

Once the carrier has an available truck, the network matches up a shipper load based on the ELD telling the network how many hours are available for the driver.

A reference price is used to determine how much the shipper will pay for the load.

A smart contract is created and transmitted to the carrier that dictates price, fuel and accessorials.

The load events are transmitted into the blockchain, giving the shipper full visibility of the load throughout the transaction, along with the history of the carrier and potentially the driver.

The contract is executed and truck is dispatched.

Once the load has been completed, a proof-of-delivery is transmitted. An invoice is sent. A bank pays the carrier immediately. The carrier is done.
Blockchain in Transport Alliance (BiTA) is a common forum for Manufacturers, Retailers, Shippers, 3PLs, Technology Developers, and anyone interested in SCM blockchain, data standards, and the future of moving goods. Learn More and join the alliance: http://bita.studio

FreightWaves.com is the #1 SCM and freight news site by readership, founder of BiTA, leading freight data/analytics provider, and headline sponsor of the Transparency18 event.

Transparency 18 is a conference featuring exchange of ideas among SCM and freight thought leaders. https://transparency18.com/