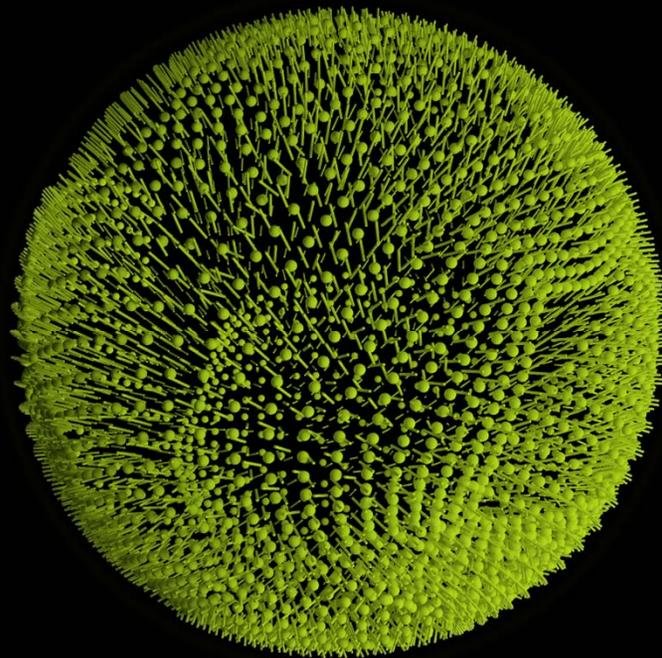


Deloitte.



Blockchain Technology & Transportation

Mid America Association of State Transportation Officials

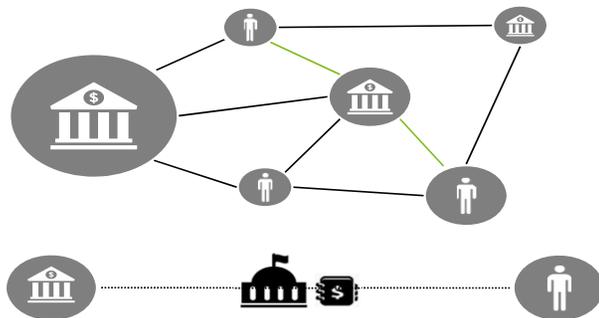
August 2018

WHAT IS BLOCKCHAIN?

Essence of blockchain technology

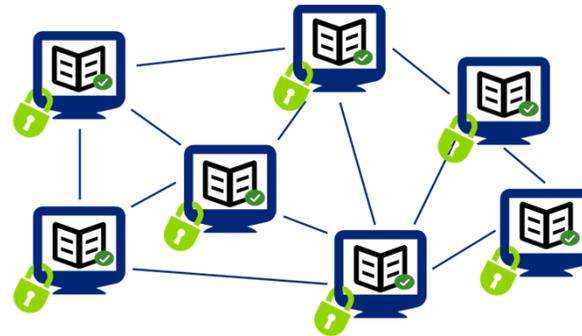
- A blockchain is a record, or ledger, of digital events
- It's "distributed" between many different parties
- It is only updated by consensus of the participants in the system
- Once recorded, information can never be changed
- The blockchain contains a certain and verifiable record of every single transaction ever recorded

Current System



- **Central authorities** transfers actual value between two parties
- **Multiple intermediaries** and **record-keeping** are required to create trust

Blockchain System



- **Distributed** network of computers (nodes) that maintains a shared source of information
- Transaction data is **immutable**
- **Trust** is enabled by **cryptographic** algorithm

FUNDAMENTALS

Blockchain's unique value proposition can be best captured in solutions where multiple independent parties need to interact with, update, or reference common set of data

Typical characteristics of blockchain use-cases:



Shared Data

Structured repository of information for multiple independent parties



Multiple Writers

More than one entity generating transactions that modify the database



Immutable

Un-editable records provide strong auditability



Need for Trust

Level of mistrust between the entities writing to the database (e.g., one user will not accept the "truth" as reported by another user)



Transaction Interaction

Interaction or dependency between the transactions created by different entities

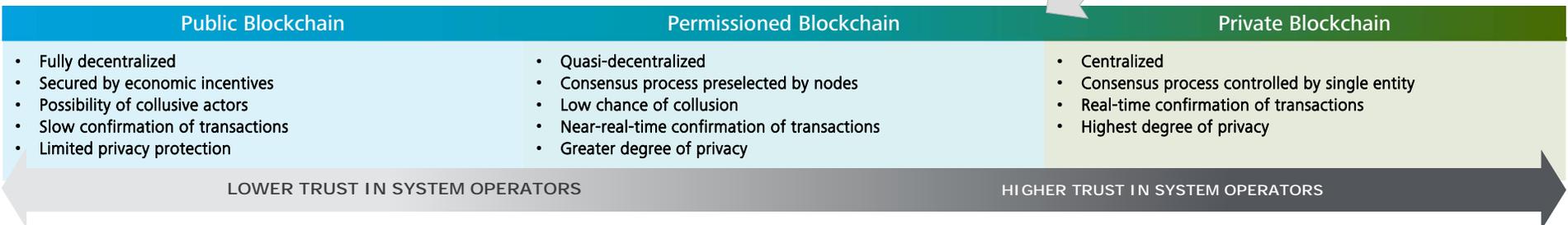


Opportunity for Disintermediation

Lack of trusted intermediary or central gatekeeper to verify transactions

The level of trust or mistrust helps determine the network structure

Blockchain network structures:



WHAT CAN BLOCKCHAIN DO FOR YOU?^{wjh2}

A blockchain solution can be initiated as a store or transaction record, serve as a transaction platform and automate business processes



Record
Keeping

- A blockchain solution can offer automated, high fidelity and low-cost mechanisms for record keeping
- Requires user-specific encryption keys – records are kept in the ledger but only accessible by authorized users



Transfer of
Value

- A blockchain solution enables secure, near real-time, low-cost transfer of value without an intermediary
- Records and value can be transferred to other parties
- Allows transfer of value between two parties, removing the need for a trusted intermediary



Smart
Contracts

- A blockchain solution transforms how contracts are executed
- Protocol is programmable to trigger transfer of value and information under certain conditions
- Smart contracts can be developed, exchanged, and automatically executed on decentralized systems

Slide 4

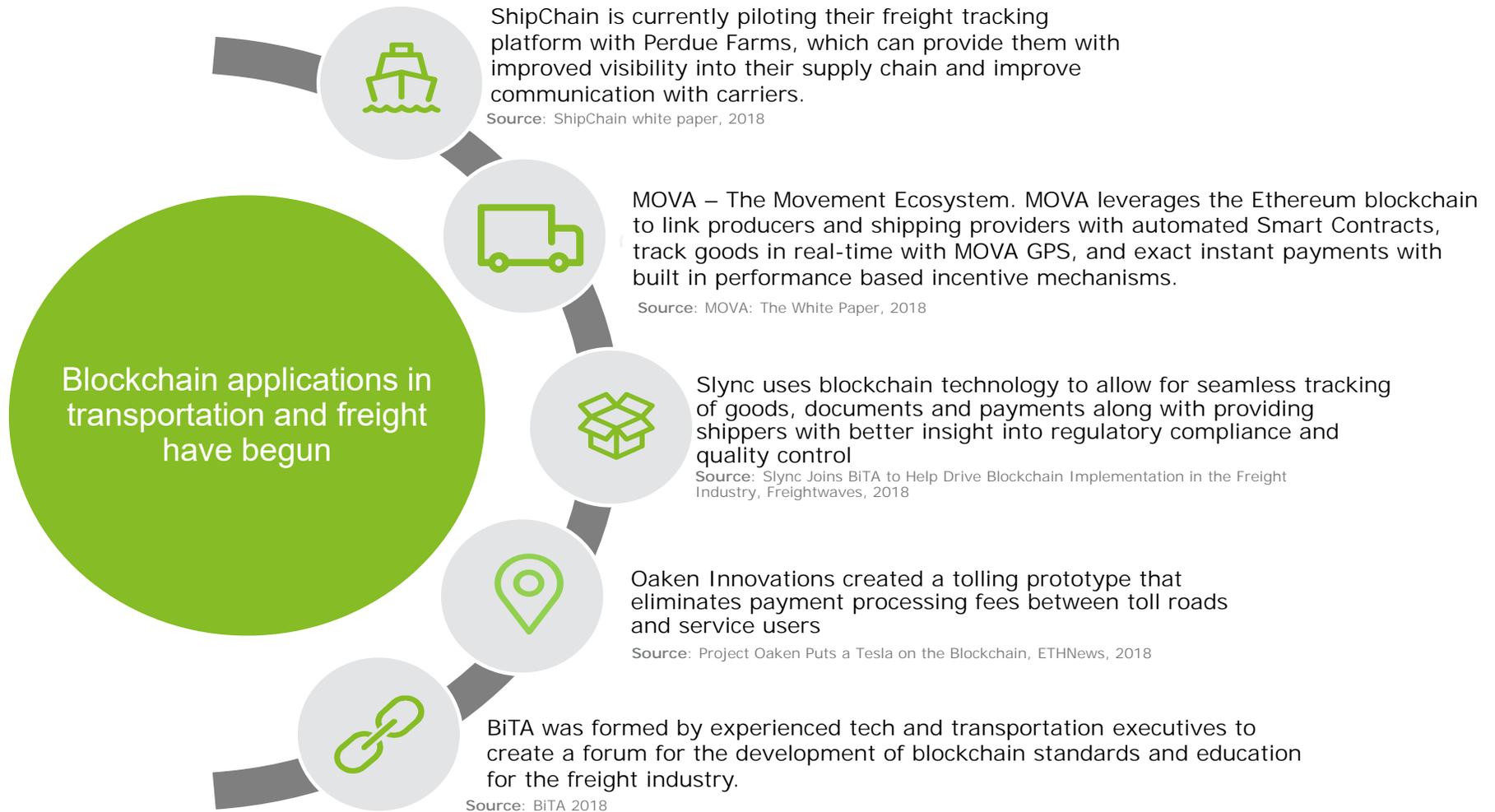
wjh2

Let's put readiness framework here

Wendy Henry, 8/1/2018

BLOCKCHAIN IN LOGISTICS

Distributed ledger technology has begun to be applied in many distinct areas



Slide 5

wjh1

Look at last years presentations and see if we can find some good examples in the marketplace

Wendy Henry, 8/1/2018

LOOKING FORWARD

Where can blockchain technology take us in the future of transportation?

Public transportation payments such as tolls could be securely processed via a distributed ledger technology; integrated across all public transportation systems

Contactless Payment

Usage Based Insurance

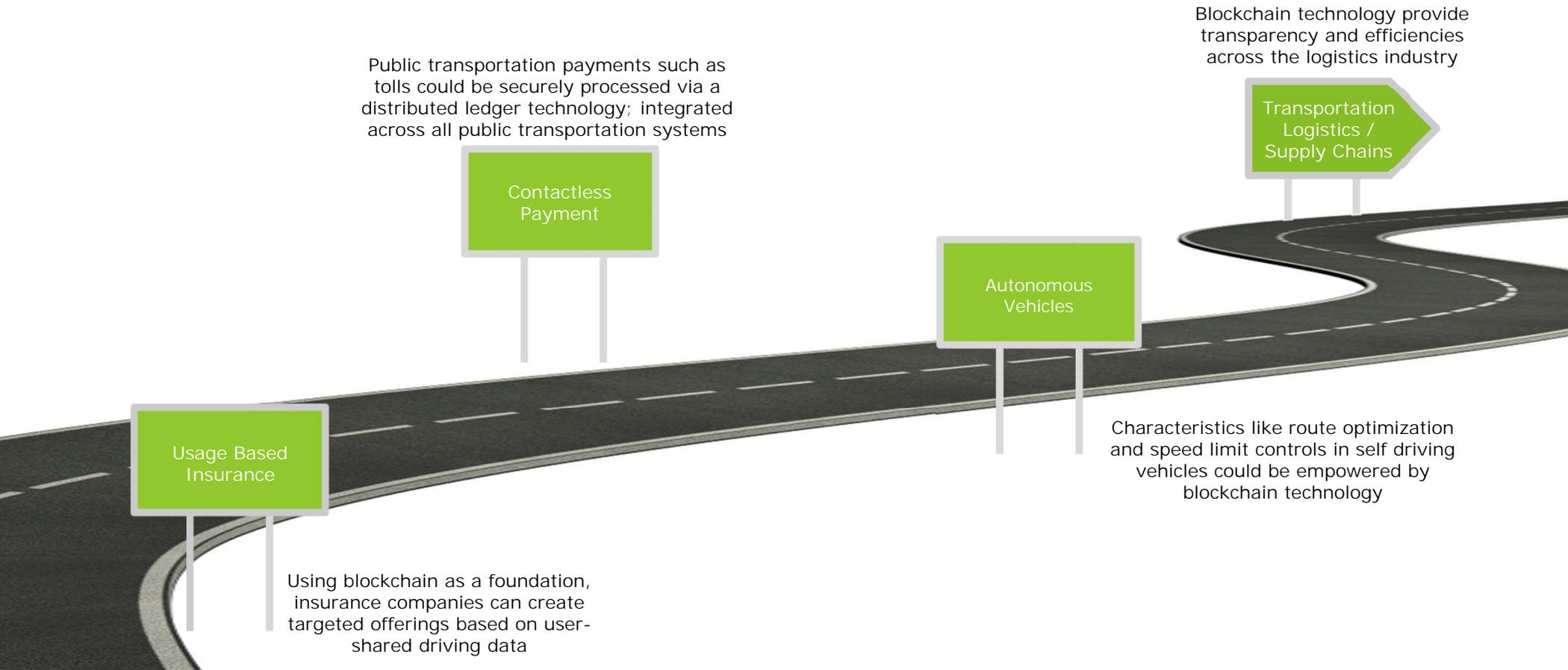
Using blockchain as a foundation, insurance companies can create targeted offerings based on user-shared driving data

Autonomous Vehicles

Characteristics like route optimization and speed limit controls in self driving vehicles could be empowered by blockchain technology

Blockchain technology provide transparency and efficiencies across the logistics industry

Transportation Logistics / Supply Chains





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