



Blockchain as a game changer for transport?

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Berlin – September 24th





giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Connecting Bits and Atoms for Development



**Our vision: decentralized governance
models for a better world**



The GIZ Blockchain Lab

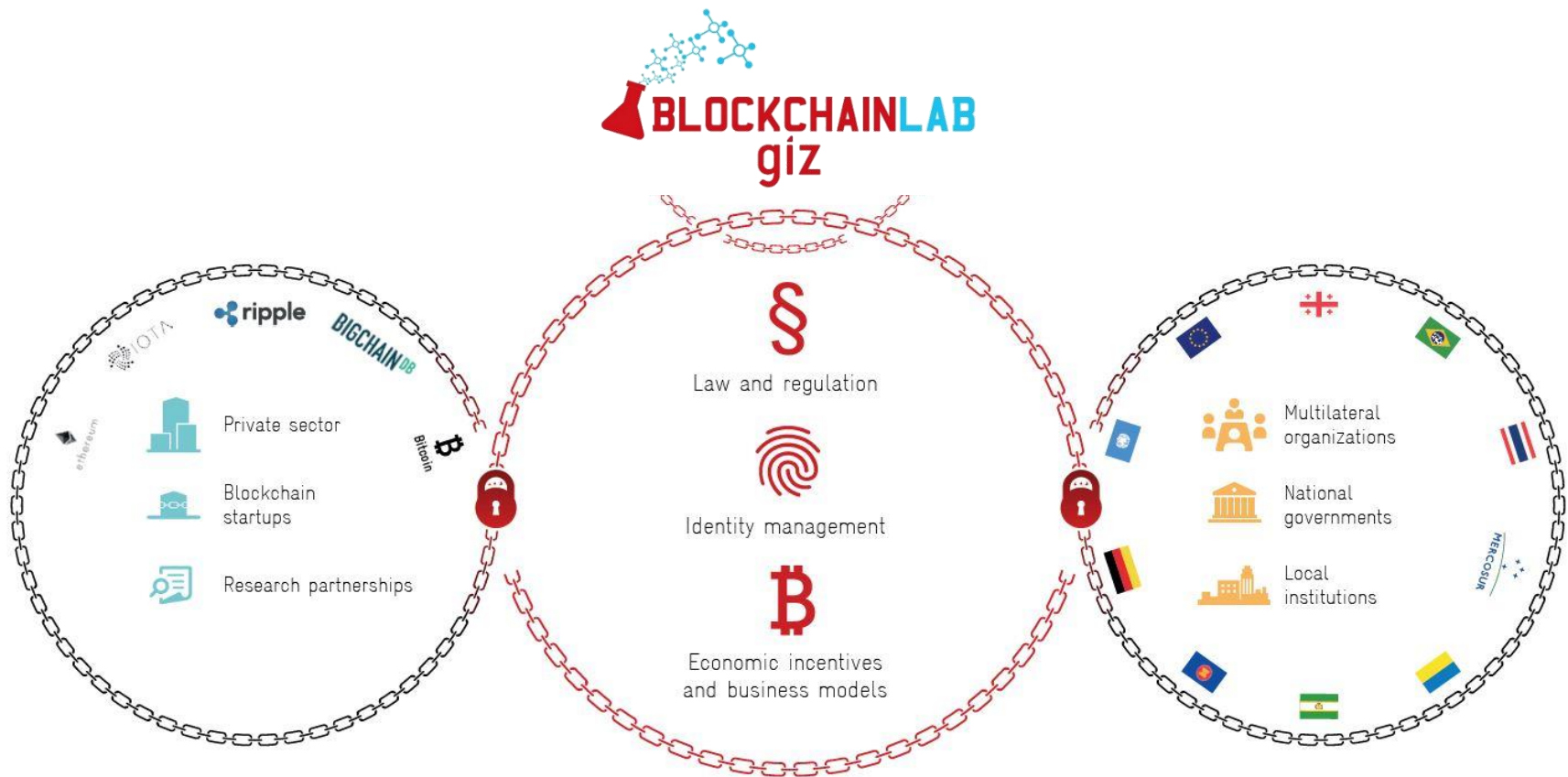
Connecting bits and atoms for development

The Blockchain Lab examines and develops **governance models** für **Distributed Ledger Technologies (DLTs)** in the context of the **2030 Agenda for Sustainable Development**.

At the interface of the startup ecosystem, public partners, research institutions, and the private sector, the Lab identifies the most promising blockchain use cases and create **bridges** between **innovators** (*bits*) and **societal stakeholders** (*atoms*).



GIZ as an „honest broker“ in the blockchain space



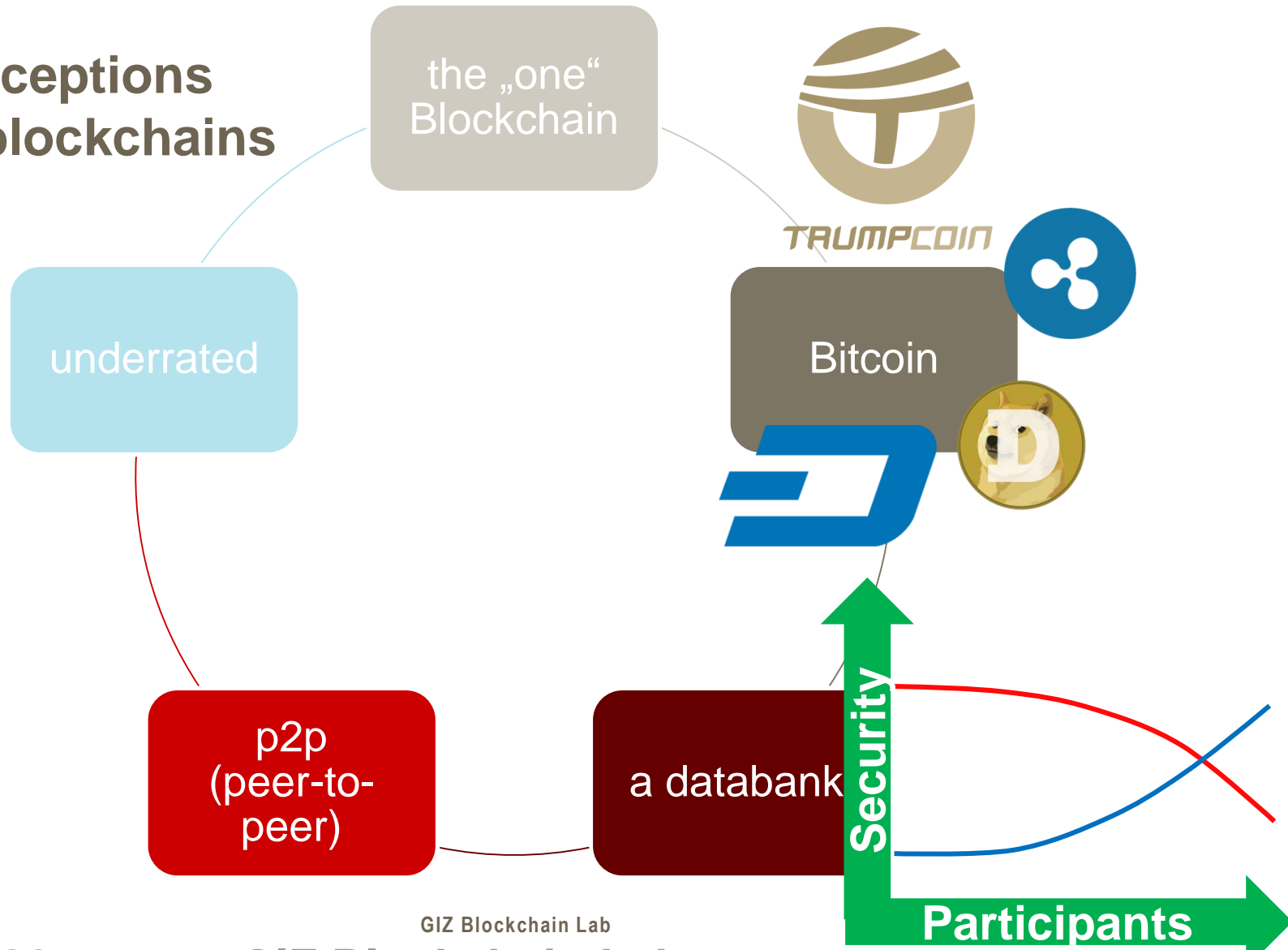
The missing link in the chain between bits and atoms

A short introduction to blockchain





Misconceptions about blockchains



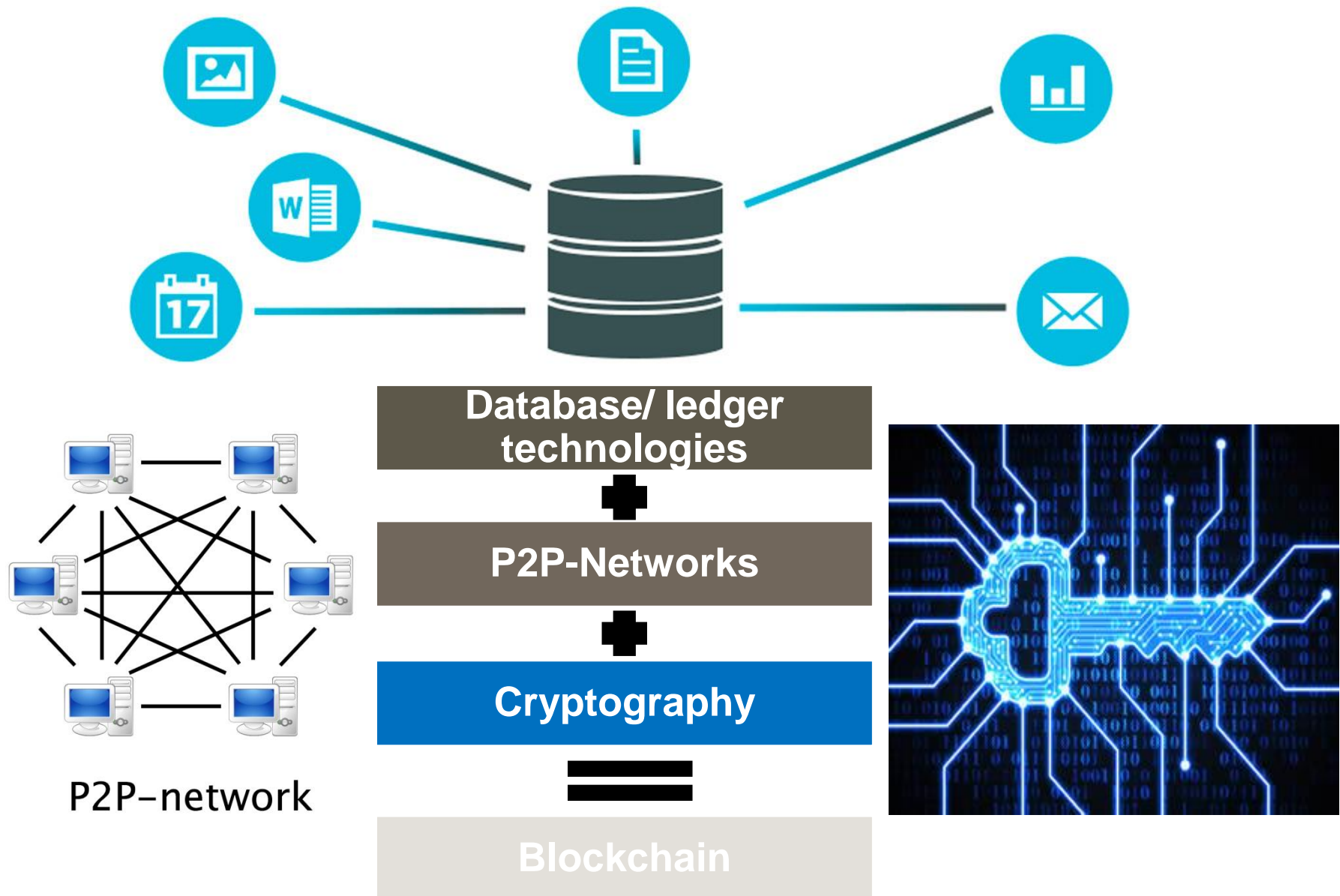
Data (-transactions) without DLT


















Data (-transactions) with DLT



What are the technologies behind Blockchain?



Actors within DLT - simplified

	User 	Node 	Miner 
Engage transactions	 (indirect via Nodes)	 (direct)	 (generally possible)
Possesion of the whole data log			
Check transactions (cover, signatures, etc.)			
Put transactions in Blocks, calculate hashes, generate Blocks			

Public, private and federated DLT - simplified

Private DLT

Federated DLT

Public DLT

Velocity
Governance
Known Identities

Security
Resilience
Pseudonymity



Blockchains

An innovative IT-solution to transform the way we handle data

A blockchain is a constantly growing **list of transactions** which are **stored in blocks** and are secured through **cryptography**. A **decentralized network of computers** is processing, verifying and validating all entries.

Promises of DLT-solutions

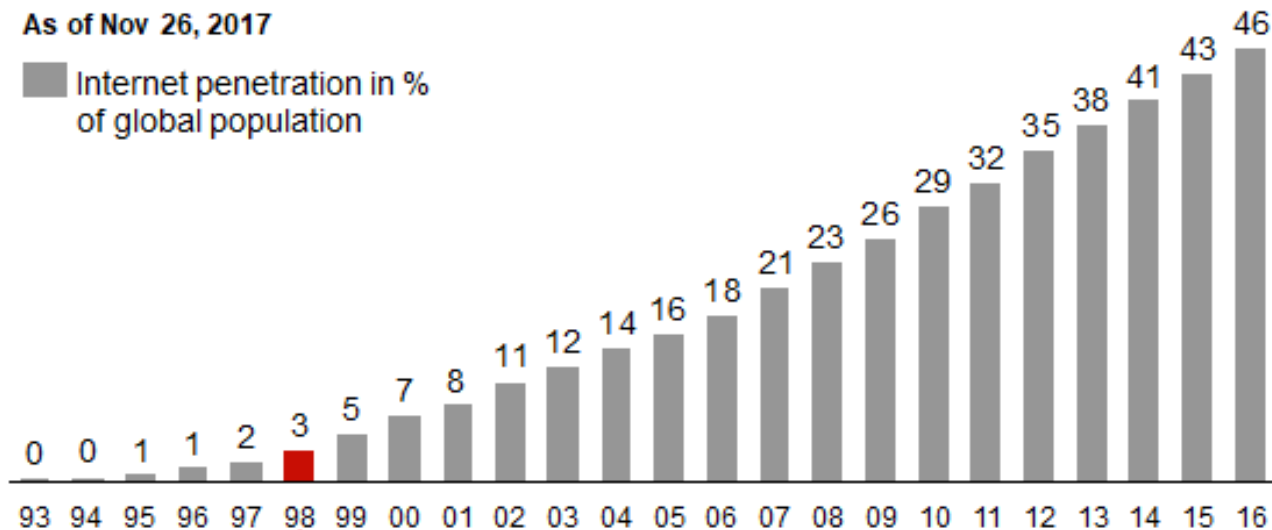
- **Transparency:** Traceability of transactions
- **Disintermediation:** „Creating trust through technology, not through authority“
 - Crypto-economics: incentive structures and game theory as a vehicle for new forms of collaboration
- **Resilient and secure IT-infrastructure**
- **Inclusion:** lowering potential entry barriers
- **Automation** of contracts or processes (process efficiency)



Cryptocurrency adoption: Just getting started

As of Nov 26, 2017

■ Internet penetration in %
of global population



We are here
in crypto

Sources:

- internetlivestats.com
- Coinbase data (@alastairmilne on Twitter)
- Wikipedia Household information

Number of Coinbase Accounts	13.3m
Coinbase as % of bitcoin trade	5%
Implied # of total crypto exchange accounts	266m
Assumed # of accounts / household	4
Total number of unique crypto Households	66.5m
As % of total world wide households	3.5%

Use cases in the mobility sector





How Blockchain can improve the transport sector?

Efficiency

Easy coordination of documents on a shared distributed ledger, making physical paperwork largely unnecessary

Reduced processing times for goods at customs checkpoints

Transparency

Trustworthy data across the transportation and logistics ecosystem (entire network contributes to data validation)

Scalable solution for order tracking & authentication

Increased reliability and effectiveness of tracking information

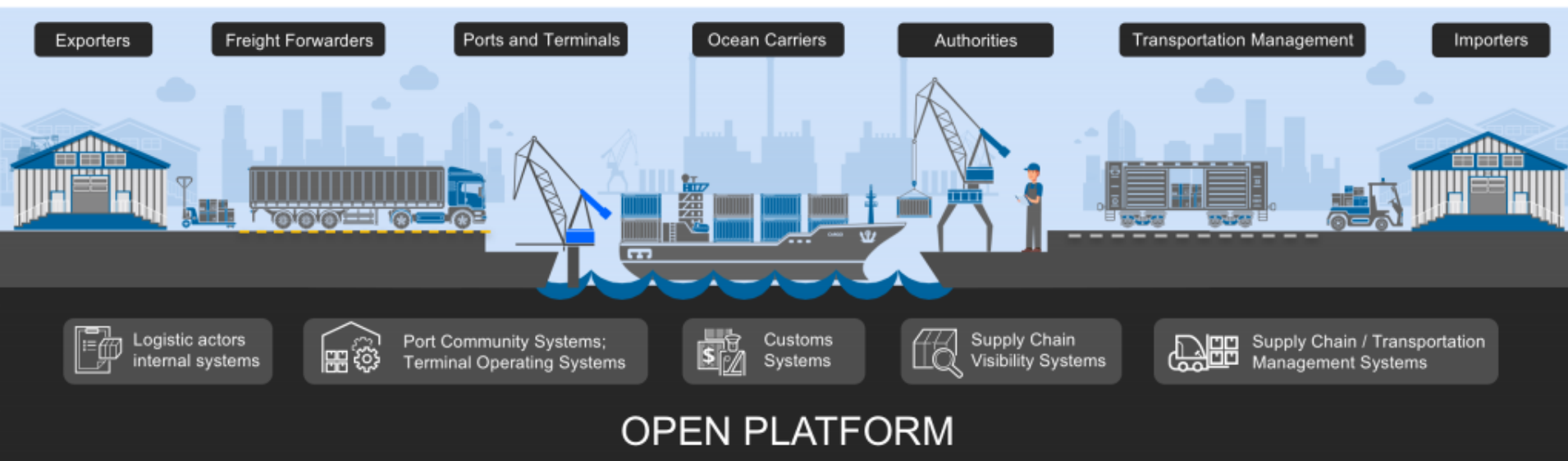
Transactions between various stakeholders (software operators, financial entities, insurance companies, traffic agencies, consumers, etc.)

Enables the functioning of complex mobility ecosystems

Safety in context of Data Sharing



IBM&Maersk: Tradelens





Share & Charge – Electric vehicle charging

- Bound to solve the fragmentation of the electric vehicle (EV) charging market, the lack of industry standards and thus of interoperability.
- Through a decentralized & self-sovereign network, connecting charging point operators (CPO), mobility service providers (MSP) and grid operators.
- Enables the market actors to provide their customer with an integrated protocol to smoothly and securely charge their EVs.
- Based on the Energy Web blockchain, itself part of the Ethereum blockchain & uses a proof-of-authority consensus mechanism.
- Took part in the Oslo2Rome initiative in November 2017 to test the “e-mobility wallet” and the possibility to use a single e-charging blockchain network across Europe.
- Spawned an UK pilot designed to connect CPOs EV-charging infrastructure with customers through Share & Charge blockchain platform.



Car e-Wallet – Integrated transaction platform

- Originated from a partnership between innogy Innovation Hub, ZF Friedrichshafen, IBM and UBS
- Aims to develop autonomous cars, capable of transacting by themselves and conduct payments such as parking or toll fees without human intervention through the blockchain infrastructure.
- Economically independent cars could also receive payments for car-sharing and use “inductive charging” to charge while waiting at red lights.
- Presented a working prototype running on IBM’s Hyperledger fabric in 2017

Arcade City – Ride-sharing

- A P2P ride-sharing network owned and operated by drivers.
- As opposed to traditional transportation network companies, enables the creation of self-organized drivers cooperatives on its Ethereum-built blockchain platform.
- Riders and drivers can directly communicate without centralized authority, set and negotiate rates.
- The app is currently available in Austin, Texas and Manila in the Philippines.



Questions?



Thank you!

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