

Blockchain to support PIRRS

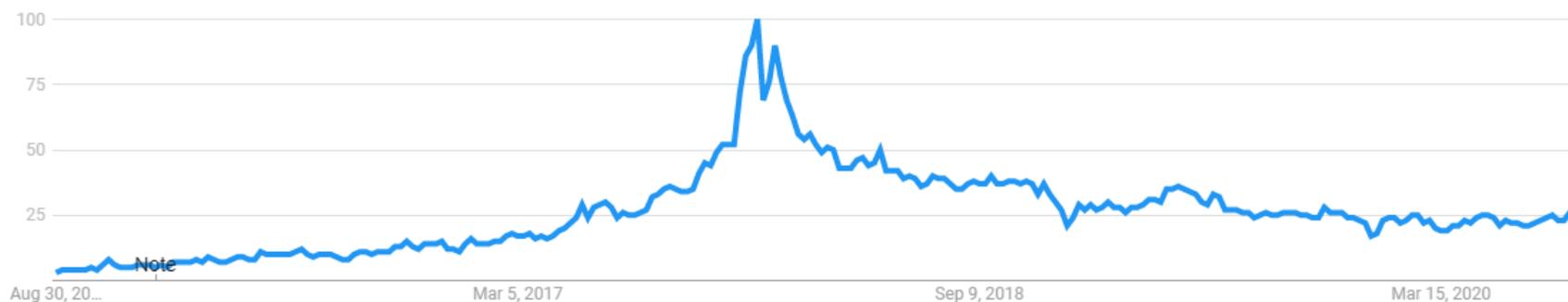
PIRRS, Kick-off meeting
Geneva, 2-4 September 2020



After the hype, the dust has settled: Time for a rational debate

Interest over time

“Blockchain” google searches worldwide



Source: Google Trends

Starting question:

Can blockchain solve the problem?

Underlying question:

Do we actually expect the problem to occur?

- A distributed data structure for recording transactions maintained by nodes without a central authority
- A **database** because it is a digital ledger that stores information in data structures called blocks

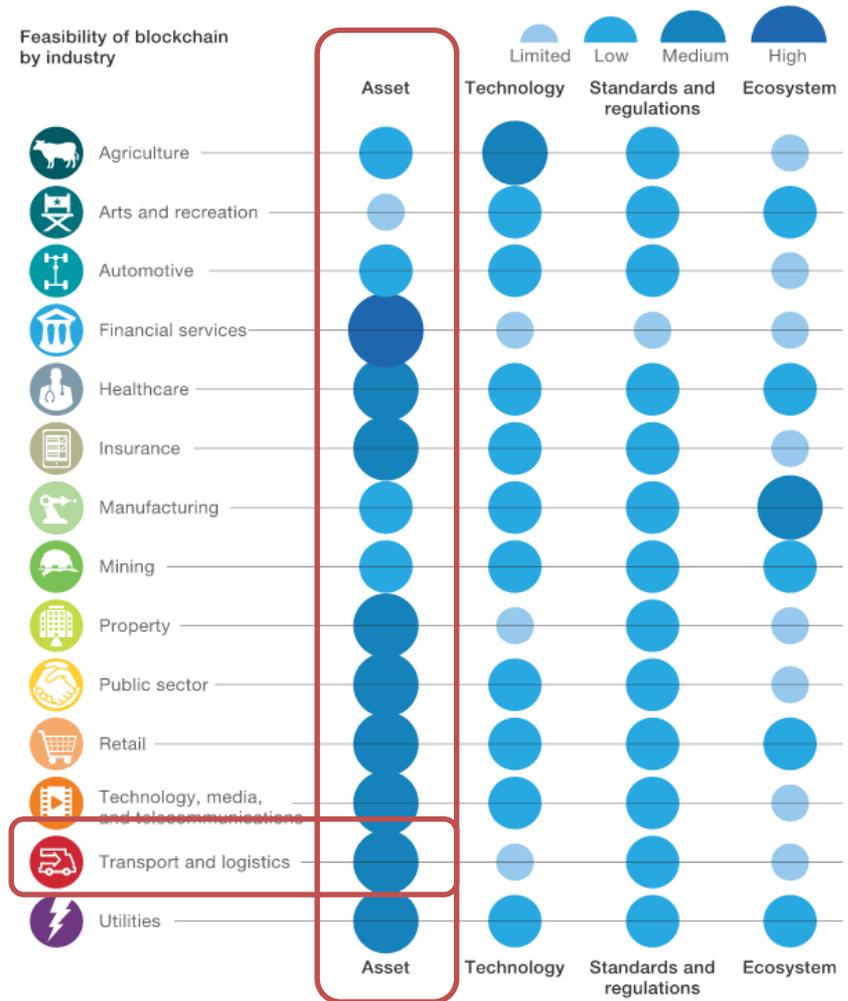


Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data (generally represented as a Merkle tree).

- As an open, distributed ledger it records transactions between two parties efficiently and in a verifiable and permanent way. By design, a blockchain is resistant to modification of the data

Application area par excellence:

- Area with disputes (unnecessary time and money is spent on resolving asset ownership claims)
- Area with highest feasibility and expected impacts (e.g. McKinsey)



McKinsey: [Blockchain beyond the hype: What is the strategic business value?](#), June 19, 2018 | Article, retrieved on 26/08/2020

Main considerations for rail asset registry implementation

| Opportunities | Challenges |
|---|--|
| Elimination of risks of syntax errors and noncontiguous asset histories | Confidentiality of information |
| Mitigation of potential liability of the Registrar | Need for coordination |
| Speed and costs reduction | Implementation costs |
| | Legal compliance (e.g. privacy laws of multiple countries) |
| | |

See also: [Dylus, Erich P. 'The International Blockchain Registry of Mobile Assets'. Air & Space Law 44, no. 1 \(2019\): 45–52.](#)

Possible levels of implementation:

| Level | Name | Description |
|-------|----------------------|---|
| 0 | No integration | No use of blockchain |
| 1 | Blockchain recording | Blockchain used to record documents related to assets ownership |
| 2 | Smart workflows | Blockchain used to record transactions and progress in transactions |
| 3 | Blockchain registry | Central database replaced with permissioned blockchain |
| 4 | Interoperability | Different blockchain registers merge |

These impact costs and benefits and could be considered as options in a potential cost-efficiency / cost-benefit analysis

But, we should not be looking for an application of a fancy solution/technology!
So, let's go back to the underlying question:

Do we actually expect the problem(s) to occur?

- What is the experience with aviation registry?
- What are the plausible scenarios and how frequent are they?

Could a strong business case be built, or not?



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