



BLOCKCHAIN & Rail Freight Ecosystems

Gilbert REVEILLON

CEO Mobile LOOV

President ICT Digital Economy CNC



The Problems in the Freight Transport

impacting rail freight efficiency

The value of freight rates was USD 380 Billion in 2017 (UNCTAD)

- Rail Freight relies partly on shipping industry efficiency and not just within the multimodal approach
- Shipping industry is one of the largest economic sectors BUT it is the least technologically advanced one
- Today paper documents are issued for all shipped cargo no matter of the transport means.
- All original documents are being sent by couriers, taking time and money.

All cargoes and freights are being paid for in traditional ways – via bank wire transfers or letter of credit

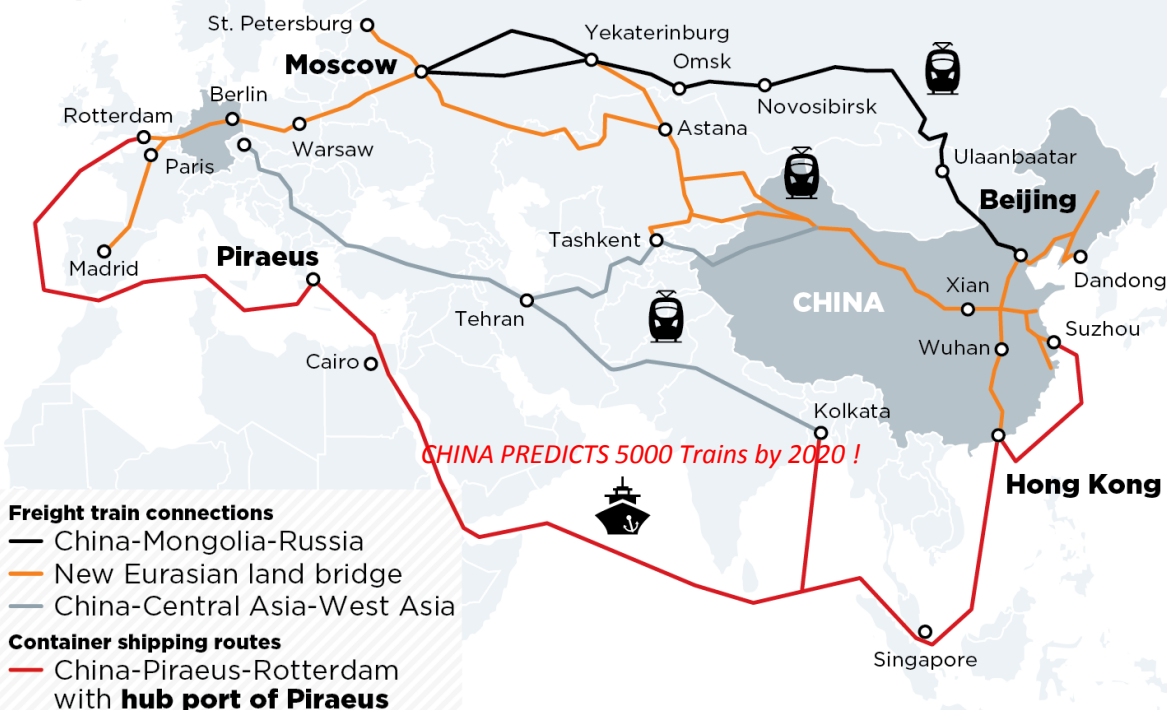
- Both are expensive, slow and non-confidential methods.
- Increasingly more often USD and EUR transactions are being blocked for weeks by US correspondent banks.
- Original documents delivery delays and money transfer delays cause unaccounted extra costs, opportunity cost & depreciation of assets, while disturbing a long supply chain ecosystem.



Railways Freight Ecosystems BEYOND transcontinental corridors => +5 000 trains by 2020 & value of goods 76Bn\$

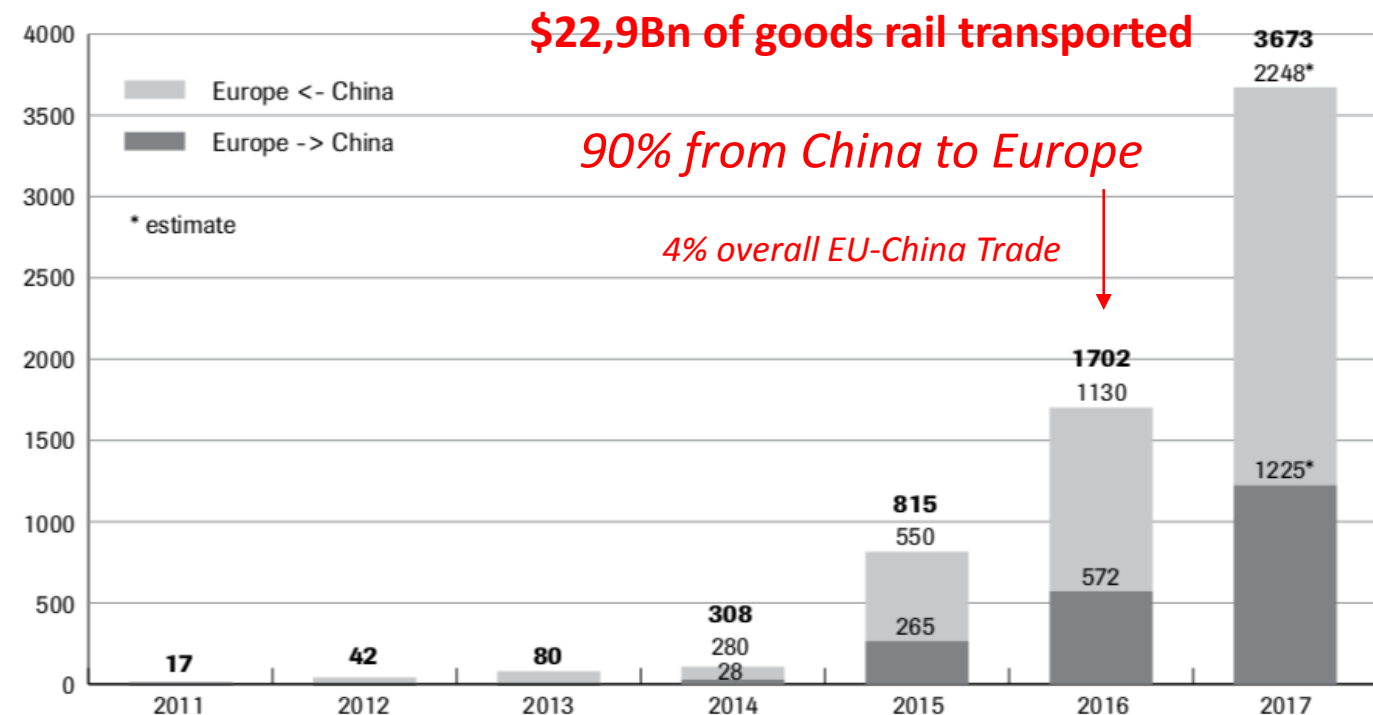
China's new silk roads

Transport infrastructures



HANDELSBLATT // The railway lines can only be roughly assigned to one project area.
Sources: Manfred Zapletal, Stiftung Wissenschaft und Politik (Nadine Godehardt), IWF, UNCTAD

Chart 1. Number of cargo train journeys on the China-Europe route, 2011-2017



MbD the right choice for Rail Freight *Architecture, Consensus & Smart Contract*

WHY PROOF OF AUTHORITY?

PROOF OF WORK & PROOF OF STAKE

- Very inefficient use of energy and taxing on the electrical grid
- Costly, slow, and unscalable validation processes
- Limits overall control and the possibility for improvements
- Can allow certain actors to acquire too much power and monopolize the market

PROOF OF AUTHORITY

- Traditional mining is not necessary, leading to minimal energy usage
- Speed, cheap, scalable and customized validation processes
- Allows changes and amendments to be made without the use of “forks”
- Balance of power is maintained & institutions keep pace with innovation



AMEND
& Cost Savings

Avoid hegemony of GAFA or BATX or COUNTRY

26-28 June 2018, Genoa, Italy



The PROBLEMS solved with MdD's *Proof of Authority & Amend unique features*

Up to \$100 M added value per Year by using BC beyond Corridors

3 strategic leverages

- Cost savings (40% less nodes)
- Improved performance (40% for 2 days cut)
- Improved predictable ETA (10%)

Vs Today your clients are facing :



Difficult Access to certified information

Little stakeholders interoperability



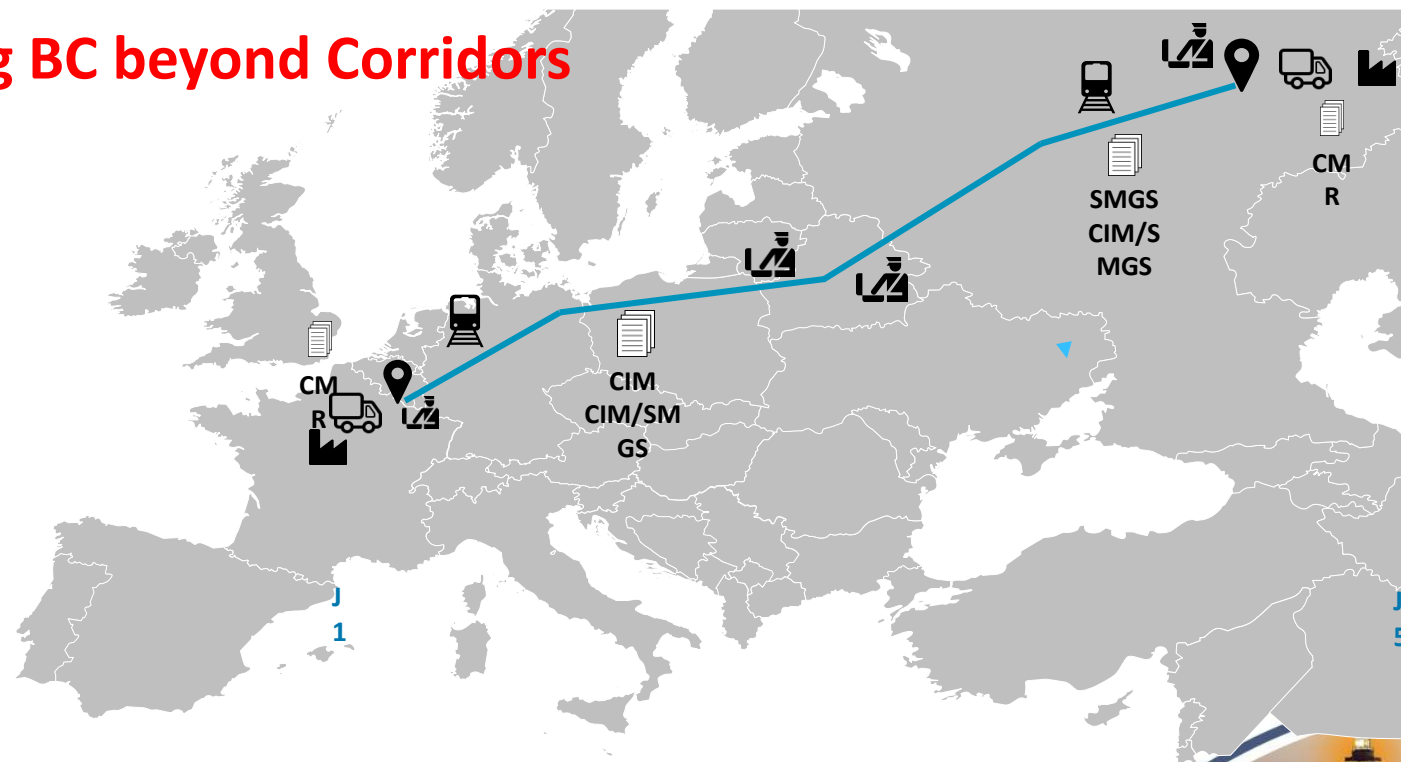
High Costs of border controls

Length & frictions with customs



Point of administrative rupture

High risks of human errors through manual ERP processes



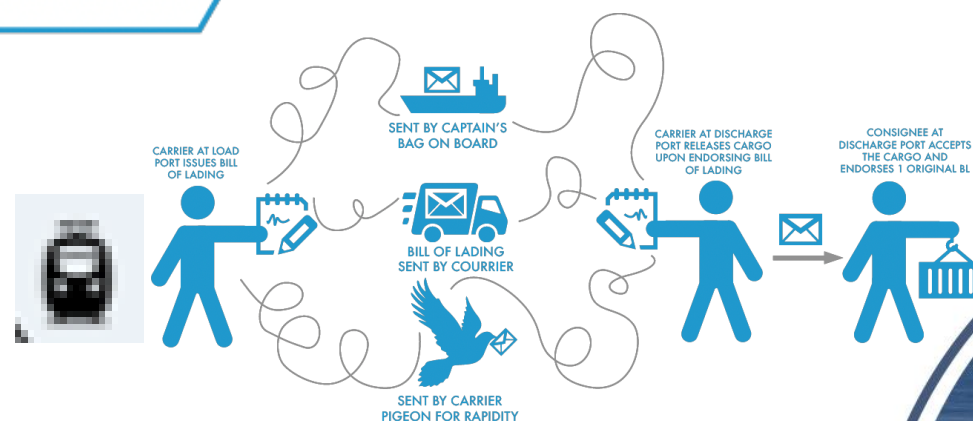
26-28 June 2018, Genoa, Italy



The PROBLEM IN FREIGHT TRANSPORT



UIC & Railway Members' OPPORTUNITY
IN EDUCATING AN ENTIRE ECOSYSTEM



26-28 June 2018, Genoa, Italy



UP TO \$100M / Y of value added via BlockChain IN & BEYOND THE CORRIDORS 1/3

• Cost savings (40% of \$100M)

- blockchain vs NO blockchain through out the logistic value chain
- Transparency, accountability, secured data transmission and storage
(1 data breach management traditionally costs 1,3 millions USD)
(estimated UNCATD : payment delays alone cost around \$19 billion per year in losses)
- Proof of Authority Consensus, Smart Contract and improved efficiency in freight management
- Reduced carbon footprint (less stops, shorter time)
- Reduced insurance premium as reduced exposure

➔ ***Less NODES creation (estimated at 40%) with Amend Feature in nodes management***



UP TO \$100M / Y of value added via BlockChain IN & BEYOND THE CORRIDORS 2/3

- **Improved Freight Performance (50% of \$100M)**

- Reduced frictions at all operational transit bottleneck points with harmonized validation consensus
 - *organisation of rail connection needs coordination of the timetables*
 - *providing a locomotive at a given time, at a specific border crossing,*
 - *and to make infrastructure available (including tracks and trans-shipment terminals) along with staffing etc.*
- Higher values of freight containers (potential merchandise containers' value of up to \$10m)
- Improved cashflow & capital management (settlements gains of less than 48h)
- information exchange with Smart Contract, facilitating customs controls, clearance etc.

➔ **Realtime data management, BC Smart contract, and follow through of the process (2 days less)**

e.g. WHAT IF 2 DAYS LESS AS AN OVERALL SMART NETWORK ?

For value of transported goods of \$1m by container

funded by your customers @6% (lower range of capital costs for corporations)

it's a cost of 60K\$ / Year so over 20 day rail transit it's 165\$/day saved per Container

& for 41 containers per train x 3700 = \$50M / Year SAVINGS by your clients !

SOURCE : OSW February 2018

26-28 June 2018, Genoa, Italy



UP TO \$100M / Y of value added via BlockChain IN & BEYOND THE CORRIDORS 3/3

- **Improved predictability of the delivery date of merchandise (10% of \$100M)**
 - Traceable flow of the train and its operations
 - Automated accountability of the load of merchandise and its container
(vs failing to collect empty containers for as long as fifteen months...)
 - Traceable & transparent management of problem resolutions through Smart contract
(reduced error, damage, weathers collaterals, depreciation of Train & containers, hacking & fraud)
 - Obtaining better rail track priority rules including at border vs other national trains scheduling
- Increase in number of trains transporting goods with higher value yield providing higher profits to the transport & logistics ecosystems including states tariffs collection : IMPROVED ATTRACTIVENESS**
- CHINA PREDICTS 5000 Trains by 2020**
- and UIC's railway members ought to be at the center of the Freight \$380 Bn ecosystems !**



Conclusion in IMPROVING TRUST

BlockChain & Rail Freight BEYOND BRI Corridors

- At stake : an increase in the value of transported goods as a rail freight industry collectively (threshold > 500K\$ per container and saving of up to 100m\$ / Year)
- Improved attractiveness of the rail benefits within Freight Ecosystems
- Improved effectiveness & efficiency of the entire freight ecosystems as engaged in BlockChain with Rail at the center of the set up
- Let's engage the next steps ...**OPEN SHARE CONNECT**
 - along with UIC Digital Platform SYNERGIES
 - with a POC to be further explored by UIC stakeholder group on corridors
 - and a strategic BlockChain benefiting members, multimodal partners and corporates !

=> Be recognized the most agile contributor in the \$380Bn/Y Freight industry



ANNEXE

• OPPORTUNITY COST

Opportunity Cost to use blockchain technologies over the Corridors Chine-Europe

*- For goods transported at \$1m per container funded @6%
it's 60K\$/Y of capital costs
So per day it's (60 000 / 365 d = it's -165\$/day/container)*

*There are 41 containers per train in average in 2017
there were 3700 trains commuting one way*

165 x 2 days shorter time x 41 containers x 3700 train = \$50M per Year

*- If Value of transported goods is \$10m then the OC is \$500M per Year
- If Capital Cost is increased by 2% then 8% implies an OC of 219\$/d/container & \$64M per Year*

SOURCE : OSW February 2018, Centre for Eastern Studies (OSRODEK STUDIOW WSCHODNICH)

The Silk Railroad, The EU-China rail connections: background, actors, interests
Jakub Jakóbowski, Konrad Popławski, Marcin Kaczmarek

26-28 June 2018, Genoa, Italy



ANNEXE

- The Problem
- The value of freight rates is USD 380 Billion in 2017 (UNCTAD).

Original documents delivery delays and money transfer delays cause unaccounted extra costs, opportunity cost & depreciation of assets, while disturbing a long supply chain. The **MbD** blockchain technology delivers revolution of the trade & transport by fostering optimisation. It will eliminate a number of problems:

- **1. Reducing Fraud** – minimises the risk of fraud and in many cases completely eliminates it, by not releasing any payments until the counter parties' pre-set conditions are met & publicly available proof of the payment has been made or secured in a smart escrow utility. Payments will be guaranteed by default. Fraudulent endorsement and duplication of ownership documents is ruled out.
- **2. Lowering Costs** – will significantly reduce costs, compared to high percentages and other fine print fees that are charged through the whole process by banks, couriers, insurers, brokers, agents, lines, etc. In due course through smart tokenisation it will be possible to guaranty payments which will not incur any costs, as it is the case with Bank L/C at the moment.
- **3. Minimising Delays** – avoids the delays by providing instant exchange, review and approval of documents and payments between the parties involved. Further delays are caused by different time zones, different public holidays, etc. The blockchain is always at work 24/7 and does not depend on human intervention. It is estimated that payment delays alone cost around \$19 billion per year (*UNCTAD) in losses.

- **Increasing Trust** – **MbD** relies on an improved infrastructure blockchain, backed by worldwide leading technology company allowing decentralized infrastructure. Using jointly a UIC proven and trusted technology.
- **Securing Information** – is naturally secured. It relies on the blockchain's proven hashing algorithm technology. There is no possibility of sensitive commercial information leakage by intermediaries, such as banks, brokers, agents, etc. While it is fully confidential it also allows for full publicity of the transactions details that are to be visible by all parties and the authorized members' audience.
- **Safe Archiving** – not just allows but fully relies for full historic storage of all transactions ever conducted, thus avoiding risks of physical loss or destruction of paper documents, while at the same time allowing for easy searching and reviewing past information stored in the cloud.
- **Flexibility** – MbD is flexible and allows the parties involved to easily select the terms that they choose to interact with. Options for standard or custom negotiated terms, conditions and forms will boost the user experience. Elimination of language barriers will further facilitate the eco-system participants.
- **Contracts** (Smart Bill of Lading, Smart Letter of Credit, etc.), referred to as the MbD platform. It could connect importers, exporters, freight forwarders, booking agents, ship brokers, ship owners, railway members and transit partners and authorities etc. into a single unified BC platform.

