

Digital Silk Road

Belt and Road on Blockchain

Presentation by: Jaba Tarimanashvili

Director of Trans Logistic LLC [www.translogisticllc.com]

Ship and Cargo services in Georgia

Initiative for development

The Belt and Road Initiative, a significant development strategy launched by the Chinese government with the intention of promoting economic co-operation among countries along the proposed Belt and Road routes, requires shifting to modern technologies of 21st century, from present work structure and systems, which was established since mid. 20th century.

Belt and Road Investments

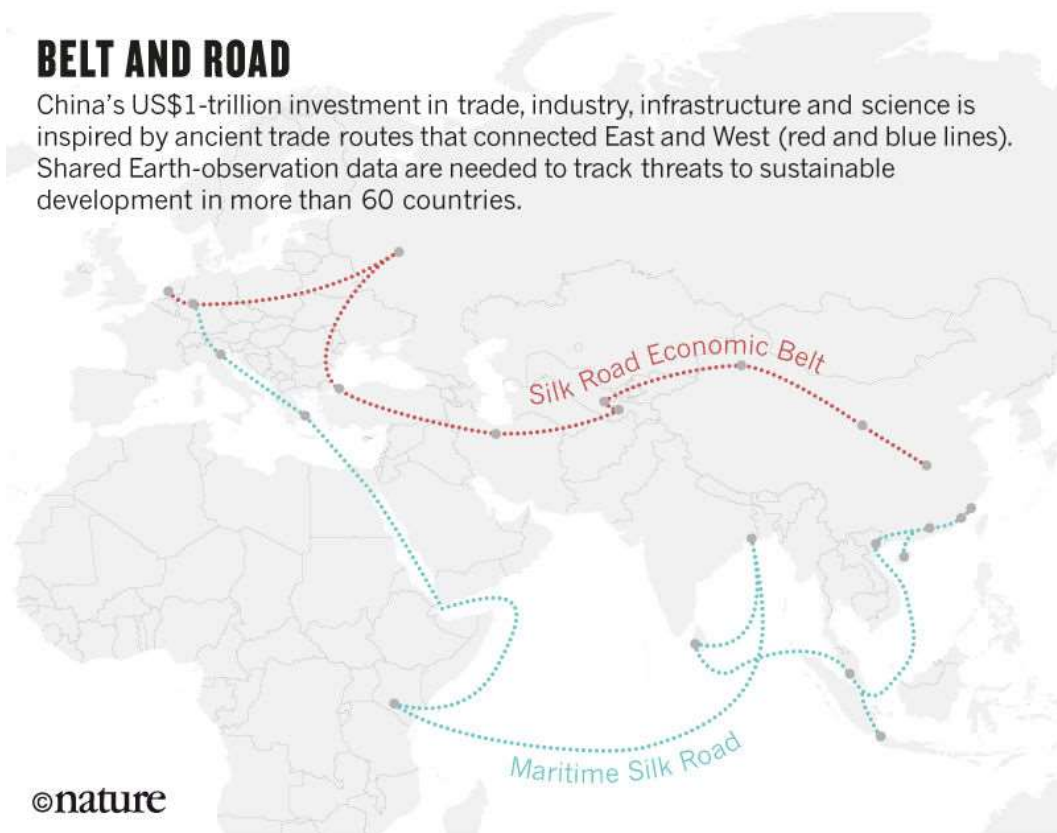
The 'Belt and Road' initiative promises more than US\$1 trillion of Chinese investment in some 60 countries.

The main aim is socio-economic development through improving the routes for land and sea trade.

The initiative will also boost science and technology across the region, for example through research into artificial intelligence, nanotechnology, quantum computing and smart cities

BELT AND ROAD

China's US\$1-trillion investment in trade, industry, infrastructure and science is inspired by ancient trade routes that connected East and West (red and blue lines). Shared Earth-observation data are needed to track threats to sustainable development in more than 60 countries.



Right Opportunities

Fastest way to success is to highlight bottlenecks, challenges, weaknesses, and problems along the routes, and convert them through business solutions into opportunities and efficiency.



Source: DB Schenker



Source: <http://www.dpbk.com/>



China-Germany Eurasian Routes

Deutsche Bahn (DB) and Russian Railways (RZD) set up Trans Eurasia Logistics (TEL) to handle transport operations and to coordinate the rail companies involved in the international project. TEL acts mainly as a neutral train operator, or the central interface, and its activities include coordinating purchasing processes and daily operations with the participating national railways.

China uses the same track gauge as Europe, while Belarus, Russia, Mongolia and Kazakhstan use broad gauge. In Asia, the change between standard gauge (1435 mm) and broad gauge (1520 mm) takes place at the Chinese-Russian border, in Zabaykalsk/Manzhouli (1) or in Erlian/Zamyn Uud at the Mongolian-Chinese border.

Southern route runs through Kazakhstan, Belarus and Russia. Change of gauge at Dostyk/Alashankou (2) at the Chinese-Kazakh border.

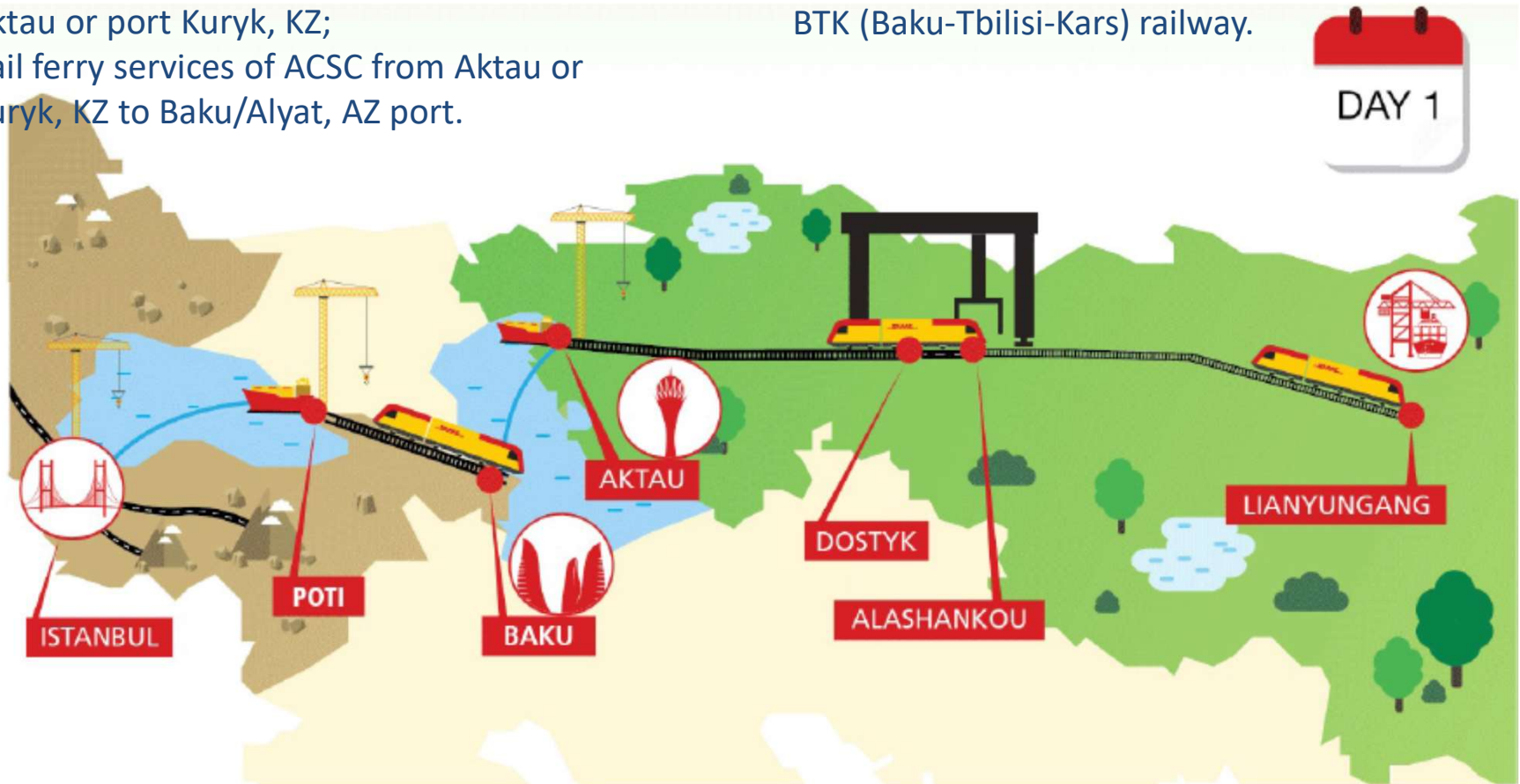


China's Silk Road Economic Belt

China-Turkey/EU Rail Link – Average 15 days

Process of transport arrangement:

1. Find operator in any of the countries for contract, and transport arrangement;
2. Change of train at China-Kazakhstan border; Alashankou > Dostyk;
3. Railway transportation from Dostyk, KZ up to Aktau or port Kuryk, KZ;
4. Rail ferry services of ACSC from Aktau or Kuryk, KZ to Baku/Alyat, AZ port.
4. Baku/Alyat, AZ to Poti or Batumi, GE railway transportation.
5. Poti, GE to Turkey/EU trucking or sea freight.
6. Prospects of actualization of BTK (Baku-Tbilisi-Kars) railway.



TITR Middle Corridor

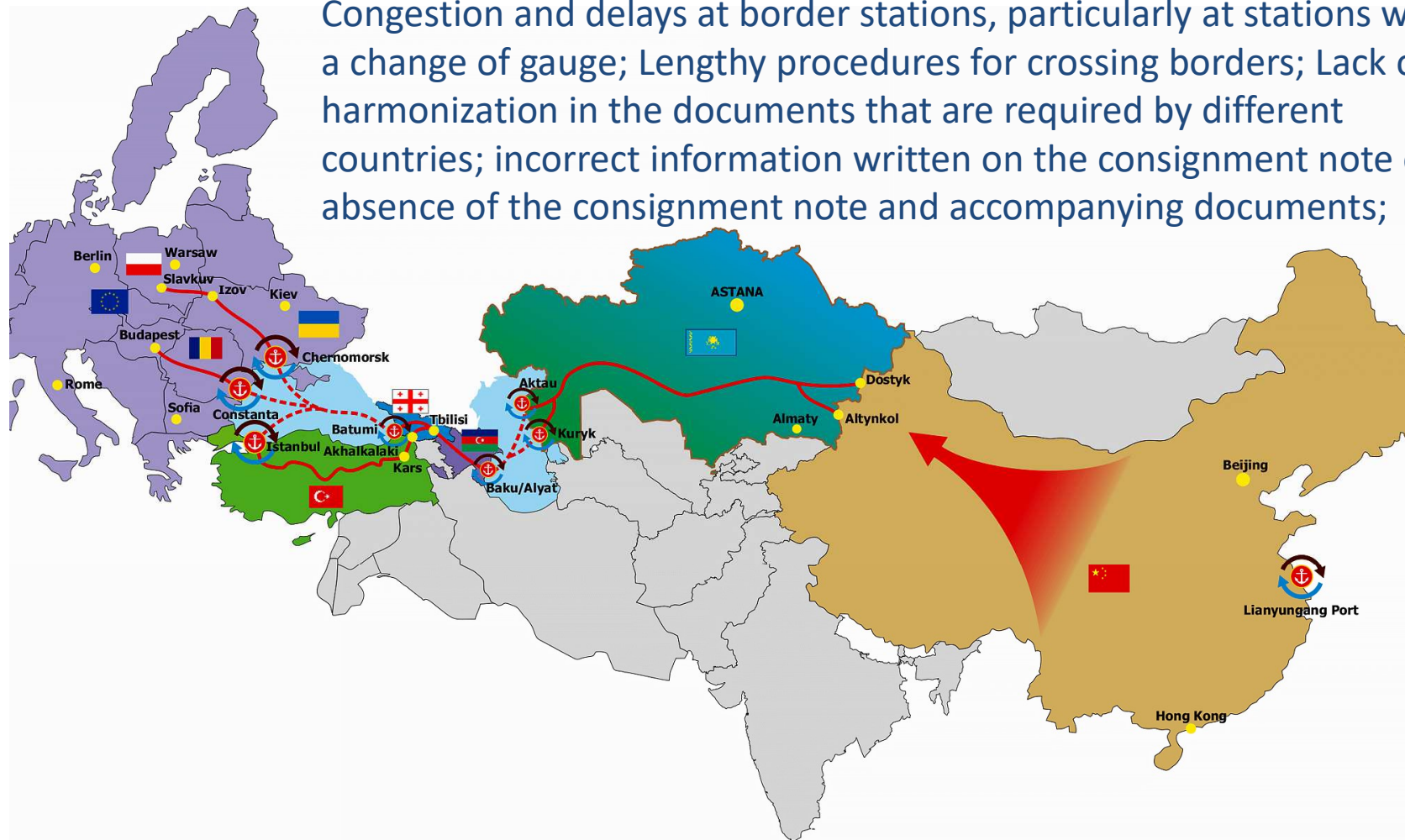
Trans-Caspian International Transport Route

Weakness: No common platform for transport; No single responsible operator in TITR;

Bottleneck: Caspian sea ferries, Change of Gauge or Means of Transport; Documents;

Challenges: Transparency, Online tracking, Predictability, Online Accessibility and Booking;

Congestion and delays at border stations, particularly at stations with a change of gauge; Lengthy procedures for crossing borders; Lack of harmonization in the documents that are required by different countries; incorrect information written on the consignment note or absence of the consignment note and accompanying documents;



Legal Interoperability



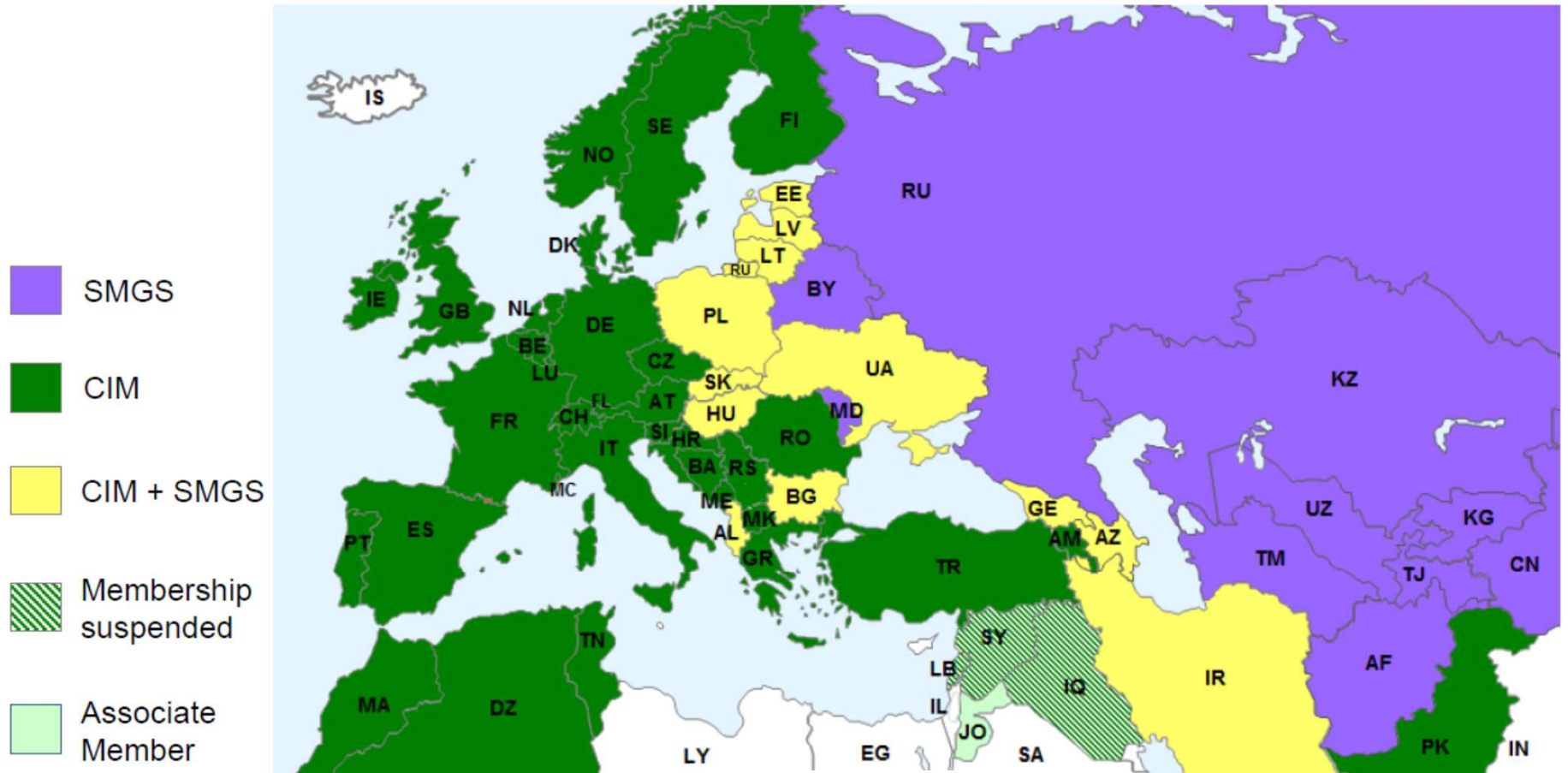
Domestic railway legislation determines the liability of railways, but there is a lack of international components in terms of this liability. At the international level two legal regimes are in force between Europe and Asia: the regime defined by the Intergovernmental **Organisation for International Carriage by Rail (OTIF)**, using the **CIM consignment note** in Western European countries, and the regime defined by the **Organisation for Cooperation between Railways (OSJD)** in East European countries, the Caucasus and some Asian countries, using the **SMGS consignment note**, which is not accepted in Western Europe.

The existence of two different legal regimes causes substantial delays in the movement of trains across borders. Although apparent success was achieved with the adaptation and introduction of the common **CIM/SMGS consignment note**, more work is still needed to make OTIF and OSJD railway zones more coherent, convergent and interoperable.

The CIM/SMGS consignment note frees the parties involved in transport operations from rewriting carriage documents when crossing the border between states of two different legal frameworks.

Freight traffic CIM/SMGS

Geography of rules concerning the Contract of International Carriage of Goods



International Regulations



Latest main messages from Eurasian rail corridor forum:

- Thinking rail as a network.
- **High importance of Digitalization and making uniform legal environment for rail transport and transits.**
- **There is no global regulation for railway transport**, similar to maritime field covered by IMO (international maritime organization).
- **Single contract required on Euro-Asian connection.** There is CIM/SMGS consignment notes harmonization, despite that, two legal contract for carriage of goods within geographies of SMGS and CIM.
- **OTIF is developing interoperability concept**, new appendix.



BRI – New Rail Silk Road

Under development **“New Rail Silk Road Economic Belt”** all the way standard gauge rail line through **China-Kyrgistan-Tajikistan-Afghanistan-Iran-Turkey–EU** (~8000-9000 km, 10-11 days).



Wally ©DreamWorks Distribution Limited. All rights reserved. Map data ©2018 Google, ORION-ME, ZENRIN 500 km



Trains connecting countries, companies, and people.

Disruptive Innovation Technologies Development



Solutions for future transport platform:

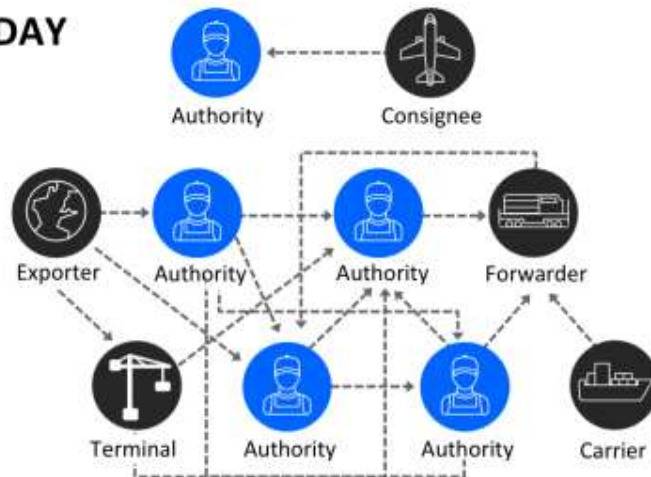
- **Decentralized transport platform** based on **Blockchain - Distributed Ledger technology**, is a solution to present weakness and inefficiencies for no common platform and no single responsible operator availability for transport business in TITR.
- **Smart contracts** integration into the system, for switching agreements between jurisdiction **CIM/SMGS**, and enable paperless electronic transport documents.
- **Algorithms** integration for system automation, for increasing transparency.
- **Advance system notification for quick customs clearance and border crossing.**
- **Eliminating bottlenecks**, planning and execution of fast changes in logistics chain.
- **Transparency, Online tracking, Predictability, Online Accessibility and Booking;**
- **Visibility of congestions**, automation of efficient and fast routing planning.

Future Platform on Blockchain

Future

- Efficient operations
- Predictability
- Integration of stakeholders
- Decrease administration costs
- Advance notifications
- Improved inventory management
- Digital documentation for stakeholders
- Improve inspections and audit capabilities

TODAY



- Inconsistent information across organizational boundaries and “blind spots” throughout the supply chain hinder the efficient flow of goods
- Complex, cumbersome, and costly peer-to-peer messaging
- Manual, time-consuming, paper-based processes
- Risk assessments often lack sufficient information; clearance processes subject to fraud
- The administrative cost of handling a container shipment is comparable to the cost of the actual physical transport

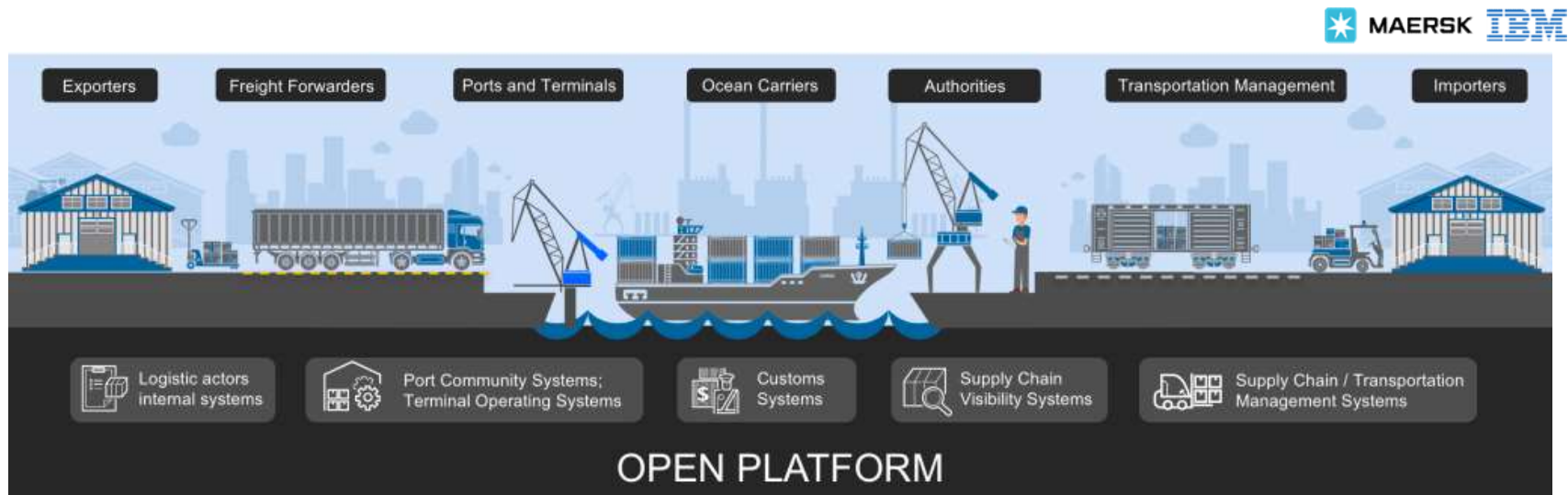
FUTURE



- Fast, secure access to end-to-end supply chain information; single source of the truth
- Verifiable authenticity and immutability of digital documents
- Trusted cross-organizational workflows
- Better risk assessments and fewer unnecessary interventions
- Far lower administrative expenses and elimination of costs to move physical paper across international borders

Blockchain development

Cyber attack in 2017 on Maersk caused IT breakdown. In cooperation with IBM it was decided to apply Blockchain, improve global trade and digitize supply chains.



Novotrans (railway operator) and Universa Blockchain sign memorandum for digitization of the train cars, transferring their statutes (loading, unloading, location) to blockchain and to include all details and specifics of the train maintenance to the digital history of railway carriages. If all rolling stock processes are transferred to blockchain, it is impossible to fake or change any information about the railway carriage and the goods carried inside. This information can also be accessed by each participant of the network or transaction at any moment.

Digitalization of port services



Georgian startup MARINE APPLICATIONS LTD. focuses on creating web-based, mobile friendly applications for companies acting in marine industry. Company has already developed solutions for ONLINE:

- D/A (disbursement account)
- SoF (statement of facts)
- Port line-ups
- Price-list and Catalogue for suppliers

PROFORMA D/A EXIT SIGN UP ENG-

ACTIVATE SHIPS CARGOES CUSTOMERS CABLES REPORT CHANGE PASSWORD

CALCULATE D/A Full D/A amount: 35098.47\$

Ship type: Bulk Carrier

GRT: 19000

LOA: 185

Beam: 24.6

DM: 14

Georgian Flag

CALCULATE CLEAR

Fee	Tariff	Formula	Amount
Port Charges			
Tonnage	1	x GRT	15000\$
Berth	0.07	x GRT	1650\$
Towage IN	0.3	x GRT	4500\$
Towage OUT	0.3	x GRT	4500\$
Moorng IN	300	Fixed	300\$
Moorng OUT	300	Fixed	300\$
Sanitary	0.05	x GRT	750\$
Watchman	0.05	x GRT	750\$
Fareman	0	Fixed	0\$
Monitoring	0.05	x GRT	1200\$
Total:			28350\$
Non-Port Charges			
Fee	Tariff	Formula	Amount
Pilot IN	0.024	x Cub.Mtd	1920.92\$
Pilot OUT	0.024	x Cub.Mtd	1920.92\$
Light	0.024	x Cub.Mtd	1920.92\$
Genexp	165.09432962264	Fixed	165.094
PRC Inspection	386.79	Fixed	386.79\$
Pollution	577.83	Fixed	577.83\$
VTS	0.07	GRT	1650\$
Total:			6748.47\$

Chosen: 7 lt. Cost: 1530.37\$ Cash save(3%): 45.91\$ Final: 1484.46\$ Meat:

Go to my list

Code	Item	Unit	Price, \$	Quantity	Cost, \$	Packing	Remark
1306	Beef bone-in	kg	5.37	120	644.4	20 kg cases	Frozen local
1308	Beef carcass	kg	5.29	0	0	20 kg cases	Frozen local
7331	Beef liver	kg	2.69	0	0	2 kg cases	Fresh local
1304	Beef loin boneless	kg	5.37	0	0	20 kg cases	Frozen local
7334	Beef mince	kg	5.4	0	0	5 kg cases	Fresh local
1305	Beef ribs	kg	3.75	0	0	10 kg cases	Frozen local
7330	Beef tongue	kg	2.69	0	0	2 kg cases	Fresh local
1360	Chicken breast	kg	3.49	0	0	12 kg cases	Frozen local
1362	Chicken legs	kg	1.83	0	0	15 kg cases	Frozen local
1364	Chicken liver	kg	1.61	45	72.45	10 kg cases	Frozen local
1366	Chicken stomach	kg	1.61	0	0	10 kg cases	Frozen local
1368	Chicken whole	kg	2.69	0	0	10 kg cases	Frozen local
7318	Duck	kg	5.29	0	0	5 kg cases	Fresh local
0127	Lamb	kg	6.45	0	0	20 kg cases	Fresh local
0117	Mutton	kg	6.18	100	618.00	20 kg cases	Fresh local
7323	Pigling	kg	7.25	0	0	5 kg cases	Fresh local
7227	Pork carcass	kg	3.76	0	0	20 kg cases	Frozen local
7220	Pork legs bone-in	kg	3.6	0	0	15 kg cases	Frozen local
7218	Pork legs boneless	kg	3.76	0	0	15 kg cases	Frozen local
7336	Pork mince	kg	3.79	0	0	5 kg cases	Fresh local
7223	Pork neck	kg	4.3	0	0	15 kg cases	Frozen local
7219	Pork ribs	kg	3.76	0	0	10 kg cases	Frozen local
7319	Rabbit	kg	7.52	0	0	5 kg cases	Fresh local
7320	Rabbit fillet	kg	7.2	0	0	3 kg cases	Frozen local



- www.marine-apps.com

Conclusion



When the winds of change blow, some people build walls and others build windmills. *Chinese Proverb*

President Xi Jinping proposed to construct the Digital Silk Road of the 21st Century at the Belt and Road Forum for International Cooperation in Beijing in May.

Present transport systems and information technologies are still in 20th century, and require shifting to Data Technologies, to be prepared and respond to future requirements.

Thank you for attention: www.translogisticllc.com