



Materiale didattico per partecipante al corso **"TECNICO ESPERTO NELL'ANALISI E NELLA VISUALIZZAZIONE DEI DATI"** – Rif.P.A. 2021-15998/RER – approvata con DGR n. 1263 del 02/08/2021 di IFOA – Istituto Formazione Operatori Aziendali

**SMART CONTRACTS**



**TRANSAZIONI**



**SICUREZZA**



**MINING**



**BLOCK CHAIN  
TECHNOLOGY**

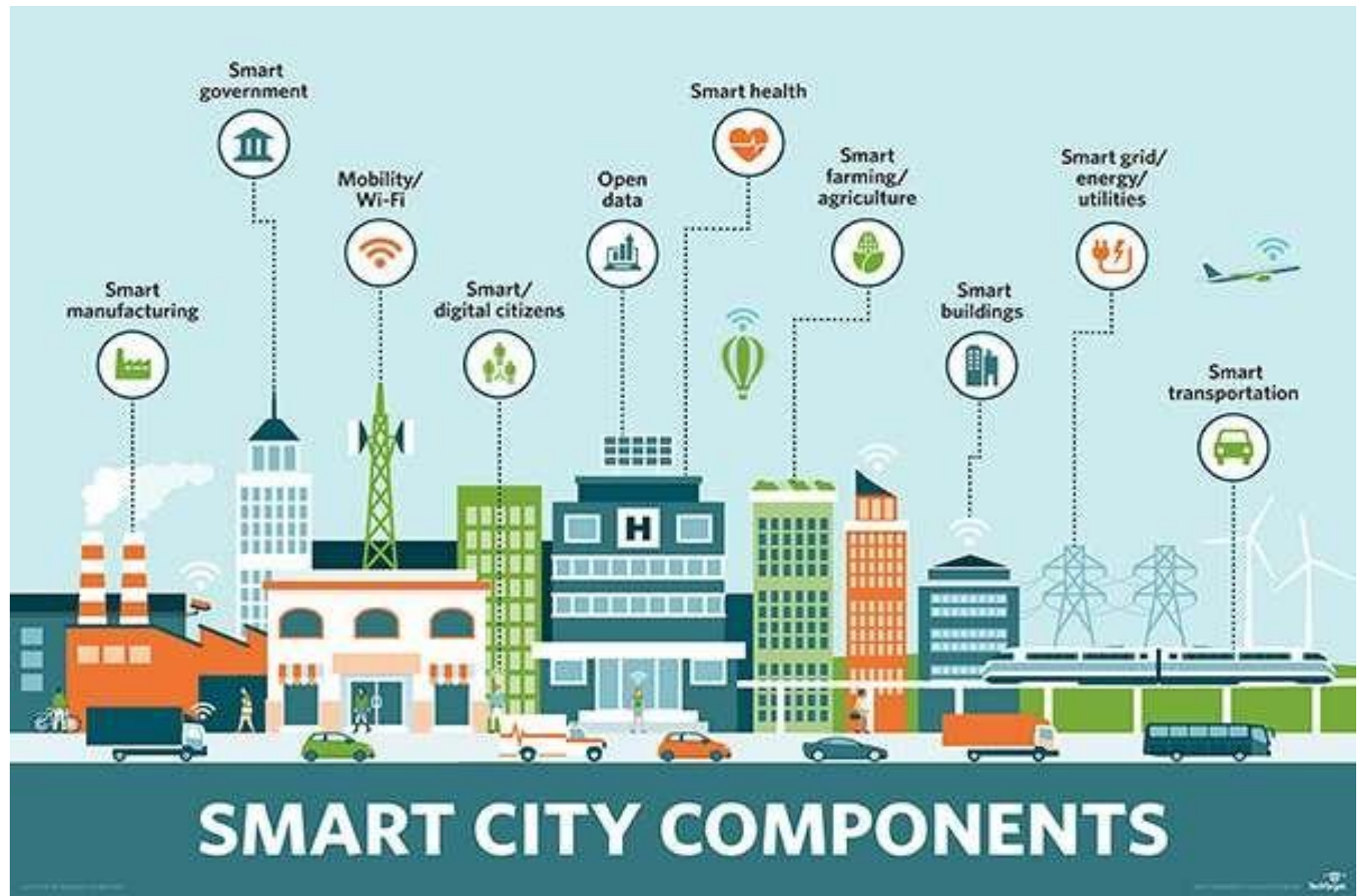


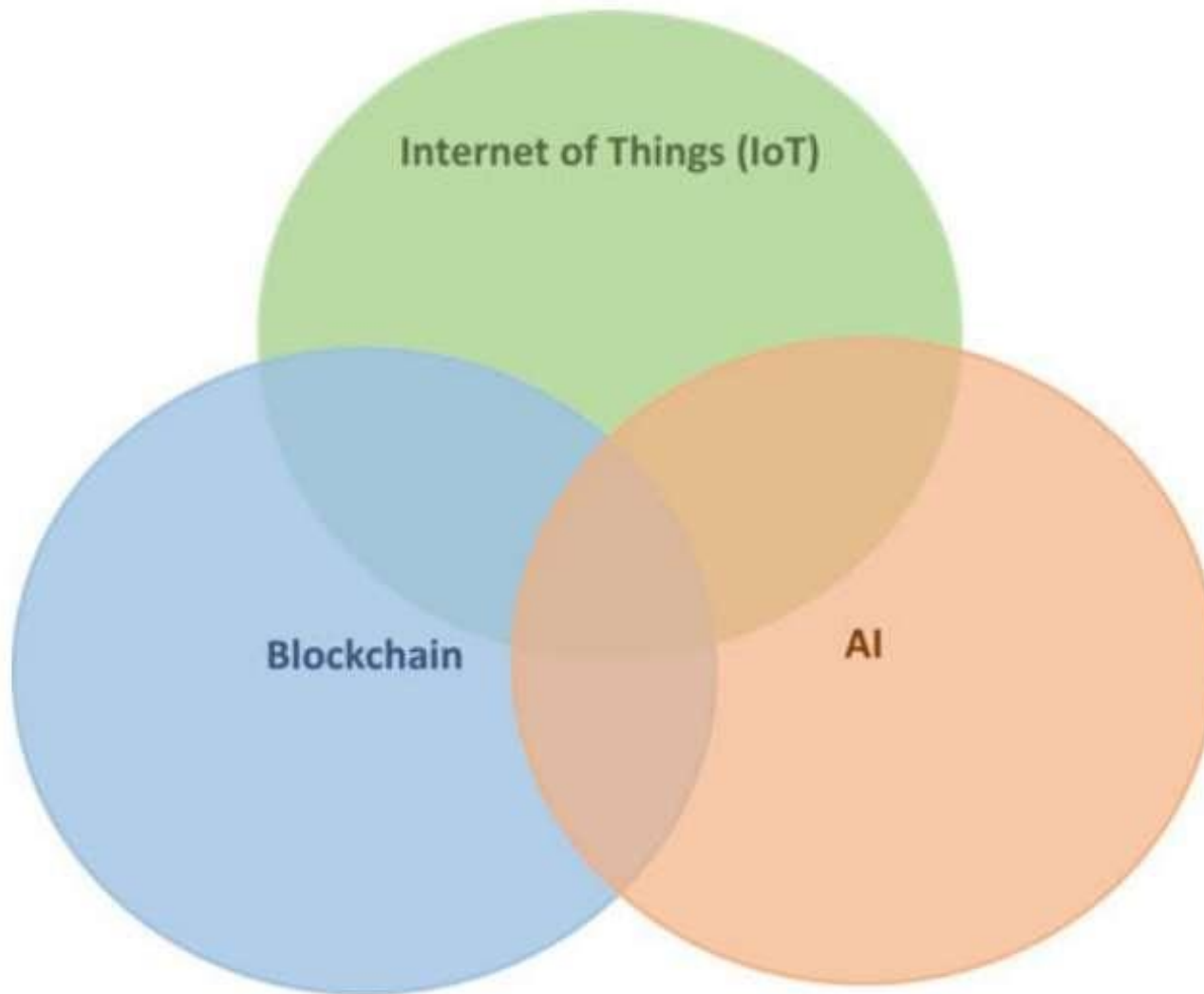
**CRIPTOVALUTE**



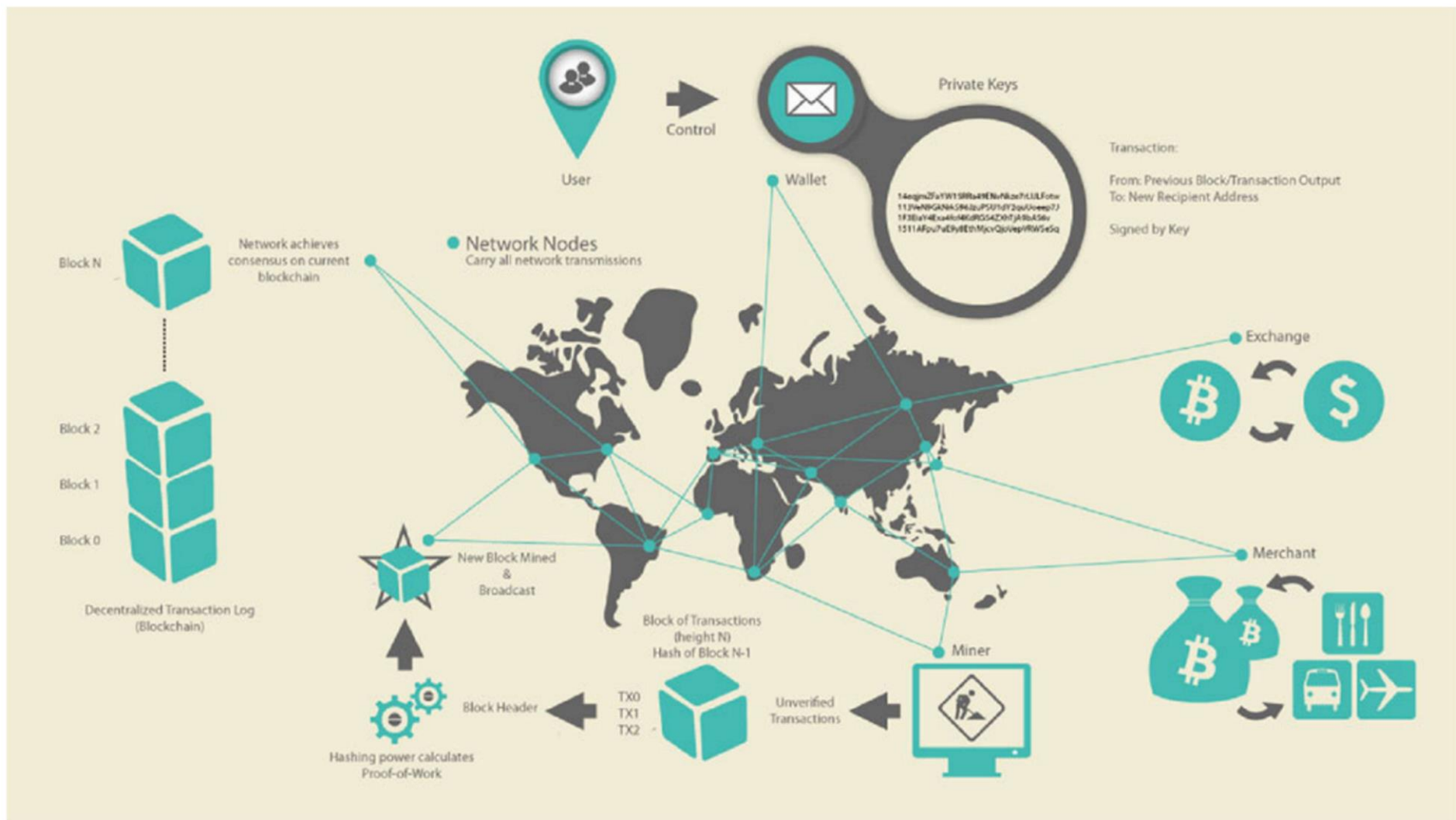
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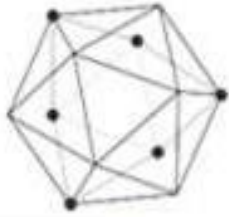




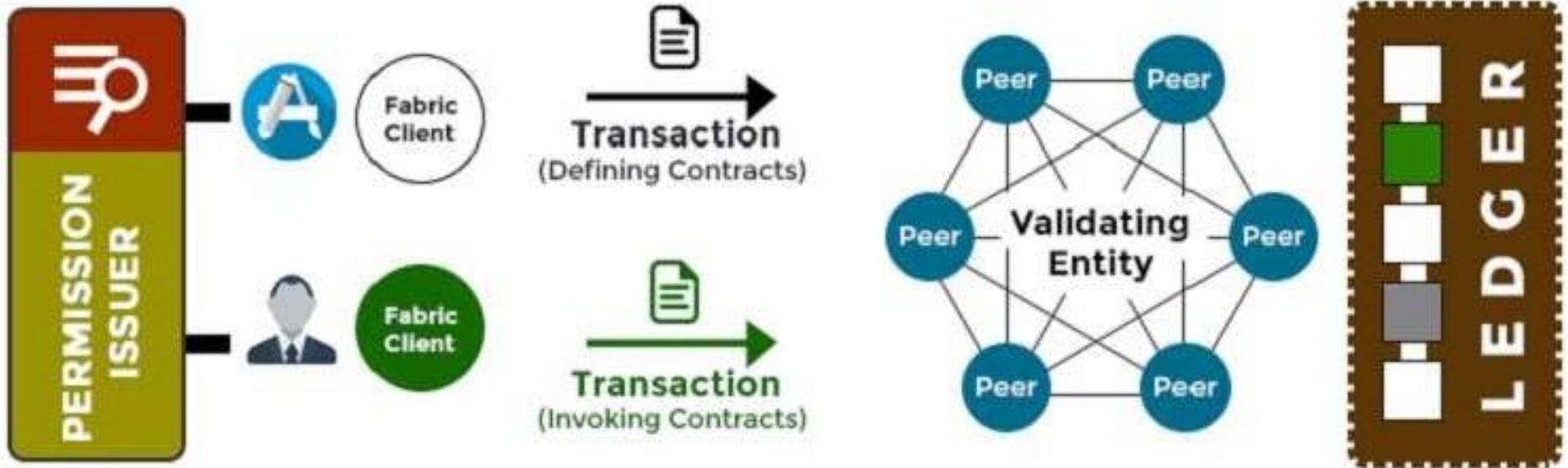








# HYPERLEDGER FABRIC



# IBM Blockchain for Supply Chain & Trade Finance

Add New Contract 

Container ID	Content	Exporter		Loading Port		Port of Entry		Importer
MK20333	1000 red roses with lon...	Ecuador Grower		Port of Guayaquil		Berlin Port		Berlin's Fresh Cuts
MK112200	1000 dendrobium bouq...	Ecuador Grower		Port of Guayaquil		Berlin Port		Berlin's Fresh Cuts
MK003489	30000 Pink Roses long ...	Ecuador Grower		Port of Guayaquil		Berlin Port		Berlin's Fresh Cuts
MT45000	30000 pink daisies	Ecuador Grower		Port of Guayaquil		 Berlin Port		Berlin's Fresh Cuts
MK77793	25000 dendrobium bou...	Malay Grower		 Port Kelang		Port of Antwerp		Wholesale Flower
MK12000	30000 Pink Carnations	Pichai Flowers		 Onne Port		Port of Hamburg		Berlin's Fresh Cuts
MK10220	50000 Vandas long stems	Pichai Flowers		Laem Chabang		 Elizabeth		Trader Joe's
MK99999	20000 Dendrobiums	Pichai Flowers		Songkhla		Kobe Port		Flowers of Kyoto
MK12345	100000 Red Roses long...	Grower Group		Santa Marta Port		 San Francisco		Trader Joe's
MK00001	100000 white mums - p...	Grower Group		Barranquilla		Elizabeth		Walmart
MK10035	20000 Red Tulips	FlowerWorld		Port of Antwerp		Kobe Port		Flowers of Kyoto
MK30443	30000 Purple Dendrobi...	Ecuador Grower		Port of Guayaquil		Kobe Port		Flowers of Kyoto
MK20110	70000 White Dendrobiu...	Pichai Flowers		Lam Chabang		Kobe Port		Flowers of Kyoto

⌂ Back to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

🖱️ **Contract:**

Issue Letter of  
Credit

Logged on as

Bank of  
Belgium



International  
Shipper



BLOCKCHAIN SHARED LEDGER



Back to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

Contract: 21005

Bank of  
Singapore



Click this participant  
for the next step

SingaFlowers  
PL



Port of  
Singapore



Port of  
Antwerp



Antwerp  
Customs



Flanders  
Flowers Co.



Logged on as

Bank of  
Belgium



International  
Shipper



BLOCKCHAIN SHARED LEDGER Letter of Credit

Letter of Credit Created

Letter of Credit Received

Back to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

Contract: 21005

Bank of  
Singapore



Request Goods  
Inspection

Logged on as

SingaFlowers  
PL



Port of  
Singapore



Port of  
Antwerp



Antwerp  
Customs



Flanders  
Flowers Co.



Bank of  
Belgium



International  
Shipper



Contract temperature range: 5° C to 12° C

Contract humidity range: 40% to 70%

BLOCKCHAIN SHARED LEDGER



Letter of Credit



Logistics Contract

Letter of Credit Created

Letter of Credit Received

Logistics Contract Issued

⌂ Back to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

Contract: 21005

Click this participant  
for the next step

Bank of  
Singapore



SingaFlowers  
PL



Port of  
Singapore



Port of  
Antwerp



Antwerp  
Customs



Flanders  
Flowers Co.



Bank of  
Belgium



International  
Shipper



Contract temperature range: 5° C to 12° C

Contract humidity range: 40% to 70%

BLOCKCHAIN SHARED LEDGER



Logistics Contract



Phytosanitary Certificate



Bill of Lading

Letter of Credit Created

Letter of Credit Received

Logistics Contract Issued

Phytosanitary Cert. Issued

Bill of Lading issued

Click to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

Contract: 21005

Bank of  
Singapore



Logged on as  
SingaFlowers  
PL



Port of  
Singapore



Watson Internet of Things Platform

Port of  
Singapore



Antwerp  
Flowers



Flanders  
Flowers Co.



Bank of  
Belgium



International  
Shipper



Contract temp

Contract humidity range 60% to 70%

Next

Blockchain Shared Ledger

Letter of Credit

Logistics Contract

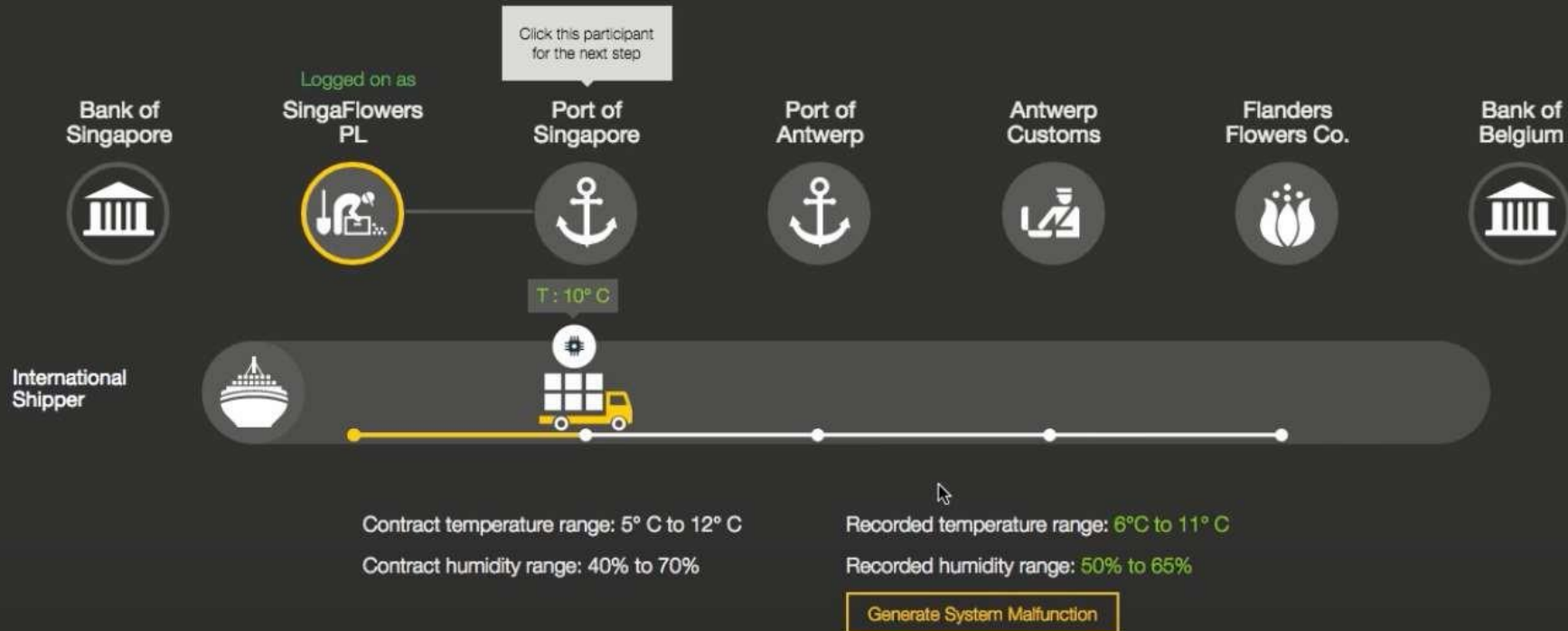
Phytosanitary Certificate

Bill of Lading

Back to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

Contract: 21005



BLOCKCHAIN SHARED LEDGER



Letter of Credit



Logistics Contract



Phytosanitary Certificate



Bill of Lading

Letter of Credit Created

Letter of Credit Received

Logistics Contract Issued

Phytosanitary Cert. Issued

Bill of Lading issued

Consignment Sealed, Ready to export



Back to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

Contract: 21005

Automatically validated by:

- ☒ International Shipper
- ☒ Bank of Belgium
- ☒ Port of Singapore
- ☒ Port of Antwerp
- ☒ Consensus

Bank of Singapore



Singapore Port



Port of Antwerp



Antwerp Customs



Flanders Flowers Co.



Bank of Belgium



International Shipper



T: 6°C



Contract temperature range: 5° C to 12° C

Contract humidity range: 40% to 70%

Recorded temperature range: 5°C to 17° C

Recorded humidity range: 50% to 65%

Generate System Malfunction

BLOCKCHAIN SHARED LEDGER

Logistics Contract

Phytosanitary Certificate

Bill of Lading

Back to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

Contract: 21005

Automatically validated by:

- ✓ International Shipper
- ✓ Bank of Belgium
- ✓ Port of Singapore
- ✓ Port of Antwerp
- ✓ Consensus

Bank of Singapore



Singapore Port



Port of Antwerp



Antwerp Customs



Flanders Flowers Co.



Bank of Belgium



International Shipper



T: 9° C



Contract temperature range: 5° C to 12° C  
Contract humidity range: 40% to 70%

Recorded temperature range: 5° C to 17° C  
Recorded humidity range: 50% to 65%

Generate System Malfunction

BLOCKCHAIN SHARED LEDGER

Logistics Contract

Phytosanitary Certificate

Bill of Lading

Letter of Credit Created

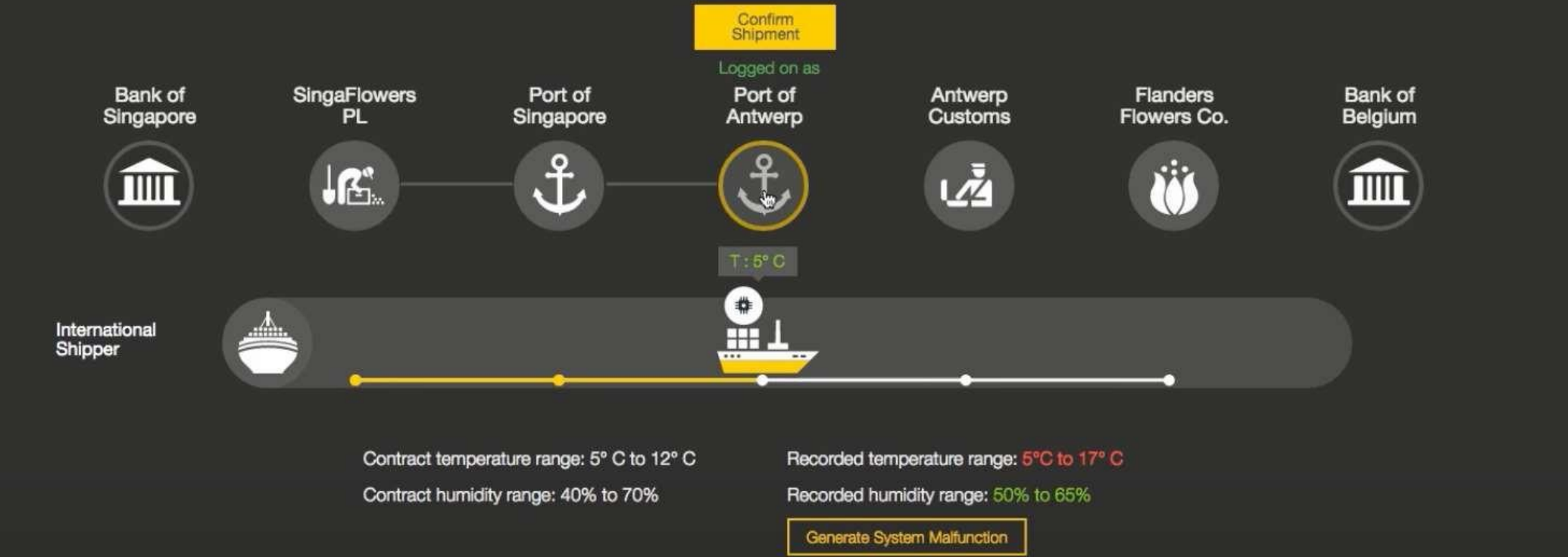
Letter of Credit Received

Logistics Contract Issued

Phytosanitary Cert. Issued

Bill of Lading Issued

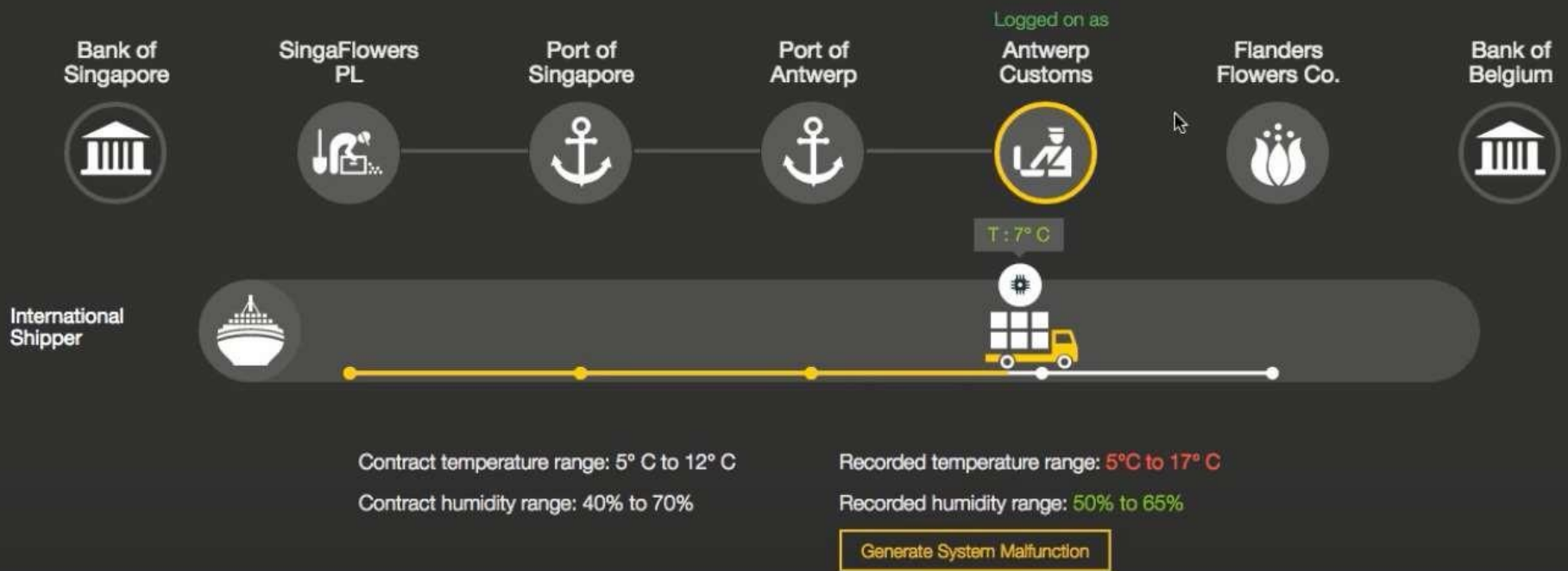
Consignment Sealed, Ready to export



Back to all contracts

# IBM Blockchain for Supply Chain & Trade Finance

Contract: 21005



BLOCKCHAIN SHARED LEDGER

Phytosanitary Certificate Bill of Lading

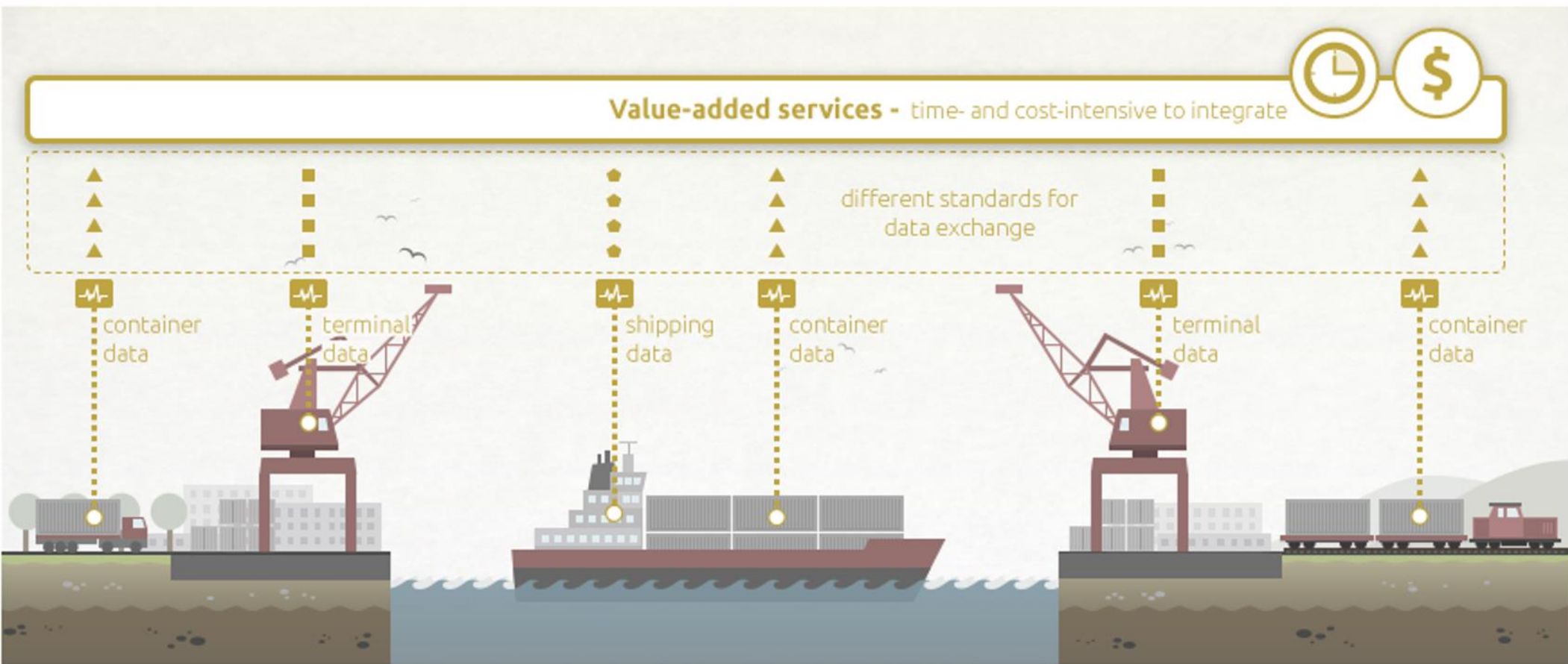
Contract of Carriage Created Contract of Carriage Reviewed Insurance Contract Issued Phytosanitary Cert. Issued Bill of Lading Issued Development Stored Goods to Export

Payment = contract – 2% of penalty

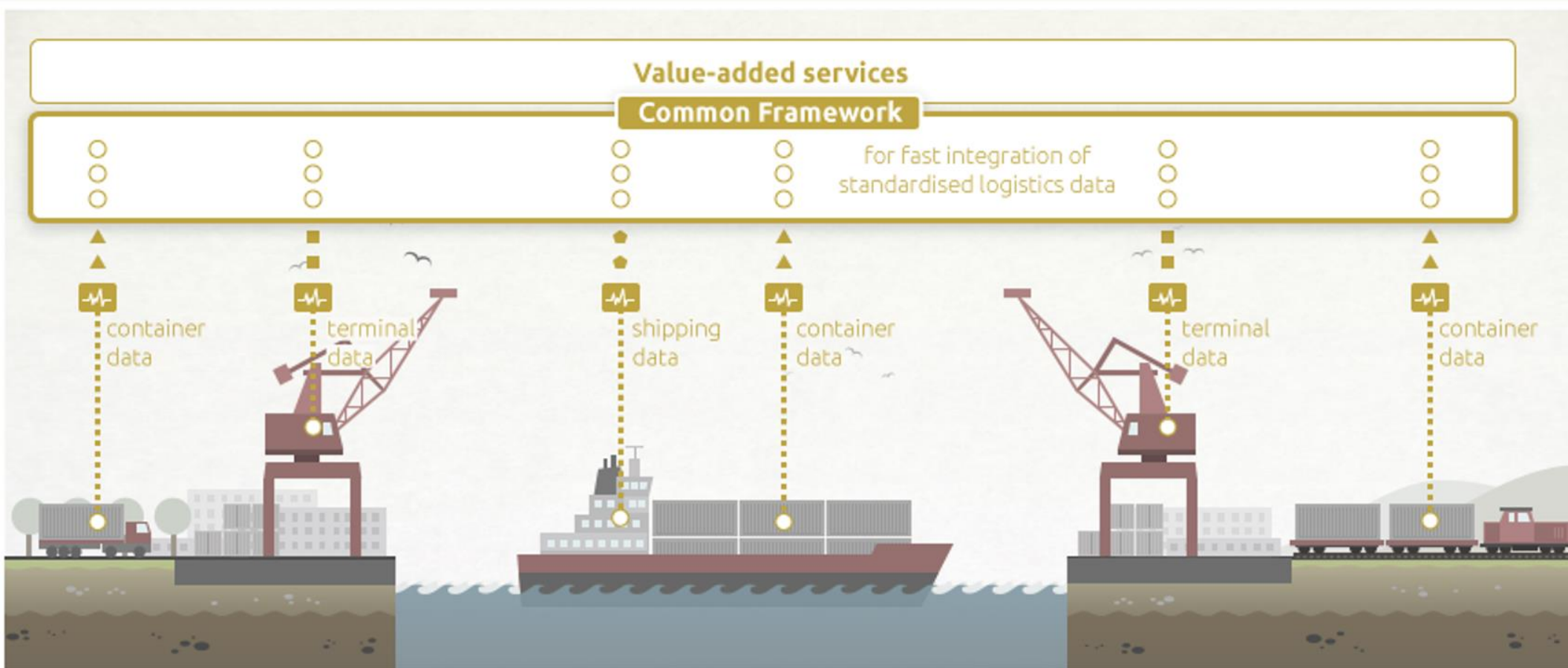


## Why and Benefits:

- Deliver awareness throughout global supply chains to solve problems of data fragmentation, delay, and inconsistency.
- Use data drawn from the entire supply chain to provide accurate, comprehensive logistics information.
- Identify problems sooner and adjust plans proactively, minimising the impact of deviations or other exceptions.
- Professional actors benefit from greater operational control and identify opportunities for further improvement.
- By raising the quality of services, actors can also create added value for their customers.



1. Different standards are time- and cost-intensive to integrate



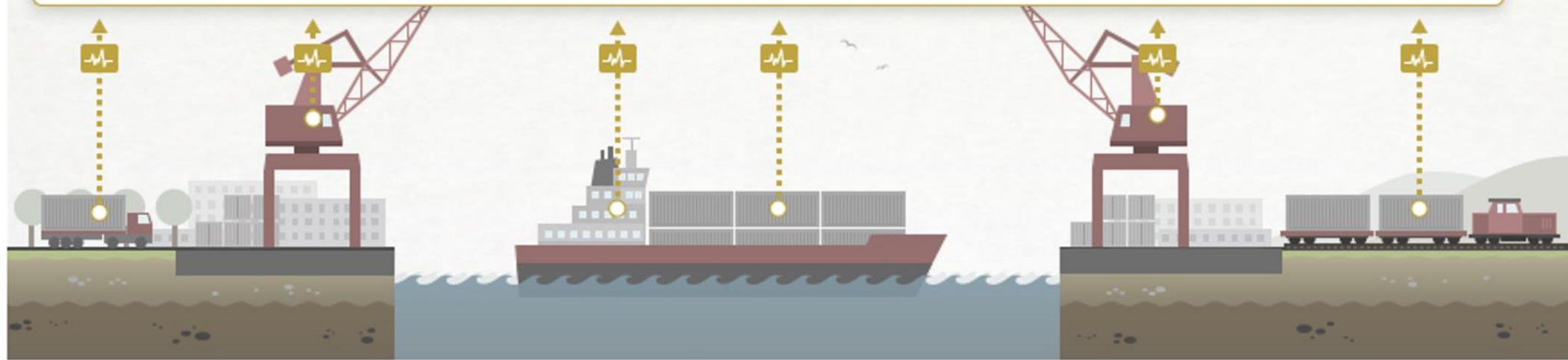
## 2. Common Framework for fast integration of logistics data

### 3-layer architecture

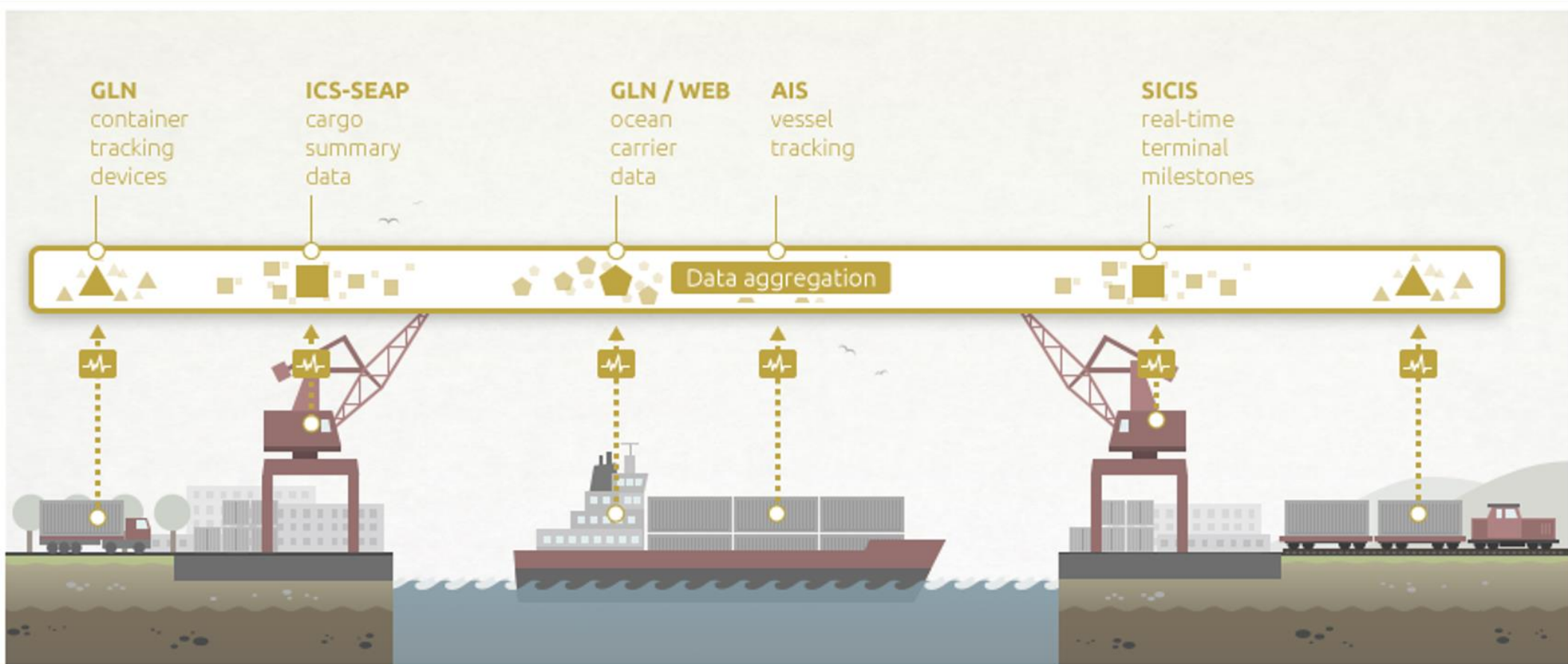
Data consolidation

Data standardisation

Data aggregation

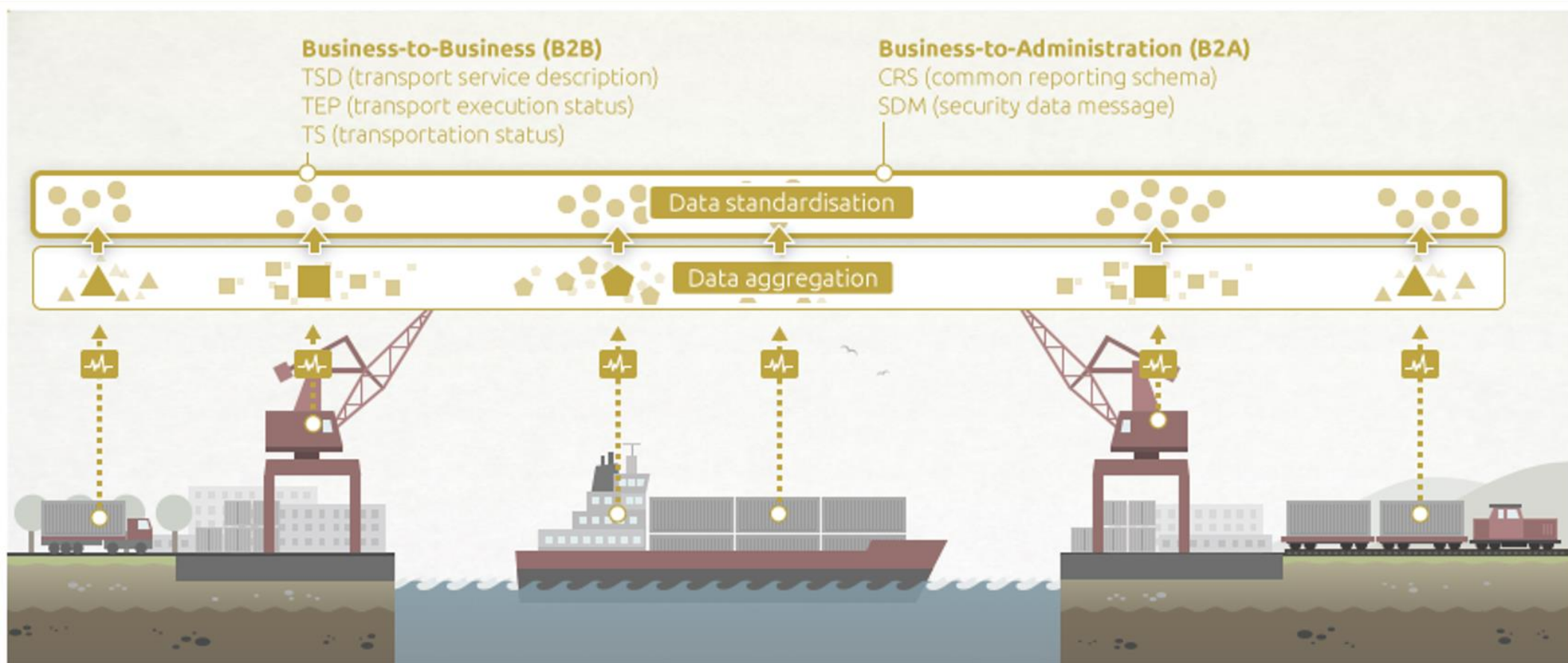


## 3. 3-Layer architecture supporting B2B and B2C

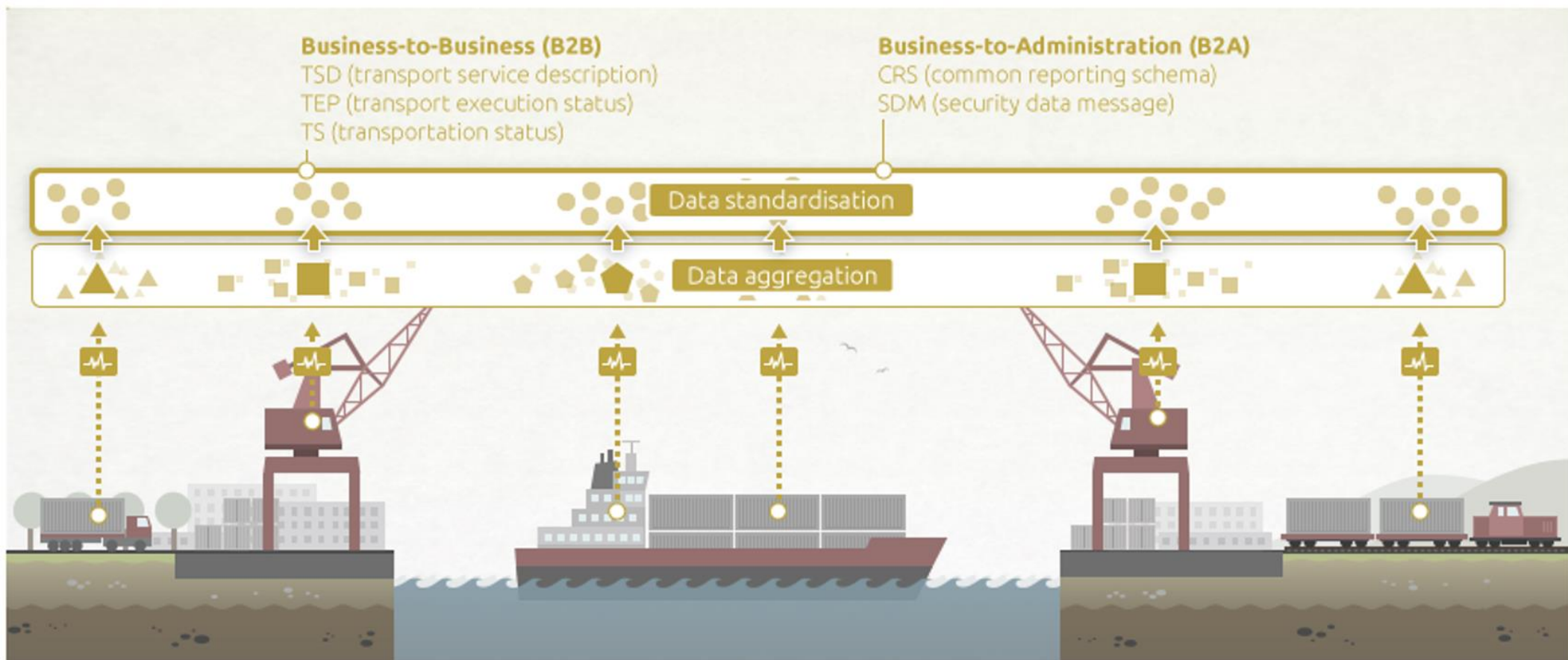


#### 4. Aggregation for easy access to multiple data sources

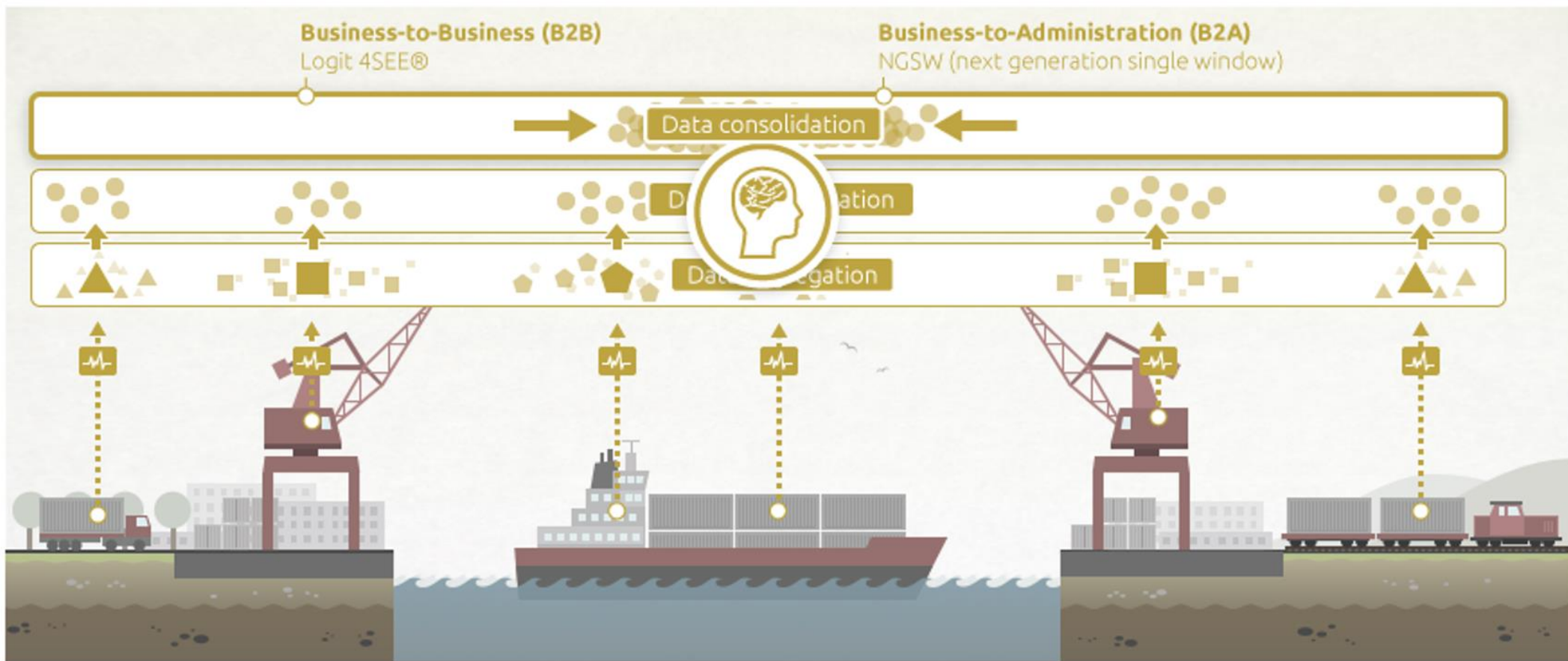




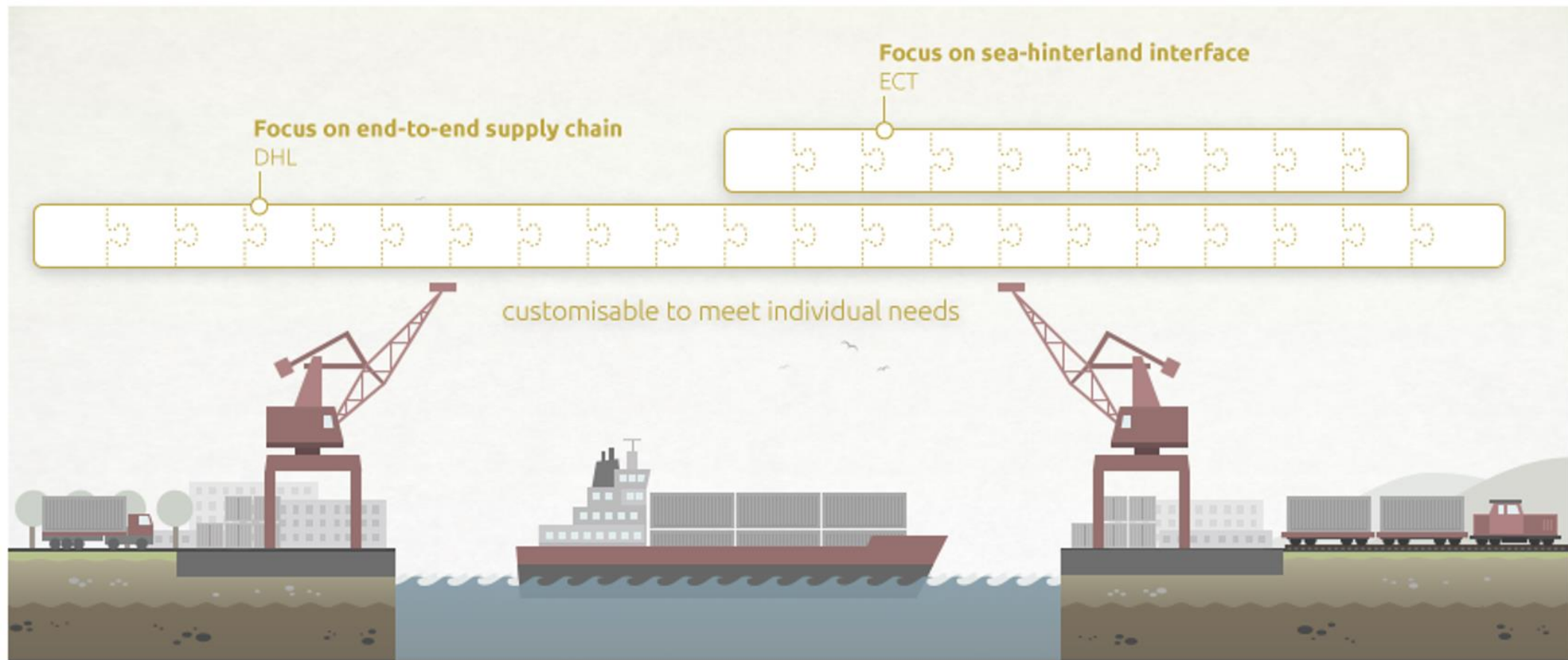
## 5. Standardised data independent of original source & format



## 5. Standardised data independent of original source & format



## 6. Consolidation for qualified information that supports decisions



## 7. Wide range of applicability

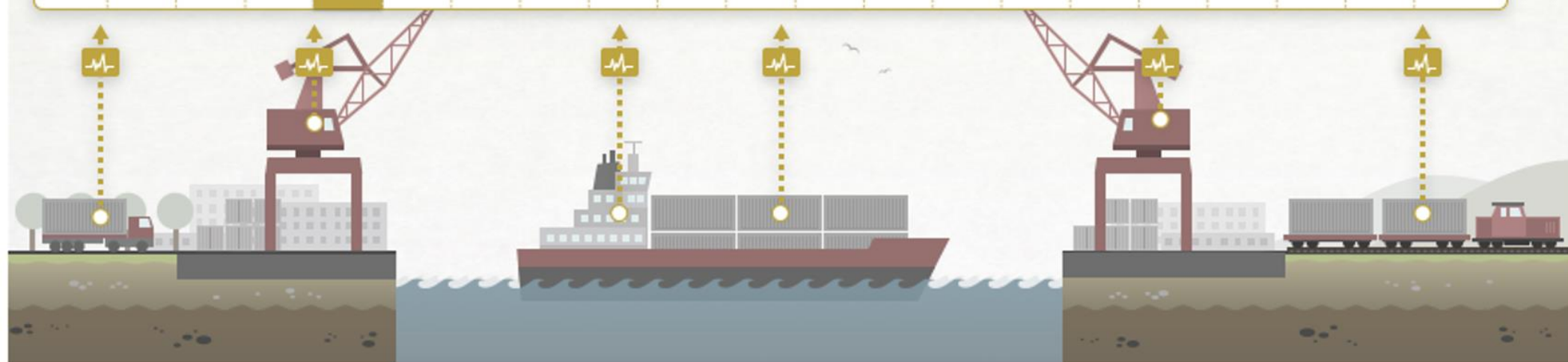


customisable to meet individual needs

Data consolidation

Data standardisation

Data aggregation



8. Pick the data sources & value added services you need



- Solve the “Black Box” effect: Without true awareness throughout the global supply chain, it is difficult to accurately predict when shipments will arrive, especially if delays occur en route.
- Abandon disconnected data: There are many proprietary container-tracking mechanisms, each with its own interface.
- Provide consistent data: Multiple data sources sometimes provide contradictory or incomplete information, and the resulting uncertainty has implications for operational costs and service quality.

