

Smart mobility in transport & seamless interconnectivity in logistics

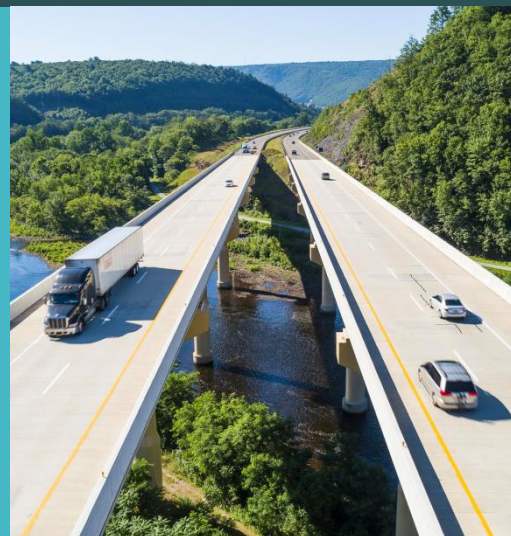
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Simplify | Digitalise | Collaborate



FEDeRATED & ADIF experiences

04/05/2021



The challenge:

Towards an integrated system for the multimodal chain

Current Bottlenecks



Insufficient interconnectivity due to a non-coherence use of standards though different transport domains.

Fragmented legal base along different countries.

Big companies, including platforms, increasingly constitute a **threat for SMEs** to access to open data

Challenges



Digitalization as a window of opportunities for seamless data flow management in logistics

Optimal use of Data generated in each shipment

Zero papers along the entire transport chain

Solution



Creating a **Data Sharing environment** which benefits all the players along the supply chain.

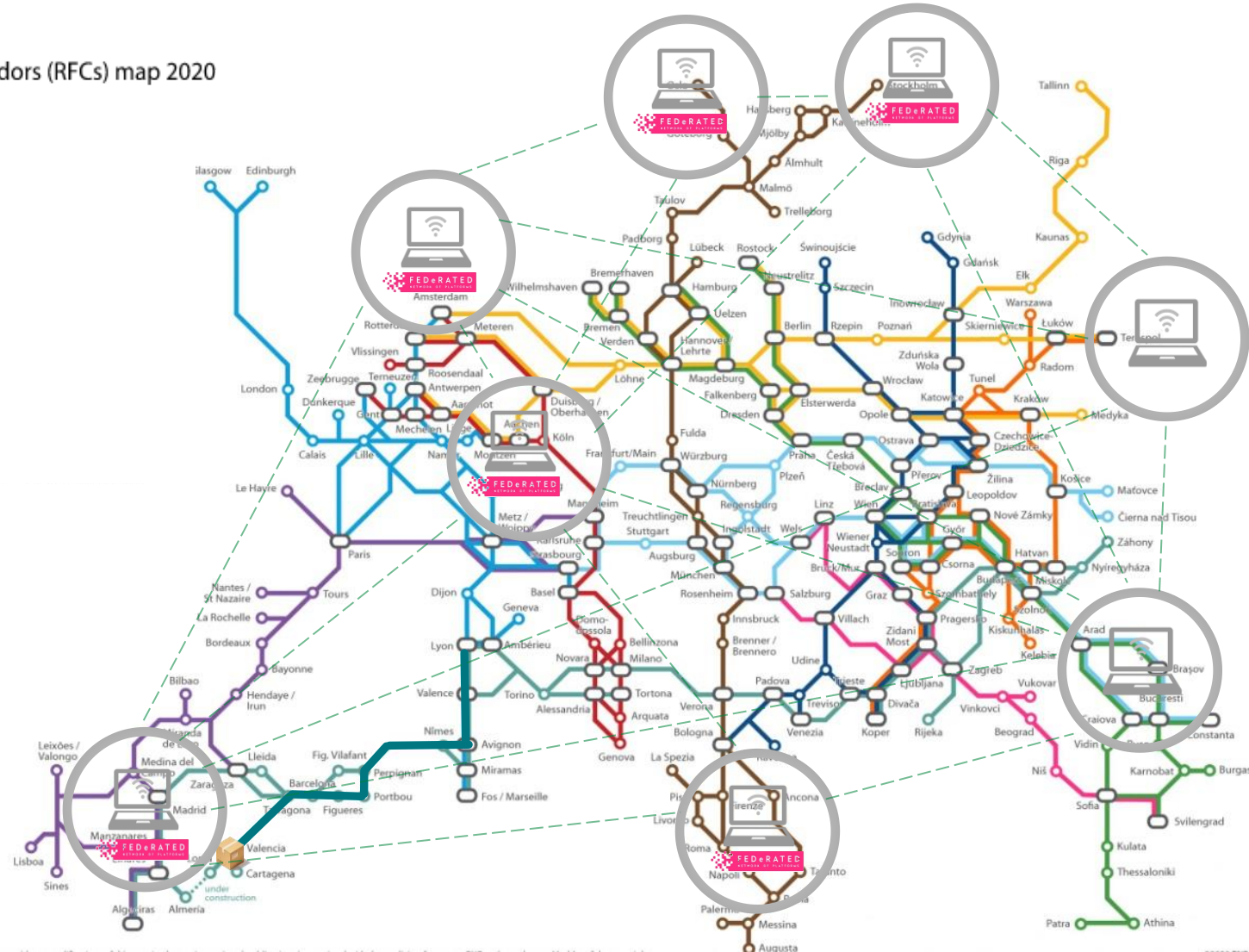
Fully available & visible intermodal transport services to deploy end to end synchromodal logistics solutions

The vision: SIMPLE – A digital solution in a Federative network of Platforms



Rail Freight Corridors (RFCs) map 2020

- RFC1 Rhine - Alpine
- RFC2 North Sea - Mediterranean
- RFC3 Scandinavian - Mediterranean
- RFC4 Atlantic
- RFC5 Baltic - Adriatic
- RFC6 Mediterranean
- RFC7 Orient / East-Med
- RFC8 North Sea - Baltic
- RFC9 Czech-Slovak / Rhine - Danube
- RFC10 Alpine - Western Balkan
- RFC11 Amber

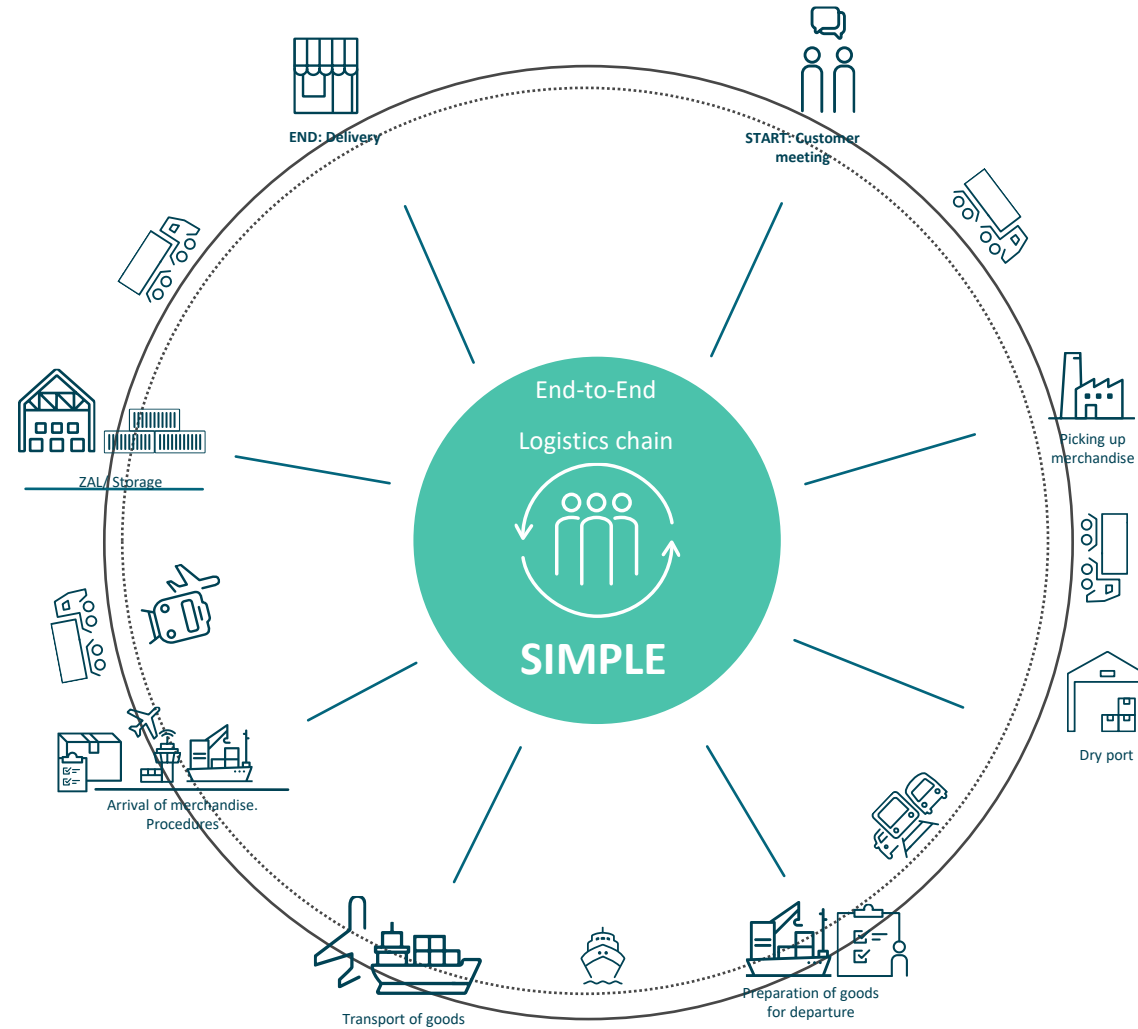


The vision: SIMPLE digital platform values



Stakeholders & Flows

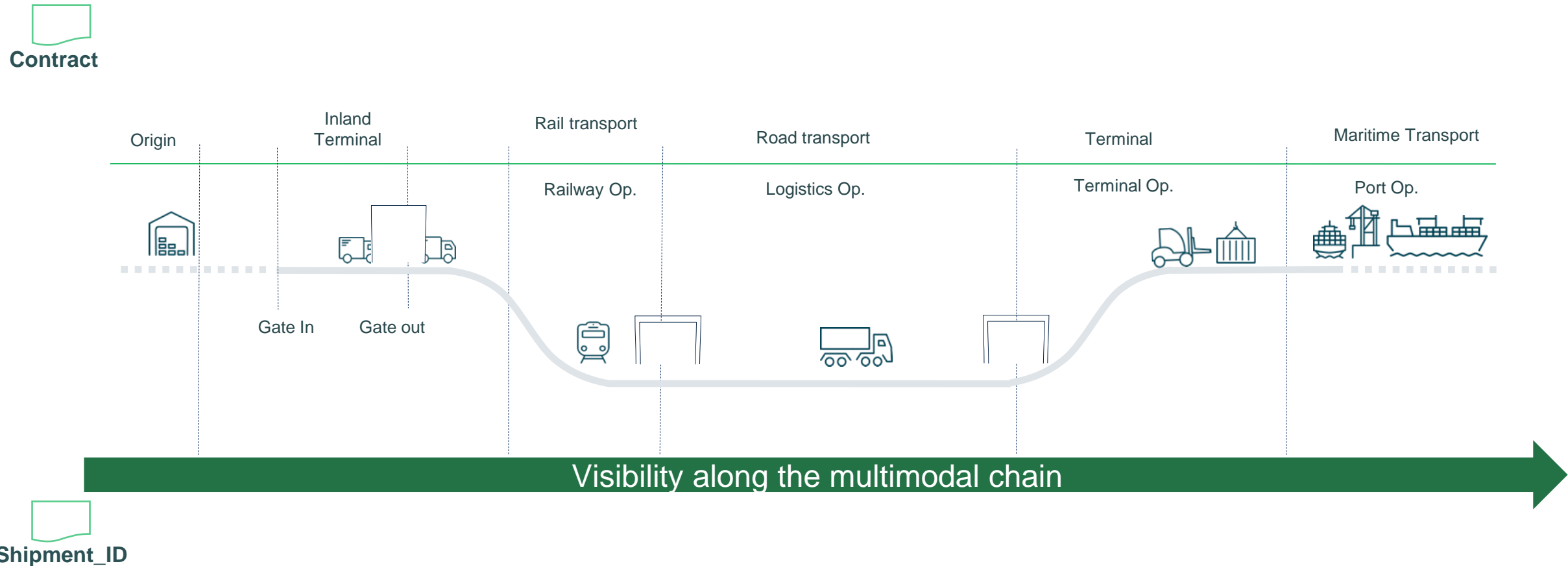
A complete view of the logistics chain



Stakeholders & Flows

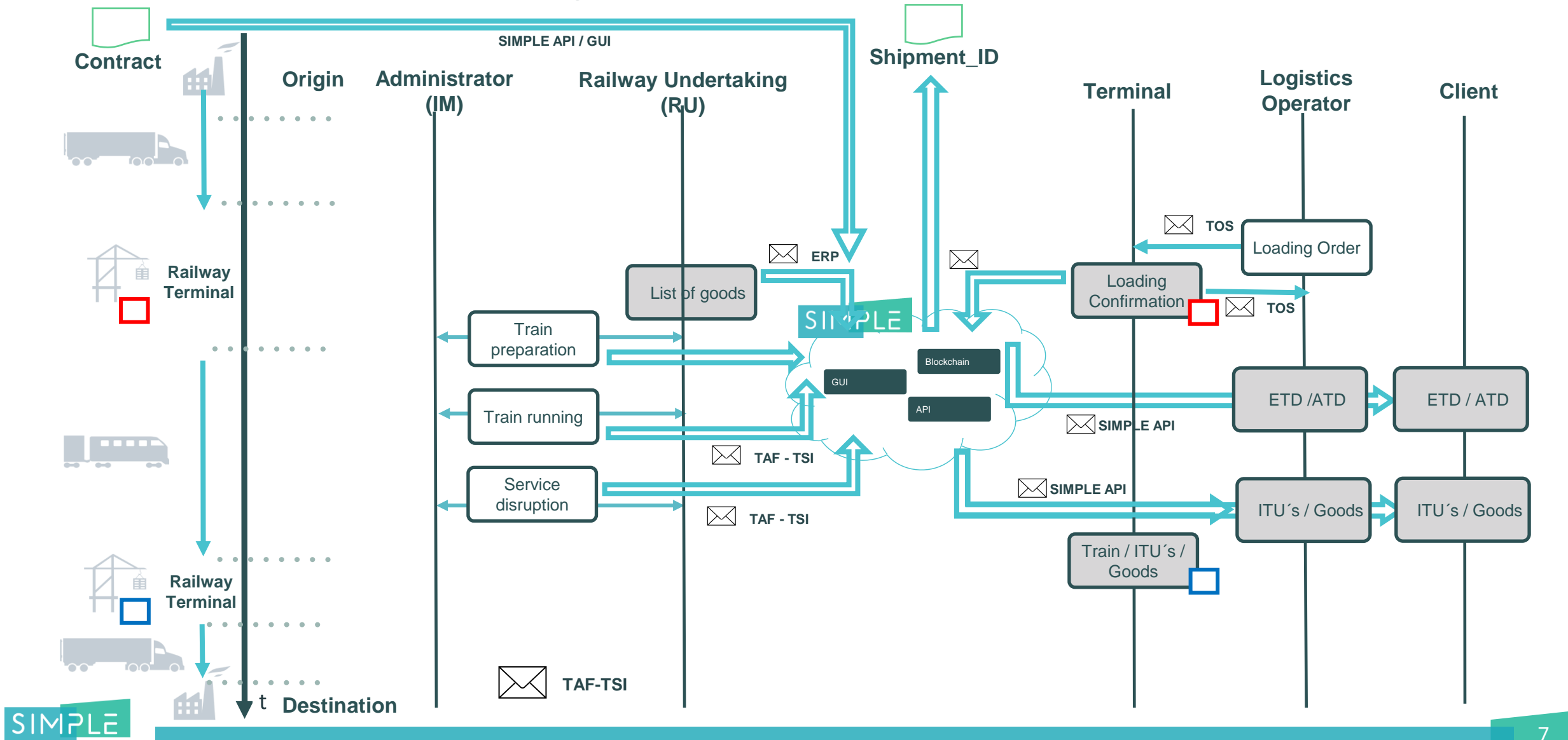
A complete view of the logistics chain

Related to all transport flows: national, intra-European, import, export or transit



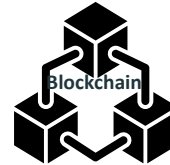
Stakeholders & Flows

A complete view of the logistics chain



Covering all the different levels of technological evolution

- Big companies with very complex IT systems
- Automatized Terminal Operators
- Contracts between parties: non-repudiation



Onchain Solution

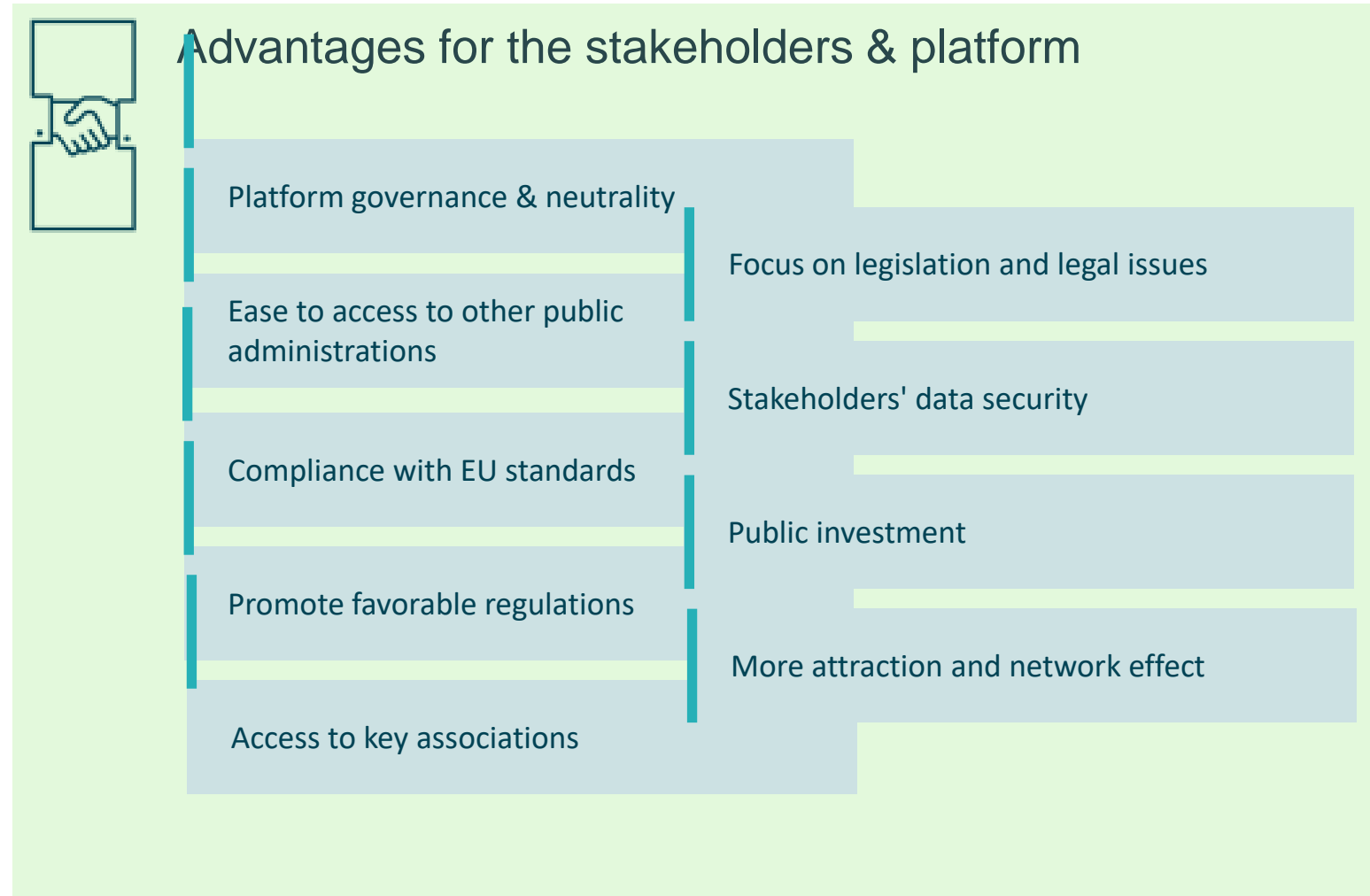
1. Technical capabilities to be part of a distributed network
2. Formal documents to be signed and secured

- Small Companies managing email and paper based processes
- Administration with control, reporting and querying needs

Offchain Solution

1. Need to provide a GUI solution
2. Control, Querying and Reporting functionalities

SIMPLE is a project promoted by the public sector



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ANNEX 1: Additional business information

Business Processes From Physical to Digital

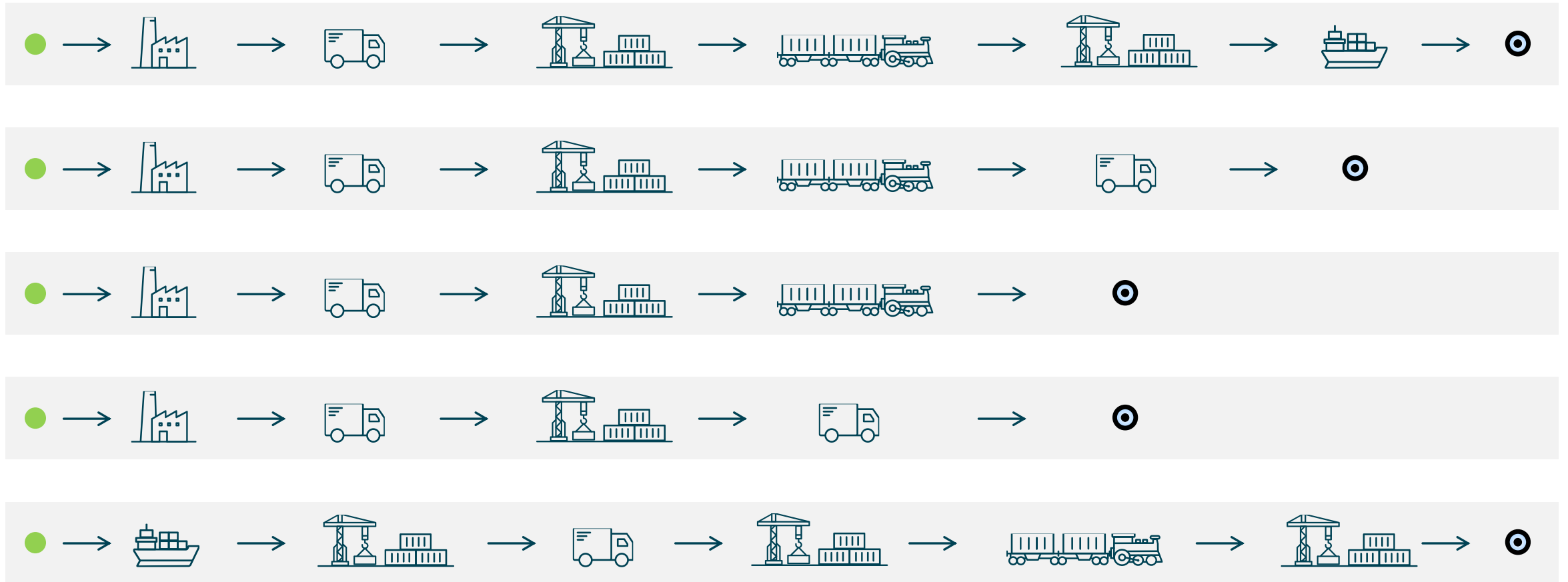
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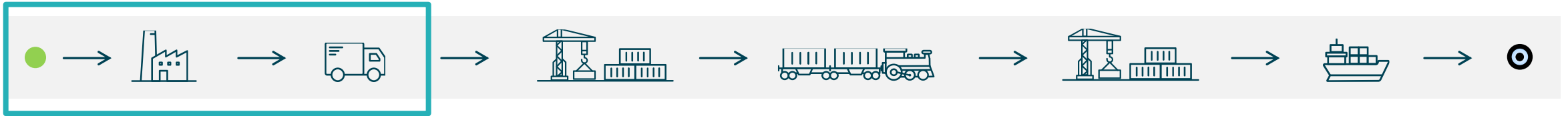
Business Processes

All modes of transport in one or more logistics flows



From Physical to Digital

100% Digital Intermodal Export Process of a Shipment



Physical World

1. Registration of paper based documents, like the CMR
2. CMR is sent to the Carrier, by email or even in paper.
3. Cargo is loaded in a Truck
4. CMR may be presented to road inspectors

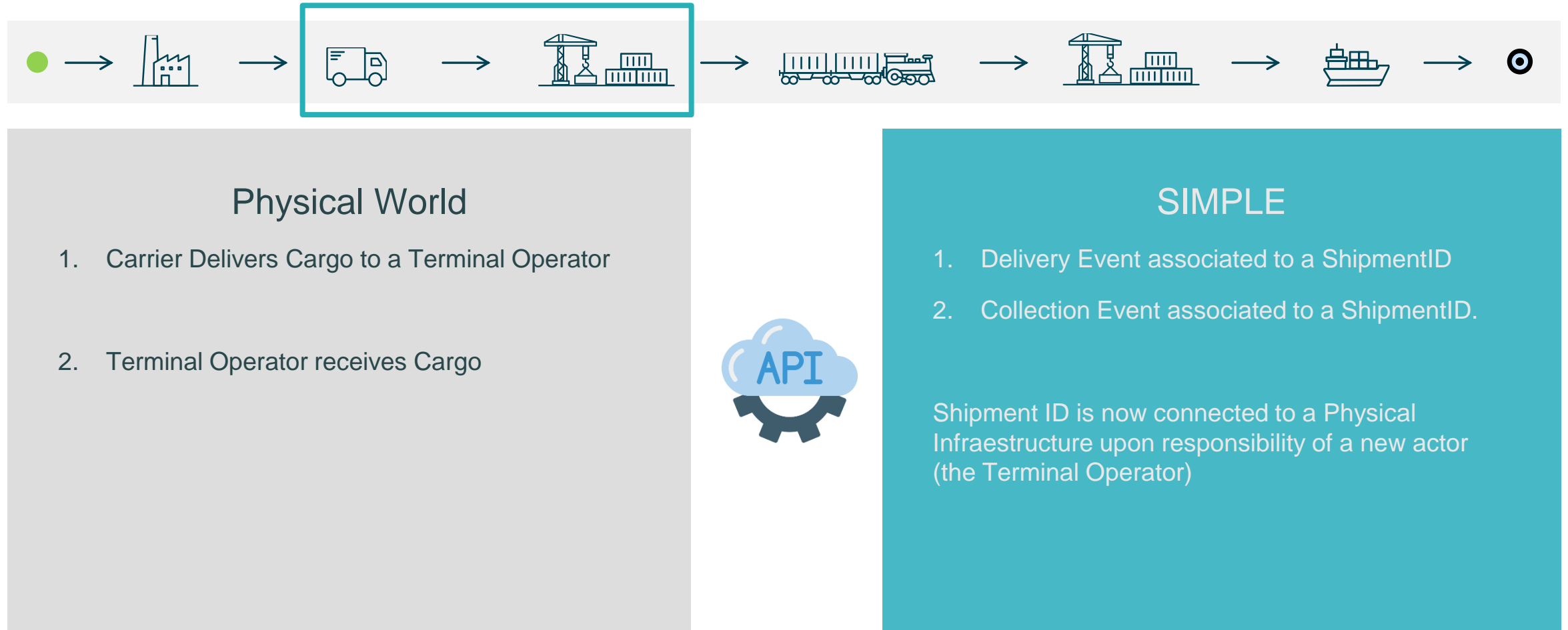


SIMPLE

1. CMR data elements are registered using the GUI or sent through the API. ShipmentID is generated
2. CMR can be generated in SIMPLE, upon request; Nevertheless, data is available in the GUI or through the API.
3. Collection Event connects a ShipmentID to a Digital Twin (Means of Transport)
4. Road inspectors can request all the information related to a ShipmentID through the SIMPLE API

From Physical to Digital

100% Digital Intermodal Export Process of a Shipment



From Physical to Digital

100% Digital Intermodal Export Process of a Shipment



Physical World

1. Terminal Operator Delivers Cargo to a Train Operator
2. Train Operator receives Cargo
3. Cargo is loaded in a Train
4. Train leaves the Terminal



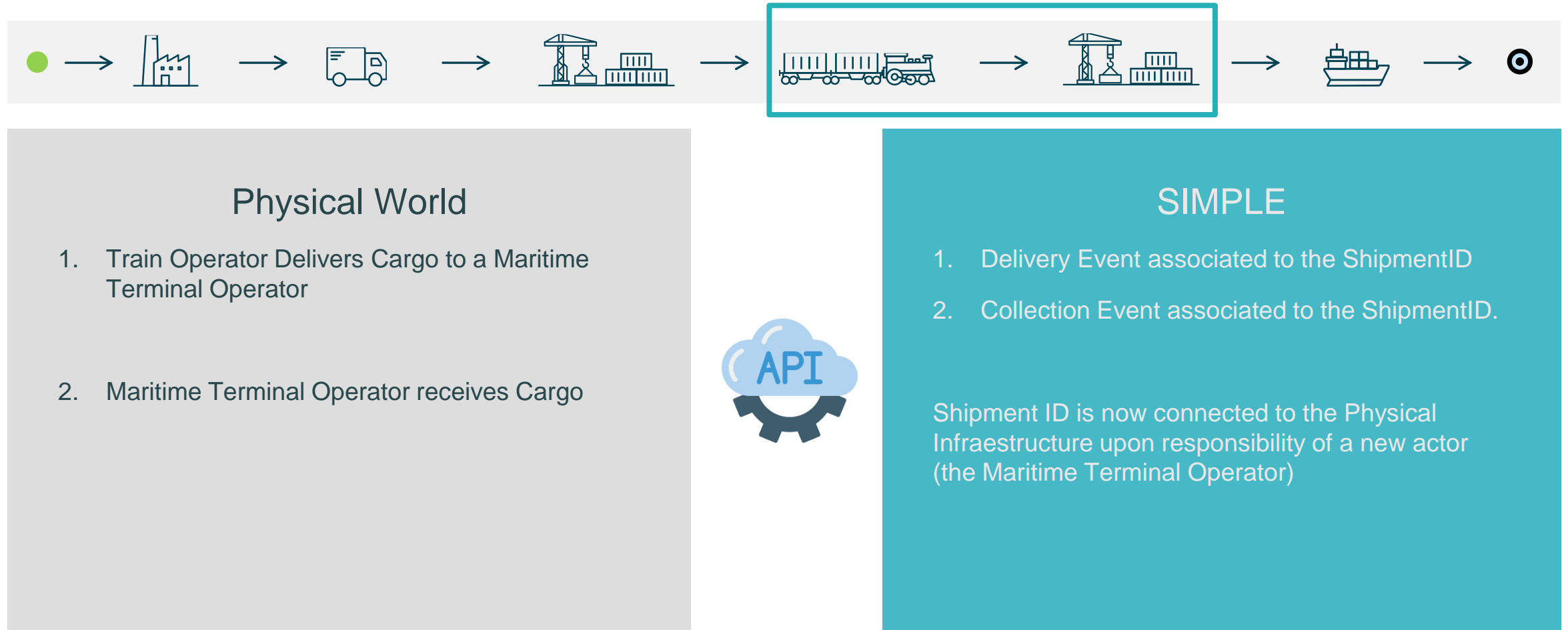
SIMPLE

1. Delivery Event associated to a ShipmentID
2. Collection Event associated to a ShipmentID.
3. Loading Event associated to a ShipmentID
4. Departure Event associated to a Means of Transport that carries a ShipmentID

Shipment ID is now connected to the Physical Infrastructure upon responsibility of a new actor (the Terminal Operator)

From Physical to Digital

100% Digital Intermodal Export Process of a Shipment



From Physical to Digital

100% Digital Intermodal Export Process of a Shipment



Physical World

1. Shipping Agent requests Cargo to be loaded in a Ship
2. Maritime Terminal Operator Loads Cargo in a Ship
3. Ship leaves the Port towards a third country



SIMPLE

1. Loading Order Event associated to the ShipmentID
2. Confirmation of Loading Event associated to the ShipmentID.
3. Departure Event associated to the Means of Transport that carries a ShipmentID

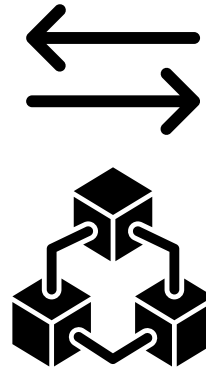
Shipment ID is now connected to a new Digital Twin (the Means of Transport) upon responsibility of a new actor (the Shipping Agent). ShipmentID is closed.

Customs Integration

Shared Services

National Customs

1. Status & Traceability of Customs Declarations
2. Release of Goods
3. SAD Import / Export



SIMPLE Platform

1. Traceability & Visibility of the logistics chain
2. Information regarding entries and exits of terminals, entities involved, incidents, etc.

Independent Blockchain Node.

- Copy of records from SIMPLE Blockchain Network
- Additional source of information to the current ones
- Availability to extend services with Blockchain registry of information

ANNEX 2:

Additional technical information

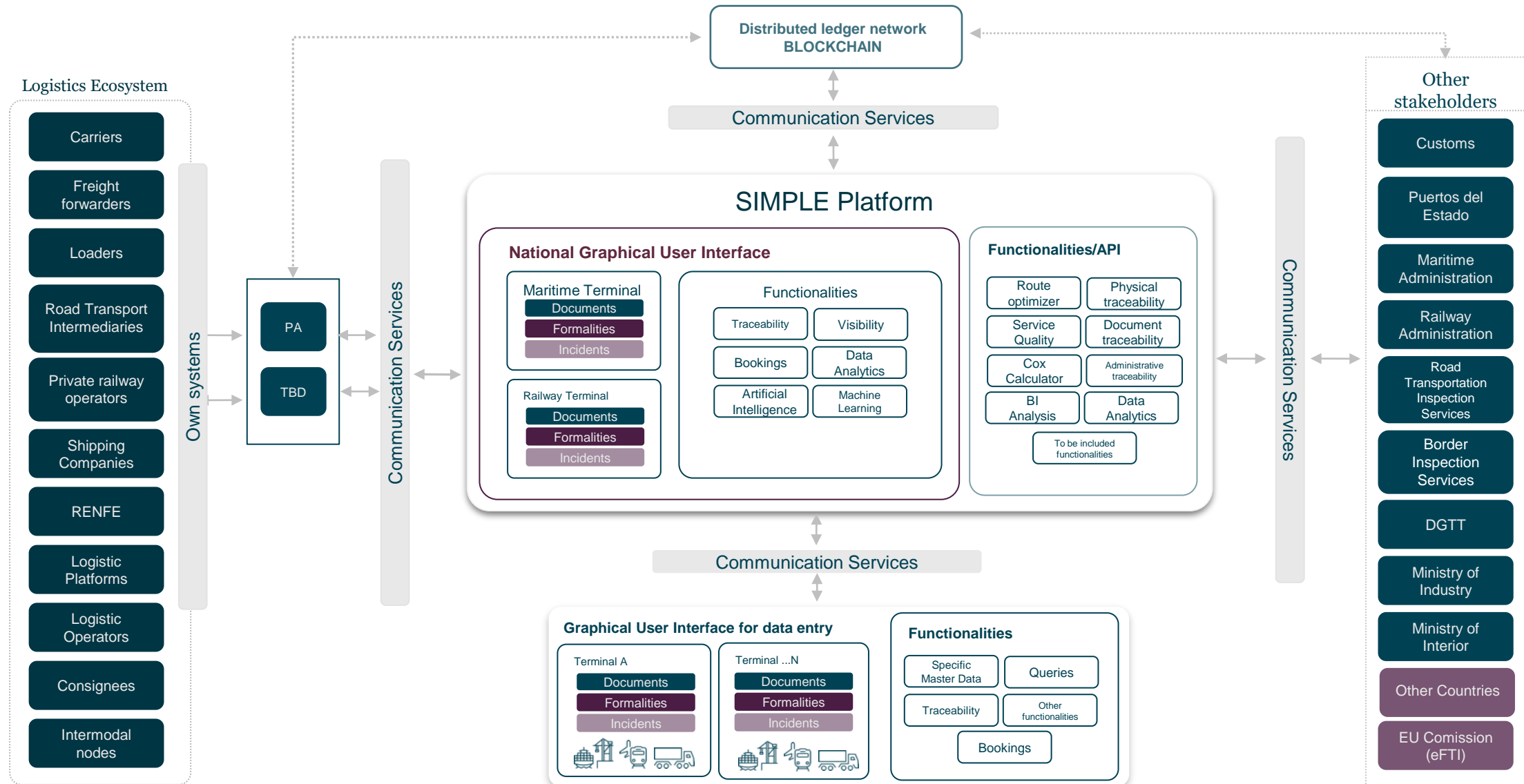
Architecture
Service integration
Ontology & Taxonomy

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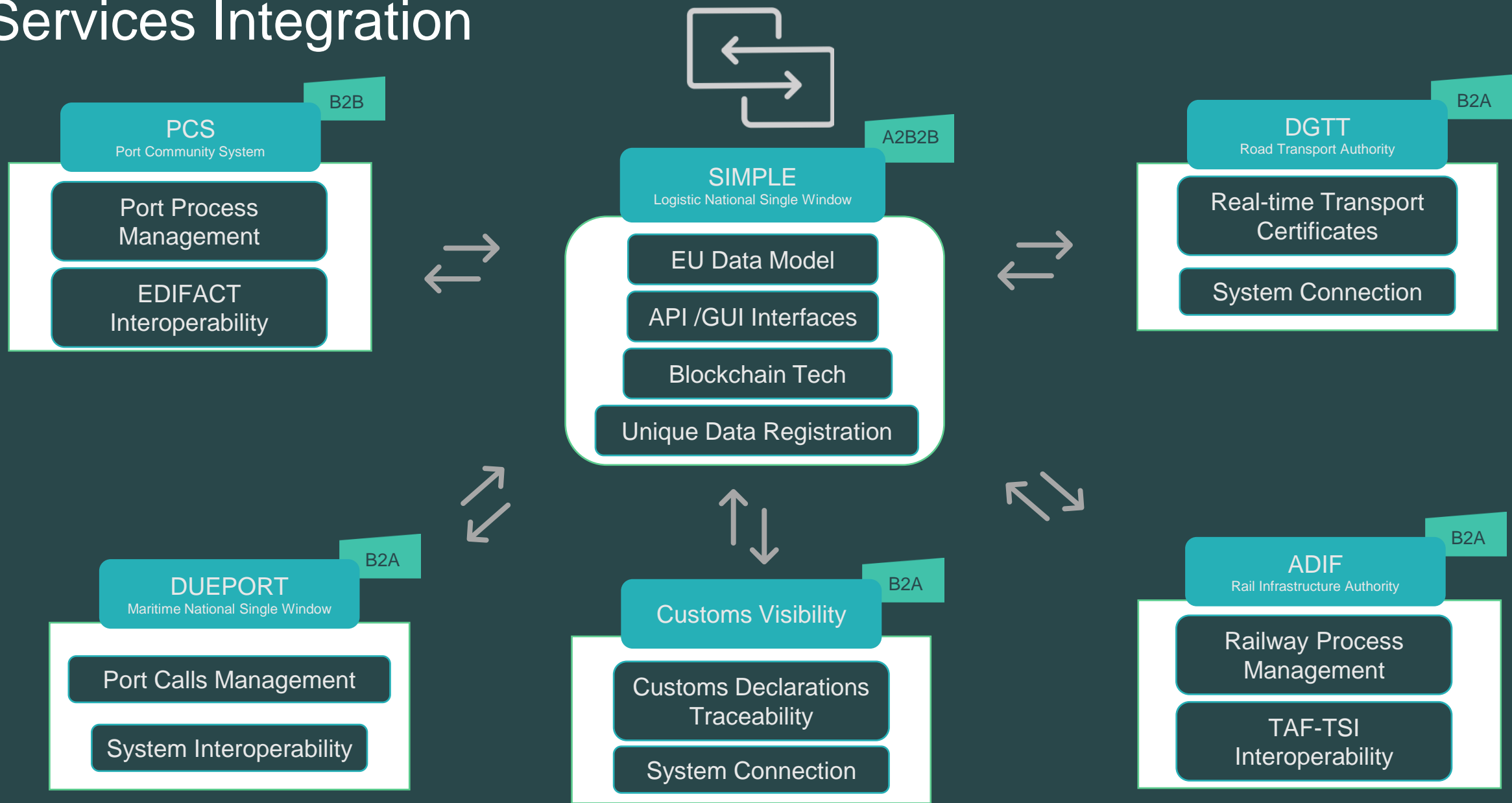
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Functional Architecture



Services Integration



Semantics, Ontology & Taxonomy

Shipment is registered by
chronological sections
(associated by a
ShipmentID

Registration of events
(Logistic Services /
Transactions) with 1 to
n associations

It is posible to include
incidents, even if not
associated with an Event
(for example, during the
transportation)

Types of Events have associated
semantics and rules. Events have an
associated State (such as
Requested/Accepted/Confirmed)

