

Introduction to FENIX

PrepDSpace4Mobility workshop
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OUTLINE



Positioning



Architecture



Methodology



FENIX contribution → **PrepDSpace4Mobility**



Main achievements

Why FENIX?

FENIX - A European Federated Network of Information exchange in Future Logistics-

based on the work and recommendation of the Digital Transport and Logistic Forum (DTLF) sub-group 2 (corridor information systems) to create a viable and valid federative network of platforms as enabler for Business to Administration (B2A) and Business to Business (B2B) data exchange and sharing by transport and logistics operators.

- aims to interconnect the different digital platforms and harmonise the services they offer
- interoperability: common protocols for supporting data sharing services
- data sharing in the form of digital corridor information systems serving the European logistics community
- cloud-based will facilitate horizontal collaboration within the LSC
- overcome today's fragmentation and lack of connectivity around ICT-based systems for logistics decision making
- open-solution and not "privately owned" and technological neutral

FENIX AT GLANCE

Test site Austria: Customs corridor -Fürnitz (South Austria) on the Baltic-Adriatic corridor

Test Site Belgium: PS BE₁- AirCargo (Be)

PS BE₂: Multimodal inland Hub-Procter & Gamble-Mechelen-Willebroek (Be)

Test site France: French Mediterranean – North Sea

Test Site Germany: Multiple test sites across on Rhine-Alpine in Holland, Germany, Switzerland, Italy

Test site Greece: Greece Balkan-TEN-T network, Adriatic-Ionian corridor-Cyprus multimodal

Test Site Holland (South Holland): Smart multimodal

Test Site Italy: PS IT₁- Mediterranean and Baltic-Adriatic and the Motorway of the Sea of South-east - Trieste

PS IT₂: The Italian Rhine Alpine – Dynamic Synchronodal Logistic

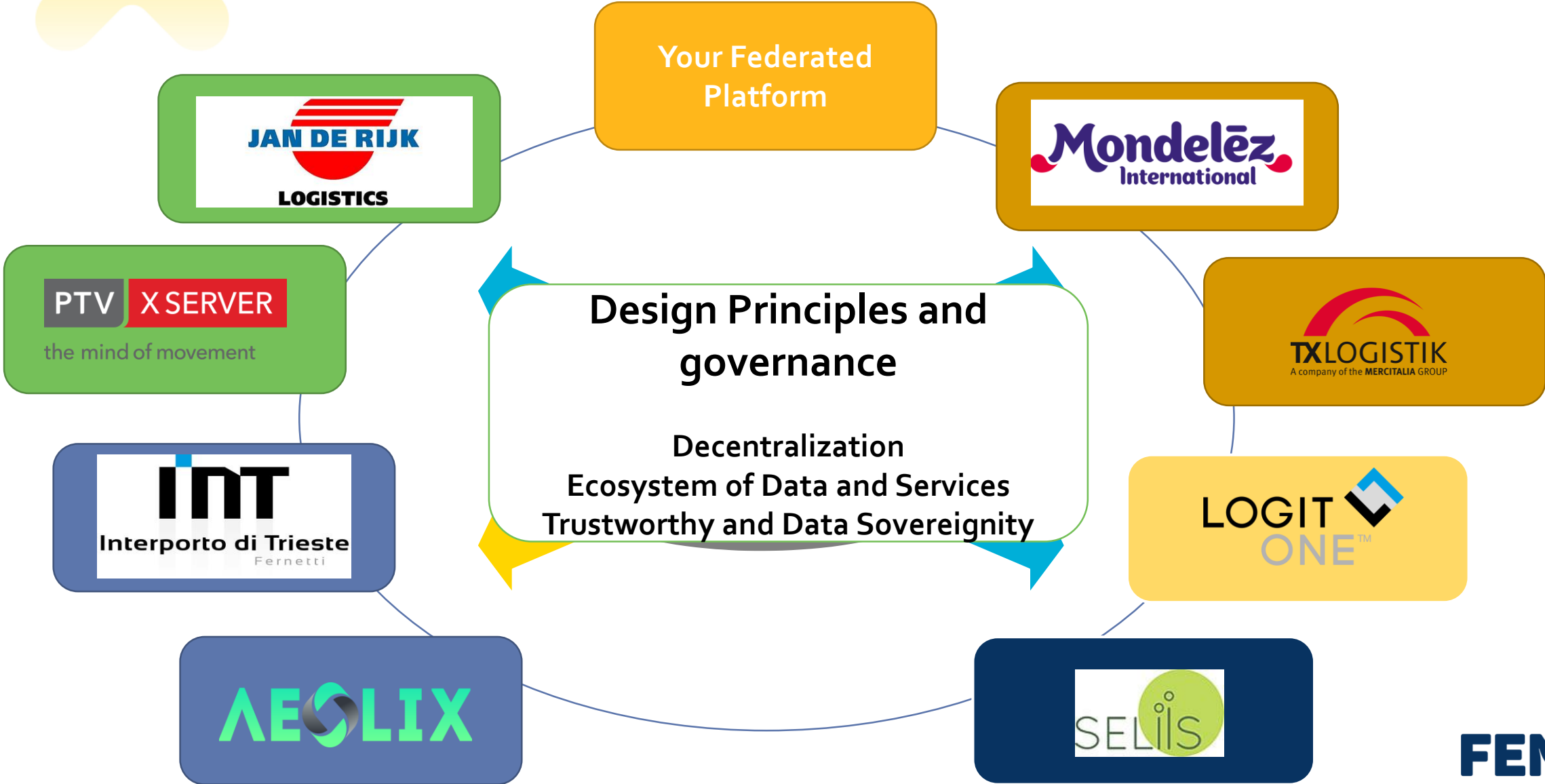
Test Site Slovakia: All TEN-T corridors and multimodal

Test site Spain: The Spanish-Atlantic Corridor

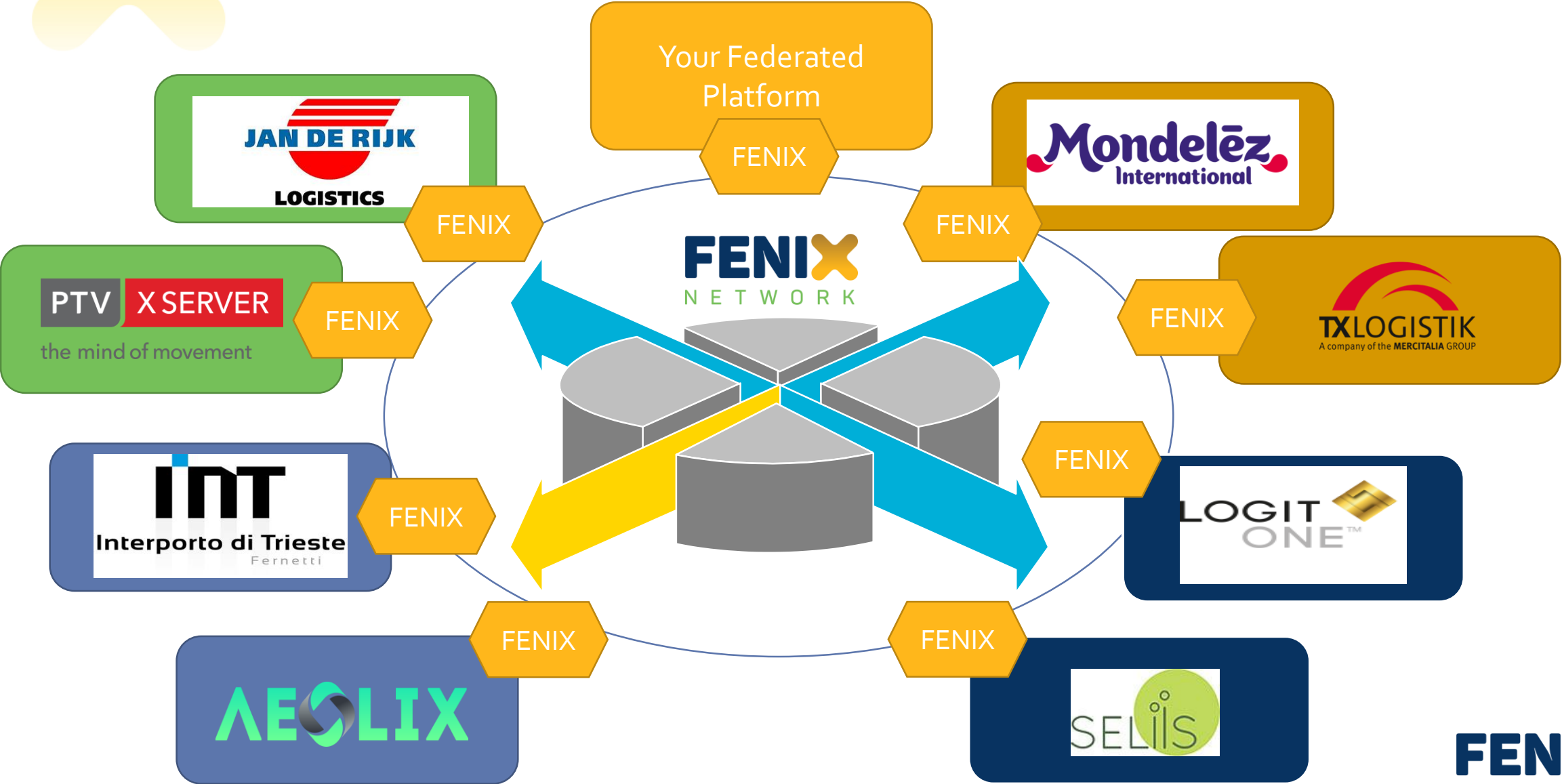
- **Multi/syncromodal Transport**
- **Intelligent hubs**
- **Network Optimisation**



FEDERATIVE NETWORK OF PLATFORMS

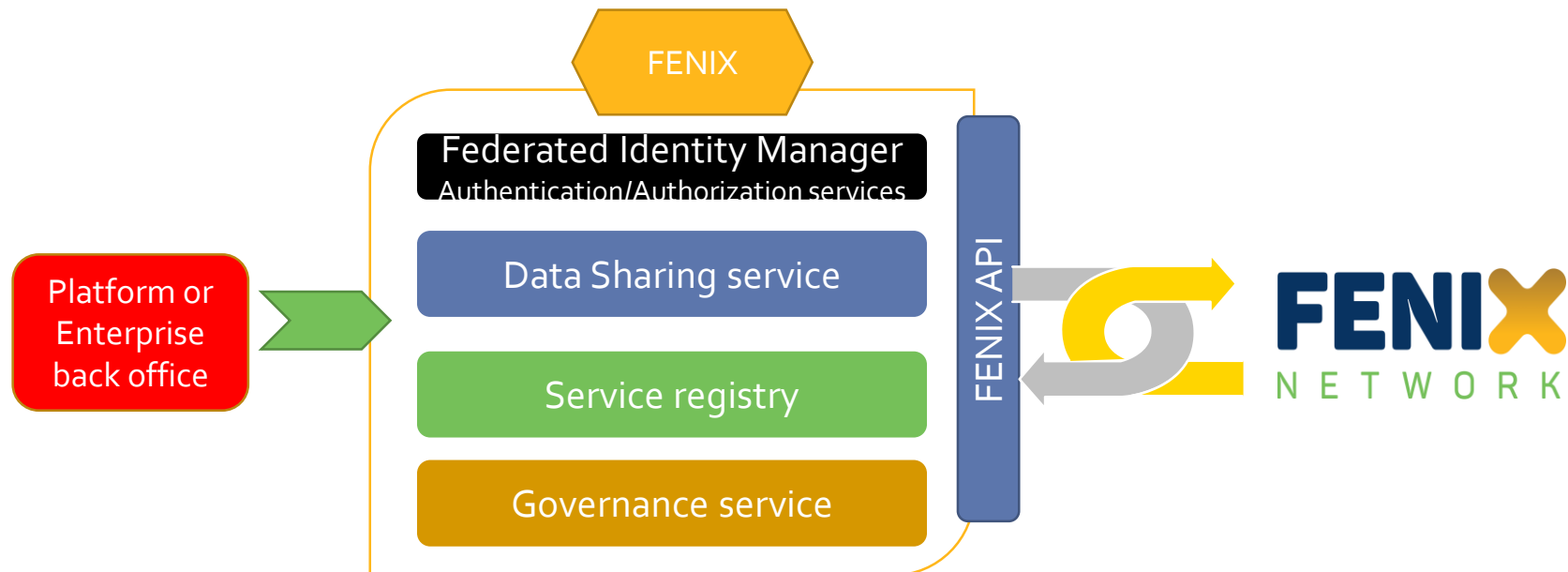


FEDERATIVE NETWORK OF PLATFORMS



FENIX – A federated ecosystem

- Federated services will be implemented with 3 main pillars:
 - **Federated Identity Registry**
 - **Governance and Data Sharing Federated Services**
 - **Corridor Service Registry**
- A new “Gateway/AP/protocol” specification which fits in the business processes based on:
 - Federated identity systems and management: common recognition of credentials, single authentication, common privacy and security policy
 - Building block specification for sharing of logistics-related data governance, services and data sharing (API): Data sharing service, Service (registry) offering, Data / Service discovery



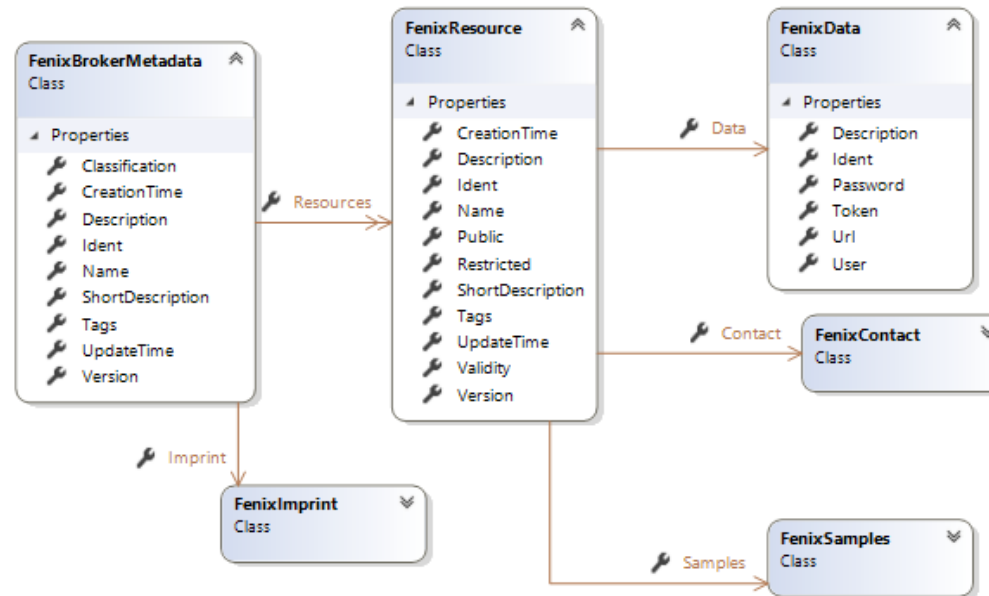
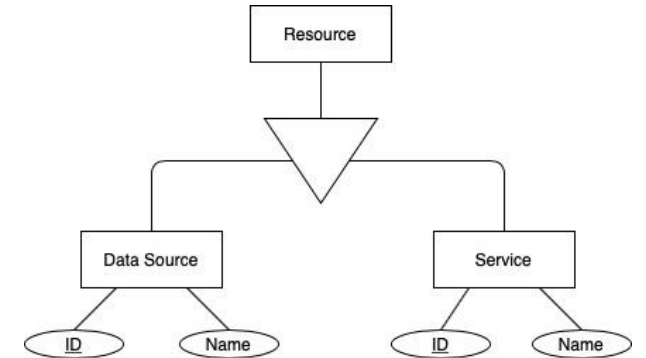
FENIX Connector Specifics

- Identified User Stories & Meta Use Cases

User Story ID	User Story
F-US-001	Become a member of the FENIX federation
F-US-002	Get available resources from other FENIX members
F-US-003	Request Access to make use of any available resource
F-US-004	Authorize to make use of a resource
F-US-005	Send/Receive Data through the FENIX connector

The FENIX Connector Specification – DATA catalogue of Resources

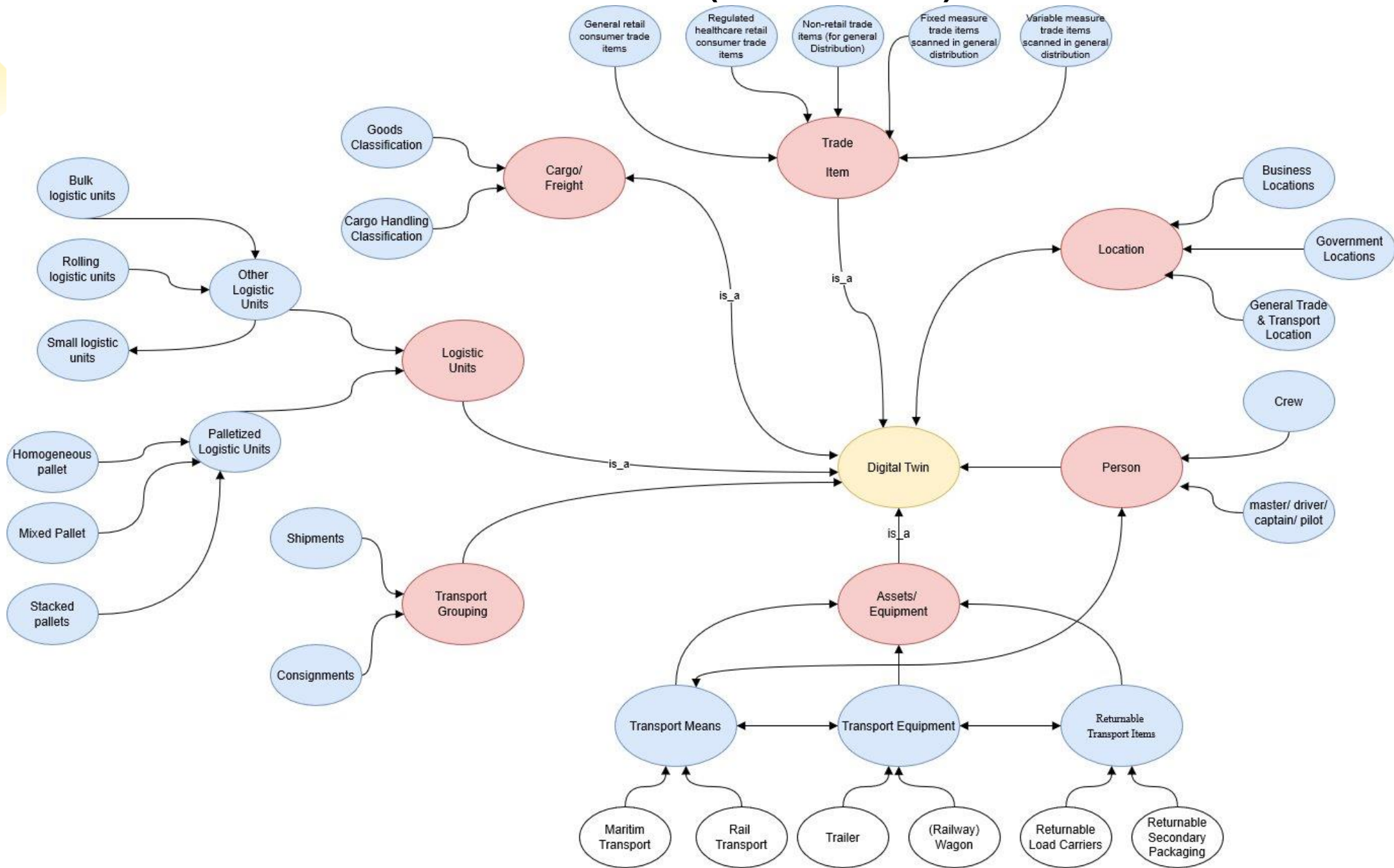
- Any member of the FENIX federation can share or consume **Resources**
- Every platform must generate its catalogue of resources following an schema containing different kinds of information about the resource:
 - Identifier
 - Resource name
 - Fenix Classification
 - Description
 - Tags
 - Contact for the resource & Imprint
 - Data, Documentation & Samples
 - Scope: Public or Restricted



Main concept of the FENIX Semantic Data Model (**FENIX source**)



FENIX Semantic Model's overall data Structure (FENIX source)



FENIX Semantic Object Model: focus on source, description and recommended keys

Notizen

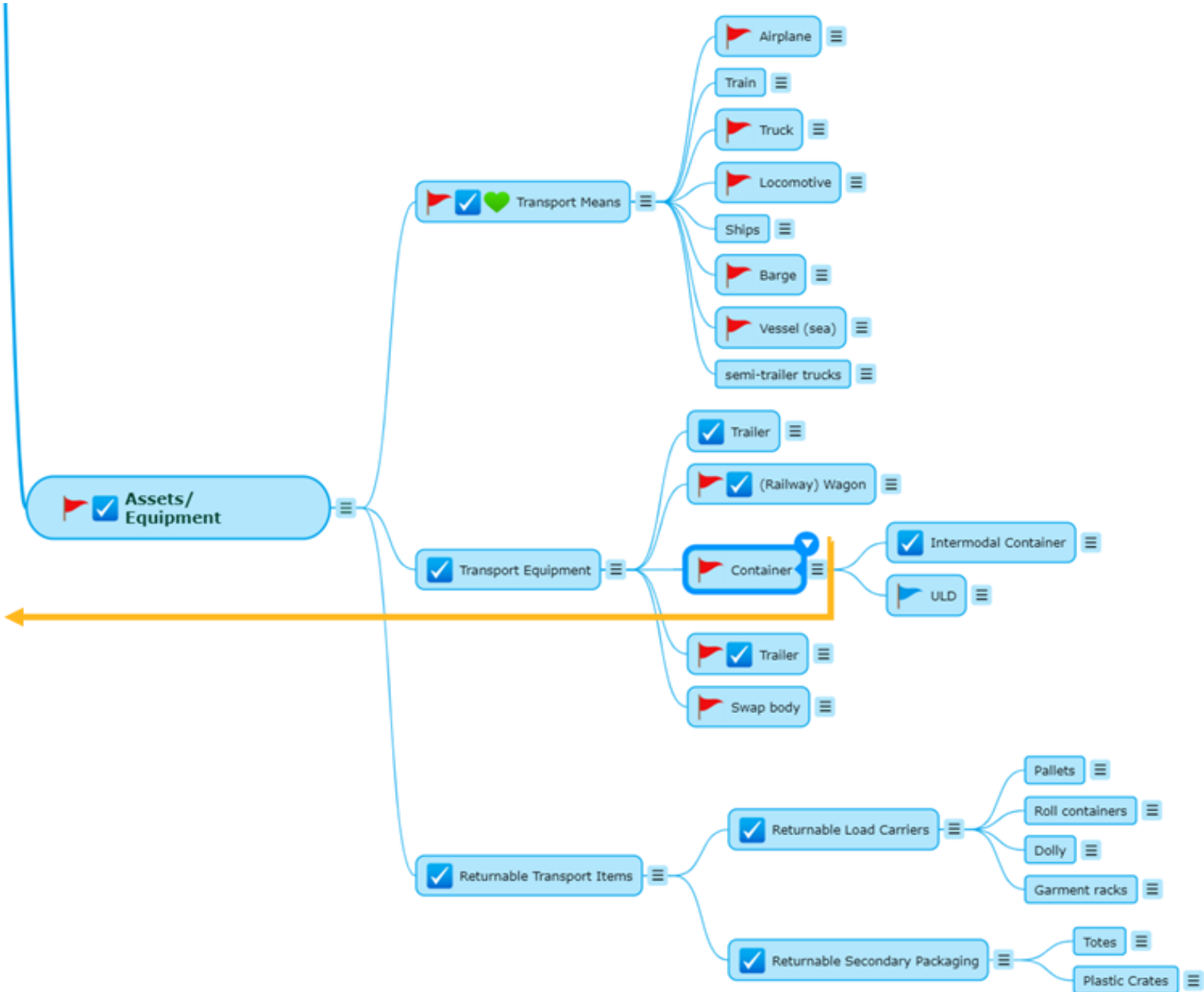
Source:
FEDeRATED_MILESTONE_2_INTERIM_MASTERPLAN_report_FINAL_2703_2020.docx

Description: Transport containers serve to containerize products. They have standardized dimensions and can be loaded and unloaded and stacked

Recommended FEDeRATED Key(s): Container number

Recommended GS1 Key(s): GIAI - Global Individual Asset Identifier (ISO/IEC 15459-4)

Recommended other Key(s): BIC



DIGITAL DATA EXCHANGE INSTEAD OF PAPERWORK

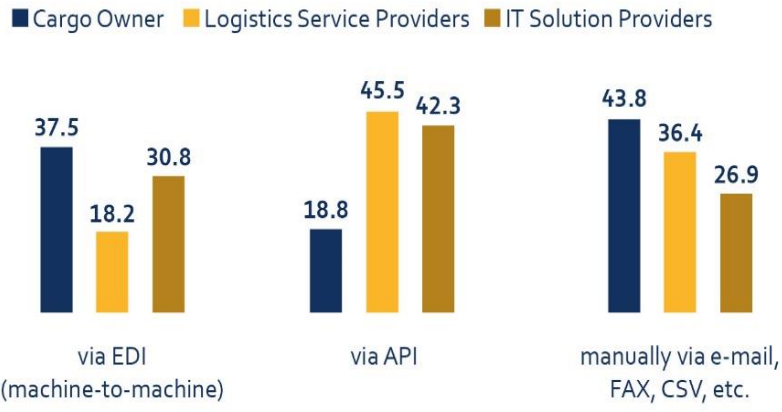
What do you wish for the future of intermodal logistics?*



* Multiple answers possible
Sources: GS1, FENIX

FORMS OF DATA EXCHANGE

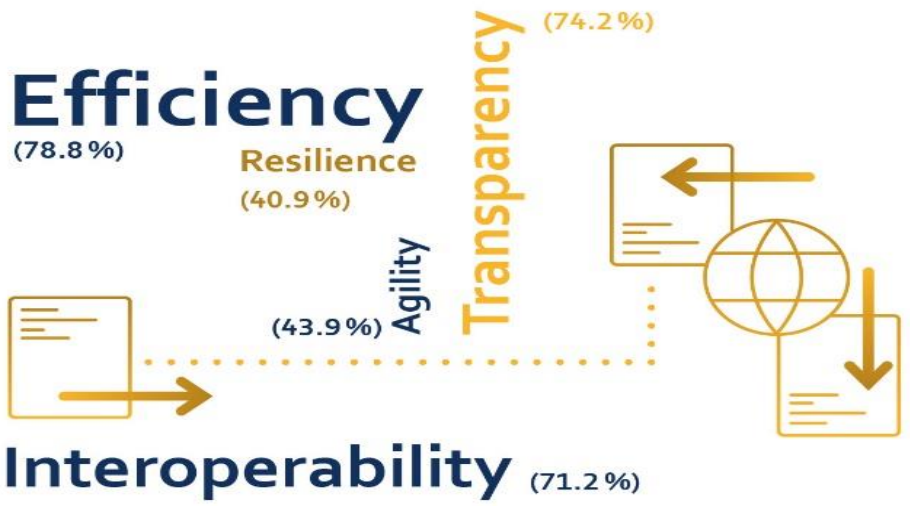
How do you predominantly transmit data? Figures in %



Sources: GS1, FENIX

MORE EFFICIENCY NEEDED

What are the most important benefits you expect from improved compatibility in logistics networks?*



* Multiple answers possible
Sources: GS1, FENIX

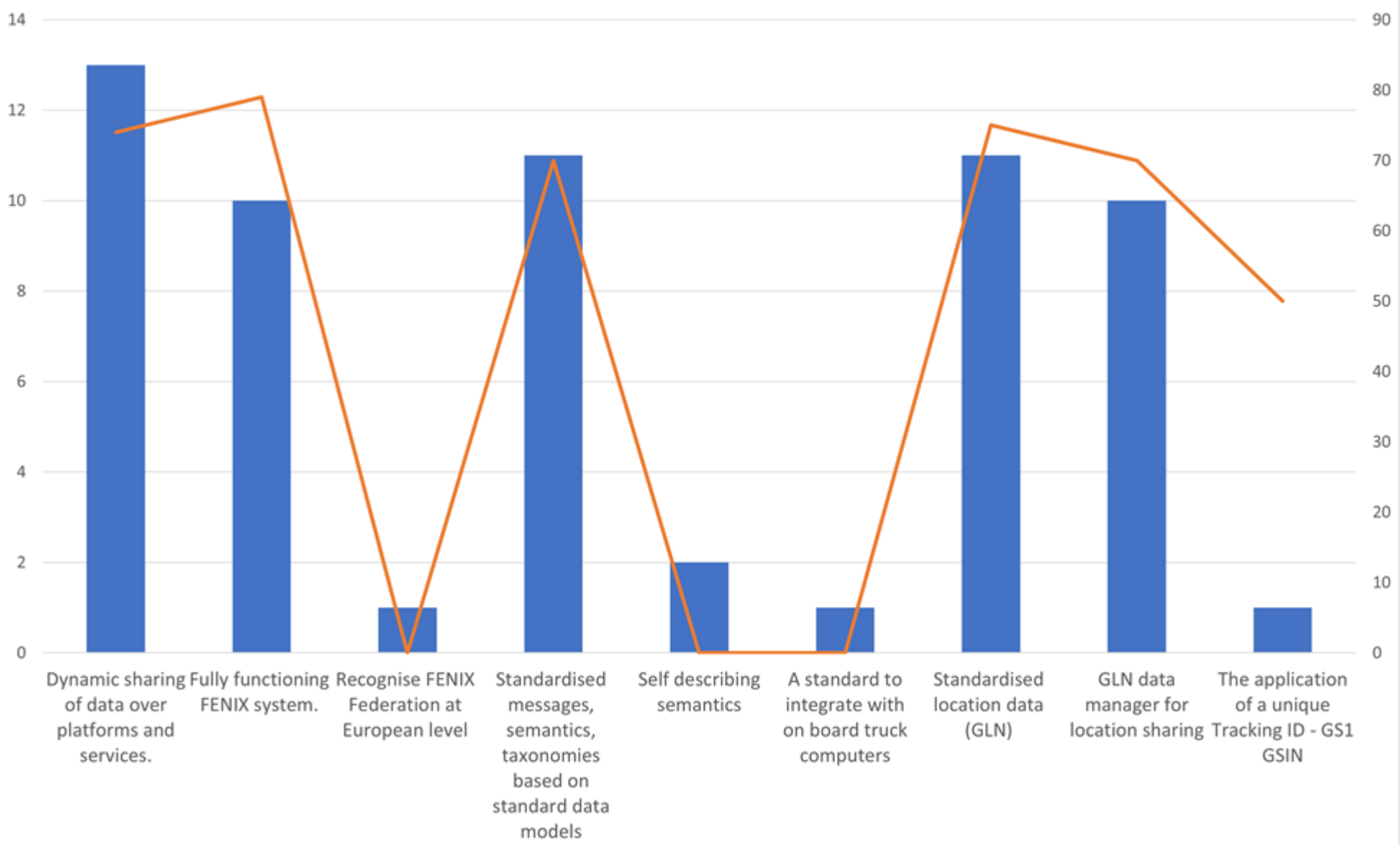
USE OF THE PLATFORMS

For what purposes do you use digital logistics platforms? Figures in %*



* Multiple answers possible
Sources: GS1, FENIX

Type of standards needed in logistics (FENIX source)

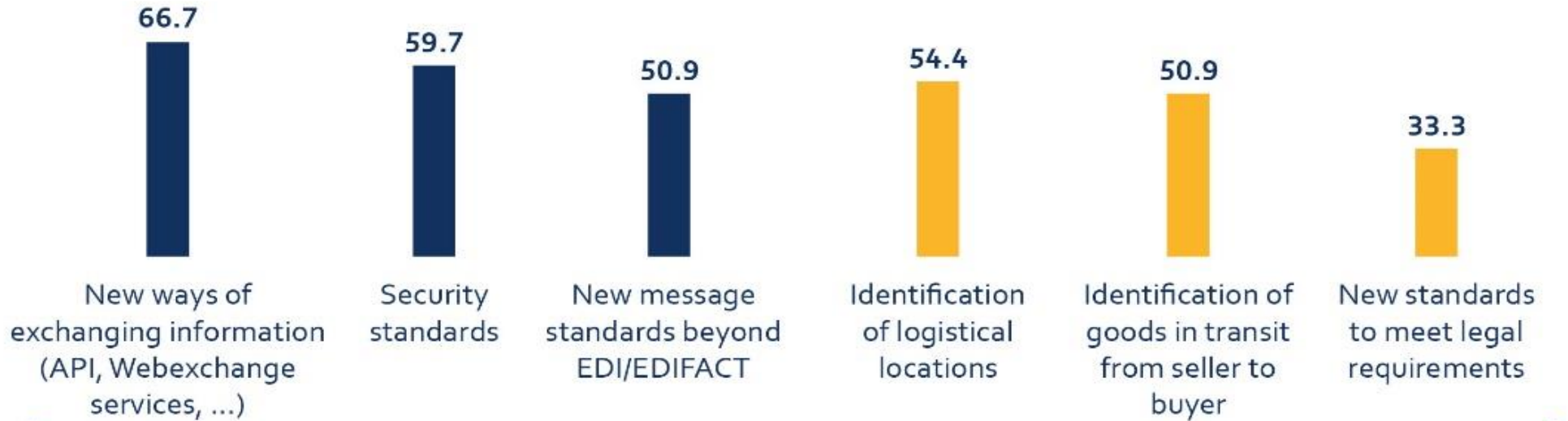




OPTIMISATION ON A TECHNICAL AND CONTENT-SEMANTIC LEVEL

Do you see a need for standardisation when working with different platforms? Figures in %*

■ Technical ■ Content (semantic)



95.2%
JSON/
XML

Which standard
is suitable for an
open data exchange
architecture?

81.0%
GS1

* Multiple answers possible
Sources: GS1, FENIX



MORE TRANSPARENCY THROUGH STANDARDS

In which of these areas (e.g. unique identification) would standards be helpful?*



* Multiple answers possible
Sources: GS1, FENIX

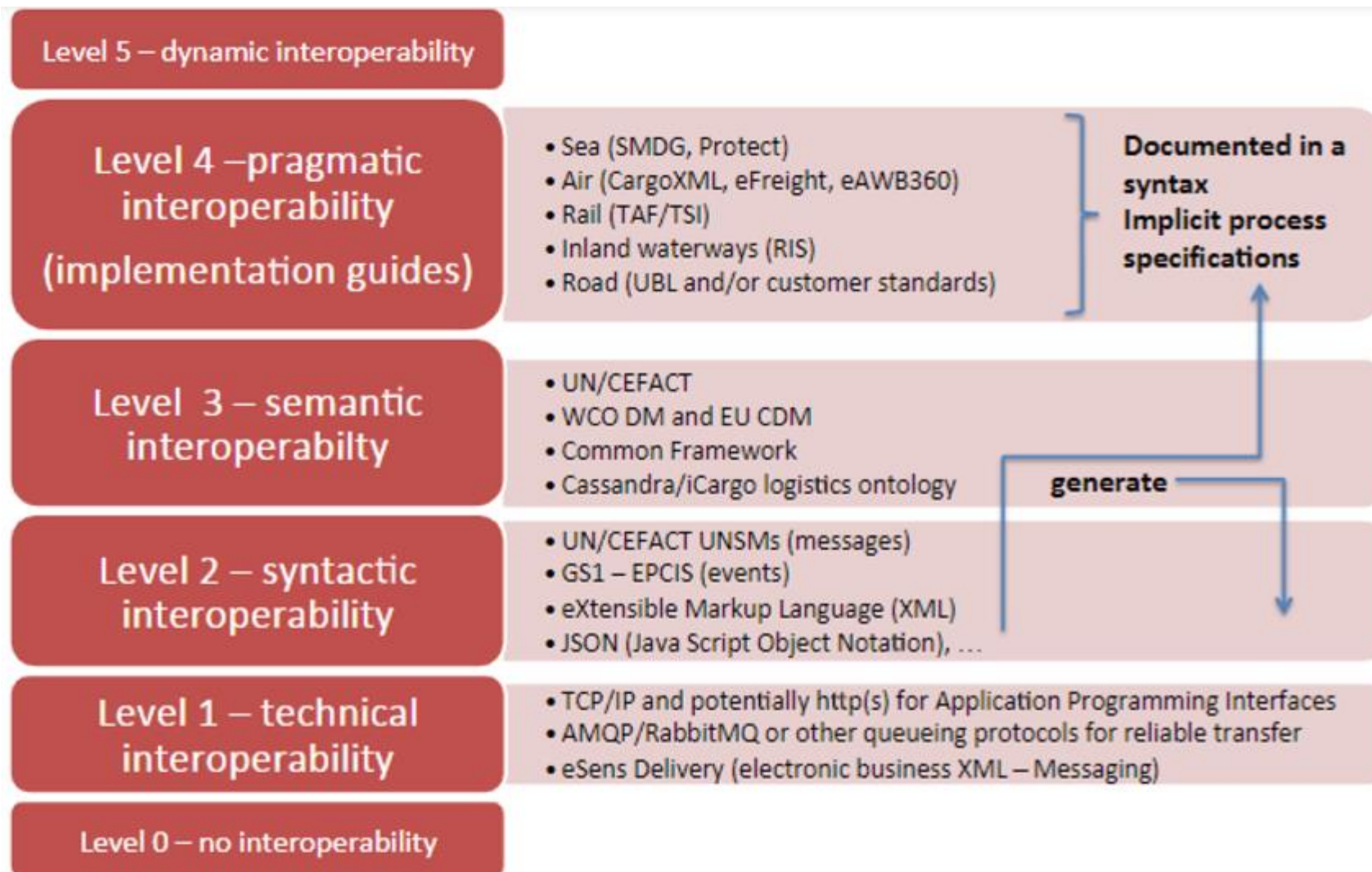
LOGISTICS LOCATIONS

How important is the unambiguous identification of logistic locations and which standards do you use for this? Answer options "Very important" and "Important" combined, figures in %



Sources: GS1, FENIX

Relevant logistics standards for information exchange (FENIX source)



ACHIEVEMENTS(I)

- **FENIX FEDERATION:** federative network of platforms as enabler for Business to Administration (B2A) and Business to Business (B2B) data exchange and sharing by transport and logistics operators.
 - Validated and deployed specific solutions for B2B and B2A data sharing
 - It is possible to integrate other platform& services
 - Scientific and technical publications



FEDERATED NETWORKS OF PLATFORMS

FENIX IT FRAMEWORK/ CONNECTOR

DESIGN PRINCIPLES AND GOVERNANCE

GATEWAY: e-GATE implementation

Federated Identity Registry

Governance and Data Sharing Federated Services

Data sharing Service

Service (registry) for a federation

Data / Service Discovery for a federation

Catalogue of resources for a federation



SECURITY AND DATA PROTECTION for a federation



CERTIFICATION for a federation



EXAMPLE: eFTI dangerous goods

ISO standard ISO 23795-1:2022 “Intelligent transport systems — Extracting trip data using nomadic and mobile devices for estimating CO₂ emissions — Part 1: Fuel consumption determination for fleet management”

New WG: ISO/TC204 sWG 17.2

TRL Levels of Pilot Services: 105 services: 30,7% TRL8/9

Start-ups

ACHIEVEMENTS(II)

- **DATA REQUIREMENTS** for each EU legislation covered by eFTI: cabbotage, combined transport, dangerous goods, waste shipment.
- **DATA MODELS:** WCO data model, EU Customs Data Model, UN CEFACT eCMR
- **ESTABLISHING COMMON DATA SET AND SUBSETS** in relation to the respective regulatory information requirements, including corresponding definitions for each data element included in the common data set and subsets (Article 7a)
- **RULES FOR CERTIFICATION -PLATFORMS** (Article 11) and eFTI Service Providers (Article 12)
- **ECOSYSTEM OF DATA:** pursues the idea of decentralization of data storage, which means that data physically remains with the respective data owner until it is transferred to a trusted party
- **VALUE ADDING APPS:** includes also services for data processing, data format alignment, and data exchange protocols
- **DATA MARKETS:** FENIX enables the creation of novel, data-driven services that make use of data apps.
- **PI:** FENIX enables the creation of new ICT infrastructure to support operations in future PI logistics networks
- **FENIX2.0:** cross border data sharing & data transformation



www.fenix-network.eu

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Innovation & Deployment

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Connecting Europe Facility

Thank you!