

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

ECE/ITC: Group of Experts on the Operationalization of eCMR

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OUTLINE



Activity - Objectives



Positioning



Timeline



Effort

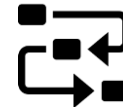


Activity structure and tasks

Methodology



eCMR examples

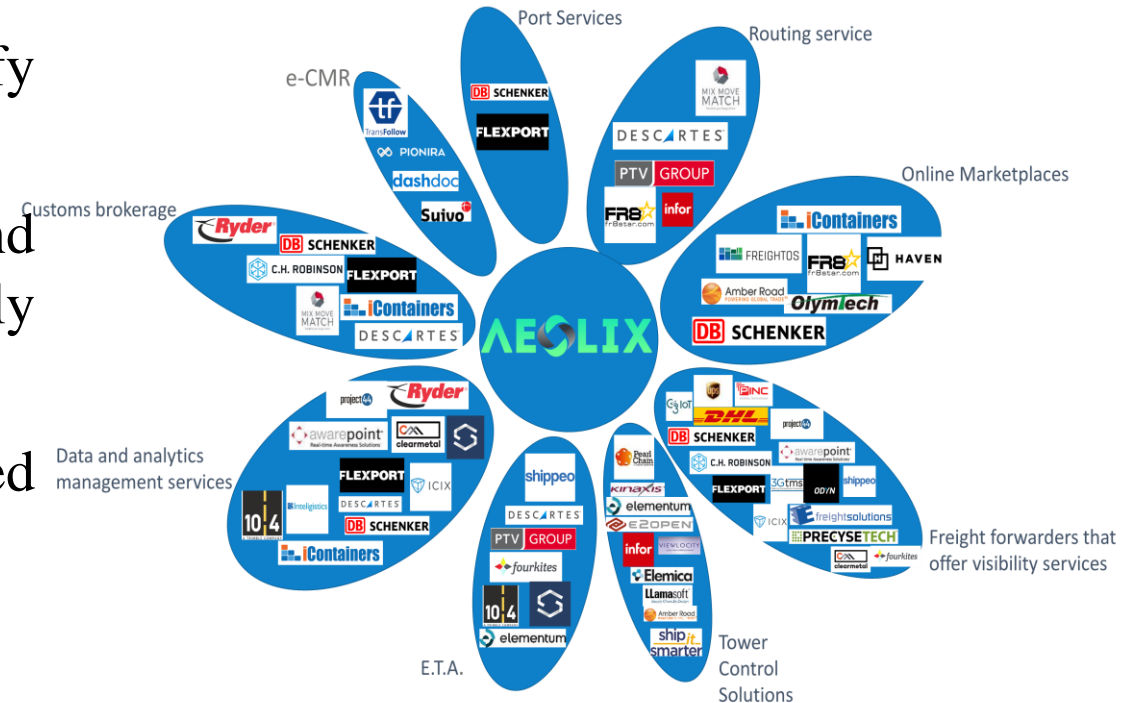


Questions



AEOLIX goals

- provide technological solutions to enhance and simplify collaboration among actors along the supply chain
- adopt core functionalities to improve, optimize and automate transport and logistics operations within supply chain collaborations
- simplify information exchange within an integrated security framework.

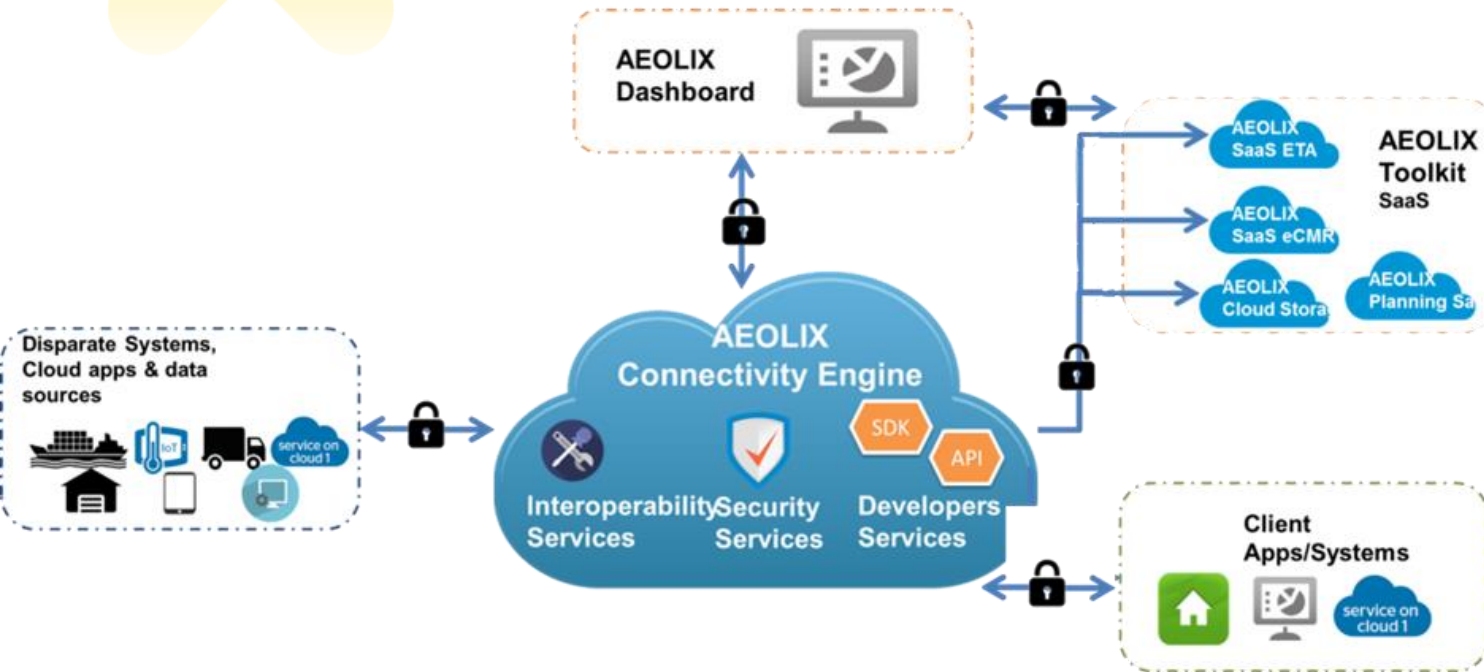




AEOLIX approach

- Publish/Subscribe pattern
- Authentication and accreditation
- Toolkit accessible through the platform (eCMR, Estimation Time of Arrival, performance evaluation, CO2 monitoring)
- Coding/decoding of messages in an Internal standard messages structure

Architecture overview



AEOLIX Connectivity Engine

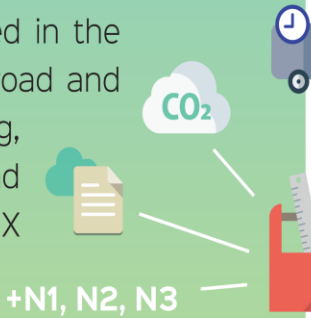
my AEOLIX

Responsible for providing the connectivity and interoperability services and supporting seamless data exchanges between organisations and services. These technical services provide the architectural setup; (1) connecting the end-user with its many business partners and systems in their networks; (2) allows for interoperability and governance services; the information exchange between different systems; partner/ system interactions and data sharing management rules.



AEOLIX Toolkit

Core logistics services to support and implement the business needs of AEOLIX end-users. Examples of services offered in the toolkit are: E-CMR, routing, planning services for road and intermodal service, ETA service, CO₂ monitoring, dangerous goods transport management, and more. Toolkit services can be used via the AEOLIX connectivity engine by applications, services and sensors or interplay with other toolkit elements.



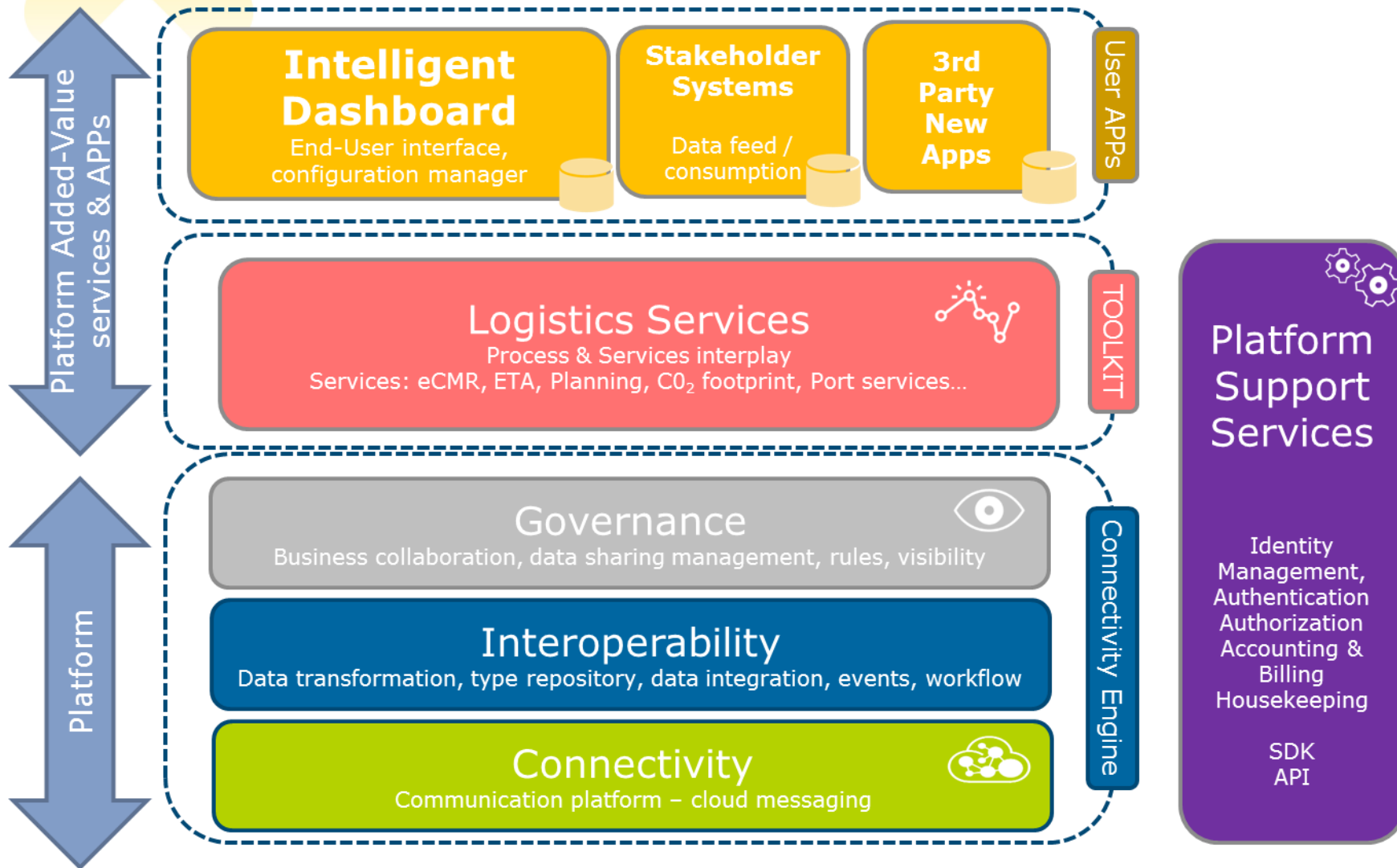
AEOLIX Dashboard

An intelligent, user configurable web application, which serves as a dedicated portal to the AEOLIX Platform. It manages and enables access to end-to-end logistics visibility by sharing data of the logistics partners via the Connectivity Engine (CE). It enables intelligence to be added to the data from within the dashboard and enables access and mobilises applications from the toolkit.

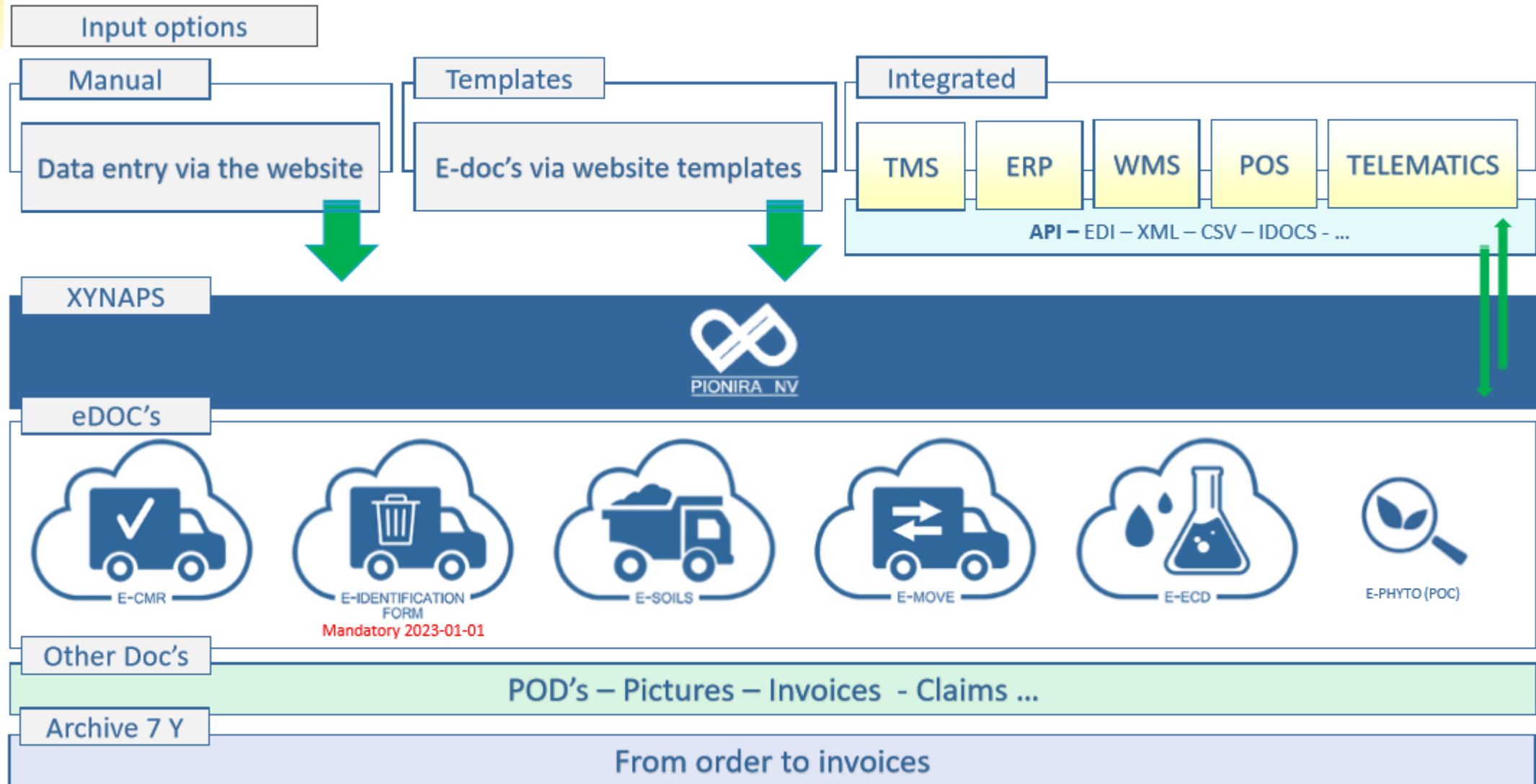
Container ID	Terminal ID	Available Date/Time	Available update

Container ID	Train ID	Scheduled ETA	ETA update

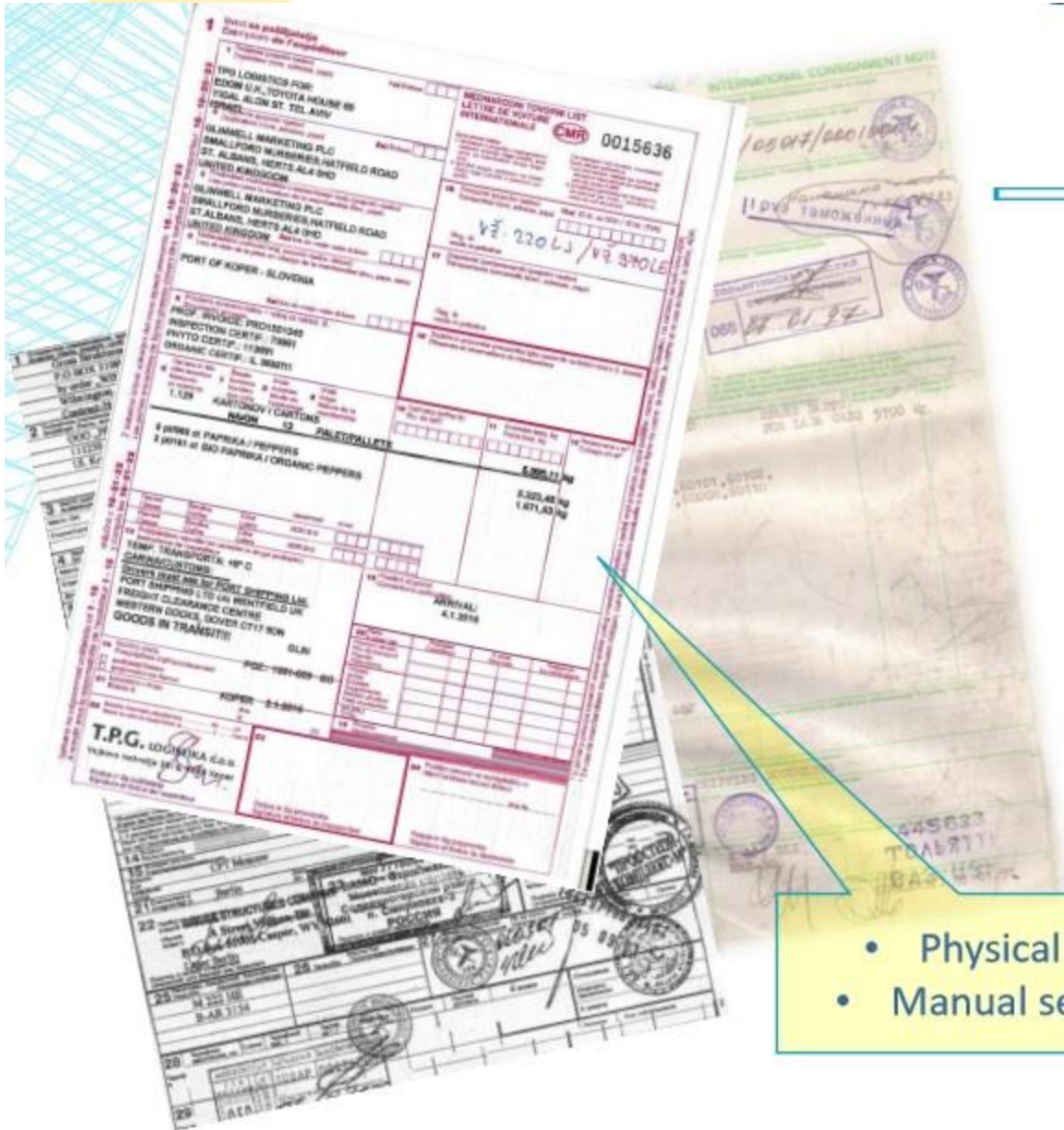
AEOLIX high-level architecture view



E-DOCUMENT SERVICES



AVAILABILITY INFORMATION



- Automated file
- Access by search criteria
- 7 years of history

- Physical file
- Manual search

The screenshot shows a web application interface with a table of records. The table has columns for 'Fecha 1', 'Fecha 2', 'Expediente N° 1', 'CMR N° 1', 'Bastante 1', 'Destinatario 1', 'Transportista 1', 'Estado', 'Fecha de carga 1', and 'Fecha de descarga 1'. The records list various dates and identifiers, such as '21/06/2018 13:30' and '34527'.

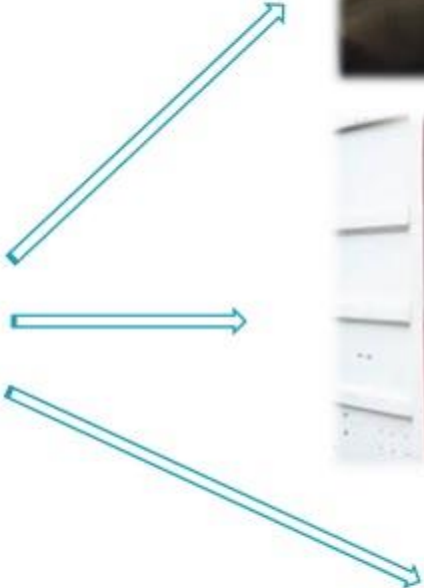
Fecha 1	Fecha 2	Expediente N° 1	CMR N° 1	Bastante 1	Destinatario 1	Transportista 1	Estado	Fecha de carga 1	Fecha de descarga 1
21/06/2018 13:30	21/06/2018	34527	8703000001090	ACM Bakerev	ACM Warehouse	TEST Transport	Completed	21/06/2018 13:29	21/06/2018 13:29
21/06/2018 11:10	21/06/2018	54751	8703000001090	ACM Bakerev	ACM Warehouse	TEST Transport	Completed	21/06/2018 11:14	21/06/2018 11:14
21/06/2018 11:10	21/06/2018		Specimen	ACM Bakerev	ACM Warehouse	TEST Transport	Completed	21/06/2018 11:11	21/06/2018 11:11
21/06/2018 10:44	21/06/2018	20201	8703000001090	ACM Bakerev	ACM Warehouse	TEST Transport	Completed	21/06/2018 10:43	21/06/2018 10:43
20/06/2018 14:32	20/06/2018	4946	8703000001090	ACM Bakerev	ACM Warehouse	TEST Transport	Completed	20/06/2018 14:30	20/06/2018 14:30
20/06/2018 11:20	20/06/2018		8703000001090	Bary Van Leuven	Bary van Leuven	TEST Transport	Completed	20/06/2018 11:20	20/06/2018 11:20
18/06/2018 12:38	18/06/2018	400	8703000001090	ACM Warehouse	ACM Bakerev	TEST Transport	Completed	18/06/2018 12:37	18/06/2018 12:37
18/06/2018 12:38	18/06/2018	400	8703000001090	ACM Warehouse	ACM Bakerev	TEST Transport	Completed	18/06/2018 12:37	18/06/2018 12:37
18/06/2018 09:17	18/06/2018	4440	8703000001090	ACM Bakerev	ACM Warehouse	TEST Transport	Completed	18/06/2018 09:15	18/06/2018 09:15
15/06/2018 10:56	15/06/2018					Abandonado	Cancel		
15/06/2018 10:26	15/06/2018					Desconocido	Cancel		

TRANSPARENCY, ATTACHMENTS, FOLLOW-UP

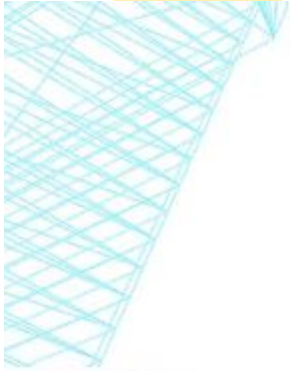
- Real-time information
- All kinds of attachments
- Doc. Coordination of activities
- Automatic notifications



- Access to historical information?
 - Add documents?



TRANSPARENCY, ATTACHMENTS, FOLLOW-UP

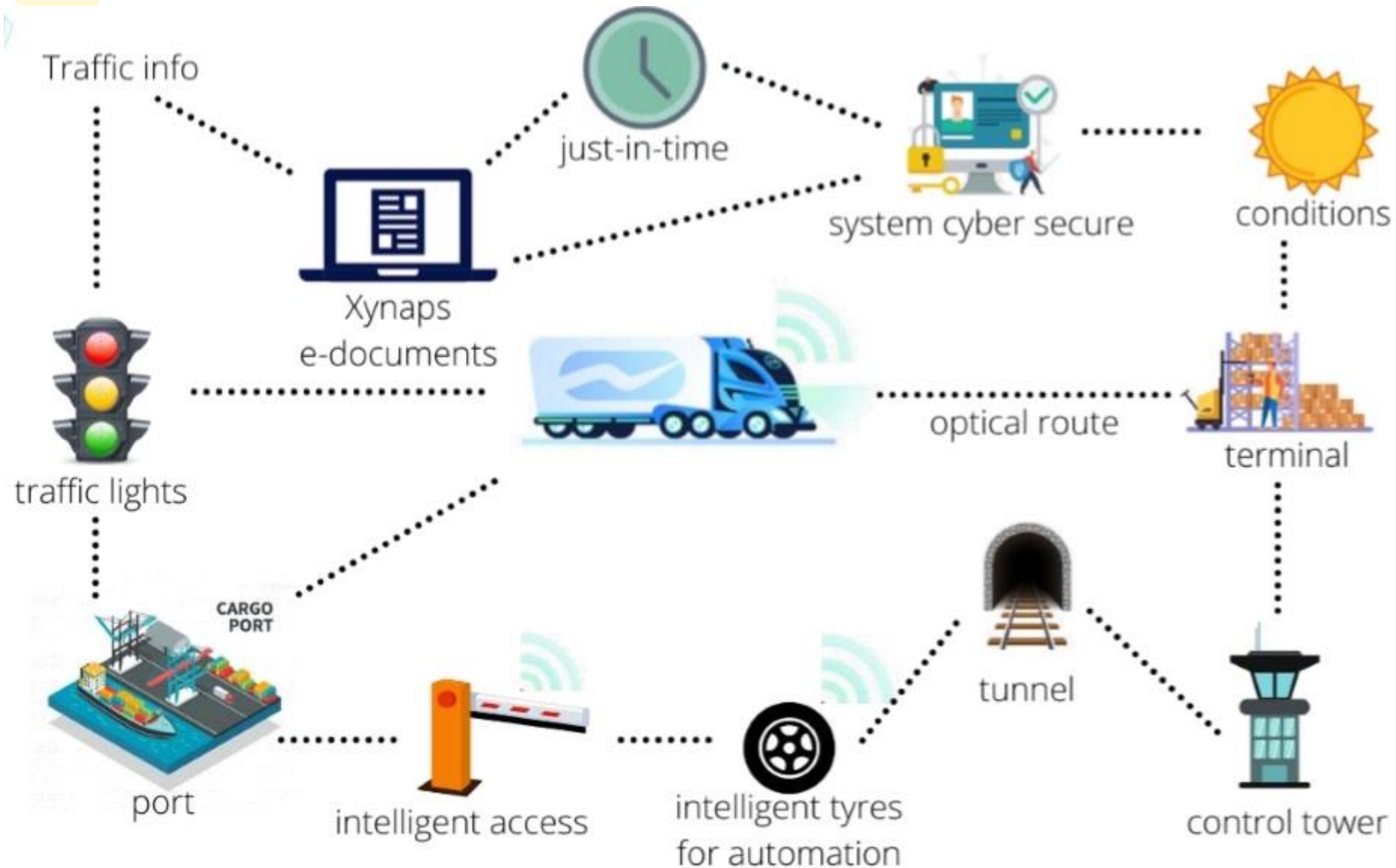


Date	State
10/12/2018 2:04:41 PM	Unloaded
10/12/2018 2:04:41 PM	Delivered
10/12/2018 2:04:41 PM	Signed for delivery
10/12/2018 2:04:41 PM	Completed
10/12/2018 1:54:54 PM	Loaded
10/12/2018 1:54:54 PM	Signed for pickup
10/12/2018 1:54:05 PM	Issued
10/12/2018 1:54:05 PM	Planned



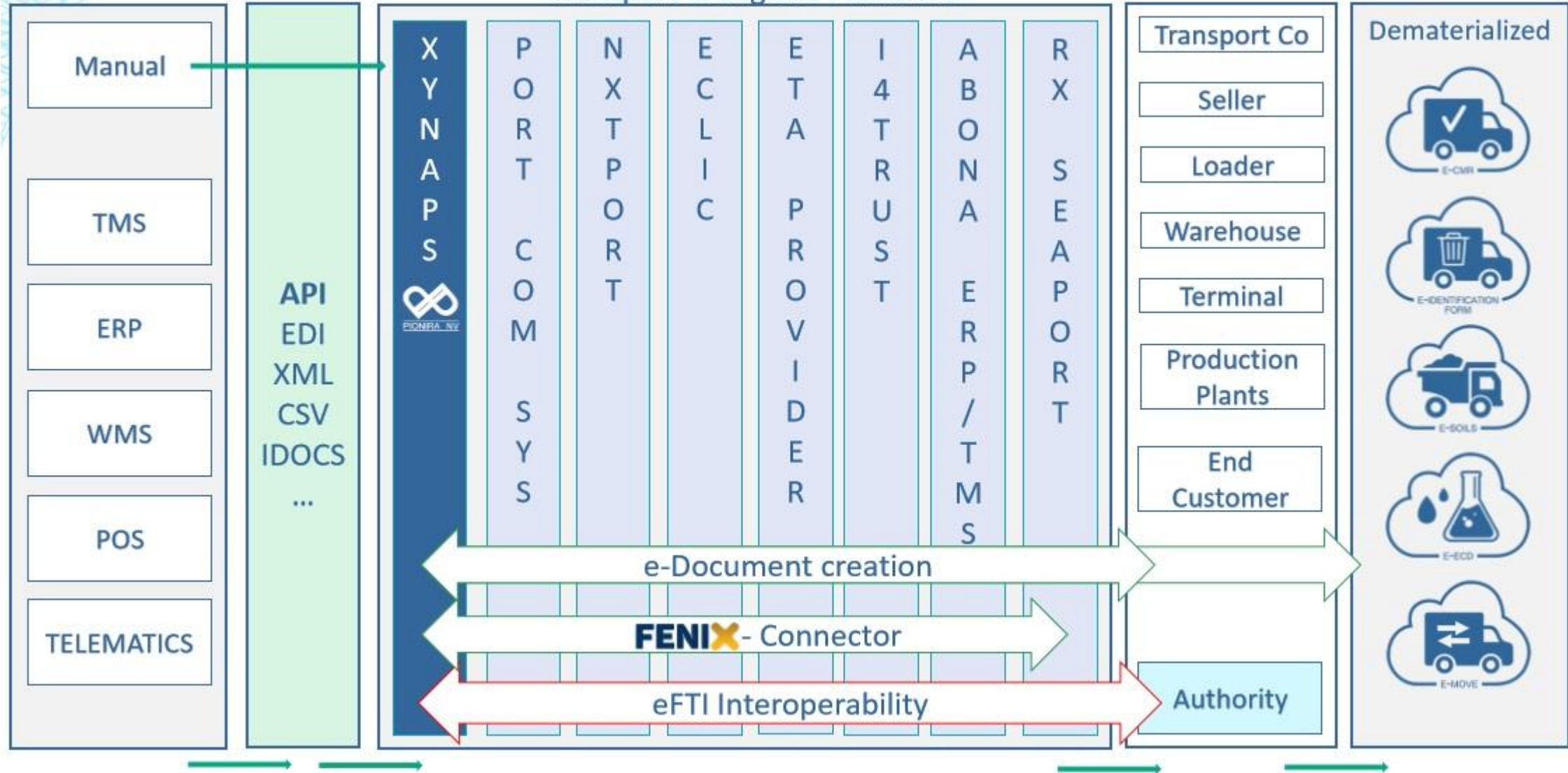
- STATUSES IN MAP
- (Arrival times, signatures, departure times, ...) linked to google maps

IOT INTEGRATION



DATA ENRICHMENT

Transport & Logistic Platforms



1

LETTRE DE VOITURE • VRACHTBRIEF • FRACHTBRIEF

CMR



0000000-2



Ce transport est soumis, nonobstant toute clause contraire, à la Convention CMR.
Dit vervoer is, ongeacht enig tegenstrijdig beding, onderworpen aan het CMR-Verdrag.
Trotz gegenteiliger Abmachung unterliegt diese Beförderung den Bestimmungen des CMR-Übereinkommens.

Pionira NV - www.pionira.be -

1 Expéditeur ou commissionnaire (nom, adresse, Etat) • Afzender of commissionair (naam, adres, Staat) • Absender oder Spediteur (Name, Anschrift, Staat)

BVBA RECUPBAT
Nieuwe Westweg 10
BE-2040 Antwerpen

Consignor

5 Transporteur principal (nom, adresse, Etat, n° de licence, plaque(s) d'immatriculation)
Hoofdvervoerder (naam, adres, Staat, vergunningsnr., plaatnummer(s))
Hauptfrachtführer (Name, Anschrift, Staat, Genehmigungsnummer, amtliche(s) Kennzeichen)

NV Valkeniersnatie
Luithagen-Haven 9
BE-2030 Antwerpen
40448

Carrier

2 Destinataire (nom, adresse, Etat) • Geadresseerde (naam, adres, Staat)
Empfänger (Name, Anschrift, Staat)

BVBA PIETER PORTERS COLLECTIE
Schranshoevebaan 15
BE-2160 Wommelgem

Consignee

Vrachtwagen: 1-WDL-234
Trailer: 1-QDL-234

3 Prise en charge de la marchandise (lieu, Etat, date, heure) • Inontvangstneming van de goederen (plaats, Staat, datum, uur) • Warenabnahme (Ort, Staat, Datum, Uhr)

BVBA RECUPBAT
Nieuwe Westweg 10
BE-2040 Antwerpen

Pickup

6 Transporteur sous-traitant (nom, adresse, Etat, n° de licence, plaque(s) d'immatriculation)
Ondervervoerder (naam, adres, Staat, vergunningsnr., plaatnummer(s))
Unterfrachtführer (Name, Anschrift, Staat, Genehmigungsnummer, amtliche(s) Kennzeichen)

4 Livraison (lieu, Etat, date, heure) • Aflevering (plaats, Staat, datum, uur)
Lieferung (Ort, Staat, Datum, Uhr)

BVBA PIETER PORTERS COLLECTIONS
Schranshoevebaan 15
BE-2160 Wommelgem

Delivery

7 Transporteur successif (nom, adresse, Etat, n° de licence, plaque(s) d'immatriculation)
Opvolgende vervoerder (naam, adres, Staat, vergunningsnr., plaatnummer(s))
Nachfolgender Frachtführer (Name, Anschrift, Staat, Genehmigungsnummer, amtliche(s) Kennzeichen)

8 Frais afférents au transport • Transportgebonden kosten • Transportgebundene Kosten

9 Réserves du transporteur lors de la prise en charge de la marchandise • Voorbehoud van de vervoerder bij de inontvangstneming van de goederen • Vorbehalt des Frachtführers bei der

Warenabnahme

Aflevering
Livraison
Lieferung

10 Marchandises transportées (nature, nombre, poids brut ou net, emballage, marques et n°s. ...) • Vervoerde goederen (aard, aantal, bruto- of nettogewicht, verpakking, merken en nrs. ...)
Beförderte Güter (Art, Anzahl, Brutto- oder Nettogewicht, Verpackung, Kennzeichen und Nrs. ...)

Empty Container: AVAU777775 - MSC

Avantida Reuse: <https://platform.avantida.com#/community/reuse?id=cf2cfa22-e531-450e-ba47-354adfc0e736>

Goods

11 Documents annexes transmis par l'expéditeur • Door de afzender bezorgde aanvullende documenten • vom Absender zusätzlich übermittelte Dokumente

13 Instructions de l'expéditeur • Instructies van de afzender • Anweisungen des Absenders

12 Lieu et date d'établissement • Plaats en datum van afgifte • Ausstellungsort und Datum

Antwaaarpe 26/06/2020

14

15 NV Valkeniersnatie

16

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Antwaaarpe 26/06/2020

14
BE

Consignor
Signature

Signature et cachet de l'expéditeur ou du commissionnaire
Handtekening en stempel van de afzender of commissionair
Unterschrift und Stempel des Absenders oder Spediteurs

15
NV Valkeniersnatie
Luithagen-Haven 9
20
BE

Carrier
Signature

Signature et cachet du transporteur effectif
Handtekening en stempel van de werkelijke vervoerder
Unterschrift und Stempel des tatsächlichen Frachtführers

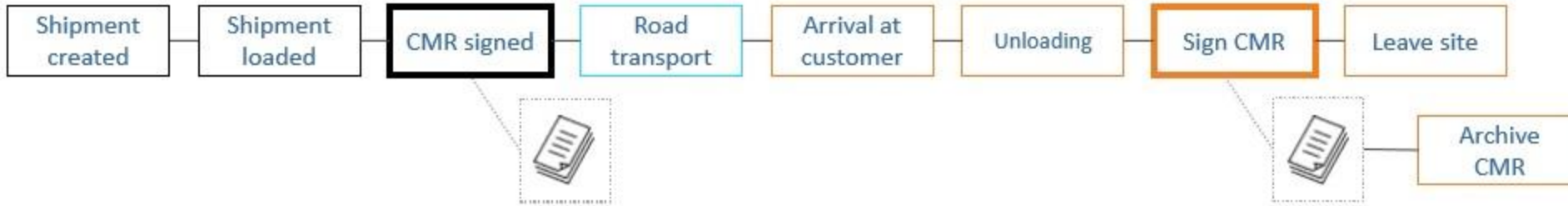
16

Consignee
Signature

Signature, date et cachet du destinataire
Handtekening, datum en stempel van de geadresseerde
Unterschrift, Datum und Stempel des Empfängers

WHAT WILL CHANGE?

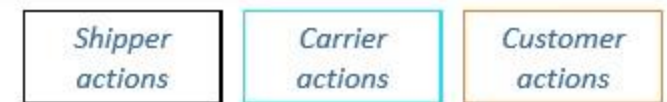
Before eCMR



After eCMR



The driver will present himself with a digital CMR, instead of paper version. Signing this eCMR is easy and straightforward.



CONTACTLESS DELIVERIES

Option 1

Customer chooses to
sign by QR code



Driver scans
printed QR label
on wall / gate



Driver scans QR code
phone-to-phone

Option 2

Customer chooses to
sign behind desk



Driver completes delivery
(incl. photos & geotag) &
waits in truck



Customer checks machine(s) and
confirms delivery or adds
remarks from behind his desk

+

Customer selects
preferred delivery
option



Customer receives e-mail of
pending delivery incl. link to
webpage with info & options



Geotag

+

2 photo's of the delivered
machines showing
machine + accessories



Default

Sign on glass, as per
today's paper procedure

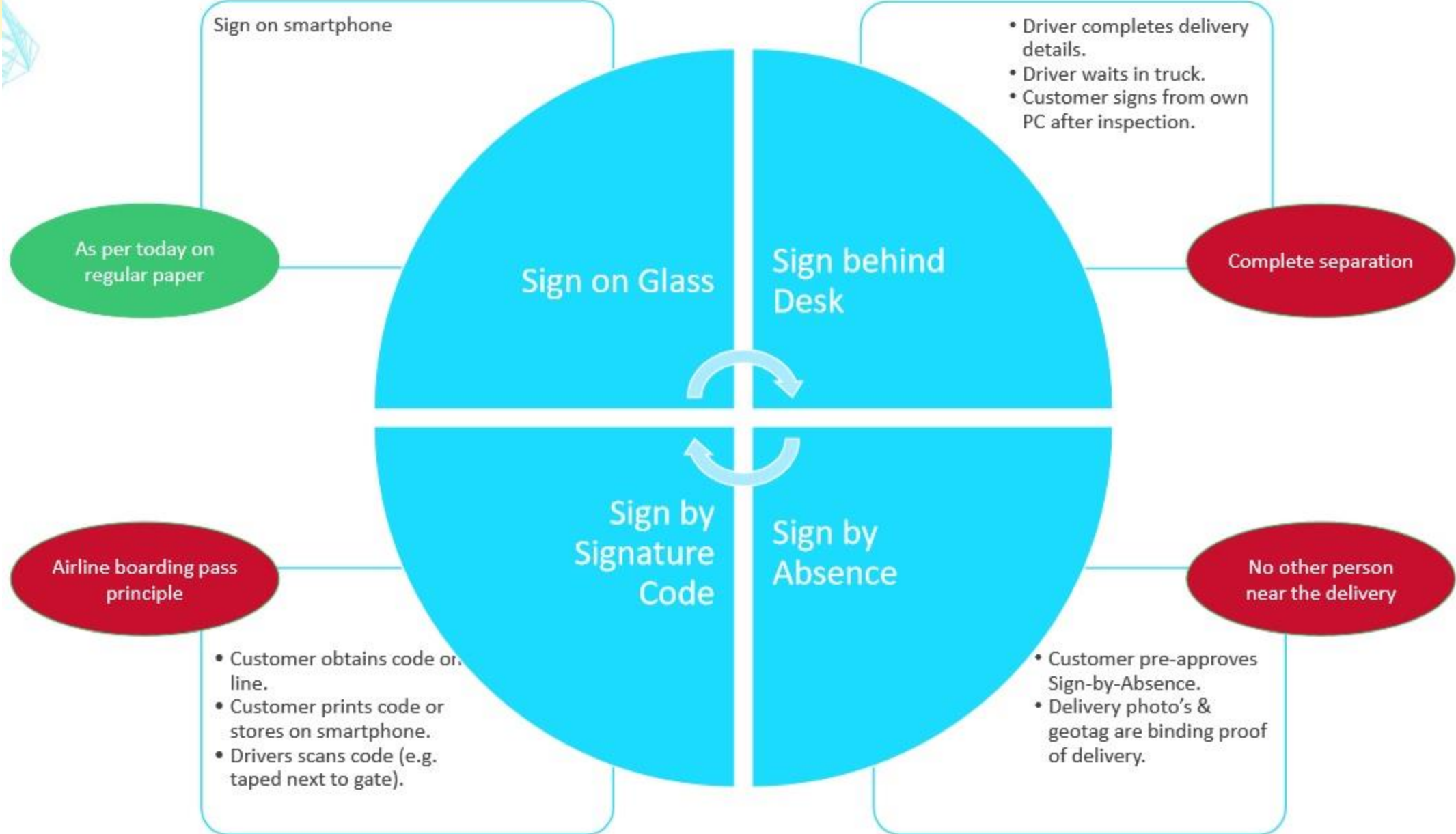
Option 3

Customer chooses to
sign by absence






NETWORK

3 NEW CONTACTLESS DELIVERY OPTIONS





ADVANTAGES-who gets what?

 <h2>Shipper</h2> <ul style="list-style-type: none">• Faster dispute resolution• Automated document creation• System integration• Efficiency increase• Faster logistic process• Paperless flow	 <h2>Carrier</h2> <ul style="list-style-type: none">• Linked with GPS• Adding attachments• Real time info• Electronic archive• System integration• Paperless flow	 <h2>Customer</h2> <ul style="list-style-type: none">• Paperless flow• E-Archive, 7 years of history• Efficiency increase• TraceShipperlity of actions• Data correctness• Adding attachments• System integration• Faster invoicing + credit notes
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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.



OVERVIEW

Overall project overview:

- 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 Test sites

B1: **AirCargo** pilot site(Be)-
implement/pre-deploy/deploy
specific use cases for the
air cargo community linked to
the other transport modes across
TEN corridors



H: Smart **door-to-door**
multimodal T&L
services across TEN-T

SL: **Mondelez T&L**
multimodal services
across TEN-T corridors



B2: Multimodal inland **Hub-Procter & Gamble**-Mechelen-Willebroek pilot site
across TEN-T corridors



A: **Customs corridor**
services for T&L:- Fürnitz
Pilot Site (South Austria)
on the Baltic-Adriatic
corridor



G: **Multiple test sites** across
on Rhine-Alpine in Holland,
Germany, Switzerland, Italy



Data visibility T&L services
across the Spanish-Atlantic
corridor between the main
nodes and actors



I1: Mediterranean and Baltic-
Adriatic and the Motorway of
the Sea of South-east
corridors

I2: The Italian Rhine Alpine
pilot site – **Dynamic
Synchro-modal for
sustainable multimodal
logistic planning and
operations**



GR: Greece Balkan-TEN-T
network, Adriatic-Ionian
Corridor-Cyprus **multimodal
T&L services**

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 Synchromodal Logistic

Test Site Slovakia: All TEN-T corridors and multimodal

Test site Spain: The Spanish-Atlantic Corridor

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



Technology Integration



Activity 3 objectives



Platform Federation



Security (Encryption + Auth)



T&L corridor services



Software integration

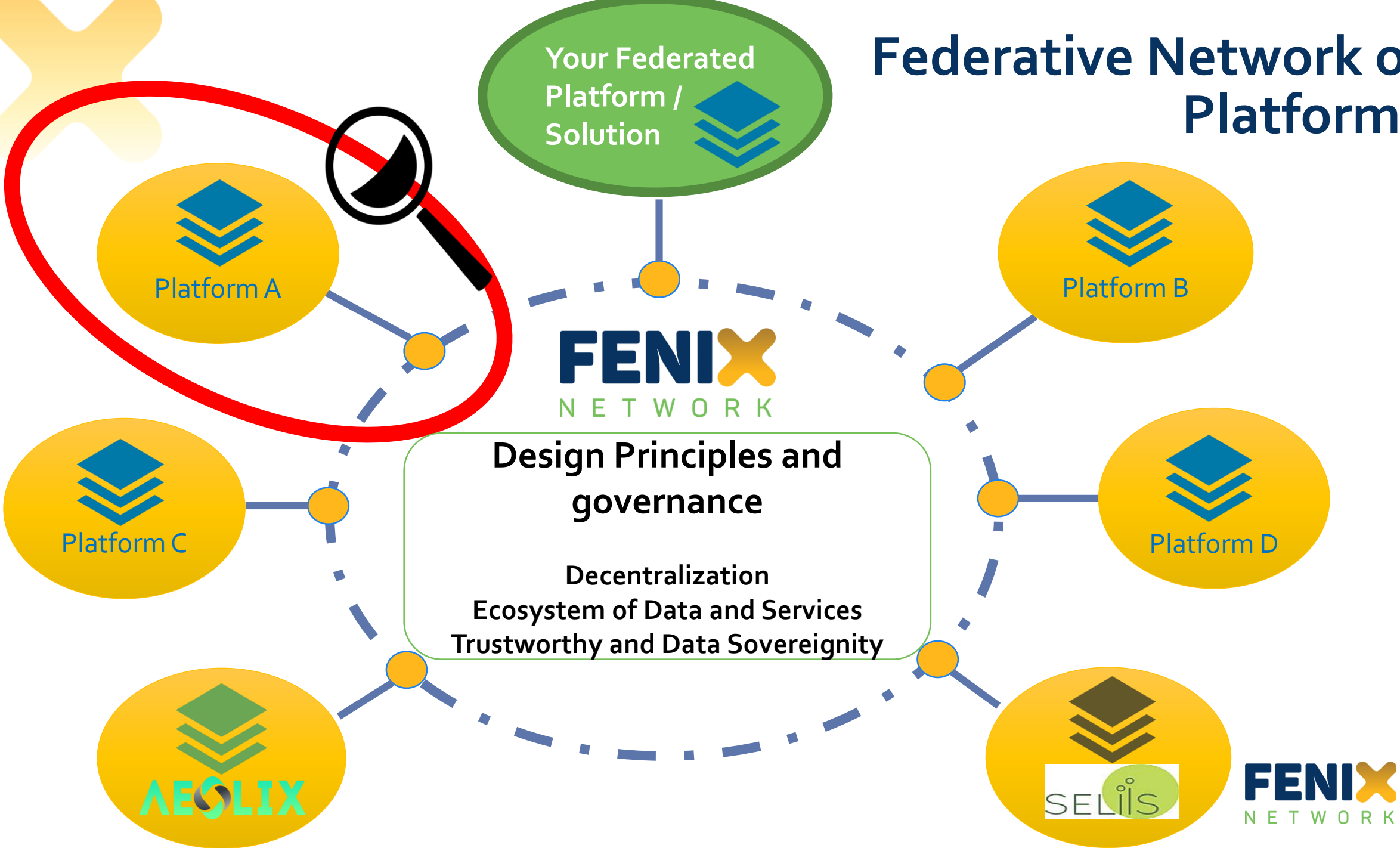


Test cases



Quality

Federative Network of Platforms



Your Federated Platform / Solution

Platform A

Platform B

Platform C

Platform D

AEOPIX

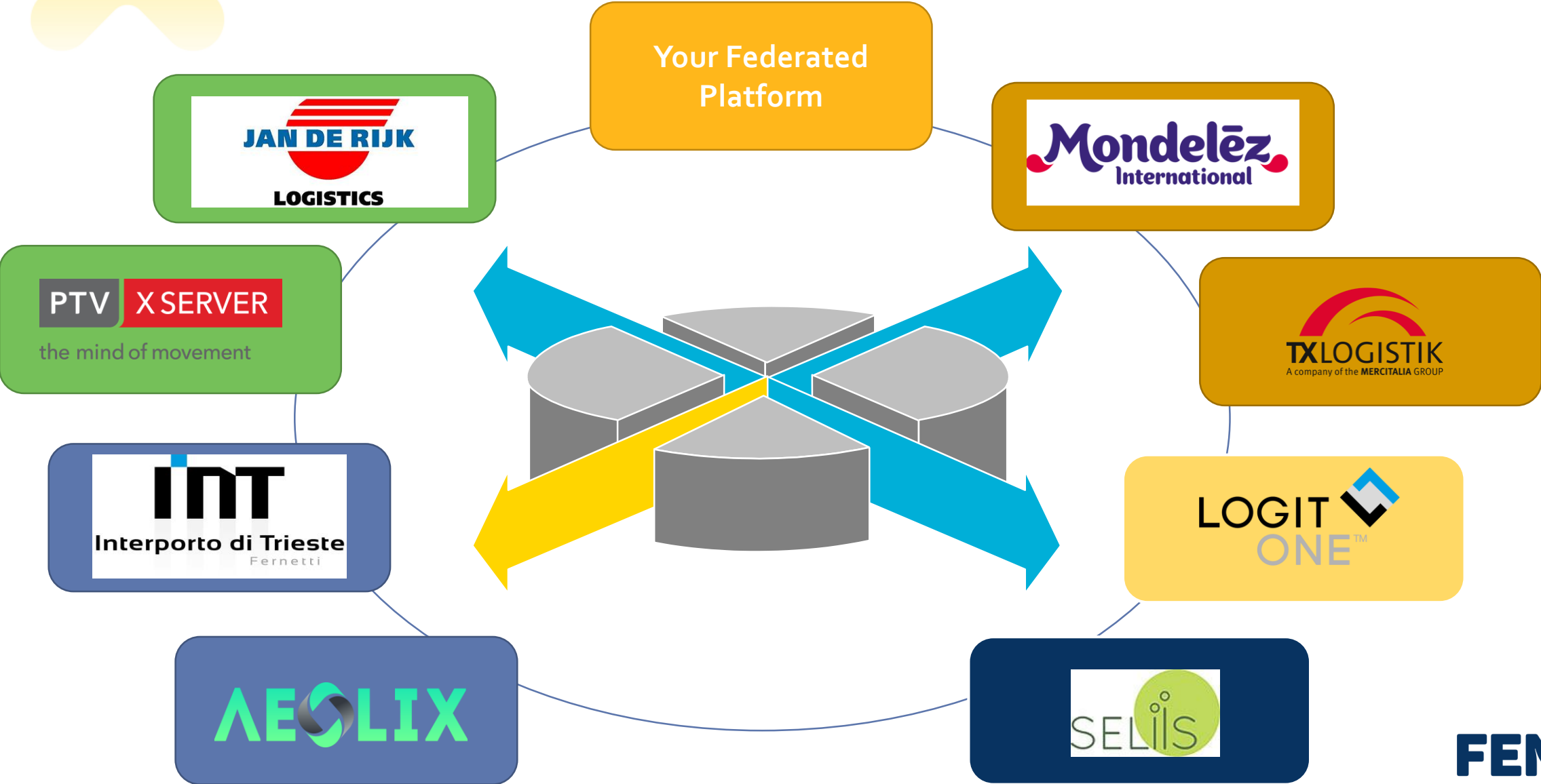
SELiS

Design Principles and governance
Decentralization
Ecosystem of Data and Services
Trustworthy and Data Sovereignty

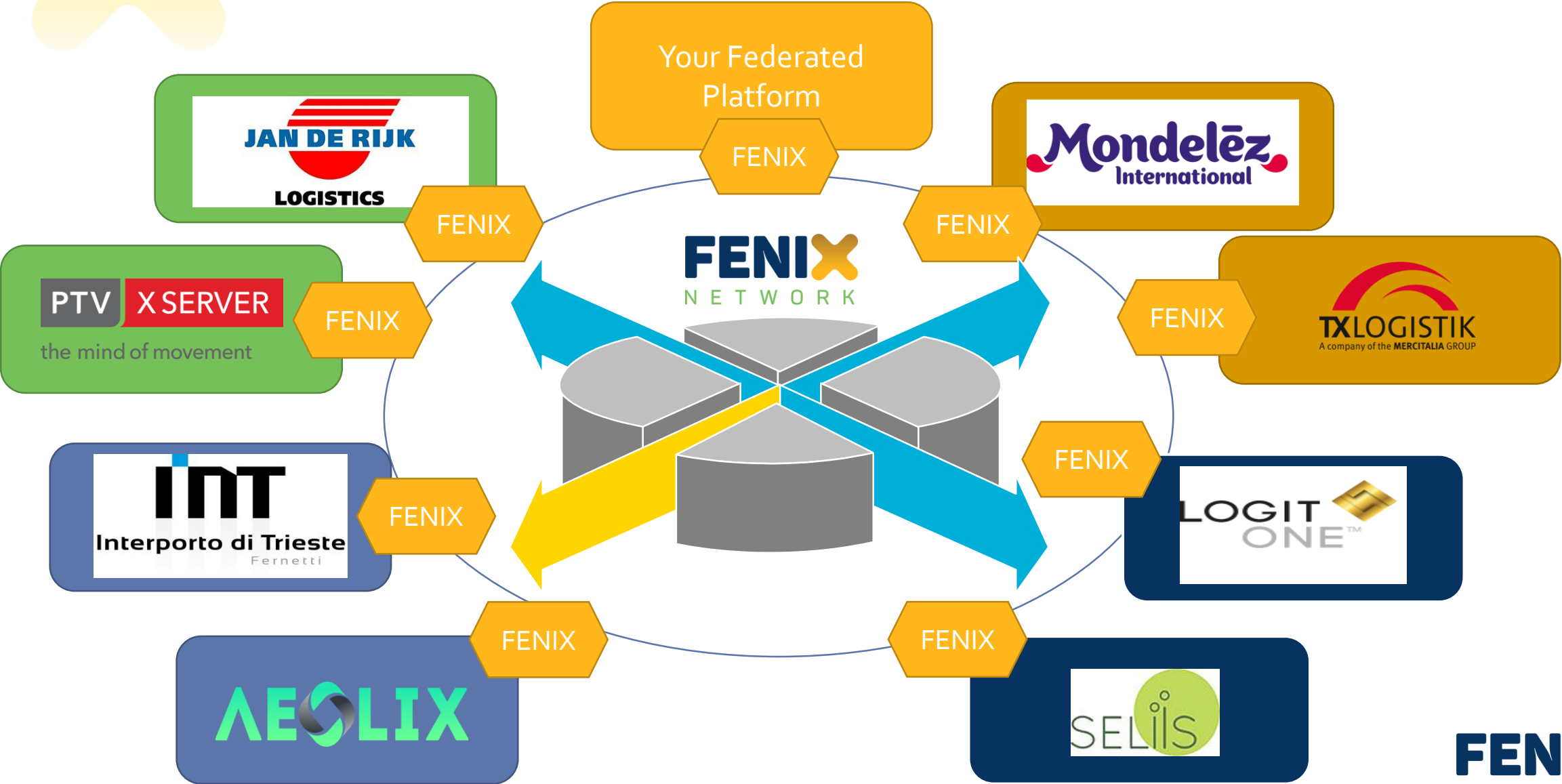
FENIX
NETWORK

FENIX
NETWORK

FEDERATIVE NETWORK OF PLATFORMS



FEDERATIVE NETWORK OF PLATFORMS





FENIX IT Framework - Design Principles and governance

- **Decentralization:** FENIX does not strive to develop a new centralized solution with its own specific functionalities and does not create another platform. *In federation the different nodes of the network retain their internal control.* **Decentralized access control to data or services** should be put in place.
- **Ecosystem of Data and Services:** *FENIX is composed of platforms, data assets and services.* The **data and services are made available for secured consumption or sharing** via the federated network.
- **Trustworthy and Data Sovereignty:** *Trust is the basis of the FENIX IT Framework,* which should provide guidelines to ensure the trustworthy between the federated platforms and support data sovereignty. As well, the communication between the nodes of the federation must be secure.

Strategic principles and features

Federation

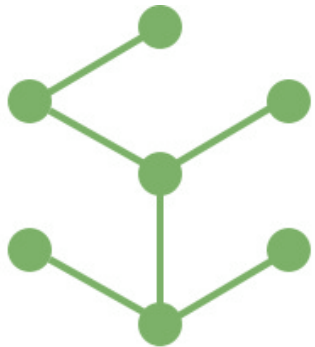
- According to [businessdictionary.com](https://www.businessdictionary.com/definition/federation.html), a federation is an organization that consists of a group of smaller organizations or companies that works to bring attention to issues that are of importance to all of its members. Each organization that comprises the federation maintains control over its own operations.



- At **strategic level**, FENIX addressing the vision of a federated network of platforms concept, data sharing, trust and data access control
- At **tactical level**, FENIX focus is on the governance model and the regulation (rules, guidelines, standards...)
- At **delivery level**, FENIX provides the technological architecture specification for the federation of platforms and a technological demonstration together with project member's platforms

Strategic principles and features

Decentralized approach



- FENIX architecture does not rely on a centralized platform or software approach
- All trusted and certified platforms that are part of the federation are considered nodes of the network and always retain their internal control.
- Is not a single, central system that mandates one way of operating for everything. Instead, it is a framework. It is a networked collection of platforms that join together and understand each other, based on common rules

Strategic principles and features

Ecosystem of Data and Services



- FENIX is composed of platforms, data assets and services. The data and services are made available for secured consumption or sharing via the federated network.
- FENIX federation enables data sharing between individual platforms, which will be created by means of common protocols for supporting data sharing services (platforms interoperability)
- Stakeholders can communicate with their platform provider of choice, who are held to relevant trust, security, and performance standards by the authorities and FENIX specifications and coordinate with the rest of the network

Strategic principles and features

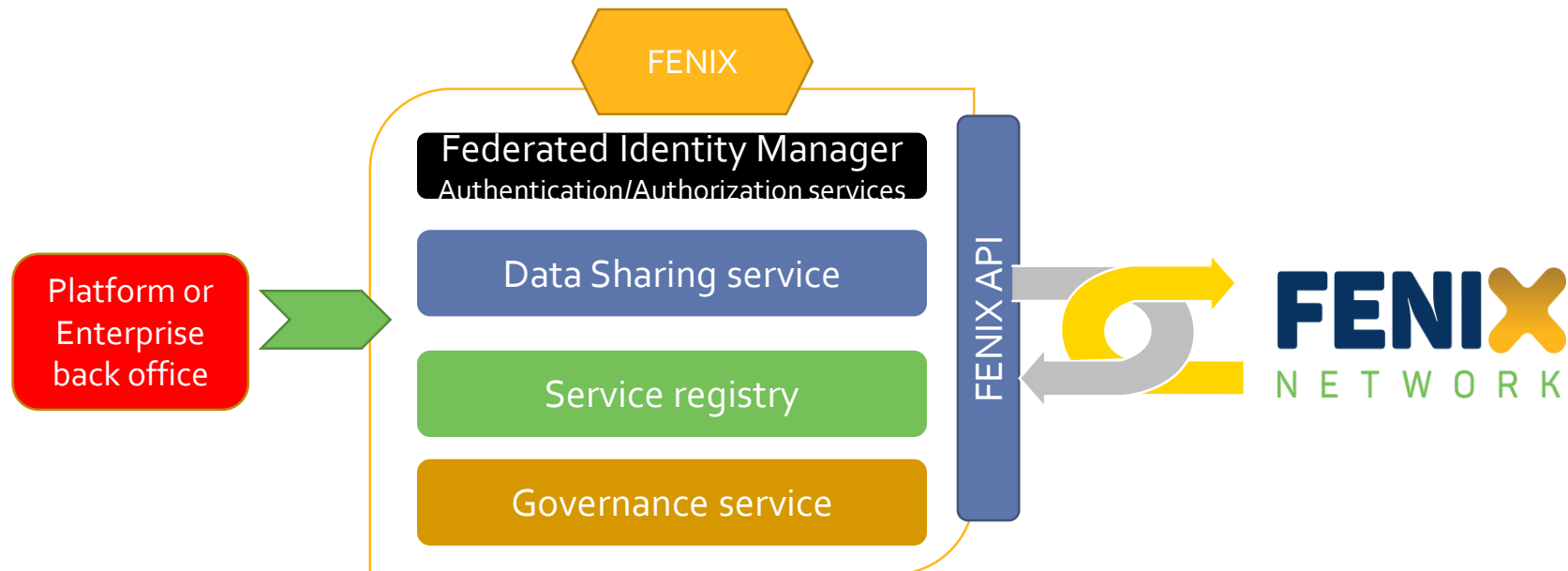
Trustworthy and Data Sovereignty



- Trust is essential for digital services, logistics actors will not embrace digital services if they don't trust their data will be protected. FENIX provides guidelines to ensure the trustworthy between the federated platforms and support data sovereignty.
- Data sovereignty means maintaining authority and control of data within jurisdictional boundaries. Together with other security aspects, such as secure communication between nodes of the network, data sovereignty is essential for data security.
- FENIX is federating platforms, is not granting Access to each of the fed-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/API/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





More technical detail > ongoing work

User Stories + scenarios + use cases

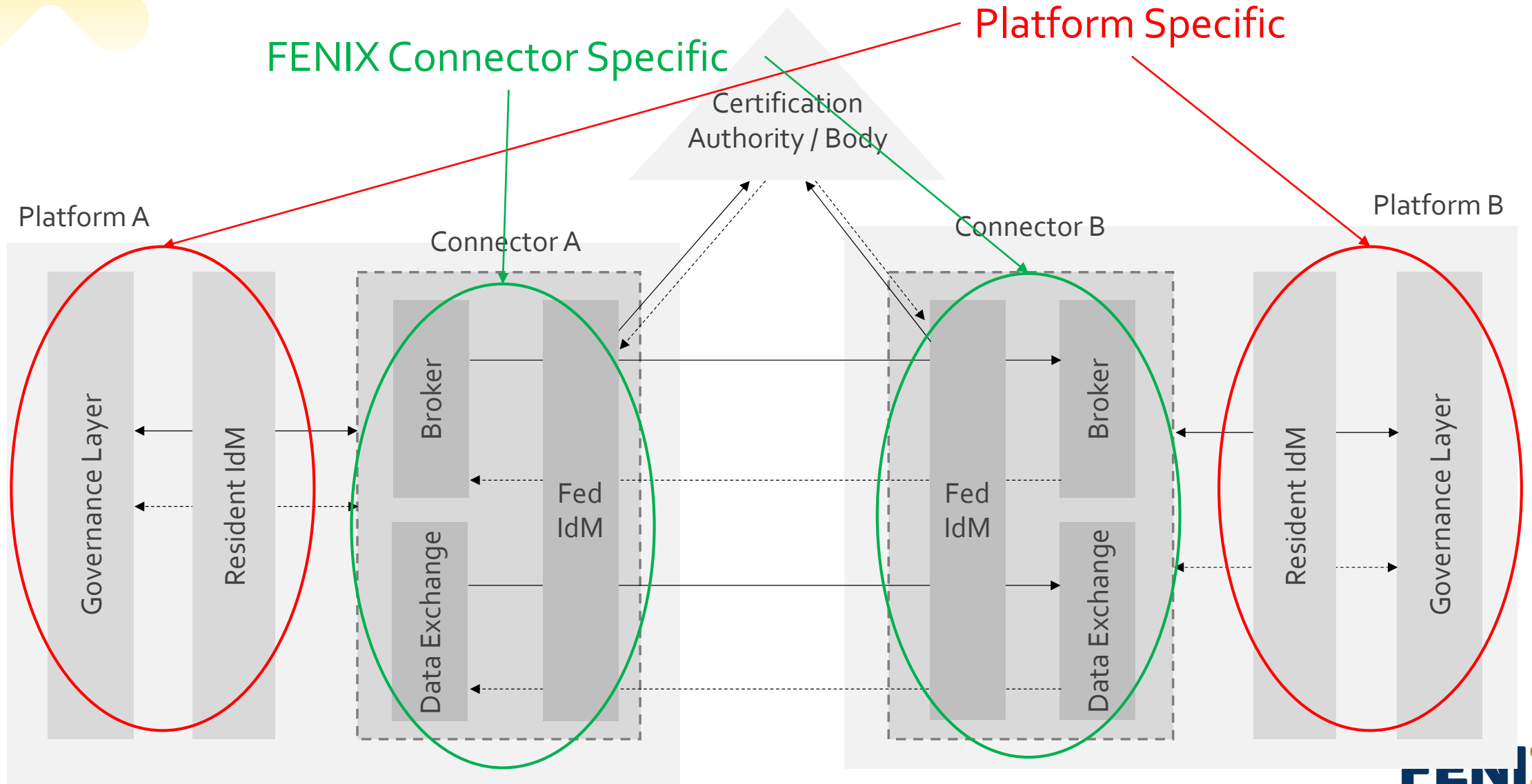
- Federation members agrees on governance model and rules of the ecosystem.
- Each node of the federated network maintains their own internal control, but share the fed-functionalities with the rest of the federated platforms
 - The federation will have a special node in the network, acting as 'Certification Node' which its main technical functionality at operational level is to keep an updated registry of the certified and trusted federation nodes that are participants of the network
- Each node of the network must enable data exchange functionalities and communication among the different nodes to allow members of the federation the ability of collaboration between them and share data assets or access to services. Access policies for data and services
- Each node of the federation provides a broker functionality composed by a service catalog and discovery service, > lookup of the available members, data assets or services available in each of the fed-nodes + a distributed catalog of services and data
 - harmonized data and service description
- Data privacy and user pseudonymization must be respected.
- To use the data, the data consumer must fully accept the data owner's usage policy

FENIX Connector Specifics

- Identified User Stories & 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

FENIX Connector Specifics



The FENIX Connector Specification

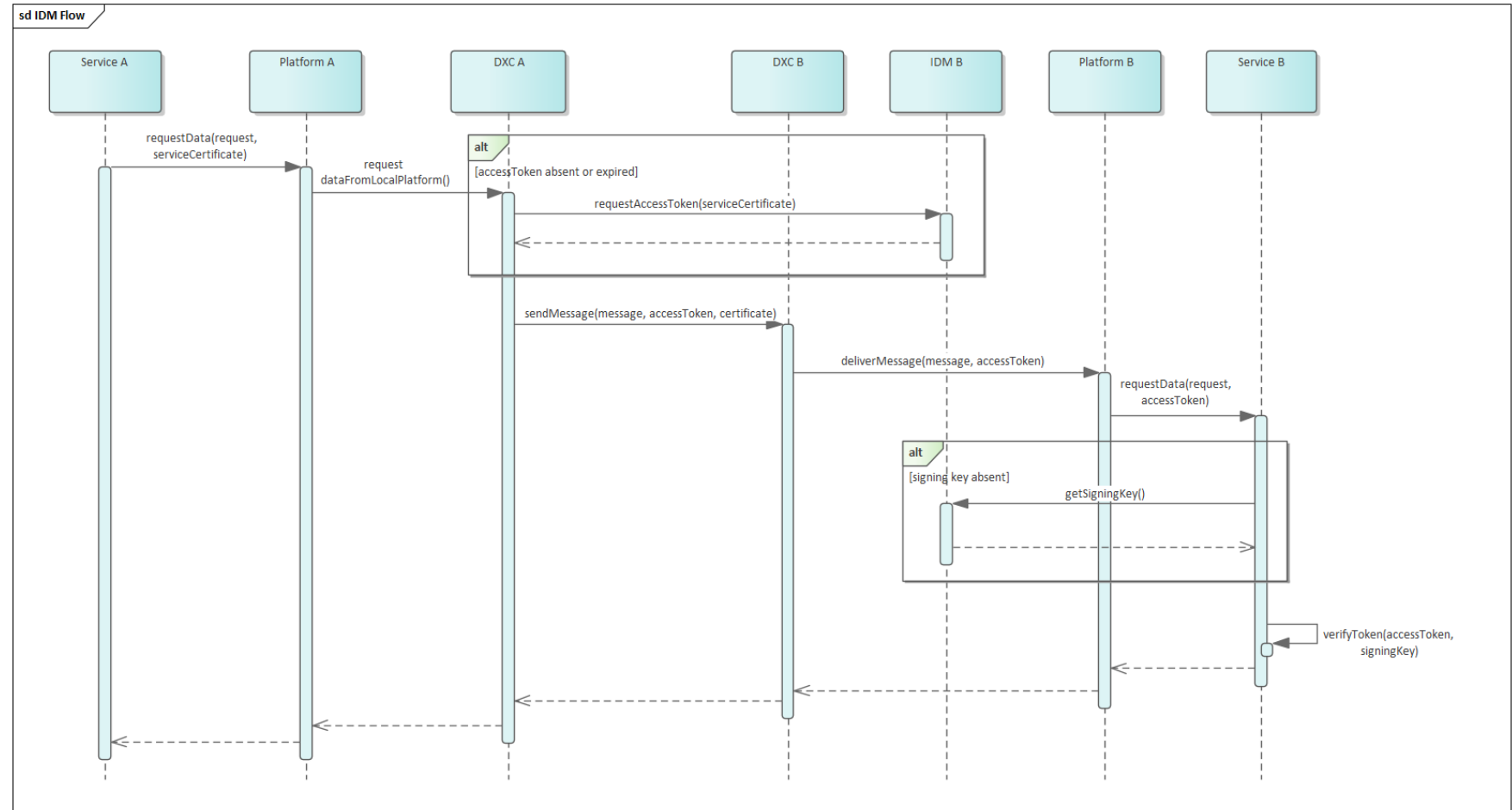
- Security
 - Certificates → Machine to Machine Communication
 - TLS v1.3 and mTLS
- Identification & Authorization – Access Token, Oauth 2.0
- Catalogue of Resources
- Data Exchange
 - Communication Patterns
- FENIX message Structure

The FENIX Connector Specification - Security

- FENIX provides a Machine to Machine Communication through the FENIX connectors
 - The data platforms remain their operation in the same way
 - No need to identify users between connectors, only platform/services certificates
- Usage of Certificates
- TLS v1.3 and mTLS to provide a secure environment using HTTPS connections and data encryption using RSA ciphers

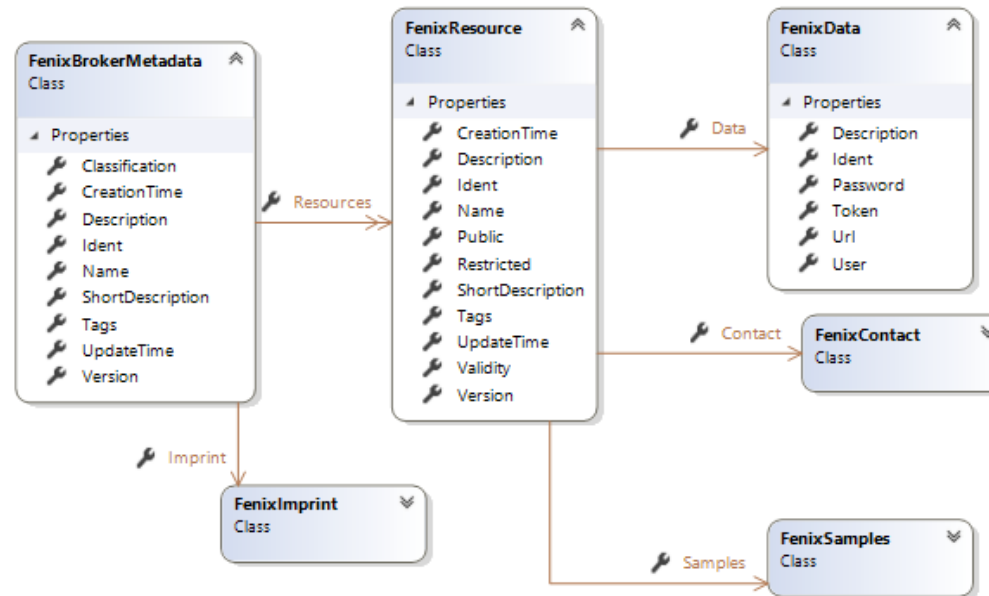
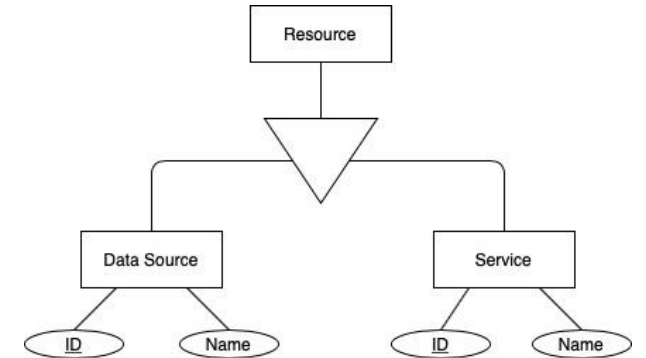
The FENIX Connector Specification – Identification & Authorization

- FENIX Connectors must perform a negotiation to start exchanging information
- Generation of access token between connectors to execute operations
- Oauth 2.0 protocol based on JWT

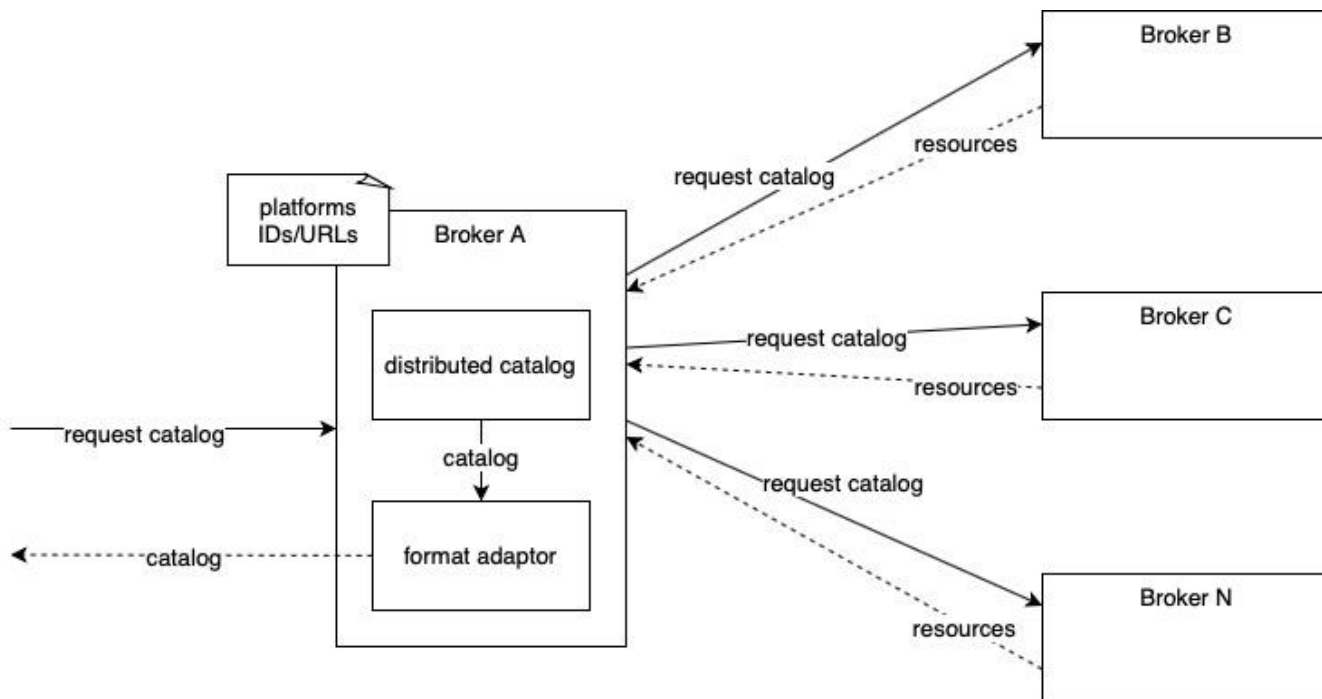


The FENIX Connector Specification – Catalogue of Resources

- 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



The FENIX Connector Specification – Catalogue of Resources & Access to Resource



- Any member can check the available resources in the FENIX federation.
- The FENIX connector must obtain every catalogue of resources from every member. This operation will be done using the Broker component.
- To access one resource, the data user must request access to the resource owner
- The request is done via the FENIX connector, but it is up to the resource owner to grant access to it

The FENIX Connector Specification – Data Exchange

- To exchange data between FENIX connectors, it has been specified 3 different communication patterns:
 - Request/Response Pattern
 - Publish/Subscription Pattern
 - EDI Pattern
- Definition of the data exchange process for each of them (sequence diagrams)
- Definition of the API needed for the Request/Response Pattern (first version)
- Design of the Publish/Subscription pattern using a common Queueing System

The FENIX Connector Specification – Data Exchange

- Every message transferred between connectors must follow the same structure
- It contains context information and can be provided in different formats: json, xml, ...
- The FENIX Connector does NOT deal with the original content. It is encapsulated within the FENIX message structure
- It is up to each platform to understand the original message format

```
{
  "metadata": { //metadata related to the FENIX connector and resources sending info
    "message_id" : 'Unique FENIX message identifier',
    "conn_origin_id" : 'ID from the FENIX Connector at origin',
    "conn_origin_url" : 'URL from the FENIX Connector at origin',
    "conn_dest_id" : 'ID from the FENIX Connector at destination',
    "conn_dest_url" : 'URL from the FENIX Connector at destination',
    "usr_origin" : 'User that sends the message from platform A',
    "usr_dest" : 'User, from platform B, that must receive the message',
    "sent_at" : 'Timestamp at the message is sent, expressed in UTC',

    "msg_type" : [ //Defines the type of message that is being sent
      "access_request" : 'Access request',
      "data_record" : 'The message is a data record',
      "service_request" : 'The message is a service request',
      "service_response" : 'The message is a service response',
      "resource_catalogue" : 'The message is to retrieve the catalogue of resource',
      "resource_grant_request" : 'The message is to request access to a resource',
      "resource_grant_response" : 'The message is a response to a resource_grant_request',
    ],

    "resource_type" : [ //Defines the type of resource sending information

      "dataSource" : { // The source of information is a Data Source,
        "ds_id" : 'If the Resource_type is a dataSource, the data source ID is needed',
        "ds_name" : 'If the Resource_type is a dataSource, the data source name is needed'
      }

      "service" : { //The source of information is a Service
        "srvc_id" : 'If the Resource_type is a service, the service ID is needed',
        "srvc_name" : 'If the Resource_type is a service, the service ID is needed'
      }
    ],

    "mic" : 'Message Integrity Code'
  },

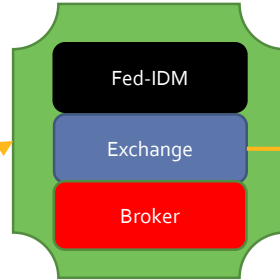
  "original_msg" : { //Contains the message in its format at origin
    "msg_standard" : 'Specifies if the message follows an specific standard: EDIFACT, UBL...',
    "msg_body" : 'Original body of the message'
  }
}
```

FENIX message example

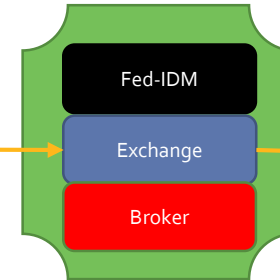
I want to send my position to user in platform X:
Latitude,
longitude



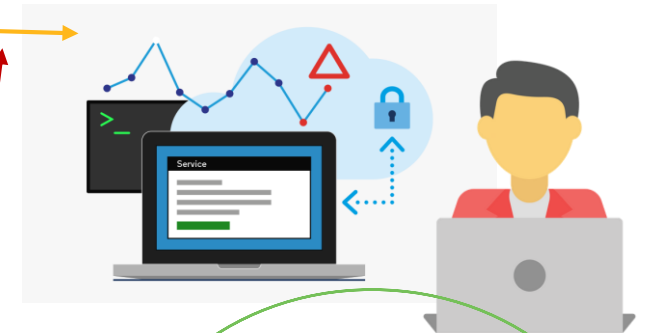
Connector A
ID: 001
URL: 172.167.21.43



Connector X
ID: 145
URL: 134.063.31.67



Platform X



```
entity {
  id: "vehicle_position_2403"
  vehicle {
    position {
      latitude: 28.06235
      longitude: -82.45927
      bearing: 360.0
      speed: 0.0
    }
  }
}
```

```
{
  "Metadata":{
    "Message_ID":"000123243423",
    "Conn_Origin_ID":"001",
    "Conn_Origin_URL":"172.167.21.43",
    "Conn_Dest_ID":"145",
    "Conn_Dest_URL":"134.063.31.67",
    "Usr_Origin":"somebody@platformA.com",
    "Usr_Dest":"somebody@platformX.com",
    "Sent_At":"Mon, 20 July 2020 11:51:57 +0012",
    "Msg_Type":"Data_Record",
    "Src_Origin":"Geocoding Service",
    "Src_Dest":"ETA calculator",
    "MIC":"tBrDrMNe2L8JSOgNSZpQQKdGfC5I9eldDNUJmShnAyyh3TjqGH6tBKFs8nAEJkyCWI36oeQgOg1tOXO0OEq"
  },
  "Original_Msg":{
    "Msg_Format":"GIFS",
    "Msg_Body":"entity {\n id: \"vehicle_position_2403\"\n vehicle {\n position {\n latitude: 28.06235\n longitude: -82.45927\n bearing: 360.0\n speed: 0.0\n } \n } \n }"
  }
}
```

```
entity {
  id: "vehicle_position_2403"
  vehicle {
    position {
      latitude: 28.06235
      longitude: -82.45927
      bearing: 360.0
      speed: 0.0
    }
  }
}
```

FENIX → Future of Logistics

- **TRUST:** Trust is the basis of the FENIX. To use the data, the data consumer must fully accept the data owner's usage policy.
- **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.
- **STANDARDIZED INTEROPERABILITY:** is implemented in different variants and can be acquired from different vendors.
- **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





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