eFTI Insight

Teemu Heikura, Fintraffic, Finland

Mohamed Oulmahdi, IN Groupe, France

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Agenda

- What is eFTI

- What is reference implementation in scope of eFTI4EU

- Reference implementation in practice and technical things

- Pilots in eFTI4EU project
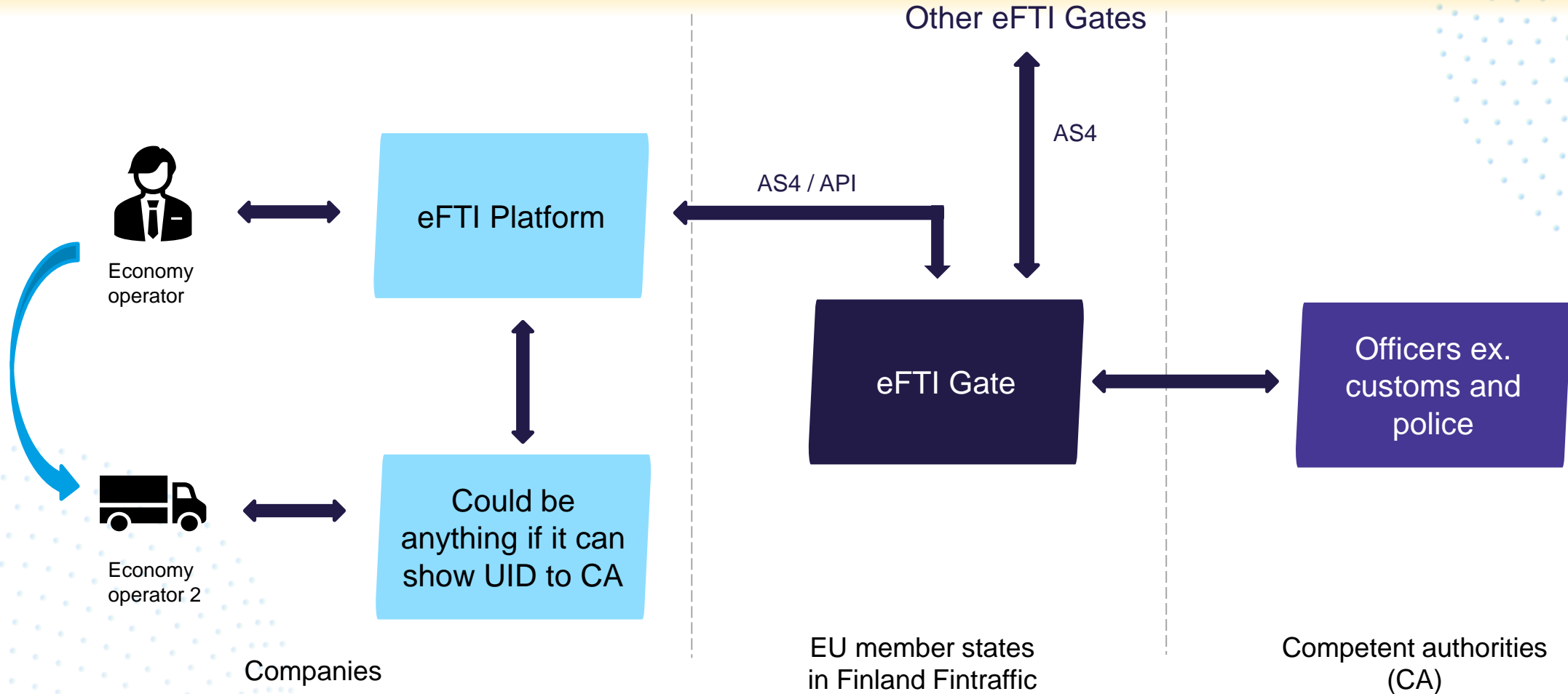
Teemu Heikura
Head of Logistics
Fintraffic

- **Project Manager of the national implementation of eFTI**

- **Facilitating the co-operation of traffic industry in Finland**

- **Experience from ICT and logistics**

https://www.linkedin.com/in/teemu-heikura/

Electronic freight transport information (eFTI)

eFTI in practice

Economy operator

Economy operator 2

Companies

eFTI Platform

Could be anything if it can show UID to CA

AS4 / API

Other eFTI Gates

AS4

eFTI Gate

EU member states in Finland Fintraffic

Officers ex. customs and police
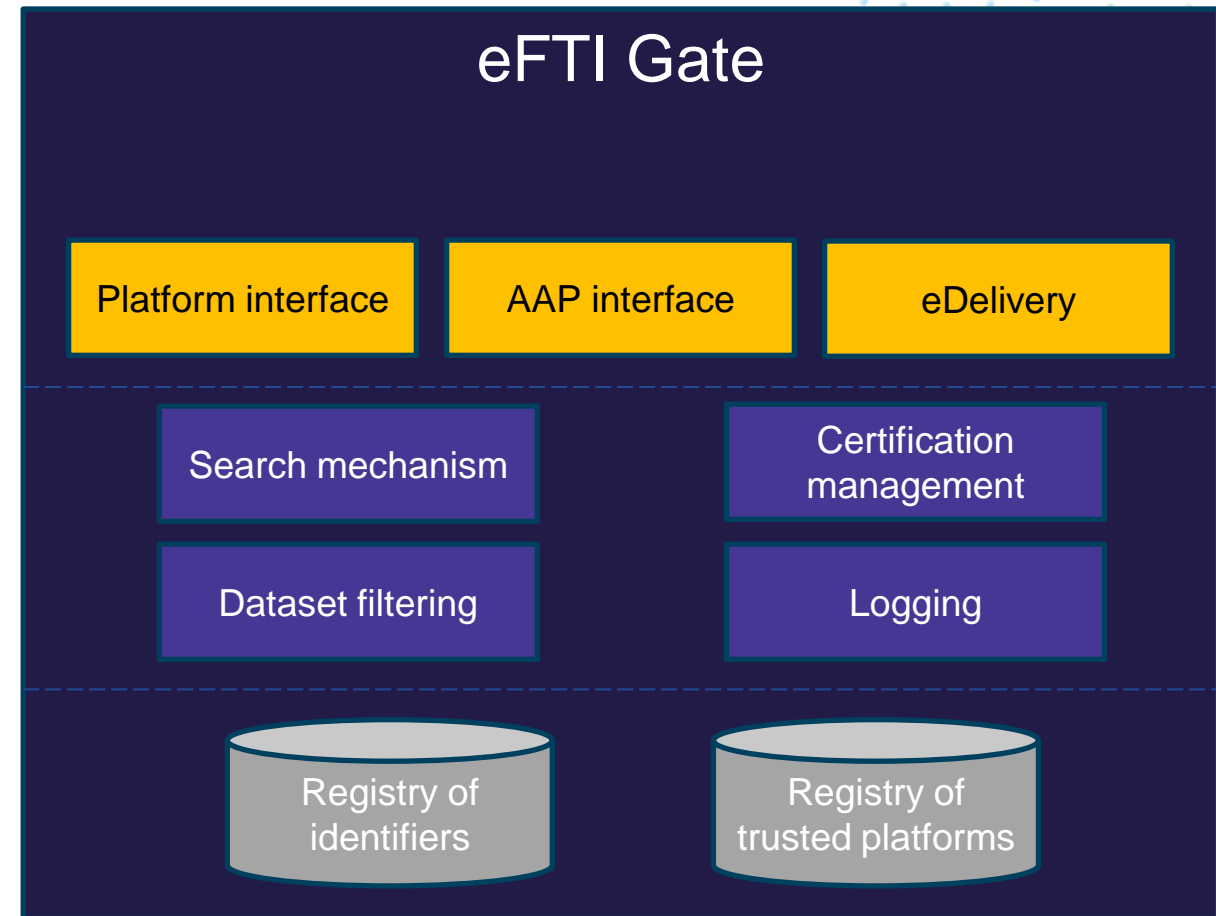
Competent authorities (CA)

eFTI Gate

National centralized access point eFTI Gate connects eFTI information between Economy Operators and authorities

eFTI Gate connects to all other eFTI Gates in Europe

Creates single access point on a national level

Holds only minimal set of data

eFTI Gate

| Platform interface | AAP interface | eDelivery |

Search mechanism

Certification management

Dataset filtering

Logging

Registry of identifiers

Registry of trusted platforms

AAP

Authority access point is literally component which authority uses when access to eFTI data

Can be separate solution or part of existing application

Interface can be defined nationally, even though functionalities and data is quite well defined in eFTI

Authority app

eFTI Gate

eFTI platform alternatives

Option 1: Stand alone system

eFTI Platform

↓

eFTI Gate

Option 2: Third party service ex. SaaS service

eFTI Platform

↓

eFTI Gate

Option 3: Part of TMS / ERP solution

ERP / TMS solution

eFTI Platform

↓
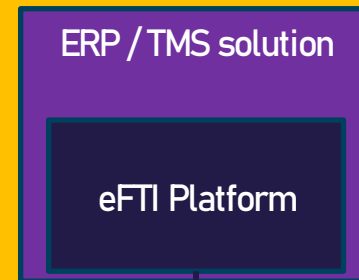
eFTI Gate

Option 4: Use of tributary

Tributary Platform

↓

eFTI Platform

↓

eFTI Gate

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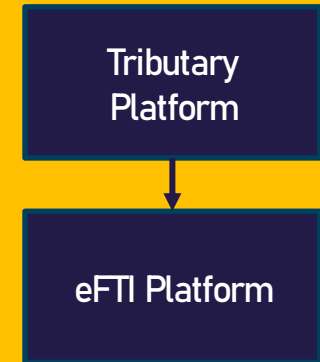
Most important component is Gate to Gate interface

eFTI cannot work if Gate to Gate interface is not harmonized and eDelivery profile is not harmonized

Data model needs to be harmonized

Gate to Platform interface can differ at a national level
Gate to APP interface can differ at a national level
Implementation and technical paltform can differ at a national level

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"We are 100% eFTI compliant"

Wrong, specs are not ready, nobody is 100% eFTI compliant yet.

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02

eFTI4EU project from a technical perspective

Co-funded by
the European Union

In eFTI4EU project technical part we have focused on

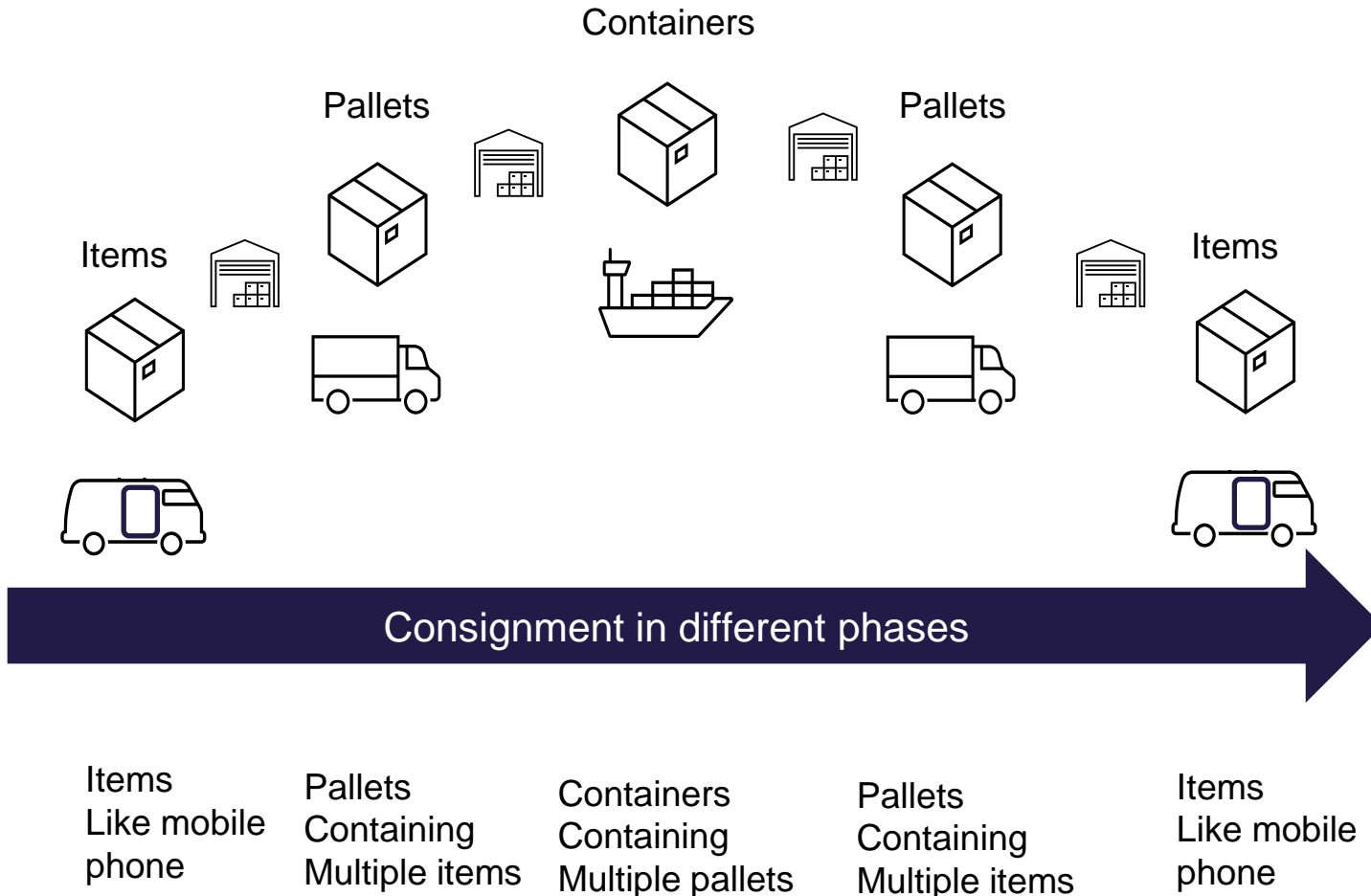Process

Data

Interfaces

Reference implementation

Let's be precice with terminology: What are our data elements?

Containers

Pallets

Pallets

Items

Items

Consignment in different phases

Items
Like mobile phone

Pallets
Containing
Multiple items

Containers
Containing
Multiple pallets

Pallets
Containing
Multiple items

Items
Like mobile phone

```xml
1   <?xml version="1.0" encoding="utf-8"?>
2   <consignment
3       xmlns="http://efti.eu/v1/consignment/identifier"
4       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
5       xsi:schemaLocation="http://efti.eu/v1/consignment/identifier ../
6
7       <!-- eFTI39 -->
8       <carrierAcceptanceDateTime formatId="203">202401010000</carrierAcce
9
10      <deliveryEvent>
11          <!-- eFTI188 -->
12          <actualOccurrenceDateTime formatId="203">202401020000</actualOccu
13      </deliveryEvent>
14
15      <mainCarriageTransportMovement>
16          <!-- eFTI1451 -->
17          <dangerousGoodsIndicator>false</dangerousGoodsIndicator>
18
19          <!-- eFTI581 -->
20          <modeCode>3</modeCode>
21
22          <usedTransportMeans>
23              <!-- eFTI618 -->
24              <id>313</id>
25              <!-- eFTI620 -->
26              <registrationCountry>
27                  <code>FI</code>
28              </registrationCountry>
29          </usedTransportMeans>
30      </mainCarriageTransportMovement>
31
32      <usedTransportEquipment>
33          <carriedTransportEquipment>
34              <!-- eFTI448 -->
35              <id>313</id>
36              <!-- eFTI1000 -->
37              <sequenceNumber>1</sequenceNumber>
38          </carriedTransportEquipment>
39
40          <!-- eFTI378 -->
41          <categoryCode>AE</categoryCode>
```
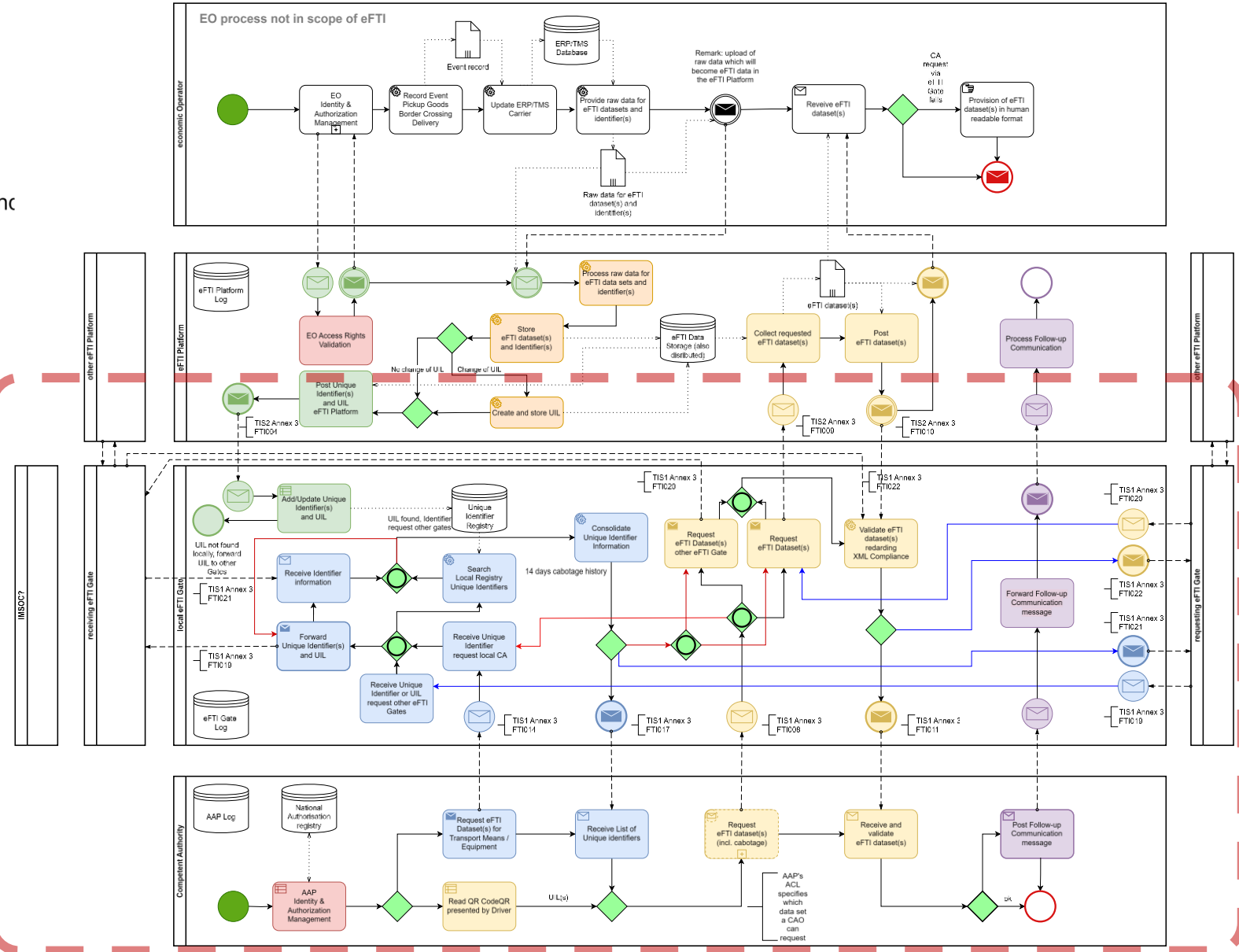
Reference model, architecture and implementation explained

- BPMN = *Business Process Model and Notation (BPMN)* is a graphical representation for specifying business processes in a business process model. Outcome is a document

- A reference architecture is a document that provides recommended structures and integrations of IT products and services to form a solution. Often based on the generalization of the set of solutions. Outcome is a document

- A reference implementation is basically an example implementation of the solution that showcases how solution can be implemented or intended to be used. Outcome is bunch of code.
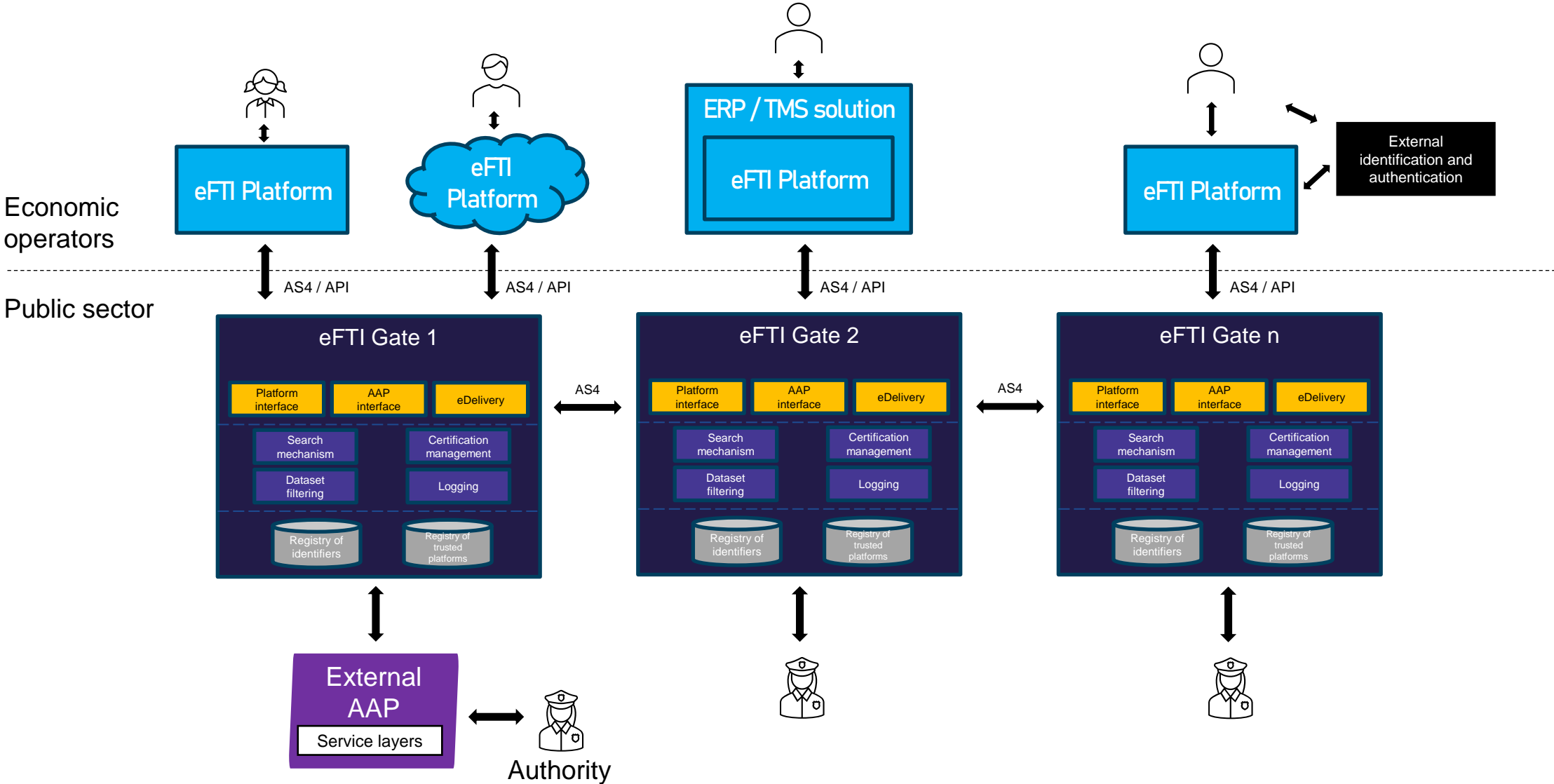
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BPMN

Colour Key

- UC Identification, Authorisation, Authentication of EO and
- UC Request for Identifiers(s) and UIL(s)
- UC Request for eFTI Data sets via UIL
- UC Upload eFTI Data sets, Identifiers to eFTI Platform
- UC Upload of Identifiers and UIL(s) to eFTI Gate
- UC Follow-up communication

eFTI4EU Project Boundary

Reference architecture

Reference implementation

```java
public class IdentifiersService {

    private final IdentifiersRepository repository;
    private final IdentifiersMapper mapper;
    private final AuditRegistryLogService logService;
    private final SerializeUtils serializeUtils;

    @Value("${gate.owner}")
    private String gateOwner;
    @Value("${gate.country}")
    private String gateCountry;

    public void createOrUpdate(final SaveIdentifiersRequestWrapper identifiersDto) {
        final String bodyBase64 = serializeUtils.mapObjectToBase64String(identifiersDto);
        final SaveIdentifiersRequest identifiers = identifiersDto.getSaveIdentifiersRequest();

        final Optional<Consignment> entityOptional = repository.findByUil(gateOwner,
                identifiers.getDatasetId(), identifiersDto.getPlatformId());

        Consignment consignment = mapper.dtoToEntity(identifiers);
        consignment.setGateId(gateOwner);
        consignment.setPlatformId(identifiersDto.getPlatformId());
        consignment.setDatasetId(identifiers.getDatasetId());

        if (entityOptional.isPresent()) {
            consignment.setId(entityOptional.get().getId());
            log.info("updating Consignment for uuid {}", consignment.getId());
        } else {
            log.info("creating new entry for dataset id {}", identifiers.getDatasetId());
        }
        this.save(consignment);
        logService.log(identifiersDto, gateOwner, gateCountry, bodyBase64, FTI_004);
    }
```

What is a reference implementation?

Reference implementation is:

- one of our deliverables
- following the latest version of regulation
- open source
- functional implementation with shared code

Reference implementation is not:

- a version which contains additional modifications or changes proposed by the project
- ready for production use
- a national implementation

Reference implementation

Mohamed Oulmahdi, PhD

System Architect – IN Groupe

Co-funded by
the European Union

IN Groupe *Digital Services Business Unit Mission:*
« Deliver Trust Systems and Services to Secure Relationships and Interactions by integrating in existing Ecosystems »

By delivering Trust Systems and Services,
we provide durable foundations, to ignite and develop
trusted relationships and interactions,
in the frame of Physical and Digital Contexts,
between all interacting parties in the ecosystem:

- **Organisations**: Government (DGITM), Institution, Enterprise…
- **Individuals**: Citizen, Professional, Patient, Client, Distributor, Partner…
- **Objects**: Vehicle, Engine, Device…

Reference implementation in practice and technical things

- Reference Implementation Roadmap

- Architecture overview

- Reference Implementation co-development

- Quality Assurance

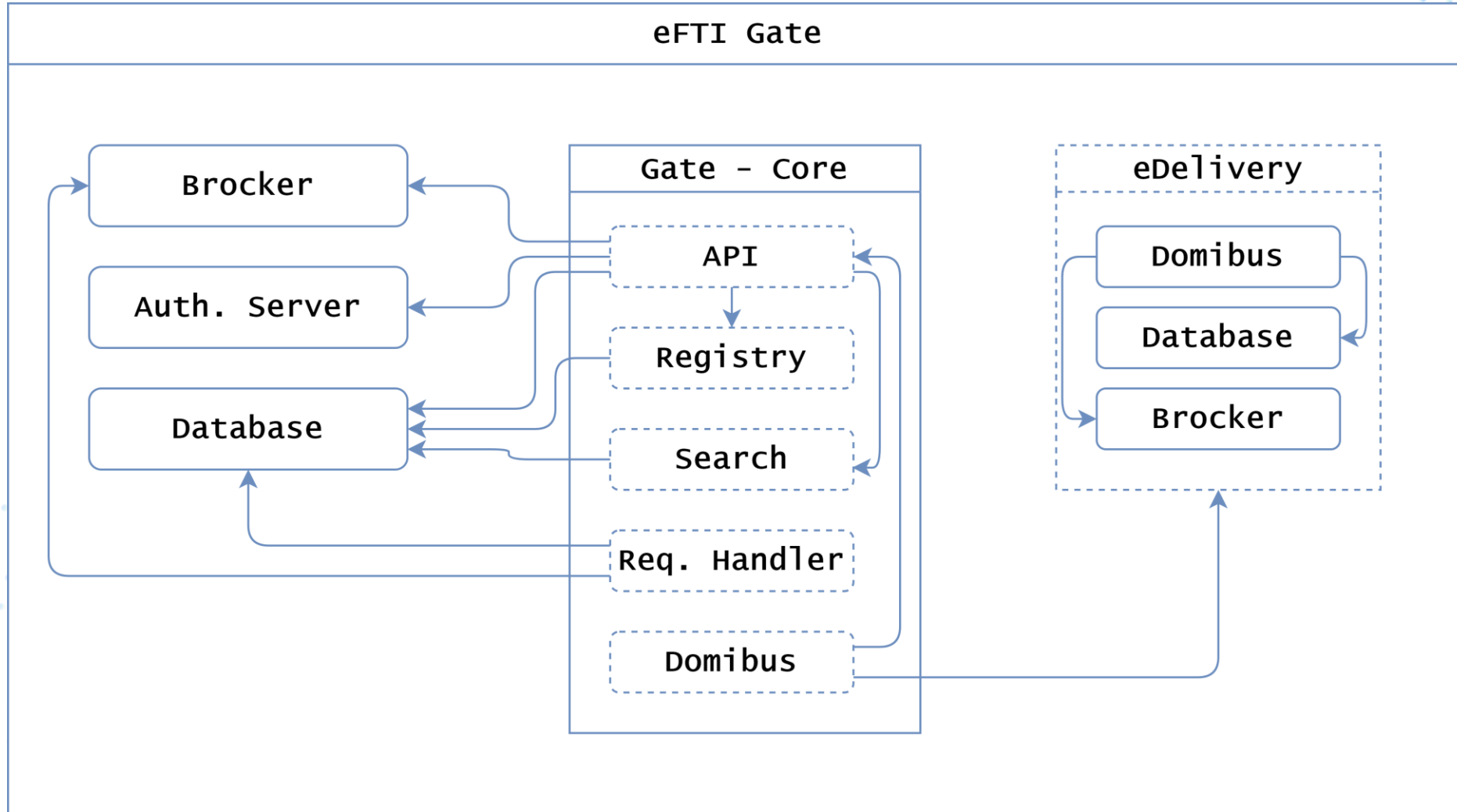# Reference Implementation Roadmap

- **Rel 0.5 – DL December 2024**
  - eDelivery Gate to Gate (PoC)
  - Search + Identifiers
  - -> interfaces
  - Application log (initial)
  - Registry of identifiers
  - Interface to AAP
  - CA application mockup
  - Documentation
    - General guide (D2.2 + Github)
    - Github technical documentation
  - Open source code – Github

- **Rel 0.9 – DL December 2025**
  - eDelivery Gate to platform
  - REST API Gate to platform
  - Platform certification & authentication
  - CA notification interface
  - Platform Mockup with eDelivery
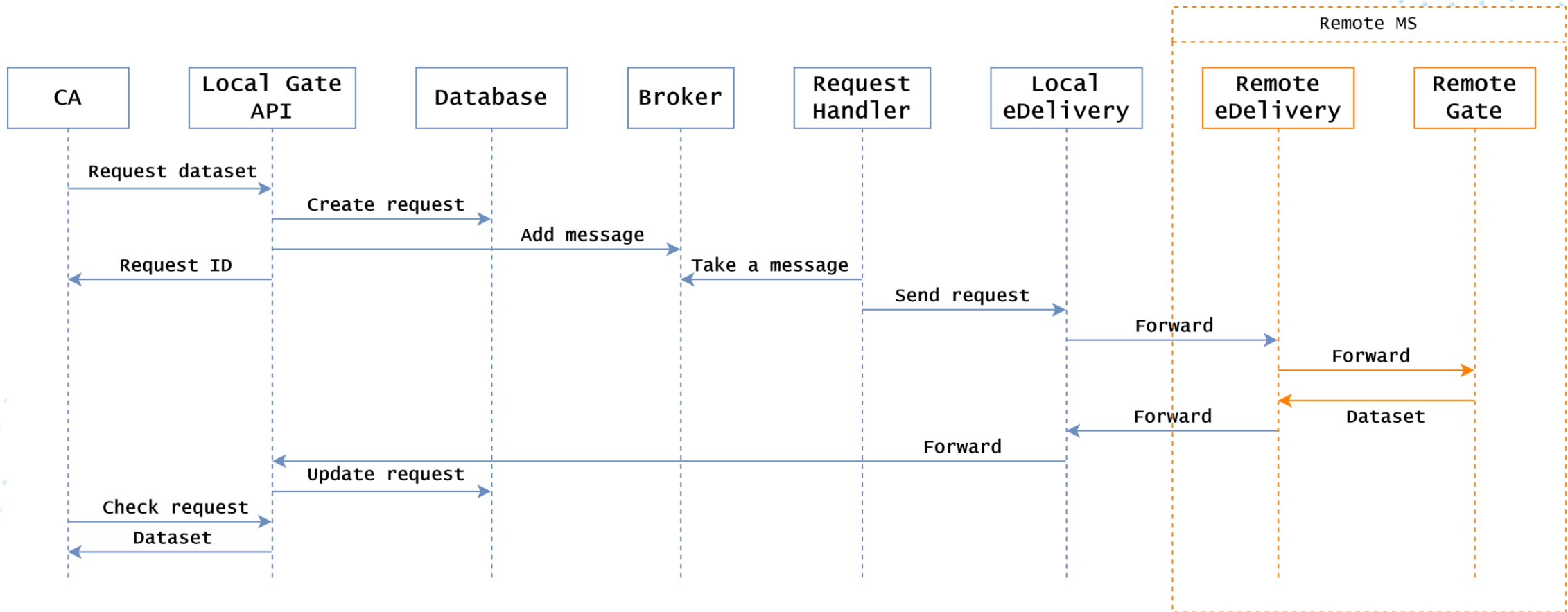 - Documentation
    - Updated

Architecture Overview - Components

Architecture Overview - eDelivery
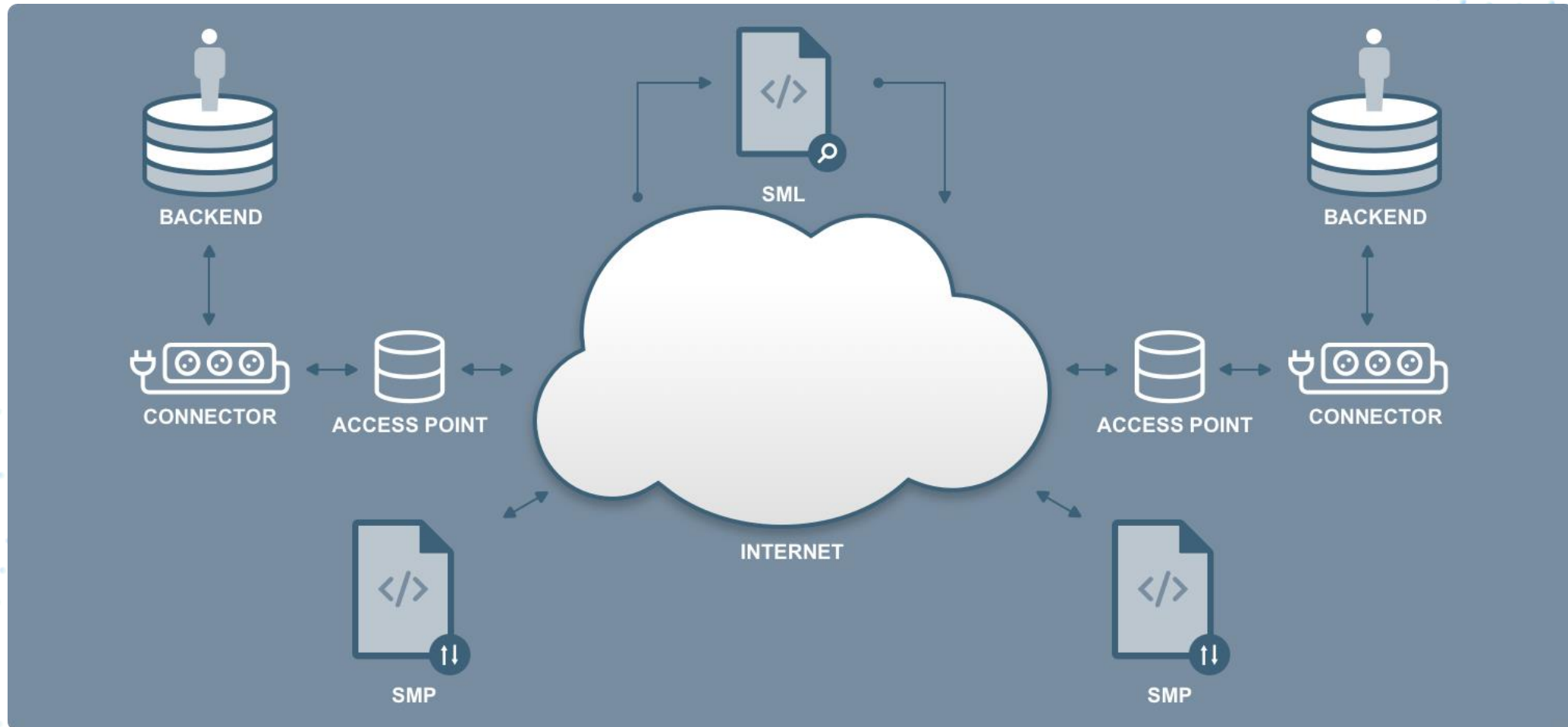
Architecture Overview – Workflow

Co-development – How it works

- Growing team

- Weekly Taskgroup Meeting "Reference implementation" and "Testing"

- Inputs from other task groups "Architectures", "Data", "Interfaces"

- Collaborative tools
  - Dedicated Jira board in Kanban format
  - Confluence project
  - Slack channels
 - Test management system (Xray For Jira)
  - Github repository

Co-development - Cross Border Testing

| Requirements Releases | Test Plans | Test description / scenarios | Test execution | Defect/Bug | Reporting & documents |

- Requirement is the output of Uses Case and Regulation analysis

- Releases are the output of national and reference implementation development

- To date Achievements
  - Master test plan Drafted
  - A Test Management System has been set up

Co-development - Cross Border Testing
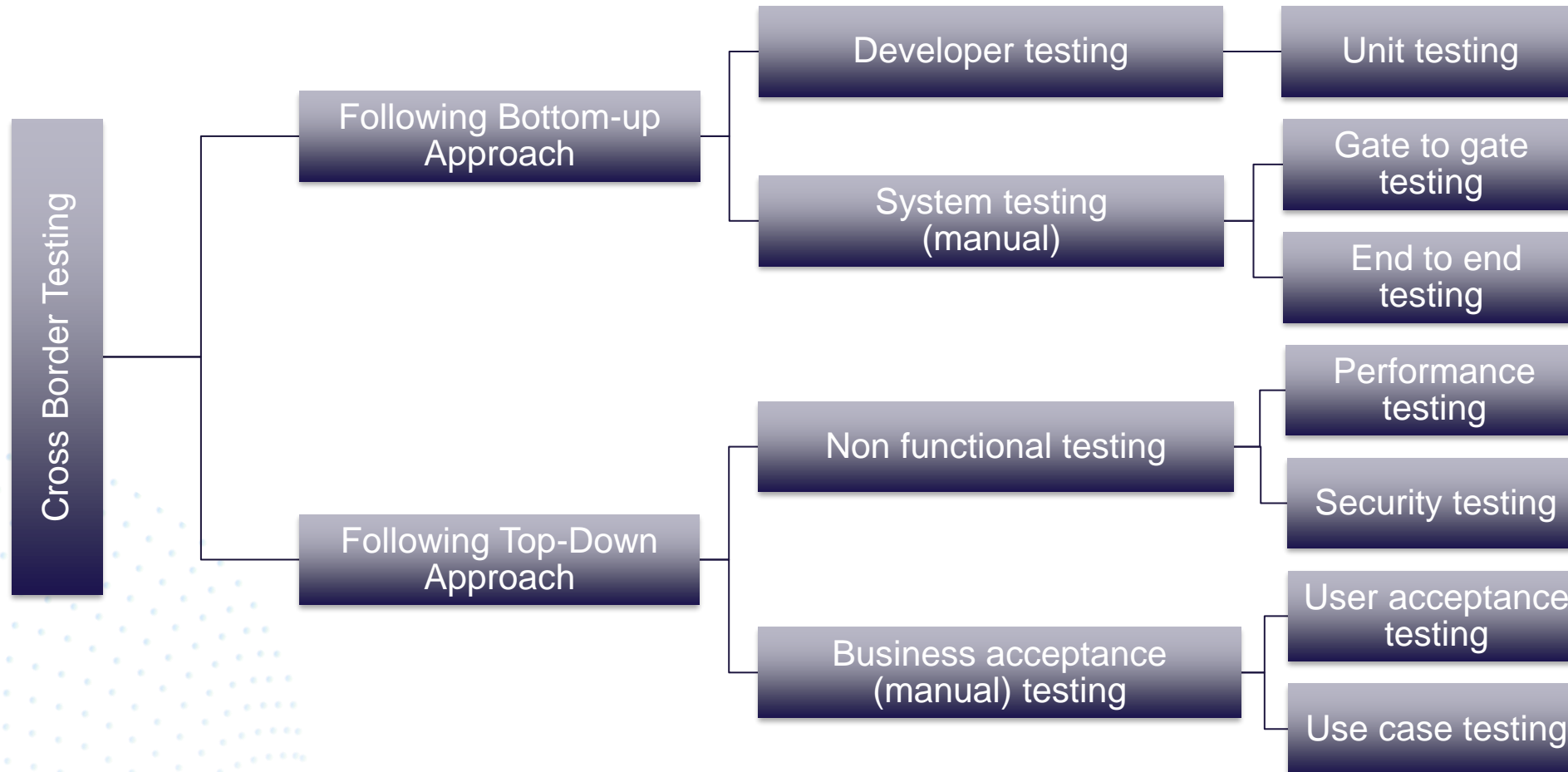
Co-development – What has been done

- Gate source code
  - Gate core
  - eDelivery connector
  - Registry of identifiers
  - Logger
  - Platform simulator
- Deployment environment
  - eFTI gate
  - Domibus
- Datamodels (XSD schemas)
- Swaggers
- Postman collections with request samples
- Documentation
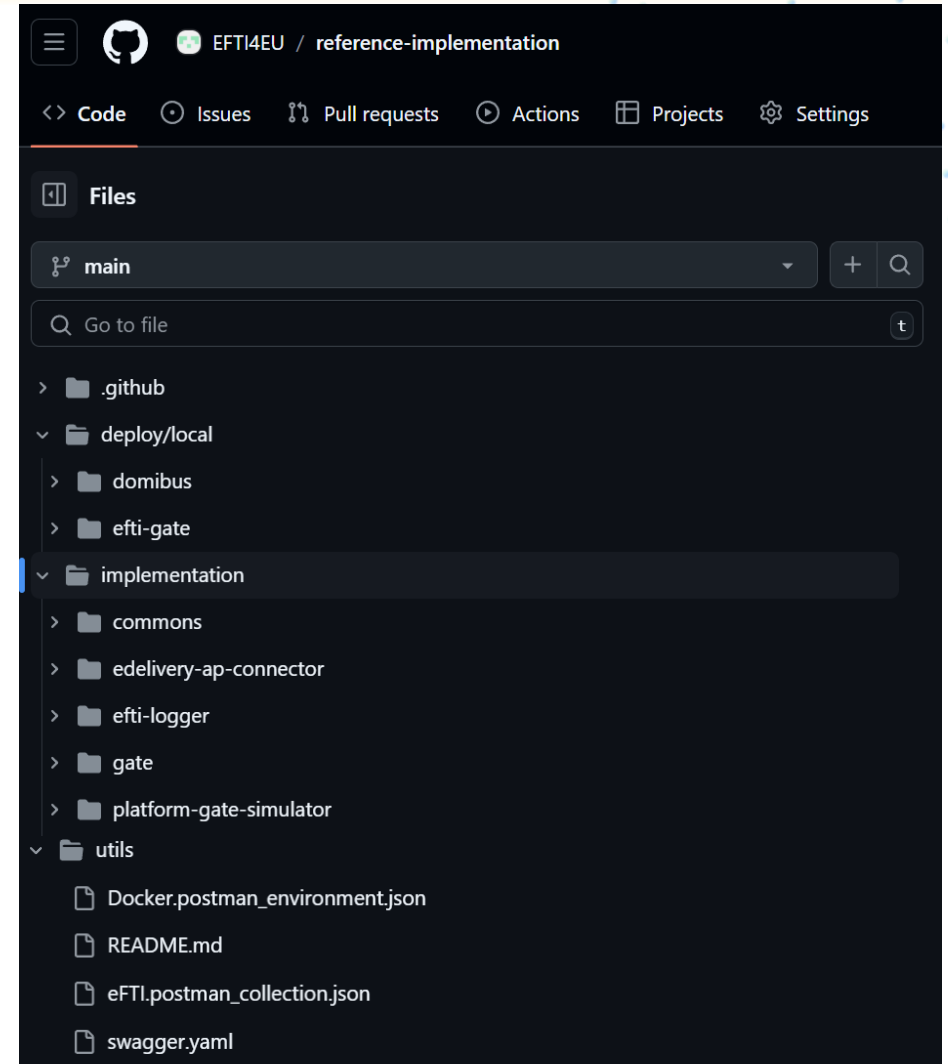
Codevelopment – What was challenging

- Management
  - Coordination
  - Task groups dependency (outputs → inputs)
  - Constantly changing specification
  - Time...

- Development
  - eDelivery/Domibus (documentation, architecture, components, ...)
  - Distributed cross-border architecture
  - Balancing national and reference implementations
  - Asynchronism

Codevelopment – What was fun

- Great and competent team

- Valuable collaborative work

- Knowledge and expertise sharing
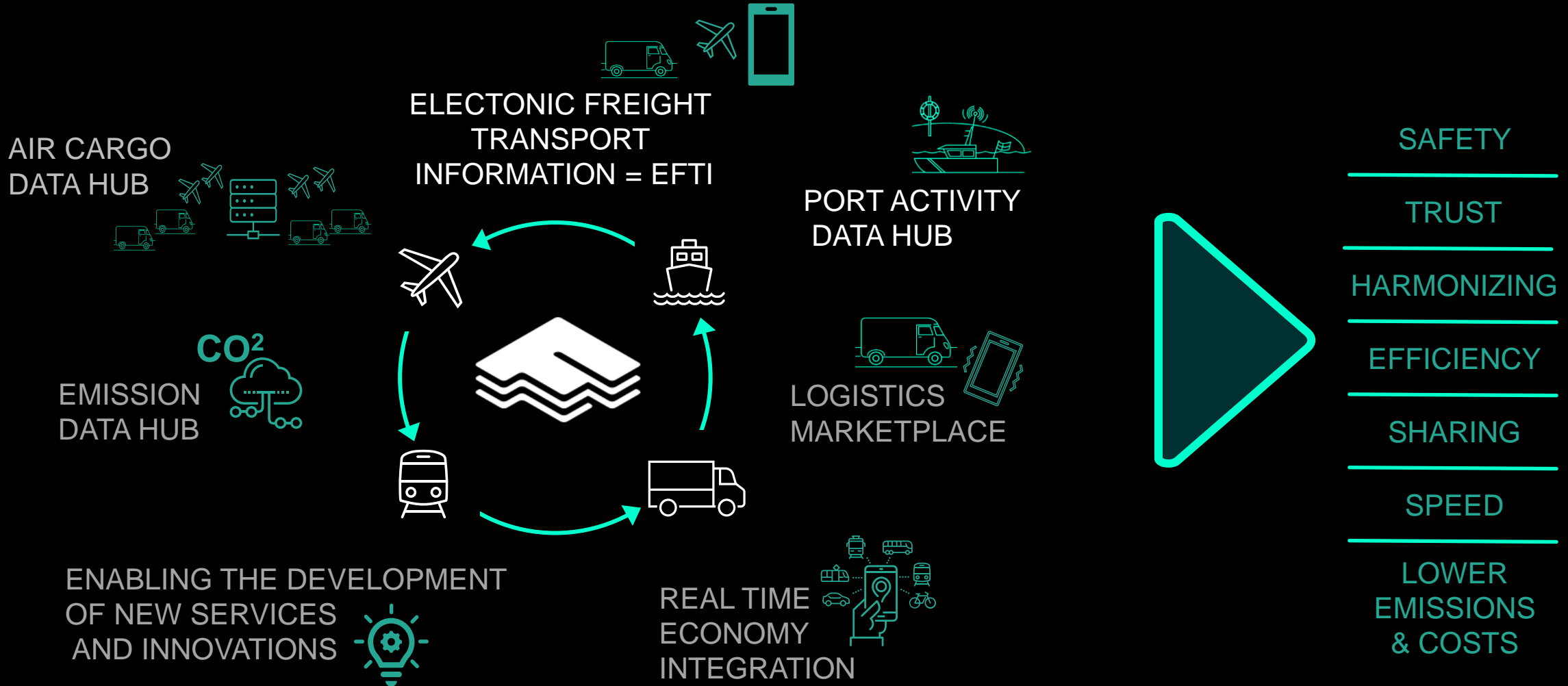
- Great achievements

- So..., join the adventure!
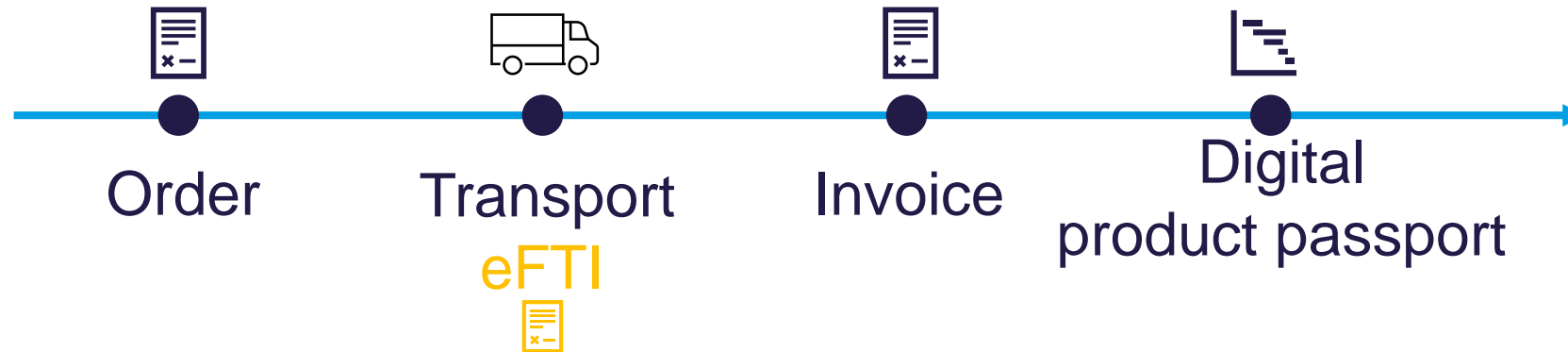
eFTi4EU

Pilots

Selected pilot areas

- **Interoperability pilots**
  - How it will work together with other solutions

- **Cross border pilots**
  - How eFTI will work from country to country

- **Data pilots**
  - How eFTI data is linked with other logistics data models

- **National pilots**
  - How eFTi can bring value in National level

Show the benefits of eFTI

# Linked data generates more value than separate solutions, where eFTI is one piece of the digital logistic puzzle

ELECTONIC FREIGHT TRANSPORT INFORMATION = EFTI

AIR CARGO DATA HUB

PORT ACTIVITY DATA HUB

EMISSION DATA HUB

LOGISTICS MARKETPLACE

ENABLING THE DEVELOPMENT OF NEW SERVICES AND INNOVATIONS

REAL TIME ECONOMY INTEGRATION

SAFETY

TRUST

HARMONIZING

EFFICIENCY

SHARING

SPEED

LOWER EMISSIONS & COSTS

eFTI is only one part of the logistics process - combined with other data it can bring greater value

Order

Transport

eFTI

Invoice

Digital
product passport

Most of eFTI information is from order and Invoicing need waybills to accept invoice

In Finland, we are piloting this and discovering its value, especially if eFTI is integrated into the Real Time Economy, which includes other areas as well.

Piloting eFTI interoperability with other standards

IATA
One Record
eAWB

eCMR
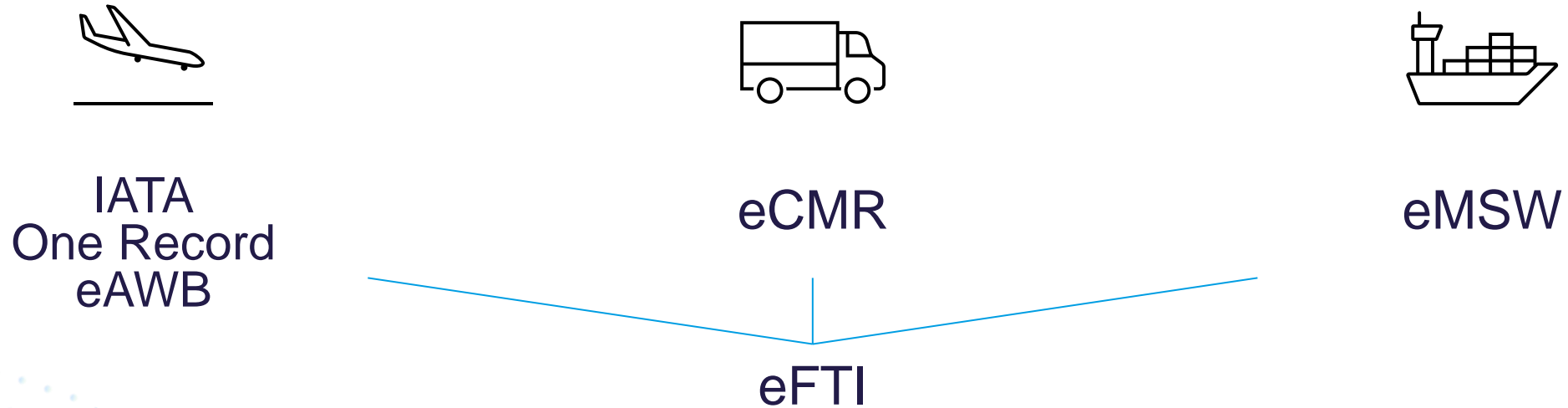
eMSW

eFTI

How eFTI works together with following data models?
How we can help the industry to provide information to authorities by using eFTI?

**In Finland pilots related to IATA One Rocord and eMSW are planned.
Other eFTI4Eu members have planned multible pilots with eCMR.**

Piloting with authorities using data from platforms

To provide practical information to authorities, it is important to do piloting with them. During pilots' authorities gets understanding of available data and use cases and see how to utilize eFTI in future. It is also valuable to pilot with platform operators and authorities.

Estonia has made early pilot with six platform, eFTI Gate and authorities where main point was to show data flow in practice from platform to authority

Thanks!

CONTACTS
teemu.heikura@fintraffic.fi
mohamed.oulmahdi@ingroupe.com

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