



NDPTL GOES REAL TIME ECONOMY: eCMR SOLUTION

MASTERCLASS IN RIGA, JUNE 2023



eFTI ARCHITECTURE & eFTI GATES

DIGILOGISTICS MASTERCLASS
ULRIKA HURT
Digital Logistics Centre of Excellence
30 MAY 2023, RIGA



ULRIKA HURT



eFTI REGULATION

eFTI REGULATION AND
WORK OF DIGITAL TRANSPORT AND LOGISTICS FORUM

eFTI REGULATION

- From 20th of August 2025 all European Union Member States competent authorities will be accepting the electronic freight transport information from the economic operators.
- It will **not** become mandatory for the economic operators to operate on electronic documentation. **Yet.**
- The Regulation establishes **a legal framework** for the electronic communication of regulatory information between the economic operators concerned and competent authorities in relation to the transport of goods on the territory of the Union.
- **Lays down the conditions** based on which competent authorities are required to accept regulatory information when that information is made available electronically by the economic operators concerned.
- **Lays down rules on the provision of services** related to making regulatory information available electronically by the economic operators concerned to competent authorities.



[LINK](#)

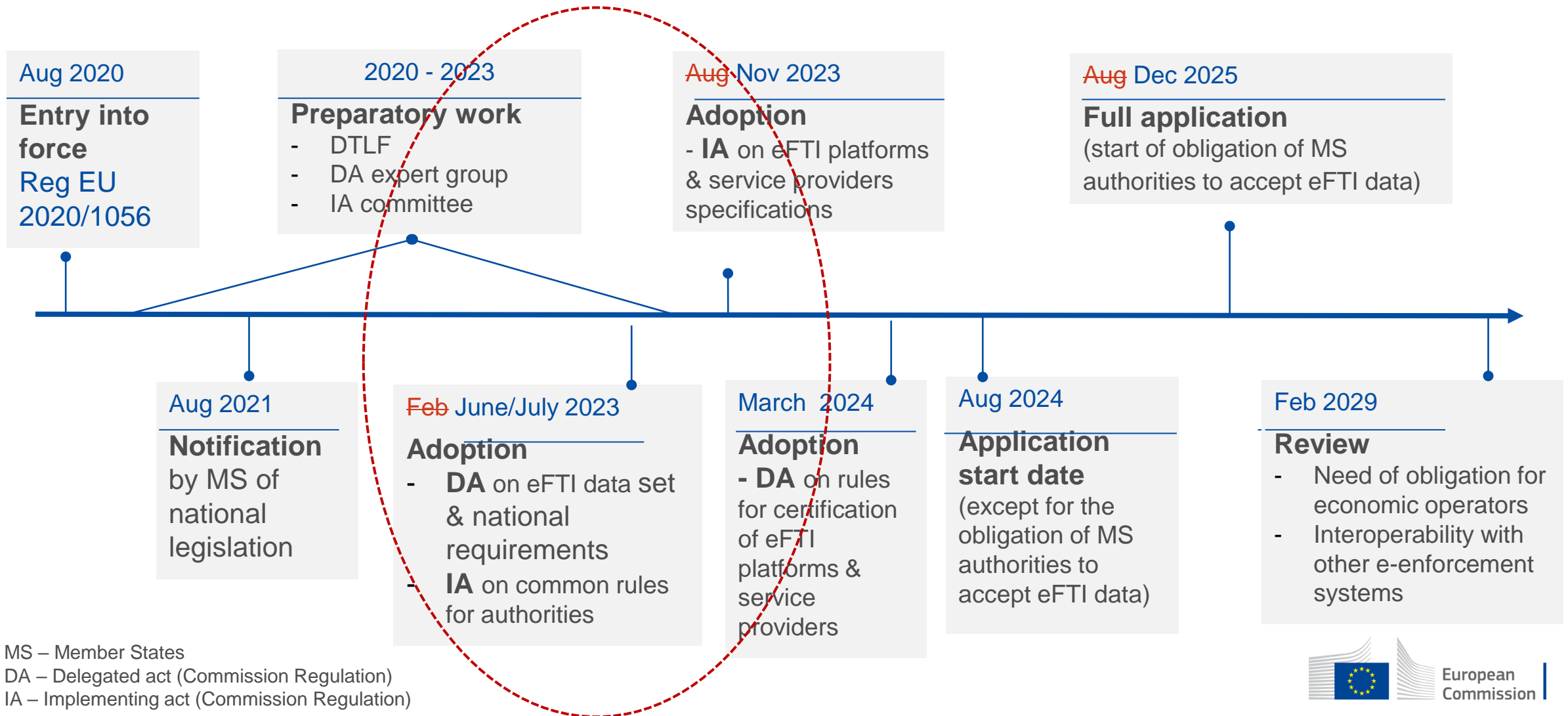
eFTI Regulation & Requirements

eFTI applies to **regulatory information requirements** on the transport of goods set out in the EU legal acts listed in points 1-5 below, and to regulatory information requirements laid down in delegated or implementing acts adopted by the European Commission in accordance with the legal acts listed under points 1-7 below (listed in Part A of Annex I)

1. EEC Council Regulation No 11 on inland navigation (see summary);
2. Council Directive 92/106/EEC on intermodal transport (see summary);
3. Regulation (EC) No 1072/2009 on international road haulage (see summary);
4. Regulation (EC) No 1013/2006 on waste shipments (see summary);
5. Directive 2008/68/EC on inland transport of dangerous goods (see summary);
6. Directive (EU) 2016/797 on the interoperability of the rail system (see summary);
7. Regulation (EC) No 300/2008 on civil aviation security (see summary).

The regulation also applies to similar information requirements in relevant national laws (listed in Part B of Annex I).

eFTI Regulation implementation and application – Indicative timeline (renewed Feb 2023)



Delegated Acts preparation - state of play



DTLF Sub-group 3

- A. Amending Annex I B of eFTI Regulation (cf. Art. 2(2)) – adding references of national legal acts provisions falling under the scope of the Regulation
- B. Establishing the eFTI common data set and data subsets (cf. Art. 7(1))
 - EU acts data subsets – last stages of finalisation
 - National acts subsets – in progress (first drafts to be shared with MS)
- Draft Delegated Act text (and Annexes) shared at expert group meeting on 24/01/2023



Implementing Acts preparation - state of play

- A. Common procedures and detailed rules, including technical specifications for access by competent authorities to eFTI platforms (cf. Art. 8(1))
 - B. Detailed specifications regarding the requirements for eFTI platforms (cf. Art. 9(2)) & eFTI service providers (cf. Art. 10(2))
-
- Proposed functional implementation architecture for the overall eFTI exchange environment identified (based on alternative scenarios assessment)
 - Functional components for authority's systems (identified) + technical specifications (options still under consideration)
 - Technical specifications for eFTI platforms (partly determined by technical specifications for authority's systems; to be developed once specifications for authorities stable)
 - Detailed specifications for eFTI service providers (to be developed once specifications for authorities stable)



Implementing Acts preparation - state of play



DTTF Committee

Update April 2023:

- High-level architecture stabilized
 - 7 options discussed; one option chosen
- Technical implementation specifications in progress
 - Discussed on DTTF meeting of 27 February 2023 (first draft)
 - Further elaboration in progress (annexes)
 - Comments/questions from MSs are being addressed on a p2p basis
 - Most common questions will be generalized and published to create a Q&A area
- Next DTTF meeting June and July 2023

Technical implementation specifications structure

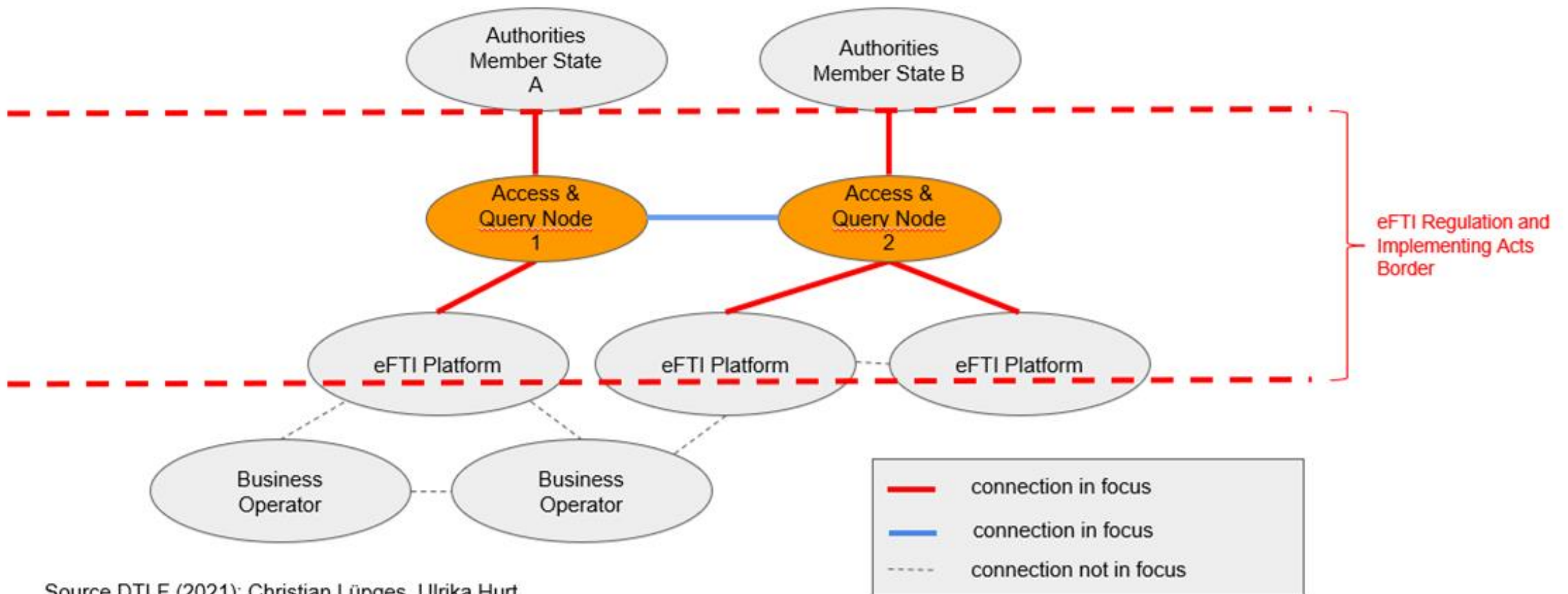


- One master document
 - Almost similar to the proposed draft (now incorporating comments from the MSs)
- 9 Annexes with extensive elaboration on specific aspects (CA perspective):
 - Annex 1: Detail BPMN for different use cases
 - Annex 2: Search mechanism (metadata)
 - Annex 3: Message exchange solutions (proposed solutions for gate-to-gate communication, minimum requirements for platform-to-gate communication)
 - Annex 4: Detail message structure (functional messages, non-functional messages)
 - Annex 5: Security key management
 - Annex 6: Identification, Authentication, Authorisation for CAs
 - Annex 7: Cost assessment for CAs (eFTI Gate and AAP)
 - Annex 8: Network of helpdesks
 - Annex 9: Logging mechanism for CAs
- More annexes released later (EO perspective)

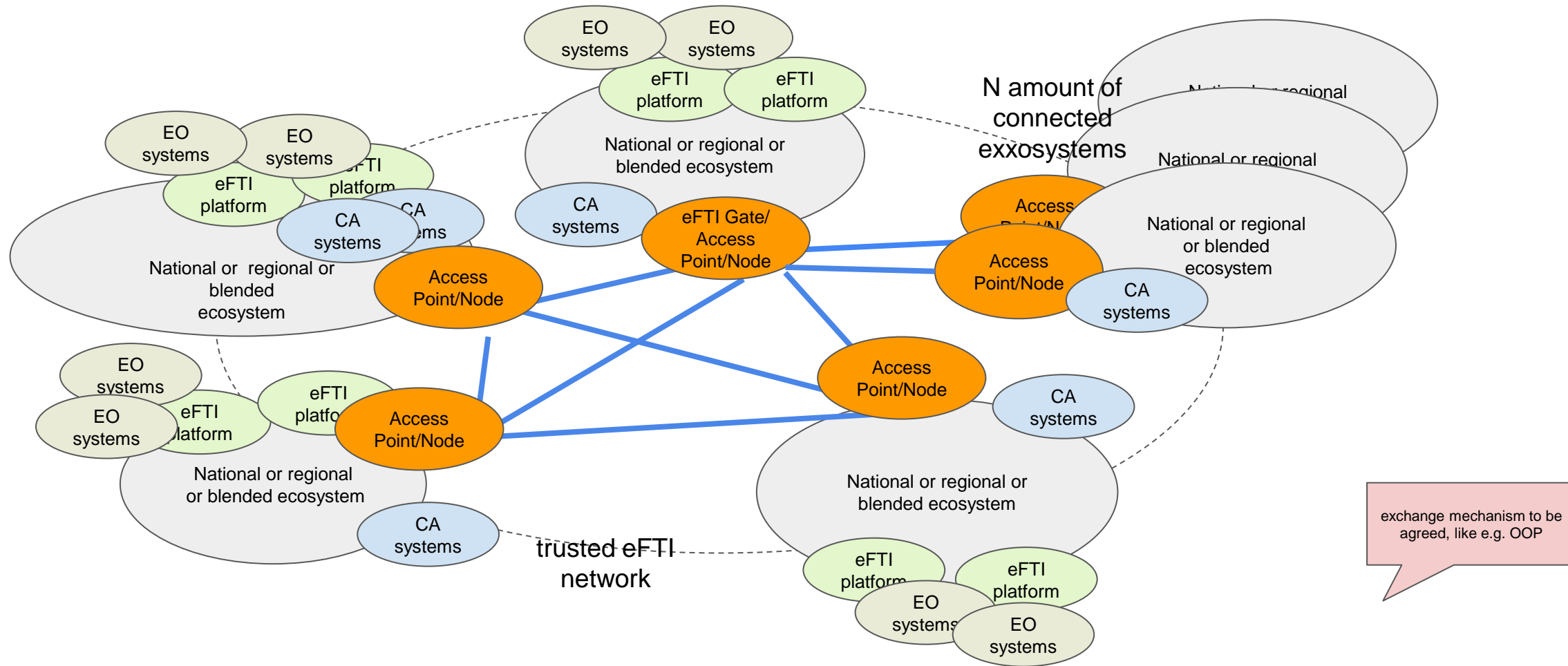
eFTI ARCHITECTURE



eFTI LAYERED APPROACH

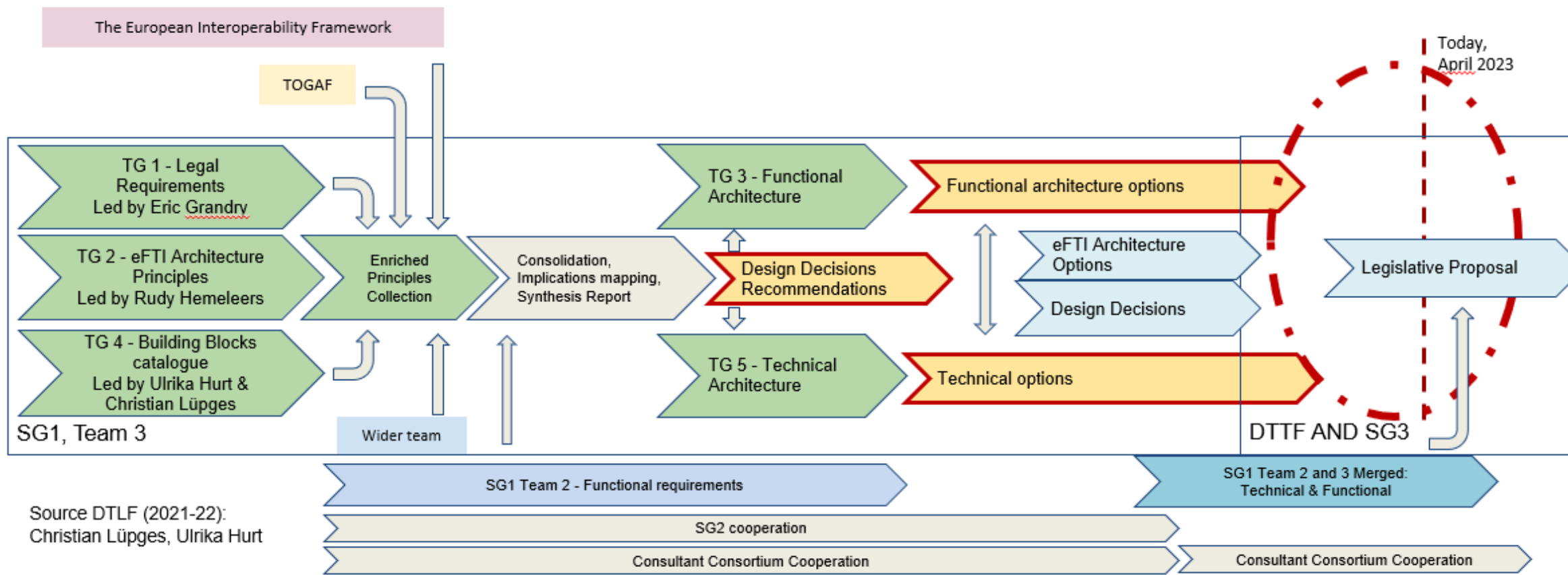


HYBRID MULTI-PLATFORMED ECOSYSTEM



graphics: Christian Lüpkes, Ulrika Hurt, Roberto Garcia Escallon (2021), adapted 2022
based on work of DTLF SG1 Team 3

Progress: DTLF Team3 since 2021

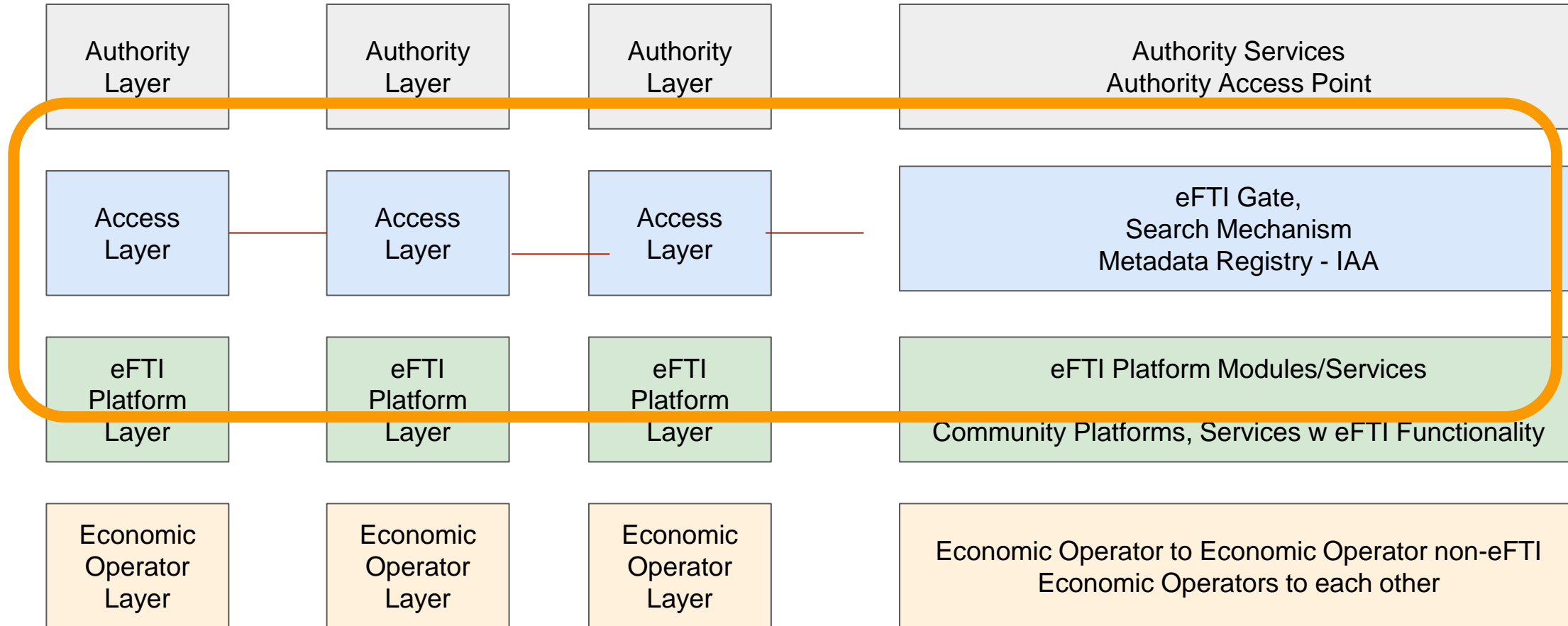


DLTF Team 3 Documentation

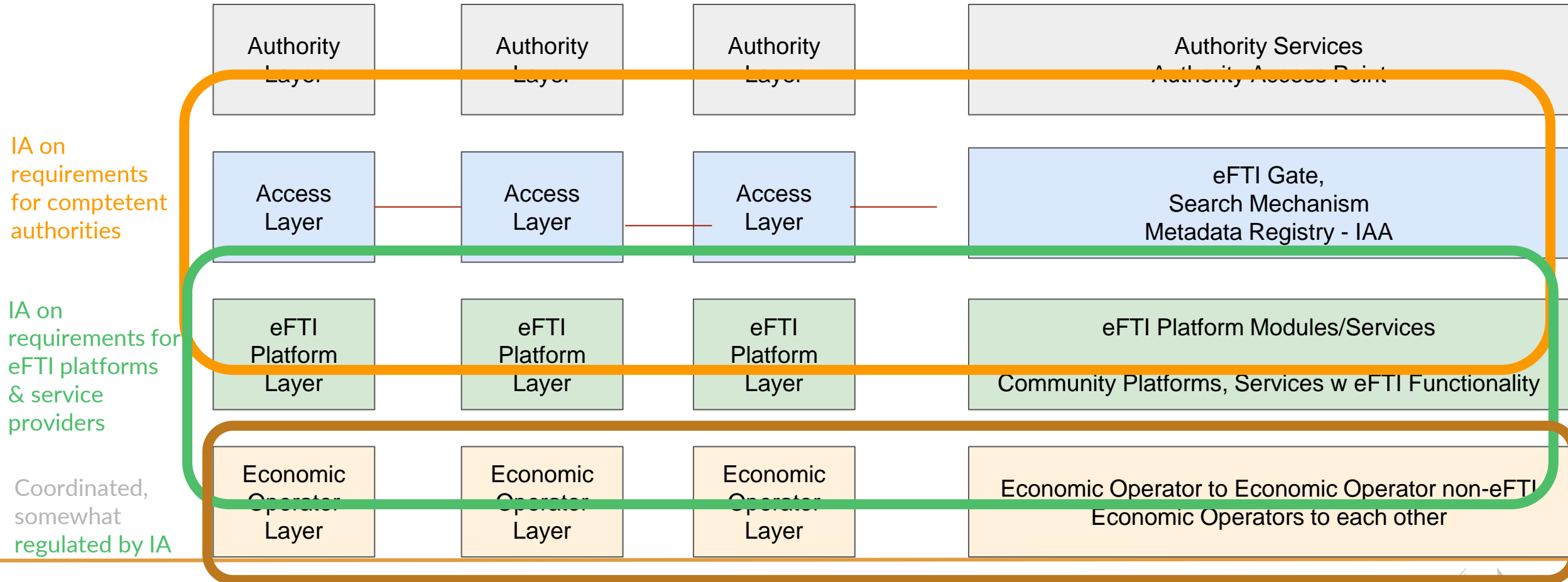


LAYERED & REGULATED

IA on
requirements
for competent
authorities



LAYERED & REGULATED

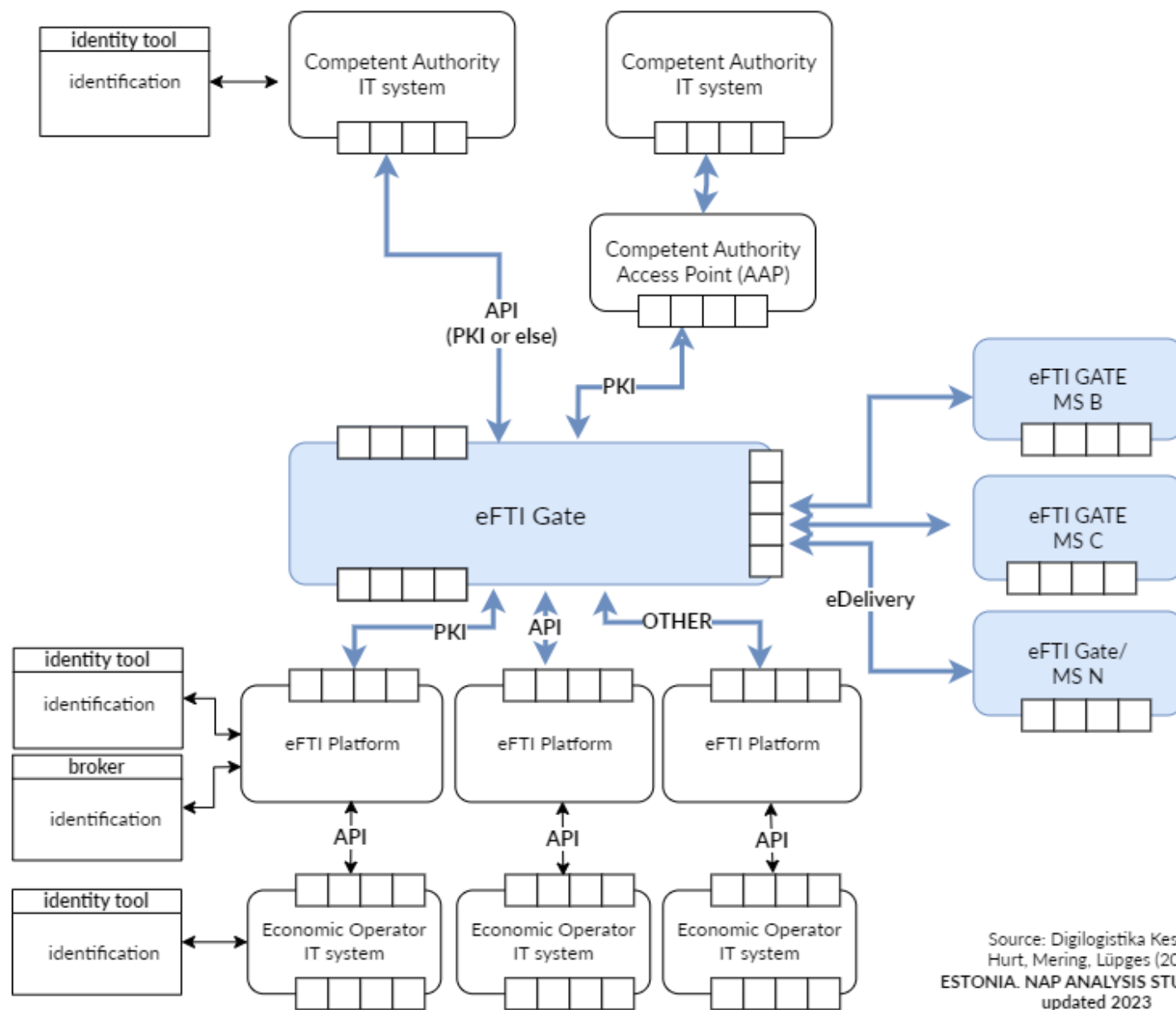


eFTI Architecture general components

- Components of the preferred high-level architecture
- the eFTI network mechanism
- Identification/authentication/authorization components
- eFTI Platform
- Authority Access Point (AAP)
- eFTI GATE / *National Access Point (NAP) as per Regulation terminology*
- Search Mechanism
- Metadata registry
- Unique identifiers (unique identifying link)

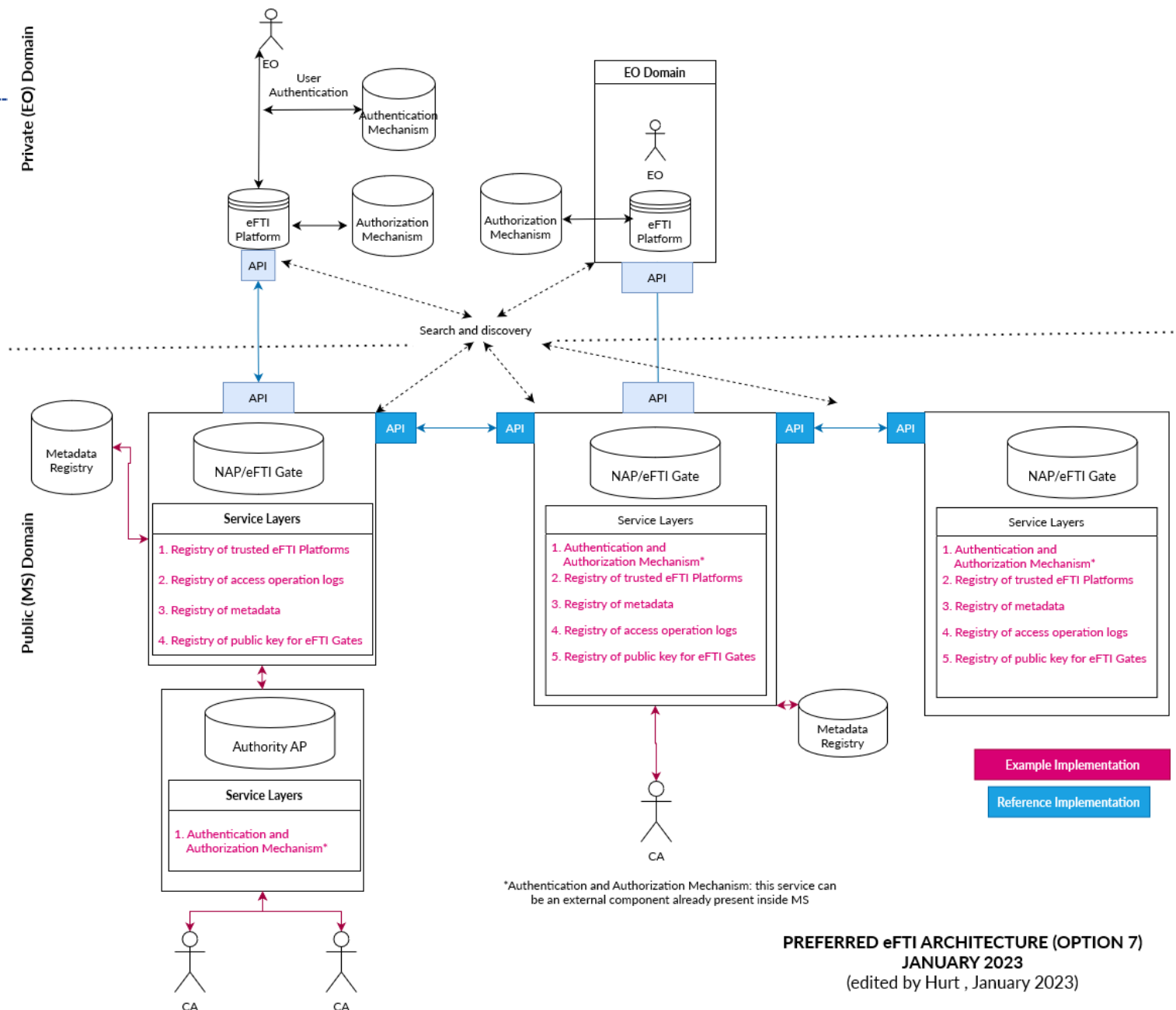
eFTI Architecture

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eFTI ARCHITECTURE

- Components of the preferred high-level architecture
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- Metadata registry
- Unique identifiers (unique identifying link)



PREFERRED eFTI ARCHITECTURE (OPTION 7)
JANUARY 2023
 (edited by Hurt, January 2023)

eFTI Architecture Principles

Architectural Principles

P1 - Data is Shared at Source

P2 - Data Sovereignty

P3 - Decentralized Approach, Common Rules of Interaction

P4 - Trust, Non-Repudiation by Default

P5 - Security, Appropriate Authentication

P6 - Access and Rights

P7 - Once-Only

P8 - Open Specifications and Standards, Interoperability

P9 - Technology Independence

P10 - Easy Deployment, Integration and Transition

P11 - Support a Transition Period

General Architectural Principles

GP1 - Holistic Thinking

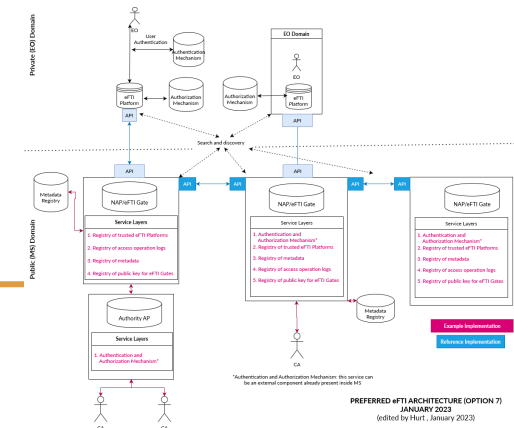
GP2 - KISS

GP3 - Scalability

GP4 - Modularity

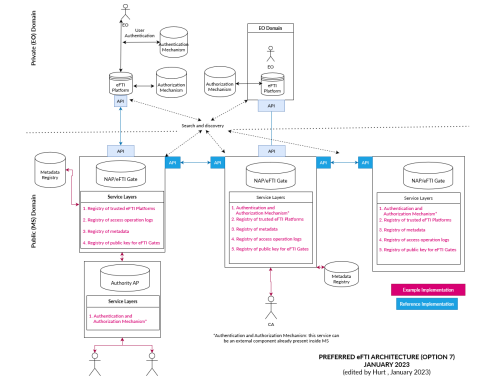
GP5 - Maintenance and Development

GP6 - Sustainability



Technical and Functional Requirements Categories: Design Decision Categories

- 1 - Functional Structure/Architectural Structure
- 2 - Data Distribution/sharing and Data Attributes
- 3 - Data Access/Delivery
- 4 - Interoperability, Compatibility, Integration
- 5 - Authentication and Identification of Users
- 6 - Access Control
- 7 - Evidences and Logs
- 8 - Data Security, Cybersecurity
- 9 - Data Models, Semantics
- 10 - General IT aspects
- 11 - General Non-Functional Aspects



RULES FOR INFORMATION EXCHANGE IN THE ARCHITECTURE



eFTI Technical Implementation Specifications

Deliverable D2.1.3

Sets (draft and final) of technical implementation specifications (variants) for each of the functional specifications in the final (options) sets

Deliverable D2.3.1

Comparative assessment of the technical implementation variants for the preferred implementation option

Deliverable D2.3.3

Recommendation of an implementation option (set of functional specifications) with a preferred set of technical implementation specifications

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	RINA Consulting SpA Via Cecchi 6, 16129 Genoa, Italy www.rina.it
Project Name	eFTI - MOVE/2020/OP/0015 MOVE/D1/SER/2020-312/S12.850415
Author(s)	Frank Janssens, Antonio Molinari, Matteo Tebaldi
Contributing credentials	DTLF II Subgroup 1 Team 3 and Subgroup 2 Team 3 members Ulrika Hurt
Owner	Alexio Picco
Client	DG MOVE 
Document No.	EFTI-D2.1.3/EFTI-D2.3.1/EFTI-D2.3.3


Revision	Date	Description / Summary of changes
01	28/11/2022	First issue
02	12/01/2023	In
02.1	08/02/2023	In

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eFTI Technical Implementation Specifications

	Circle SpA Piazza Borgo Pila 40, A/46, 16129 Genoa, Italy www.circletouch.eu
	Digilogistika Keskus OÜ Teatudspargi 6/1, Tallinn, Estonia www.dik.ee

Contract No.	MOVE/D1/SER/2022-331/S12.882058 (MOVE/2022/OP/0009)
Author(s)	Frank Janssens, Antonio Molinari, Matteo Tebaldi, Ulrika Hurt
Client	DG MOVE 
Document Type	Technical Specifications
Document ID	eFTI2-TS01
Document Name	eFTI Technical Implementation Specifications

Revision	Date	Description / Summary of changes
1.0	28/11/2022	First issue
2.0	12/01/2023	Incorporation of comments from DG MOVE
2.1	08/02/2023	Review and finalization for submission to MSS

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DG MOVE

WORK IN PROGRESS



Proposed technical solutions are worked out and further elaborated by the Commission, DTLF and consultant teams for the following among others:

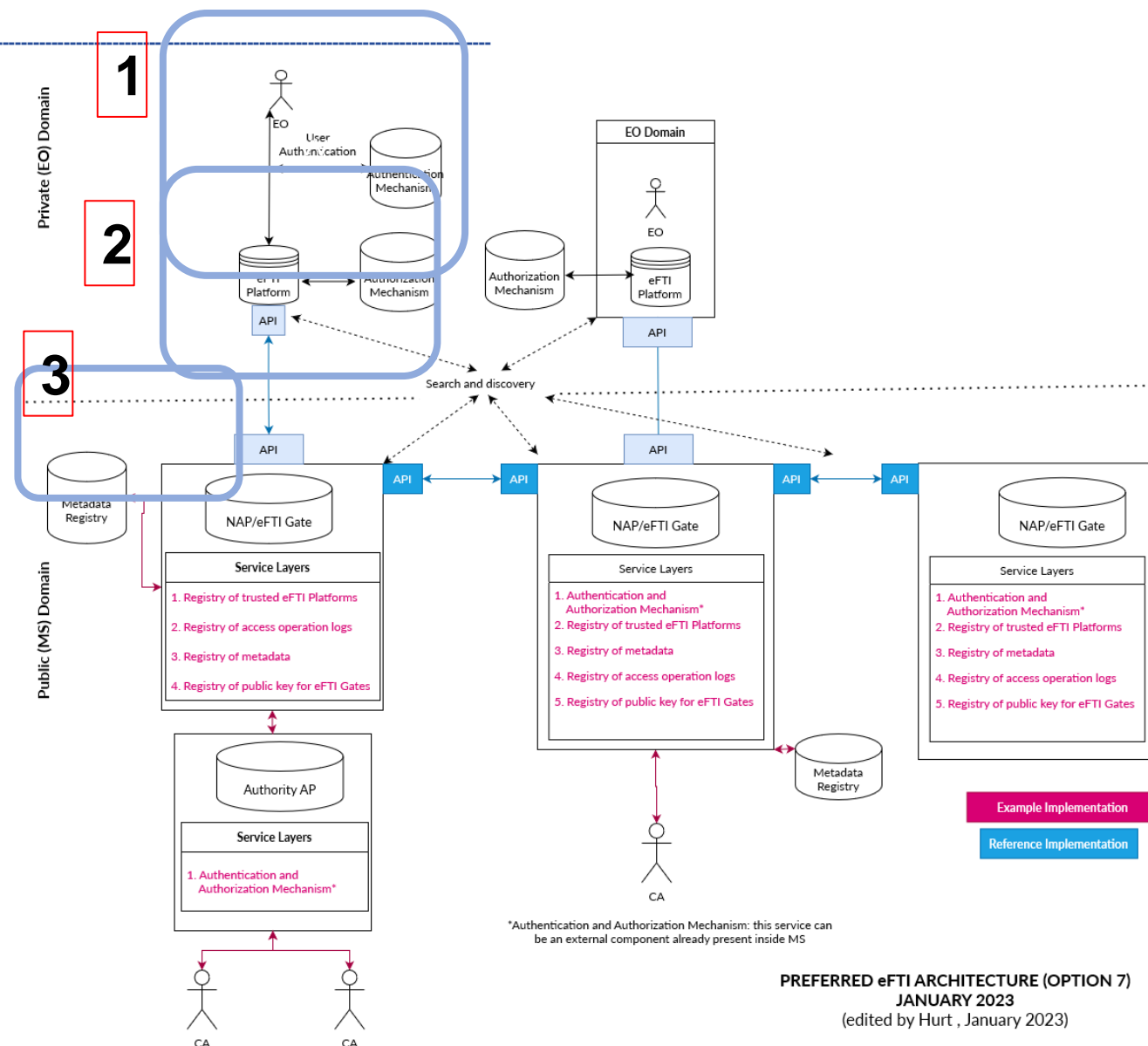
- Components and explanatories of eFTI Architecture
- Information exchange within the eFTI environment and between components
- Composition of the Unique Identifiers (UUID)
- Functioning of metadata in the eFTI environment
- Functioning of the search mechanism
- Possible use of eDelivery
- BPMN process flows
- Messages



WORK IN PROGRESS

PREPARATION, REGISTRATION OF METADATA

NB! PLEASE REFER TO SOURCE AND AUTHORS
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AMENDMENT PROPOSALS OR FOR DISCUSSION

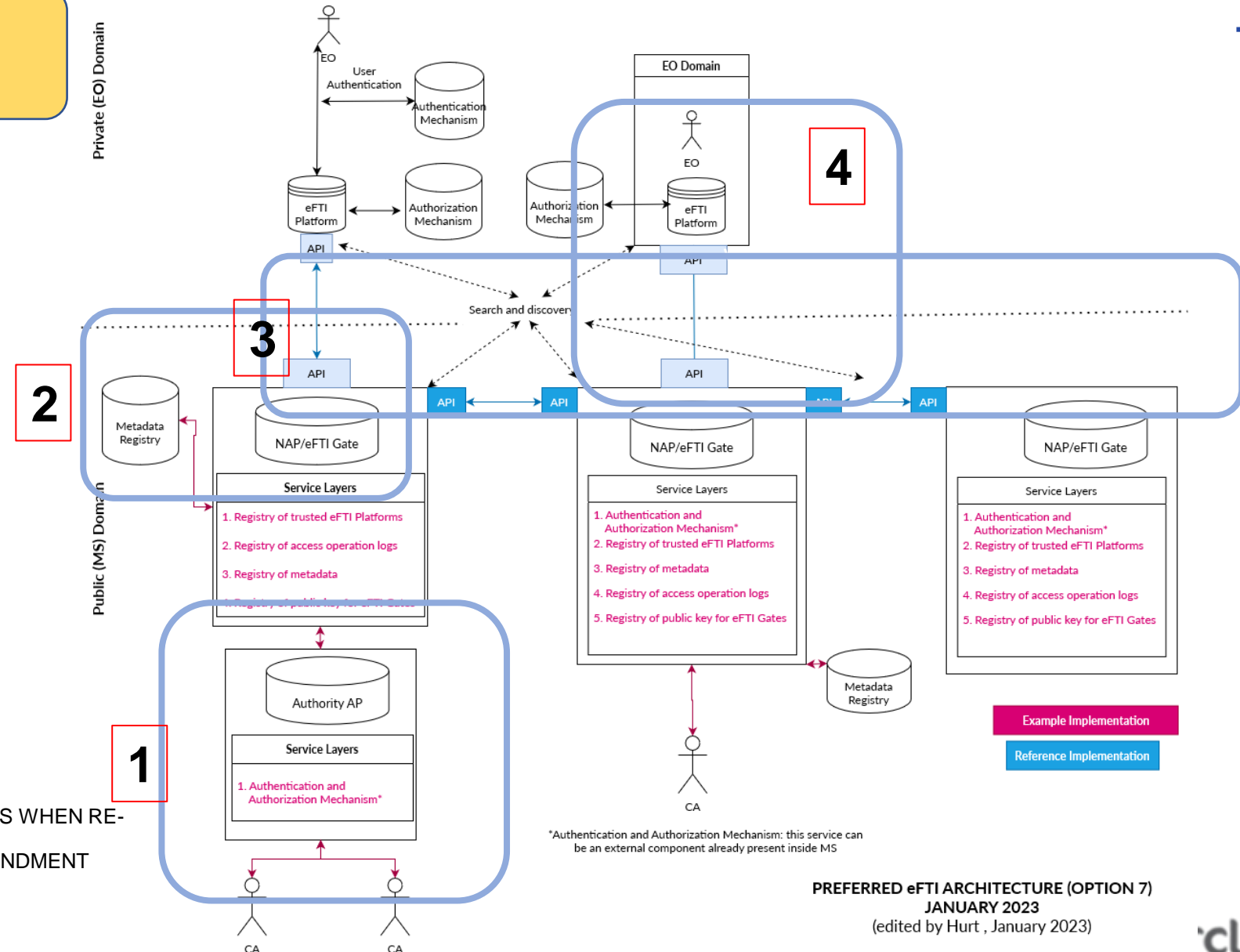


PREFERRED eFTI ARCHITECTURE (OPTION 7)
JANUARY 2023
(edited by Hurt, January 2023)

WORK IN PROGRESS

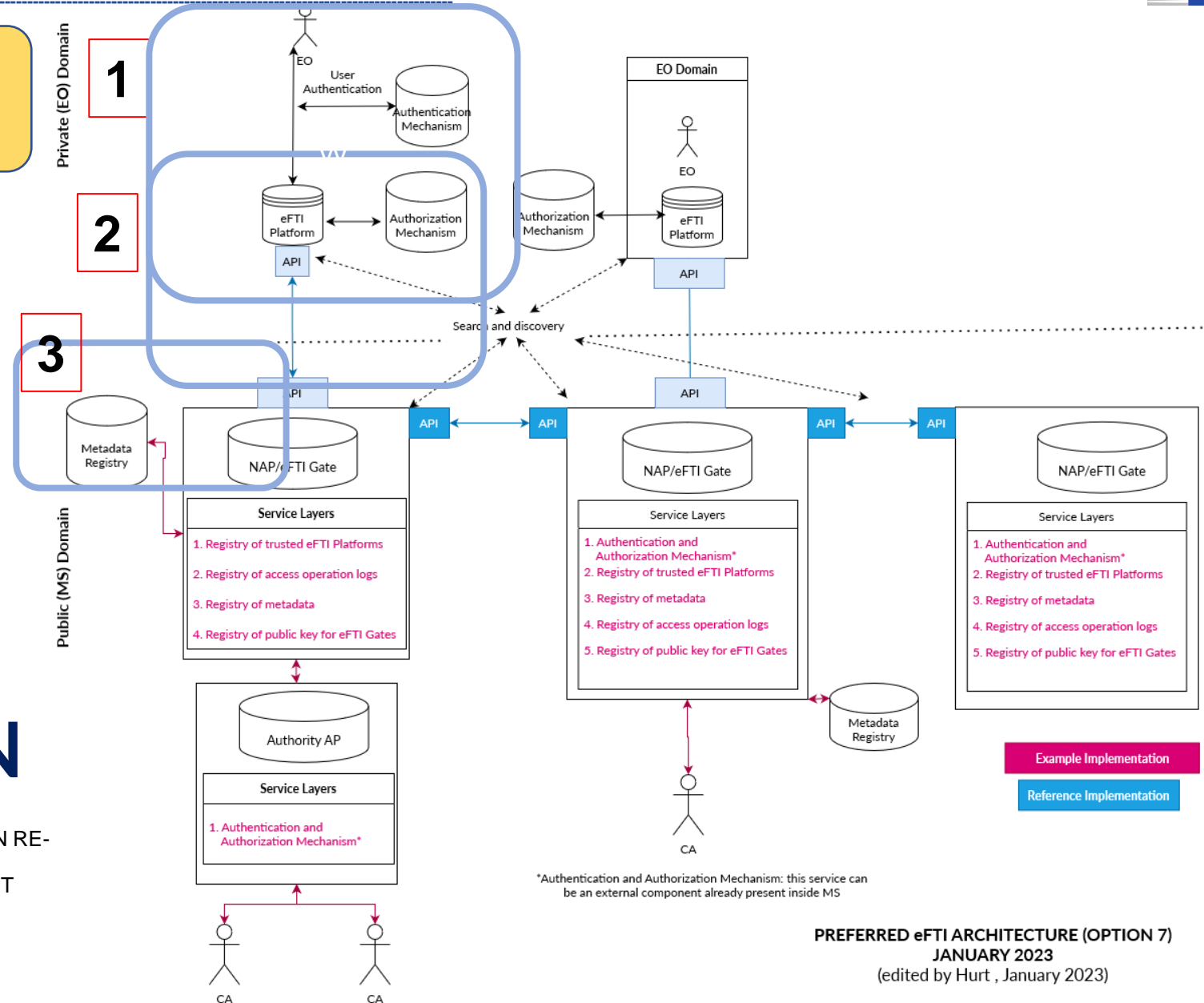
CONTROL/ QUERY

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PROPOSALS OR FOR DISCUSSION



PREFERRED eFTI ARCHITECTURE (OPTION 7)
JANUARY 2023
(edited by Hurt , January 2023)

WORK IN PROGRESS



DEACTIVATION

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WHAT NOW IN THE BALTICS?

eCMR INDEXING
eFTI and eFTI GATEs



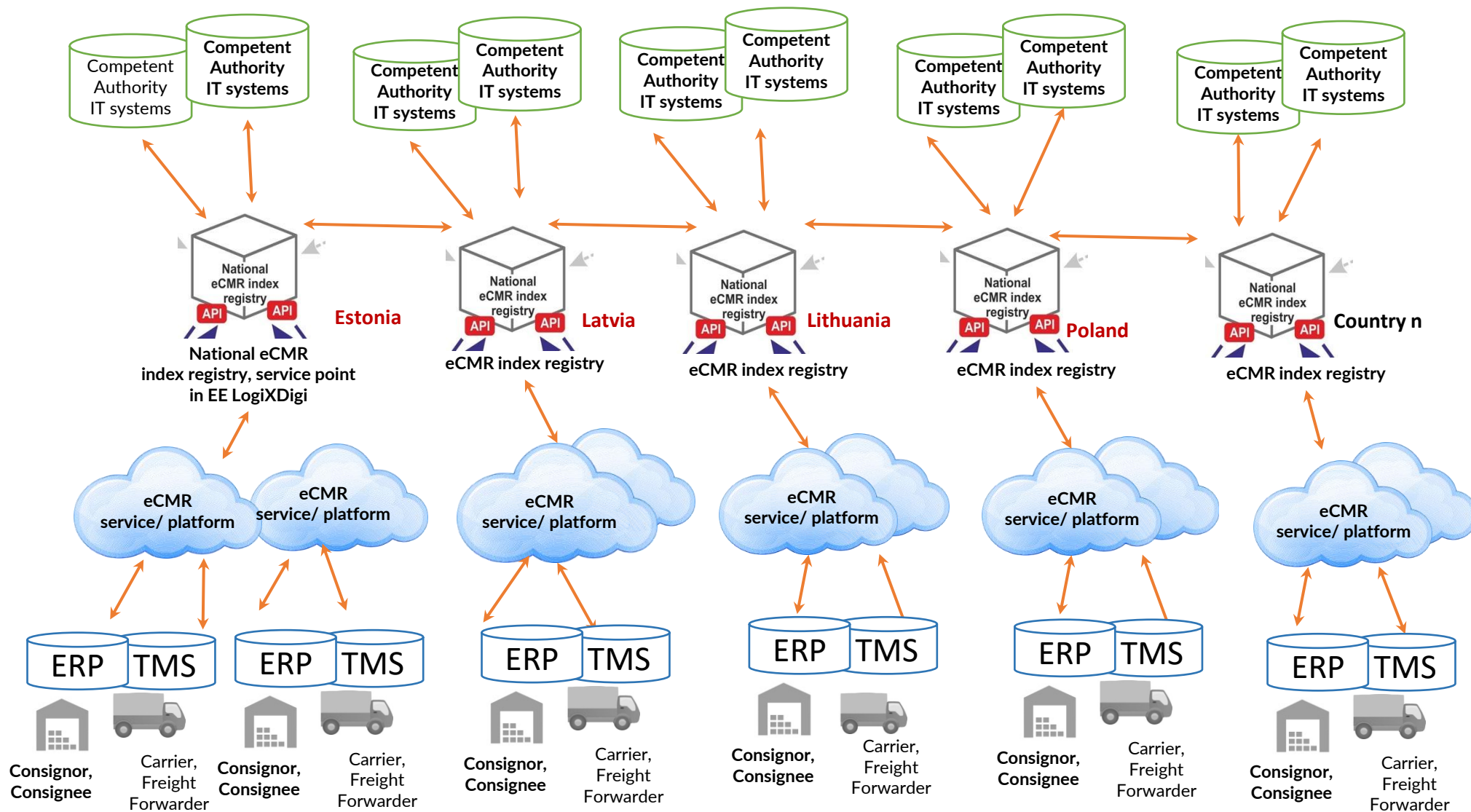
cross-border eCMR INDEX REGISTRY: GENERIC ARCHITECTURE



PUBLIC SECTOR



PRIVATE SECTOR



SINGLE WINDOW
INITIATIVE ESTONIA



DIGILOGISTIKA KESKUS
DIGITAL LOGISTICS
CENTER OF EXCELLENCE



PROLOG



SYSTEMS
INTEGRATION
SOLUTIONS



DINNOCAP



REPUBLIC OF ESTONIA
MINISTRY OF ECONOMIC AFFAIRS
AND COMMUNICATIONS

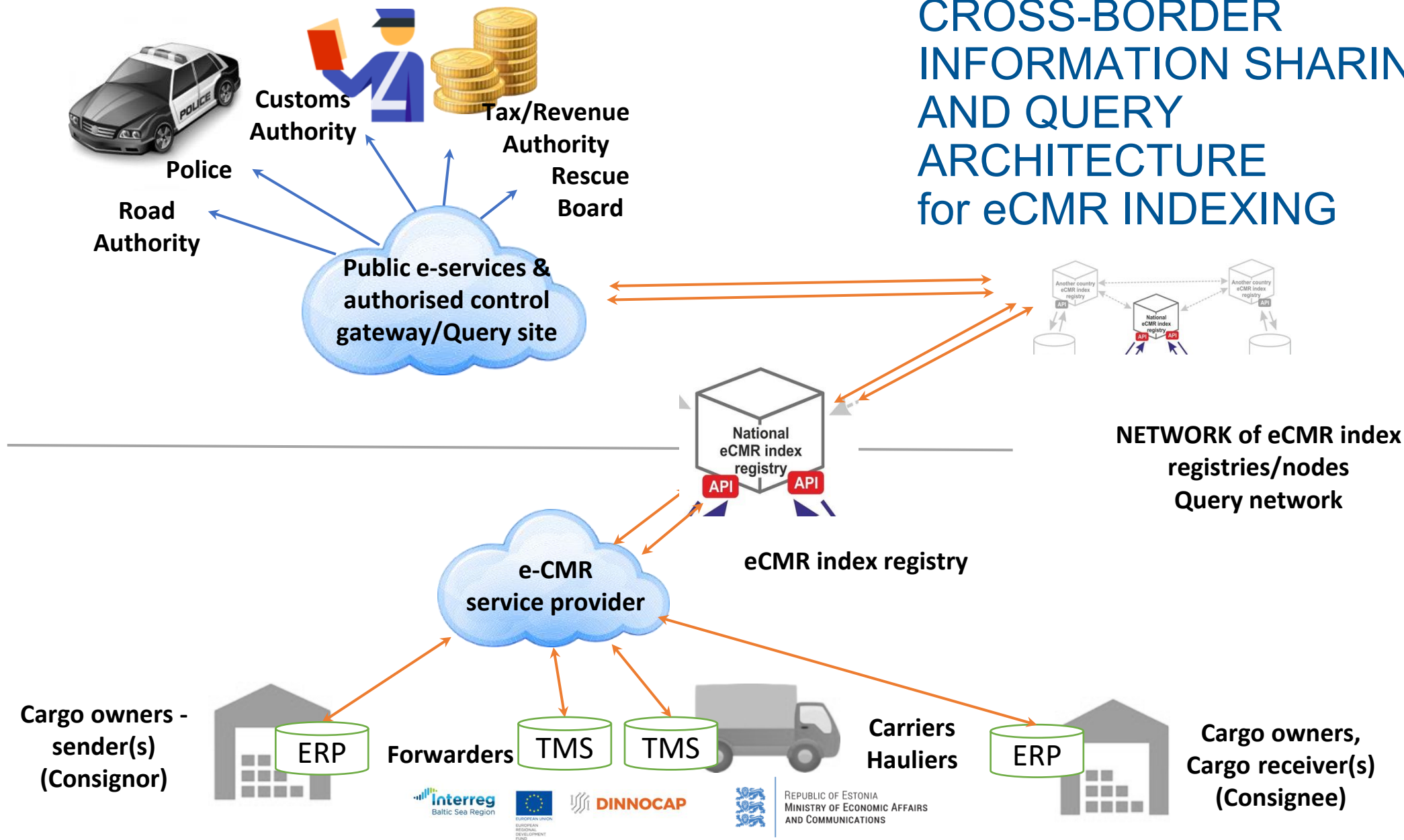
2020 ONWARDS



CROSS-BORDER INFORMATION SHARING AND QUERY ARCHITECTURE for eCMR INDEXING

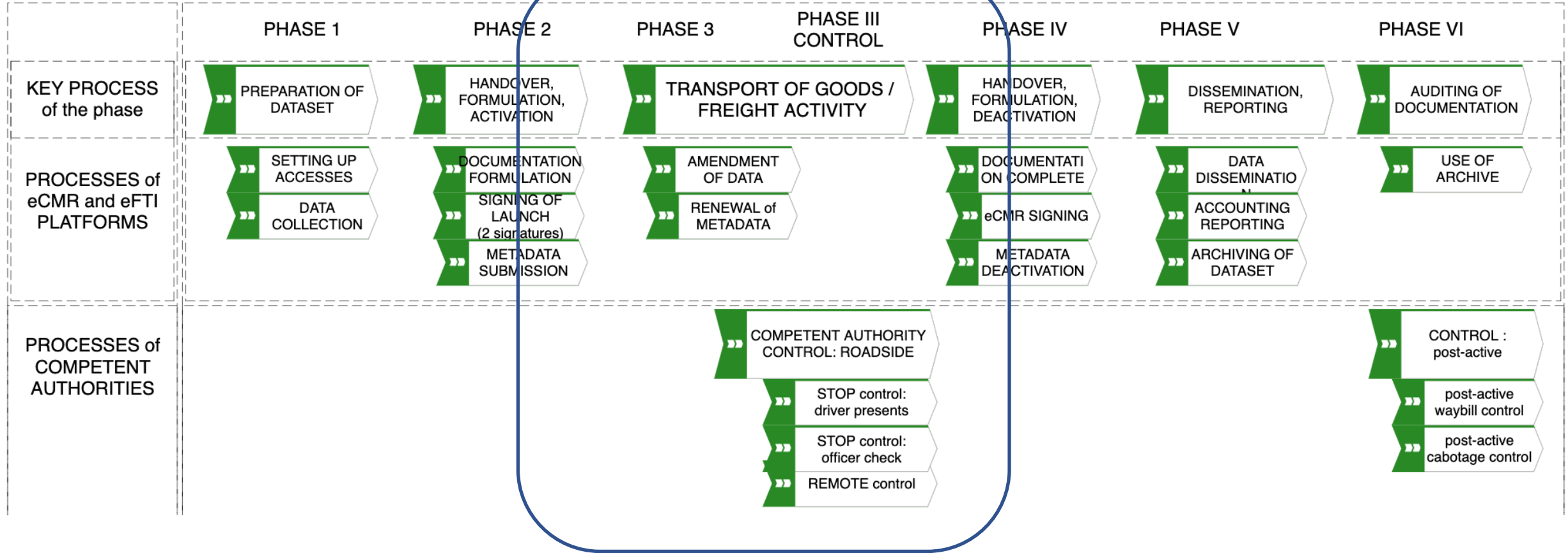
PUBLIC SECTOR

PRIVATE SECTOR



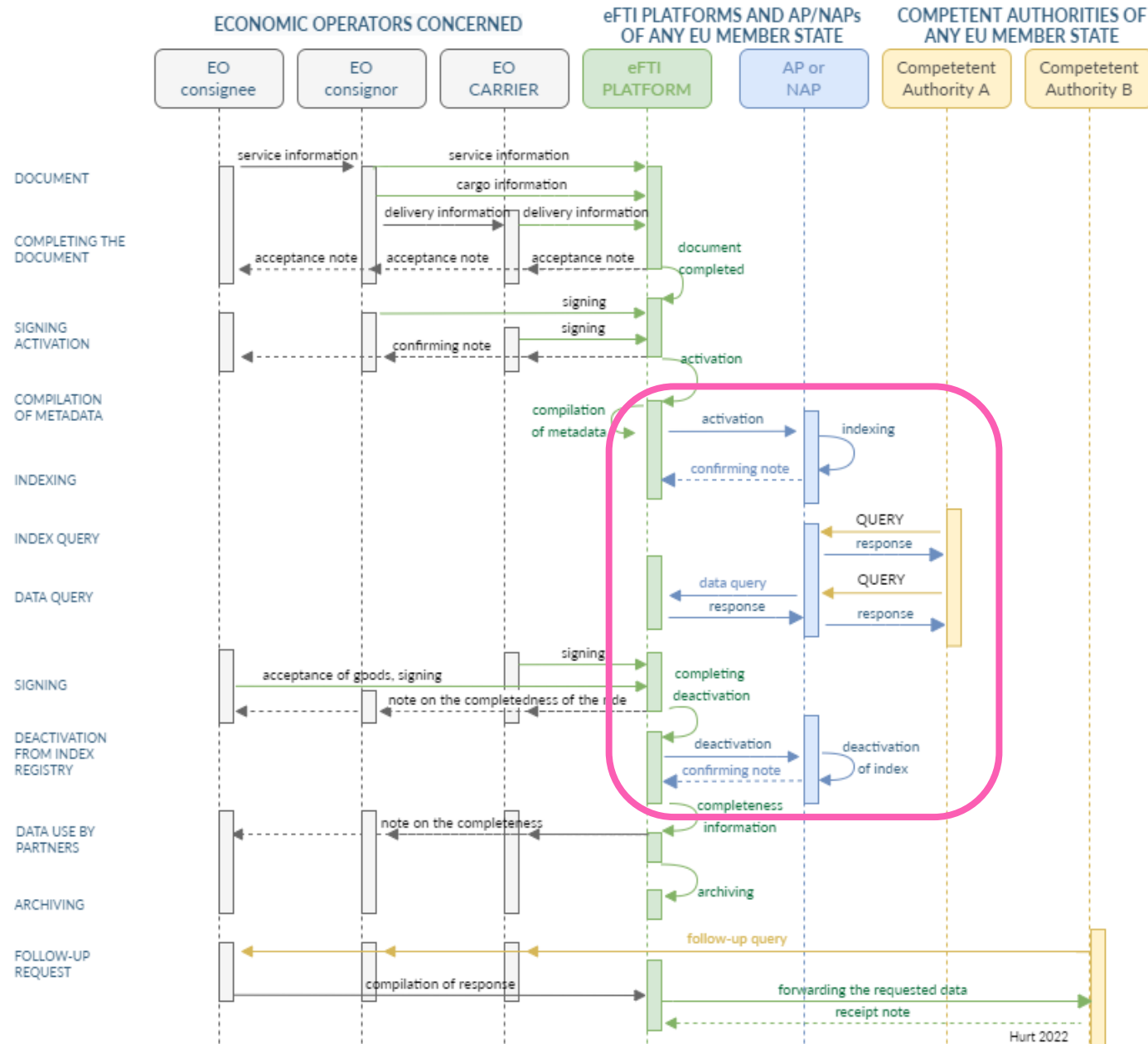
ROAD EXAMPLE

eCMR and eFTI DATA LIFECYCLE (EN)



Same

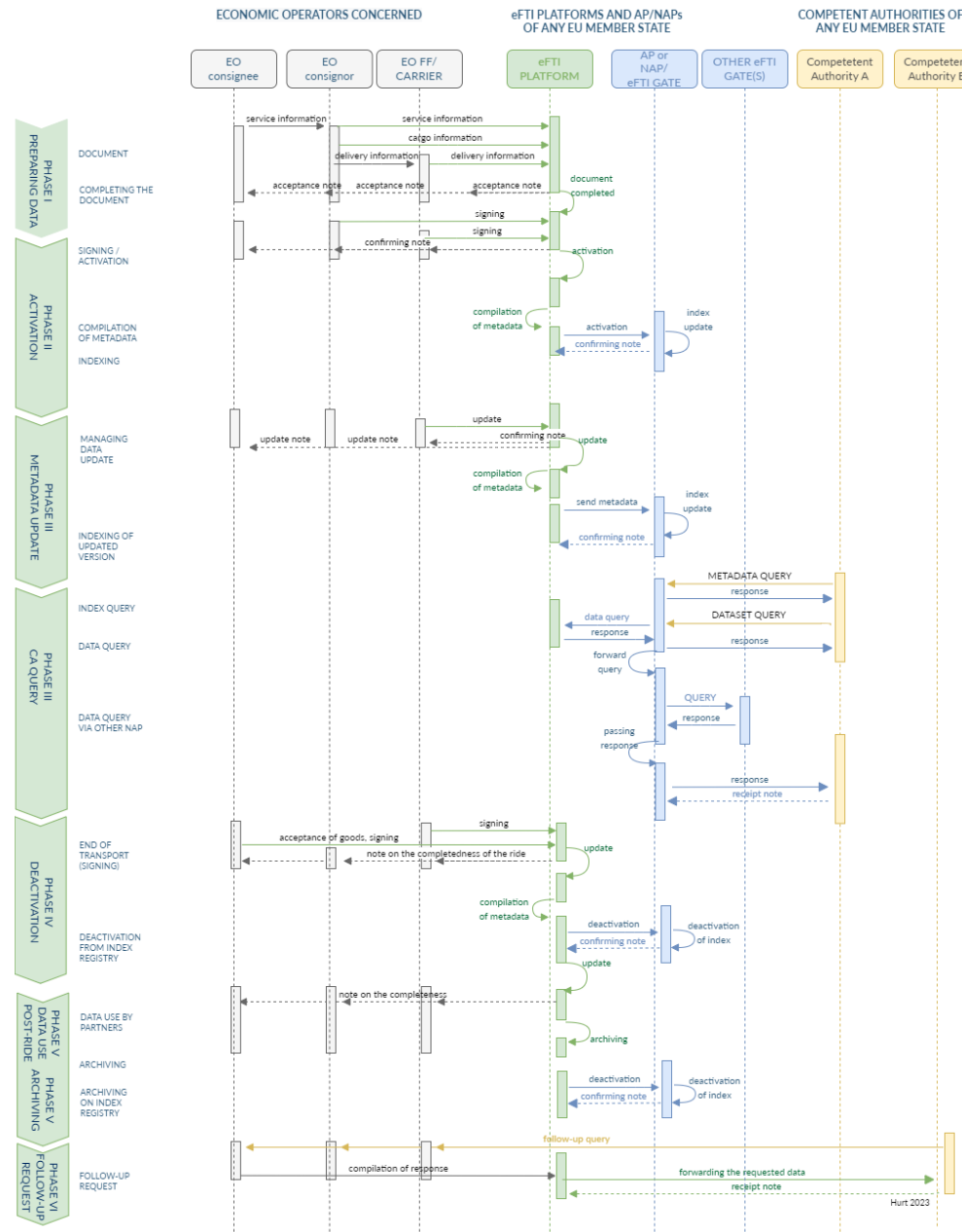
...



NAP=eFTIGate

STEPS FURTHER

- All process chart
- All message descriptions
- Supported by list of metadata/identifiers lists
- Supported by data models provided by delegated acts



USABLE SETS OF REQUIREMENTS

for eFTI Gates



for eFTI Platforms



TABLE 1. FUNCTIONAL REQUIREMENTS FOR THE NAP

REQUIREMENT	CONTENT
F1	Registration of the metadata of a consignment note or indexing in the process of activating a consignment note ⁷⁶
F2	Deactivation of the index of the consignment note in the consignment note deactivation process after the completion of a freight transportation operation
F3	Processing of inquiries from competent authorities to inquire data from the eFTI platform
F4	Processing of inquiries from competent authorities to send the inquiries to another NAPs (network of NAPs)
F5	Processing of inquiries from other NAPs for directing the inquiries sent to the eFTI platform and the responses
F6	Logging of the inquiry flow
F7	Administration of the roles of the users and organising of access
F8	Authorisation of delegated inquiries

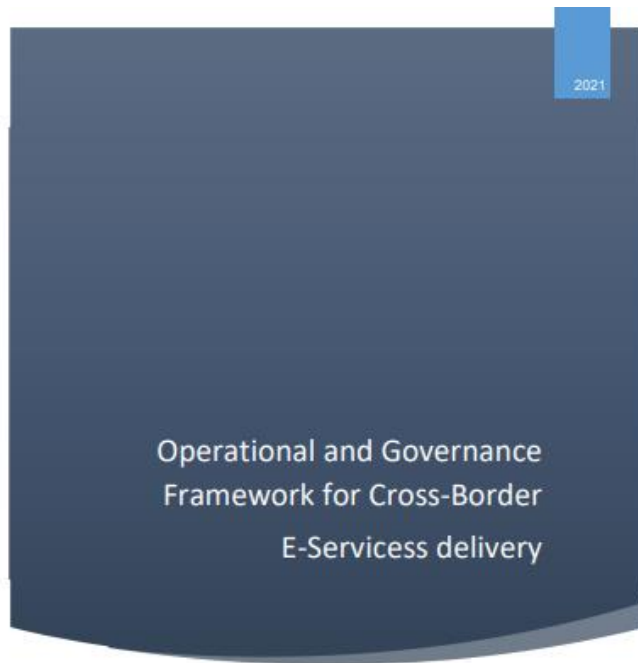
PUBLISHING OF THE eCMR IN THE INDEX REGISTER / INDEXING OF THE eCMR ⁷⁶				
The platform enables providing excerpts of the metadata of the freight transport operation based on the consignment note dataset	<ul style="list-style-type: none"> the dataset about the eCMR and the freight transport operation used in the publishing, i.e., indexing of the eCMR the set of the metadata of the freight transport operation includes the identifier of the document, the truck number, the trailer number, confirmation of the existence of valid signatures, the link (the URL/URI of the location of the eCMR data on the platform of the eCMR service provider), the reference to hazardous goods, if necessary, and the reference to the ADR or other documents/registry records 	from 2023		
The platform sends the metadata to the index register	<ul style="list-style-type: none"> The platform sends the metadata to the index register to activate the information of the launched freight transport operation 	from 2023		
The platform registers the confirmation response to the index register about successful registration of the dataset	<ul style="list-style-type: none"> The platform accepts and records the confirmation from the index register about successful registration of the dataset 	from 2023		
STAGE III. THE ACTIVE PERIOD OF AN eCMR CONSIGNMENT NOTE				
AVAILABILITY OF A CONSIGNMENT NOTE				
The platform ensures trilateral (multilateral) access to all parties of an eCMR during the entire period	<ul style="list-style-type: none"> trilateral access during the entire freight transport operation 	eFTI Art 9, as well as Art 4, 5, 8	from 2023	
The platform must be connected to a NAP	<ul style="list-style-type: none"> the platform must be connected to a NAP which will be forwarding/mediating the inquiries of competent authorities to provide access and display the indexed consignment note depending on the functional requirements for NAPs and instructions which have not yet been enforced and the requirements for the links, the eFTI platform might also need to be connected to a NAP via a public key infrastructure (PKI, the X-Road in Estonia) or through an API connection 	eFTI Art 9, as well as Art 4, 5, 8	from 2023	
The platform must always be prepared for an inquiry from a competent authority	<ul style="list-style-type: none"> The platform or the data on active rides must be accessible for inquiries 100% of the time (maximum availability) 	eFTI Art 9, as well as Art 4, 5, 8		
Identification of an eFTI platform	<ul style="list-style-type: none"> access through an access point (NAP) required 		from 2023	

DISPLAYING OF A DATASET DURING				
The platform is capable of passing on or displaying information in the eFTI platform in case of inquiry on a freight transport operation or an eCMR as a response to the metadata- or unique identifier-based query	<ul style="list-style-type: none"> Identifier(s) of the document, the truck number, the trailer number, confirmation of the existence of valid signatures, the link (the URL/URI of the location of the eCMR data in the service of the eCMR service provider), the reference to hazardous goods, if necessary, and the reference to the dangerous goods (ADR) or other document 			to be specified
Receipt of an inquiry of a competent authority	<ul style="list-style-type: none"> the inquiry may be originating from a national or a foreign (other EU member state) competent authority and, in the case of an inquiry from a foreign competent authority, the inquiry arrives via the Estonian NAP for connections to the NAP and transmission of data, the platform must have a system enabling authorized machine-to-machine accesses 	eFTI Art 9, as well as Art 4, 5, 8		
Logging of an inquiry of a competent authority	<ul style="list-style-type: none"> a record log is retained about the inquiry of a competent authority with the information about the country of origin, type of the authority, and time the NAP must provide the respective information to the eFTI platform the platform can store the document set as well as history and relevant other information in the log 	eFTI Art 9, as well as Art 4, 5, 8		to be specified
It must be possible to launch a data inquiry to the platform based on one of selected agreed identifiers (truck number, trailer number, document number, unique link etc) by also using the supporting tools provided (QR codes etc)	<ul style="list-style-type: none"> the inquiry may be based on an identifier sent with the metadata or an additional tool, e.g., a direct link opening when a QR code is presented the eFTI platform must always authenticate any incoming inquiries solutions like oAuth that enable the delegation of the right of representation and the logging of the delegation are used for machine-to-machine authentication 	eFTI Art 9, as well as Art 4, 5, 8		to be specified
AMENDMENT AND SUPPLEMENTING OF THE DATA DURING A FREIGHT TRANSPORT OPERATION				

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REQUIREMENTS DOCUMENTS

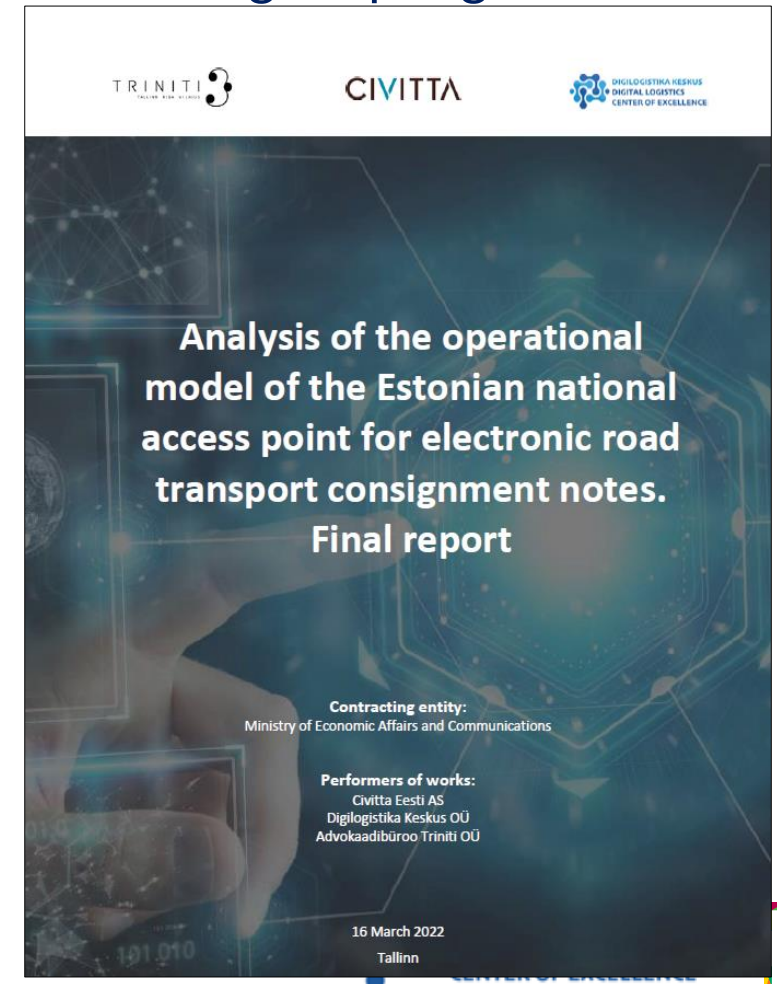
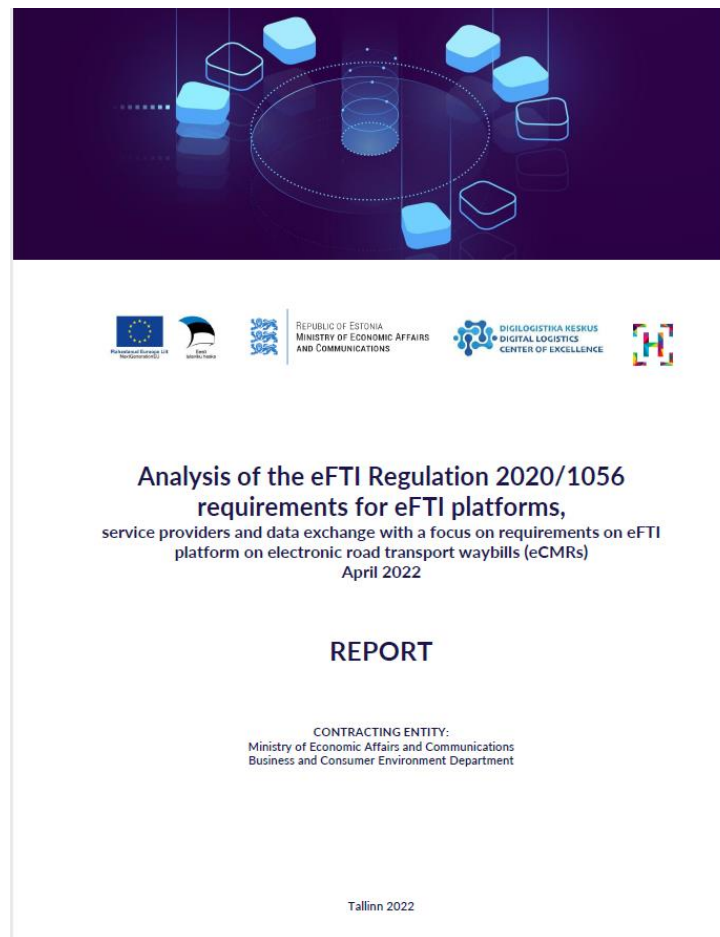
- Baltic Sea Region and Estonian reports available in English, more coming in spring 2023



COMPILED BY
IDONGESIT WILLIAMS
AALBORG UNIVERSITY COPENHAGEN



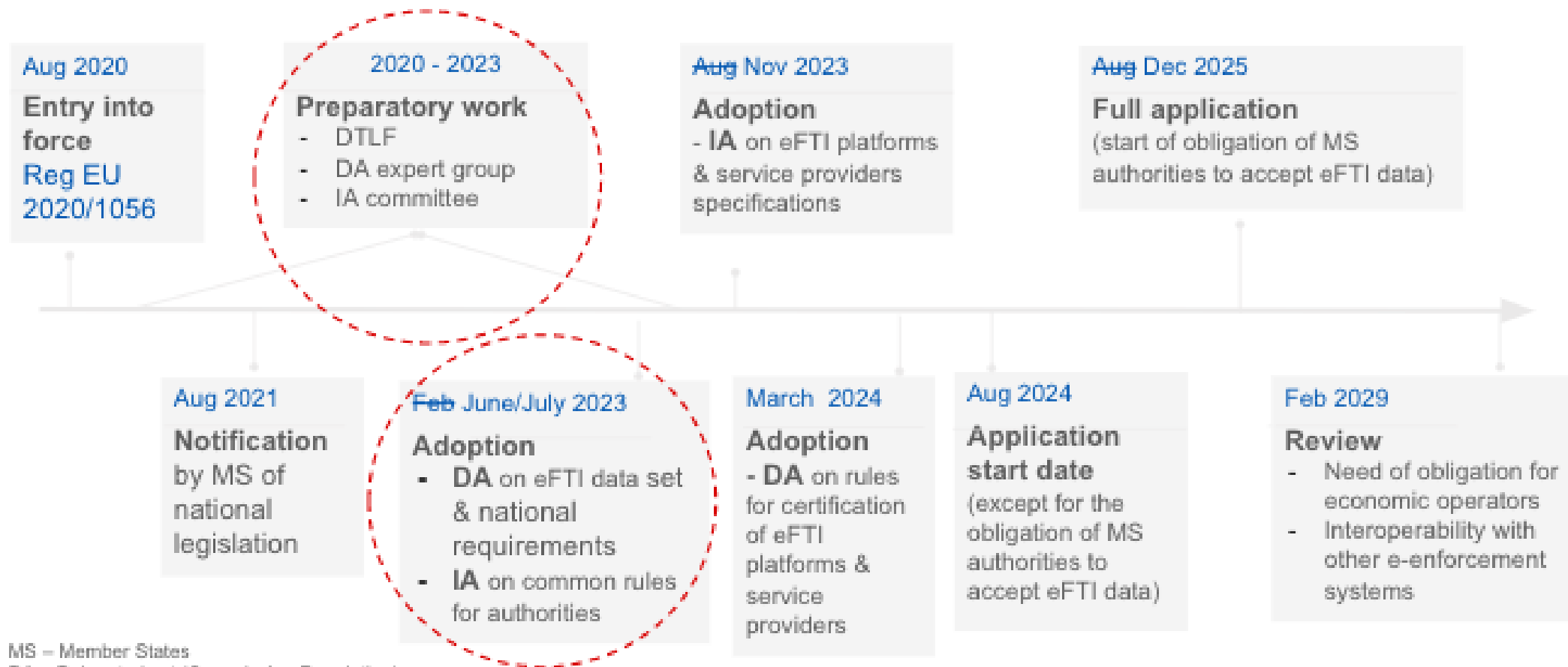
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ROADMAP



eFTI TIMELINE (updated Feb 2023)



MS – Member States
DA – Delegated act (Commission Regulation)
IA – Implementing act (Commission Regulation)

ROADMAP 2023-2026 FOR eFTI and eCMR IN AND FOR THE BALTIC SEA REGION



eFTI STAKEHOLDER ONBOARDING

KEY STEPS FOR REGIONAL ACTIONS FOR SUCCESSFUL AND ALIGNED eFTI UPTAKE



ONGOING AND UPCOMING PROJECTS



REGIONAL MoU













BALTIC-NORDIC-POLISH READY FOR eFTI INITIATIVE MEMORANDUM OF UNDERSTANDING (MoU)

declared on 22 June 2022
in Tallinn-Riga-Vilnius-Warsaw-Helsinki

www.ready4eFTI.eu

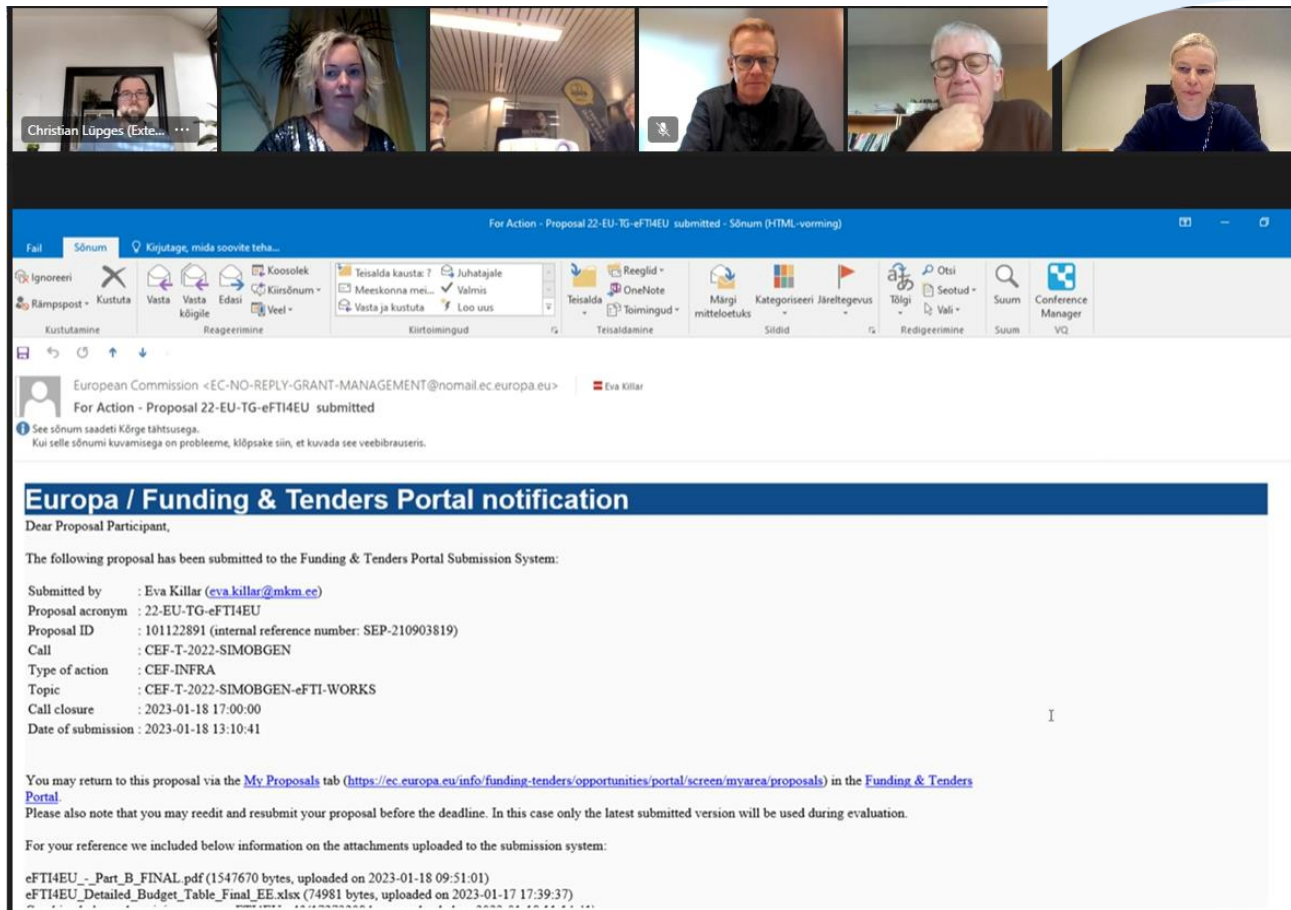
NDPTL goes real-time economy: eCMR solution

Project overview – partners

-  Information, Communication and Technology (ICT) sector Association "Infobalt" (Lithuania)
-  Ministry of Transport and Communication (Lithuania)
-  Transport Innovation Association (Lithuania)
-  Ministry of Economic Affairs and Communications (Estonia)
-  Digilogistika Keskus: Digital Logistics Centre of Excellence (Estonia)
-  Latvian ICT Association LIKTA (Latvia)
-  Ministry of Transport (Latvia)
-  Polish Chamber of Commerce for Electronics and Telecommunications (KIGEIT) (Poland)
-  IBA project – TUIJAN "Transport corridor Uniting International Joint Aspirations in the Northern dimension" (key partners: VTT Technical Research Centre of Finland (Finland), Vediafi Ltd (Finland) and GoSwift Ltd (Estonia))
-  Aalborg University (Denmark)

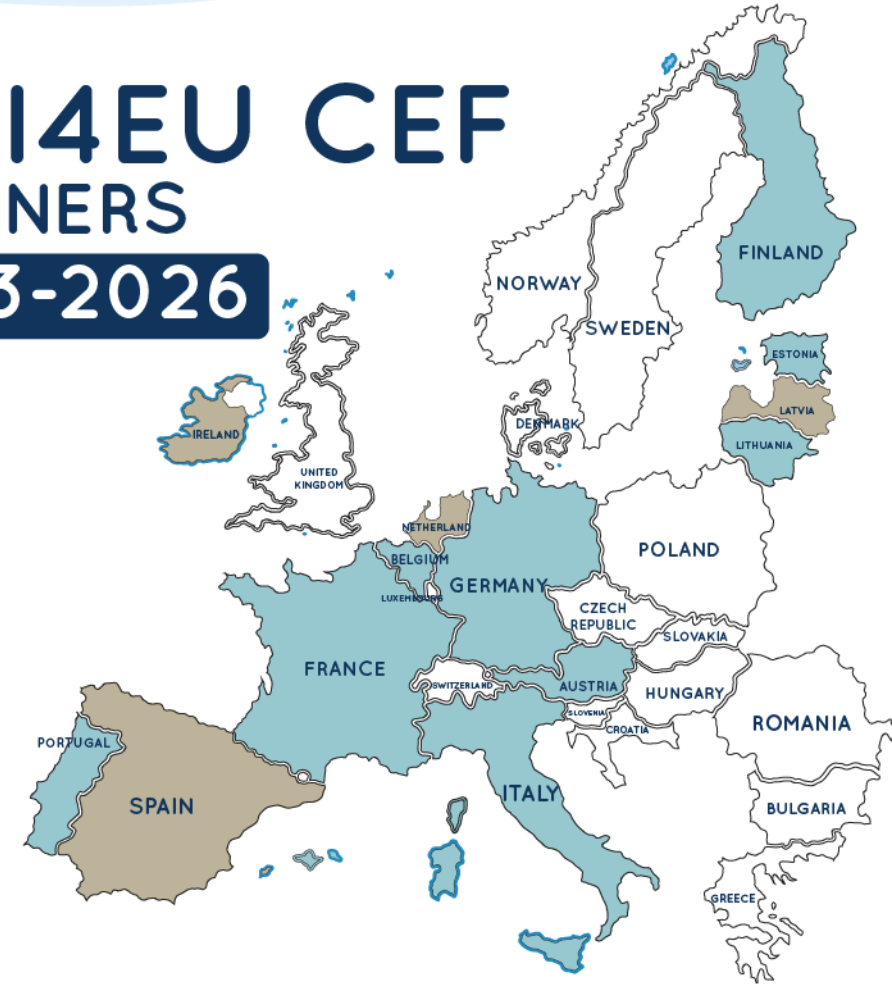


eFTI CEF APPLICATION SUBMITTED



eFTI4EU CEF PARTNERS 2023-2026

■ PARTNER
■ OBSERVER



9 countries, 22 partners, 3+2 observers
wider community around for next year's application

BSR Ready4eFTI

project application

- 2023-2026
- Focus on eFTI and economic operators
- OUTPUT (1) BSR eFTI ecosystem is informed, trained and aligned with the forthcoming eFTI Regulation
- OUTPUT (2) BSR transport&logistics business support organisations enabled to support eFTI adoption
- OUTPUT (3) North-South Transport Corridor becomes ready

Work Package Name **Guide**

WP1 Preparing solutions

WP2 Piloting and evaluating solutions

WP3 Transferring solutions



THANK YOU



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Real-Time Economy

From Plan to Practice!



EU Regulation 2020/1056 on electronic freight transport information (eFTI)

An overview

Real-Time Economy Conference, Tallinn
8 December 2021



Lia Potec - European Commission View on eFTI and Relevance

25 views • Dec 21, 2021

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smart digital architecture and a common set of
services, following agreed principles of governance.





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eCMR indexing prototype between Estonia, Latvia, Lithuania and Poland (LONG VERSION)

45 views • Dec 21, 2021

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