Smart Freight Centre

17th June 2025

Smart Freight Centre's work on Data & Digitalisation

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Technical Manager, Digitalization

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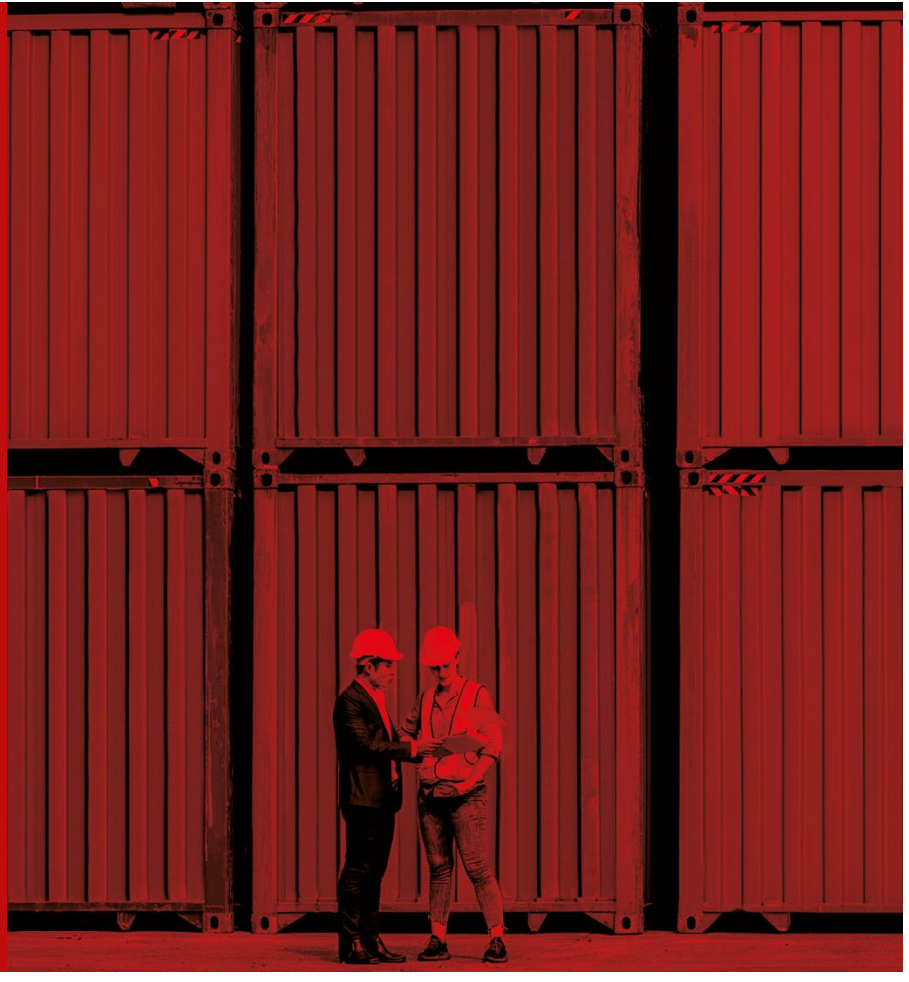
SFC Introduction



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About us

Our Vision

A zero-emission global logistics sector by 2050 or earlier, consistent with 1.5° pathways.

Our Mission

To accelerate the reduction of logistics emissions by fostering collaboration within the global logistics ecosystem.

Our Goal

Mobilize the global logistics ecosystem, in particular our members and partners, in tracking and reducing its greenhouse gas emissions to achieve 1.5° pathways.

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Data and digitalisation vision

We are at a tipping point…

Smart Freight Centre to support its members to decarbonize is taking steps in **IT standardization**.

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Data and digitalisation vision

We are at a tipping point…

Smart Freight Centre to support its members to decarbonize is taking steps in **IT standardization**.

The coming years, we will integrate **digital strategies** into all facets of multi modal transport, to **accelerate decarbonization** and **enable carbon transparency** in the industry.

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SFC's related work on data & data sharing

1

Data Access project

2021

- Exploring how to create a standard of data exchange
- Stakeholder barriers to engage in exchange

2

ISO14083

March 2023

- Introduction of Transport Operation Categories
- Backbone of CountemissionsEU

3

SFC Exchange Network

2023-2024

- Dataspaces concept into action
- 2 pilots and 2 MVPs for decentral exchange

4

iLEAP

2024-now

- Open source protocol for activity & emissions exchange
- A community of implementors

5

Road telematics data

2025-future

- Establishment of methodology on the use of road telematics data for GHG emission intensity calculation
- Expanding on iLEAP data model

Our program work is here.

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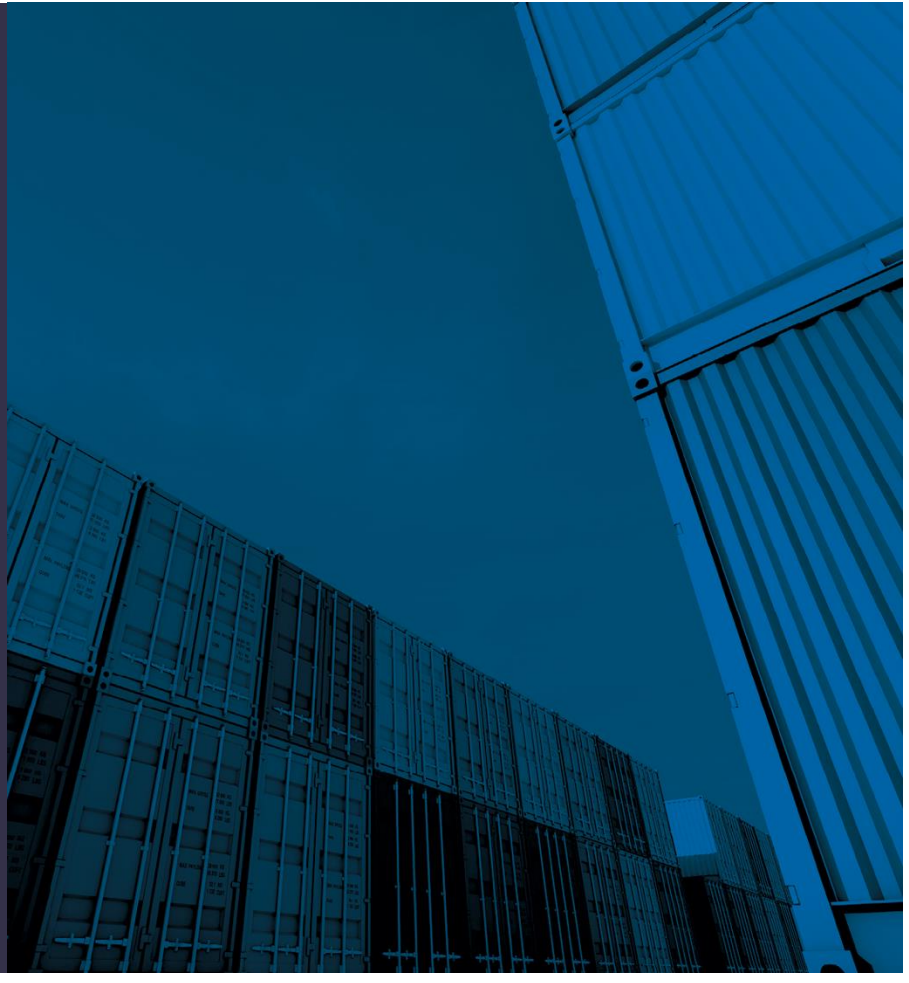
iLEAP project: summary



iLEAP principles

Open source & interoperability

Data quality

Confidentiality & sovereignty

Global & multimodal scope

Agility by flexibility & decenralization

Our webpage is here.

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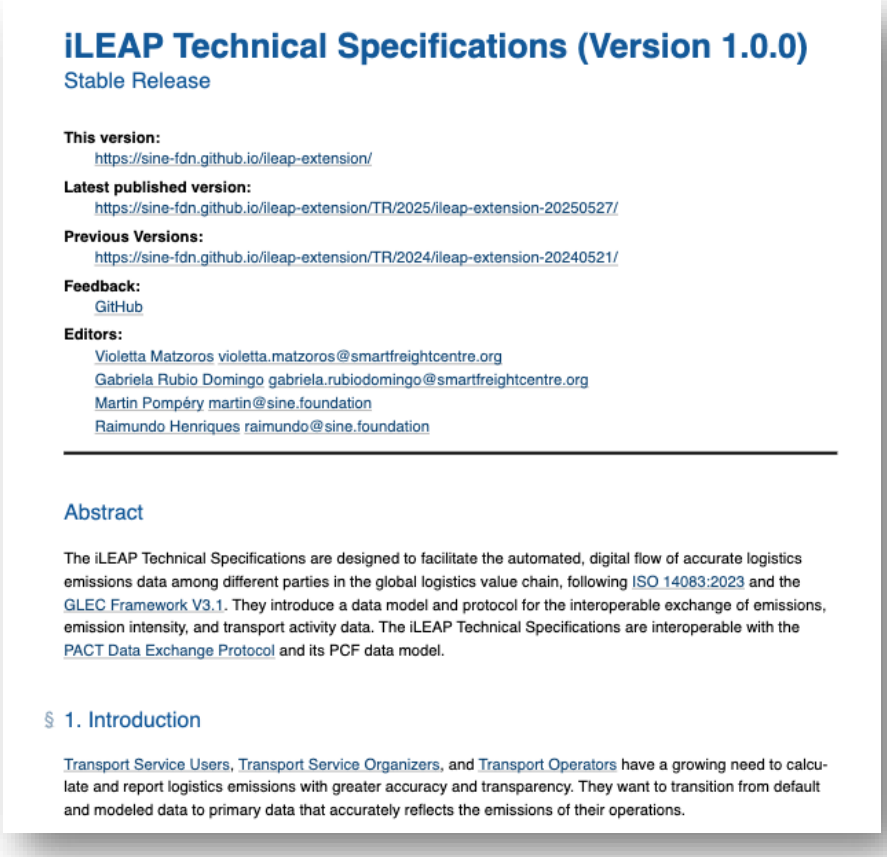
iLEAP today

Version 1 release

As of the 27th May 2025 we have published the **stable release** of the technical specifications. This version captures needed data variables in **3 data transactions** for the collection (input) and for the exchange (output) of carbon data from logistics operations.

Our work has focused on:

- A data model that is ISO14083 and GLEC Fw V3 conforming
- A protocol that is easy to develop and is interoperable with product carbon footprint specifications
- Data Transactions that are focused to serve varying business cases and aggregation levels (TCE vs TC)



iLEAP Technical Specifications (Version 1.0.0)

Stable Release

This version:
https://sine-fdn.github.io/ileap-extension/

Latest published version:
https://sine-fdn.github.io/ileap-extension/TR/2025/ileap-extension-20250527/

Previous Versions:
https://sine-fdn.github.io/ileap-extension/TR/2024/ileap-extension-20240521/

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Abstract

The iLEAP Technical Specifications are designed to facilitate the automated, digital flow of accurate logistics emissions data among different parties in the global logistics value chain, following ISO 14083:2023 and the GLEC Framework V3.1. They introduce a data model and protocol for the interoperable exchange of emissions, emission intensity, and transport activity data. The iLEAP Technical Specifications are interoperable with the PACT Data Exchange Protocol and its PCF data model.

§ 1. Introduction

Transport Service Users, Transport Service Organizers, and Transport Operators have a growing need to calculate and report logistics emissions with greater accuracy and transparency. They want to transition from default and modeled data to primary data that accurately reflects the emissions of their operations.

Source here.

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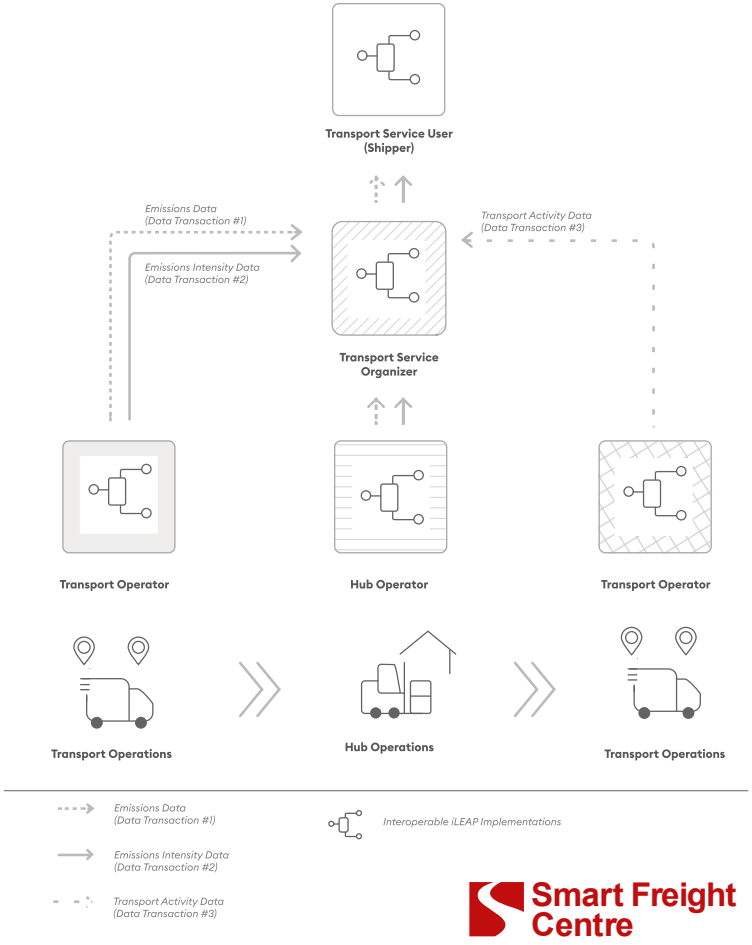
Data transactions explained

Data Transaction #1: Exchange of TCE Data at Shipment-level (emissions + activity data)

Data Transaction #2: Exchange of TOC and HOC data (i.e. emissions intensities)

Data Transaction #3: Activity Data-only Exchange (to simplify onboarding of SMEs, or work with charging point operators or telematics providers)



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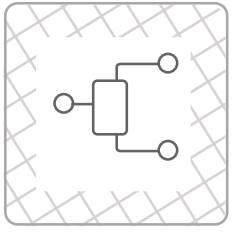
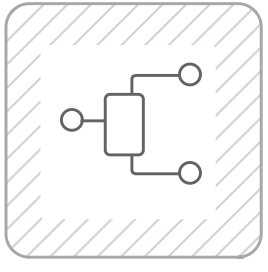
The data transactions support input and output data

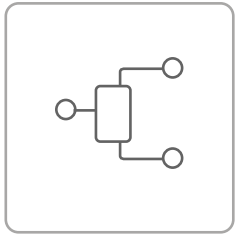
Anonymised example from pilots



Transport Operator



Transport Service Organizer



Transport Service User (Shipper)

Activity data is integrated and shipment level emissions are calculated

Activity Data is shared via Data Transaction 3

Shipment level emissions are shared via Data Transaction 1

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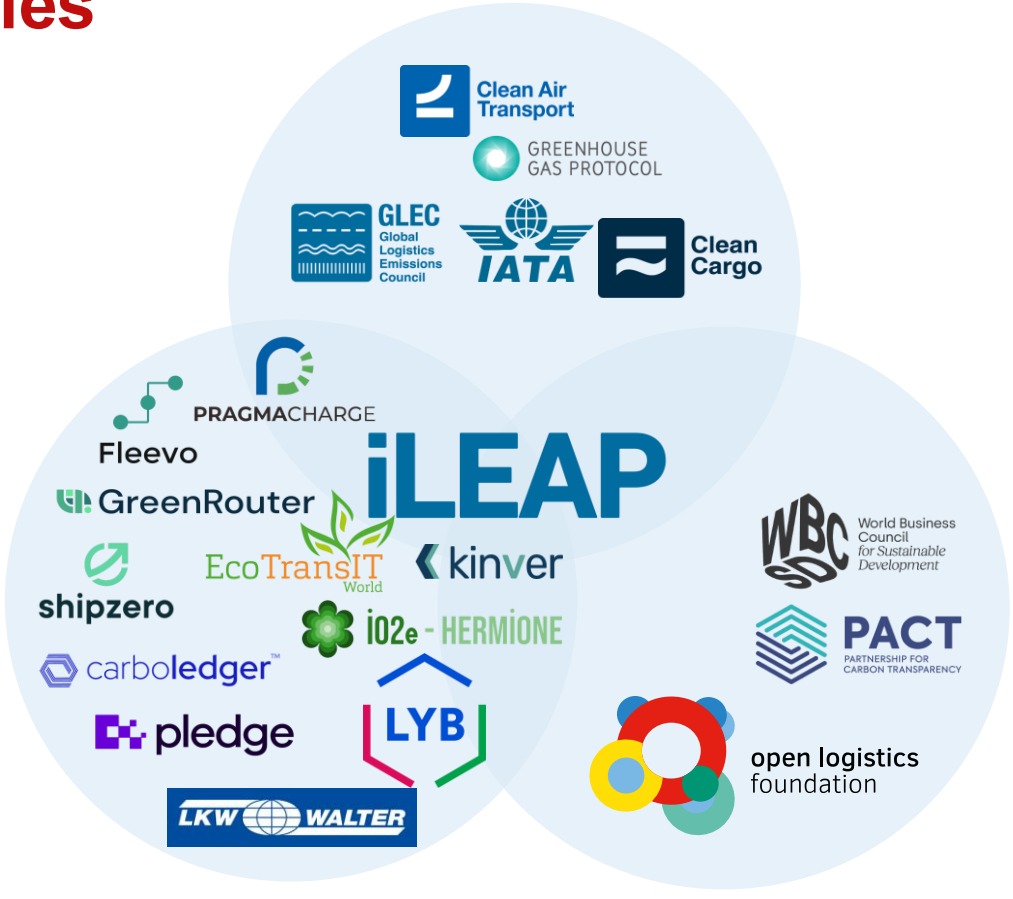
Our synergies



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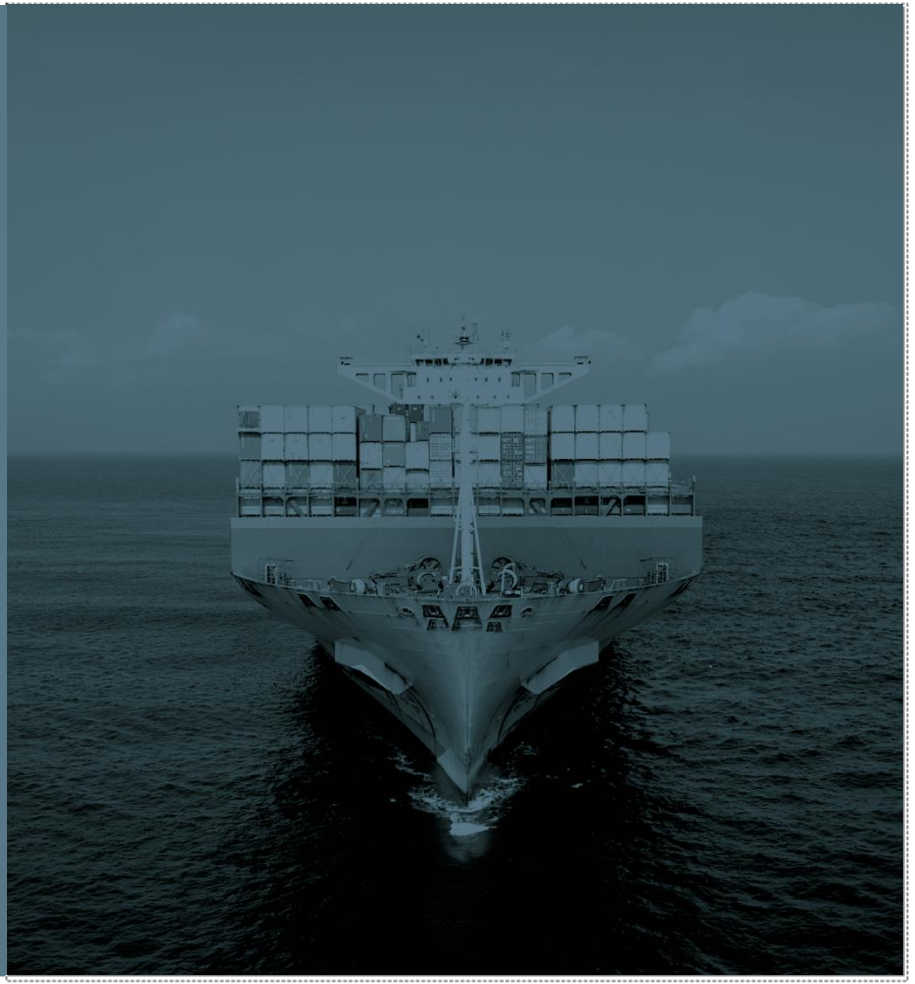
eFTI & comparison to iLEAP



Context:
What is the objective?

This regulation establishes a harmonized legal framework for the **electronic communication** of regulatory information between the **transport operators and authorities**.

The vision is to deliver an **interoperable EU wide exchange environment**

- **Decentralised** system for all national authorities
- Data variables can be flexibly selected by member states; data remains at source
- The data set is based on the MMT RDM from UN/CEFACT enabling **interoperability**
- Expansion of the dataset is possible
- There is a trusted architecture in place
- **Open-source** reference implementations are welcome

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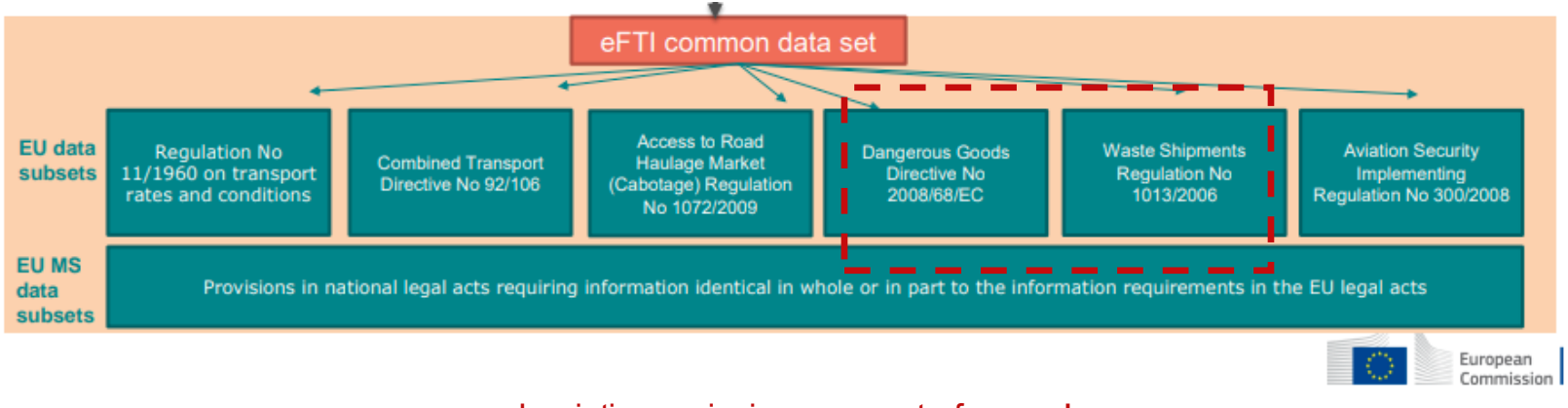
Context:
Gap analysis results



Logistics emissions are out of scope!

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Context:
Gap analysis results

eFTI model & variables:

- Defined on consignment level
- Events based modelling approach
- Contains freight mass and dimensions information
- Dangerous goods and freight condition
- Information on parties involved is on GDPR level
- Transport document identifiers
- TCEs ID and sequence is included too!
- TOCs descriptive variables & itinerary are also part of it
- Cost and Customs are in scope!
- Waste information is in scope!

iLEAP model & variables:

- Defined on consignment level
- Mass based modelling approach
- Basis is: ISO14083 and GLEC v3
- Load factor, empty distance, energy carrier are on TOC
- Clear definitions of TCE vs TOC level variables

Conclusion:

The models can –with minor adaptations– be used in tandem, as

- key concepts to distinguish TOCs & TCEs are in place
- there are overlapping essential variables that act as the basis for emissions calculations

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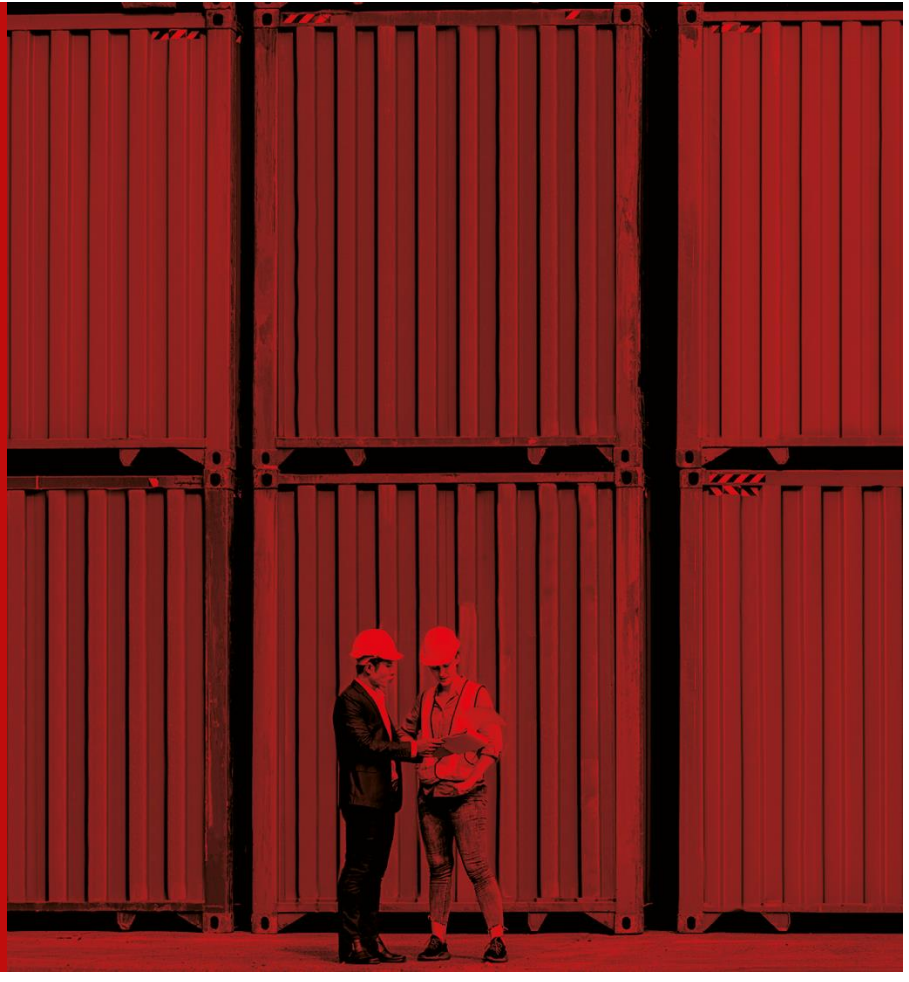
Questions & Answers



Any questions?

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with us

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