ECTA UIRR ERFA Best Practice Guideline:

Standardized Digital Data Sharing in intermodal freight transport

INTERFACE: Railway Undertakings (RU) , Combined Transport Operators (CTO) & Terminal Operators (TO)

GUIDELINE REVISIONS	VERSION	DATE
Initiation	1.0	21.10.2025

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Disclaimer

This document is intended for information only and sets out best practice guidelines for standardized digital data sharing in intermodal freight transport by exchanging transport milestone messages in a bulk chemicals supply chain and this in a harmonized and interoperable way amongst different supply chain actors. The information provided in these guidelines is provided in good faith and, while it is accurate as far as the authors are aware, no representations or warranties are made with regards to its completeness. It is not intended to be a comprehensive guide. Each company, based on their individual decision-making process, may apply these guidelines, in full or partly or apply any other adapted measures.

No responsibility will be assumed by the associations ECTA UIRR ERFA to the information contained in these Guidelines.

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1. Lexicon and list of abbreviations

The full list of abbreviations can be found in the ECTA-UIRR-ERFA best practice guideline: **"General principles for a standardized digital data sharing in intermodal freight transport"**

Actor	A company exchanging ETA and other information along the logistics chain of milestone events
API	Application Programming Interface
ECTA	European Chemical Transport Association
EDI	Electronic Data Interchange
EDIGES	Electronic Data Interchange for Intermodal Goods Exchange. Standard EDI format used in the intermodal business
ETA	Estimated time of arrival
ETP	Estimated time of pickup
ITU	Intermodal transport unit
Milestone Event	A node where logistics activities take place within the logistics chain that might impact the ETA
XML-XSD	XSD (XML Schema Definition) is a World Wide Web Consortium (W3C) recommendation that specifies how to formally describe the elements in an Extensible Markup Language (XML) document.

2. Introduction

Intermodal transport refers to the method of transporting goods using two or more different modes of transportation, such as rail, truck, ship, or airplane, in a single journey without handling the cargo itself when changing modes. The cargo is packed into an Intermodal Loading Unit (ILU) which might be a maritime (tank) container, continental swap body or (craneable) semi-trailer. This guideline is a joint initiative of three major associations (ECTA, ERFA and UIRR) active in freight with the objective to promote the modal shift of chemical substances from road to rail. This guideline aims at providing a path towards an integrated standardized digital ecosystem in intermodal freight transport.

3. Scope and objectives

This guideline aims to define and establish comprehensive standards for the seamless exchange of data related to Road & Rail freight transportation. The focus of this guideline is on data exchange at the interface between the railroad company, the multimodal operator and the terminal operator.
Data is exchanged on the basis of a process that is understood and established by all parties involved. The majority of these processes relate to data transfer between the stakeholders involved in a specific process stage.

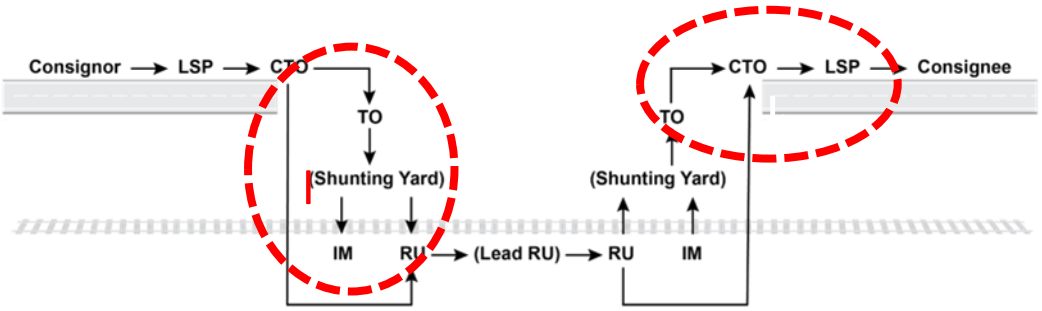

Figure 1 - Framework Process

The framework process has already been described in GL xxx. This extended GL focuses on the process sections with a relationship to rail transportation. On the one hand, it describes the planning-relevant processes and, on the other, the appropriate transmission of the information required during and at the end of the transport. The planning part consists of both the purely railroad-relevant planning steps and those underlying the loading of a train. Further information chains follow during and at the end of a transport, which ultimately result in the automated information for the pick-up of the transported unit.

Communication between the partners involved takes place on the basis of the EDIGES format described in GL xxx. This is an established data format in the intermodal world which uses standard formats and thus enables “machine to machine” communication.

The communication formats currently in use are summarized in the following diagram.
The individual components of the respective data formats can be found on the “EDIGES-ADRESSEXXX” SITE.

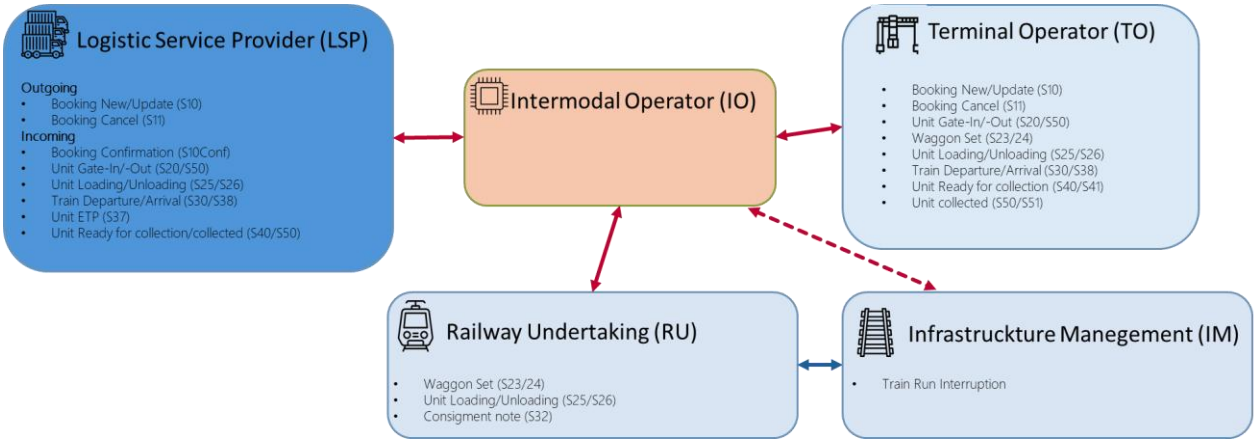

Figure 2 - Stakeholders and EDI Messages

This GL will essentially be based on the above-mentioned messages and take these into account in the following benchmark processes.

Furthermore, this GL also describes the path to extended automation in the respective processes. The processes or process steps that have not yet been identified as benchmarks are highlighted in colour.

4. Planning Process

Two important information exchange chains are described in this section. Firstly, the planning process between the RU and the CTO.4.1 Planning Process

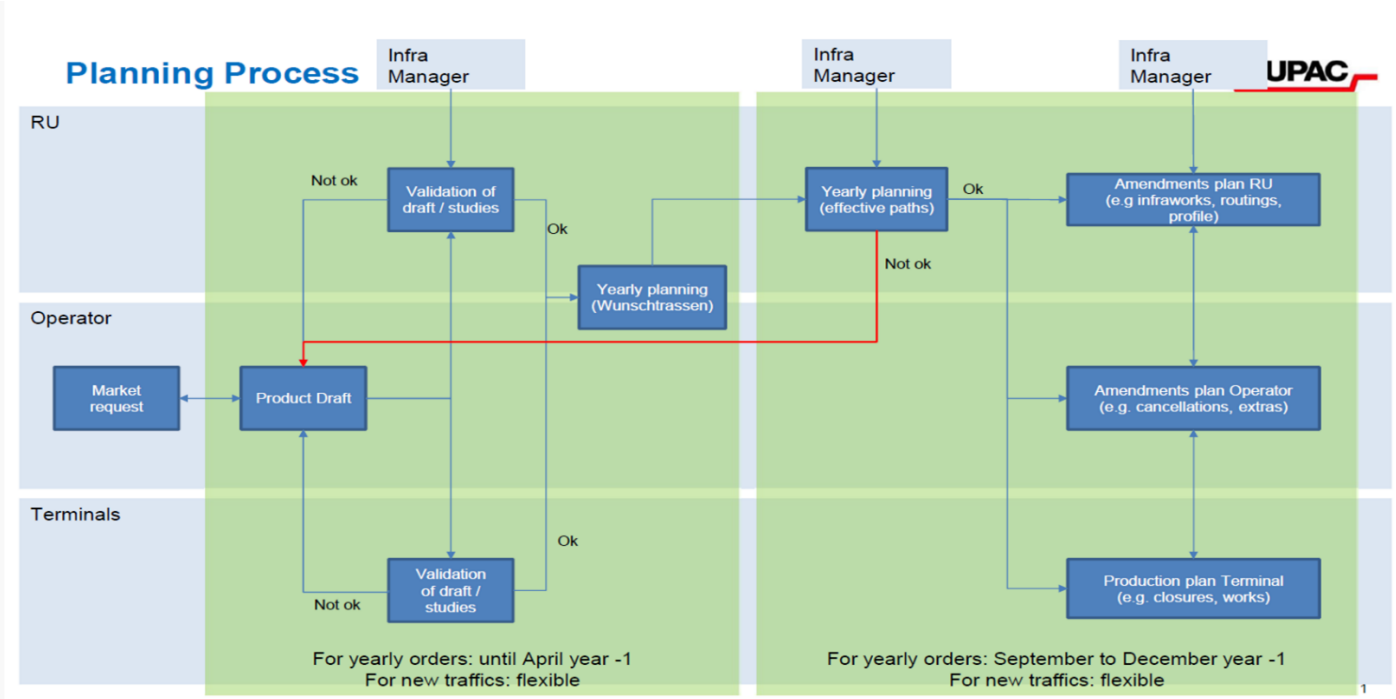

Figure 3 - Planning Process

This process is currently in a test phase between two partners. The respective messages and their content are currently being recorded and fed into the automation process. The process takes place before entering the transport process described in Annex 1.

This process outlines the planning procedures and the associated data exchange between the key players in rail freight transport – the Intermodal Operator (as the process owner), the Railway Undertakings (RU), the Terminals, and the Infrastructure Manager. The goal is to identify best practices and increase efficiency through transparent procedures and standardized data exchange (using EDIGES messages).

Phase 1: Initial Annual Planning (Until April of Year -1 for annual orders)

1. Market Request and Product Draft: The process typically starts with a market request, based on which the Intermodal Operator creates a product draft (e.g., for a new train connection).
2. Validation of the Draft: This draft is submitted for review and validation to both the responsible Railway Undertaking (RU) and the involved Terminals.

    - Communication with the RU uses EDIGES PDM/OT messages.
    - Communication with the Terminals uses EDIGES S80 messages.

3. Feedback and Annual Planning (Requested Paths): If both the RU and Terminals deem the draft feasible ("Ok"), the Intermodal Operator creates the annual plan based on this, in the form of requested paths ("Yearly planning (Wunschtrassen)"). If the validation is negative ("Not Ok"), the draft likely needs revision.

4. Validation of Requested Paths: The requested paths are then submitted to the RU for validation (via EDIGES PDM/OT).
5. Final Annual Planning (Effective Paths): If the RU validates the requested paths ("Ok"), it coordinates with the Infrastructure Manager to allocate effective paths ("Yearly planning (effective paths)"). The EDIGES PDM standard is used for data exchange with the Infrastructure Manager during this step. If validation by the RU is unsuccessful ("Not Ok"), the process returns to the Intermodal Operator for adjustment of the requested paths.

Phase 2: Detailed Planning and Adjustments (September to December of Year -1 for annual orders)

1. Basis: The effective paths confirmed by the RU and Infrastructure Manager form the basis for further detailed planning.
2. Adjustments by RU: The Railway Undertaking, in coordination with the Infrastructure Manager, can make adjustments to the plan (e.g., due to infrastructure works, routing changes, or profile adjustments). Data exchange occurs via EDIGES PDM.
3. Adjustments by Operator: The Intermodal Operator can also initiate plan changes (e.g., cancellations of trains, booking extra trains). These changes are communicated to the RU using EDIGES PDM/OT.
4. Terminal Production Planning: Based on the final timetable and any adjustments received, the Terminals create their detailed production plans (e.g., considering closures, planned works). Data exchange for this uses EDIGES S80.

Flexibility for New Traffic: For more short-term, new traffics ("new traffics"), more flexible deadlines apply compared to the annual orders.

In summary, this process demonstrates a structured approach to planning rail freight services, relying heavily on standardized electronic data exchange (EDIGES) among the Operator, Railway Undertaking, Terminal, and Infrastructure Manager. The clear definition of steps, responsibilities, and communication channels is crucial for identifying and establishing best practices within the sector.

5. Commissioning Railway Undertaking Process

The Intermodal Operator commissions the RU to transport the train. The transport data required for this can be transmitted to an RU at different times and in different forms.

The following flow chart represents best practice for this process. For a better overview, the following diagram only contains information paths in which RUs are involved. Previous information paths, e.g. the loading notification from the Terminal Operator to the Intermodal Operator, are not shown here.

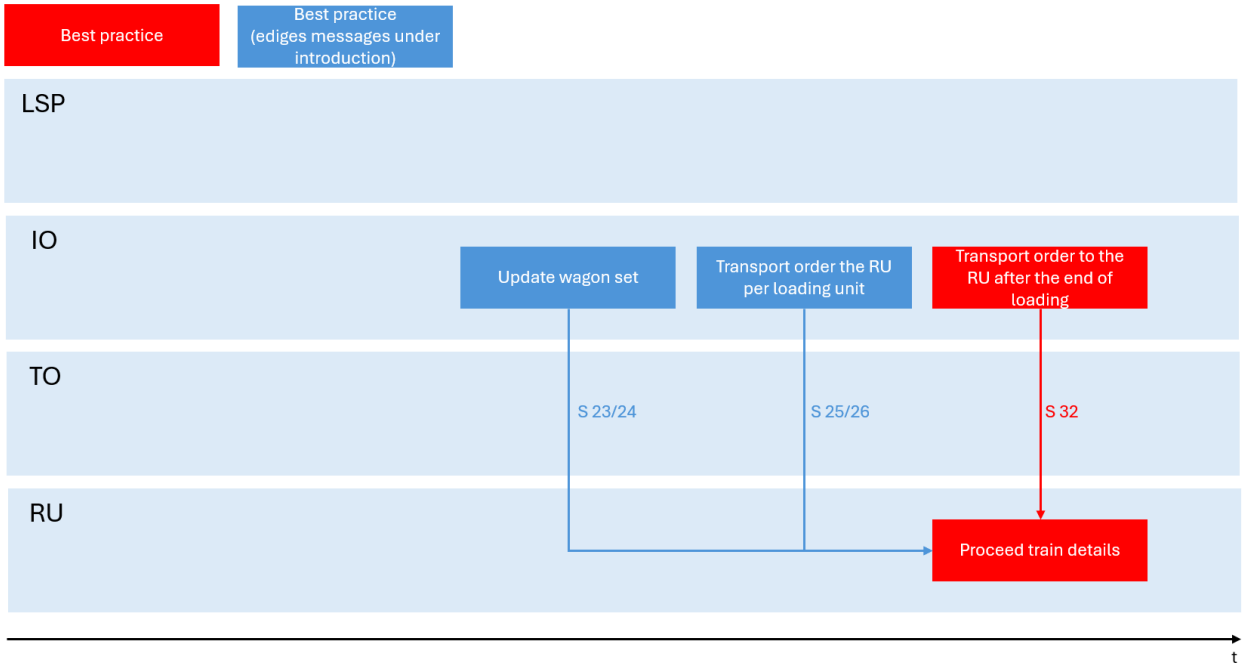

Figure 4 - Commissioning Railway Undertaking

Best practice is to transmit the transport order to the RU using the ediges 4.1 S32 format. This message is transmitted as soon as the loading of the wagon set has been completed and the loading of the train has been checked by the wagon inspector.

If there is only a short time available between the closing time for loading and the train departure, the loading check can take place in train sections. In this case, transport data must be sent prior to the wagon inspector's check.

As a result, the following procedure is recommended:

1. As soon as wagons are physically inserted or removed from the wagon set and the Intermodal Operator becomes aware of this through the Terminal Operator, the Intermodal Operator transmits this information to the RU. For this purpose, the messages ediges 4.1 S23 (loading) and ediges 4.1 S24 (unloading) are used.

2. As soon as the loading of a loading unit onto a wagon or the unloading of a loading unit from a wagon physically takes place and the Intermodal Operator is informed of this by the Terminal Operator, the Intermodal Operator transmits this information to the RU. The messages ediges 4.1 S25 (loading) and ediges 4.1 S26 (unloading) are used for this purpose.
3. After checking by the wagon inspector, the Intermodal Operator finally sends an ediges-4.1-S32 message to the RU. This message reflects the composition of the entire train, including empty wagons, wagon sequence and loaded loading units with their characteristics.

Conclusion: For the efficient transmission of the train composition to the RU, the use of the message ediges 4.1 S32 (transport order) is recommended. A further increase in efficiency can be achieved by using the messages ediges 4.1 S23 (loading wagon into the wagon set), S24 (removing wagon), S25 (loading of a load unit onto wagon) and S26 (unloading).

6. Estimated Time of Pick-up Process

The transmission of the Estimated Time of Pick-up (ETP) is essential information for intermodal transport customers (logistics service providers). Early notification of changes to the ETP makes it possible to reorganise subsequent processes, ideally in good time, such as updating the customer's route planning for the pick-up of the loading unit.

The ETP is transmitted with the ediges 4.1 S37 message. The previous steps for communicating delay messages and calculating the ETP can also be supported via ediges 4.1 messages.

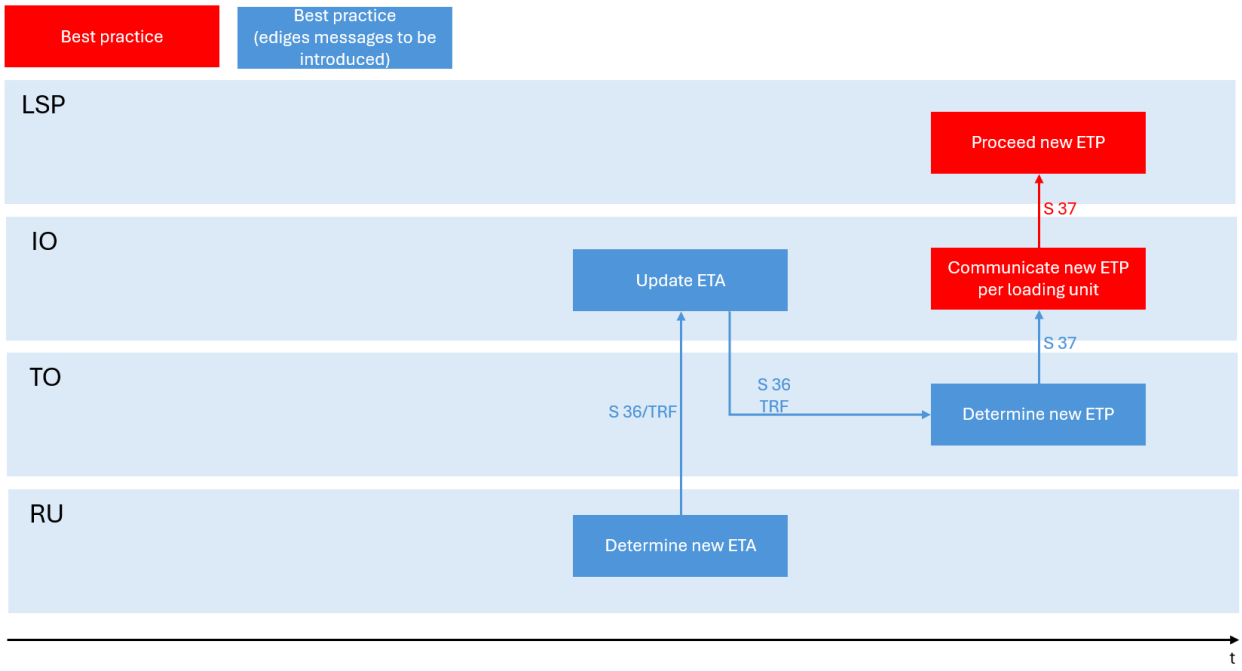

Figure 5 - Expected time of pick up

The process steps in detail:

1. The RU reports train delays to the Intermodal Operator. The ETA as Estimated Time of Arrival refers to the arrival of the train (usually at the pre-station) and does not include the terminal processes required to prepare the loading unit for pick-up. The ETA can be transmitted with the TAF/TSI message TRF or the ediges 4.1 message S36.
2. The Intermodal Operator as the client of the RU (for carriage) and the Terminal Operator (for handling) transmits the known ETA to the Terminal Operator. Analogue to process step 1, the TAF/TSI message TRF can be used for this or the ediges 4.1 message S36.
3. The Terminal Operator determines the available unloading slot on the basis of the communicated ETA and transmits the corresponding ETP to the Intermodal Operator with the message ediges 4.1 S37
4. The Intermodal Operator transmits the ETP to the CSPs concerned with the message ediges 4.1 S37

Conclusion: Stakeholders in intermodal transport are recommended to use the following messages for the communication of ETA:

- TAF-TSI message TRF (Train Running Forecast) or ediges 4.1 S36

For the communication of ETP:

- Ediges 4.1 S37

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