

# ECTA Best Practice Guideline: Transport Visibility KPI Framework for Supplier Data Quality



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### Disclaimer

This document is intended for information only and sets out best practice guidelines for a transport visibility KPI framework for supplier data quality. 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 ECTA relation to the information contained in these Guidelines.

## 1. Lexicon – List of abbreviations

|                 |   |
|-----------------|---|
| ECTA            | European Chemical Transport Association   |
| EDI             | Electronic Data Interchange   |
| ETA             | Estimated time of arrival   |
| ETA Cleaning    | Estimated time of arrival at cleaning station   |
| ETA Customs     | Estimated time of arrival at customs office   |
| ETA Drop        | Estimated time of arrival at drop place   |
| ETA Heating     | Estimated time of arrival at heating station  |
| ETA Loading     | Estimated time of arrival at loading site   |
| ETA Multistop   | Estimated time of arrival at multi-stop place   |
| ETA Pickup      | Estimated time of arrival at the pickup place   |
| ETA Unloading   | Estimated time of arrival at unloading site   |
| ETC             | Estimated time of closing   |
| ETx             | Referring to all different types of estimated time updates, such as ETA, ETP, etc.                |
| KPI             | Key Performance Indicator   |
| Milestone Event | A node where logistics activities take place within the logistics chain that might impact the ETA |

## 2. Introduction

In March 2020, ECTA has published a first version of the best practice guideline for transport visibility within bulk chemicals<sup>1</sup> which has defined transport milestone events and ETx update messages for various supply chain actors. On the one hand, a shipper view was defined which outlined what messages will be shared with petrochemical, chemical and gas producers as well as chemical processors and chemical distributors and traders. On the other hand, several views for different logistics service providers, e.g. trucking companies, intermodal operators and depots were determined to increase end-to-end supply chain visibility.

This objective of supply chain visibility however, can only be met when each supplier delivers commonly defined transport milestones and ETx updates and when the data provided is accurate, complete and timely whereby the data flow should follow the contractual relationships of the supply chain actors. Therefore, the purpose of this ECTA guideline is to complement the already published guideline by providing a joint requirement framework for the different suppliers with special focus on how data quality and accuracy can be measured.

In the next chapters, the scope and objectives of this guideline are further described before definitions of data quality and the corresponding KPI framework for supplier messages are presented.

## 3. Scope and Objectives

Today, no standardized KPI framework to evaluate data quality within bulk supply chains, is in place. In addition, a lot of the required data is received too late or is inaccurate, which leads to inefficiencies in logistics processes across the supply chain partners. Hence, the opportunity lays in defining a more uniform KPI framework for supplier data quality based upon the basic milestone framework already defined via the ECTA best practice guideline on transport visibility within bulk chemicals.

This guideline aims at describing standards for combined transport flows and its transport milestone event and ETx update messages, the role and responsibility of each supplier while specifying the data quality requirements in terms of accuracy, timeliness and completeness. In other words, it is specified what data quality should be realized by the various supplier parties towards logistics service providers and shippers to achieve complete end-to-end supply chain visibility.

In particular, the following three supplier perspectives are further looked at in detail<sup>2</sup>:

1. Intermodal Supplier (Rail, vessel and terminal operators)
2. Cleaning station, Depot and Maintenance & Repair workshop suppliers
3. Trucking companies

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<sup>1</sup> Access ECTA BEST PRACTICE GUIDELINE: TRANSPORT VISIBILITY WITHIN BULK CHEMICALS via <https://www.ecta.com/Best-Practices-Guidelines>

<sup>2</sup> Detailed figures of each supplier view in annex 1

## 4. Data Quality Definition and KPI Framework

Prior to the presentation of the KPI framework and the provision of a practical example to measure data quality, key definitions of quality items (timeliness/latency, accuracy and completeness) are given:

- **Timeliness/Latency:** Milestone and ETx update messages are provided within a certain latency as defined in the milestone message and ETx update rules<sup>3</sup>.
- **Accuracy:** Data is considered as “accurate” when the estimated value of the message is within the defined range compared to the actual time of an event. (This only applies for ETx update messages)
- **Completeness/Consistency:** Data for milestone or ETx update messages is considered as "complete and consistent" when all defined information are provided and fully compliant with the content and format definitions.

| Intermodal Supplier (Rail, Shipping, Terminal) |   |  |  |                               |                    |                      |
|--|---|--|--|-------------------------------|--------------------|----------------------|
| Message Cluster                                | Message Type  | Definition   | Message (Update) Trigger   | Timeliness/Latency            | Accuracy           | Completeness         |
| ETx Updates                                    | ETC   | Estimated time of closing at departure terminal  | Difference of planned vs. new closing time: deviation > 30 minutes vs. last reported   | before actual event time      | +/-30 min          | >=1 complete message |
|  | ETA Next Terminal                                   | Estimated time of arrival at next (gateway/transshipment) terminal and corresponding terminal name                   | After departure from previous terminal: deviation > 4 hours vs. last reported  | before actual event time      | +/-30 min          | >=1 complete message |
|  | ETP Arrival Terminal                                | Estimated time of the container being ready for pick-up  | After departure from previous terminal: deviation > 4 hours vs. last reported < 24 hours till planned ready for pick-up: deviation > 30 minutes vs. last reported    | before actual event time      | +/-30 min          | >=1 complete message |
| Transport Milestone Message                    | Booking Confirmation                                | Timestamp of booking confirmation  | Event execution  | <= 1h after actual event time | not applicable     | 1 complete message   |
|  | Gate-In Departure Terminal                          | Timestamp of the interchange document  |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Stacked for Departure                               | Timestamp of the container being stacked for departure   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Loaded on Vessel/Train                              | Timestamp of the container being loaded on the vessel/train  |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Departed from Departure Terminal                    | Timestamp of the container having departed from the terminal   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Arrived at Gateway Terminal                         | Timestamp of arrival at gateway/transshipment terminal   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Departed from Gateway Terminal                      | Timestamp of departure from gateway/transshipment terminal   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Arrived at Arrival Terminal                         | Timestamp of the container having arrived at terminal  |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Unloaded from Vessel/Train                          | Timestamp of the container being unloaded at terminal  |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Ready for Pick-Up at Arrival Terminal               | Timestamp of the container being ready for pick-up   |  | <= 1h after actual event time |                    | 1 complete message   |
| Gate-Out Arrival Terminal                      | Timestamp of the container having left the terminal | <= 1h after actual event time  | 1 complete message   |                               |                    |                      |
| Trucking Supplier                              |   |  |  |                               |                    |                      |
| Message Cluster                                | Message Type  | Definition   | Message (Update) Trigger   | Timeliness/Latency            | Accuracy           | Completeness         |
| ETx Updates                                    | ETA Pickup  | Estimated time of arrival at the pickup place  | > 24 hours till planned arrival: deviation > 4 hours vs. last reported < 24 hours till planned arrival: deviation > 30 minutes vs. last reported                     | before actual event time      | +/-30 min          | >=1 complete message |
|  | ETA Cleaning  | Estimated time of arrival at cleaning station  |  | before actual event time      | +/-30 min          | >=1 complete message |
|  | ETA Loading   | Estimated time of arrival at loading site  |  | before actual event time      | +/-30 min          | >=1 complete message |
|  | ETA Customs   | Estimated time of arrival at customs office  |  | before actual event time      | +/-30 min          | >=1 complete message |
|  | ETA Heating   | Estimated time of arrival at heating station   |  | before actual event time      | +/-30 min          | >=1 complete message |
|  | ETA Unloading                                       | Estimated time of arrival at unloading site  |  | before actual event time      | +/-30 min          | >=1 complete message |
|  | ETA Multistop                                       | Estimated time of arrival at multistop place   |  | before actual event time      | +/-30 min          | >=1 complete message |
| Transport Milestone Message                    | ETA Drop  | Estimated time of arrival at drop place  | Event execution  | before actual event time      | +/-30 min          | >=1 complete message |
|  | Booking Confirmation                                | Timestamp of booking confirmation  |  | <= 1h after actual event time | 1 complete message |                      |
|  | Arrived at Pickup Place                             | Timestamp of the arrival at the pickup place   |  | <= 1h after actual event time | 1 complete message |                      |
|  | Departed from Pickup Place                          | Timestamp of the departure from the pickup place   |  | <= 1h after actual event time | 1 complete message |                      |
|  | Arrived at Cleaning Station                         | Timestamp of the arrival at the cleaning station   |  | <= 1h after actual event time | 1 complete message |                      |
|  | Departed from Cleaning Station                      | Timestamp of the departure from the cleaning station   |  | <= 1h after actual event time | 1 complete message |                      |
|  | Arrived at Gate Loading                             | Arrival timestamp on loading CMR   |  | <= 1h after actual event time | 1 complete message |                      |
|  | Checked Out Loading                                 | Departure timestamp on loading CMR   |  | <= 1h after actual event time | 1 complete message |                      |
|  | Arrived at Customs Agent                            | Timestamp of the arrival at the customs agent  |  | <= 1h after actual event time | 1 complete message |                      |
|  | Departed from Customs Agent                         | Timestamp of the departure from the customs agent  |  | <= 1h after actual event time | 1 complete message |                      |
|  | Arrived at Heating Station                          | Timestamp of the arrival at the heating station  |  | <= 1h after actual event time | 1 complete message |                      |
|  | Departed from Heating Station                       | Timestamp of the departure from the heating station  |  | <= 1h after actual event time | 1 complete message |                      |
|  | Arrived at Gate Unloading                           | Arrival timestamp on delivery CMR  |  | <= 1h after actual event time | 1 complete message |                      |
|  | Checked Out Unloading                               | Departure timestamp on delivery CMR  |  | <= 1h after actual event time | 1 complete message |                      |
|  | Arrived at Multistop Place                          | Timestamp of the arrival at the multistop place (e.g. extra stop for paperwork, maintenance, modification, etc.)     |  | <= 1h after actual event time | 1 complete message |                      |
|  | Departed from Multistop Place                       | Timestamp of the departure from the multistop place (e.g. extra stop for paperwork, maintenance, modification, etc.) |  | <= 1h after actual event time | 1 complete message |                      |
|  | Arrived at Drop Place                               | Timestamp of the arrival at the drop place   |  | <= 1h after actual event time | 1 complete message |                      |
| Departed from Drop Place                       | Timestamp of the departure from the drop place      | <= 1h after actual event time  | 1 complete message   |                               |                    |                      |
| Depot & Workshop Supplier                      |   |  |  |                               |                    |                      |
| Message Cluster                                | Message Type  | Definition   | Message (Update) Trigger   | Timeliness/Latency            | Accuracy           | Completeness         |
| ETx Updates                                    | ETP Depot   | Estimated time of the container being ready for pick-up  | > 24 hours till planned ready for pick-up: deviation > 4 hours vs. last reported < 24 hours till planned ready for pick-up: deviation > 30 minutes vs. last reported | before actual event time      | +/-30 min          | >=1 complete message |
| Service Milestone Message                      | Booking Confirmation                                | Timestamp of booking confirmation  | Event execution  | <= 1h after actual event time | not applicable     | 1 complete message   |
|  | Gate-In Depot                                       | Timestamp of the interchange document  |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Dropped at Depot                                    | Timestamp of the container being dropped   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Start Cleaning                                      | Timestamp of the container started cleaning  |  | <= 1h after actual event time |                    | 1 complete message   |
|  | End Cleaning  | Timestamp of the container finished cleaning   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | M&R Estimate Sent                                   | Timestamp of the estimate details being sent   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Start M&R   | Timestamp of the container started repair  |  | <= 1h after actual event time |                    | 1 complete message   |
|  | End M&R   | Timestamp of the container finished repair   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Ready for Pick-Up at Depot                          | Timestamp of the container being ready for pick-up   |  | <= 1h after actual event time |                    | 1 complete message   |
|  | Gate-Out Depot                                      | Timestamp of the container having left the depot   |  | <= 1h after actual event time |                    | 1 complete message   |

Figure 1: KPI Framework for Supplier Data Quality

<sup>3</sup> Refer to ECTA Best Practice Guideline within Bulk Chemicals (Chapter 6: Milestone message and ETx update rules at <https://www.ecta.com/Best-Practices-Guidelines>)

KPI Framework Example for an Intermodal Supplier (Rail, Shipping, Terminal)

| Message Cluster             | Message Type                          | Actual Event Timestamp | ETx Update          | Message Transmission Timestamp | ETx Delta (hh:mm)<br>(ETx Update - Actual Event Timestamp) | Latency Delta (hh:mm)<br>(Transmission - Actual Event Timestamp) | Timeliness/<br>Latency | Accuracy | Completeness |
|-----------------------------|---------------------------------------|------------------------|---------------------|--------------------------------|--|--|------------------------|----------|--------------|
| ETx Updates                 | ETC                                   | 2020.12.15 09:00:00    | 2020.12.15 09:15:00 | 2020.12.15 09:30:00            | 00:15  | 00:30  | Late                   | High     | Yes          |
|                             | ETA Next Terminal                     | 2020.12.17 09:00:00    | not sent            | not sent                       | not sent   | not sent   | n/a                    | n/a      | No           |
|                             | ETP Arrival Terminal                  | 2020.12.19 15:00:00    | 2020.12.18 20:00:00 | 2020.12.15 09:30:00            | 19:00  | -101:30  | In Time                | Low      | Yes          |
|                             |                                       |                        | 2020.12.19 15:30:00 | 2020.12.18 14:00:00            | 00:30  | -25:00   | In Time                | High     | Yes          |
| Transport Milestone Message | Booking Confirmation                  | 2020.12.13 11:30:00    | not applicable      | 2020.12.19 15:30:00            | 00:00  | 00:30  | Late                   | High     | Yes          |
|                             |                                       |                        |                     | 2020.12.15 14:00:00            | 2020.12.19 15:30:00  | 00:00  | 00:30                  | Late     | High         |
|                             | Gate-In Departure Terminal            | 2020.12.15 08:00:00    |                     | 2020.12.15 09:30:00            | 00:05  | 00:05  | In Time                | Yes      |              |
|                             | Stacked for Departure                 | 2020.12.15 11:30:00    |                     | 2020.12.15 12:15:00            | 00:45  | 00:45  | In Time                | Yes      |              |
|                             | Loaded on Vessel/Train                | 2020.12.15 14:00:00    |                     | 2020.12.15 14:30:00            | 00:30  | 00:30  | In Time                | Yes      |              |
|                             | Departed from Departure Terminal      | 2020.12.15 18:00:00    |                     | not sent                       | n/a  | n/a  | n/a                    | No       |              |
|                             | Arrived at Gateway Terminal           | 2020.12.17 09:00:00    |                     | 2020.12.17 12:00:00            | 03:00  | 03:00  | Late                   | Yes      |              |
|                             | Departed from Gateway Terminal        | 2020.12.17 13:00:00    |                     | not sent                       | n/a  | n/a  | n/a                    | No       |              |
|                             | Arrived at Arrival Terminal           | 2020.12.19 10:00:00    |                     | not sent                       | n/a  | n/a  | n/a                    | No       |              |
|                             | Unloaded from Vessel/Train            | 2020.12.19 13:00:00    |                     | 2020.12.19 15:00:00            | 02:00  | 02:00  | Late                   | Yes      |              |
|                             | Ready for Pick-Up at Arrival Terminal | 2020.12.19 15:00:00    |                     | 2020.12.19 15:30:00            | 00:30  | 00:30  | In Time                | Yes      |              |
| Gate-Out Arrival Terminal   | 2020.12.20 09:00:00                   | 2020.12.20 09:45:00    | 00:45               | 00:45                          | In Time  | Yes  |                        |          |              |

Figure 2: Example of Data Quality Performance Measuring

## 5. Contact Lists and ECTA workgroup participants



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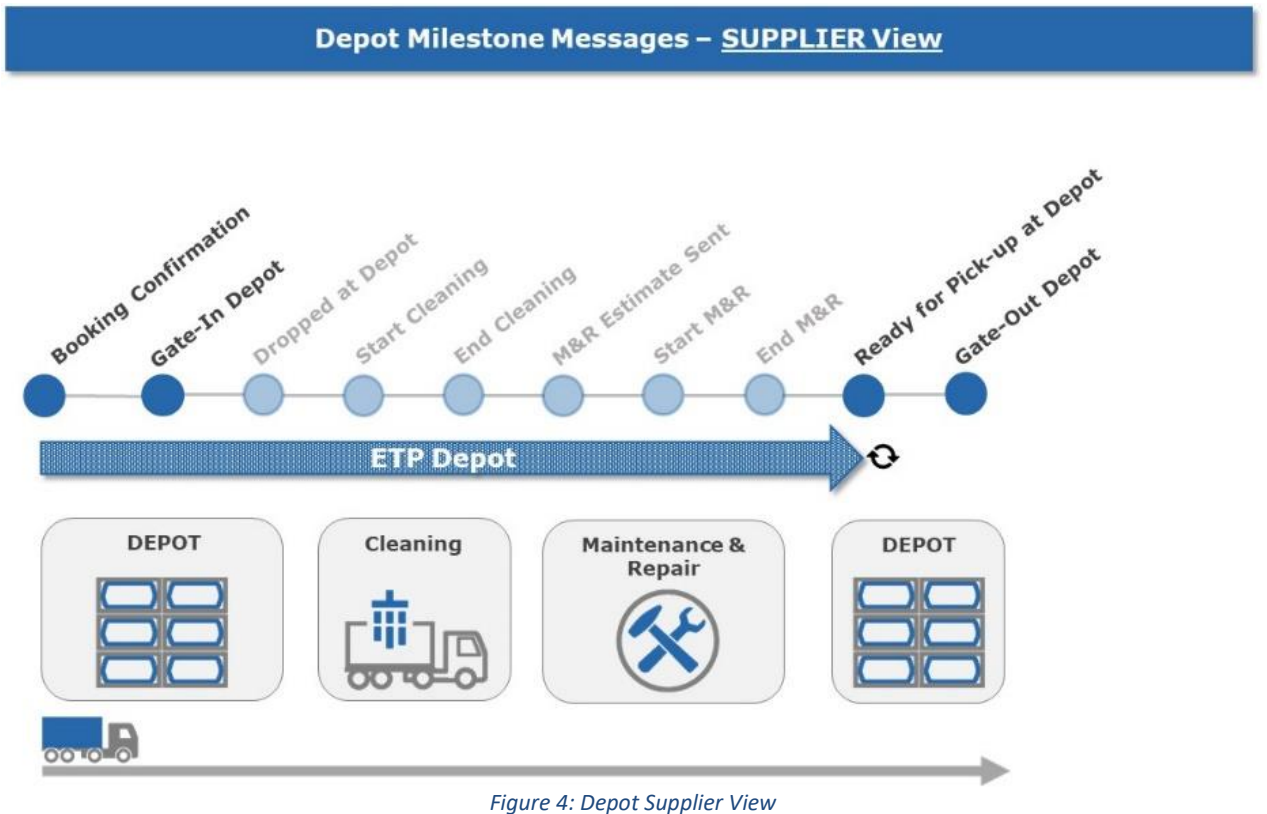
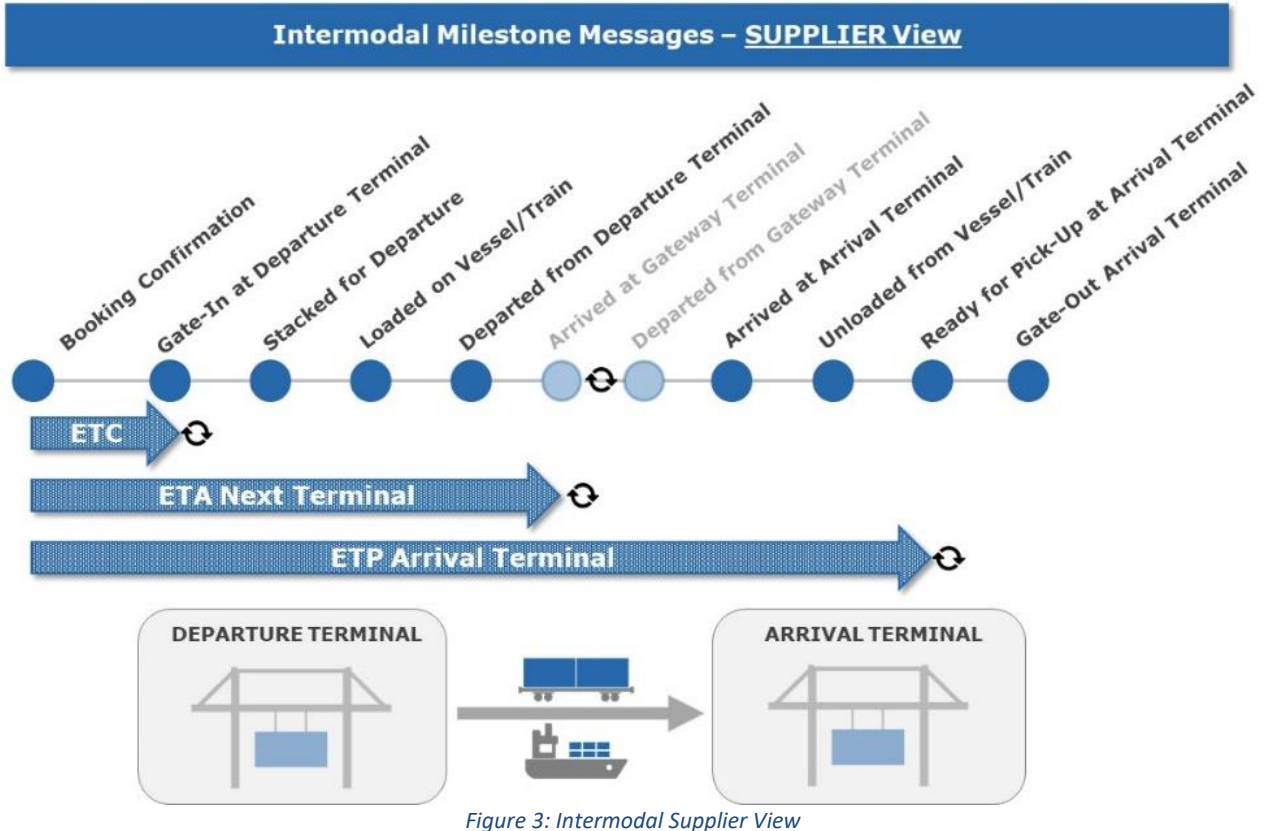


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**Annex 1: Details of Supplier Milestone and ETx Update Messages**





**Trucking Milestone Messages – SUPPLIER View**

**Sample Iteration**



Figure 5: Trucking Supplier View (Part 1)

**Trucking Milestone Messages – SUPPLIER View**

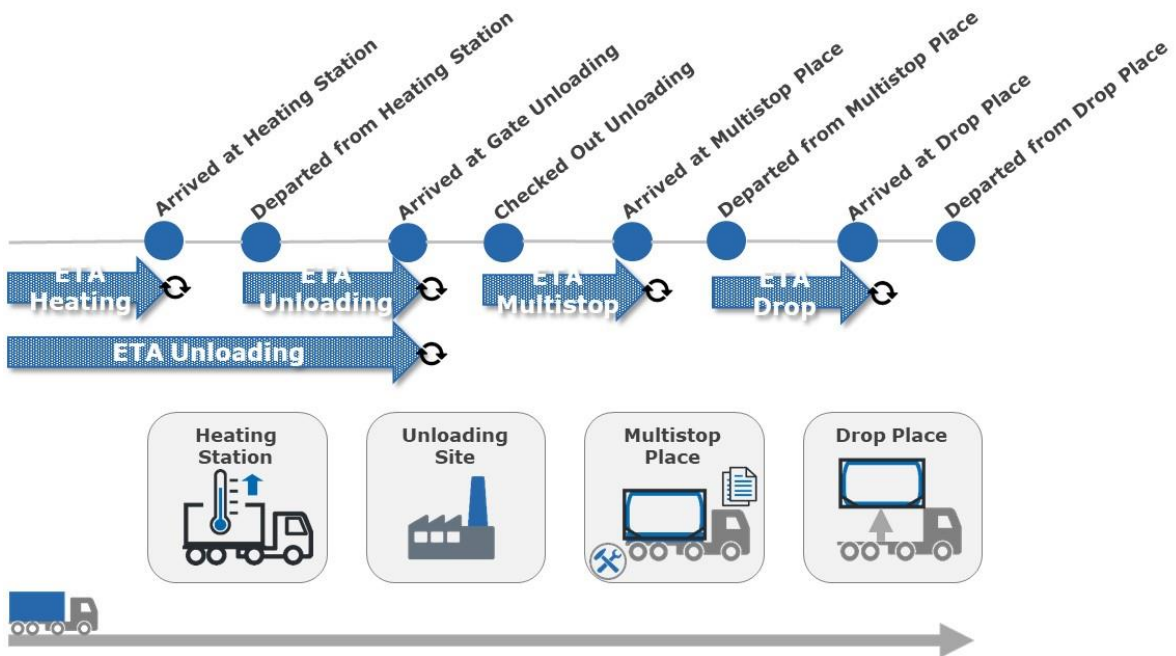


Figure 6: Trucking Supplier View (Part 2)