

Data collection for ISO 14083 in multi faceted transport chains

Why this read is worth your time and attention

The ISO 14083 foresees a focus on the entire transport chain. Hence, GHG emissions calculation can become quite a challenging task for companies that are part of complex, multi-actor transport chains. Drawing from a conversation with [BigMile](#), this case study explores data collection issues within the context of intermodal transport chains.

Context

In March 2023, ISO published its new 14083 standard on the quantification and reporting of GHG emissions arising from transport chains. The standard establishes an internationally harmonised approach for quantifying and reporting on GHG emissions in the logistics sector. To gather their views in relation to this new standard, our external partner [LRQA](#) has talked to

- Shipping Technology - case study 1.
- Bricklog - case study 2.
- BigMile - case study 3.

The transport sector needs to know its GHG emissions

As concerns over climate change intensify, stakeholders and policymakers are increasingly turning their attention to corporate carbon disclosures. Companies in various industries are asked to transparently report on direct and indirect greenhouse gas (GHG) emissions, i.e. those resulting from their operations and energy consumed (Scope 1 and Scope 2). The transport and logistics sector plays a crucial role in any effort to reduce emissions in the value chain (Scope 3). In 2022 alone, it accounted for 20% of the world's total emissions, emitting 7.97 billion metric tonnes of CO₂. In turn, transport companies are demanded to transparently report CO₂ emissions associated with specific trips, shipments, or customers. The past saw the development of transport-specific frameworks and standards to guide GHG emission calculations, including the EN 16258, the GLEC framework, and the latest international ISO 14083 standard. In addition, platform calculators are emerging, offering technical solutions to automatically calculate and report on GHG emissions.

One such company is *BigMile*, a leading software provider that offers ISO 14083-aligned solutions to calculate, manage and report on multimodal transport related emissions within the freight transport industry.



Navigating complexity in the multi faceted transport sector

The calculation of CO₂ emissions is not necessarily an easy task for a sector characterized by its multifaceted nature. The transport and logistics sector often encompasses various modes of transport and different types of vehicles, each coming with its own characteristics and fuel consumption profiles. The sector's reliance on multiple carriers and subcontractors further complicates the process. Often, transport companies do not own trains, trucks or ships themselves. Rather, they rely on transport service companies that coordinate the transport operations, leveraging the combined strengths of different modes of transportation.

While with intermodal transportation, each transport chain element (TCE) is operated by a different carrier with a separate contract, the transport operations in multimodal transportation are encompassed by a single carrier. Intermodal and multimodal transportation offers numerous benefits. Yet, the involvement of multiple contractors and subcontractors introduces new levels of complexity in coordination and integration, which translate into challenges when it comes to accurately assessing total emissions.



The more complex the transport, the more challenging to access primary data

With the ISO 14083 comes an explicit focus on the whole transport chain, requiring companies to know in more detail what suppliers or subcontractors are doing and how this relates to GHG emitted. Understanding the supply chain operations, no matter whether dealing with one carrier or hundreds of subcontractors, is crucial for businesses. Achieving this holistic and detailed view requires a greater exchange of primary data between actors in the supply chain, i.e. sharing precise data from direct measurements by providing fuel receipts to track

fuel consumption for example. Only relying on industry average estimates will reduce the data accuracy and should be avoided where possible. Understanding information requirements and defining information needs is crucial here. While some companies may want to calculate their corporate carbon footprint, i.e. emissions associated with their direct operations, others may need supply chain information, i.e. access to the suppliers' Scope 1 and 2 emissions, to allocate emissions to specific shipments.



Figure 1: illustration of a **simplified** transport chain

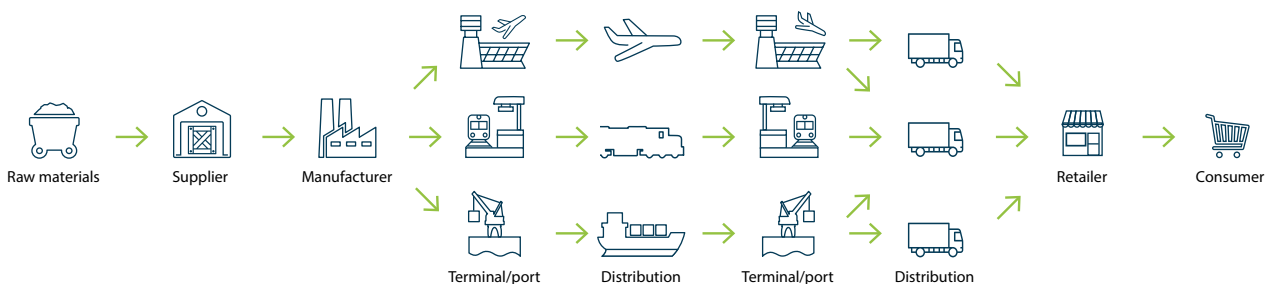


Figure 2: illustration of a **complex** transport chain

A first step towards the implementation of ISO 14083 is to get familiar with and illustrate the relevant transport chains, including all transport and hub operations involved, from the beginning to the very end.

Understanding and illustrating relevant transport chains can be a relatively straightforward task for companies that have a simple linear transport chain with multiple carriers. For more complex supply chains, with multiple contractors and sub-contractors, this exercise becomes more challenging. A First-Party-Logistics company that handles all transportation and logistics services for its own goods, should have information readily available since no other parties are involved. Most likely, the company will have full transparency on the transport chain, from the origin to the destination with all potential warehouses stopped in between. Companies using Third-, Fourth-, or Fifth Party-Logistics models, may face more challenges in getting the full picture. Depending on the specific situation, a range of suppliers and sub-contractors needs to be connected and the shipper itself is no longer involved in the operations. In such cases, the information is travelling through multiple organisations before reaching the original shipper and getting access to data may be more difficult.

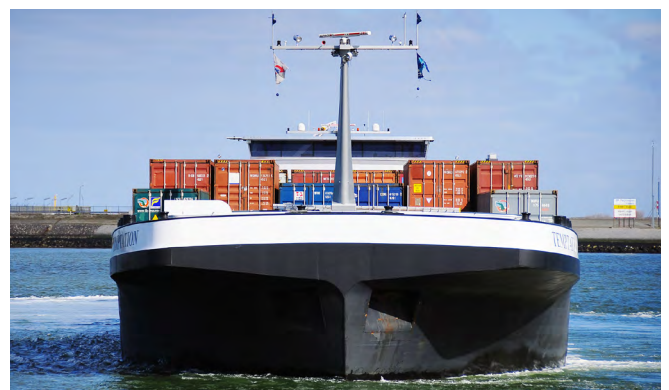
Ensuring access to detailed, primary data is important as the level of detail influences the accuracy and granularity with which emissions can be allocated. This directly links to the step of defining transport operation categories (TOCs) or hub operation categories (HOCs), as TOCs and HOCs set the scope for the calculation of the emission intensity values and in turn, are the basis for allocating emission intensity values to specific TCEs. TOCs and HOCs group together transport or hub operations that share similar characteristics.

The ISO 14083 leaves some flexibility as to how TOCs and HOCs are defined, allowing companies to define them according to specific situations and based on the information currently present. Yet, getting accurate primary data can be challenging, especially in multi- or intermodal transport chains. Carriers may not always be willing to share their primary data as it could allow them to draw conclusions on the general performance of the company and consequently underlying costs and profitability. While the ISO 14083 states that emission intensities should ideally be calculated using primary data, companies can also use secondary data if primary data is not available. Here, the ISO 14083 prioritizes the use of representative modelled data over default values.



Information is gathered bottom-up - and this cannot be done alone

A key question for companies is whether they will be able to generate all necessary information themselves. An increasing number of organizations are taking proactive steps to engage with their subcontractors and activate networks to gather primary data on the energy consumed by the respective transport vehicles. Service providers like *BigMile* can help companies to facilitate such data exchange. Within their platform, they include features to facilitate this information exchange, as companies can invite contractors to share primary data, who in turn can invite their subcontractors etc.



BigMile is also already observing a shift in behaviour, showing a greater willingness and to share information. Shippers are increasingly including respective information requests on e.g. the GHG emissions performance in their tenders and contracts. Depending on the shipper-carrier relationship, sharing such information can also be an opportunity to identify and discuss aspects such as delivery schedules or load performance to further enhance processes, and increase efficiency and thus GHG emissions performance. While (sub-)contractors may become more willing to provide primary data, this is often still new to them, and they may have difficulties meeting the necessary data or reporting format.

BigMile provides a solution for this, by offering a standardized format to gather data in a predefined, straightforward manner. Irrespective of that, data quality issues may remain. While directly inserted company-internal information can be quality-checked, the sector still needs to mature in the field of information exchange and provide audit trails that can help companies verify information more efficiently. Where primary data is simply not available, service providers like *BigMile* can also with the usage of secondary data, by modelling e.g. energy consumption based on information on the route, vehicles used etc.



Anticipating requirements and collaborating with stakeholders plays a vital role in implementing ISO 14083

Successfully implementing ISO 14083 necessitates a proactive approach, with companies anticipating future trends and regulatory developments related to climate- and environmental topics. Companies should collaborate and allocate resources to understand what is required, allowing them to anticipate and see future information requests within the bigger picture. Obtaining a good overview of the complexity of the supply chain and how additional information streams could be incorporated into processes, is essential. This includes understanding anticipated workloads, assessing the company's capacity to execute the required work, and evaluating how resources and capabilities can be integrated within the company. For larger companies, specialized roles, such as an ESG manager, may bring expertise in sector-specific environmental management and play a pivotal role in implementing and managing the ISO 14083 process.

A baseline calculation, based on the information available, allows companies to visualize emissions data and effectively communicate progress to stakeholders, fostering transparency and trust. While the task may seem daunting, initiating the process enables companies to gradually refine processes over time. Automation should be considered for later stages, with incremental improvements made as implementation progresses. Employing an iterative approach facilitates comprehension and effective communication regarding current GHG emissions calculation practices. This, in turn, aids in integrating processes within the organization while fostering transparency and clarity with stakeholders. Leveraging platforms like *BigMile* companies can help companies reduce the burden and uncertainties when it comes to implementing ISO 14083-aligned processes.