



# Emissions calculation and reporting guideline for automotive supply chains - Webinar

December 5<sup>th</sup>, 2023

# Agenda

# agenda

01

**Introduction**

5 min.

03

**Conversion system for FVL**

10 min.

05

**Perspective**

5 min.

02

**Reporting scheme and TOC identification code**

10 min.

04

**Emission calculation**

10 min.

06

**Q&A - Session**

10 min.

# Learning objectives of the webinar



Gain general knowledge about the guideline including why it was developed, its structure and objectives

Understanding of the **reporting system** as the standard interface between LSP and automotive customers

Get to know the approach how to develop a tailored transport operations categorization for automotive (material as well as FVL)

Understanding the need and the solution of a **conversion system for FVL** and how it does work

Knowing about the scope of the developed **guidance for emission calculation** in road and rail transports

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# Missing standardization is the main reason why this guideline was developed

Currently, there is a lot **of room for interpretation** in the existing normative standards leading to widespread calculation results and different reporting methods

**Lack of comparability** of companies, process variants and measures



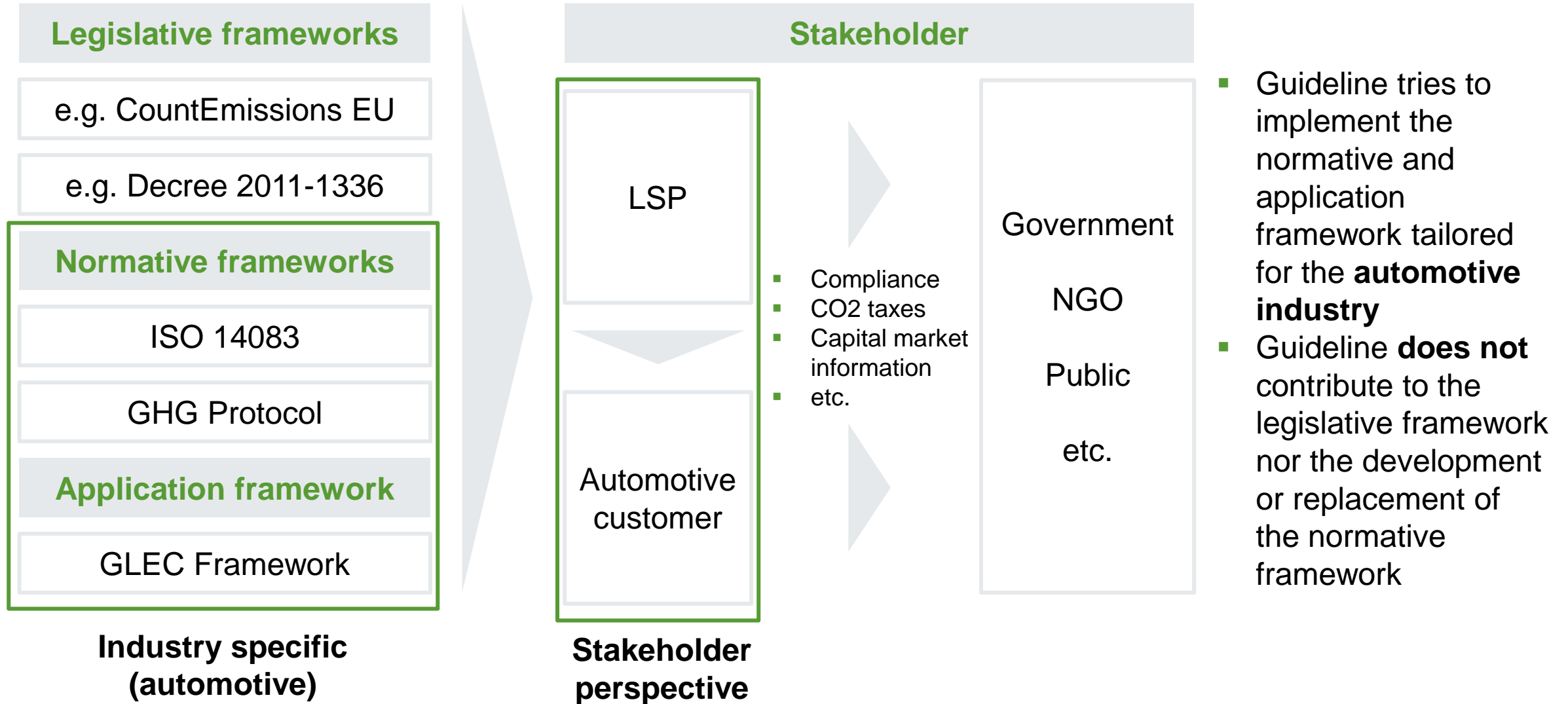
Calculations are based on **modelled data** and **default values** which are used **across all industries**

**No data exchange** processes between service providers and customers regarding transport GHG emissions

## What we have done:

- **Interpretation free addition to ISO 14083**
- **Automotive tailored recommendations** (e.g. for allocating emissions in FVL)
- Ambitious path for primary data usage and a responsibility shift to the transport operators
- **Clear roles and responsibility setup** incl. standardized reporting scheme (from LSPs to customers)

# Scope of the guideline



# Guideline content at a glance

## 1 Introduction

- Relevance, objective and summary of the guideline
- Involved stakeholders

## 2 Automotive industry specifics

- Characteristics of the automotive industry including descriptions of the
- Transported cargo
  - Transport mode specifics
  - Specific roles/ processes

## 3 Objectives and ambitions of the automotive industry

- Roadmap including three phases defining the minimum standard for TOC and TCE calculation and reporting

## 4 Application scope and system boundaries

- Overview of the journey of materials through the supply chain
- Understanding of the challenges and requirements concerning GHG emission reporting

## 5 Roles and responsibilities in automotive transport emission calculation and reporting

- Highlights roles and responsibilities of the LSP, OEM/ Supplier, ECG/VDA and customers
- Specific description of roles and responsibilities of LSPs

## 6 General guideline for transport emission reporting

- Introduction to the TOC identification code
- Detailed description of the three reports used for data transmission including content and structure of the reports

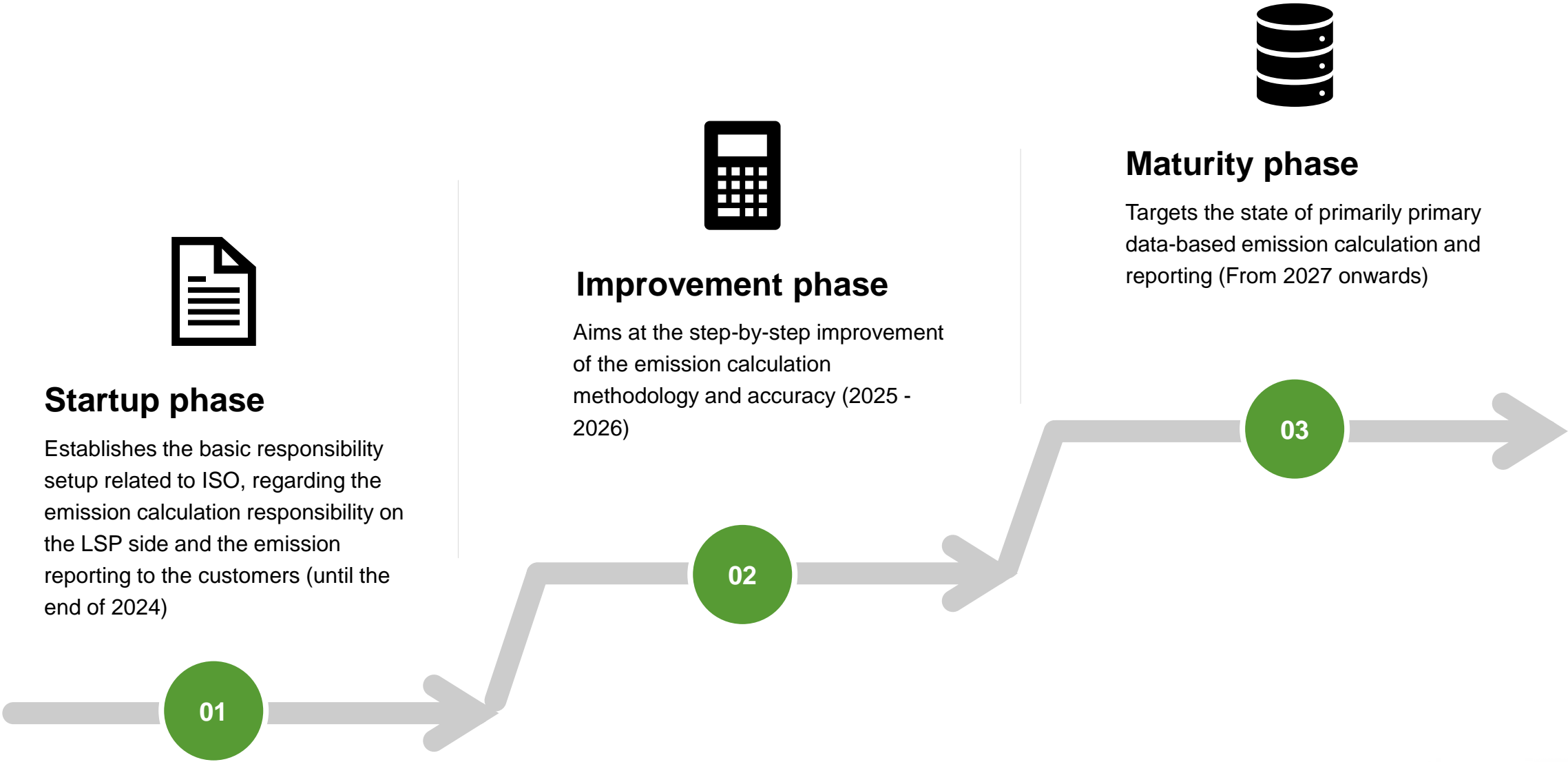
## 7 Guideline for transport emission calculation per mode of transport

- Conversion system for FVL for road and RoRo
- Road, rail and RoRo TOC definitions including explanations of all parameters
- Emission calculation methodology for road and rail for primary and secondary data

## 8 Annex

- Transport emission scoping and reporting examples underlying responsibilities of every roles
- Reporting parameter definitions for all reports
- Ranking of recommended data sources for modelling emissions and default values for road and rail

# Clear definition of minimum requirements and their rising ambition level over time





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# A standardized reporting scheme is the backbone of the guideline

? Why are the reports needed?	🎯 What are the objectives of the reports?	📄 How are the reports structured?
Define <b>responsibilities</b> and <b>standardize</b> the structure of data transmission	<ul style="list-style-type: none"><li>▪ Efficient transmission of results</li><li>▪ Include reference information for internal processes</li><li>▪ Full <b>transparency</b> meaning that customers can trace back the emission calculations of their service providers</li></ul>	<ul style="list-style-type: none"><li>▪ Fully <b>standardized</b> reports which include mandatory and optional parameters</li><li>▪ Applicable for all mode of transports</li><li>▪ One master data report and two transaction data reports</li></ul>

### TOC Master Data Report

- Houses all the **necessary characteristics of a TOC** including an identification code, name and further specific parameters such as the mode of transport, asset Type, propulsion type, and more
- Only updated when relevant parameters change

### TOC Transactional Data Report

- Report provides a detailed **snapshot of the environmental footprint of each TOC**, quantifying the amount of GHG emissions produced per unit of transport service in a defined time period
- Is provided retroactively every year/ quarter



### TCE GHG emission Report

- Endpoint of our approach linking the TOC Master Data Report and TOC Transactional Data Report
- Effectively applies the emission intensities to real consignments and allows us to **quantify the total emissions generated by each consignment**
- Data for each consignment is needed to aggregate the data according to the specific use case: sustainability reporting, internal KPI evaluations, life cycle assessment
- Vision: include GHG emissions in transport EDIs

# Standardizing TOC identification codes is possible across all mode of transports and offers opportunities for the automotive industry

What is a Transport operating Category (TOC)?

A TOC is a **categorization framework** that helps organize transport operations **based on their shared attributes**, serving as the **basis for all subsequent analysis**.

## Current problem

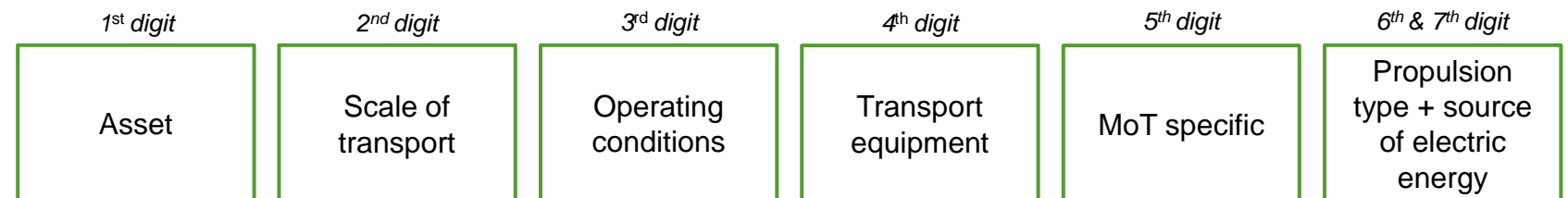
- **No standardized TOC identification codes**, which means that every reporting company develops their own code system
- Meaningful creation of a TOC code is difficult, as all major influencing factors must be taken into account while the possible combinations should still be limited

## Opportunities of the automotive industry

- **Homogeneity** of the inbound and outbound processes enables standardization
- Standards simplify the **comparability** of efficiencies of similar transport for customers
- With the use of primary data reporting companies can calculate averages for same TOCs, review emission reduction measures and in-depth analyses

## TOC identification code proposed in this guideline

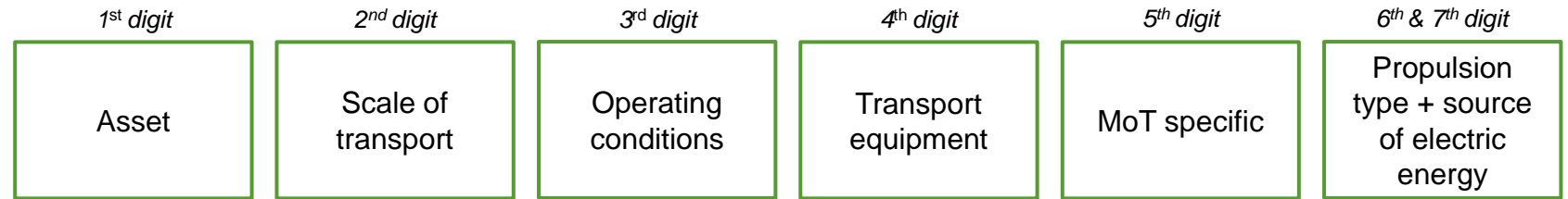
- 7-digit code like 1316001
- General meaning of each digit is the same across all modes of transport



# Standardizing TOC identification codes is possible across all mode of transports and offers opportunities for the automotive industry

## TOC identification code proposed in this guideline

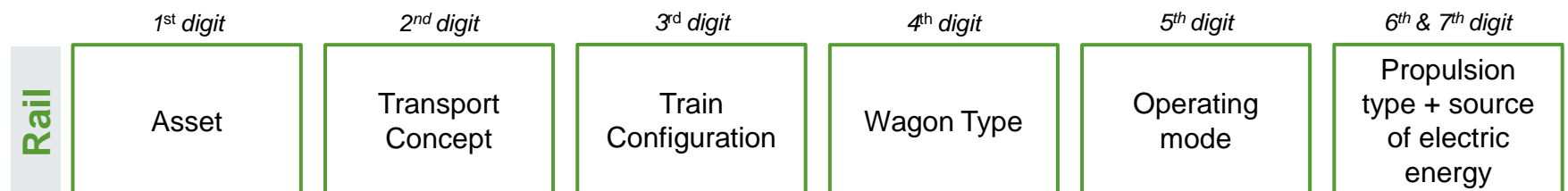
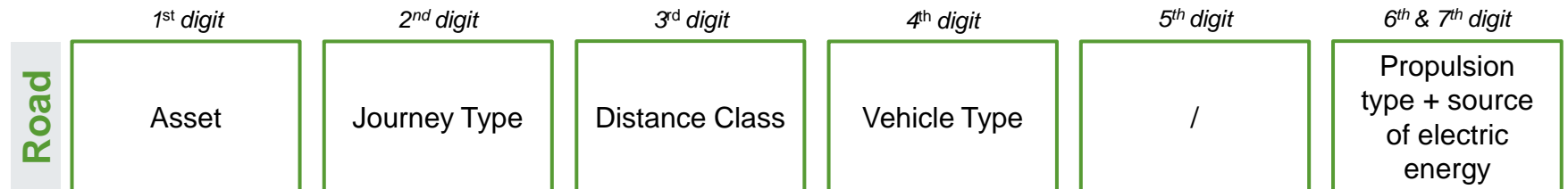
- 7-digit code like 1316001
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- Number of each position provides information about the **specific manifestation** of that parameter

Example for road and distance class **short haul**

- Transport where the average SFD per leg is less than 50km
- Deals with the transport of finished vehicles
- Can involve pick-up trips



# Structure of the road TOC identification code

## Asset

Number	Value
1	Finished vehicles
2	Electric vehicle battery
3	General cargo

## Distance class

Number	Value
1	Short-haul
2	Long-haul

Important to note: **single digit “0”** stands for “empty”, specific parameter has no significance for the particular mode of transport

TOC-code

1

3

1

6

0

01

1<sup>st</sup> digit

2<sup>nd</sup> digit

3<sup>rd</sup> digit

4<sup>th</sup> digit

5<sup>th</sup> digit

6<sup>th</sup> & 7<sup>th</sup> digit

## Journey Type

Number	Value
1	Full truck load
2	Less than truck load
3	Point-to-point
4	Multi-stop

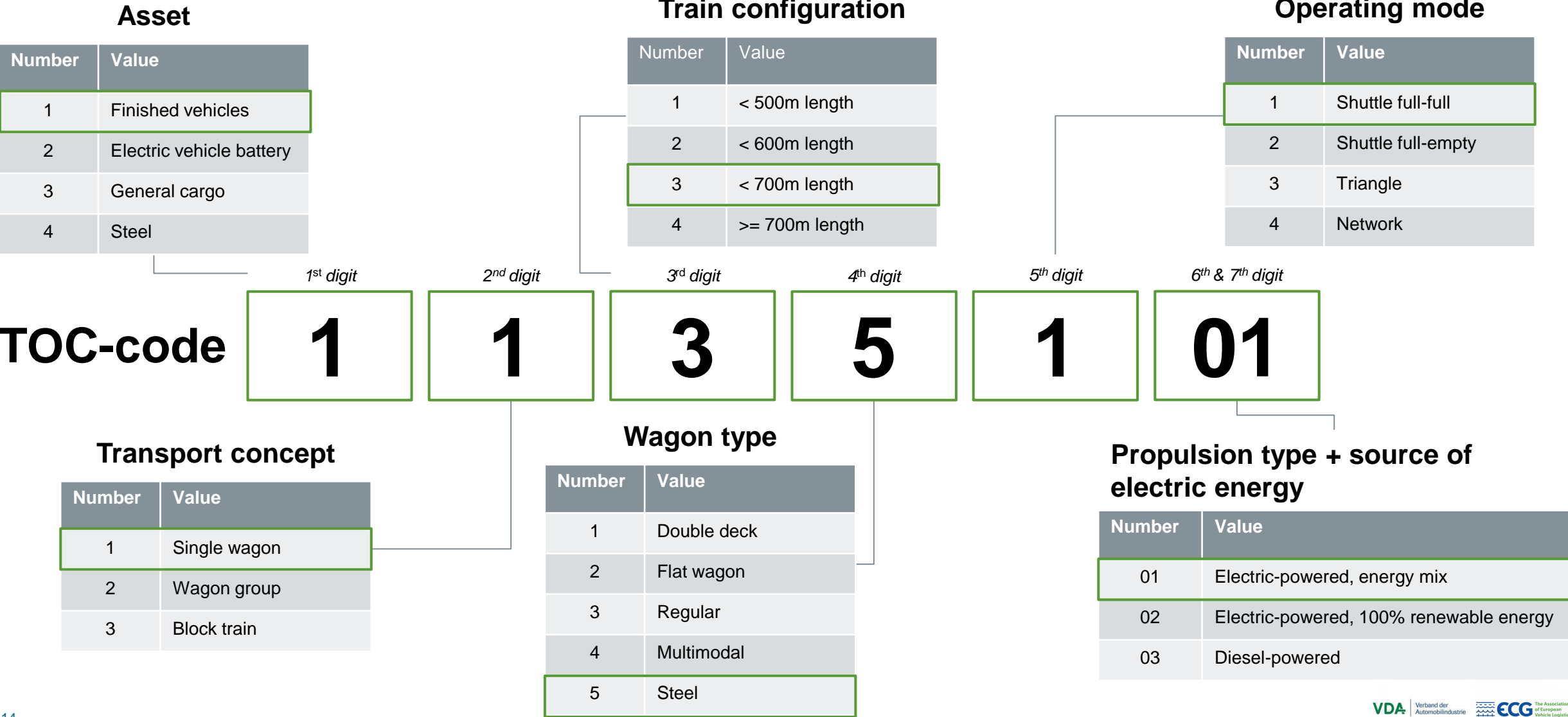
## Vehicle Type

Number	Value	Number	Value
1	Van	5	Drawbar truck
2	7,5t Truck	6	Car carriers
3	12t Truck	7	Long car carriers
4	Megatrailer	8	Recovery vehicles

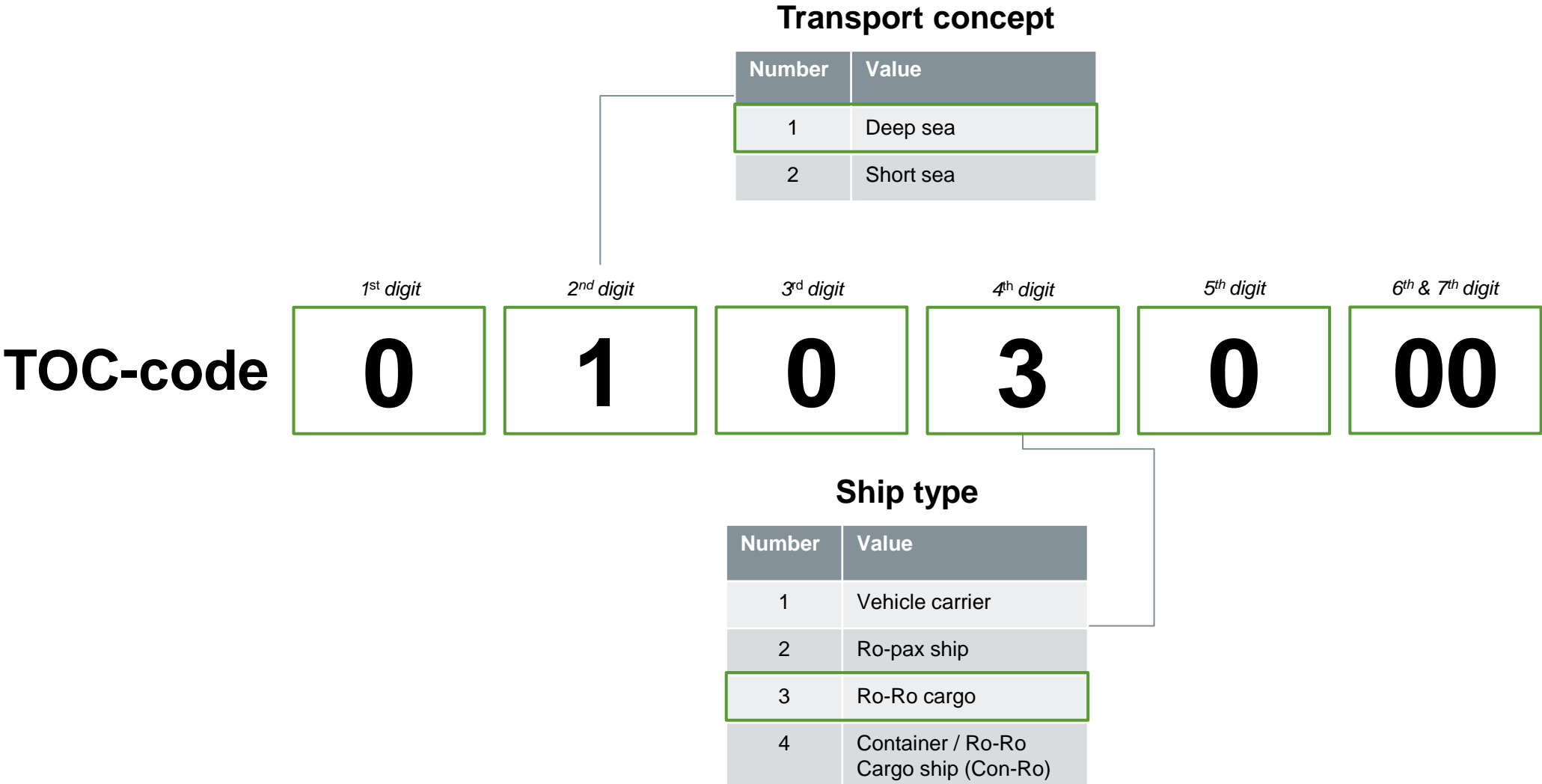
## Propulsion type + source of electric energy

Number	Value
01	ICE – Diesel, B0
13	BEV – conventional (not green)
18	Hydrogen - green

# Structure of the rail TOC identification code



# Structure of the RoRo TOC identification code



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# Conversion system for each mode of transport is needed to ensure fair distribution of emissions for finished vehicle logistics

- In general, **mass is used to calculate emissions** (used for calculating emissions for general cargo in this guideline)
- For FVL, however, we need a different approach considering the capacity restrictions of each mode of transport
- Capacity usage for FVL varies across mode of transports

 Additionally, **mass and height**
 Additionally, **volume**
 No need for additional parameters

## Example calculation

- Transport by road
- Emissions of 100kg CO<sub>2</sub>e
- 2 vehicles per model

Customer	Model	Mass [kg]	Height [mm]	Length [mm]	Width [mm]	Volume [m <sup>3</sup> ]	Assignment mass	Assignment volume
Toyota	Corolla	1.410	1.460	4.370	1.790	11,4	22,3 %	21,4 %
Mercedes	EQS SUV Large	2.829	1.721	5.132	1.959	17,3	44,7 %	32,3 %
Mercedes	Sprinter	2.090	2.363	5.261	1.993	24,8	33,0 %	46,3 %

Differences in the assignment of transport **emissions** based on mass or volume are big



**Conversion system is needed** which includes mass and dimensions and weights these differently depending on the mode of transport

# Same conversion steps for each mode of transport with differences in how the factors are weighted

## General conversion steps

1

### CEU-Calculation

Is needed to establish a distribution ratio between the size and weight of the carried vehicles

2

### Conversion in adjusted mass

Recreate the relation of every carried vehicle to the mass of the overall transport

## Road specific conversion

- **Base value** was determined, which is the **smallest conceivable parking space** unit on an FV Carrier
- Starting from the base value, **surcharges** are determined which depend on the mass, height and length of the respective vehicle
  - Mass is the dominating factor for the surchargers, as emissions depend mostly on mass
  - If car is too high, double-stock loading is not possible limiting the amount of carried vehicles
  - Length restricts combinability of carried vehicles

## RoRo specific conversion

- Capacity of RoRo ships is limited by the available space and mass restrictions
  - Width limits the number of vehicles parked parallel
  - Length limits the number of vehicles parked in one line
- Because of a big variety of used RoRo ships, calculation **step 2 is not possible via default values** and must be calculated for each RoRo ship itself

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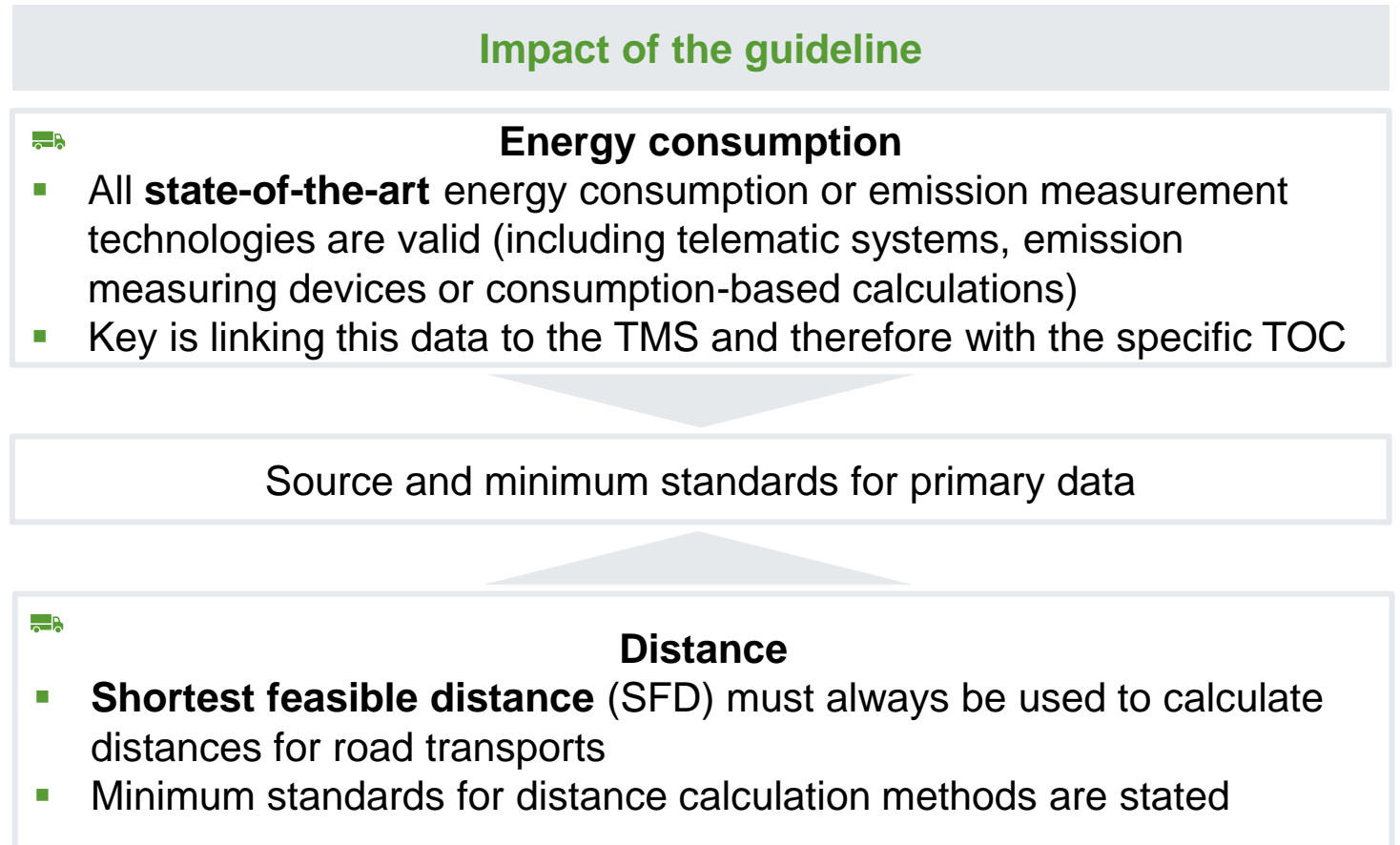
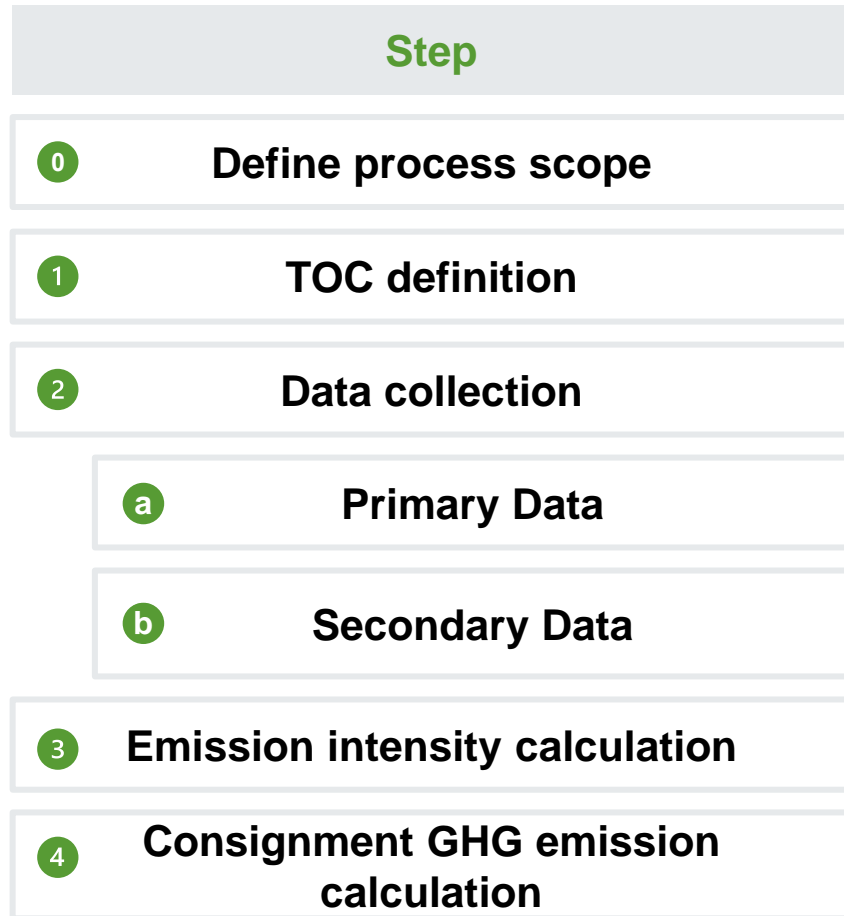
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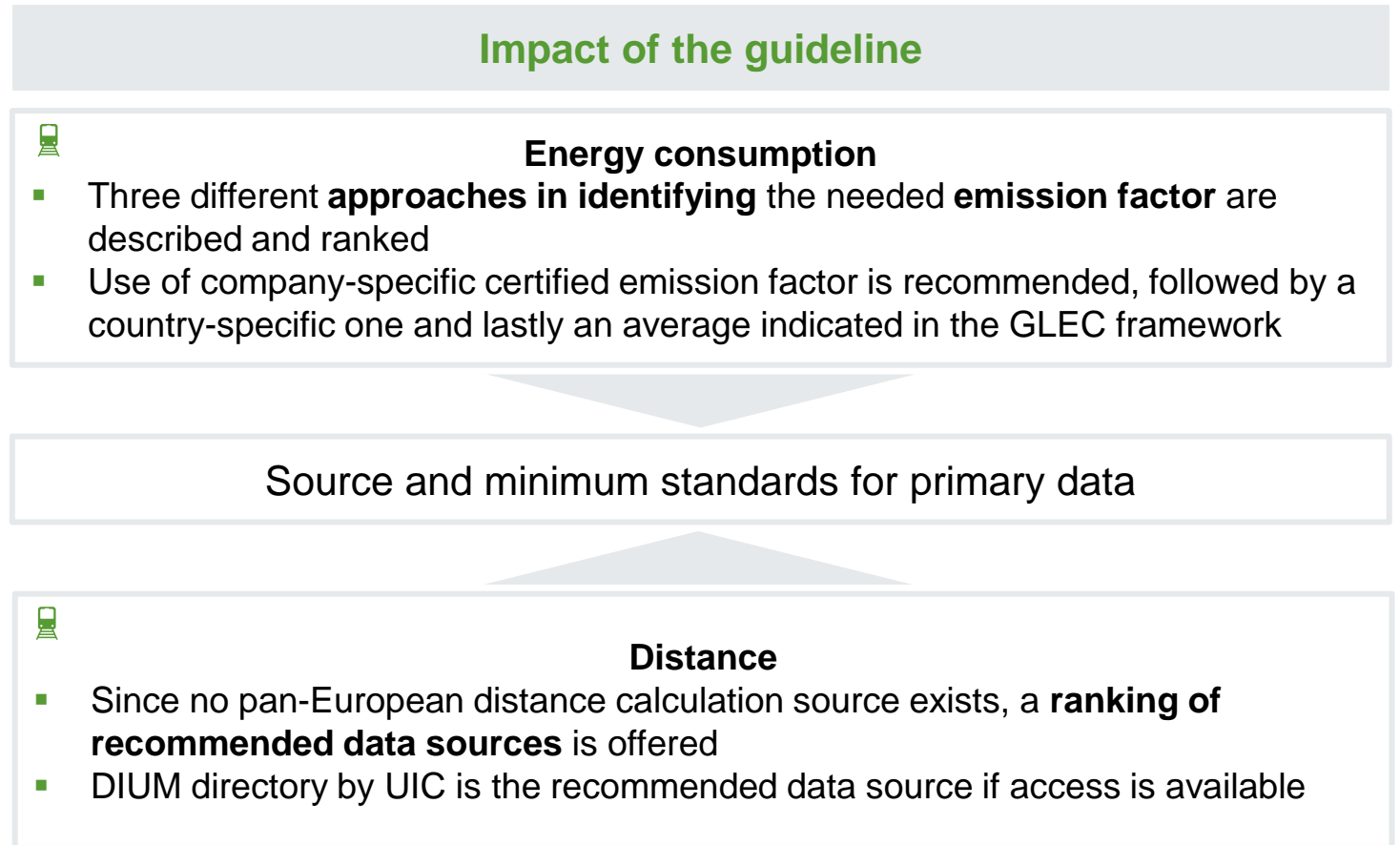
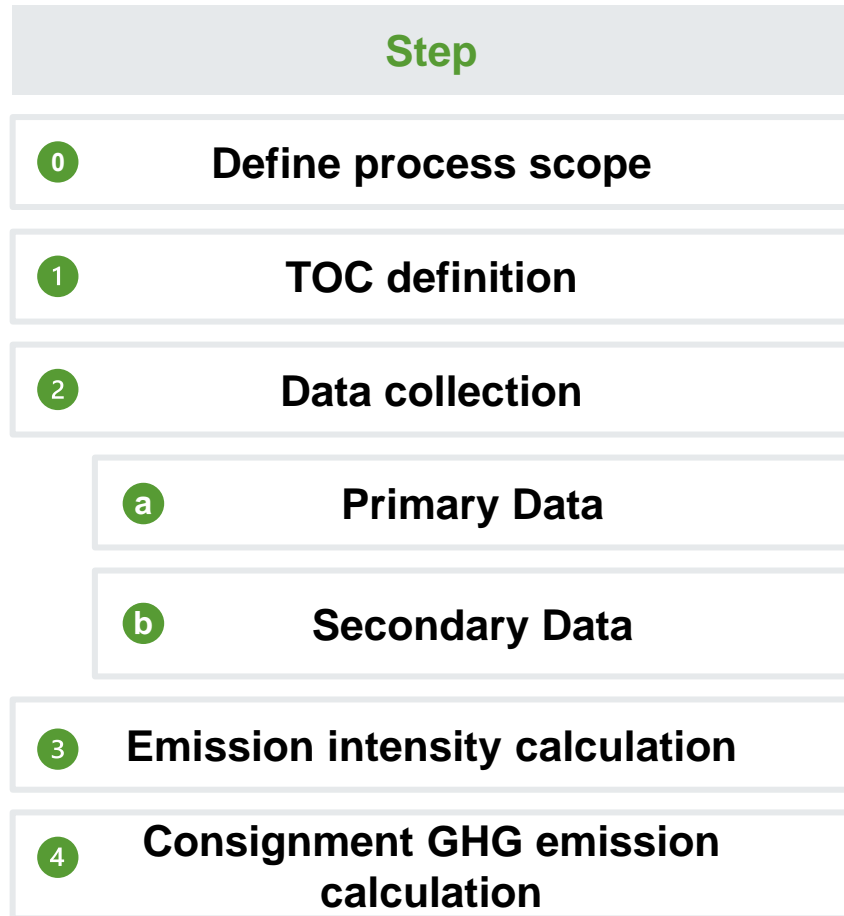
# Guideline gives clear advice for every step of the emission calculation

Step	Impact of the guideline
0 <b>Define process scope</b>	List of processes in and out of scope in transport operation
1 <b>TOC definition</b>	TOC definition standard (as seen on slide 13)
2 <b>Data collection</b>	
a <b>Primary Data</b>	Source and minimum standards for primary data
b <b>Secondary Data</b>	Source and minimum standards for secondary data Specific automotive default values
3 <b>Emission intensity calculation</b>	 Interpretation free calculation steps and formulas incl. special aspects like shunting operations
4 <b>Consignment GHG emission calculation</b>	 Interpretation free calculation steps and formulas incl. special aspects like multi-stop trips, CEU factor calculation

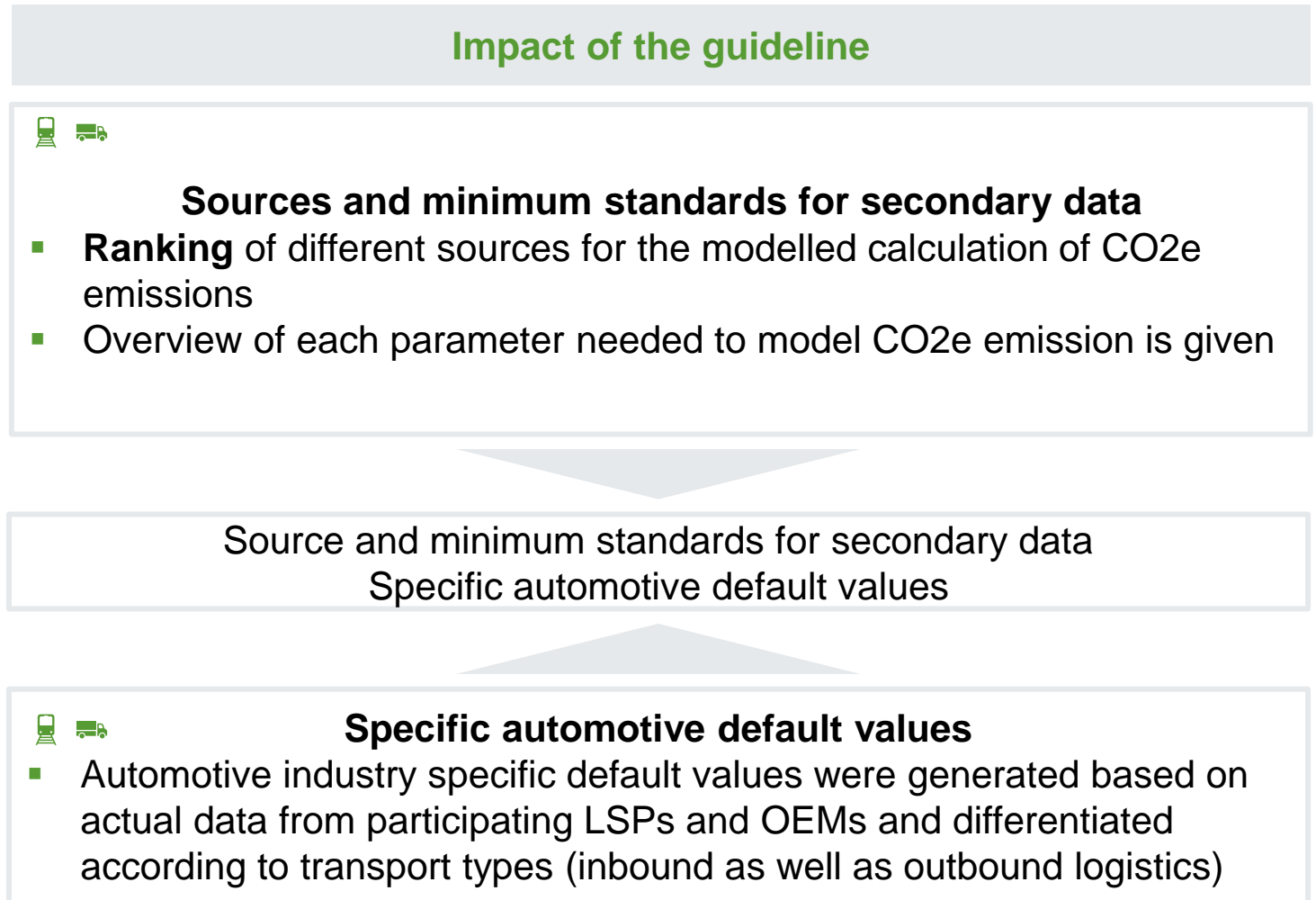
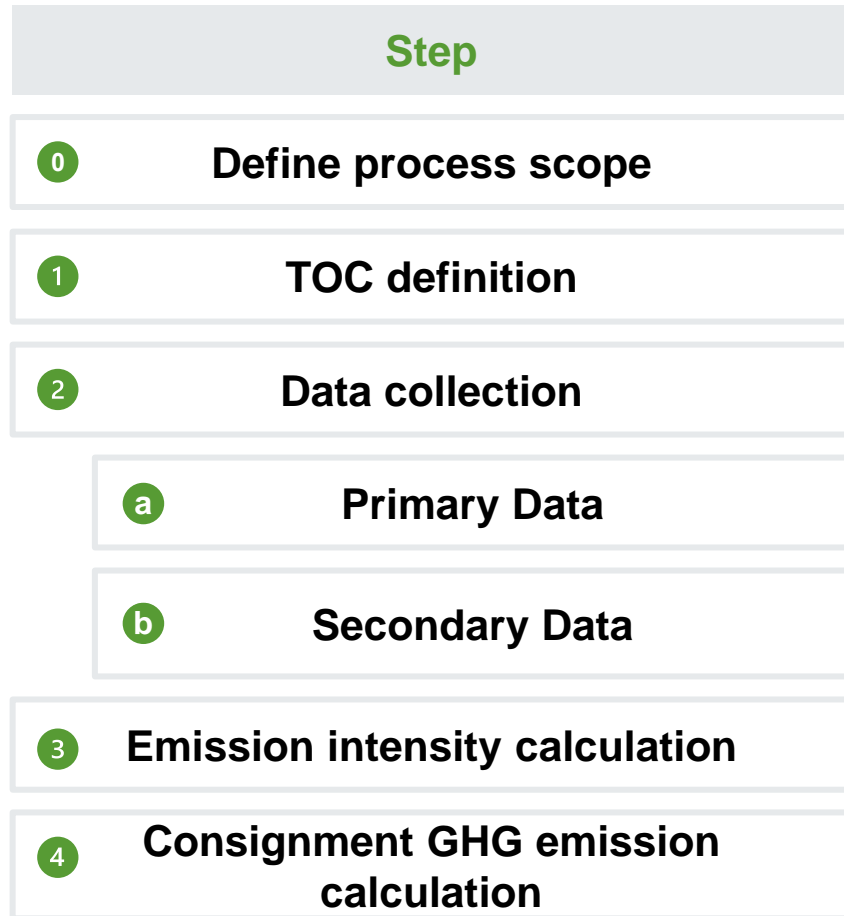
# Impact of the guideline on primary data for road transport



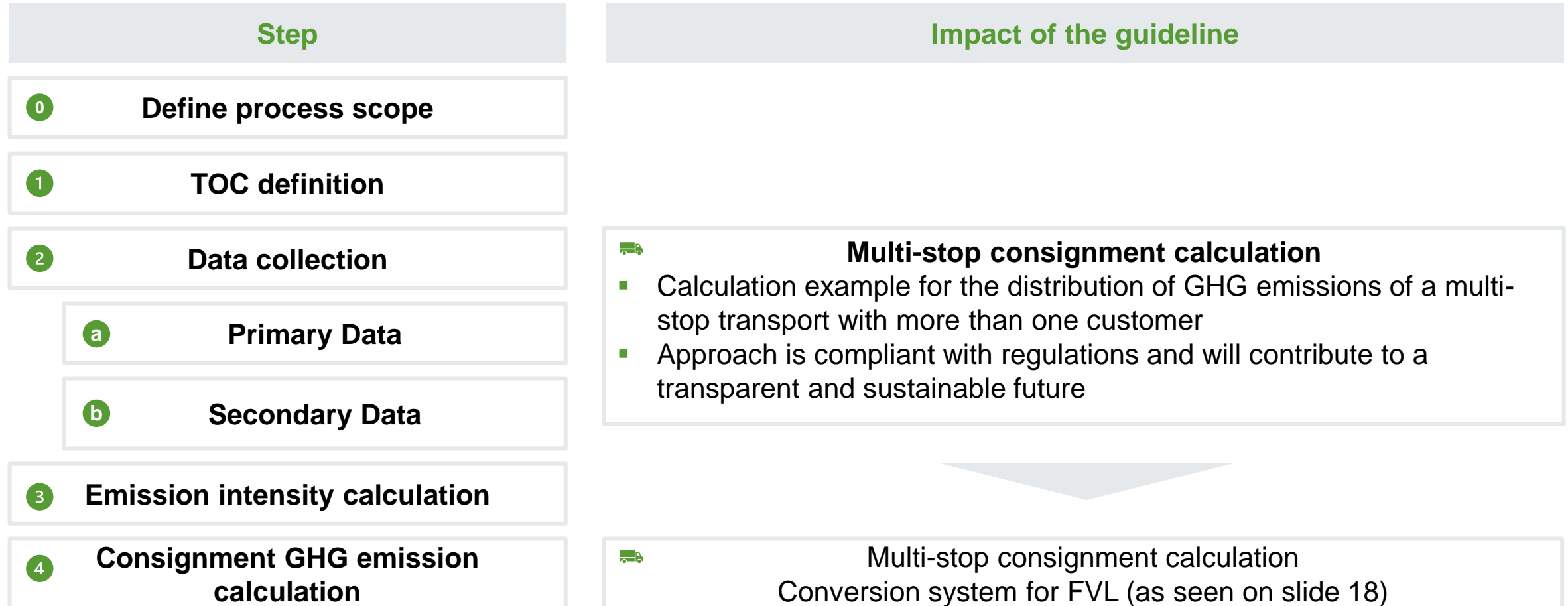
# Impact of the guideline on primary data for rail transport



# Impact of the guideline on secondary data



# Impact of the guideline on consignment GHG emission calculation for road transport





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# Recommended next steps to support dissemination and acceptance of the guideline

- Current guideline is the **first version** of many to come
- **Constant improvements** are necessary either to correct mistakes or extent and update the content

## Implementation requirements analysis

Identification of the implementation requirements and issues

## Implementation of Pilots

Support of initial Pilot implementations

## Guideline Version 1.1

Development of a first iteration of an extended guideline version 1.1



## Training Concept

Development of an appropriate training concept within ECG academy and with external partners

## Stakeholder Management and dissemination

Management of key stakeholder interests (ISO update, SFC, EU) and support of the dissemination within the industry

## Market demand LSP Tool

Identification of an uncovered market demand for an LSP calculation tool

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