CLEVER

Creating **L**egitimate **E**mission Factors for **V**erified GHG **E**mission **R**eductions in Transport

ERMES LCA workshop

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Funded by the European Union

For more information please visit: https://emissionfactors.eu

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Presentation Outline

1. Introduction to CLEVER
2. Objectives & Workplan
3. Current Status
4. Get Involved

CLEVER: Creating Legitimate Emission Factors for Verified GHG Emission Reductions in Transport

Rationale behind CLEVER:

- Emission factors used in every GHG calculation
- GHG calculations being asked of more and more organizations
  - Value chain pressure
  - Customers & investors
  - Legislation
  - Voluntary calculation and reporting standards
- Many emission factor sources available to end users
  - Lack of clarity and consistency as to basis and reliability
- Lots of interested / impacted stakeholders
- International perspective

Quick Rollcall of CLEVER Partners

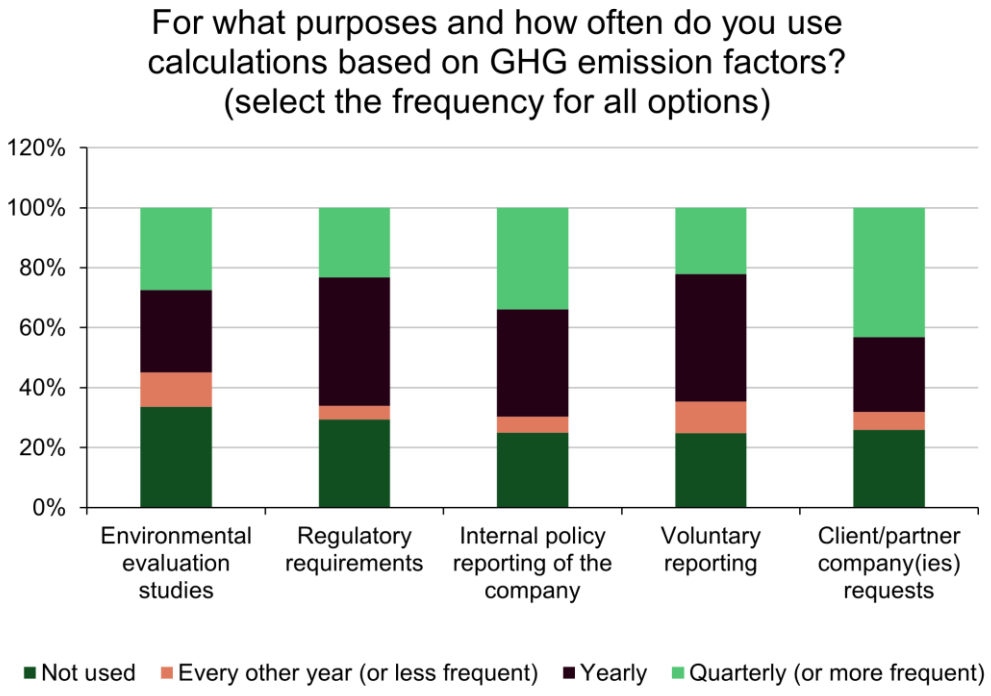
- PNO
- SFC
- IFEU
- Ricardo
- Emisia
- ALICE
- Greenrouter
- UITP
- MEO Carbon Solutions
- ZN
- 3O’Clock

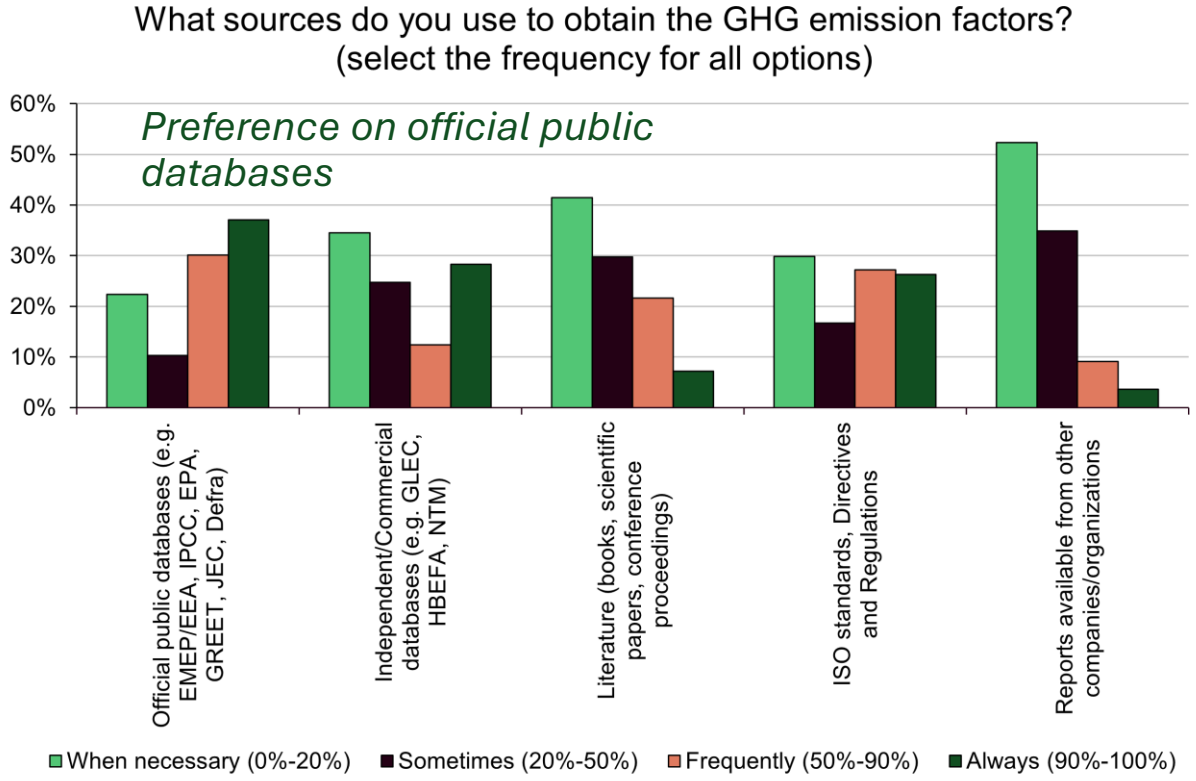
Use of emission factors

- >70% stated that they use EFs for calculations to address relevant reporting obligations

  → most of them on annual or quarterly basis (or more frequent)

- 57% identified gaps in currently available EF databases





Ecosystem

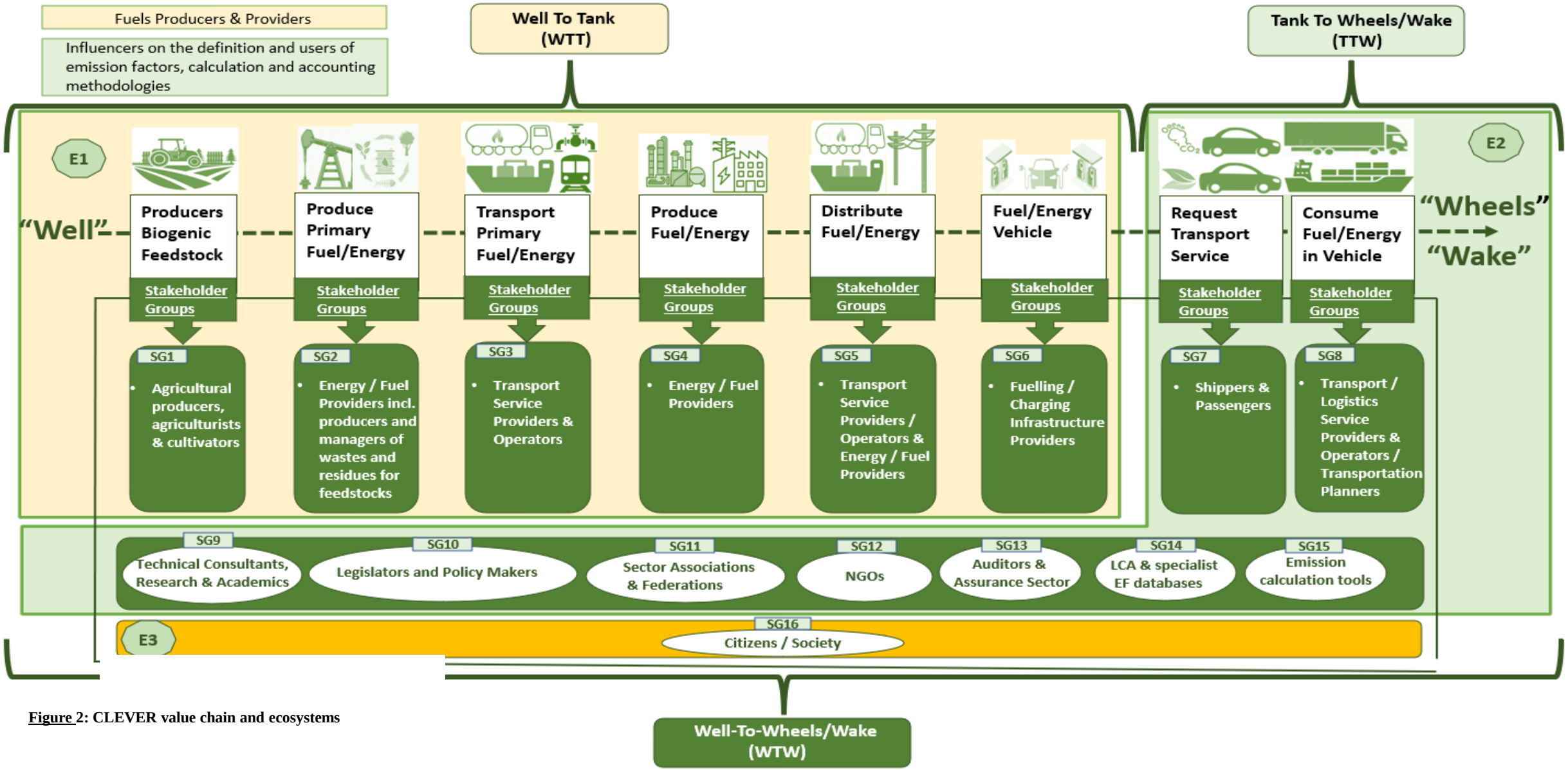


Figure 2: CLEVER value chain and ecosystems

Objectives

- Support **transport** decarbonization
- Achieve a **consensus-based** solution – technical dialogue
  - State-of-the-art, gaps and developments
- Define a comprehensive **Emission Factor methodology**
  - Impartial, clear, comprehensive, specified, transferable
- Provide accompanying **guidance** in form of international framework and ‘validated’ **set of default emission factors**
  - Provide starting point for EC database of EFs
- **Market access** to the project outputs

Outline of Workplan 1

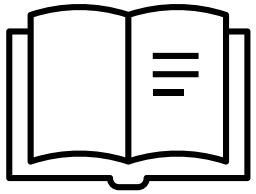
- Examine state-of-the-art
- Identify similarities, differences and gaps
  - Technical – process & content
  - Technical – boundary
  - Aspirational, e.g. coverage
  - Presentational
- Engage with stakeholders to discuss and understand
  - Rationale for previous decisions
  - Institutional structures
  - Barriers to dialogue?
- Determine optimal methodology
  - Confirm indicative values as input to CountEmissions EU

Outline of Workplan 2

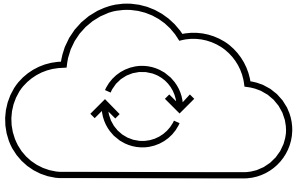
- Provide guidance to support implementation of optimal methodology

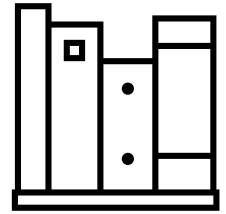
- Support market access & uptake:
  - Training syllabus
  - Integrate with verification schemes
  - Steps towards formal standardization
  - Inform & leverage networks:
    - end users, fuel producers, EF producers, calculation tools and ‘other influencers’
  - Engage legislators

Emission factors and core references



- Emission factors are the combination of methodology and data or the result of the data applied to the methodology
- In the context of CLEVER, core references include (not exhaustive):
- ISO norms 14040-44:2006, 14067:2018, 14083:2023…
- Key regulatory frameworks, like
  - RED II(I) (Directive (EU) 200…
  - Delegated Acts
  - CountEmissionsEU proposal
  - ReFuelAviation
  - FuelEUMaritime / IMO MEPC
- Guidelines and standards (PEF guide, GHG protocol, Emissions Handbook,..)
- Related studies, e.g. JEC WtW, DG Clima Vehicle LCA study (2018),..
- LCI(A) databases, e.g. ecoinvent, GaBi, LCA models (e.g. GREET)





Methodology

- Sets the boundary
- In combination with input data, methodology provides the **foundation** for the factors
- Defines the **goal** or the **purpose** of the factors:
  - i.e.: Describe emissions from transport activities
- Defines the **system** and its' boundaries
  - i.e.: Describe Well-to-Wheel/Wake emissions from **transport** activities
- Defines / Describes, which impact(s) are investigated / which impact(s) the emission factor depicts
  - i.e.: Describe Well-to-Wheel/Wake GHG-emissions from transport activities
- Defines / Describes, how impacts are **assessed** (what units are used)
  - e.g.: kg CO_2e based on IPCC (2020) GWP_{100}
- Defines / Describes **additional criteria** or **requirements**, **approaches** to certain challenges and generally provides guidance
  - e.g.: How to deal with multi-output-systems; requirements in terms of data quality; which sensitivities have to be accounted for / need to be investigated
- Ideally is in line with key reference standards, e.g. **ISO** norms or regulatory standards/guidelines

Methodology Choices

1 System boundary

Need to consider consistent approach for inclusion & exclusion, while balancing practicability

2 Attribution v consequential

- What are we seeking to achieve?
- Attributing impacts to a product/system?
- Understanding the consequences of increased consumption?

3 Allocation procedures

- Consistent approach for how / when to apply allocation
- Should we favour blanket rules, or tipping points when something like economic allocation becomes preferable?

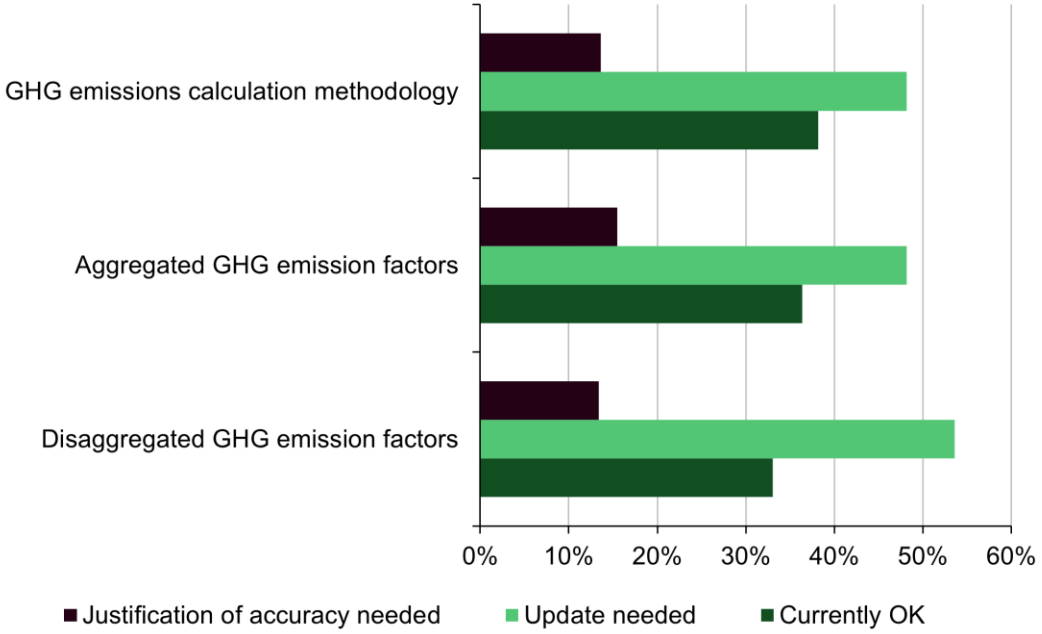
4 GWP methodology

- Should we favour an easy to apply system (0,0), or granularity (-1,+1) to see where we have carbon benefits?
- Important to also consider GWP of other substances, i.e., hydrogen

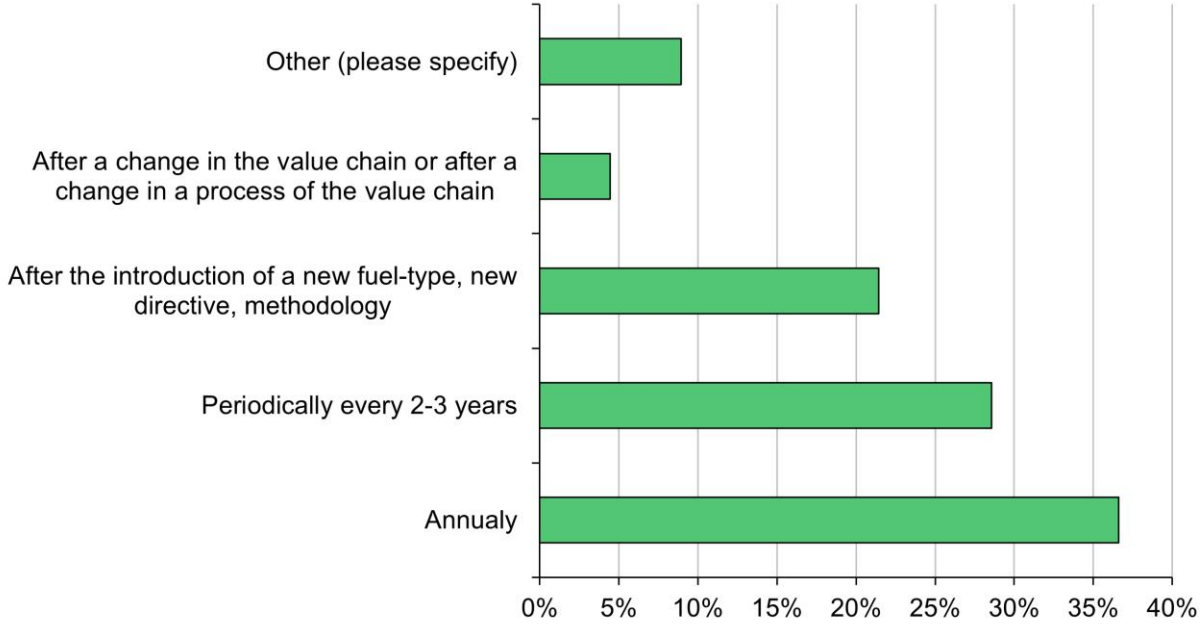
Update requirements

Stakeholders highlighted the need of update for current EFs

Which of the following requires an update or justification of accuracy?



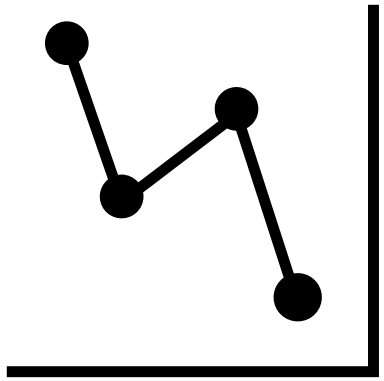
How often or when do you think it would be necessary to update the GHGs emission factors related to your sector?

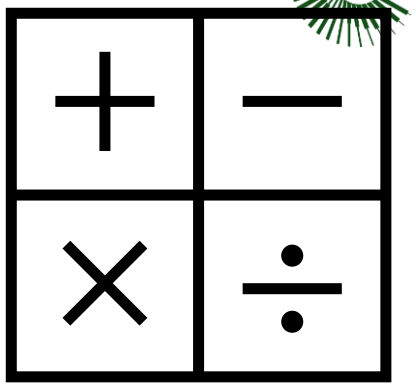


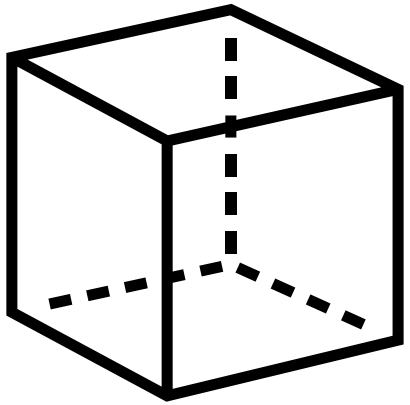
- Almost 90% stated that there should be a form of accompanying emission factor label detailing methodology, assumptions and inputs

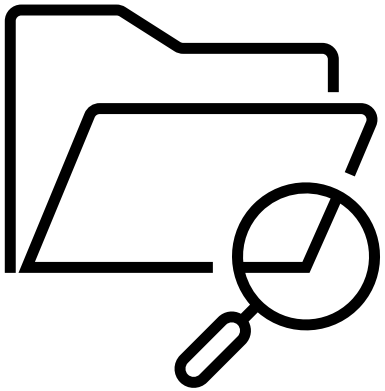
Data

- In combination with the methodology, constitutes the foundation for the factors
- Results are only as robust and reliable as the underlying data
- Requirements regarding data outlined in methodology
- In LCA, data is discussed / assessed in terms of its quality, regarding e.g. actuality, reliability, suitability, completeness…
- Can be collected from multiple sources, e.g.
  - Primary data from fuel producers, power plant operators, manufactures, associations etc.
  - Secondary data, e.g. from literature, databases, experts etc..
- Reliable (verified based on measurements), complete (adequate representative sample size), up-to-date, representative (collected from the area under study) and with a high technological correlation.
- Transparent

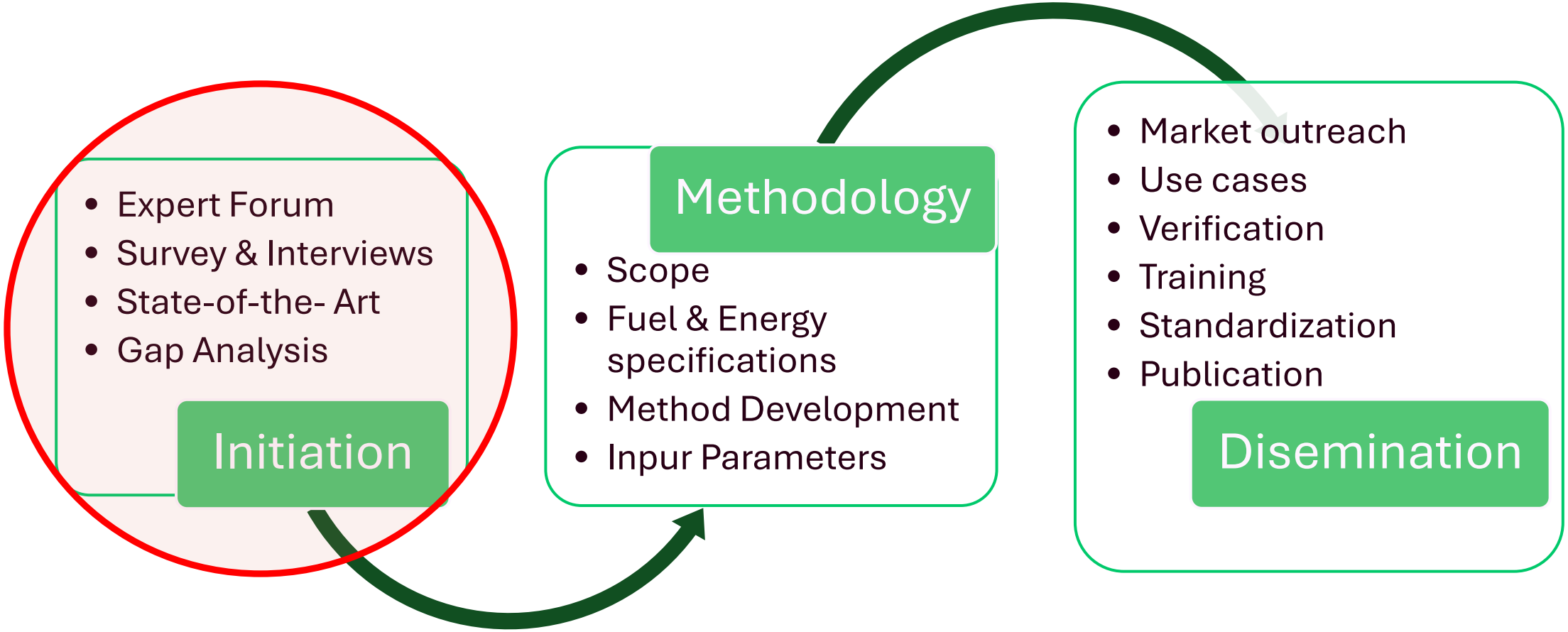








Current Status



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