

# Form follows function!?

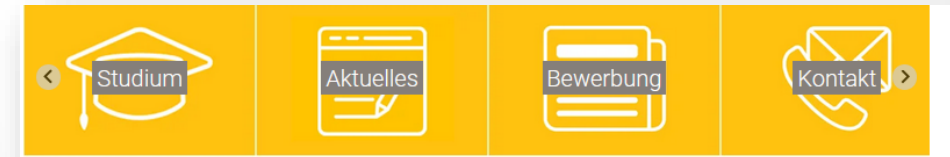
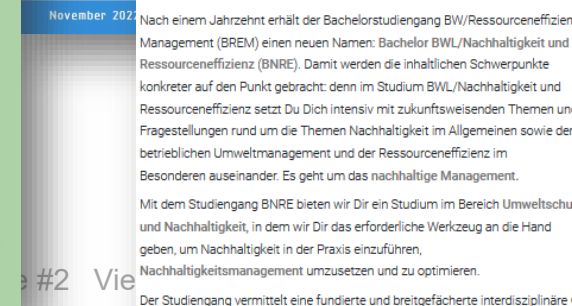
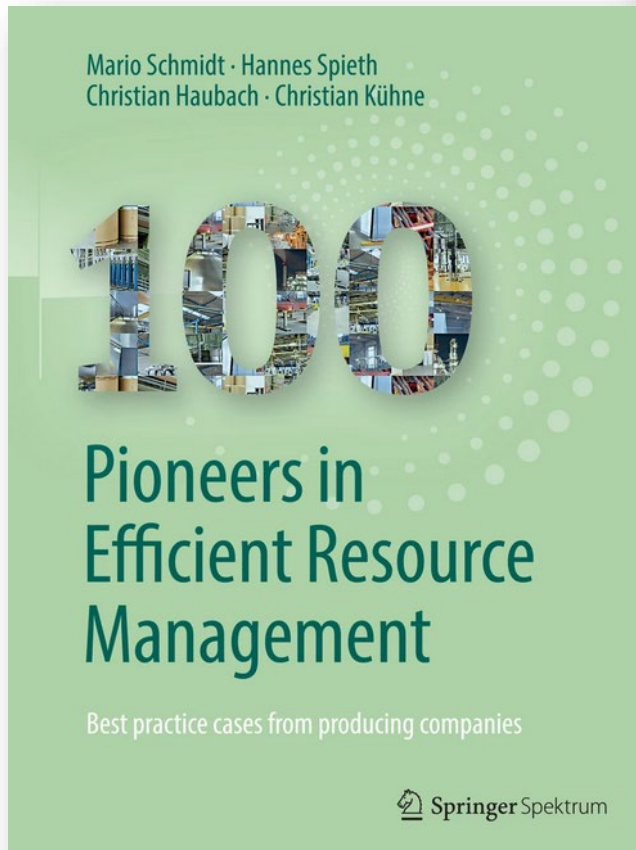
## Differences in scope 3 data use cases

83rd LCA Discussion Forum, June 7<sup>th</sup>, 2023

Prof. Dr. **Tobias Viere**  
[tobias.viere@hs-pforzheim.de](mailto:tobias.viere@hs-pforzheim.de)

# Introduction and overview

- Reminder: Scope 3 emissions at corporate and product levels
- Managerial and disclosure use cases of scope 3 data
- Practice-oriented research issues
- Conclusion



## Nachhaltigkeit studieren: Master Life Cycle & Sustainability

Nachhaltigkeit und nachhaltige Produktion gelten als die wichtigsten gesellschaftlichen Herausforderungen des 21. Jahrhunderts. Klimaschutz und Klimaneutralität, Biodiversität und Circular Economy sind auch auf Unternehmensebene längst wichtige Aufgabenfelder.

Der im Umfeld der Umweltwissenschaften angesiedelte Master im Bereich Nachhaltigkeit befähigt Sie, Antworten auf die zentralen gesellschaftlichen Fragen zu finden. Mit dem Studiengang Life Cycle & Sustainability (MLICS)



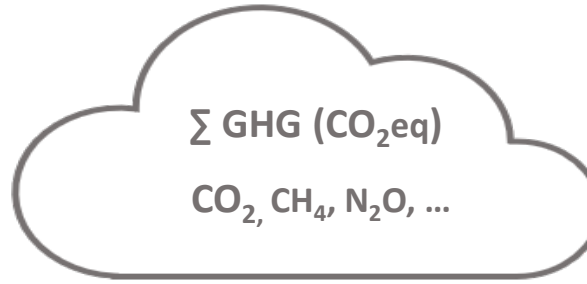
...umente kennen und anzuwenden, um Auswirkungen und  
...eben der persönlichen Betreuung durch eine engagierte Professorenschaft,  
...er Hochschule im Themenfeld.



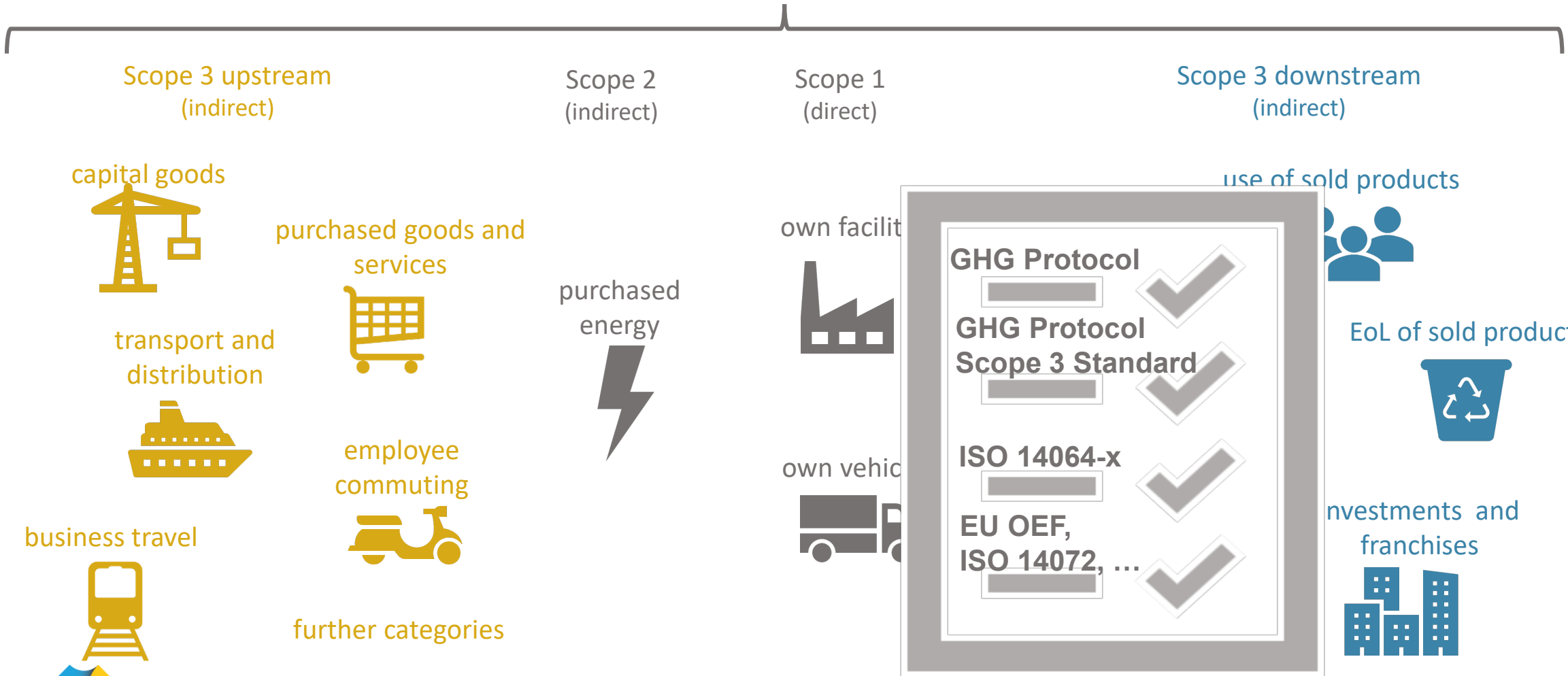
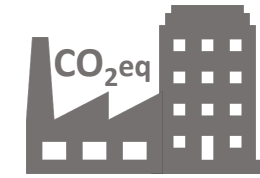
## Nachhaltigkeitsmanagement studieren: Bachelor Nachhaltigkeit und Ressourceneffizienz



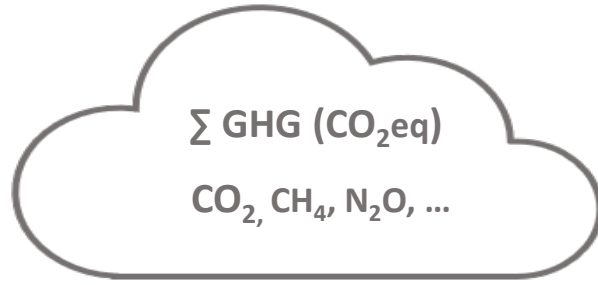
# Corporate Carbon



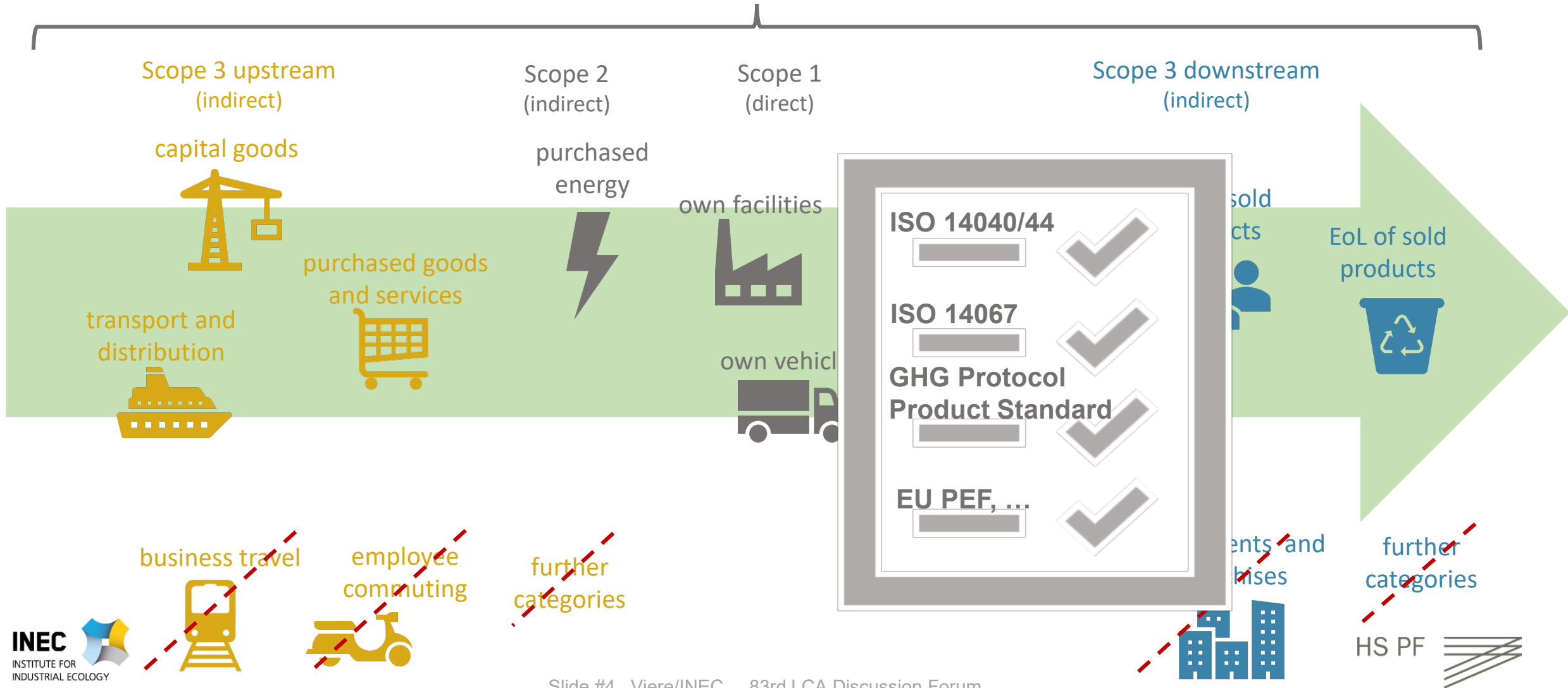
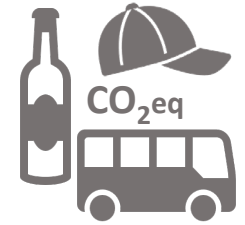
# Footprint



# Product Carbon



# Footprint



# How business accounting helps to distinguish different use cases of carbon footprints

CCF/PCF is physical/ecological accounting along the value chain of a product or a corporation

voluntary (self-interest)

mandatory (essentially)

## Managerial Accounting (decision-oriented)

Internal stakeholders (e.g. production and product managers, head of R&D, CSO, ...)

case-specific information for various decision making processes

KPIs / reports on sales figures, customers, production line performance, investment options, ...

heterogenous records, e.g. machine data, market forecasts, production reports, ...

## Financial Accounting (disclosure-oriented)

External stakeholders (e.g. shareholders, creditors, authorities, ...)

reliable, verifiable information for investment decisions, tax audits, ...

standardized reporting of corporate performance and situation (e.g., following IFRS)

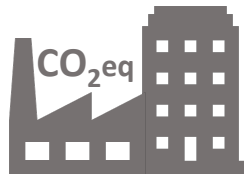
double-entry bookkeeping (and further records)



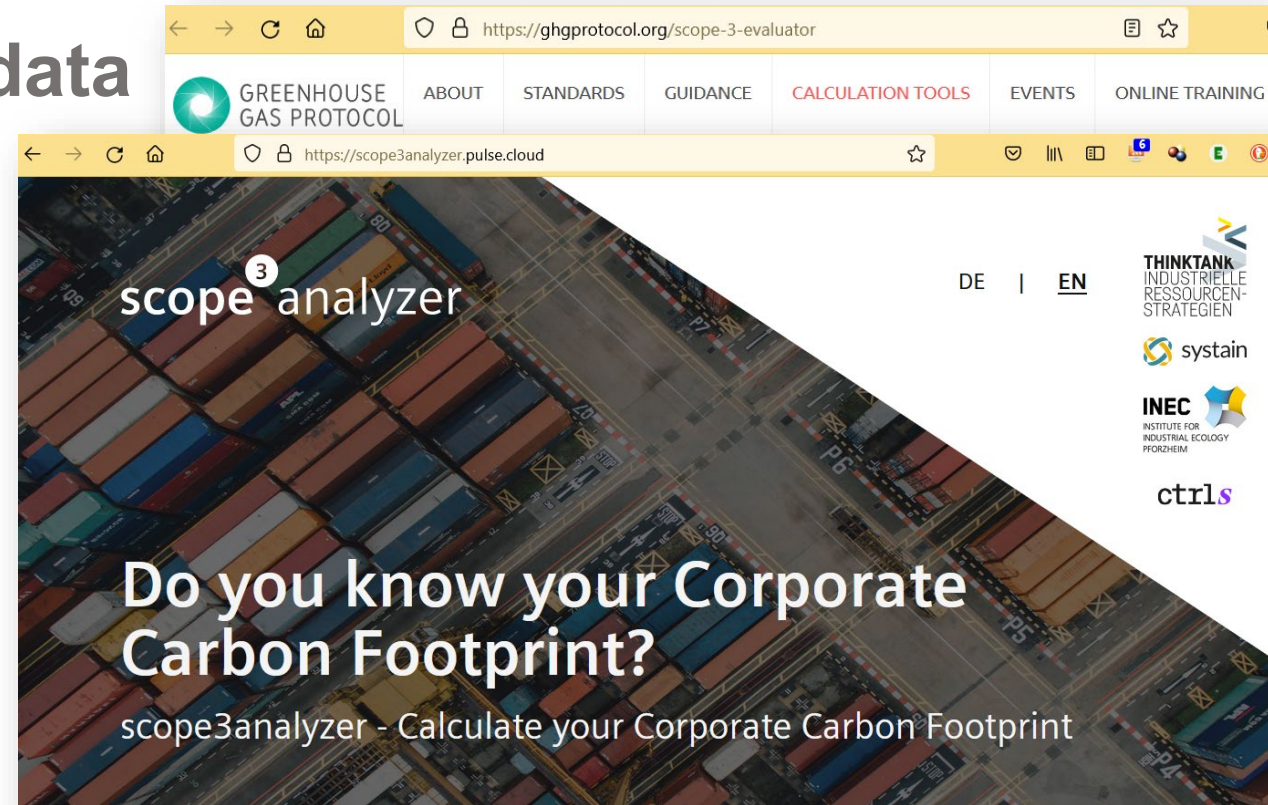
# Managerial use cases of scope 3 data

We don't know our carbon footprint and performance, what do we need to do?

Case 1



- Collection of scope 1 and 2 data
- Scope 3 data based on EEIO (GHG: spend-based method)
- Identification of main drivers (“hotspots”)
- Refining of analysis by inclusion of physical scope 3 data (GHG: average-data method)
- Refining of analysis by using supplier data / own research



freely available tools

free and commercial GHG factor lists / databases

# Managerial use cases of scope 3 data

We have some PCF/LCA already,  
now we would like to understand our  
corporate carbon performance, too



- Consideration of scope 1+2 data from PCF/LCA and collection of further sc. 1+2 data
  - Scope 3 data based on PCF/LCA data and EEIO (GHG: spend-based method)
- Identification of main drivers
- Refining of analysis by inclusion of further physical scope 3 data (GHG: average-data method)
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# Managerial use cases of scope 3 data

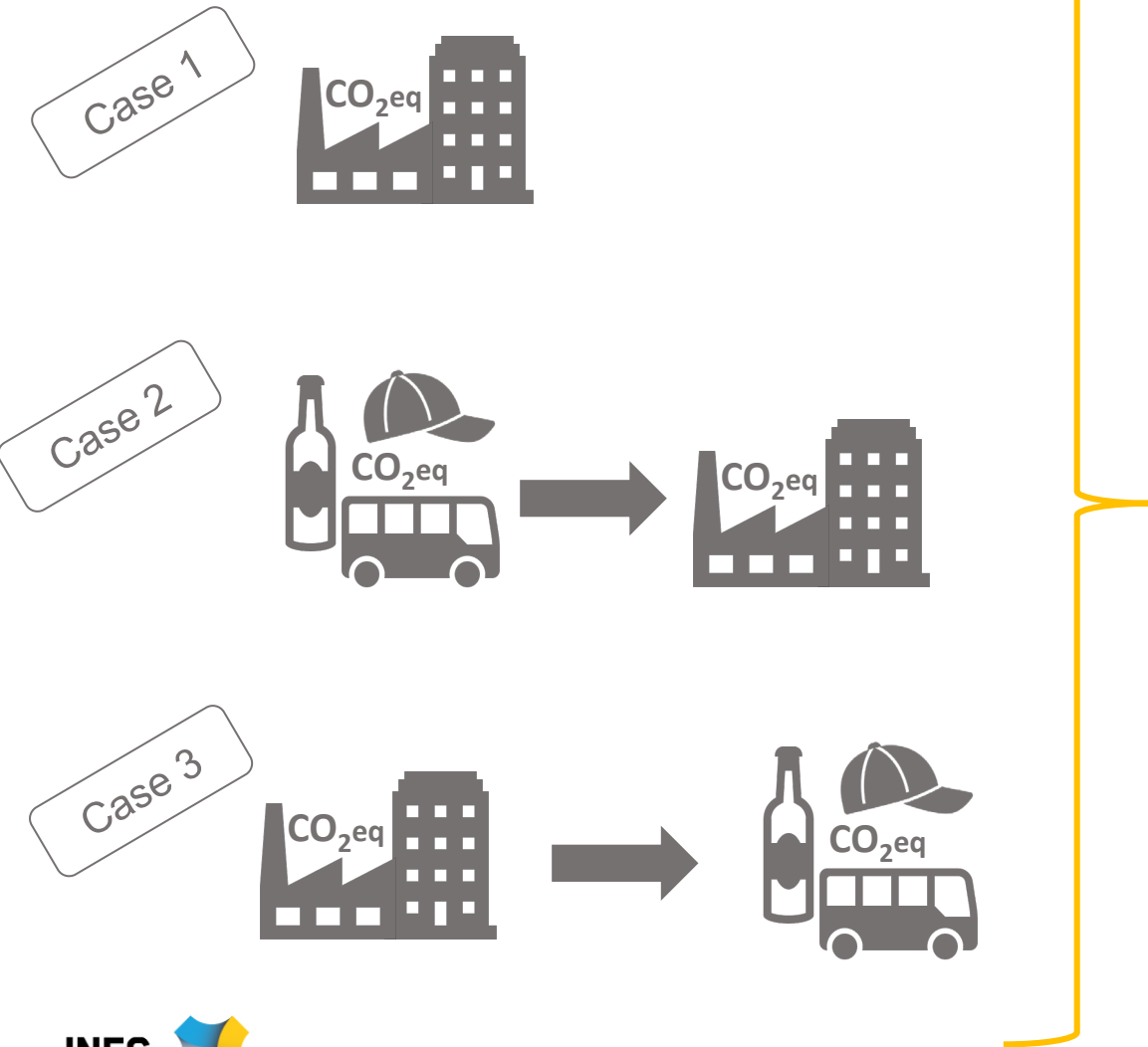
We would like to use our CCF for deriving PCFs of our main products



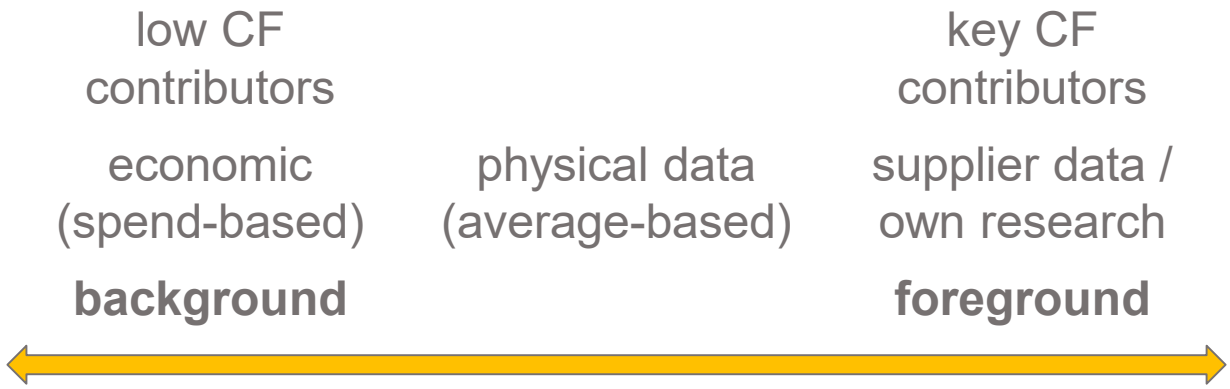
- Adaptation of CCF data for PCF purposes (allocation! functional unit!)
  - Rough hotspot analysis
  - Refining of analysis by inclusion of further physical scope 3 data (GHG: average-data method)
  - Refining of analysis by using supplier data / own research



# Managerial use cases of scope 3 data



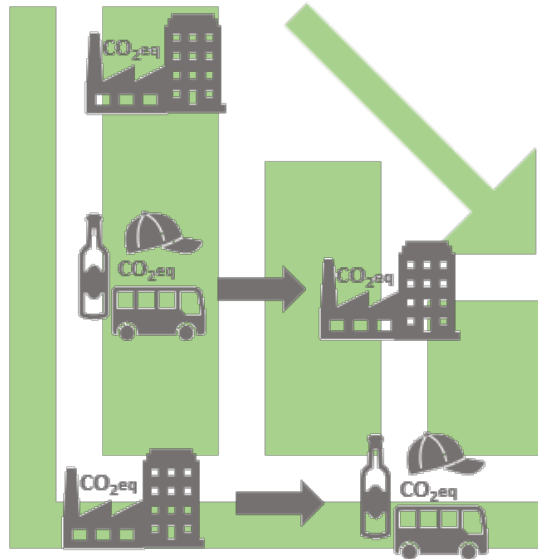
- average scope 3 data (physical and economic) is always “pretty old”
- physical scope 3 data deviates from economic scope 3 data substantially
- economic scope 3 data is very rough...
- ...physical scope 3 data is difficult to find and judge



# Managerial use cases of scope 3 data

We would like to assess the implications of improvement measures

Case 4



- Assess  $\Delta$  in GHG emissions (but also CapEx/OpEx) with regard to changes in (quantity of) materials purchased, operating materials required, capital or investment goods needed, energy sources used, direct GHG emissions amount of purchased energy, use phase consumption, EoL procedures, ....

→ foreground modelling and future-oriented data required

→ more specific scope 3 data required (if available)

spinning mill example	status quo: use of average cotton	Improvement option: high-quality cotton → less short fibre wastage
cotton / product	1.5 kg / kg	1.3 kg / kg
spend-based method	1.5 kg * 2 € / kg * 2 kg CO <sub>2</sub> eq / € = <b>6 kg CO<sub>2</sub>eq</b>	1.3 kg * 2.5 € / kg * 2 kg CO <sub>2</sub> eq / € = <b>6.5 kg CO<sub>2</sub>eq</b>
average-based method	market for fibre, cotton 1.5 kg * 6 kg CO <sub>2</sub> eq / kg = <b>9 kg CO<sub>2</sub>eq</b>	market for fibre, cotton 1.3 kg * 6 kg CO <sub>2</sub> eq / kg = <b>7.8 kg CO<sub>2</sub>eq</b>

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double-entry bookkeeping (and further records)

mandatory (essentially)

# (Future) disclosure use cases of scope 3 data

We want to / have to disclose our CCF/PCF to the public / external stakeholders

- ISO 14040/44 ✓
- ISO 14067 ✓
- GHG Protocol Product Standard ✓
- EU PEF, ... ✓

- GHG Protocol
- SCIENCE BASED TARGETS
- THE NET ZERO STANDARD
- APPROVED NET-ZERO TARGETS

- DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS
- ESRS E1 Climate change
- November 2022
- EFRAG

- IFRS Sustainability
- Exposure Draft
- IFRS Sustainability Disclosure Standard
- IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information
- International Sustainability Standards Board



TCFD | TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

- CDP DISCLOSURE INSIGHT ACTION
- CDSB
- GRI
- ISSB
- MSCI ESG RATINGS AAA

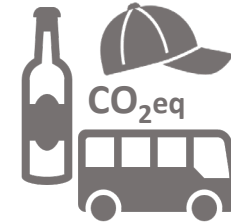
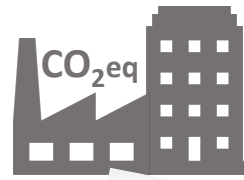
- EUROPEAN COMMISSION
- Green Claims Directive Proposal
- EU taxonomy
- Ecodesign for Sustainable Products Regulation (ESPR) / Digital Product Passport (DPP)
- HS PF

# (Future) disclosure use cases of scope 3 data



We want to / have to disclose our CCF/PCF to the public / external stakeholders

Case 5



TCFD | TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

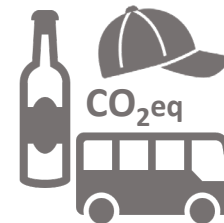
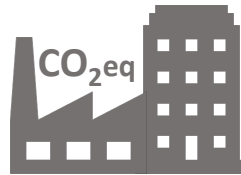


- Conduct of CCF/PCF study in line with “legal requirements”
- Scope 3 data needs to be certifiable, auditable, comparable (over time, within product/industry groups) → not necessarily the most precise/accurate data, but the most compliant
- Extremely useful: official recognized/approved scope 3 emission factor lists / data bases (e.g. by independent institutions / authorities)

# (Future) disclosure use cases of scope 3 data

We want to disclose our CCF/PCF to achieve climate neutrality by compensating our footprint

Case 6



- Same as Case 5, but followed by compensation measures

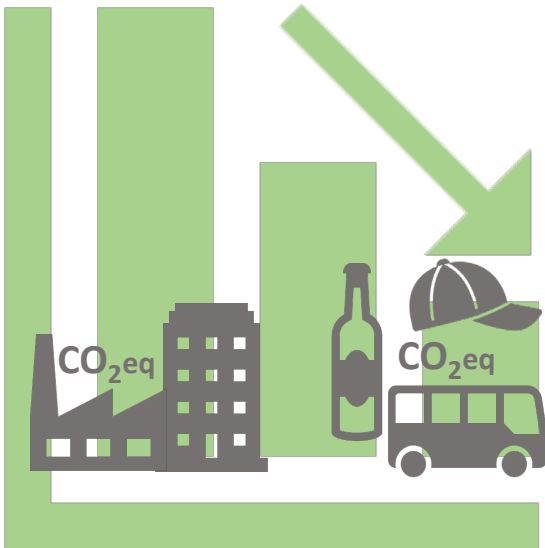
*Personal opinion: Only if a whole range of improvement and reduction measures has been trustworthily executed and documented beforehand and highest climate compensation standards are met (ideally: purchase and permanent decommissioning of ETS allowances)*



# (Future) disclosure use cases of scope 3 data

We would like to disclose our progress in carbon performance and/or expected consequences of our climate policies

Case 7



- time comparisons (CCF) and product variant comparisons (PCF) demonstrate progress and net-zero achievements retrospectively and in forecast scenarios
- foreground modelling and future-oriented data required
- more specific scope 3 data required (if available)

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# Comparison and implications for practice

## Managerial use cases

“screening” or “hotspot identification”  
→ refinement / details where relevant

preference for flexible (situationally) and  
decisive scope 3 data

generally accepted / approved lists of scope 3 emission factors would be great  
currently available scope 3 data (economic and physical) is background data and  
should not dominate overall results

## Disclosure use cases

adherence to predefined standards /  
procedures

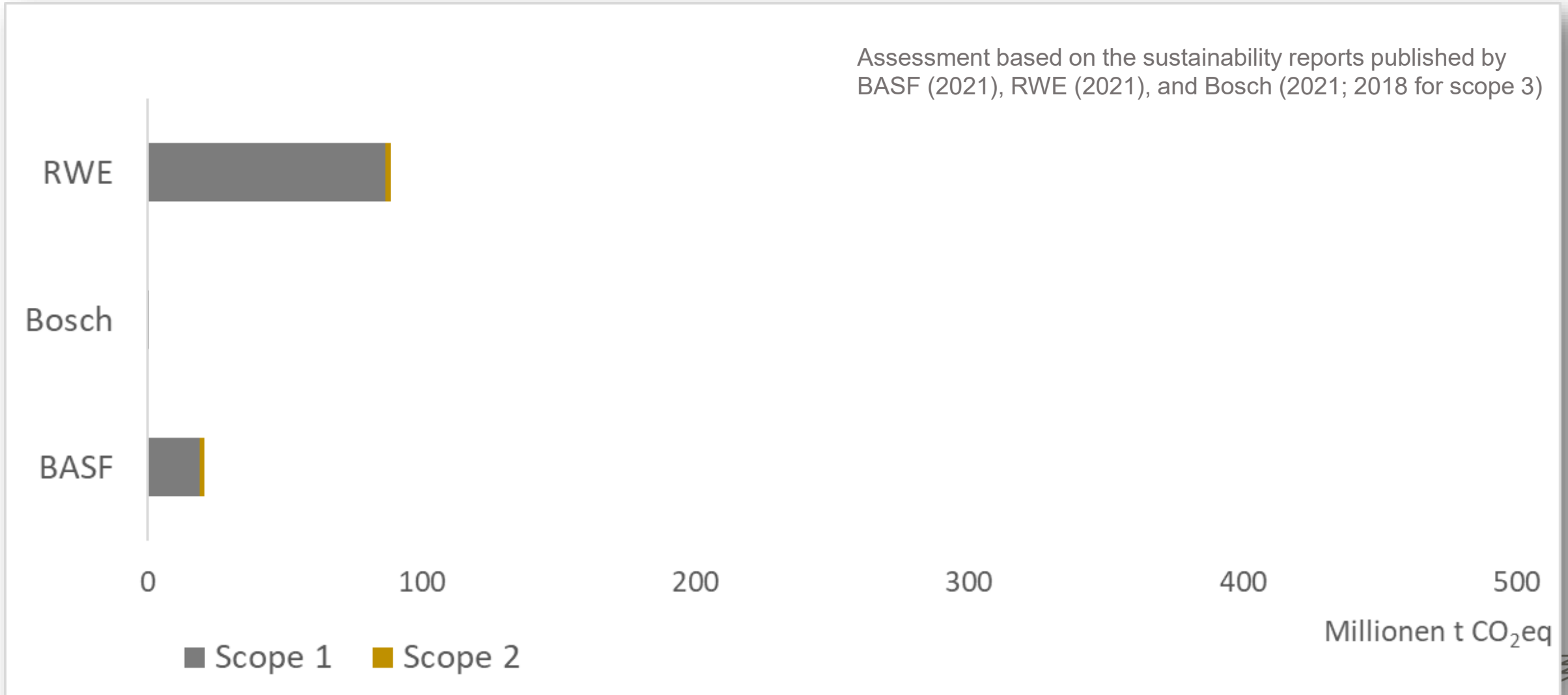
preference for standard-compliant and  
replicable scope 3 data

**Form follows function!** → different use cases require different types of scope 3 data

**Form follows function?** → business accounting history teaches us that over time  
financial accounting influences and dominates managerial accounting practices → uniform  
and standardized CCF/PCF application in the long run

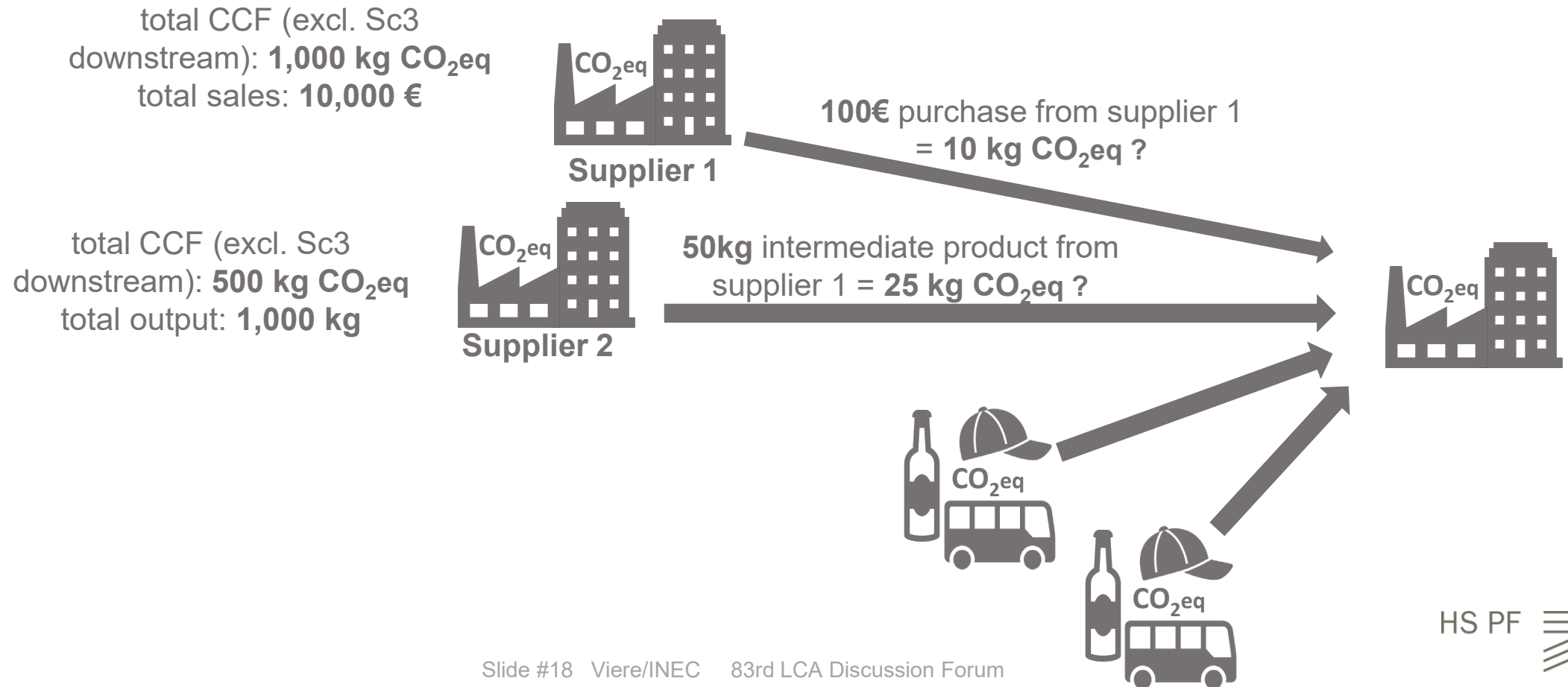
# Practice-oriented research issues

- How to make scope 3 (downstream) assessments feasible and comparable? (e.g. Klaaßen&Stoll (2021) provide a good assessment of scope 3 accounting inconsistencies - <https://doi.org/10.1038/s41467-021-26349-x> )



# Practice-oriented research issues

- How to make scope 3 (downstream) assessments feasible and comparable?
- What type of supplier-specific scope 3 data is meaningful / scientifically sound? For instance, what about the allocation of suppliers' CCF?



# Practice-oriented research issues

- How to make scope 3 (downstream) assessments feasible and comparable)
- What type of supplier-specific scope 3 data is meaningful / scientifically sound? For instance, what about the allocation of suppliers' CCF?
- Requirements for and feasibility of generally accepted (and publicly available) scope 3 emission factor lists
- Requirements for easy transferability and extensibility of CCF/PCF procedures into full LCA/O-LCA/PEF/OEF
- Should we really account for scope 4 emissions as an extension of scope 3 downstream? (scope 4 ~ avoided emissions outside the value chain but related to using the product)
- What are the advantages and disadvantages of requiring b2b / intermediate product producers to disclose processing/distribution/EoL of sold products in scope 3 downstream? (Or: Where and when expires downstream responsibility reasonably?)
- ....



managerial <> disclosure → “ambidexterity”



use CCF/PCF for actual improvements



nonpartisan, generally accepted list of scope 3 factors



get basics right before moving on to fancy new  
concepts and scopes

**Form follows function!?**

**Differences in scope 3 data use cases**

83rd LCA Discussion Forum, June 7<sup>th</sup>, 2023

**Conclusion**

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