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**BILBAO 2024**

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with Integrated Data

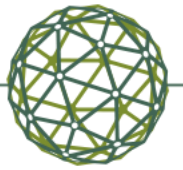
**BILBAO. SPAIN** | **10-14 JUNE 2024** | **#UNBigData2024**

# Measuring the Climate Footprint of Tourism in the Nordics with SF-MST

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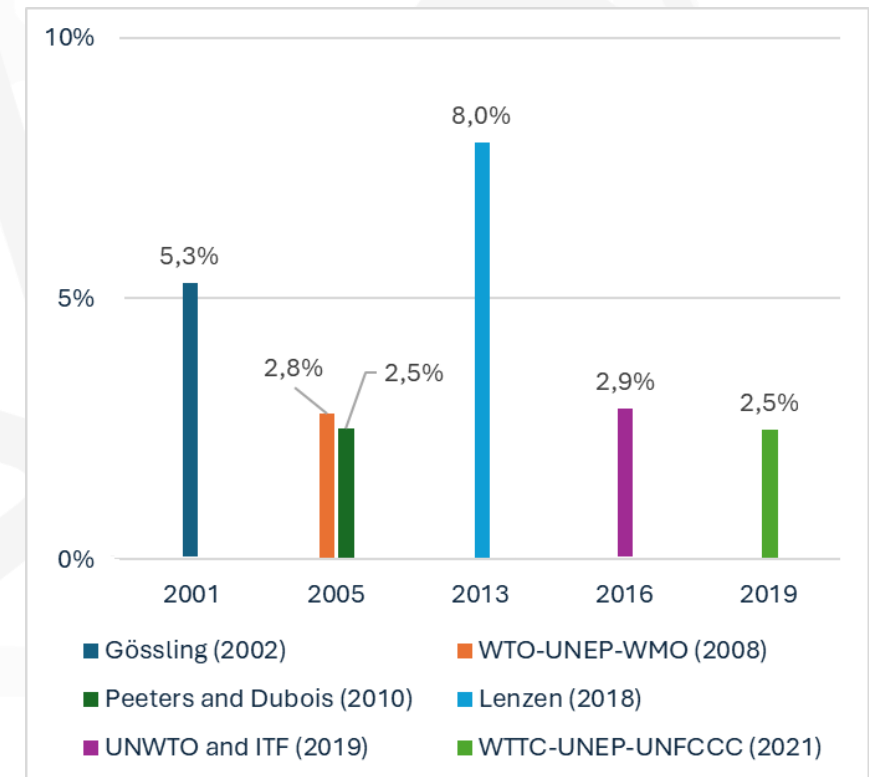


# A common framework is essential



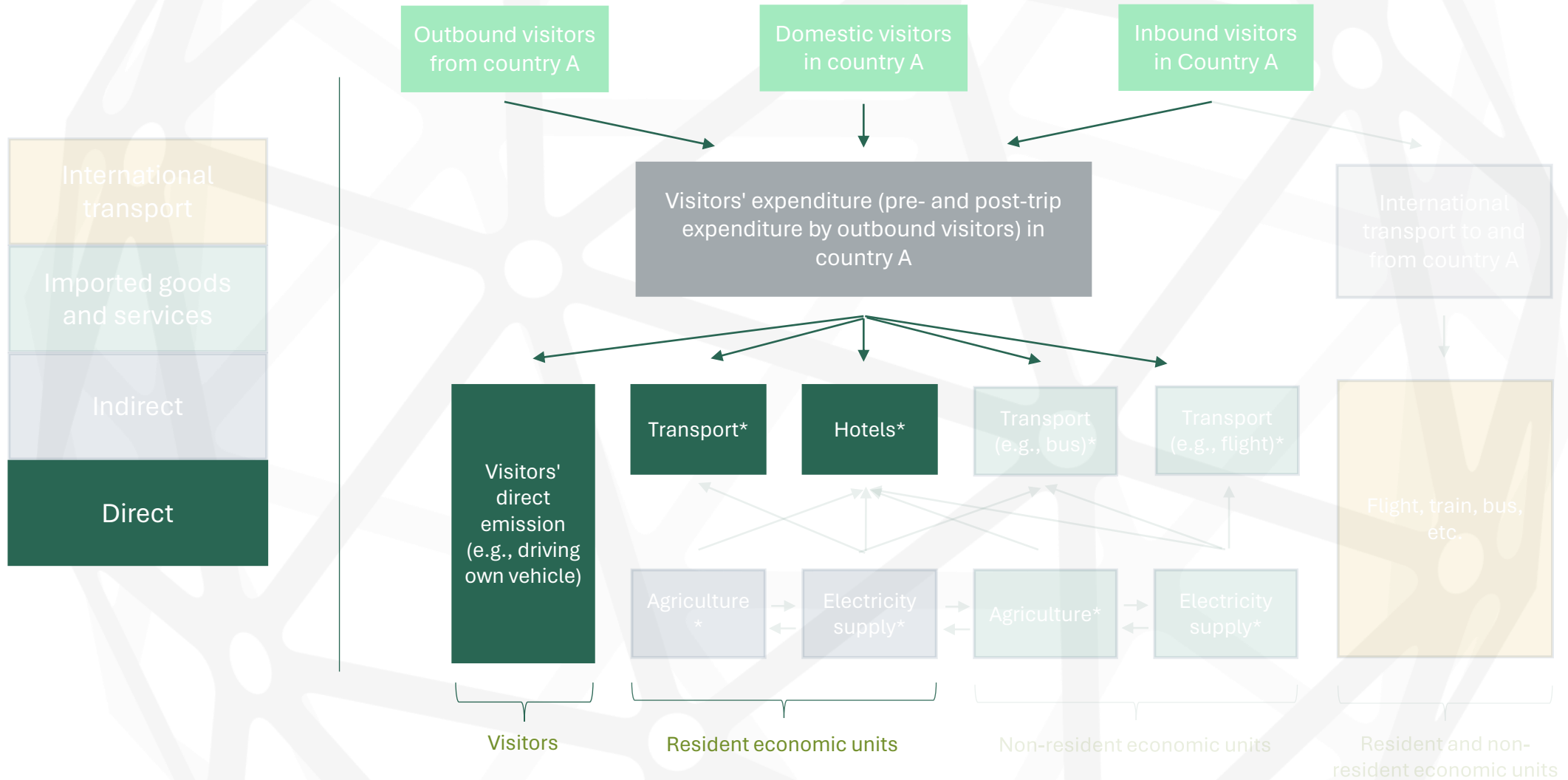
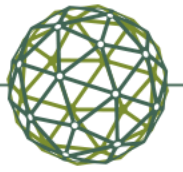
- Measuring GHG emissions attributable to tourism is a complicated task.
- Current findings on GHG emissions attributed to tourism have strived and accomplished the task differently, resulting in **significant differences** in the results, see *figure*.
- Therefore, there is a need for a **common** framework.
- **Recommendation:** Follow the Statistical Framework for Measuring the Sustainability of Tourism by UN Tourism, which utilises well-defined statistical frameworks (TSA, SEEA etc.).

**Figure:** The proportion of global greenhouse gas emissions attributed to tourism



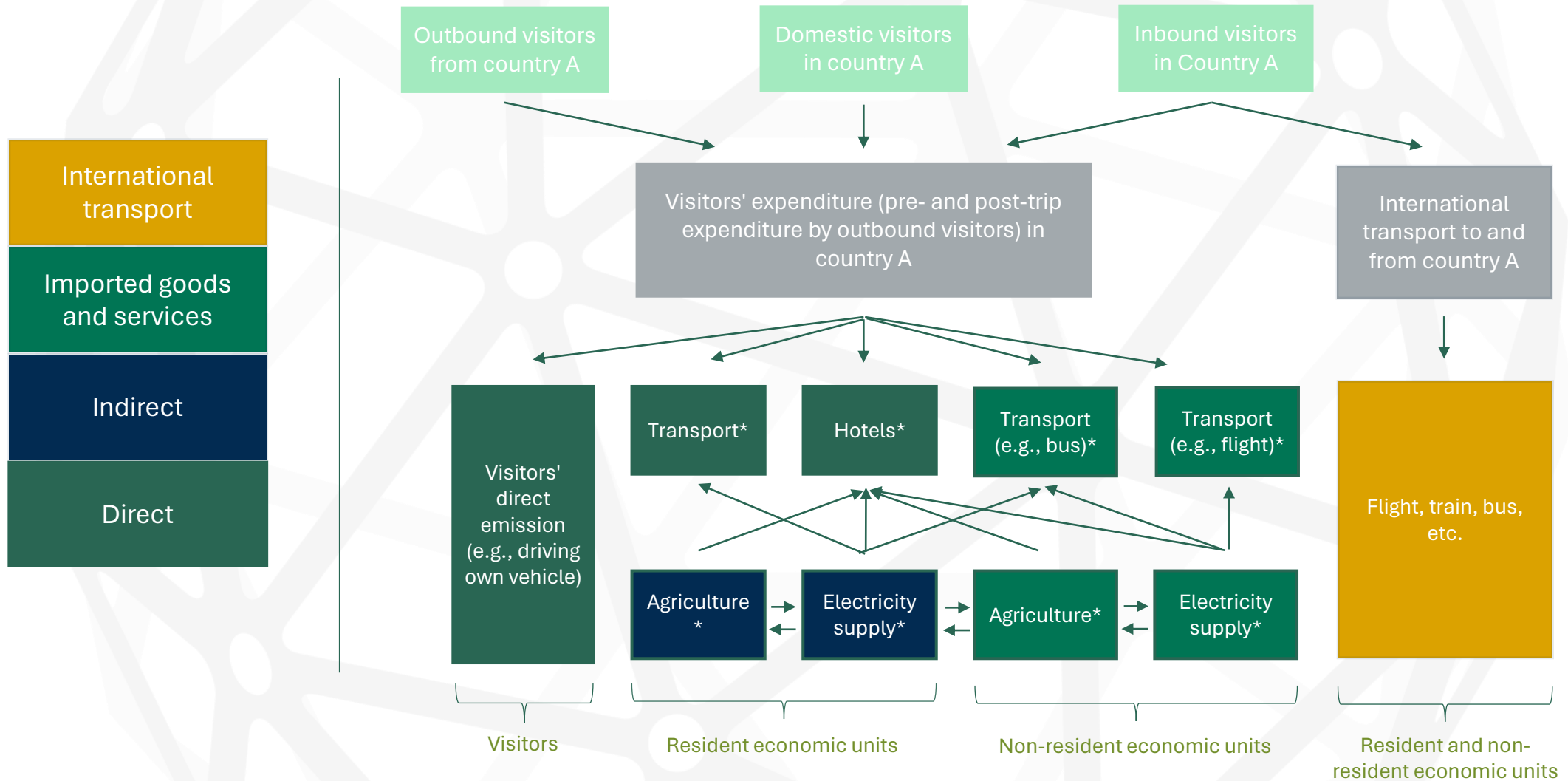
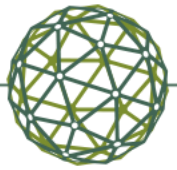
Source: Own research

# UN Tourism Framework: “The must haves”



\*An example of origin, not exhaustive.

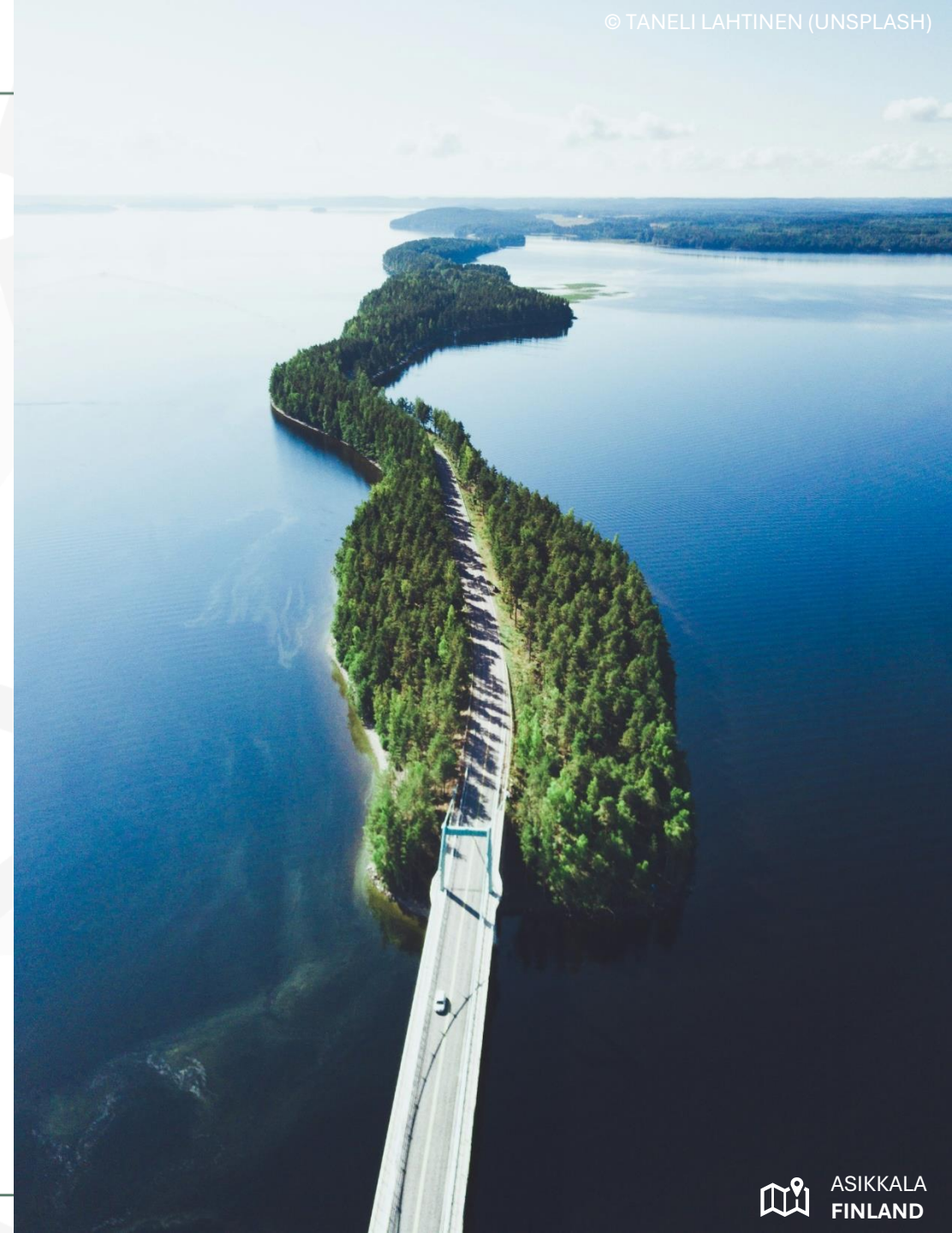
# UN Tourism Framework: “The full story”



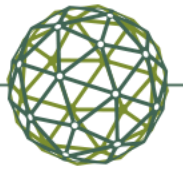
\*An example of origin, not exhaustive.

# Calculations

- CRT has performed calculations for Denmark and Finland.
- For Denmark, our calculations encompass GHG emissions from **direct**, **indirect**, and **imported** flows, alongside the **international transport** of tourists (complete carbon footprint of tourists in Denmark).
- For Finland, we calculate the GHG emissions from **direct** and **indirect** flows.
- In the Danish TSA, both **domestic** and **inbound** tourism are accounted for. In the Finnish TSA, **outbound**, **domestic**, and **inbound** tourism are all encompassed.

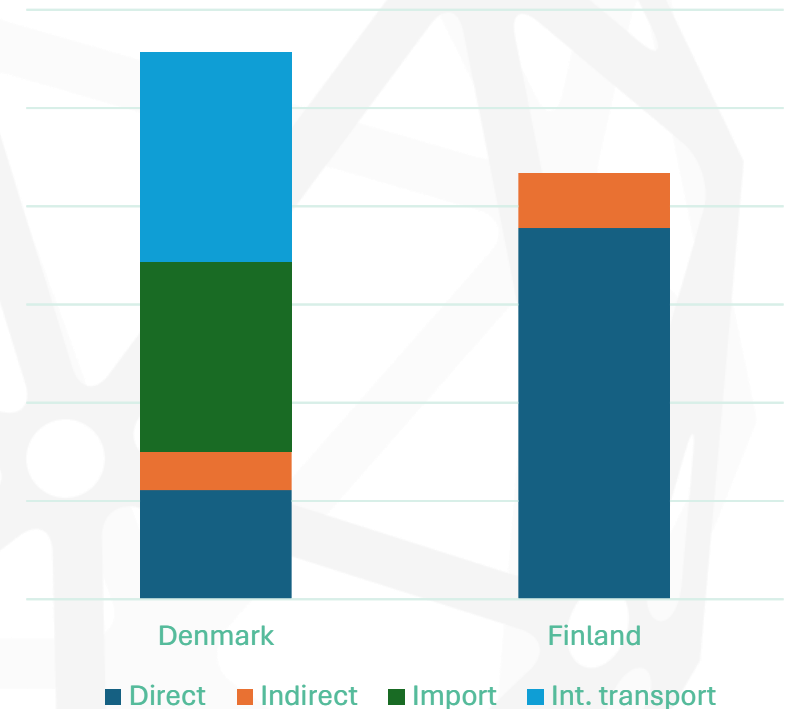


# Comparison



- Each calculation is **correct and follows the same framework (SF-MST)**.
- Each calculation is **comparable to the TSA** for its respective country.
- However, due to differences in the TSA between Denmark and Finland, **the results for GHG emissions are not comparable** for the direct and indirect GHG emissions from tourism.
- **Key findings:** Harmonizing the carbon footprint of tourism in the Nordics necessitates harmonizing “CO2-ready” TSA populations and harmonizing the solution to common challenges on methodology practices and data gaps

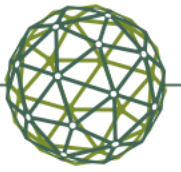
**Figure:** GHG emissions from tourism in Denmark and Finland (2019)



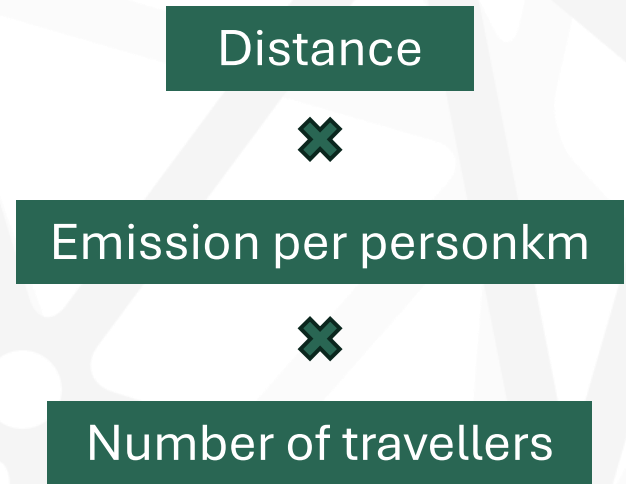
**Note:** The values cannot be shown as the results are still unpublished. Imports and international transport are not included in Finland's calculations.

**Source:** Centre for Regional and Tourism Research

# Big data for international transport: Overview

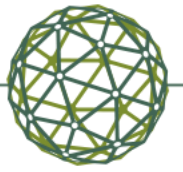


- This part of the calculation is **not** based on an IO model.
- Instead, the method is **inspired by a study from Norway\***, that requires the following information based on the country of origin and type of transport mode used:
- **Advantage:** Distinguish between different detailed means of transport (e.g., electric cars versus diesel cars).
- **Disadvantage:** Does not include indirect emissions like an IO-model.



\* Grythe, H. & Lopez-Aparicio, S. (2020). Methodology behind the CO2RISM calculator. Norwegian Institute for Air Research.

# Big data for international transport : Distance



- For **air travel**, we utilize data from Copenhagen Airport for insights into the origins and destinations of inbound travelers.
- This includes details such as stopovers and the number of business class passengers.
- For **other transport modes**, we use Google Maps (big data) to estimate the distance travelled. The distance is calculated from the largest city to Copenhagen as an estimate of the average distance.
- A trip by a specific transport mode (e.g., car) can involve the use of multiple transport modes (e.g., car and ferry).

**Figure:** Routes by individual transport (car, etc.)

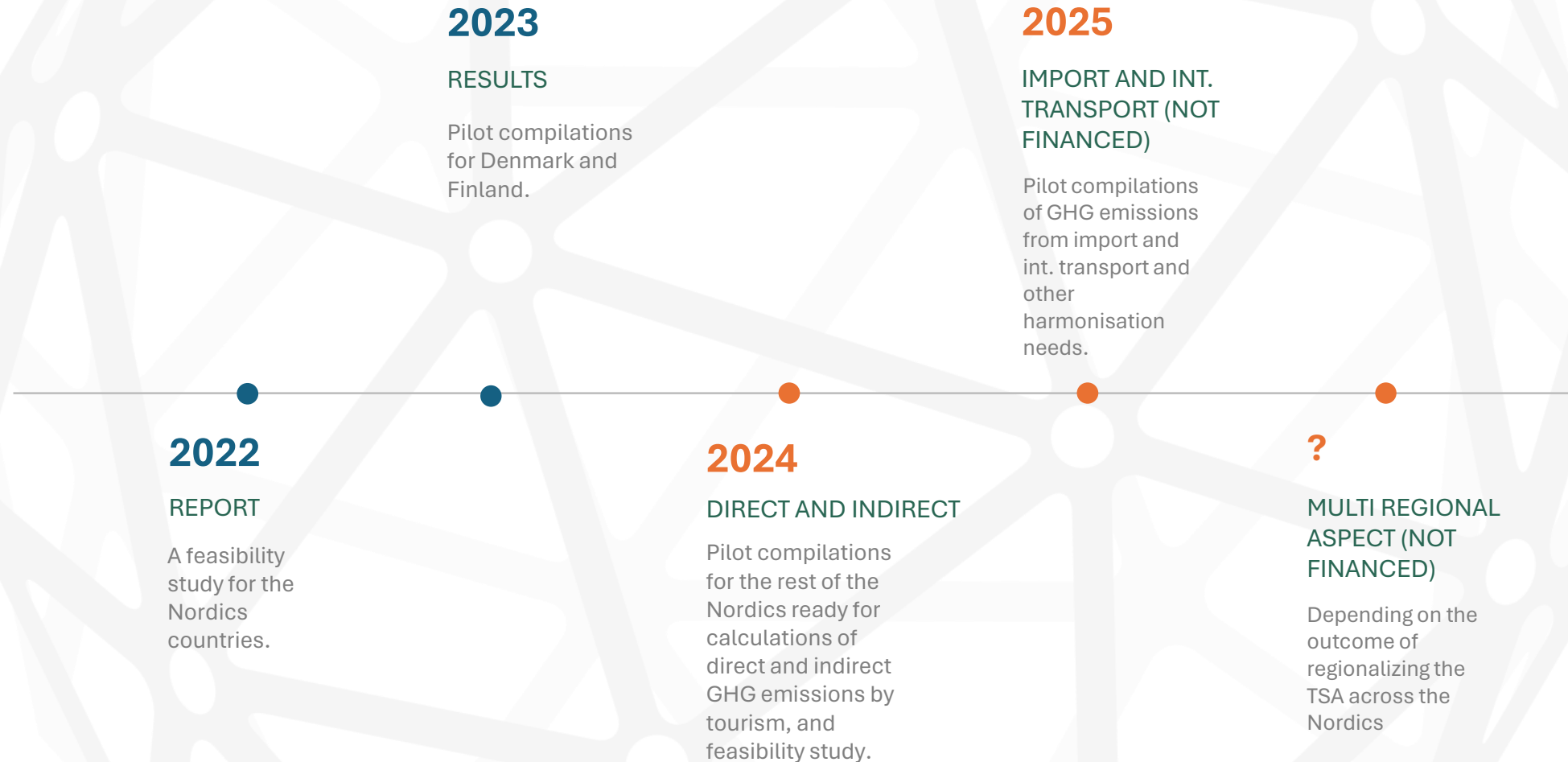
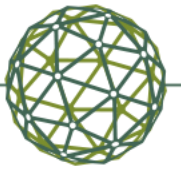


**Table:** Distance (in kilometers) for a round trip

Nationality of tourists	Car, autocamper, or motorbike	Ferry (incl. transport mode)
Finland	1.825	412
Norway	1.216	



# Timeline of the project



**Thank you for your attention**

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