



# Harmonization of CO<sub>2</sub> Calculations Panel

*January 12, 2014*

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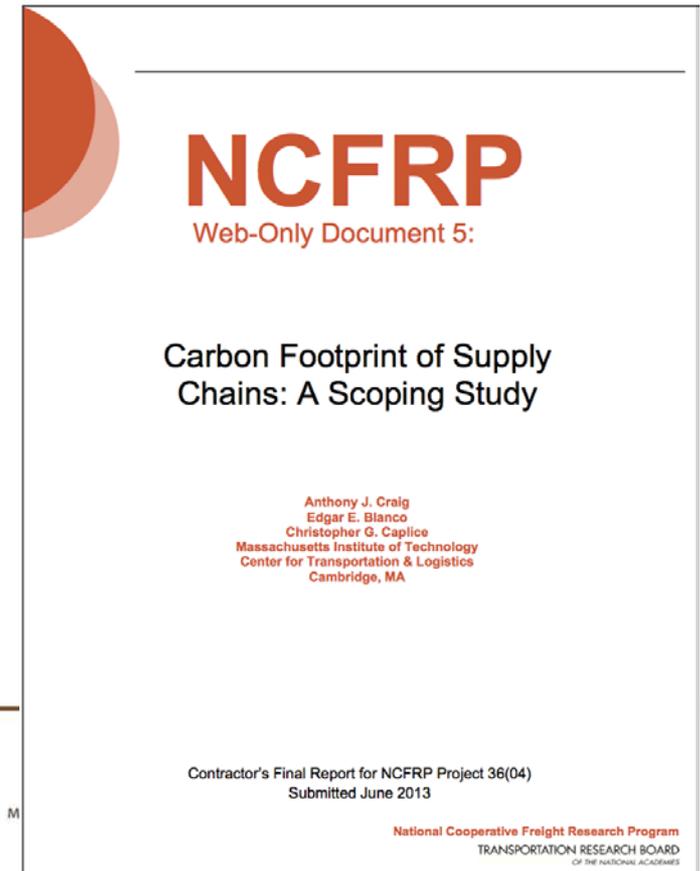
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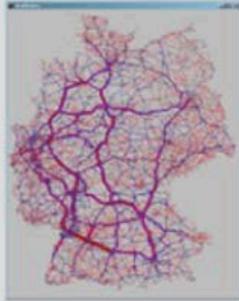
# Learnings from NCFRP Project 36(04)

- Goal
  - Develop a standard definition of freight GHGs
  - Evaluate current methods and programs
  - Plan for a future decision tool
- Report is now available!
- Acknowledgements
  - Dr. Tony Craig
  - Dr. Chris Caplice

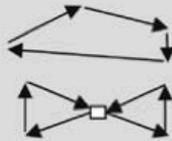


# Different actors, different views

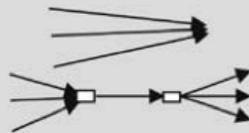
**Macro Level:**  
Traffic flows



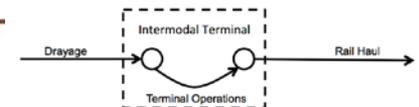
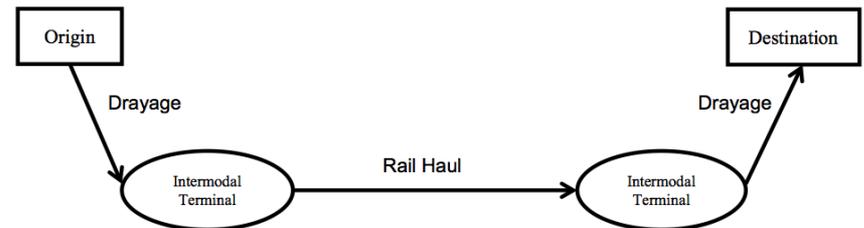
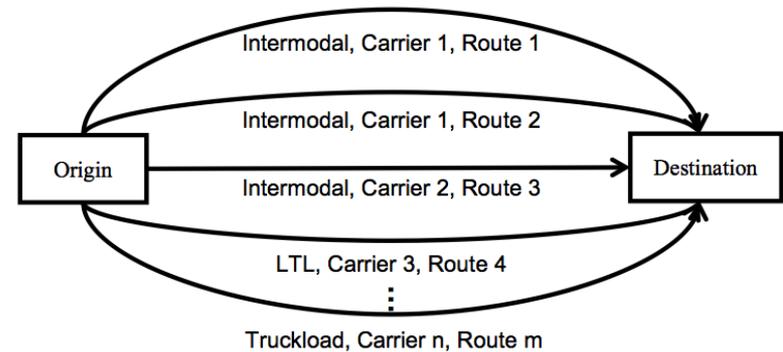
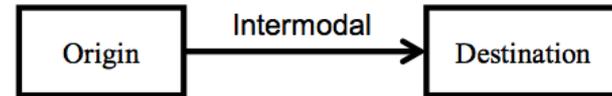
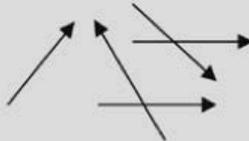
**Meso Level:**  
Networks  
(Vehicles' view)



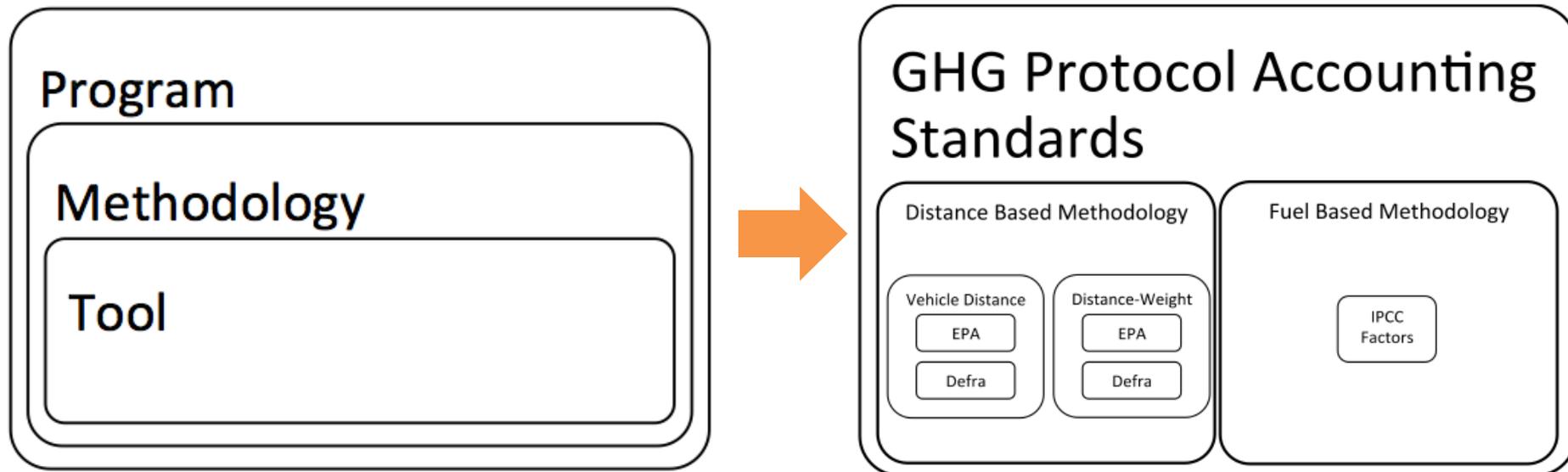
Networks  
(View on set of commodity flows)



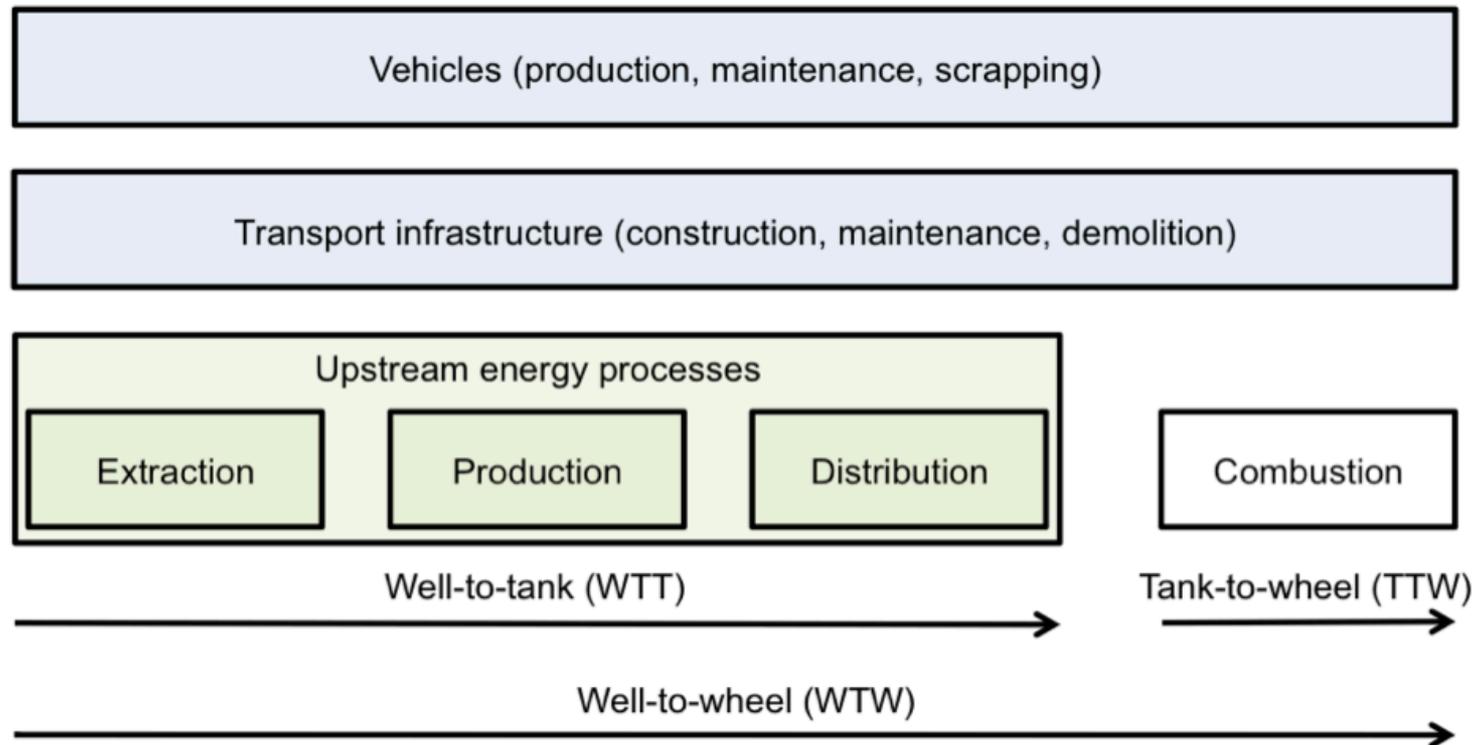
**Micro Level:**  
Commodity flows



# Programs, Methodologies & Tools...



# Life Cycle Phases of Transport (from COFRET)



Source: Auvinen, H., Makela, K., Lischke, A., Burmeister, A., de Ree, D. and Ton, J., 2012. Existing methods and tools for calculation of carbon footprint of transport and logistics. Deliverable 2.1, the COFRET project (Carbon Footprint of Freight Transport).

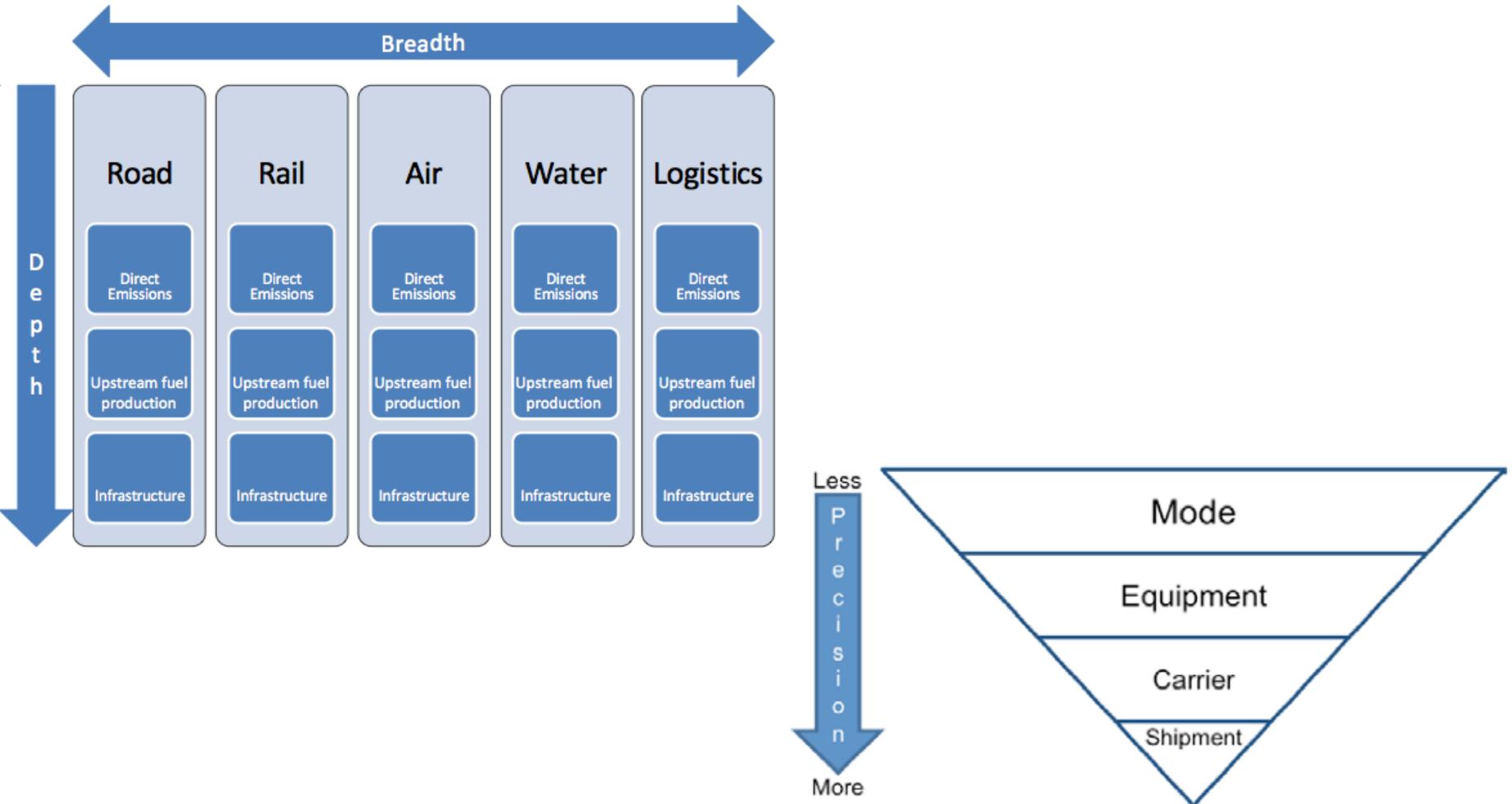
**Figure 6: Life Cycle Phases of Transport** <sup>50</sup>

# Qualities of an Effective Tool: Five Criteria

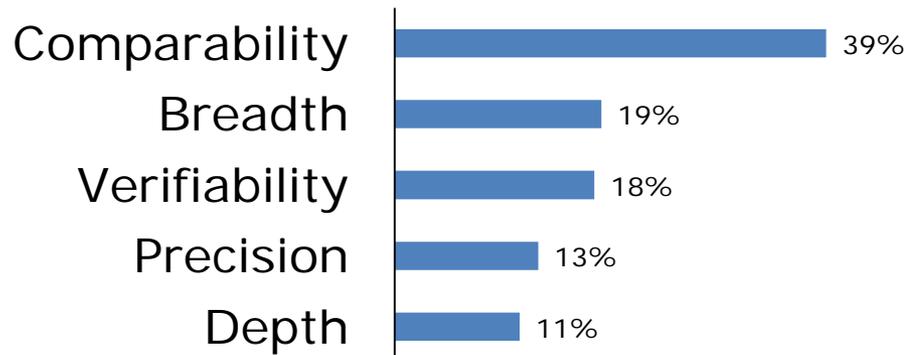
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- Breadth
  - The scope of activities included in the measurement
- Depth
  - The range of direct and indirect emissions included in the measurement
- Precision
  - The level of detail provided by the measurement
- Comparability
  - The degree with which measurements can be compared across time and organizations
- Verifiability
  - Degree of assurance and transparency in the measurement

# Breadth, Depth & Precision



# Evaluating Existing Global Tools Using Analytical Hierarchy Process



Criteria	Measure	Description	Weight
Breadth	High	Includes all modes plus logistics activities	8
	Medium	All four main modes (road/air/water/rail)	7
	Low	Single mode	1
Comparability	High	Standardized boundaries and output measures	8
	Medium	Single standardized data and methodology	5
	Low	Multiple methodology and data options	1
Depth	High	Full Life Cycle Assessment	6
	Medium	Well to Wheel analysis	5
	Low	Direct emissions only	1
Precision	High	Shipment level reporting	7
	Medium	Carrier level reporting	5
	Low	National/Industry Average	1
Verifiability	High	External audit/verification required	5
	Medium	Methodology and data are publicly available	2
	Low	No verification/non-standardized data	1

Tool	Comparability	Breadth	Verifiability	Precision	Depth	Score
BSR CCWG	H	L	L	H	L	6.0
EcoTransIT	M	M	M	L	M	5.9
SmartWay	H	L	L	M	L	5.6
NTM Calculator	M	M	M	L	L	5.2
GHG (Defra)	M	M	M	L	L	5.2
REET	M	L	M	L	M	4.5
Ecoinvent LCA	L	H	M	L	H	4.4
IPCC Guidelines	L	M	M	L	L	3.2
GHG Protocol (EPA)	L	M	M	L	L	3.2
EPA MOVES	L	L	M	H	L	2.9

# Final thoughts

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- Explicitly recognize needs of different actors
  - Difference between programs, methodologies & tools
- Leverage COFRET & EN16528 standard
  - Well-to-wheel
- Cognizant of the five criteria of tools
  - Depth, Breadth & Precision (internal decision-making)
  - Comparability & verifiability (external claims)
- Two different types of tools
  - Single mode, consistent boundaries, high precision
  - Across modes, less precision

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# Thanks!