

Evaluation of the European road freight market for longer & heavier vehicles on the long haul and conclusions to new vehicle concepts

4th Interdisciplinary Conference on Production, Logistics and Traffic (ICPLT),
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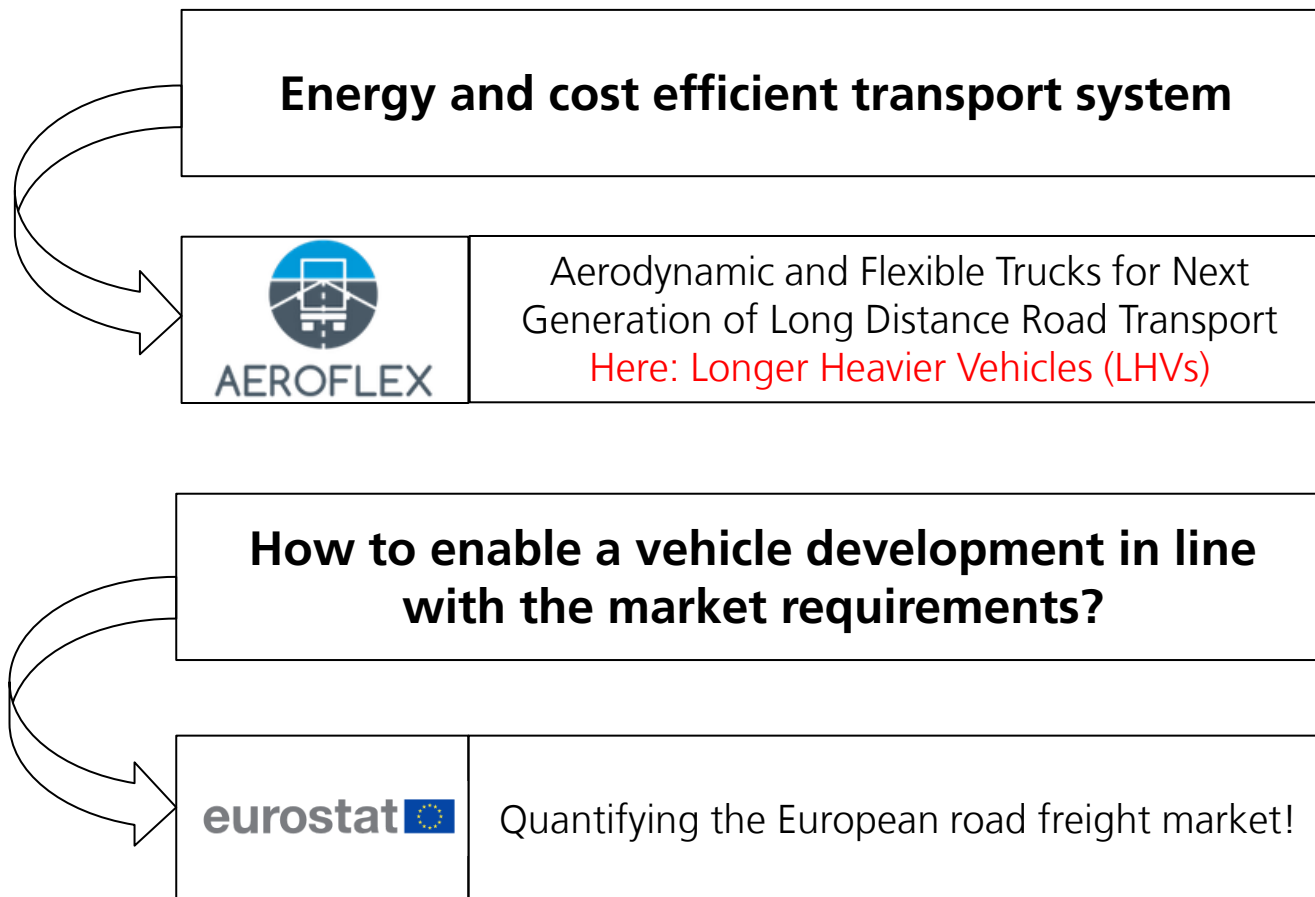
Jan Blechschmidt*, Anika Lobig, Andreas Lischke, Gernot Liedtke



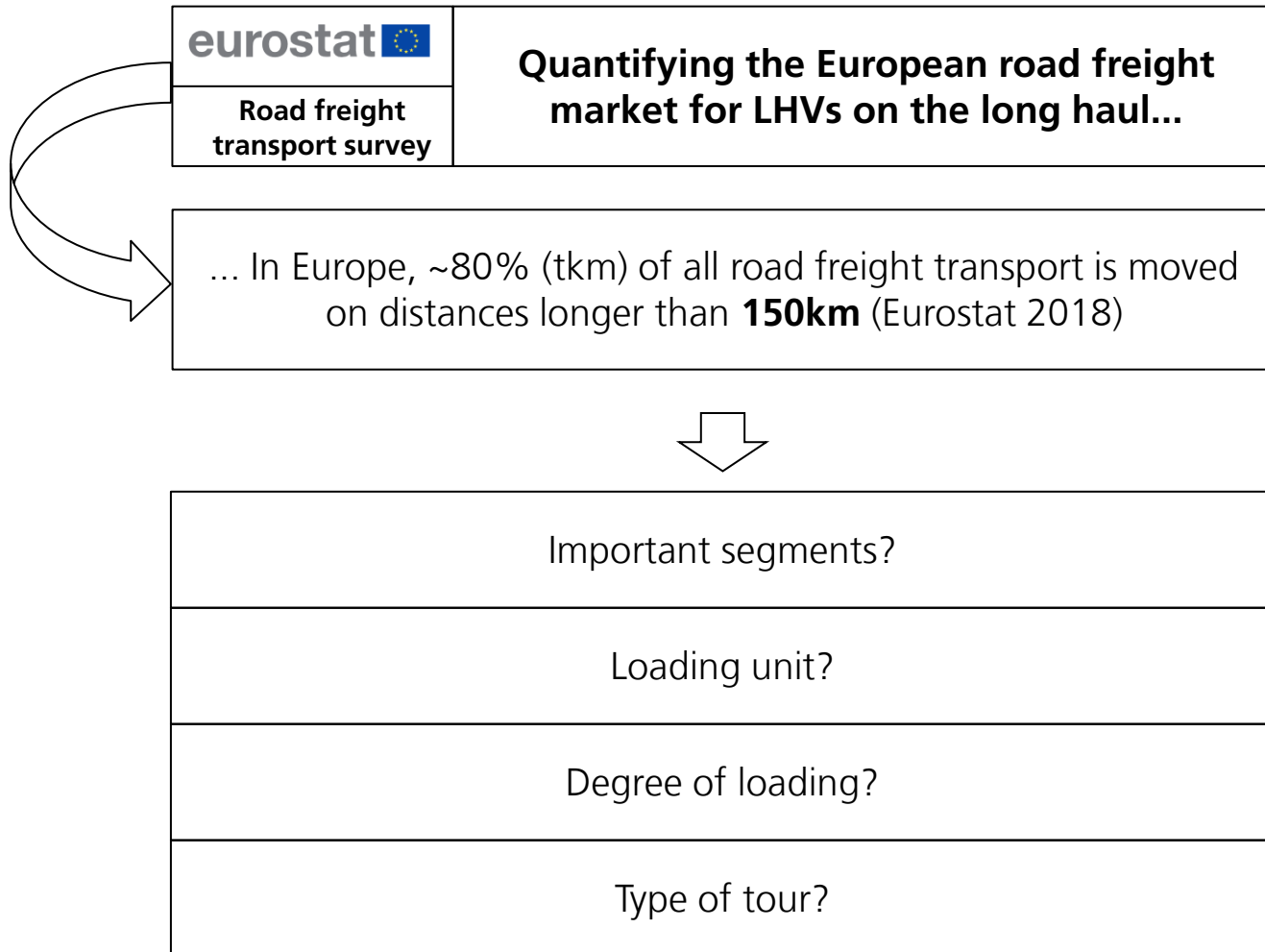
Knowledge for Tomorrow



1. Motivation



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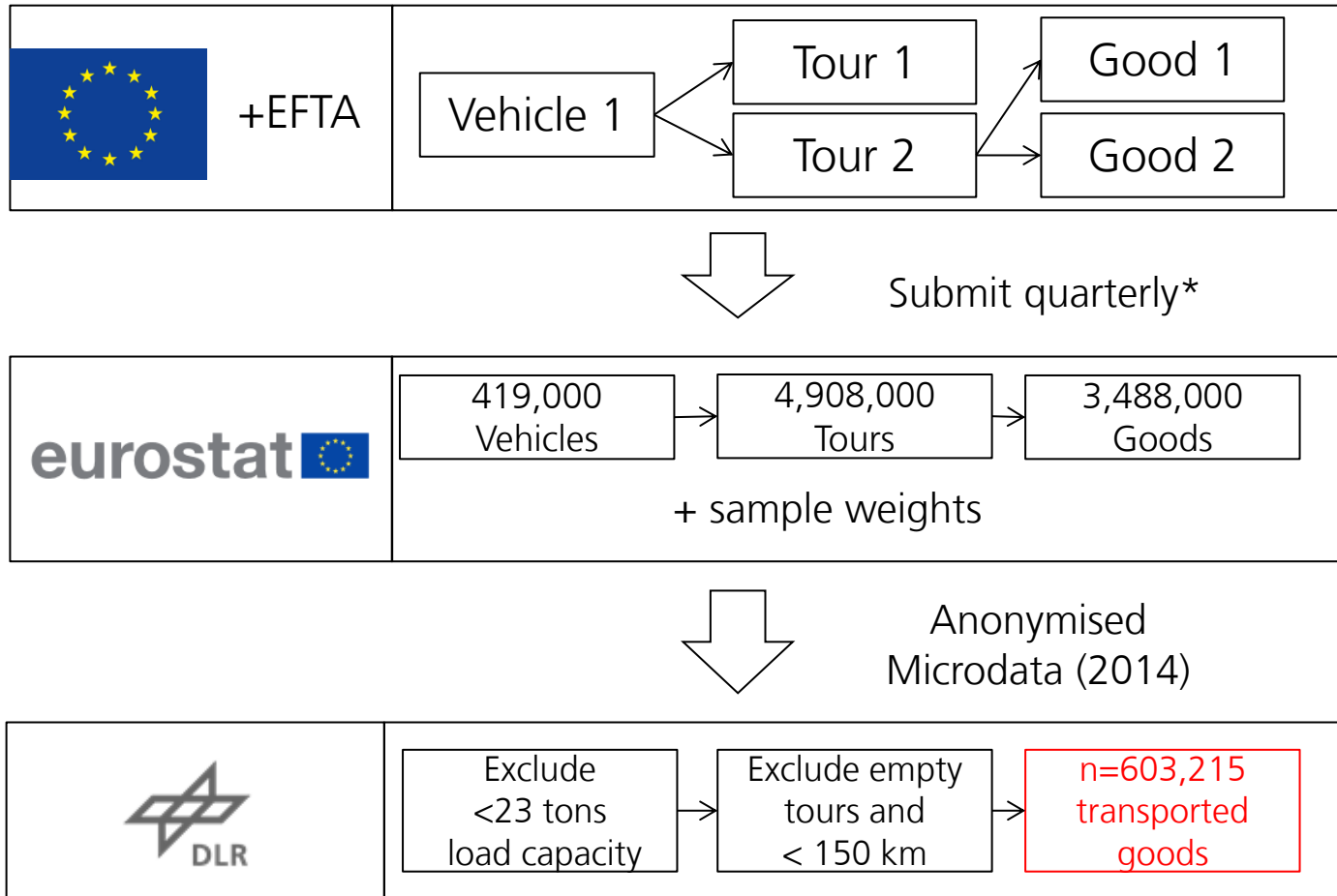


Agenda

- 2. Data description and method of analysis
 - 3. Results of the analysis
 - 4. Summary and conclusions
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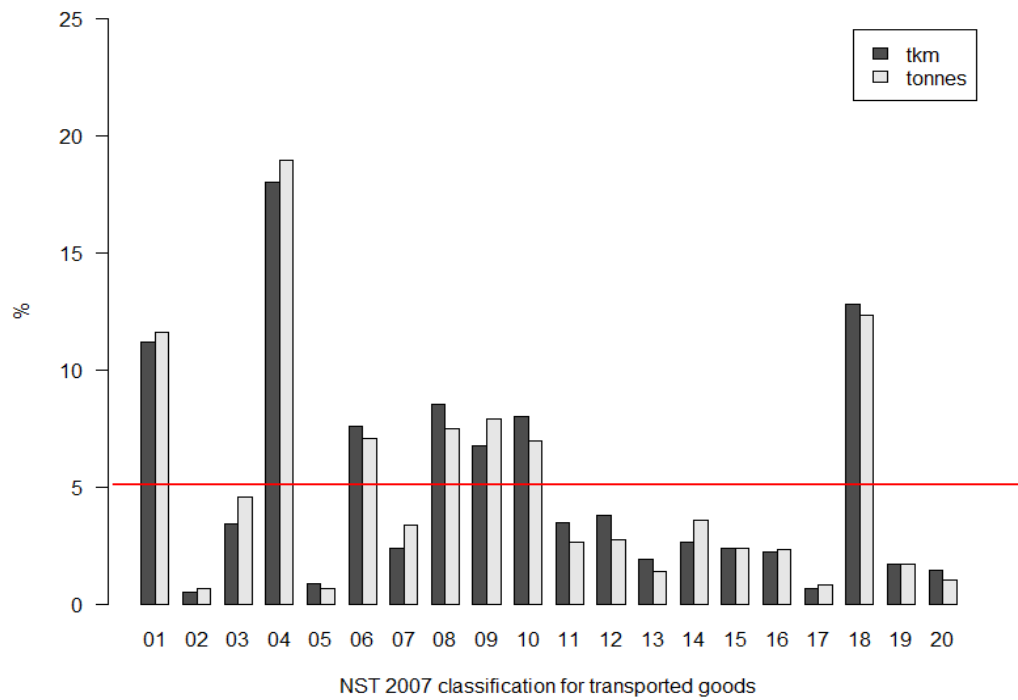
2. Data description and method of analysis



*Note that Malta and Iceland do not submit data. Norway, Spain and France exclude some heavy vehicles from the survey.



3.1 Results of the analysis: Type of goods



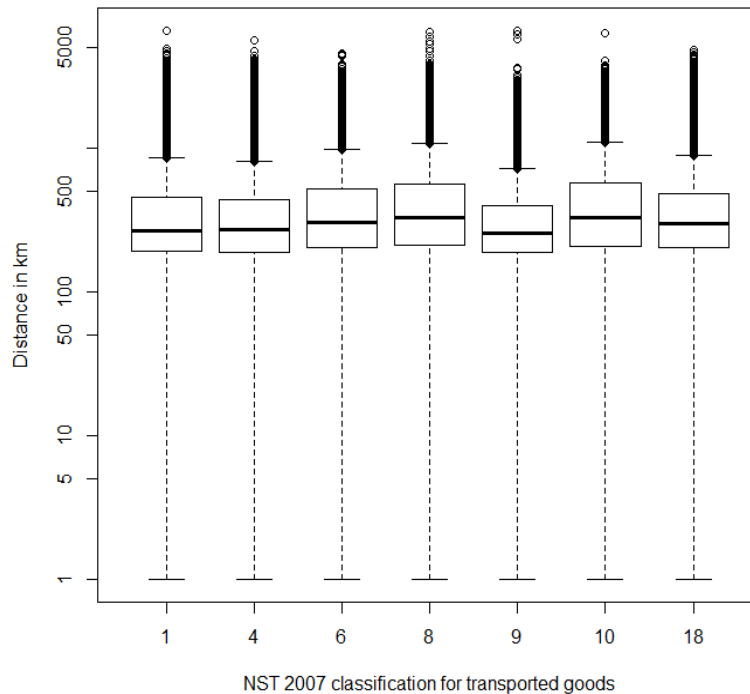
NST 2007 classification:

- 01 Products of agriculture, hunting, and forestry; fish and other fishing products
- 04 Food products, beverages and tobacco
- 06 Wood and products of wood and cork (except furniture); articles of straw and plaiting materials; pulp, paper and paper products; printed matter and recorded media
- 08 Chemicals, chemical products, and man-made fibers; rubber and plastic products ; nuclear fuel
- 09 Other non-metallic mineral products
- 10 Basic metals; fabricated metal products, except machinery and equipment
- 18 Grouped goods: a mixture of types of goods which are transported together

Fig. 1 Transport volumes and tkm of all commodity groups (NST 2007) in percentage share, n= 603,215.



3.2 Results of the analysis: Transport distance



NST 2007 classification:

- 01 Products of agriculture, hunting, and forestry; fish and other fishing products
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Fig. 2 Boxplot of distances per transported goods in km in the selected commodity groups, n= 422,135.



3.3 Results of the analysis: The loading unit*

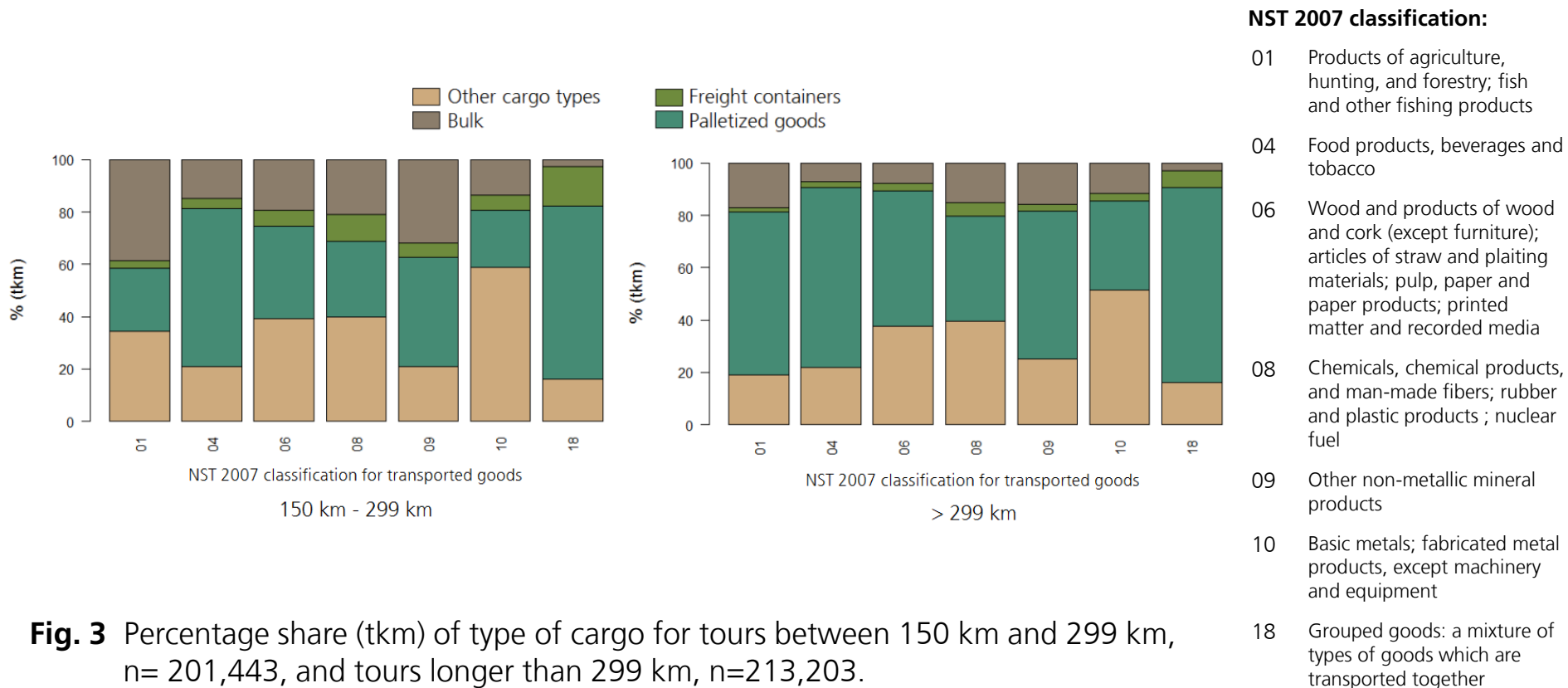
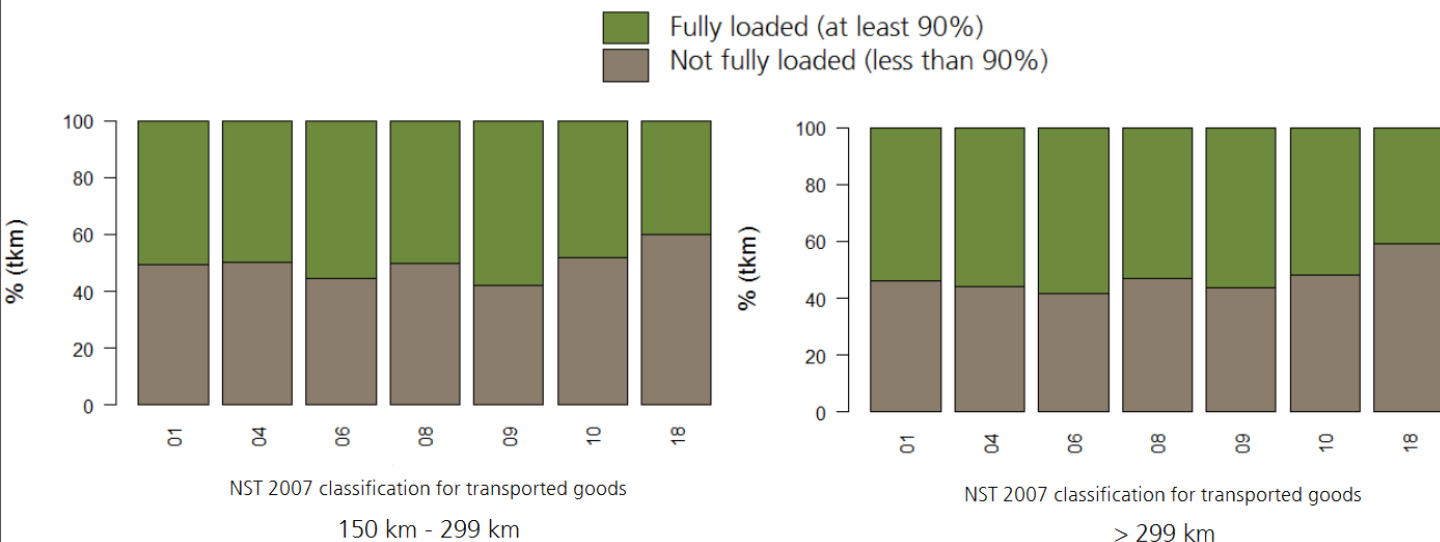


Fig. 3 Percentage share (tkm) of type of cargo for tours between 150 km and 299 km, n= 201,443, and tours longer than 299 km, n=213,203.

*Note that the variable is not covered by Denmark, Italy, United Kingdom.



3.4 Results of the analysis: The degree of loading*



NST 2007 classification:

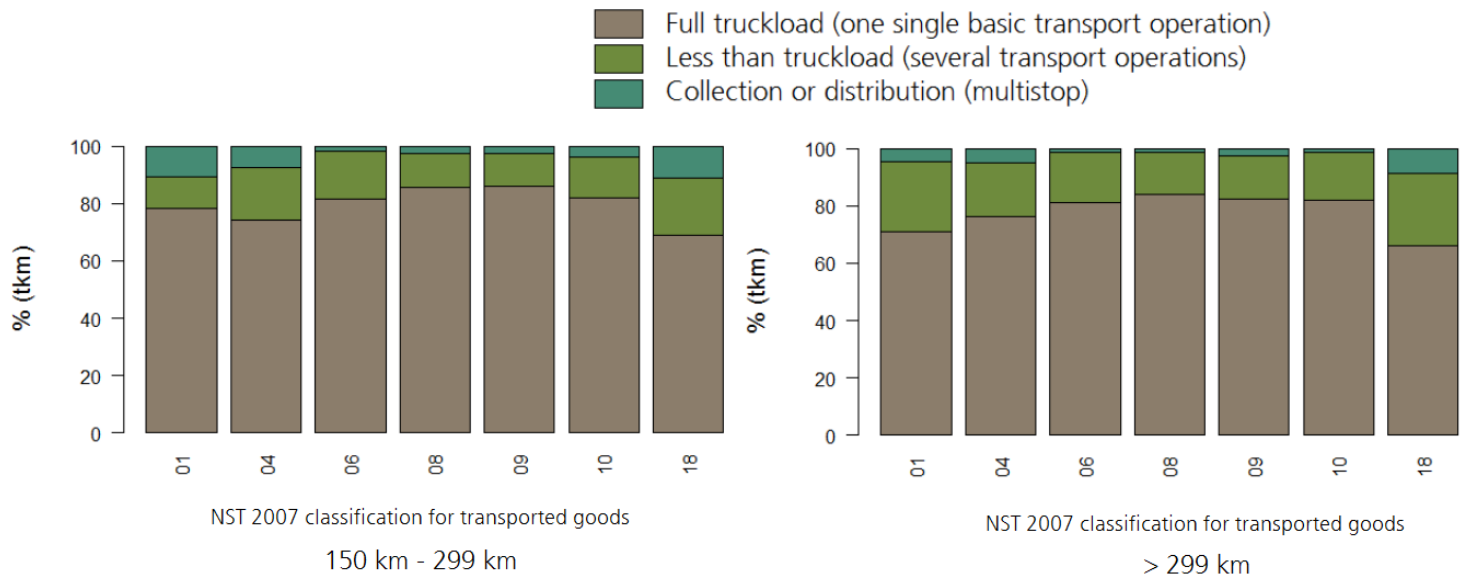
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Fig. 4 Percentage share (tkm) of degree of loading for tours between 150 km and 299 km, n= 111,806, and tours longer than 299 km, n=130,689.

*Note that the variable is not covered by Czech Republic, Ireland, Italy, Luxembourg, Hungary, Switzerland.



3.5 Results of the analysis: Type of tour*



NST 2007 classification:

- 01 Products of agriculture, hunting, and forestry; fish and other fishing products
- 04 Food products, beverages and tobacco
- 06 Wood and products of wood and cork (except furniture); articles of straw and plaiting materials; pulp, paper and paper products; printed matter and recorded media
- 08 Chemicals, chemical products, and man-made fibers; rubber and plastic products; nuclear fuel
- 09 Other non-metallic mineral products
- 10 Basic metals; fabricated metal products, except machinery and equipment
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Fig. 5 Percentage share (tkm) of type of journey for journeys between 150 km and 299 km, n=206,593, and journeys longer than 299 km, n=215,542.

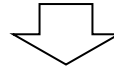
*Note that Germany only records the type of good with the uppermost weight.



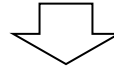
4. Summary and conclusions

Quantifying the European road freight market for LHVs on the long haul...

- Vehicles with a load capacity of at least **23 tons**
- Tours with distances of at least **150 km**



Seven commodity groups have a percentage share of more than **5% (tkm)**.



Loading units:

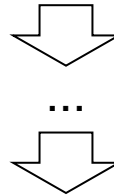
Transports on pallets increase from **~44% (tkm)** for 150km-300km to up to **~58% (tkm)** for > 300km.

More pallet space?
Smart loading units?

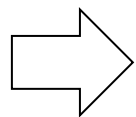


4. Summary and conclusions

Quantifying the European road freight market for LHVs on the long haul...



<p>Degree of loading: ~50% (tkm) of the analysed tours are fully loaded (in terms of max. volume or space).</p>	<p>Intelligent load consolidation and smart loading units? → Economies of scale.</p>
<p>Type of tour: One single transport operation tours have a percentage share of ~77% (tkm).</p>	<p>Smart loading units for fast un-/loading? Combination of compatible loading units with different sizes?</p>



Estimate choice models for the loading unit; the degree of loading; the type of cargo...



Thank you for your attention!

Jan Blechschmidt, M.Sc.
Research associate

German Aerospace Center (DLR)

Institute of Transport Research
Department: Commercial Transport

M: Jan.Blechschmidt@dlr.de
P: +49 (0)30 67055 9656



Literature

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