

PORT SOLUTIONS FOR EFFICIENT, EFFECTIVE AND SUSTAINABLE MULTIMODALITY



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# Accelerating Modal Shift to Danube Freight Shipping through Containerization

## *Identified Market Potentials*

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PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

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UNIVERSITY  
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**LOGISTIKUM**  
CHALLENGE ACCEPTED

# Why Containerization on the Danube?



Modal shift potential from road to inland waterways

Road transport distances of 300 km or longer should be shifted to IWW or rail <sup>3</sup>



Low market penetration in IWT sector

~90% of 122 billion TKM in the EU is not containerized (year 2022) <sup>1,2</sup>



Promising advantages

Decrease costs and transit time  
Increase reliability and flexibility

# How high is the modal shift potential?



Modal shift potential from road to inland waterways

Road transport distances of 300 km or longer should be shifted to IWW or rail



Low market penetration in IWT sector



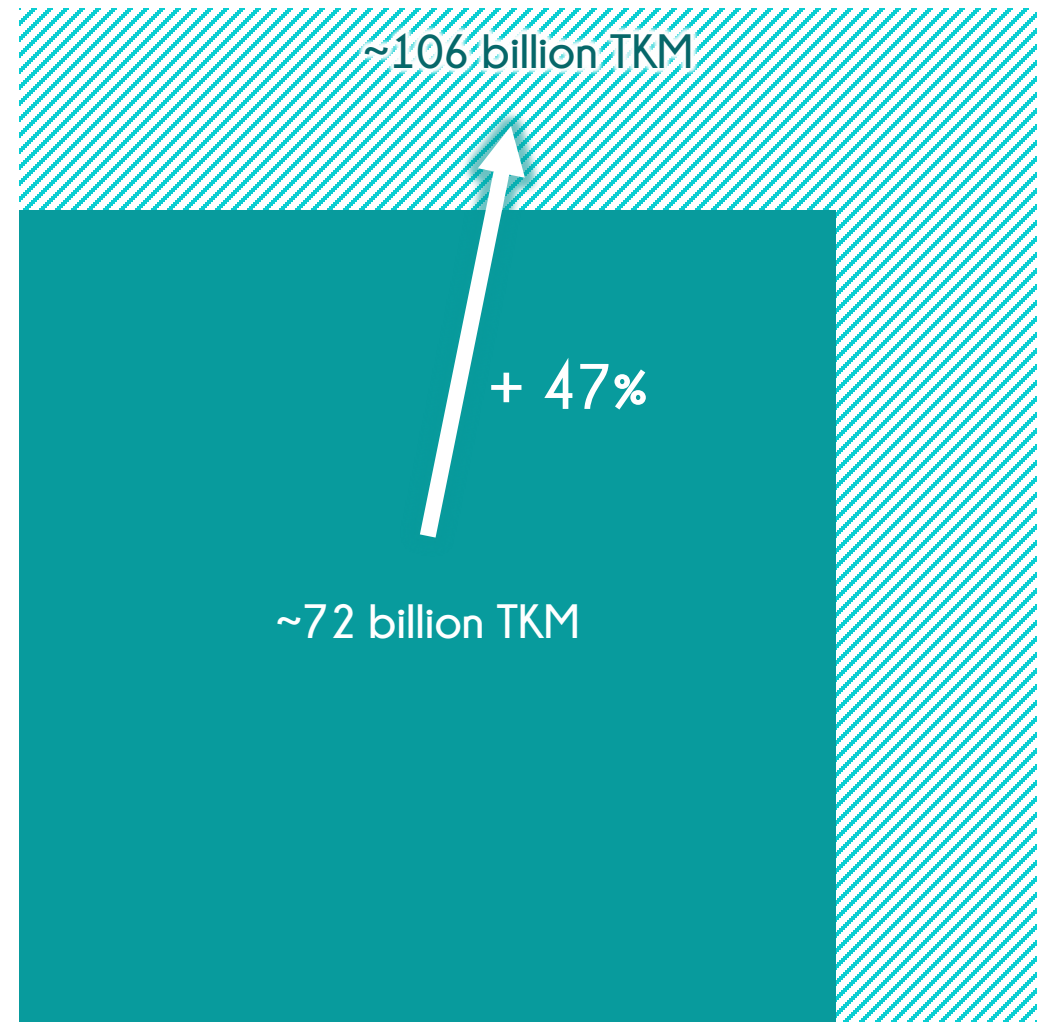
Promising advantages

# Motivation: 5% shift from road to IWT

*Looking at the EU countries bordering the Danube, shifting just 5% of their TKM from road to inland waterways would increase Danube freight transport by 47%!*



year 2021



# Road transports

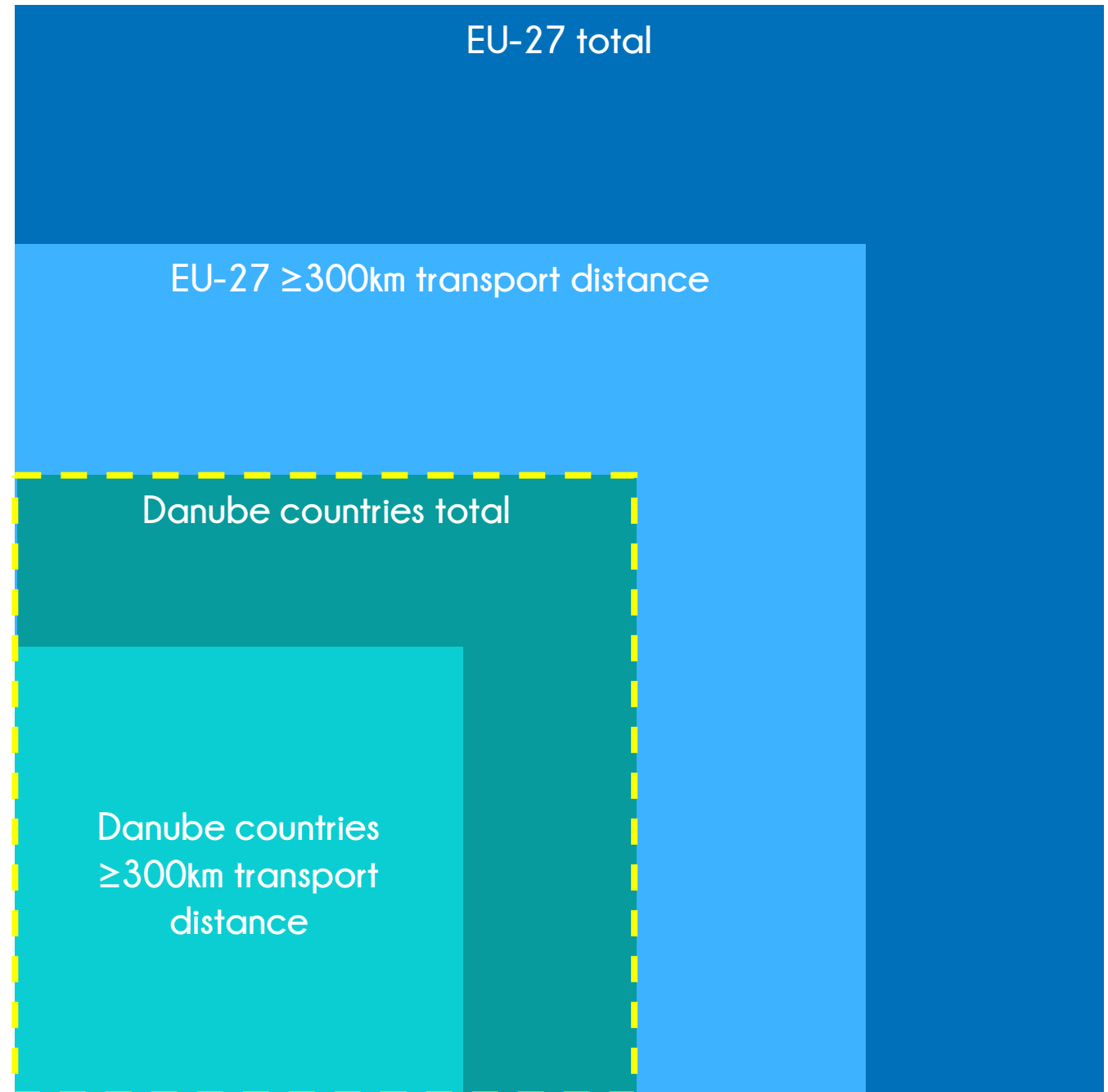
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## EU-27

- Total: 1 758 billion TKM
- $\geq 300\text{km}$ : 1 073 billion TKM

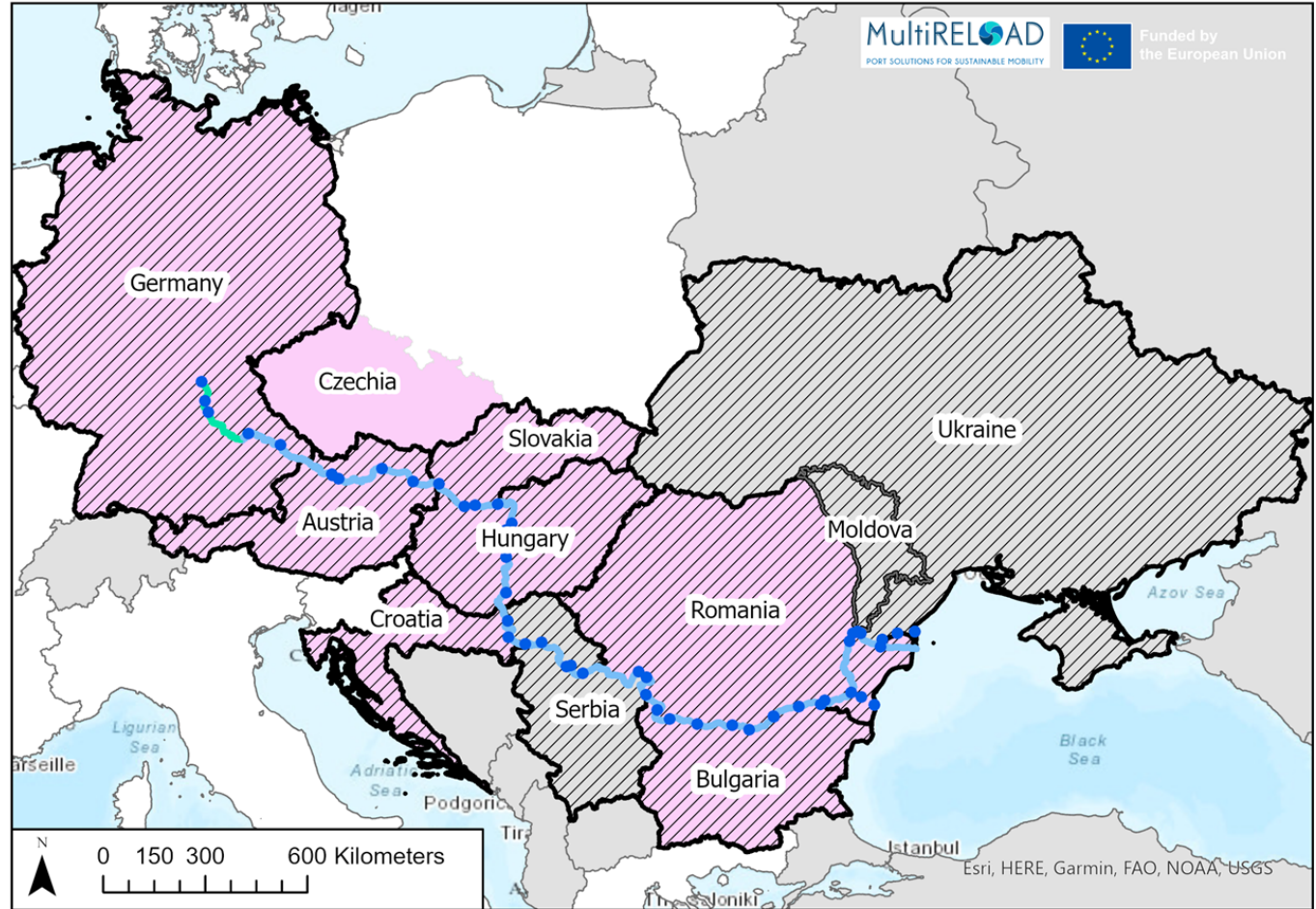
## Danube Countries

- Total: 569 billion TKM
- $\geq 300\text{km}$ : 298 billion TKM



# Study Area & Data

- Danube riparian countries that are EU member states
- Czechia included due to closeness to Danube
- EUROSTAT transport database<sup>4</sup>, year 2021

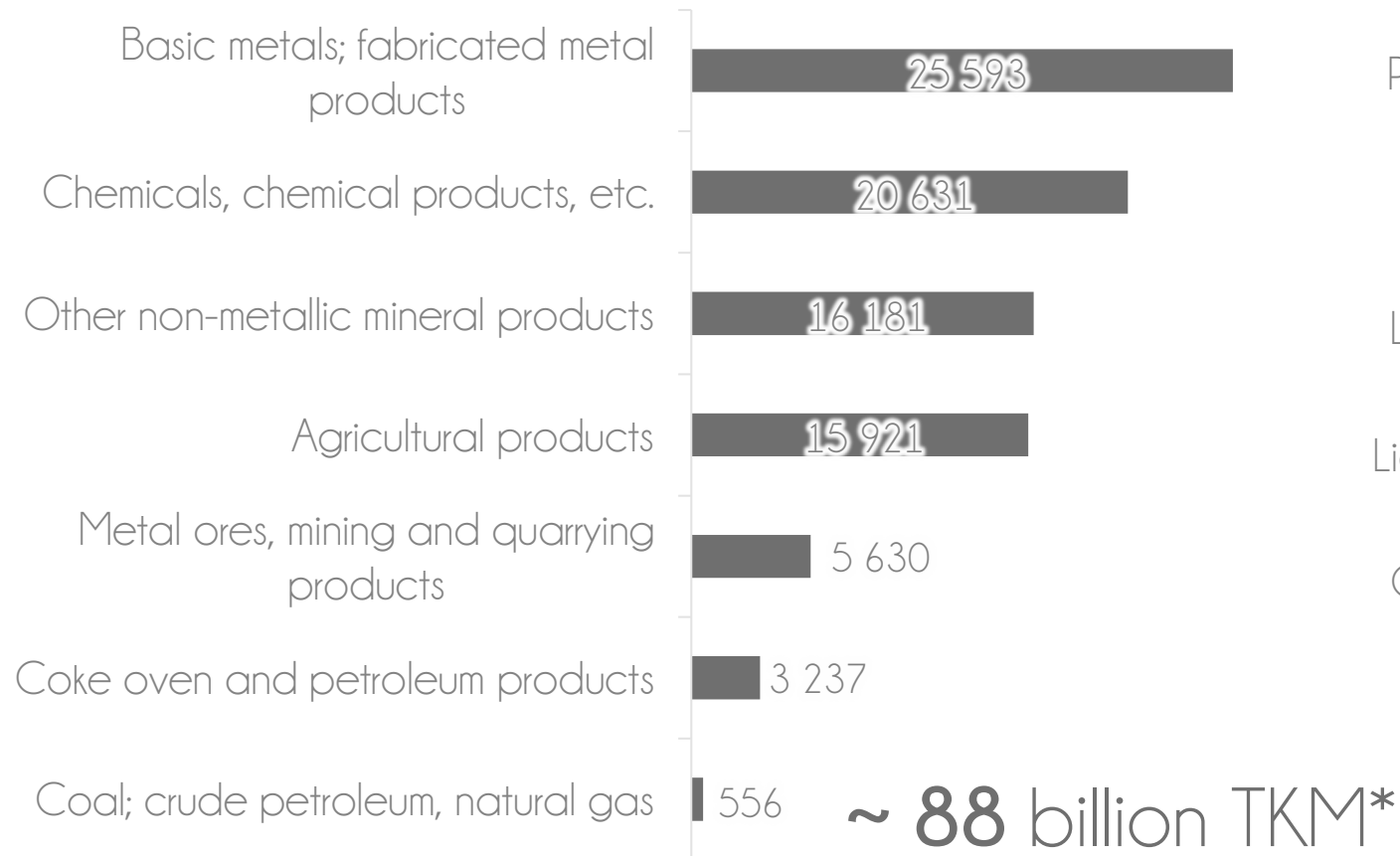


Sources: European Commission – Eurostat/GISCO, UNECE, ArcGIS; Author: Silvia Dopler (FHOO); Date: 24.08.2023

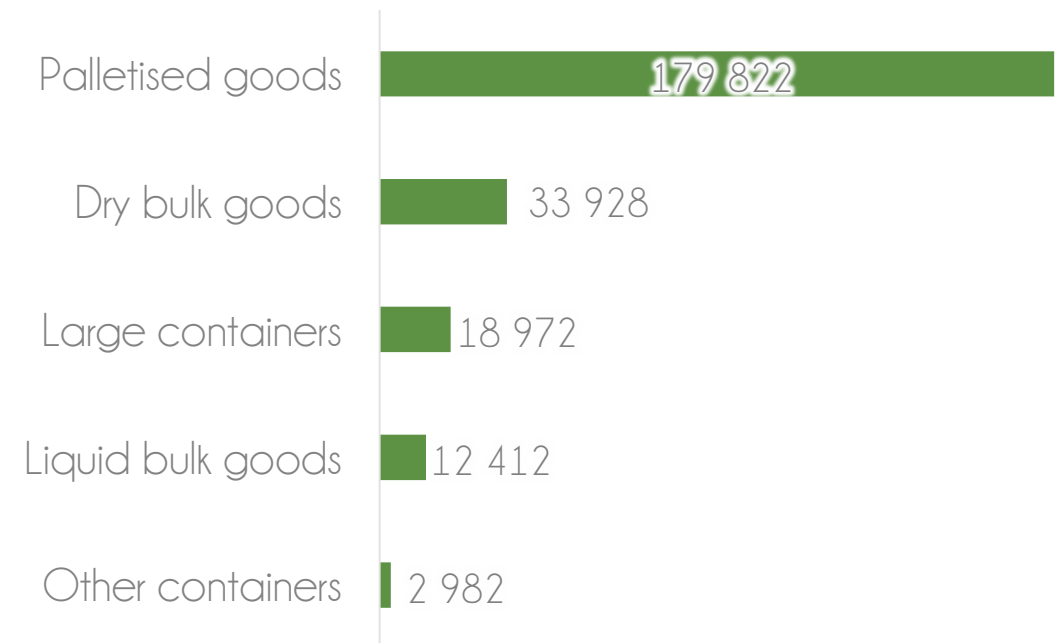
Funded by the Horizon Europe Call "Safe, Resilient Transport and Smart Mobility services for passengers and goods" | Call ID: HORIZON-CL5-2021-D6-01, Grant ID: 101069796

# Road transports $\geq 300$ km in the Danube countries

## Identified product groups, mio TKM



## Potential cargo types, mio TKM



**~ 248 billion TKM\***

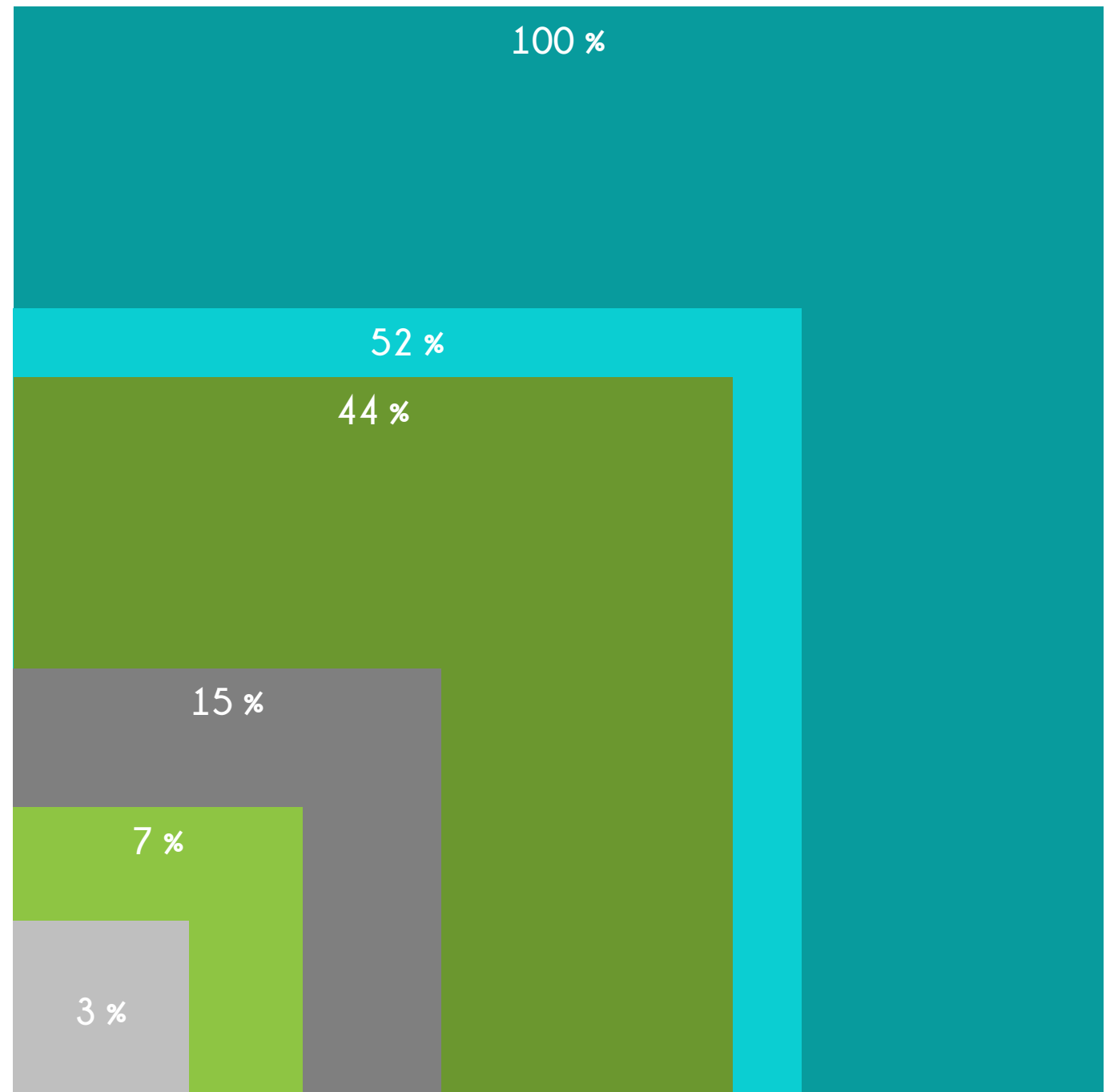
\*year 2021

# Shift potential road to Danube

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Danube Countries road transports:

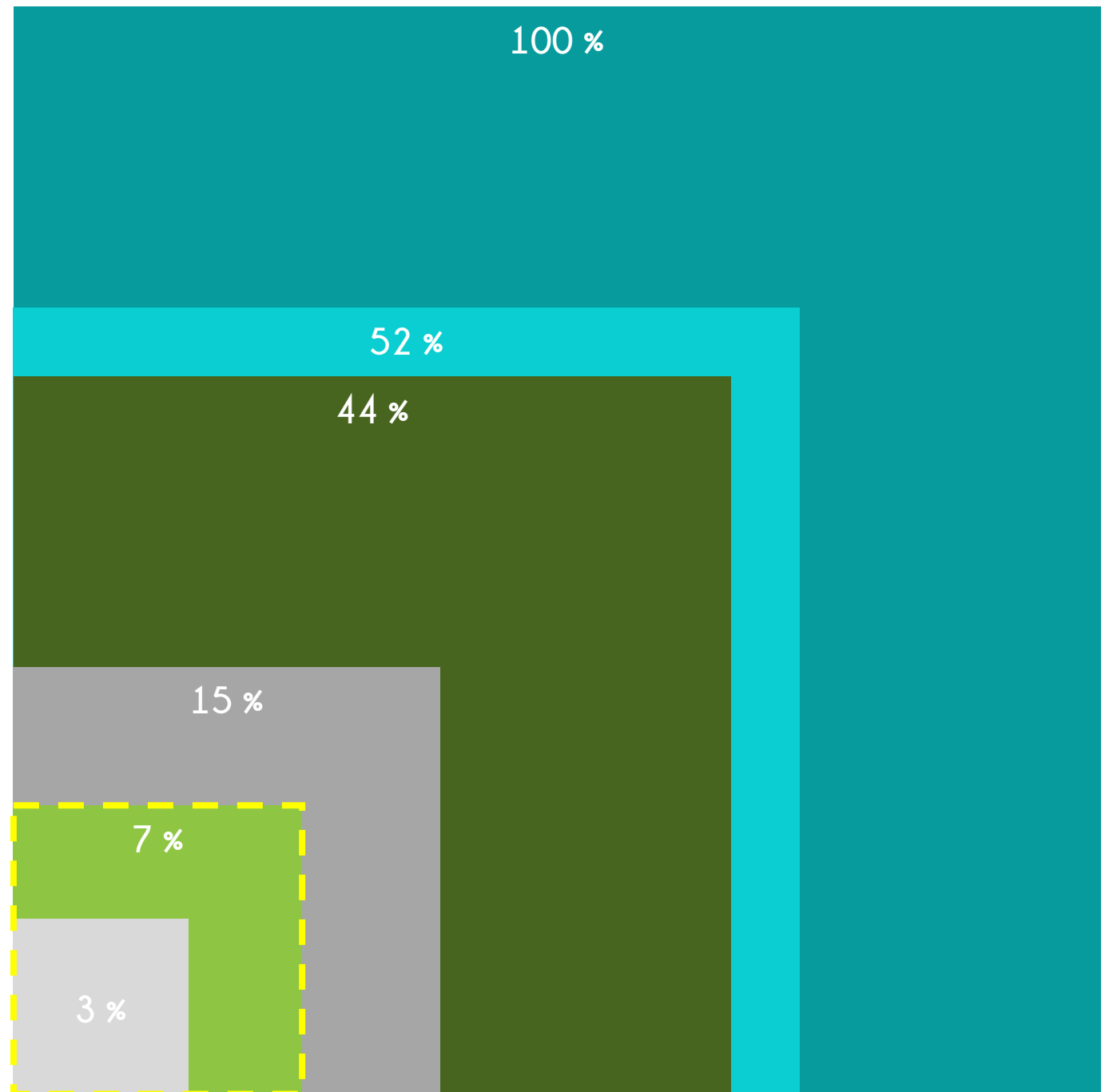
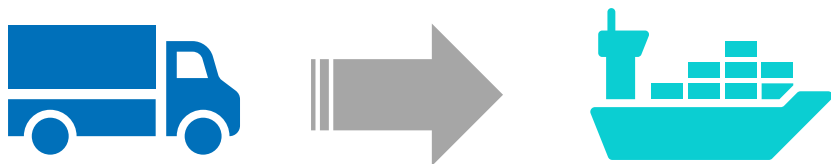
- Total: 569 billion TKM
- $\geq 300\text{km}$ : 298 billion TKM
- Identified products: 88 billion TKM
  - Within service area (80 km) of ports: 15 billion TKM
- Potential cargo types: 248 billion TKM
  - Within service area (80 km) of ports: 40 billion TKM



# Shift potential road to Danube

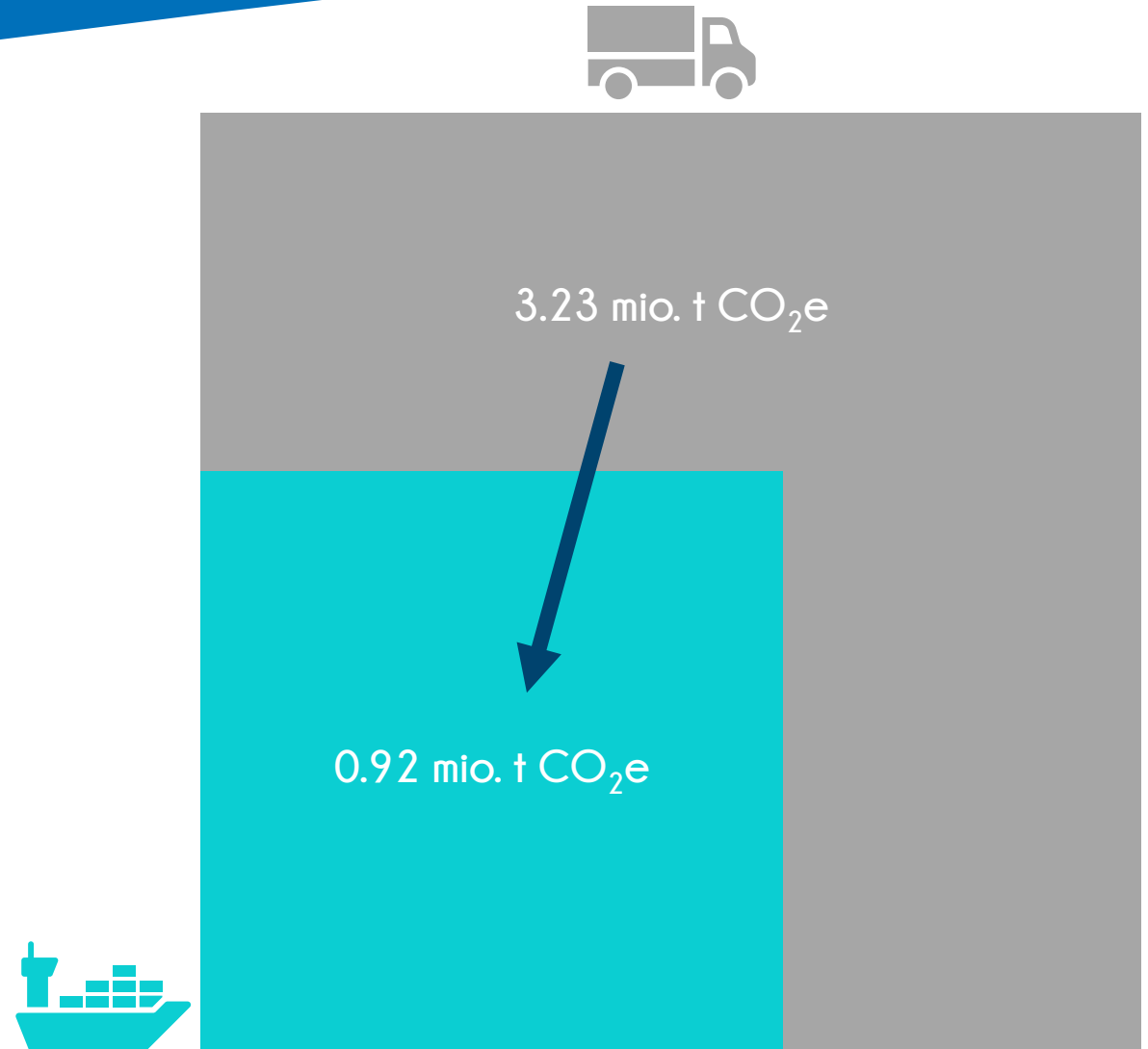
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3 to 7 % shift potential of TKM from  
road to Danube shipping!



# Potential cut of emissions

- ~34 billion TKM (5%) shift from road to IWT results in a drastic cut of GHG emissions!
- Containerized IWT causes approx. only **one third** of the emissions compared to transport by truck. <sup>5</sup>



# Thank you!

The full study will be published in  
March 2024 at  
[www.multireload.eu](http://www.multireload.eu)



# References

1. CCNR (2022) Market Observation Inland Navigation in Europe: Container transport per Country in Europe [https://www.ccr-zkr.org/files/documents/om/om22\\_II\\_en.pdf](https://www.ccr-zkr.org/files/documents/om/om22_II_en.pdf)
2. CCNR (2023) Market Observation Inland Navigation in Europe: Container transport per Country in Europe [https://www.ccr-zkr.org/files/documents/om/om23\\_II\\_en.pdf](https://www.ccr-zkr.org/files/documents/om/om23_II_en.pdf)
3. Modal shift potential of long-distance road freight in containers - tonne-kilometre: [https://ec.europa.eu/eurostat/databrowser/product/view/tran\\_im\\_mosp](https://ec.europa.eu/eurostat/databrowser/product/view/tran_im_mosp)
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