



Recordit WP3

Internal Costs Calculation at Corridor Level

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WP3 object

- Analysis of internal cost structures of door-to-door intermodal and all-road transportation along selected corridors;
- *Analysis of time requirements;*
- Providing data necessary to costs-prices imbalances analysis ;
- Providing information necessary to identify technological and organisational inefficiencies along the intermodal corridors.





Identification of haulage and corridors

- **Three corridors:**

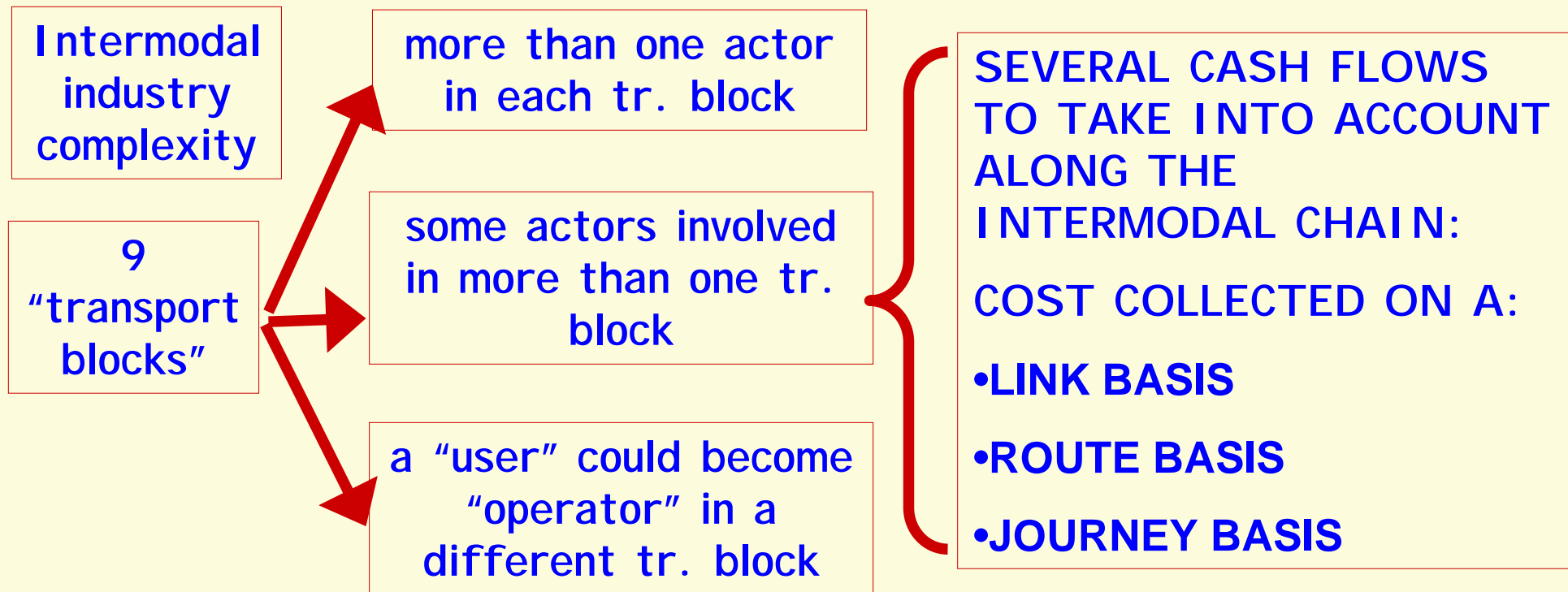
- ⇒ **Patras - Gothenburg;**
- ⇒ **Genova - Manchester**
- ⇒ **Barcelona - Warsaw**

- **“Loading unit” haulage:**

- ⇒ **Class A (and Class C) swap body;**
- ⇒ **FEU (and TEU) container on Genova - Manchester.**
- ⇒ **And equivalent loading units for all road solution**



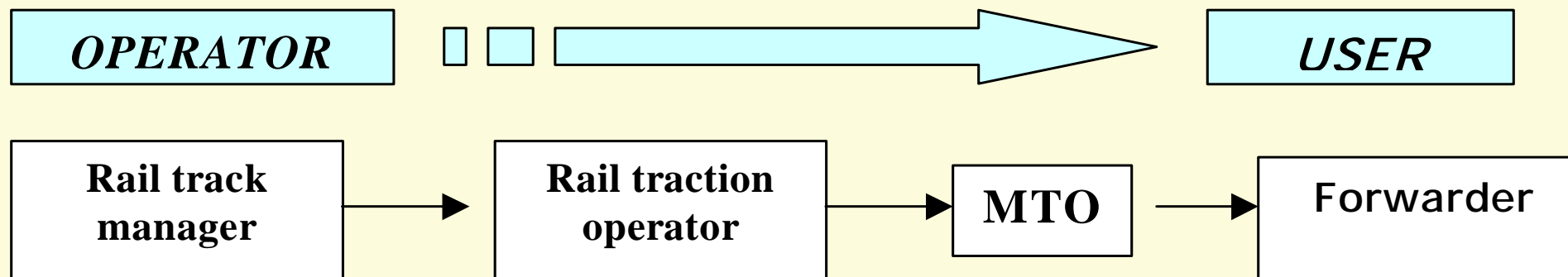
Actors and actions of intermodal chain





Actors and actions of intermodal chain: A TYPICAL EXAMPLE

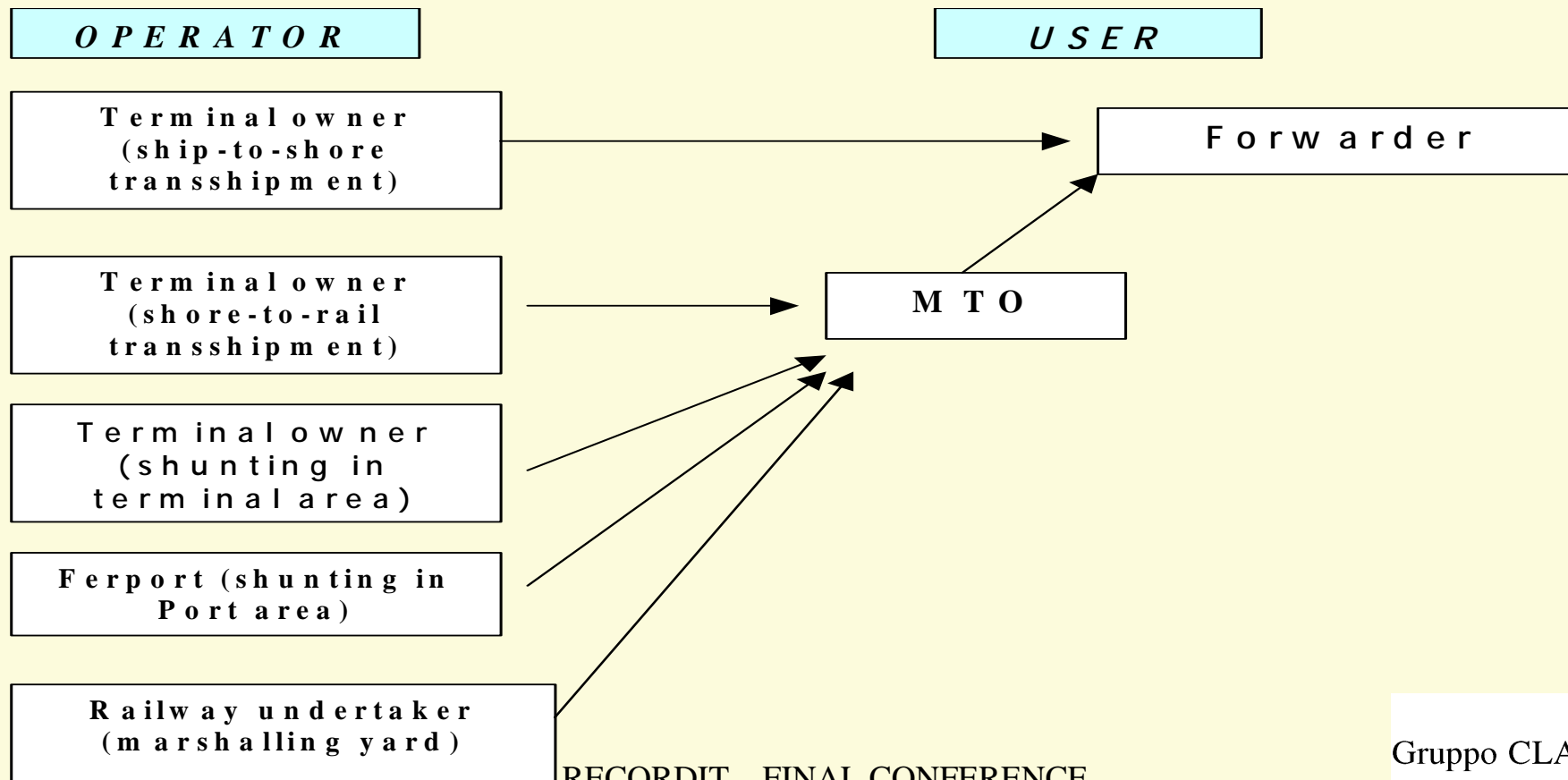
RAIL HAULAGE IN COMBINED TRANSPORT





Actors and actions of intermodal chain: A PARTICULAR EXAMPLE

PORT OF GENOVA SHIP-RAIL TRANSHIPMENT



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Data Collection: Sources

Bottom-up approach followed where possible:

- **Information among operators and RECORDIT users group;**

Problems arisen:

- ⇒ unit costs not surveyed by the operator in an industrial accounting;
- ⇒ some operators wish to keep unit costs secret;
- ⇒ The whole cost structure of the service is lacking because the service doesn't exist in the market

- **EU Research Project results**

- **Experts opinion**

- **Company annual budget analysis**



Data Collection: Methodology

Cost items clustered in 8 cost categories:

- Depreciation costs
- Personnel costs
- Consumption costs
- Maintenance costs
- Insurance costs
- Tolls and charges
- Third party services
- Other costs

Special case: OTHER COSTS for railway companies: include all cost items not directly related to the transport process, such as:

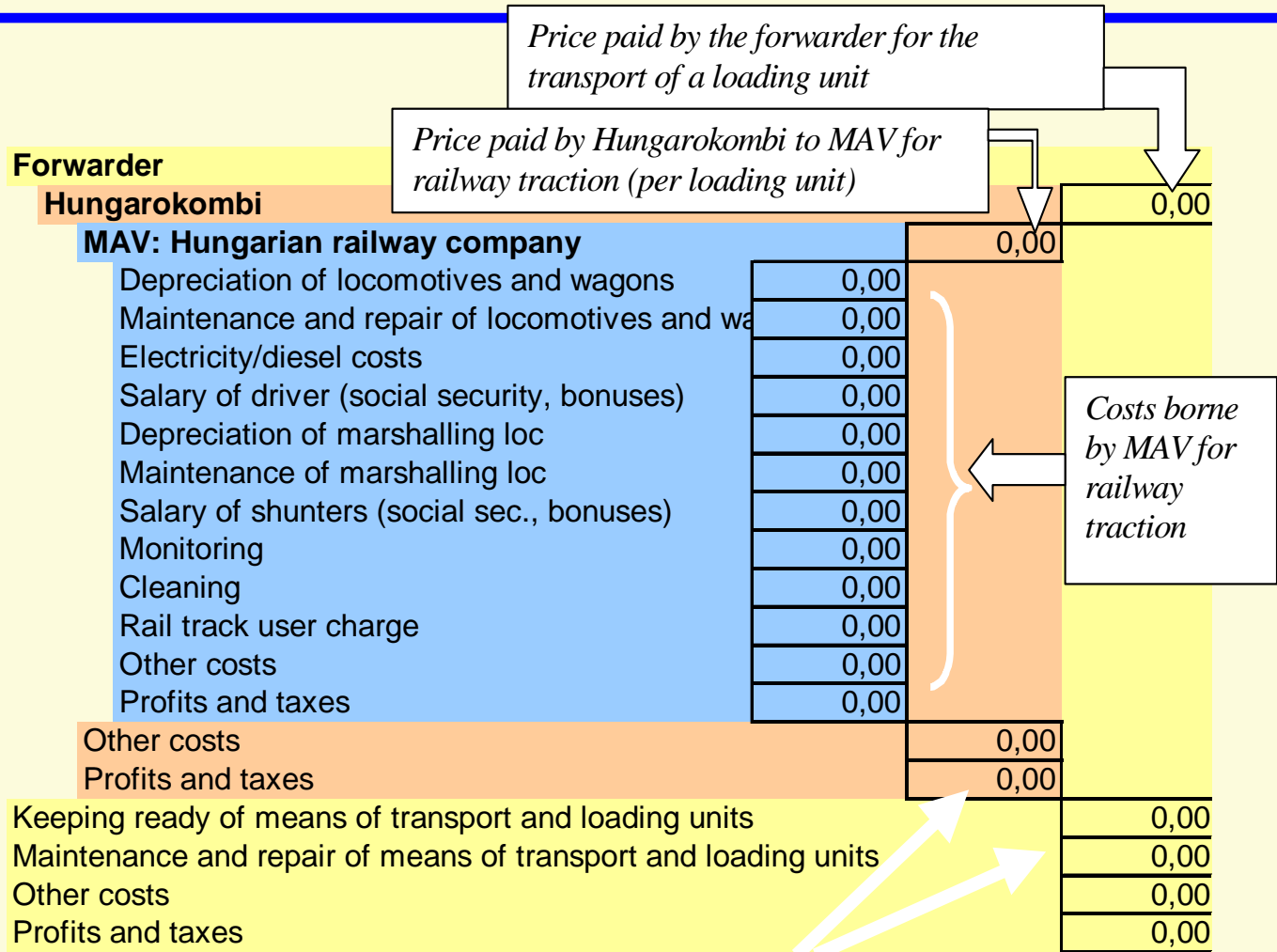
- depreciation for infrastructure and buildings;
- raw materials;
- salaries for “non transport” divisions personnel





Data collection: the "data format"

Haulage
Budapest-
Warsaw by
train (Budapest-
Hidasnemeti
segment)





Data Collection: Technical assumptions

Some assumptions on technical features of selected transport services have been made:

- **Loading units** (size, capacity and weight)
- **Means of transport capacity** (in terms of loading units)
- **Reported loading factors of each analysed service**
- **Loading factors of trucks** (pre/post haulage and long distance)
- **Mileage/usage/lifetime of the means of transport**
- **Consumption rates**



RESULTS

Expressed in:

➤ EURO / LU

Defined as:

➤ Total cost for the shipper (forwarder price + logistic costs)

➤ Cost sum (all costs borne by all operators along the corridor)

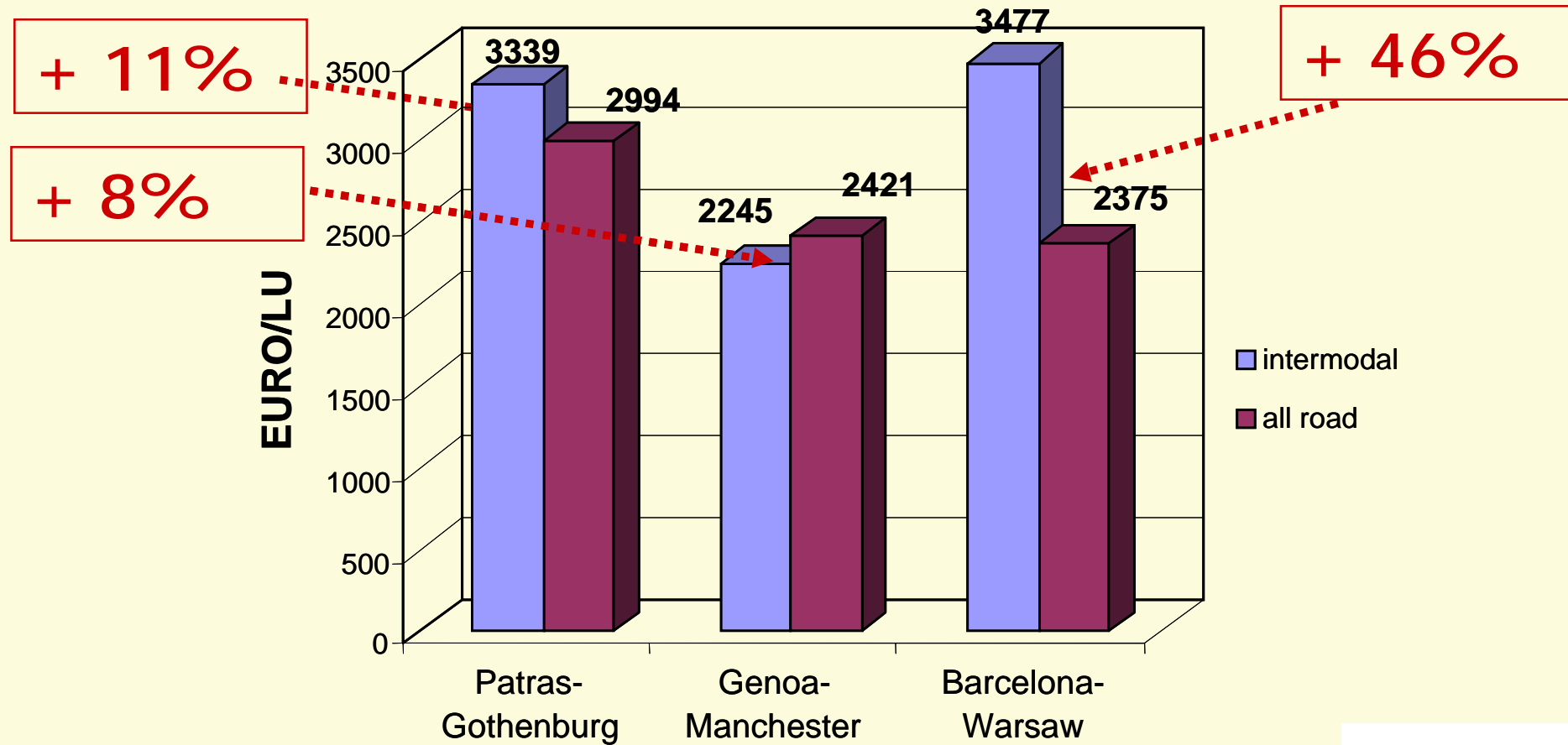
Segmented by:

➤ Mode of transport

➤ Cost category



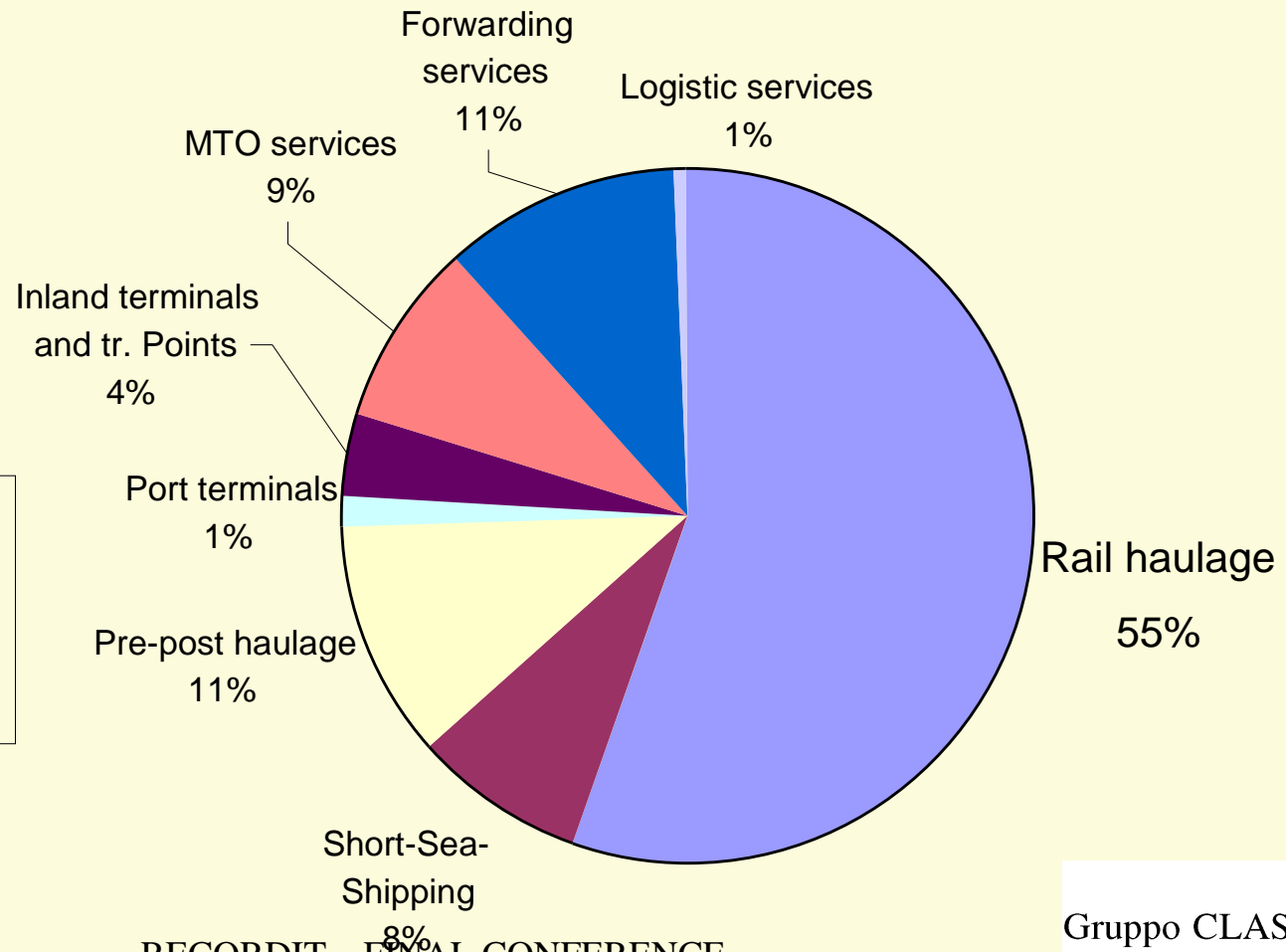
How much does the shipper pay for a haulage along the corridor?





How much do the various modes of transport weigh in intermodal solutions?

**Patras -
Gothenburg
Class A SB**

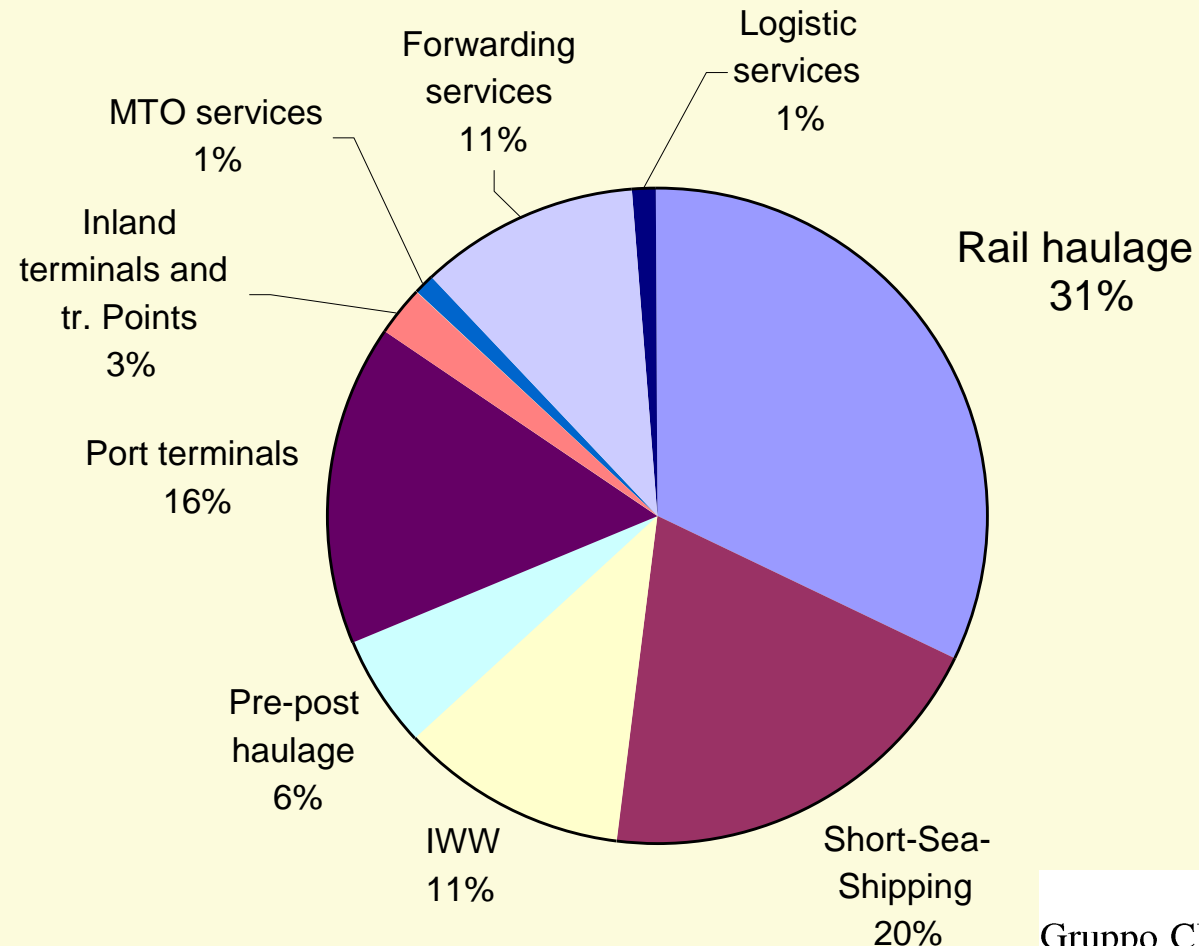


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How much do the various modes of transport weigh in intermodal solutions?



**Genova -
Manchester**
40' container

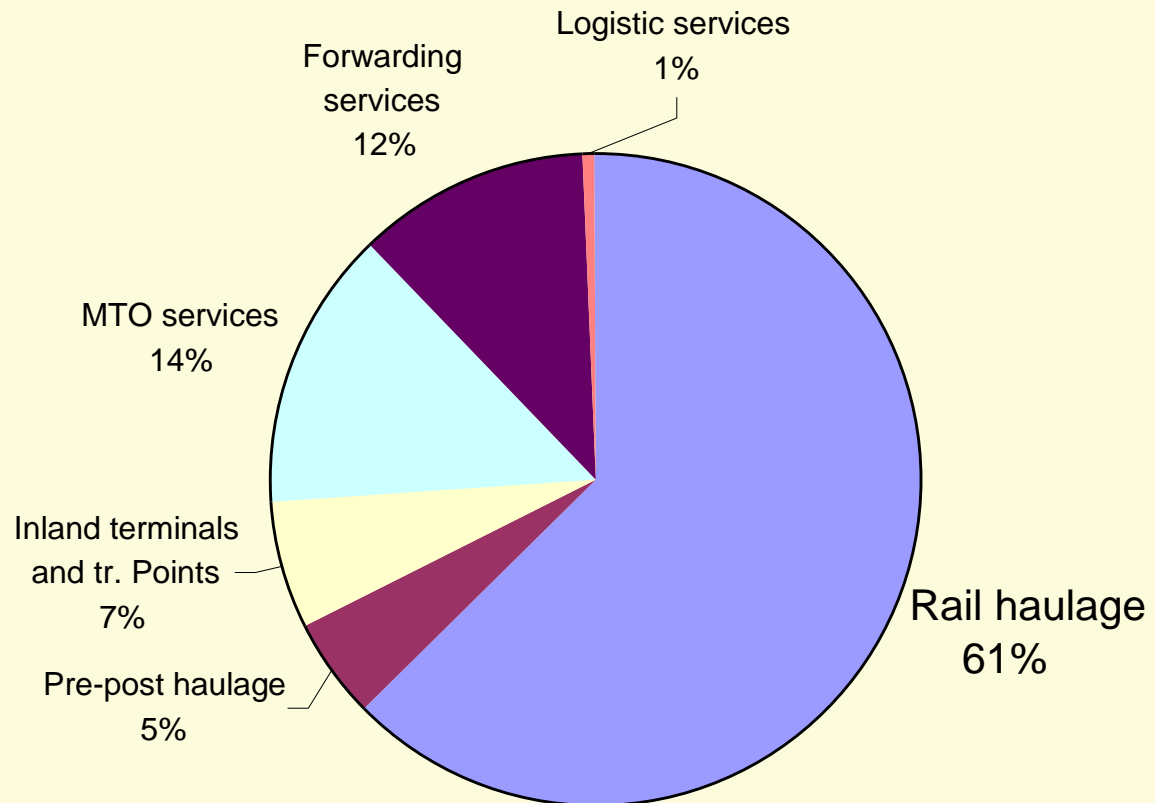
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How much do the various modes of transport weigh in intermodal solutions?

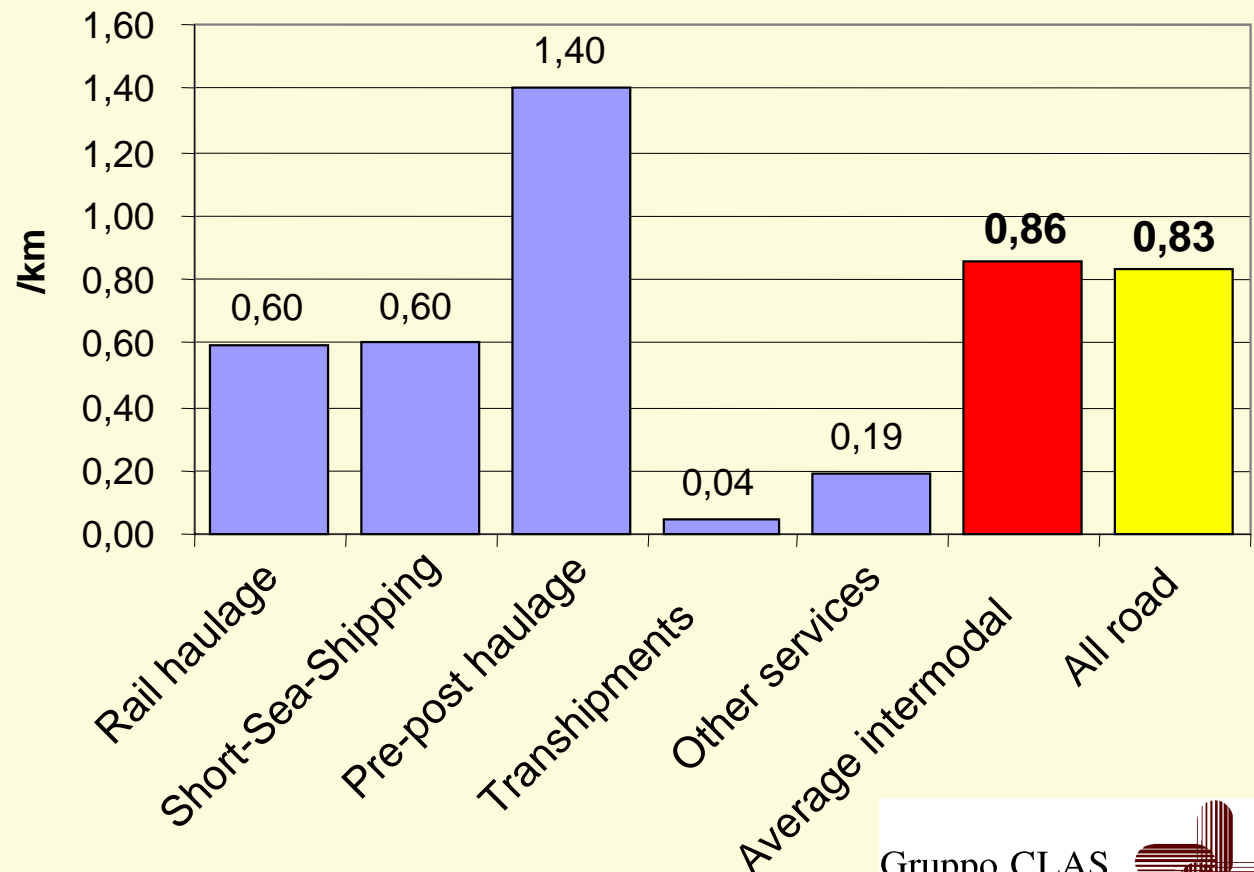
**Barcelona -
Warsaw
Class A SB**





Patras - Gothenburg corridor: internal costs per km by mode of transport

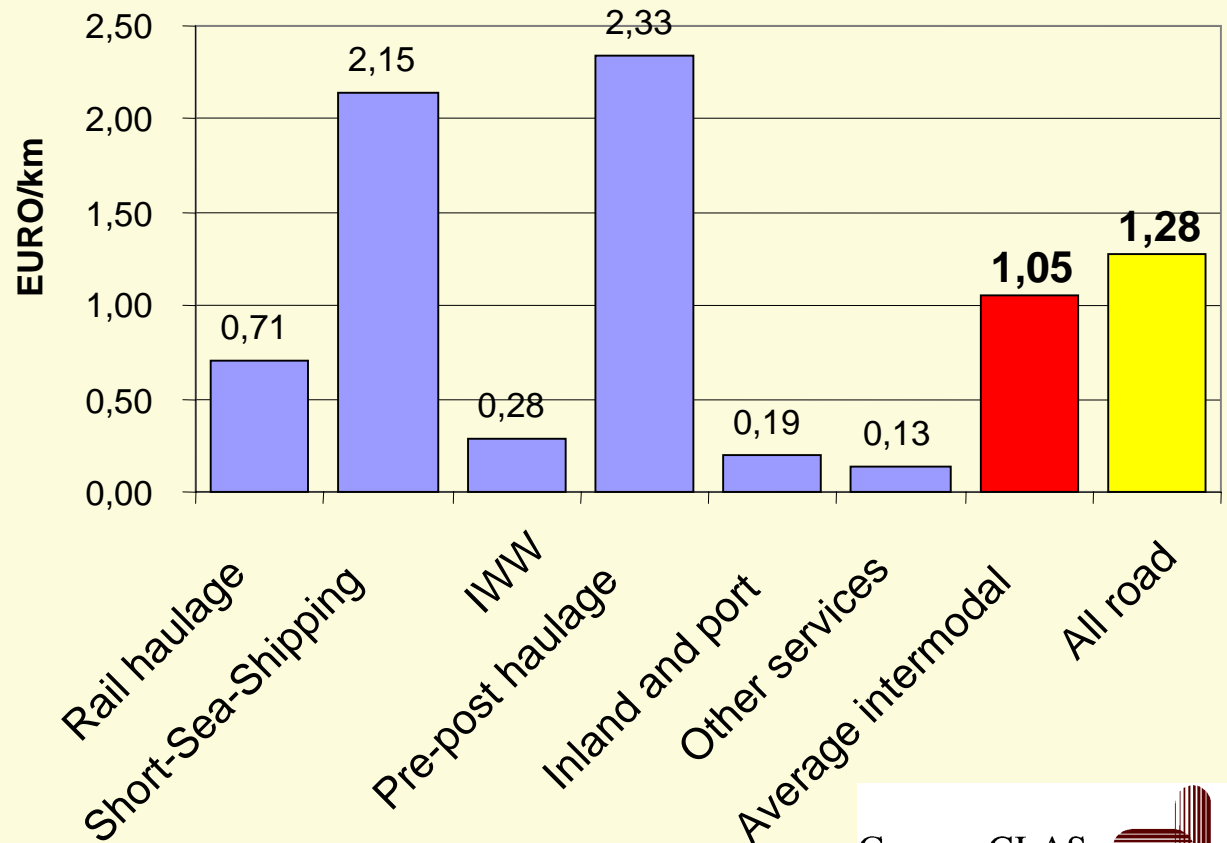
- Average intermodal cost per km higher than all road;
- “Pure” rail haulage cheaper than all road;
- Pre/post haulage is the most expensive mode;
- “Other services” payments make intermodal losing competitiveness.





Genova - Manchester corridor: internal costs per km by mode of transport

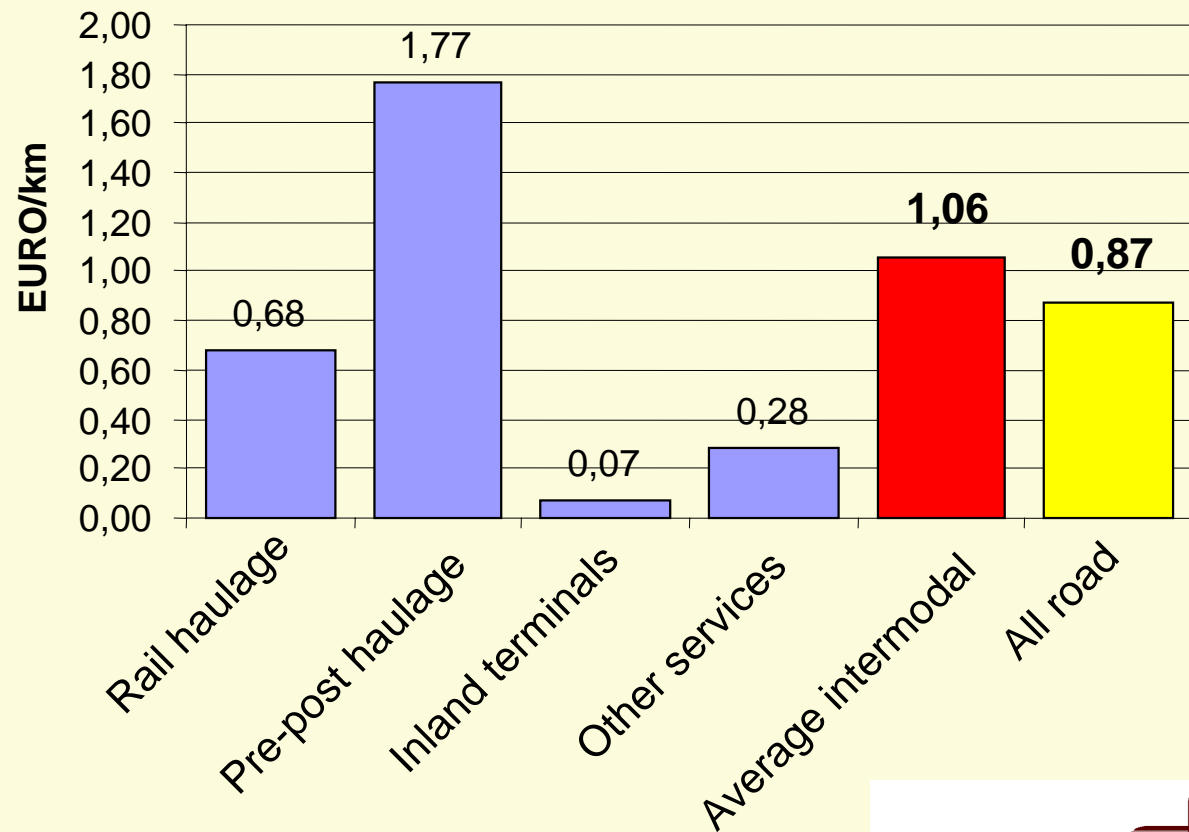
- Average intermodal cost per km lower than all road;
- IWW is the cheapest mode of transport;
- Pre/post haulage more expensive than previously reported;
- SSS (Lo-Lo) more expensive than Ro-Ro;
- High transshipment cost





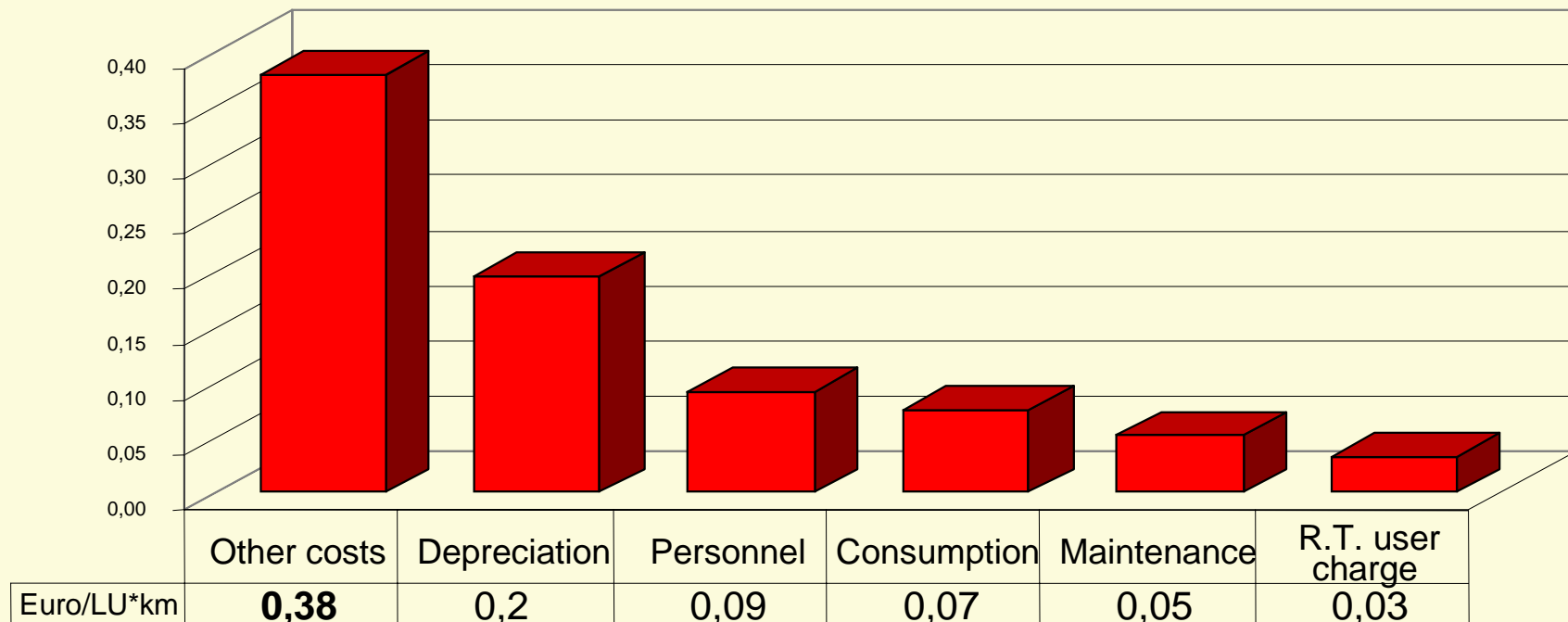
Barcelona - Warsaw corridor: internal costs per km by mode of transport

- Average intermodal cost per km higher than all road;
- Rail haulage km cost comparable with Patras-Gothenburg case;
- Once again, intermodal loses competitiveness due to pre/post haulage and “other services” costs.





Patras-Gothenburg corridor: cost drivers of rail haulage



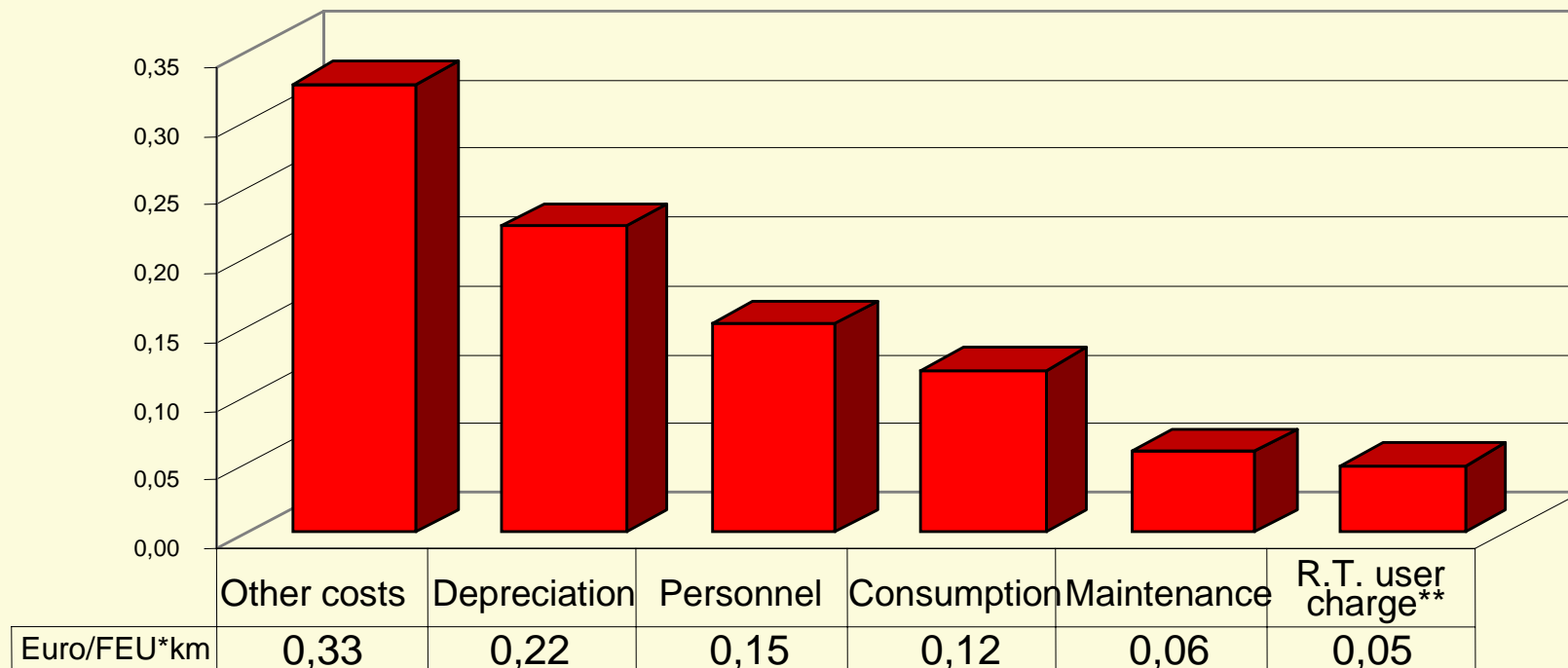
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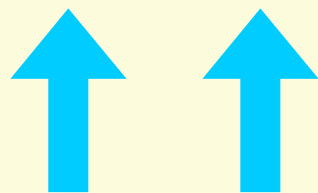
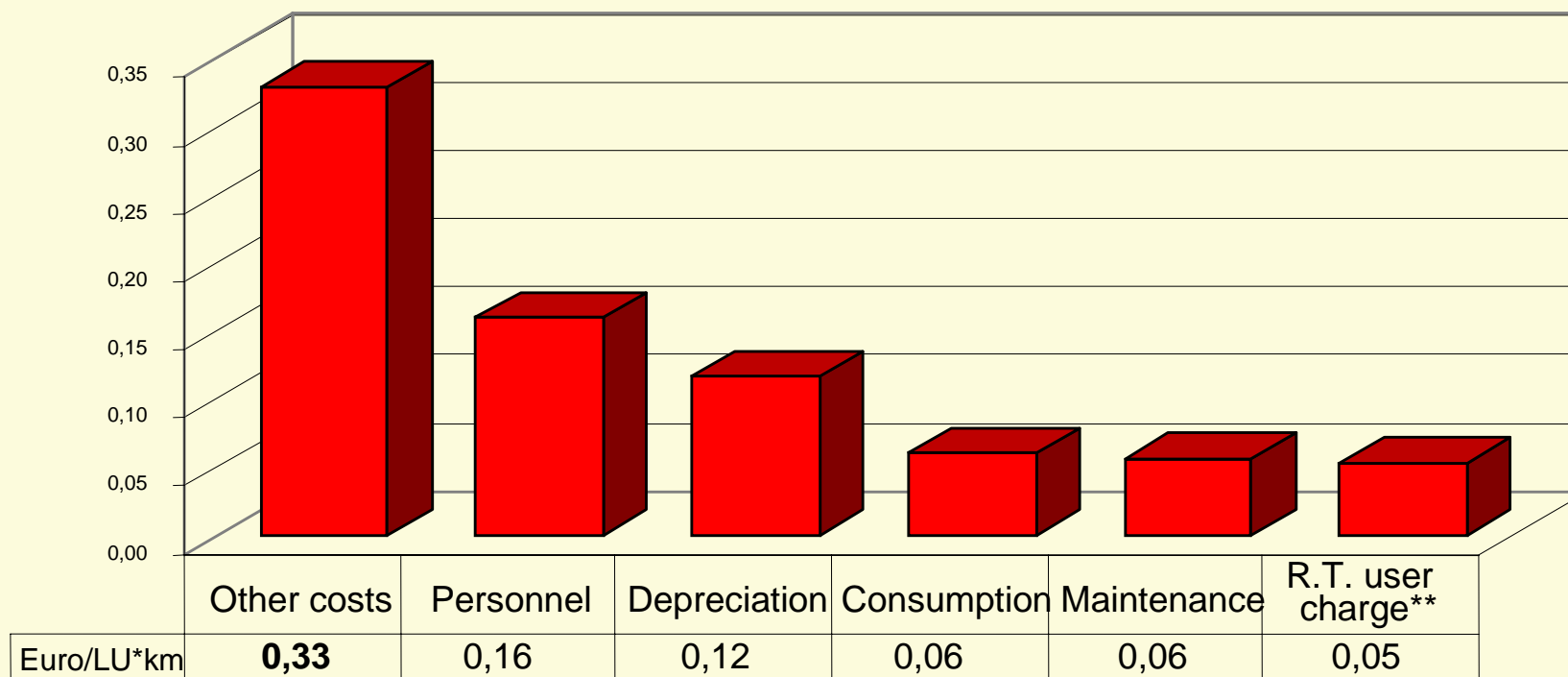
Genova - Manchester corridor: cost drivers of rail haulage



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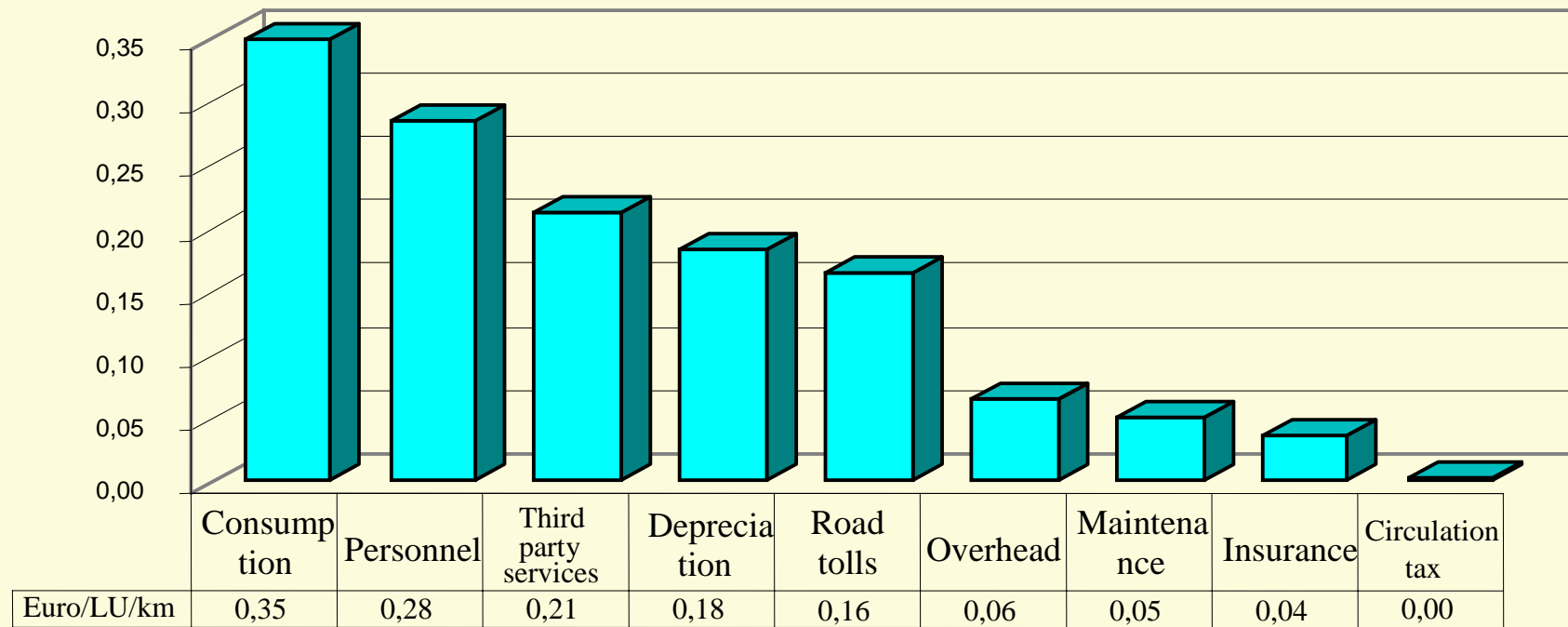
Barcelona - Warsaw corridor: cost drivers of rail haulage



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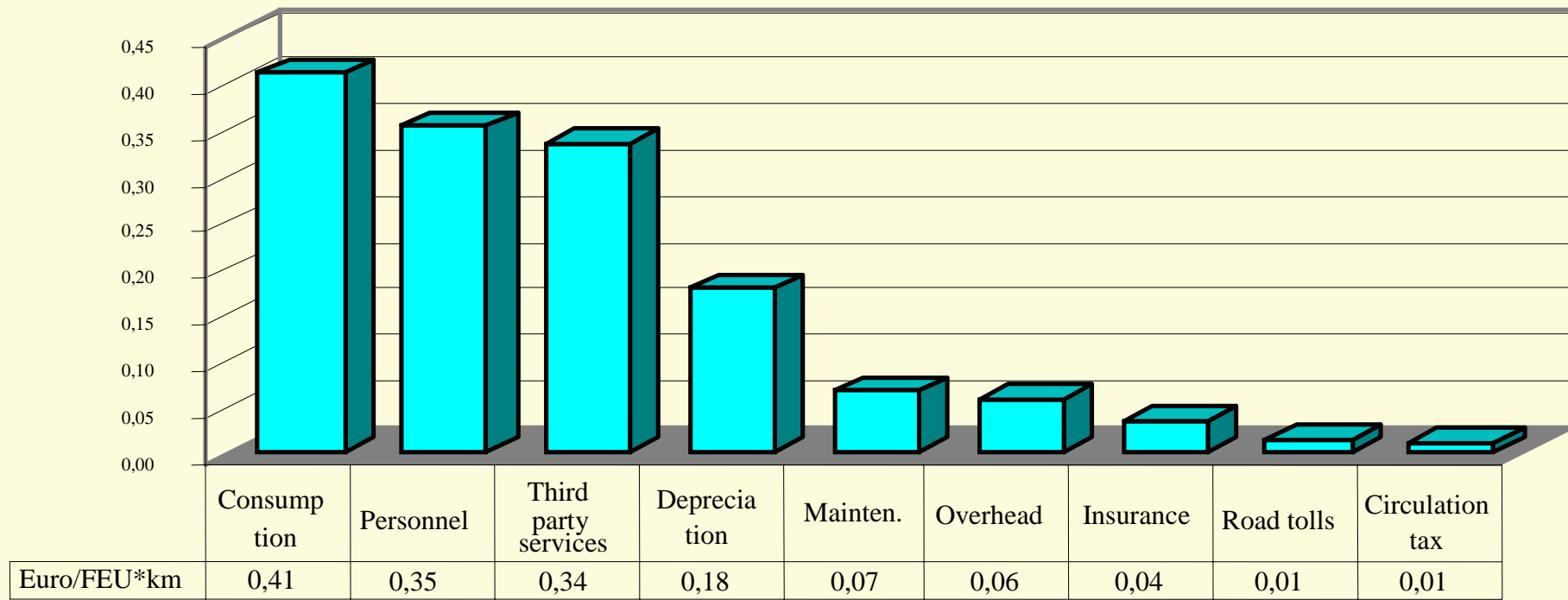
Patras - Gothenburg corridor: cost drivers of all road haulage



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Genova - Manchester corridor: cost drivers of all road haulage

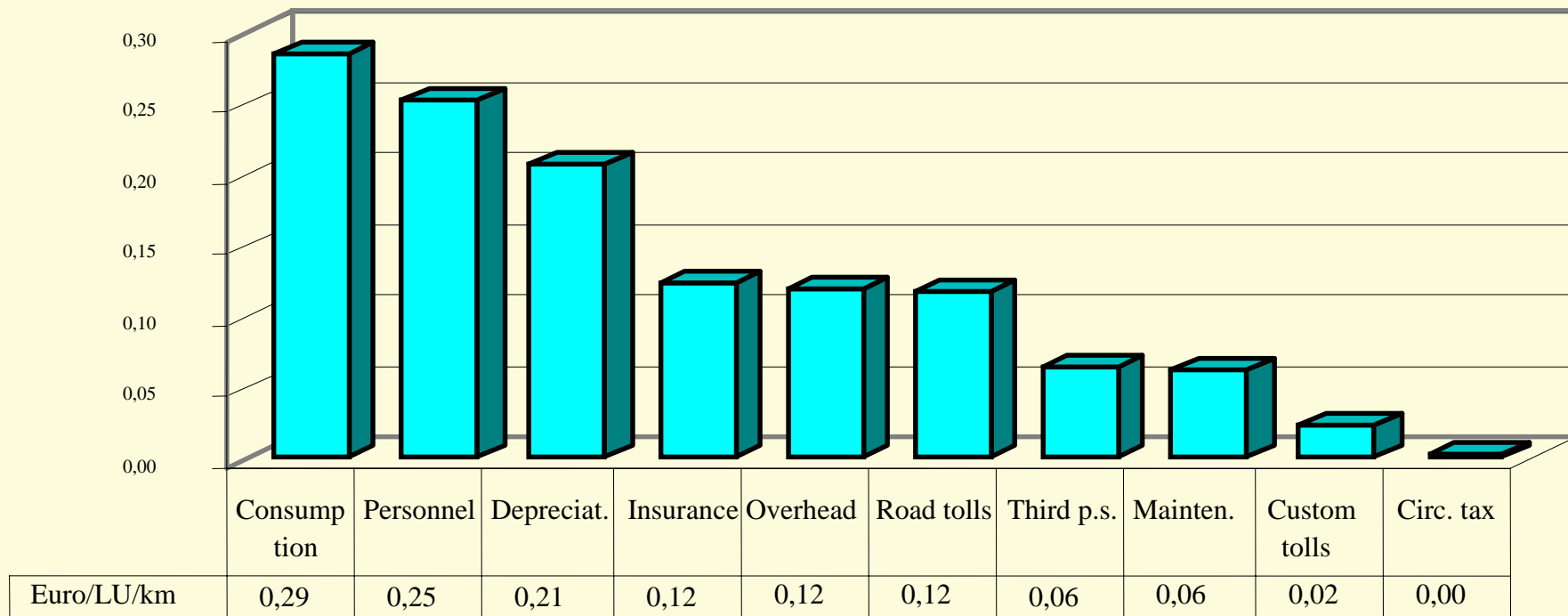


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Barcelona - Warsaw corridor: cost drivers of all road haulage



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Time requirement intermodal vs. all road comparison

4 + 4 time requirement categories have been assumed:

intermodal:

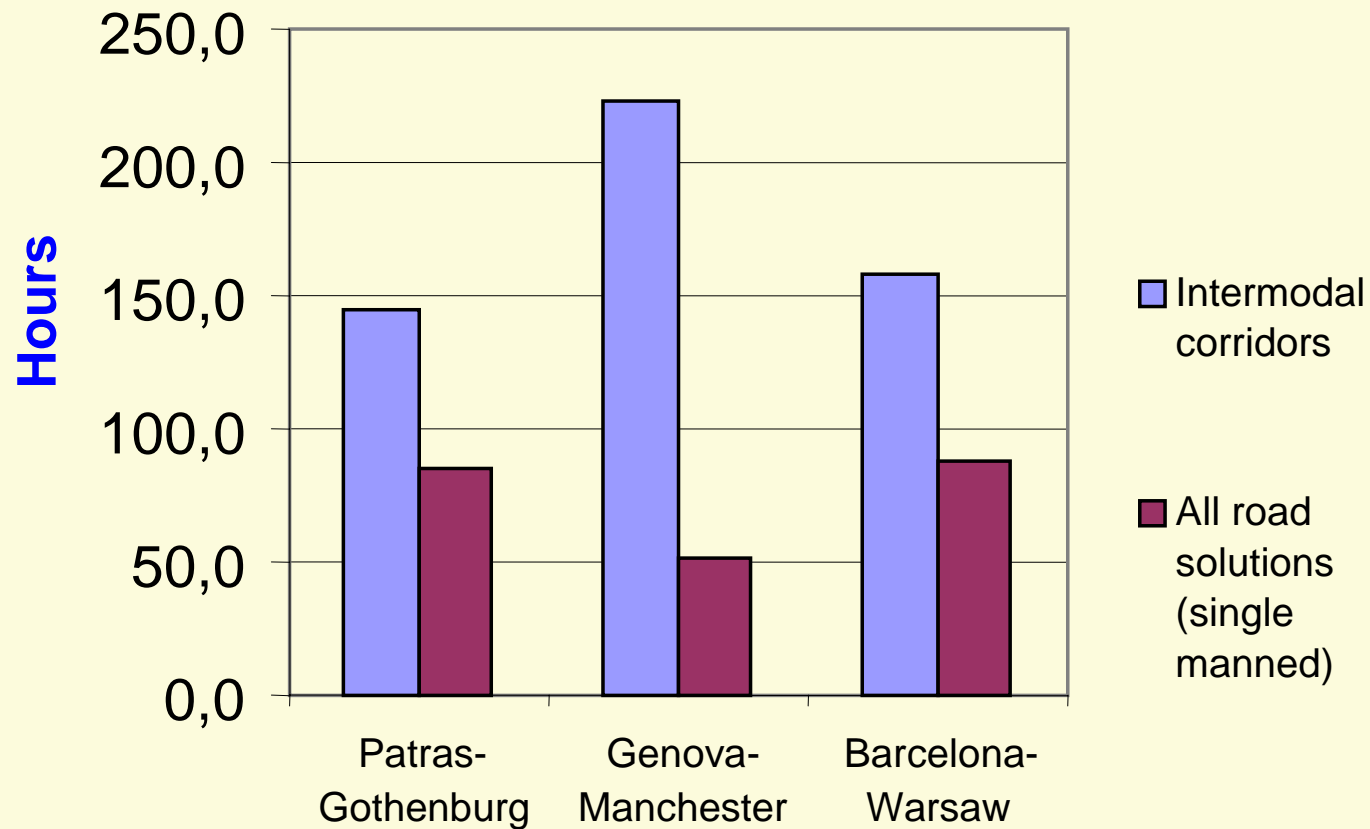
- haulage time
- transshipment time
- access/egress (to/from terminals) time
- waiting time

all road:

- haulage/driving time
- night pause time
- break time
- waiting time



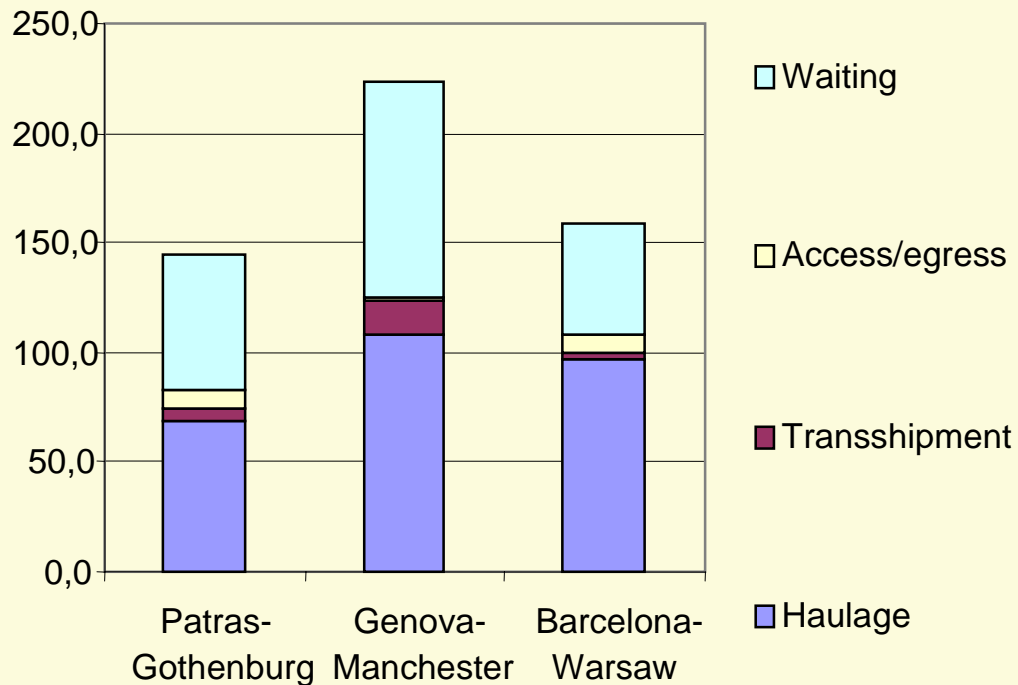
Time requirement intermodal vs. all road comparison





Time requirement intermodal vs. all road comparison

Intermodal solutions time requirement (hours)



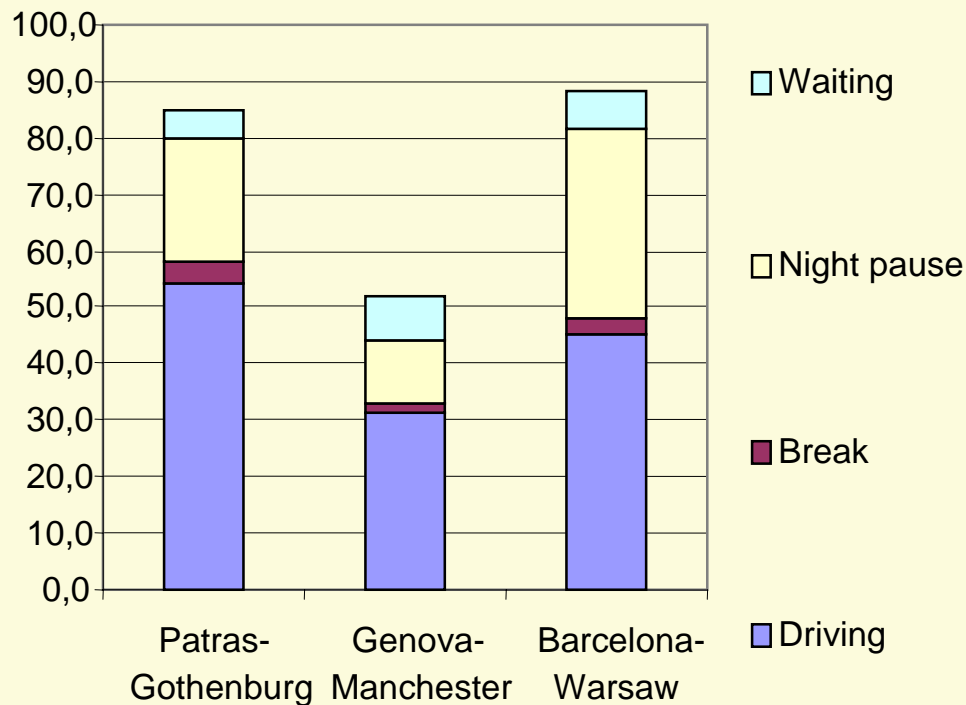
- Very high rate of waiting time at intermodal terminals for scheduled trains and ships;
- Lack of interoperability among schedules of different MTOs;
- Very long transit time on inland waterway leg





Time requirement intermodal vs. all road comparison

All road solutions time requirement



- night pauses and breaks (required by law) is the most effective issue increasing time for all road solutions;
- pauses weigh heavily and makes “non driving” time categories equivalent to haulage time on the Barcelona – Warsaw corridor