

Innovative Intermodal Rail Freight Solution for Small Danube Region Member States

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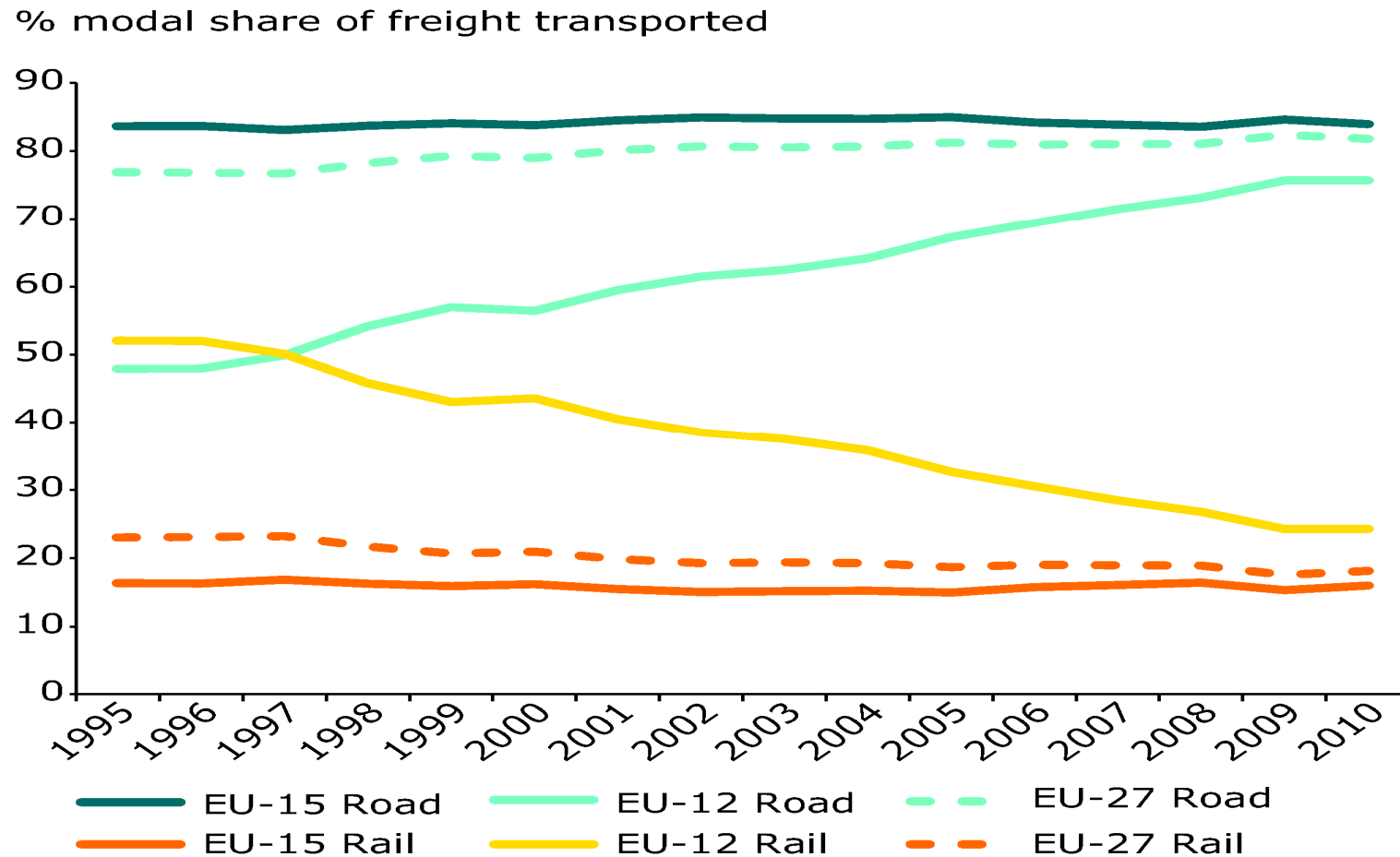
- The (freight) market **trends**
- The **existing rail** freight paradigm
- The freight market **needs**
- The **system** supporting the **new rail** freight paradigm
 - Train
 - Innovative transshipment solutions
 - Free access to the vacant rail infrastructure
- The market **niches** for the **new co-modal** solution
- Conclusions

The Freight Market Trends

General trend:

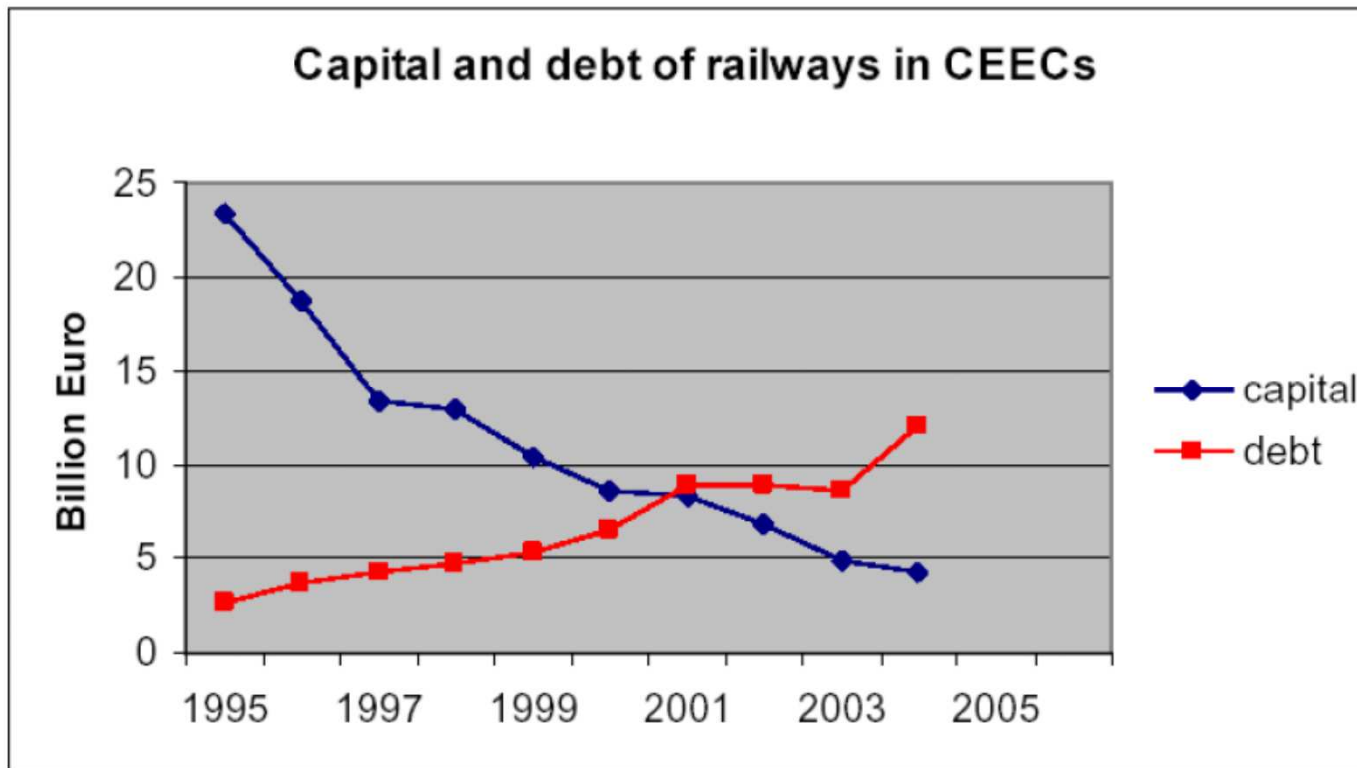
- increase in **volume** of transported goods,
- strong preferences for **road transport**,
- **constant decrease** of relative importance of rail freight.

The EU Freight Market Trends



SOURCE: European Environment Agency, 2012

Capital and Debt Of Railways in Central and Eastern European Countries



The Freight Market Trends – Rail's Response to Falling Revenues

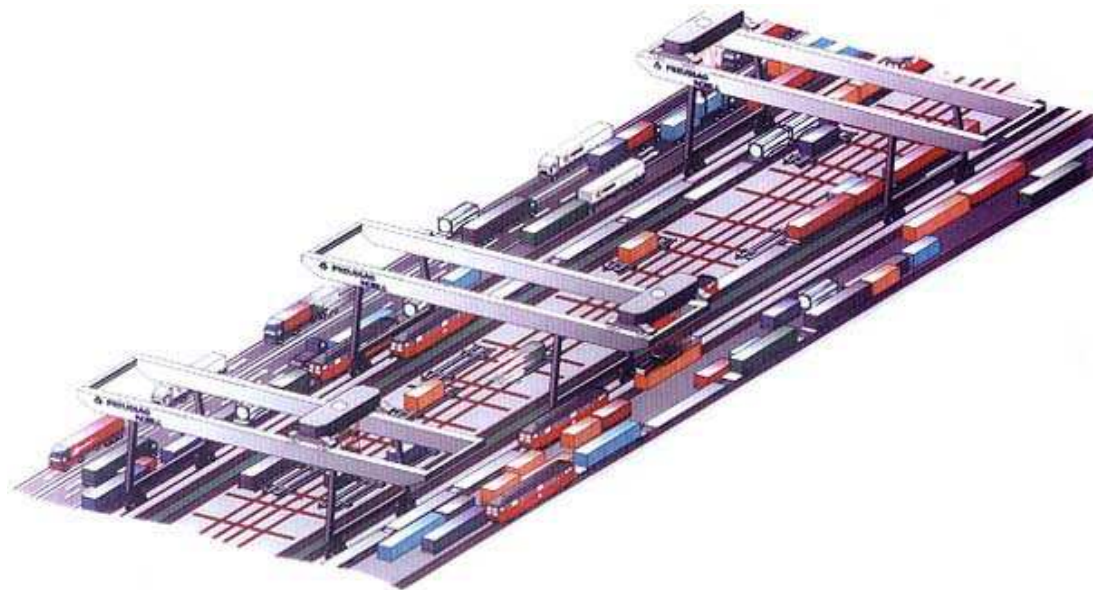
- Concentration on “**mass production**” in the **corridors,**
- **losing economies** of scale on **non corridor** lines
- **slimming of non corridor** lines - costs reduction
- **losing new market** opportunities.

Existing Rail Freight Paradigm

- **large** volumes of **low value** goods,
- **long** distances (over 550 km, EU break even !),
- **fixed** schedules,
- long trains(**about 1800 tons**, shunting and marshalling required),
- **powerful** locomotives (front power),
- relatively **slow freight** trains

Existing Rail Freight Paradigm

- large investments (large cargo volume - corridors)
 - large shunting areas for classical terminals
 - large specialized terminals for intermodal transport etc.



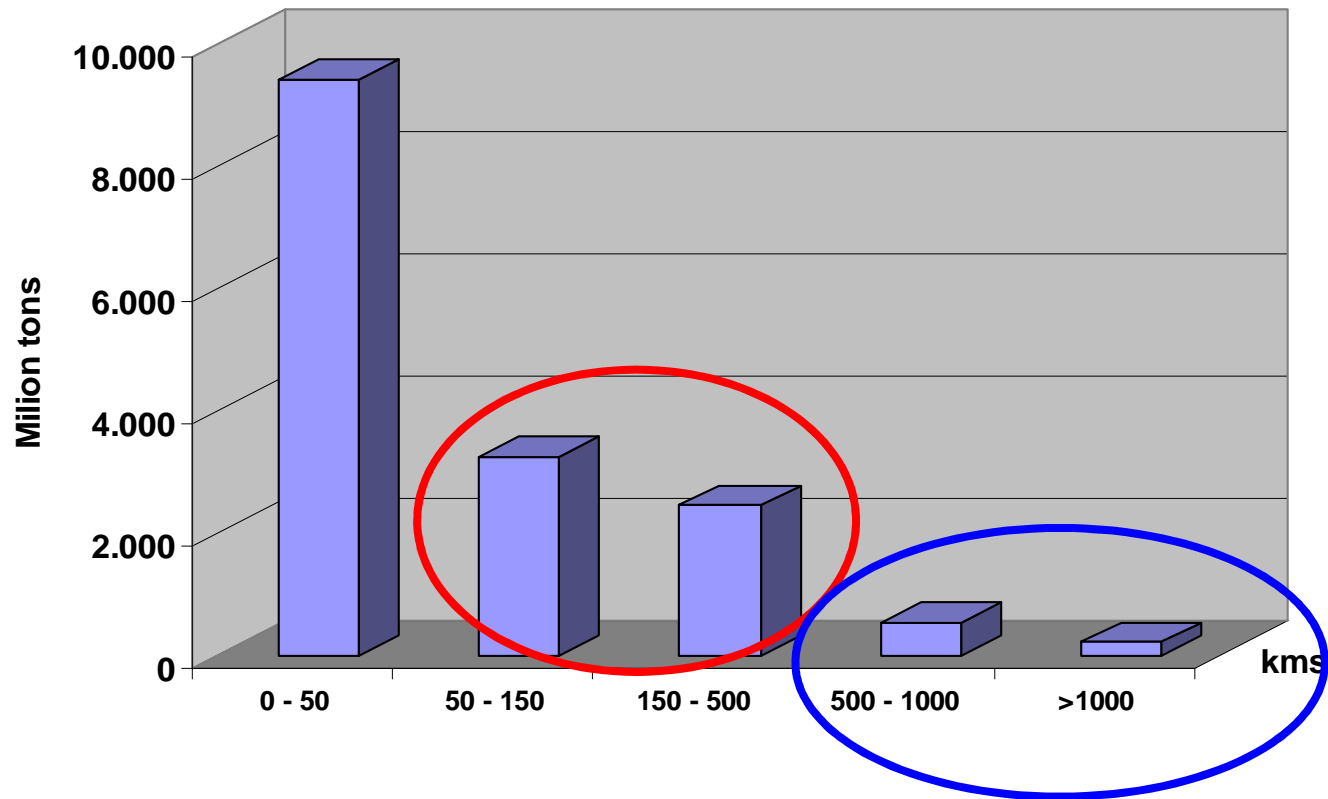
Freight Market Requirements

- **Door to door** services
- **Smaller** quantities
- More **frequent** deliveries
- **Shorter** delivery **time windows**

Freight Market Requirements

- JIT deliveries:
 - **Lean** manufacturing,
 - **Minimum stock** (management policy ...) ...
- Flexibility
- Availability
- Reliability
- Low risk ...

Rail Freight Market Potential



Market Niches For the Rail Freight Services

- **Market niches (intermodal transport):**
 - **valuable** goods,
 - **perishable** goods,
 - **small** consignments (also SMEs !),
 - shorter **distances...**

Market Niches For the Rail Freight Services

- **Feeder lines**
- **Regional and local transport,**
- **Urban transport**
- **Danube region states** e.g. Slovenia, Serbia, Croatia, Slovakia, Czech republic, Hungary, Romania**short distances, smaller quantities of goods**
 - **Is economies of scale** of traditional rail freight paradigm in this **countries possible** ????
 - **Available** relative abundant **rail infrastructure**
 - **Roads: congested !**

What is Needed for The new Market Niches

The New Rail Freight Paradigm !

- **Innovative train concept:**
 - **Competitive** with road vehicles **performance**
 - Comparable with road vehicle **costs**
- **Innovative transshipment technologies**

The New Rail Freight Paradigm: What is Needed?

- **Free access** to the vacant rail infrastructure
- **Equal** train running **priority of:**
 - **Passenger** trains and
 - **Freight** transport (JIT, valuable and time sensitive goods)
- **Approved vehicles** – available on demand of customers (**Standardised** vehicles)

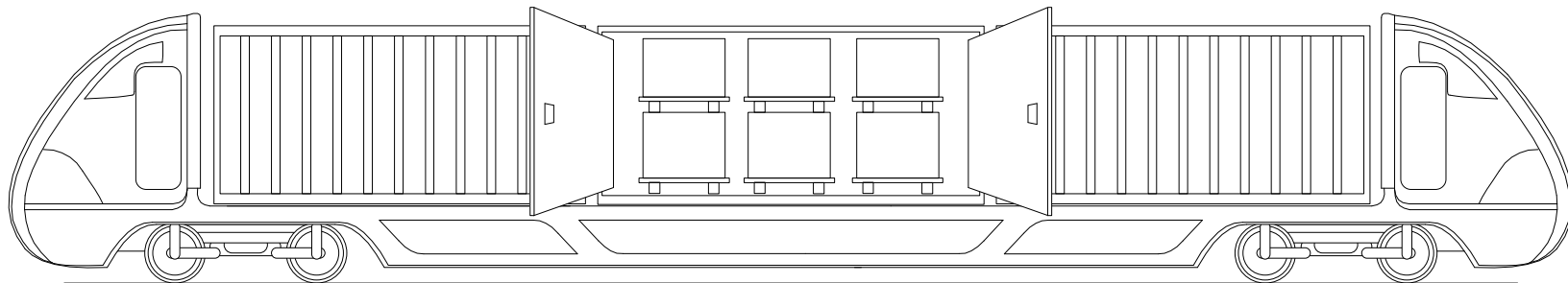
The New Rail Freight Paradigm: The Train

Ideal technological solution:

- a combination of the **truck** (high flexibility)
- **on the rail** (mass production), which is:
 - self-propelled,
 - **fast** moving “**railway-truck**”
 - **bi-directional** formation,
 - with **automatic coupling** solutions...

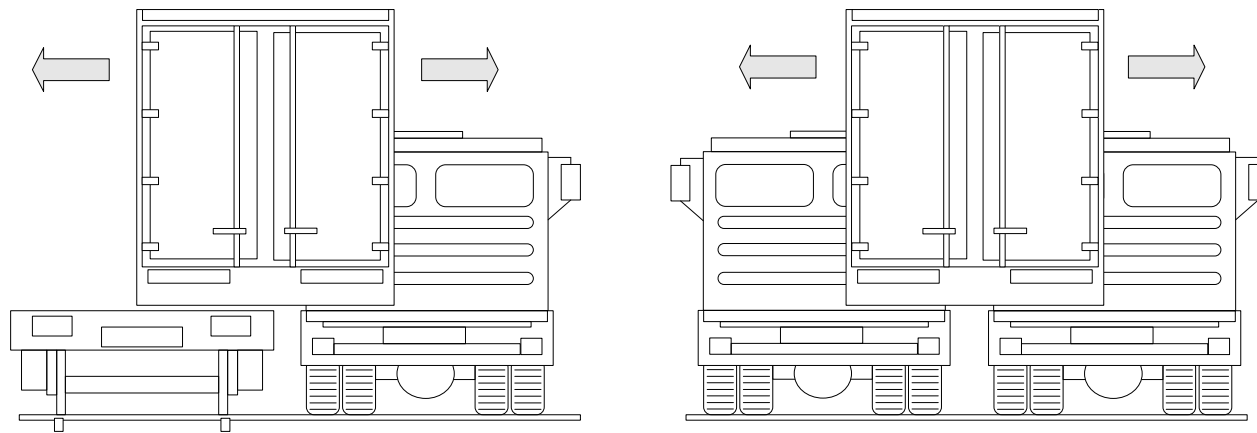
The New Rail Freight Paradigm: The Train

- **Small “Co-modal”** train unit
- Capacity **1- 3 TEU**
- **Speed** 80-160 km/h (..depending of available infrastructure)
- **Diesel / electric** drive traction motors on each axle.
- Driving cabs on **both ends** (avoids shunting, marshalling)



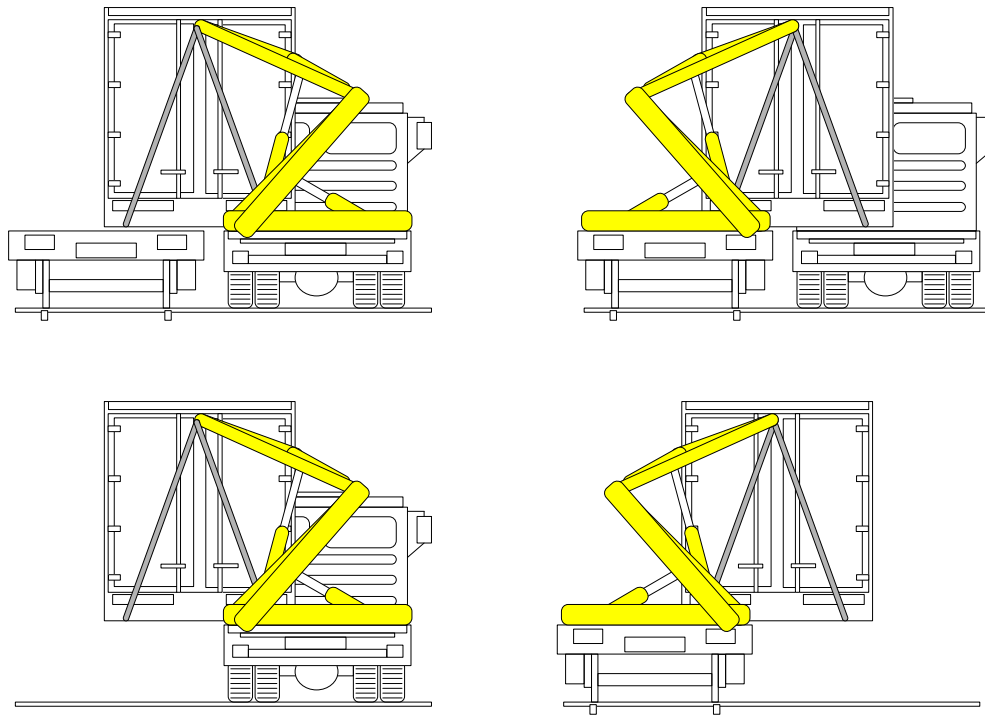
The New Rail Freight Paradigm: Innovative Transshipment equipment

- Horizontal **transshipment** - need for **further development** – some solutions already available:



The New Rail Freight Paradigm: Innovative Transshipment technologies

- On train and/or the truck: **to be developed !**



The New Rail Freight Paradigm: Available Solutions - CH



The New Rail Freight Paradigm: Available Transshipment Solutions



The New Rail Freight Paradigm: Innovative Transshipment technologies

- **Flexibility:** transshipment **along the whole railway network (sidings, free tracks)**
- All the tracks: a mobile **co - modal terminal**
- **Short** transshipment process: **5 - 10 minutes**
- **Low investment** costs (EUR 35 000- 200 000)
- **Short** distances...

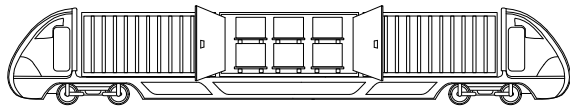
The New Rail Freight Paradigm:

Free Access to The Vacant Railway Infrastructure

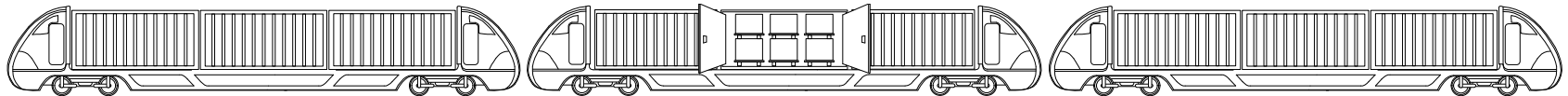
- **Software** solutions for the “on line” **time table** setting is already **available !**
- **Free – dynamic access to vacant rail infrastructure is needed**
- In **new** member states – relative abundant rail infrastructure **still available !**

New Rail Freight Paradigm - Possible Transport Concepts

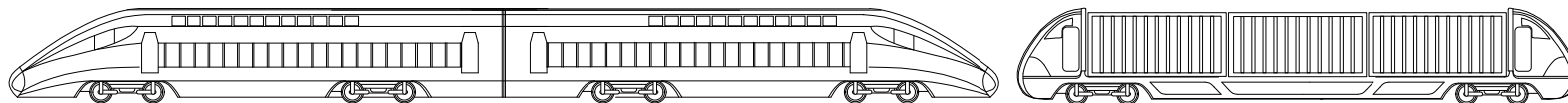
- Single "truck train" unit (sidings, feeder services)



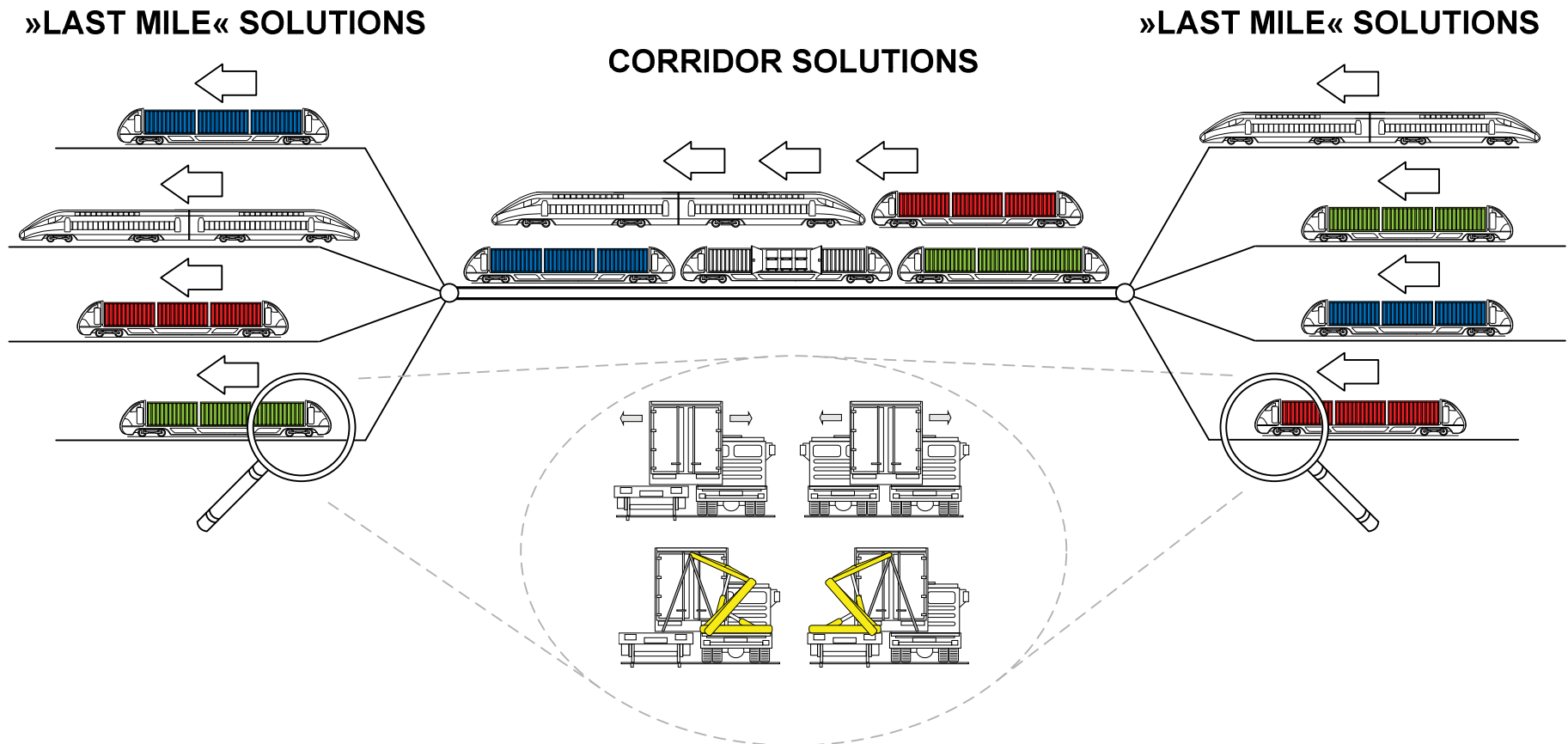
- Several "truck train" units together - trunk lines



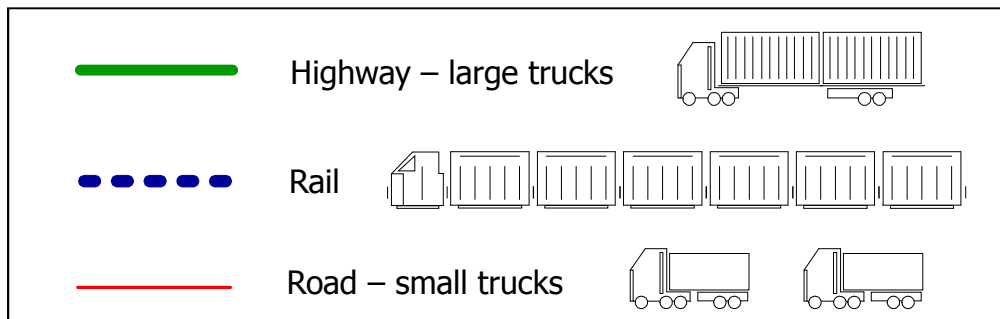
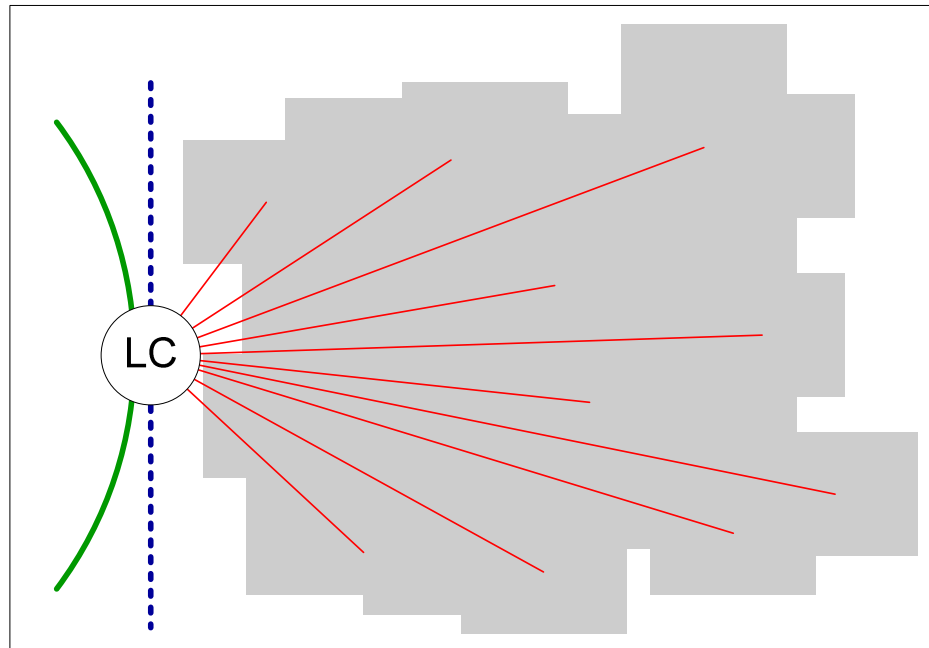
- Passenger train + "truck train" unit



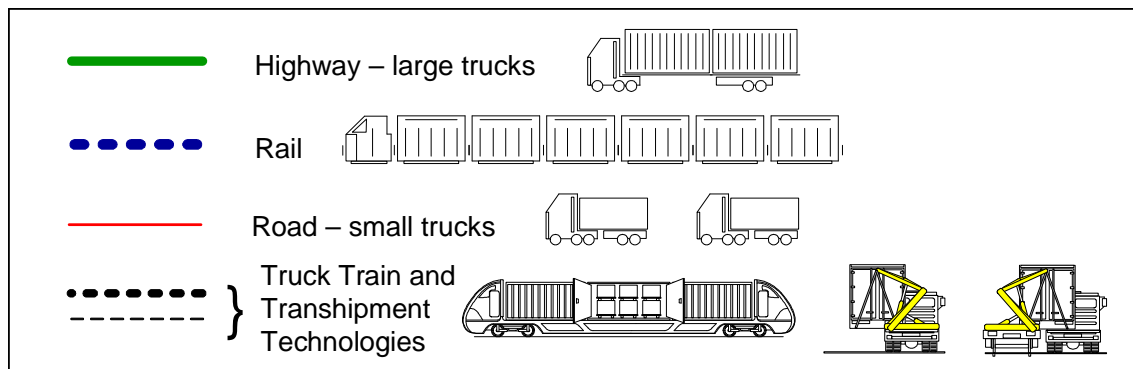
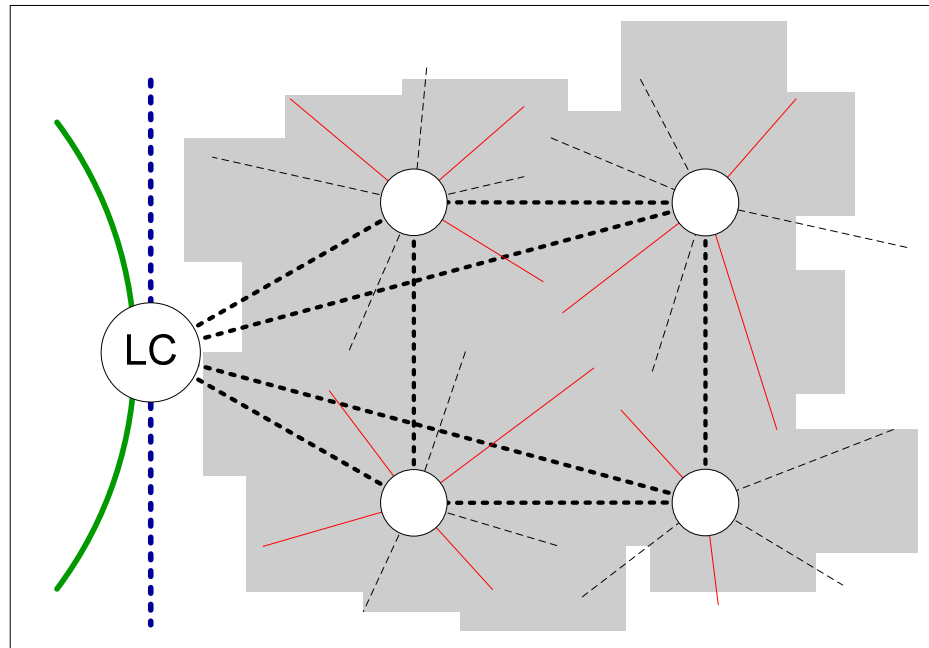
HUB&SPOKE – LAST MILE – CORRIDOR – CO-MODAL SOLUTION



Rail and Urban Logistics – Today



The New Rail Freight Paradigm: For Urban logistics



The New Rail Freight Paradigm: For Urban logistics

Advantages of the new rail freight paradigm in the urban areas:

- Use of **all available** railway infrastructure in the urban areas (sidings, free tracks, warehouses...)
- **Day and night** deliveries
- **Polycentric** delivery concept - **less congestion** on the urban roads

The New Rail Freight Paradigm: Reality

The economics of the “Truck train”:

- **savings** of over **27%**, against the **road** transport:
 - less than **200 km**,
 - on an **annualised** transport value of **~EUR 2.5** million.
 - Investment **recovered** in less than **three** years.

SOURCE: Sheffield Advanced Railway Research Centre

Conclusions

- **The suggested co - modal solution offers:**
 - access to the **new profitable rail freight market niches** (**short** distances, **small** quantities, **valuable** goodsfeeder lines, sidings, city logistics...)
 - **More rail** freight transport – “**green**” co-modal solution
 - Increases **profitability** of the rail freight operations
 - **Increases quality** of the co-modal transport ...flexibility, availability
 - **Supports** the **existing rail** freight paradigm

Conclusions

- The suggested **new co - modal** solution **offers:**
 - **Survival opportunity** for the rail companies in the relatively **small Danubian region states:**
 - Available **predominantly small** quantities of goods, **short** distances transport
 - **local (feeder)** services providers for the **big transnational** rail freight operators, will always be needed too!
 - Still **available** relatively **abundant rail infrastructure** in the new member states (historical reasons)
 - Enough **know-how** for design and production of standardised “Truck-Train” in the region (co-operation!)
 - Active **determination and participation of railways needed! Free access to vacant infrastr.**



Thank you for your kind attention !

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