

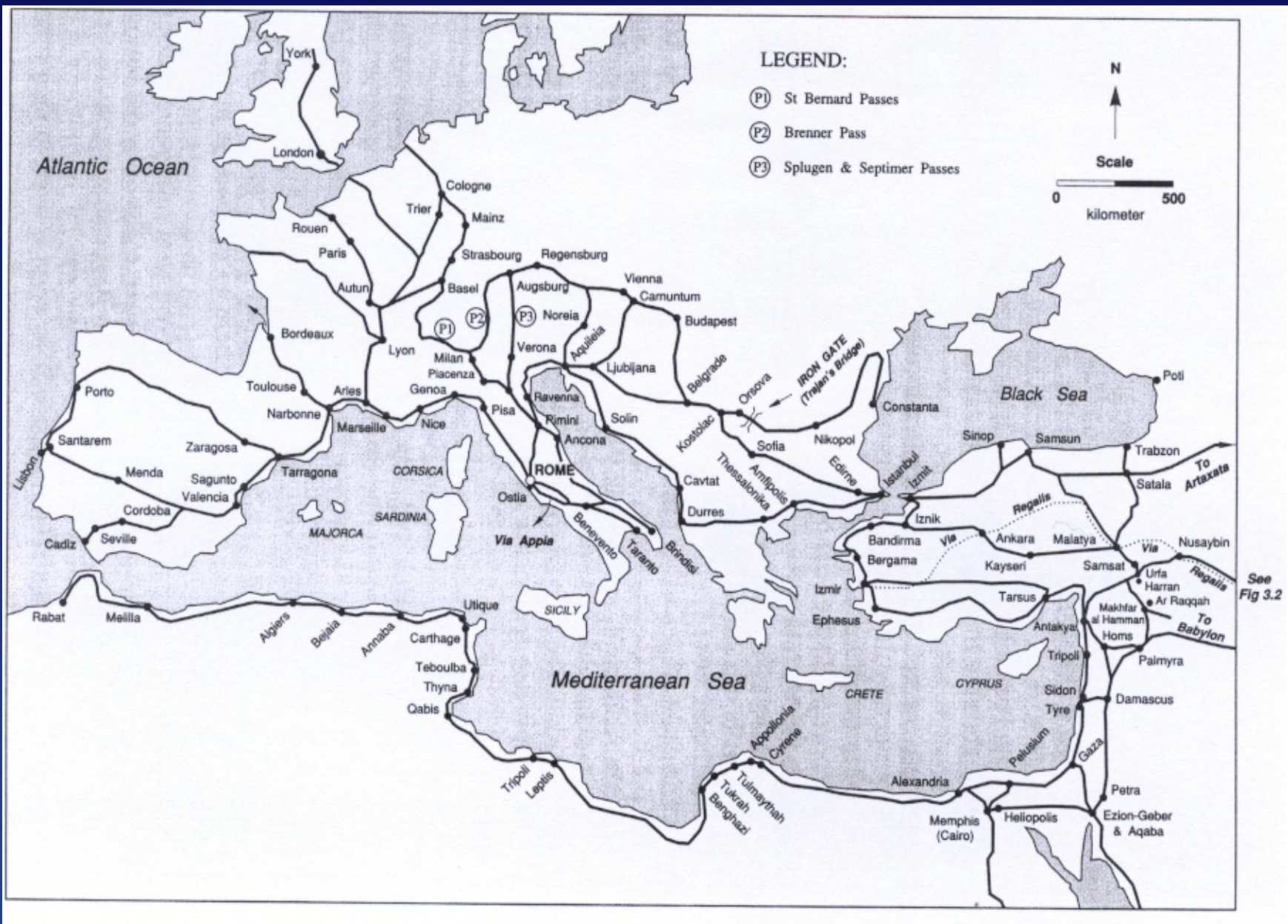
# European uptake of vehicles operating at higher mass, longer length

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IRTENZ, June 2013



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- 1. Current EU regulation**
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Roman "EU" 2000 years ago



SCANIA

# 1. Current EU regulation

- Directive 96/53/EC (On the road)
- COM Regulation 1230/2012 (Type approval)
- Road space
- Road wear
- Bridges

# Maximum vehicles in the EU

Road train  
7.82 + 7.82 m deck lengths  
18.75 m LOA

Articulated  
13.6 m deck length  
16.5 m LOA



40 tonnes GCM on 5 axles

# Directive 96/53/EC on road space

## Maximum vehicle height:

- 4.00 meters
- E.g. GB, SE no restriction on vehicle height

## Maximum vehicle width:

- 2.55 meters
- 2.60 meters if trailer is "conditioned"

# Directive 96/53/EC on road space

**Implicitly defines maximum deck lengths:**

- 13.6 meter on semitrailers**
- 7.82 meter on trailers and rigids**

**Vehicle LOA:**

- 12.0 meter motor vehicle or trailer**
- 15.0 meter bus**
- 16.5 meter articulated tractor - semitrailer**
- 18.75 meter road train (truck-trailer)**
- 18.75 meter articulated bus**

# Directive 96/53/EC on road wear

## Axle loads:

- 10 tonnes for non-driven axle
- 11.5 tonnes for driven axle
- 18 tonnes for 1.3 meter tandem

## Twin tyres and air suspension:

- 19 tonnes for 1.3 meter tandem  
of motor vehicle



# Directive 96/53/EC on bridges

## GVM and GCM:

- 18 tonnes for two axle vehicles
- 40 tonnes for combinations
- 44 tonnes when carrying 40-foot ISO container
- 3.0 meter distance between rearmost axle and front axle of trailer
- four axle vehicle to have GVM (t) less than five times the distance (m) between outermost axles

# EU summary

- Directive has been extremely successful, no paper work when crossing borders
- Downside: 27 jurisdictions must agree on changes
- Anything that makes road freight more efficient is “a deadly strike on railroads”
- Road wear equals “destroyed infrastructure”

What's new?



## 2. Higher productivity vehicles

- **Modular concept**
- **Some trials**

# Modular concept

Combinations of basic EU deck lengths 7.82 and 13.6 m

LOA 25.25 m, GCM 60 tonnes

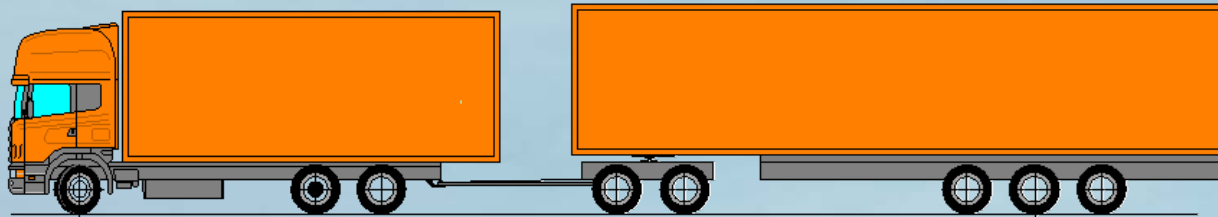
Two points of articulation

Well established in Finland, Sweden, Denmark and the Netherlands

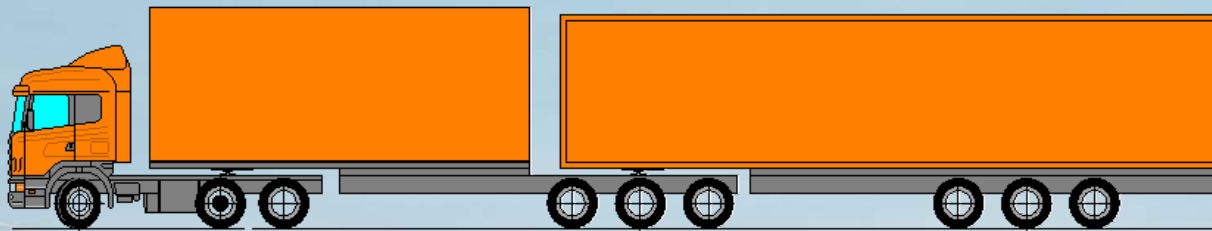
Trials in Germany, 40 tonnes GCM limit



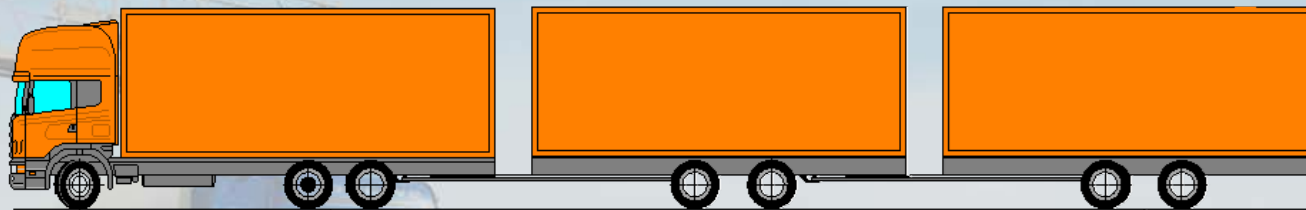
# Possible modular combinations



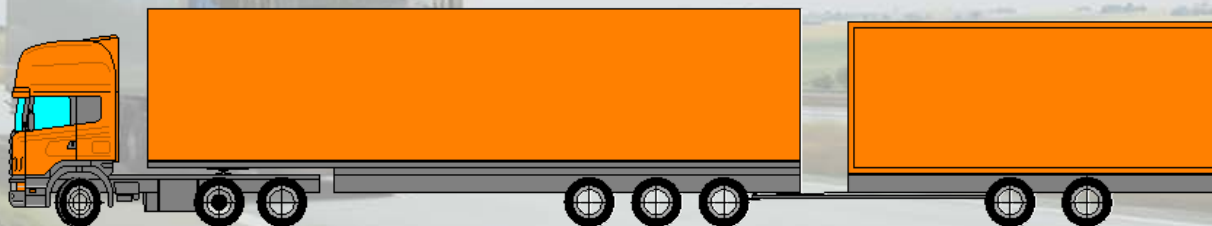
**Truck plus dolly plus semitrailer**



**B-double: Tractor + short semitrailer with 5th wheel + semitrailer**



**Truck plus two centre-axle trailers**



**Tractor plus semitrailer plus centre-axle trailer**

# **Trials in Sweden**

**Longer/heavier timber combinations**

**Longer/heavier haulage combinations**

**Three points of articulation**

# Trials in Sweden



Lofroth et al, [hvtconference.com](http://hvtconference.com)





# Trials in Sweden

R480 LA42NEB

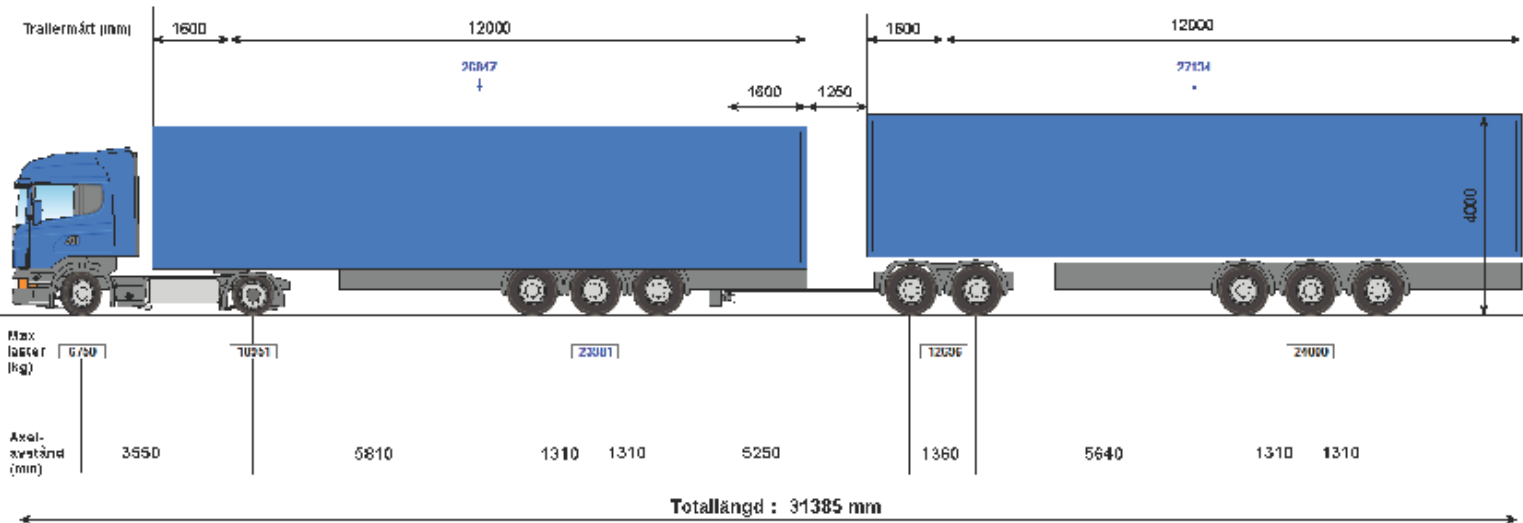


Generar Standard 2017 05 10

Exempelfordon, reg nr:  
 Dragbil: RDR 523  
 Påhängsvagn: BKJF 215  
 Dolly: BCJ 546

Breddmät  
 Dragbil: 2550 mm  
 Dolly: 2540 mm  
 Semitrailer: 2550 mm

Duotrailerekipage för Scania Transportlaboratorium AB  
 Transporter mellan Södertälje - Helsingborg - Malmö ToR.  
 Bruttovikt 78,4 ton, totalängd 31,4 m



# 3. EU amendment proposals

- 45 foot containers permitted, adding 15 cm (from 16.5 to 16.65 m) to LOA of tractor-semitrailer combinations in intermodal transport, 44 tonnes GCM
- Two-axle motor vehicles, other than buses, with hybrid or electric propulsion, 19 tonnes GVM permitted, previously 18 tonnes
- Two-axle buses, 19 tonnes GVM permitted, previously 18 tonnes

# EU amendment proposals

- Formally stated that cross-border transports with modular concept combinations are permitted between two countries (the "consenting adults" principle)
- Length of vehicle and combination is permitted to increase if fitted with air resistance reduction devices in front and/or rear. Type approval regulation to be defined, provisionally a total maximum increase of two meters

# Aerodynamic extension "boat tail"



30 cm = 1.5 % fuel reduction

50 cm = 2.5 % fuel reduction

1 m = 5 % fuel reduction

# 4. Recommendations

1. Consider truck, prime mover and bus/coach maximum width 2.55 m
2. Consider increased permitted front axle load for Euro VI vehicles
3. Be careful if applying full Australian PBS scheme



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# Some EU PBS measures

- Minimum engine power to GCM ratio
- Road-friendly suspension test criterion
- 360 degrees turning within circles of 12.5 and 5.3 meters radius
- Deemed to comply requirement for semi-trailer
- Repeated uphill starting