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Study on Single Wagonload Traffic in Europe

Objectives, results and recommendations

28 November 2014

In partnership with:
University of Rome
"La Sapienza"

EUROPEAN RAIL FREIGHT DAYS
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pwc

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This presentations is the summary of the Study on Single Wagonload Traffic in Europe launched by EC and carried out by PwC & University La Sapienza of Rome.

Section 1
Objective of the study

Objectives of the study

Single Wagonload traffic faces in many countries in Europe profitability and quality problems and has difficulties to keep pace with changing market requirements.

Nevertheless in most European countries – especially in the countries with the largest rail freight markets – Wagonload still forms the backbone of rail freight.

Therefore the European Commission has decided to launch a study on Single Wagonload Traffic with the following objectives.

Assess the importance of SWL market	1	Quantify the importance of Single Wagonload traffic in European rail freight and clarify its role in the European Transport market.
Identify the main obstacles hampering SWL traffic growth	2	Identify the main obstacles for the further development of Single Wagonload traffic.
Define measures supporting SWL market	3	Define short - and long term measures how to secure and develop European Wagonload Traffic, addressing i.a. technical, operational, institutional and legislative issues and identifying the actors concerned e.g. RUs, IMs railway authorities.
Identify possible supporting policies	4	Identify how EC transport policy can contribute to implement suggested measures, esp. which instruments should be used and, if necessary, where there is a need to adapt existing or create new tools.

Section 2
Answering to the key questions

Addressing the key questions

1. **WHAT** IS THE SINGLE WAGONLOAD?
2. **HOW BIG** IS THE SWL TRAFFIC?
3. **HOW DIFFERENT** IS THE SITUATION IN MS?
4. **WHAT** ARE THE TYPICAL COMMODITIES AND FLOWS?
5. **WHY** SWL IS DECREASING?
6. IS **INFRASTRUCTURE** ALSO AN ISSUE?
7. **HOW** IT IS PRODUCED (models, costs)?
8. **HOW** IT IS MARKETED OUT? (business models)

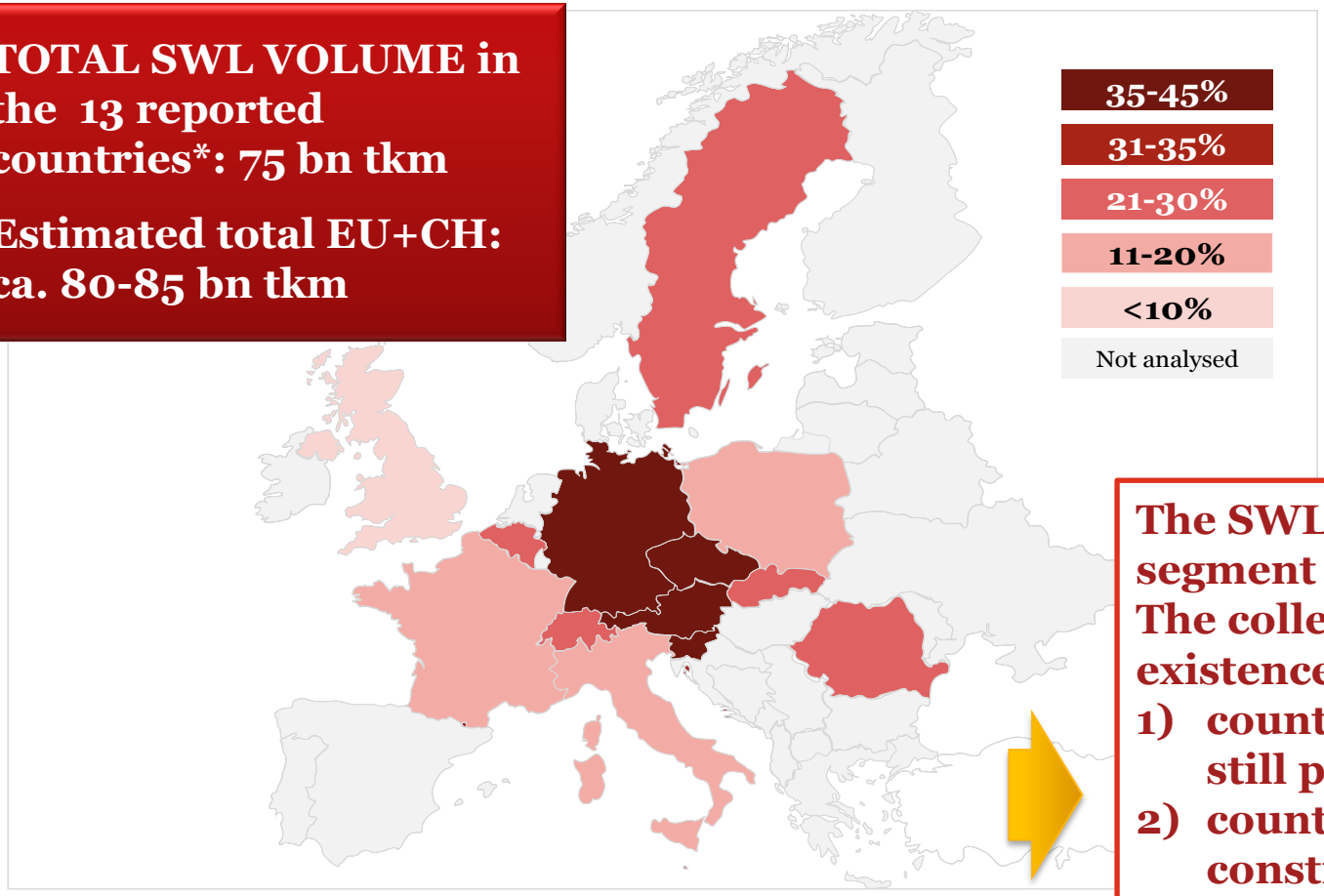
1. WHAT IS THE SINGLE WAGONLOAD?

- The transport of freight in **individual railway wagons or groups of wagons** (the shipment is less than a whole trainload).
- The SWL supply includes **grouping and sorting of wagons** in order to assembly full trains with different shipments, in order to take advantage of the full train size and, thus, increasing the productivity.
- Grouping / sorting can take place through **marshalling in dedicated** yards where each train is disassembled and the groups of wagons are classified to form new full load trains for the next yard, or more simplified arrangement with **removal / addition of groups of wagons** at intermediate stops.
- **Any kind of wagons** including the one loaded with combined transport units can be moved in SWL supply chain.

2. HOW BIG IS THE SWL MARKET (1/2)
3. WHAT ARE THE DIFFERENCES AMONG NETWORKS

TOTAL SWL VOLUME in the 13 reported countries*: 75 bn tkm

Estimated total EU+CH: ca. 80-85 bn tkm



SHARE ON TOTAL RAIL FREIGHT 27 %

The SWL is still a very important segment of rail freight in Europe. The collected data confirms the existence of three situations:

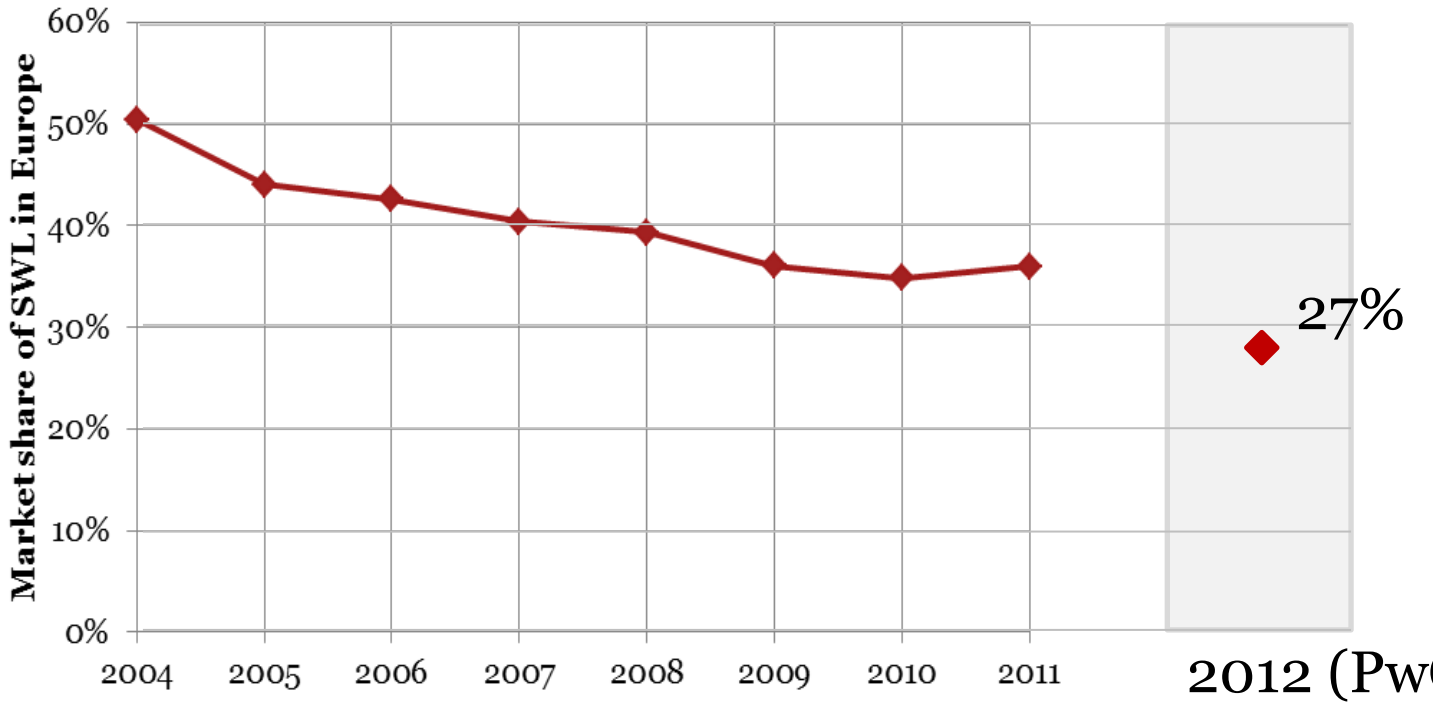
1) **countries with 1 or more RUs still pursuing SWL;**
2) **countries where SWL faces constraints;**
3) **countries where none RUs is still pursuing SWL.**

** AT, BE, CH, CZ, DE, FR, IT, PL, RO, SE,SI, SK, UK*

2. HOW BIG IS THE SWL MARKET (2/2)

- In Europe SWL traffic share of the rail traffic dropped in 10 years from 50% to about 30% (while total rail traffic practically stabilised).

SWL market share in Europe (2004-2011)



Source: Eurostat

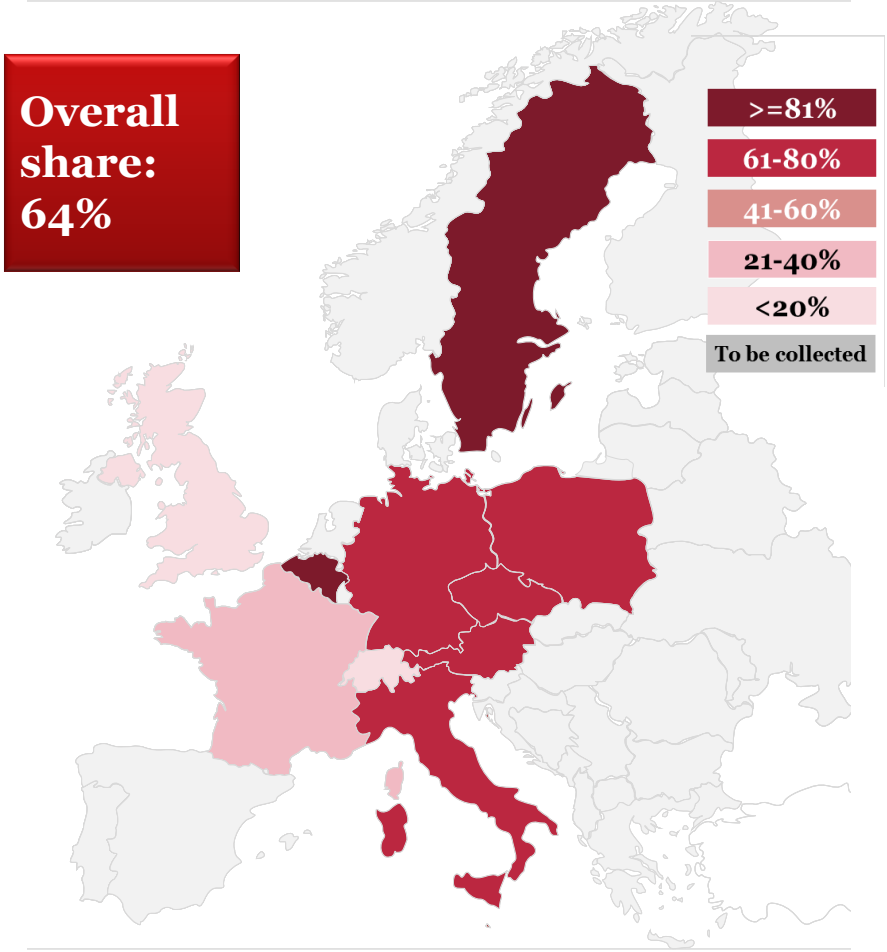
Eurostat provides data only for DE, IT, PL, SL, SK, FL, SE

- *AT, BE, CH, CZ, DE, FR, IT, PL, RO, SE,SI, SK, UK (SWL transit traffic not included)*

4. WHAT ARE THE TYPICAL COMMODITIES AND FLOWS?

International share of SWL traffic (tkm)

Overall share: 64%



Traffic of SWL train in transit is not considered

Most important commodity moved by SWL

	AT	BE	CZ	FR	DE	IT	SE	CH	PL	UK
Basic metals, metal products	I	I	III	I			I	I	I	III
Chemical products and Fertilizers		II		II	II		II		II	II
Coal and lignite; oil and LNG			I							I
Heavy Industry (incl. transport equipment)					I	I				
Secondary raw materials, etc.						II				
Products of agriculture	II									
Other	III		II	III		III	III		III	

5. WHY SWL IS DECREASING? (1/2)

Four main factors reported by stakeholders and confirmed by the evidence

1 **Decrease in the trade of some specific "captive" commodities**

Commodity (*examples*)	2008-2012 total land transport	2008-2012 total rail transport
Basic metals	**-18%**	**-15%**
Transport equipment	**-16%**	**-18%**

2 **SWL supply "rightsizing" or abandonment by RUs in some Countries (due to budget constraints)**

Given the importance of international traffic (**64% of SWL traffic**), such strategies affect all SWL flows, even in countries not adopting such policies.

Better **cost-effectiveness of SWL** cannot be achieved as quickly as requested by the increasingly strict budget constraints.

(15-50% SWL services reported as not covering their production costs, due also to the complexity of the transport chain)

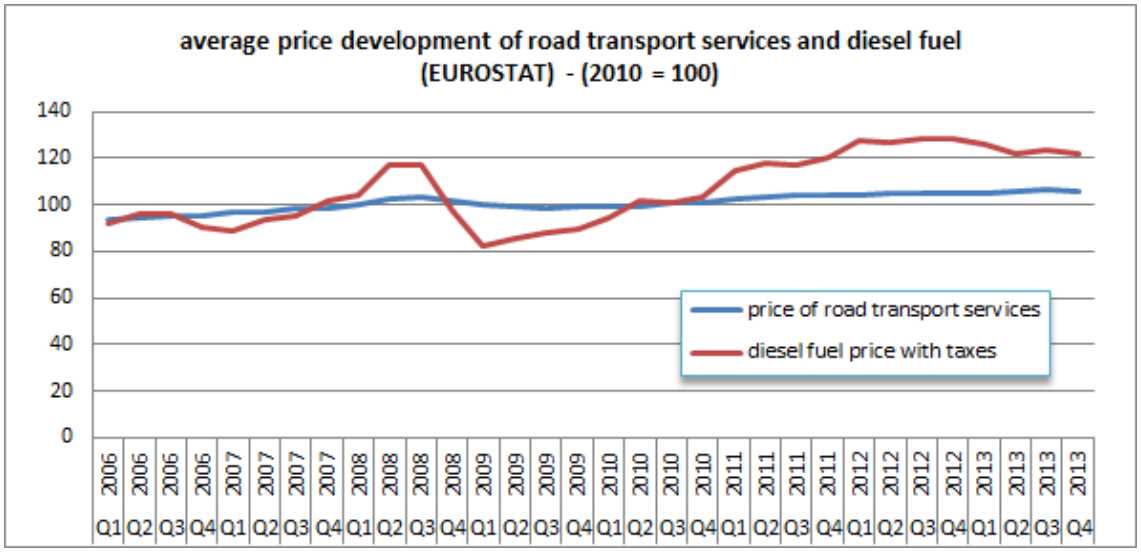
5. WHY SWL IS DECREASING? (2/2)

3

Increased competition by road freight transport
(SWL main competitor on less-than-trainload flows)

Road transport demonstrated to remain price-competitive despite increase in fuel prices.

It is highly rated by shippers in terms of flexibility.



4

Quality to customers perceived as not sufficient, particularly for international flows

- **Late trains** (>1 hours delay) are still 10-25% of the SWL ones.
- **Tracking & tracing** has been reported as not available on international SWL traffic by shippers.

5. WHY SWL IS DECREASING? (2/2)

5 **Limited effect on SWL of the liberalization process**

- Due to the complexity and lower profitability of SWL, **new entrants focused on the intermodal and full train markets** (only a couple of the new entrants contacted for the survey stated that they actually supply SWL services).

6 **Large part of the SWL system are still operated according to traditional production and business models**

- **Enhanced models** (linear trains, combination of other types of rail freight supply) aiming at better use of available capacity and simplification of the transport chain **exist but are not operated at large scale yet**.

7 **Technological innovations have been developed but often not deployed at large scale**

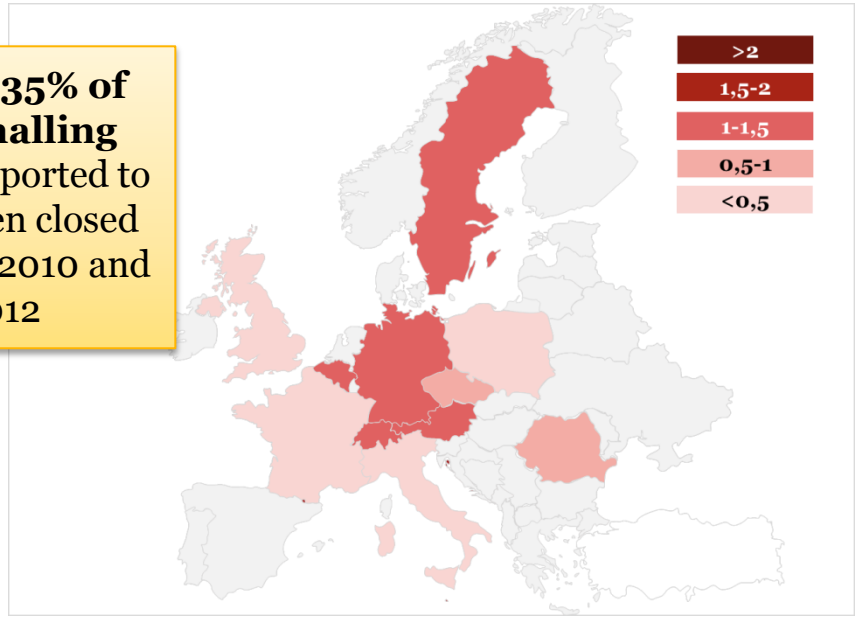
- A number of **technological innovations** have been **developed and** in most cases they are **quite mature**;
- **Large scale implementations**, however, **might be quite expensive**, and the overall decline of the system does not encourage for such investments.

5. IS INFRASTRUCTURE ALSO AN ISSUE? (1/2)

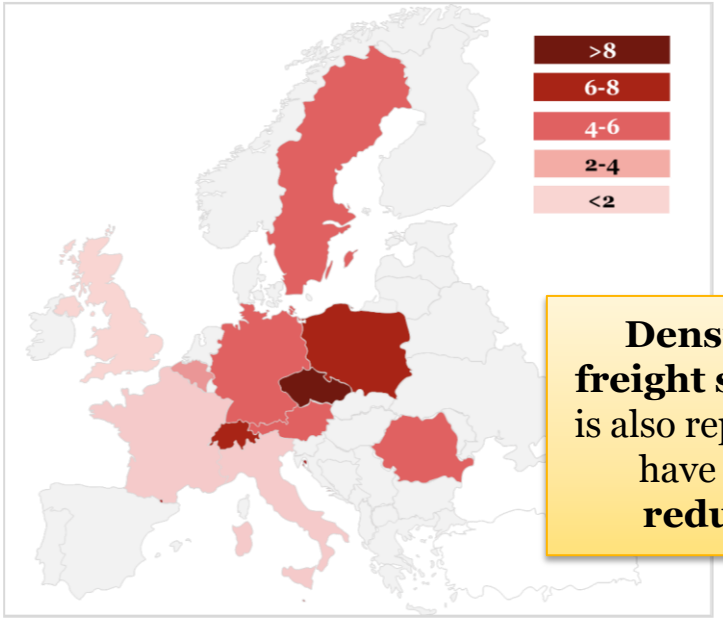
Rightsizing of available "essential" infrastructure took place …

About 35% of marshalling yards reported to have been closed between 2010 and 2012

Operational marshalling yards/1000 km rail network



Freight stations /1000 km rail network



Density of freight stations is also reported to have been **reduced**

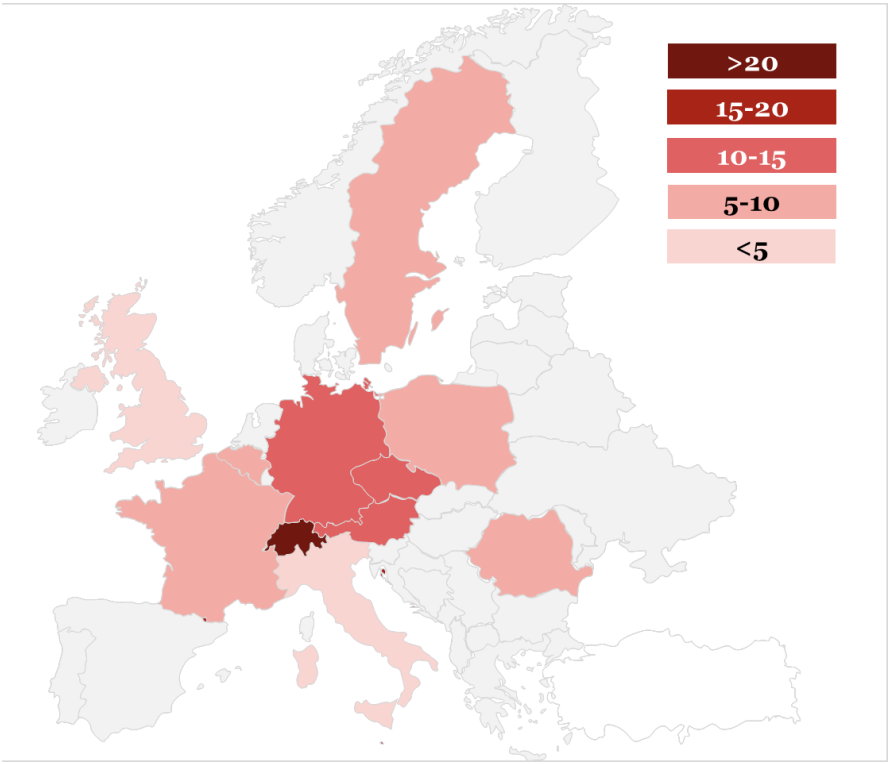
… but **<u>it does not appear as a primary cause</u>**: IMs appear reacting to traffic decrease more than anticipating it, even if the **risk of "vicious circle" exists.**

Besides, **changes in production models** also generated reduction of SWL infrastructure density.

5. IS INFRASTRUCTURE ALSO AN ISSUE? (2/2)

Rightsizing of available "essential" infrastructure for SWL: the private sidings

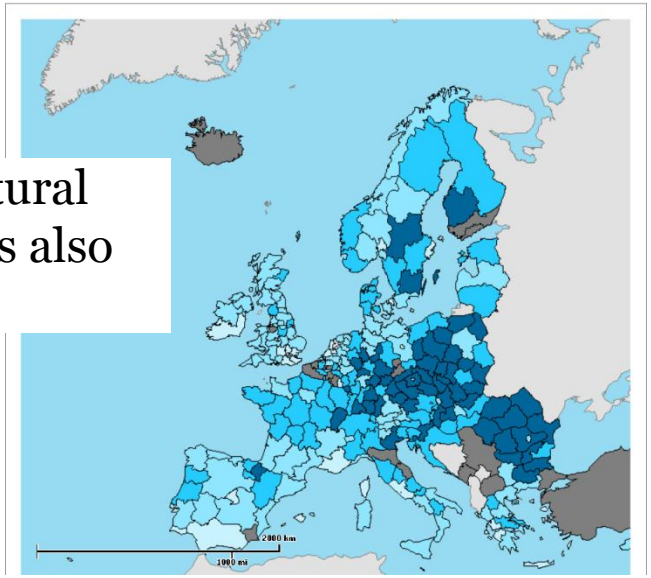
Private sidings /1000 km rail network



Issues generating reduction of private sidings

- **Lack of funding** for new infrastructure & rehabilitation (except few countries), while road connections to industrial plants are built and maintained at no cost for the companies.
- High costs / burdens for **safety certifications** (Romania, Poland).
- Lack of **urban planning provisions** requiring rail connections to new industrial / storage areas.

But structural conditions also matter …

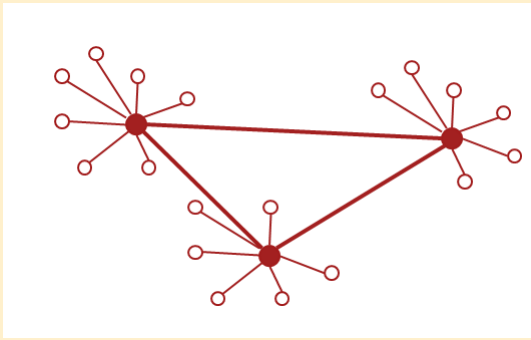


% of employment in industrial sector

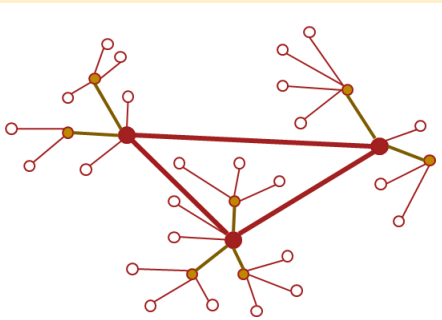
7. HOW IT IS PRODUCED (1/2)

- The study analysed a number of SWL **production models** in terms of type of network, related drivers, level of flexibility, etc.
- Three production models appear to be the most relevant in the Countries examined in detail.
- Network structure is in most cases supply-oriented aiming at **optimising SWL productivity against demand constraints** in terms of distribution, frequency, balance between directions etc.
- Main challenge is to design the network in a way allowing the respect of demand requirements in particular in terms of **pick-up & delivery time constraints.**
- The **production models adopted by main RUs** govern the utilisation of relevant infrastructure (main and small marshalling yards, freight stations etc.).

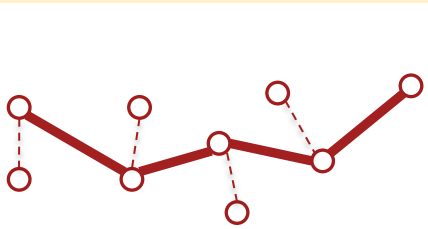
Connected Hubs



2-level connected hubs

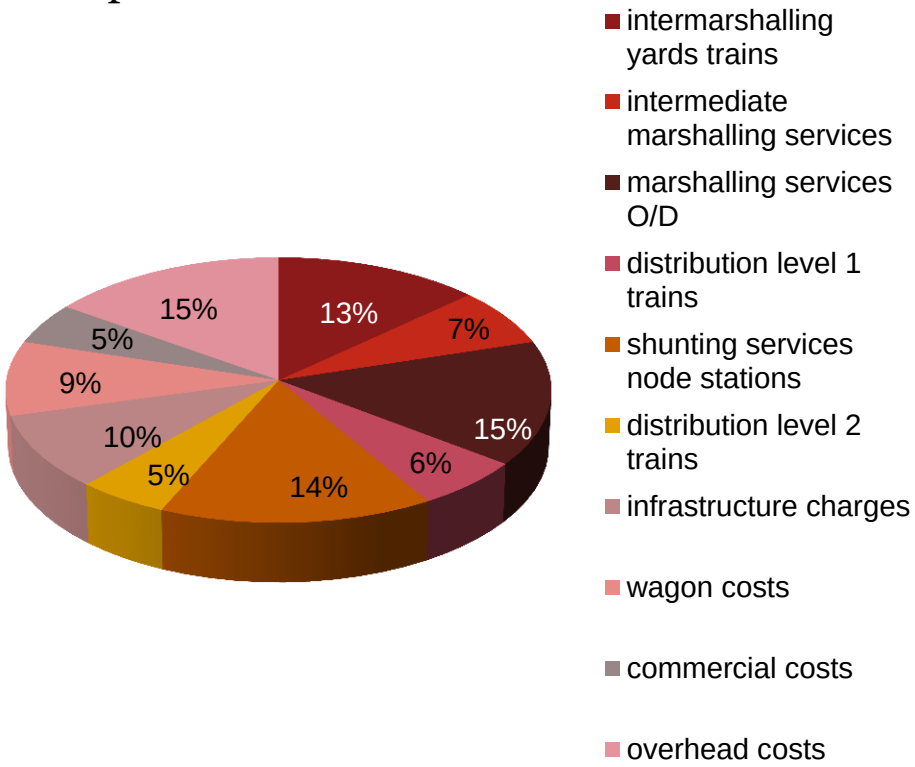


Corridor



7. HOW IT IS PRODUCED (2/2)

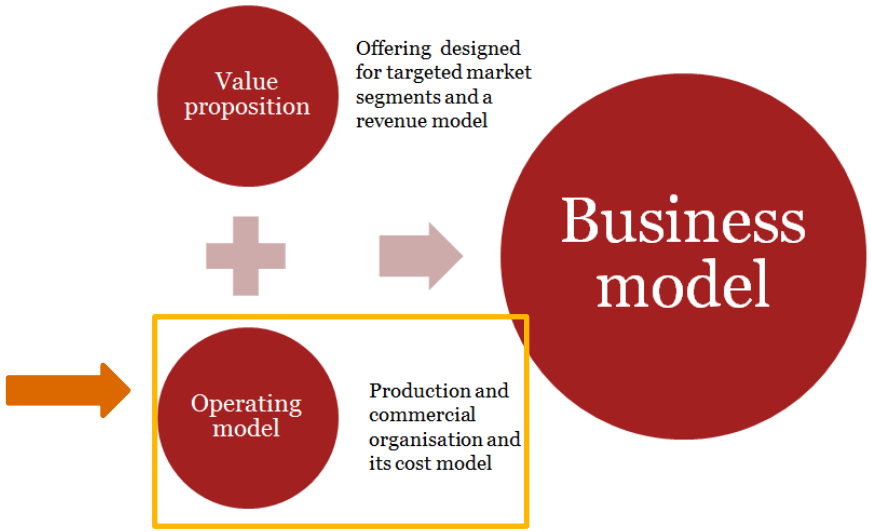
- The complexity of the SWL production chain implies that also the cost structure is relatively complex.



- *For a* typical shipment, the **main leg** (inter-marshalling yards trains) costs just 13% of the total; adding 10% for **charges for track access**, lead to a total of **23%.**
- **Marshalling yards services** in first and last marshalling yards are 15% of total costs. If we consider also the intermediate marshalling (7%), the total marshalling costs represent **22% of the total**.
- **Distribution costs** (distribution trains + sorting at node stations) excluding marshalling yards services costs in first and last marshalling yards are **25 % of total costs**.
- **Wagon costs** are **9 %** of the cost structure.
- **Commercial costs and overhead** represent the **remaining 20%**.

- **Cost structures appear to be quite different among the RUs** for which data are available.
- **Specific "local" factors appears to have a strong impacts** (e.g. level of infrastructure charges, average length of the "long haul" trips, adopted production models etc.).

8. HOW IT IS MARKETED the business models



Current SWL BM are still strongly driven by production constraints

… the on going / possible evolution

IMPROVED TRADITIONAL SWL BM	
TARGET MARKET SEGMENTS	▪ Existing demand for WL services ▪ Limited pick-up / delivery points
SUPPLY IMPRO-VEMENTS	▪ Reliable and frequent interhub direct trains carrying different segments* ▪ Increased capacity utilisation
MARKET APPROACH	▪ Involvement of forwarders/logist. op. ▪ Provision of cross docking or value added services (not just transport) ▪ Improved tracking & tracing

NEW WAGONLOAD SERVICES	
TARGET MARKET SEGMENTS	▪ Relatively large WL flows ▪ LTL Combined Tr. flows
SUPPLY IMPRO-VEMENTS	▪ Network of reliable mixed trains carrying different WL & CT segments ▪ Low cost service providers for last mile
MARKET APPROACH	▪ Involvement of CT operator ▪ Provision of cross docking or value added services (not just transport) ▪ Improved tracking & tracing

* e.g. conventional wagons between private sidings or between one private siding and road transport at the other end; combined transports between terminals etc.

Section 3
Actions for the relaunch

91% Solution with higher consensus (relevant or very relevant for >85%)

PROPOSED ACTIONS (1/4)

- PwC analyses & the answers from the stakeholders consultation (37 answers from IM, RUs, shippers association & other operators) confirms that a number of actions on 5 key areas (efficiency, infrastructure availability, regulation of rail and other modes, quality, technology) are perceived as necessary, but there is **not a single "magic wand"** to relaunch SWL.

Impact area	Priority level	Recommended actions to be implemented by EC	Recommended actions to be implemented by MS	Recommended actions to be implemented by Stakeholders
IMPROVING THE EFFICIENCY AND/OR ECONOMIC SUSTAINA-BILITY OF SWL SERVICES	HIGH	• **Supervise (also through appropriate guidelines) & monitor the implementation of proper TAC regimes** respecting EU regulation	• Ensure the implementation of **proper TAC regimes** respecting EU regulation • Implementing conditions allowing **workers polyvalence** (as in other modes of transport) (90%)	• Implement **capacity booking** solutions • Plan and operate **enhanced production models** mixing SWL with other (regular) rail freight flows to increase capacity utilisation
	MEDIUM / LOW	• **Support "short liner" (last mile) operation** through specific funding (similar to Marco Polo) (91%)	• **Support last mile operation as PSO** in specific areas where no RU is interested to operate them at market conditions (90%) • **Align TAC reductions between intermodal** (if existing) **and SWL** (88%) • Ensure the implementation of proper **TAC regimes differentiating the levels by path quality / priority**	• **Involve port authorities** in the management of last mile services (100 %)

91% Solution with higher consensus (relevant or very relevant for >85%)

PROPOSED ACTIONS (2/4)

Impact area	Priority level	Recommended actions to be implemented by EC	Recommended actions to be implemented by MS	Recommended actions to be implemented by Stakeholders
ENSURING THE AVAILABILITY OF ESSENTIAL INFRA-STRUCTURE / FACILITIES	**HIGH**	89% • **Enhance the existing regulation on service facilities (art. 13 of the Recast)** by imposing sufficient notice & market analysis (including consultation of RUs) before deciding the closure of service facilities under Annex II.2 of the Recast directive • Define guidelines (and possibly funding) for the incentives to **construction & rehabilitation of private sidings** • Allow the **simplification of safety and operational requirements** for secondary lines where only freight trains circulate	94% • Implement **funding programs** (possibly with the support of EC) **for the construction & rehabilitation of private sidings** • **Simplify certification procedure of private sidings** (in countries where they are complex)	• Realise **active interaction** between IMs, RUs and also shippers and local authorities concerning the "rightsizing" of essential infrastructure for SWL

91% Solution with higher consensus (relevant or very relevant for >85%)

PROPOSED ACTIONS (3/4)

Impact area	Priority level	Recommended actions to be implemented by EC	Recommended actions to be implemented by MS	Recommended actions to be implemented by Stakeholders
EFFECTIVE REGULATION OF THE RAIL FREIGHT TRANSPORT	HIGH	95% • **Monitor the implementation of the relevant EU regulation** such as the Recast directive • Foster the implementation of a "**static platform**" providing user-friendly access to information about last mile infrastructure	95% • **Transpose relevant EU regulation** (such as the Recast directive) if not done yet	n.a.
	MEDIUM/ LOW	• **Pressing on national regulators for quick reaction** in case of access discrimination	• Pressing on national regulators for **quick reaction** in case of access discrimination • **Simplification** of the requirements for the operators active only on secondary lines	n.a.
EFFECTIVE REGULATION OF THE COMPETING MODES	HIGH	86% • **Ensure / verify the harmonisation of operating conditions with other modes**, in particular concerning the infrastructure charging policies between rail and competing modes	• Align the conditions of road and rail transport concerning the **provision of the "last mile" infrastructure** connecting industrial plants and warehouses to the respective network	n.a.

91% Solution with higher consensus (relevant or very relevant for >85%)

PROPOSED ACTIONS (4/4)

Impact area	Priority level	Recommended actions to be implemented by EC	Recommended actions to be implemented by MS	Recommended actions to be implemented by Stakeholders
IMPROVING THE SWL QUALITY TO THE CUSTOMERS	**HIGH**	-	-	• Implement **enhanced wagons tracking & tracking solutions** (also for international flows) available to customers (dynamic platforms) • Propose **innovative business solutions** tailored to market needs
TECHNOLOGICAL INNOVATION	**HIGH**	• **Support R&D on technology** that are not fully mature yet (e.g. power source for "intelligent wagons")	• Ensure the **applicability of innovative technologies** such as remote controlled shunting locomotives (e.g. **in terms of safety provisions**)	• Go from research / pilot stage to **full scale implementation for mature technologies** allowing significant benefits at limited costs (e.g. ICT solutions for fleet management, capacity booking, tracking and tracing; hybrid & remote controlled locomotives, etc.)

THE TECHNOLOGICAL SOLUTIONS

Wagon & loco fleet management

Considered by most respondent a "must" for any operator, and obviously not just for SWL, improving fleet utilization, predictability etc. IT based solution exists. To be combined with "**intelligent wagon**" solutions.

Relevant or Very Relevant

83%

(fleet mgmt.)

64%

(intelligent wag.)

Mature: Y

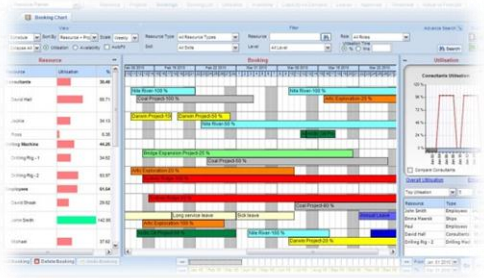
(for **intelligent wagons** : reliable power supply to be developed; cost issues for wide-scale deployment)

Capacity booking systems

Through coordination between partner RUs, it allow a better use of available capacity (→ increasing productivity) and increasing quality for customers (e.g. Expected Time of Arrival).

Relevant or Very Relevant

83%



Mature: Y

Remote controlled locomotives

Remote controlled locos are already successfully used in some countries & together with **hybrid traction**, they can improve cost-effectiveness & efficiency of last mile operations.

Relevant or Very Relevant

80%

(remote c.)

59%

(hybrid)

Mature: Y

(but cost-benefits to be evaluated)

Wagon / consignment tracking & tracing

To provide **same level of service as competing modes**. Available in some RUs at national level, but not for international traffic. Elimination of manual reporting & interoperability of existing systems are the key steps.

Mature: Y

Relevant or Very Relevant

74%

Thank you for your attention

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