



Study on Single Wagonload Traffic in Europe – challenges, prospects and policy options

Executive Summary

July 2015



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UNIVERSITÀ DI ROMA



EUROPEAN COMMISSION

Directorate-General for Mobility and Transport
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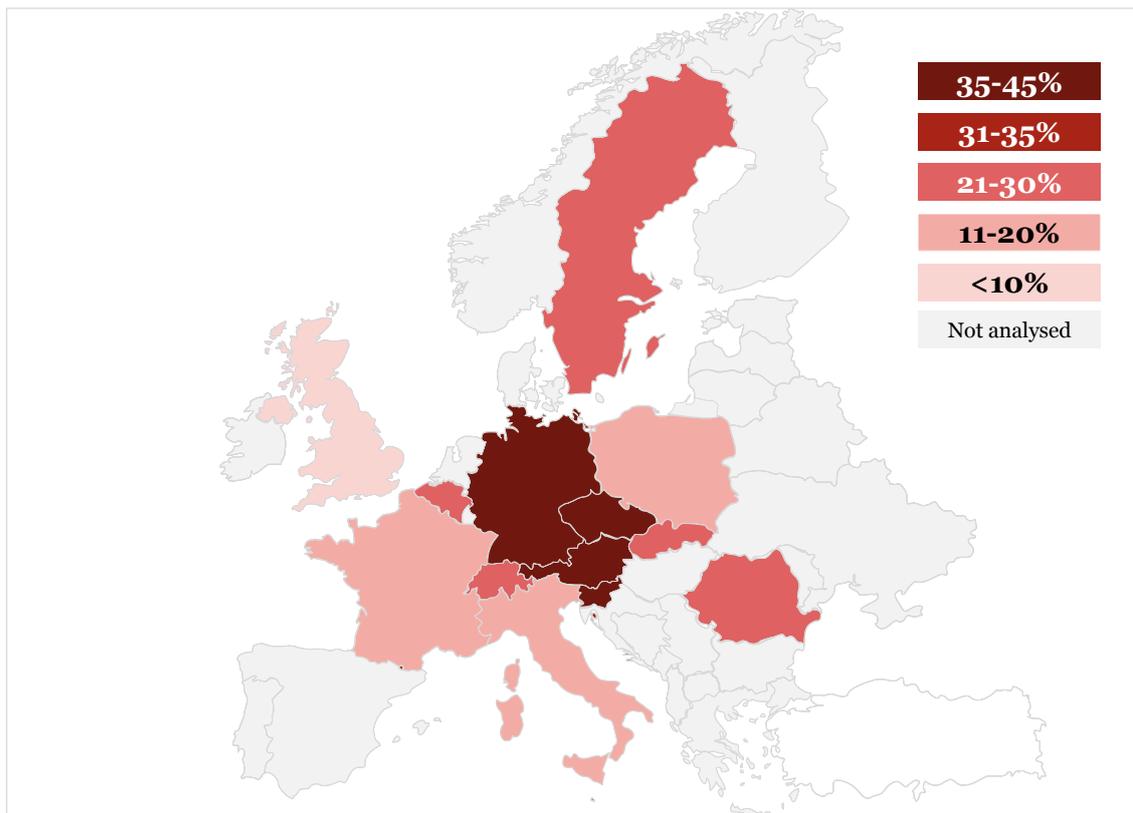
1. Executive Summary

The “Single Wagonload” railway services include – as far defined within this Study – all less-than-trainload rail freight flows, i.e. all shipments moved by rail with solutions different from full trains keeping the same composition from the origin to the destination.

The analysis undertaken within this Study of such services provides a relatively comprehensive picture of its importance in the European freight transport market:

- According to the available data from official statistics and gathered during this study, the SWL traffic represent about **75 billion tons*km** in the 13 analyzed countries¹, not considering the transit traffic (2012 data). By adding this latter component and the remaining EU member states, a reasonable estimate of the SWL traffic in EU+CH is about 80-85 billion tons*km, i.e. 15-20% less than the previous available estimates of Xrail of 2010, probably based on 2009 data.

Figure 1 - Share of total rail freight traffic (in tkm) moved by SWL services in the Key Countries (Data from Stakeholders consultation + Slovenia & Slovakia from Eurostat)



¹ 11 key countries for the Study: Austria, Belgium, Czech Republic, France, Germany, Italy, Poland, Romania, Sweden, Switzerland, UK; + Slovenia and Slovakia.

- **SWL share on the total rail freight volume is about 27%** in the 13 key countries (Eurostat data on a sub-set of countries shows a reduction from 50% to 35-36% in the period 2004-2011).
- Significant differences among countries do exist, with SWL share on total rail freight of about 40% in Austria, Czech Republic and Germany, and lower than 15% in Italy and UK.
- **Almost 2/3 of SWL traffic is international**, showing the relevance of such supply for the international trade of goods.
- **SWL services are more extensively for the transport of specific type of goods** such as metals, chemicals, solid and liquid fuels, and transport equipment; in most cases, the SWL services are more suitable than other type of rail transport supply for such goods, due to the typical shipment size (preventing the utilization of full block train), as well specific transport requirement and constraints and a better use of the wagons and train transport capacity (these latter elements justifying the preference against combined transport solutions).

Thus, SWL is still an important transport solution, especially for international transport and in some market segments. However, what are the reason of the observed decline, both in volumes and in market share?

A number of reasons have been identified and analyzed, among which the most relevant one can be summarized as follows:

- a **general reduction of the flows of some commodities** that are “captive” for SWL services, such as metals and transport equipment, for which there is an observed reduction of the total land transport flows of 15-20% in 2008-2012, and an identical decrease of the rail volumes;
- the **low or no profitability of SWL** for the RU operating them, driving RUs towards the elimination or significant downsizing of the service (as experienced in UK, Italy, Spain, but to some extent also in France) due to the urgent needs to improve their financial situation. Due to market competition, precise figures are not available, however it has been reported that even in countries with RUs still supporting SWL such Austria and Switzerland, 15-50% of the SWL services do not cover their production costs), due also to the complexity of the transport chain making less easy to obtain economy of scale especially on last mile and marshaling operations (that represent a very important part of the costs: 22% for marshaling & shunting, + 25% for collection/distribution/shunting at nodes);

On that respect, it shall be added that the large proportion of internal traffic in SWL means that the decision to eliminate such service by the dominant RU of a given country is very likely to affect the SWL in all other countries

exchanging goods with that country, since it will not be easy to find another RU interested and capable of replacing the incumbent;

- the **difficulty in coping market expectations in terms of quality of the service**, in particular for international transport that – as stated – is the largest part of SWL traffic: wagon tracking & tracking system already available to shippers in most cases for domestic SWL movements are not implemented yet at large scale for international flows, while that information is available when using other modes of transport; the reliability of the system is perceived as not sufficient (even if at least 75% of SWL trains are reported to arrive within 1h of the scheduled arrival time, because the complexity of the production model amplify the delay of a train e.g. whether other groups of wagons shall wait its arrival in order to reach an acceptable train capacity utilization);
- the direct **competition on small/medium shipments with road transport**, the latter being able to constantly improve its efficiency (e.g. diesel fuel prices variation did not generate a significant change in road transport prices in the last decade); besides, road transport is highly rated by shippers in terms of flexibility, and it is characterized by a large capacity of transport that make it very competitive in terms of prices;
- the **limited effect on SWL of the liberalization process** which affected the European railway freight market in the last decade: due to the complexity and lower profitability of SWL, new entrants focused on the intermodal and full train markets, so that the beneficial effects of the market opening have not been observed for SWL (by the way, during the Study's stakeholders consultation, only a couple of the new entrants contacted for the survey stated that they also supply SWL services);
- **large part of the SWL system are still operated according to traditional production and business models** although several RUs are already operating or developing new production models aiming at better use of available capacity and simplification of the transport chain (e.g. liner train supply); enhanced model aiming at combining typical conventional SWL flows with regular flows of intermodal or conventional transport are promising in terms of efficiency and profitability, but not planned & operated at large scale yet;
- a number of **technological innovations** aiming at enhancing SWL's productivity, flexibility and attractiveness for the shippers have been developed and in most cases, they are quite mature; large scale implementations are, however, quite significant in some cases, and the overall decline of the system does not encourage for such investments.

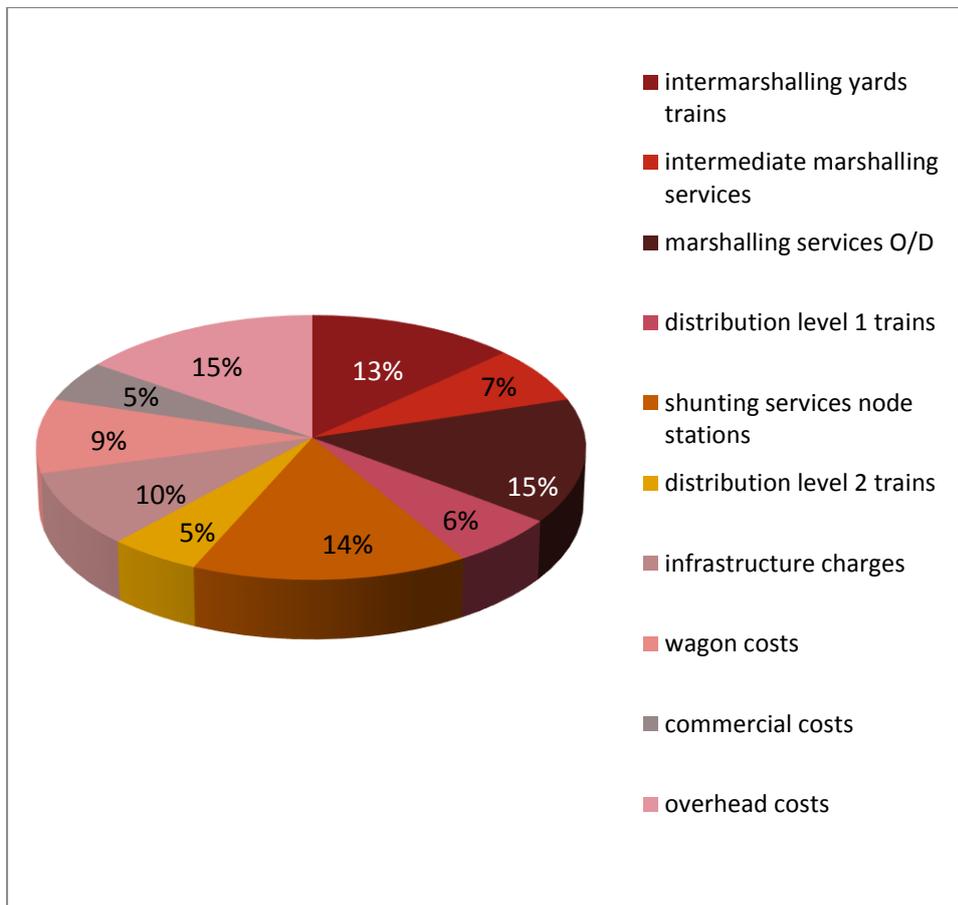
Under such general market conditions, a specific attention deserve the analysis of available **infrastructural facilities** that are essential to operate SWL services. The Study provided evidence that the situation is quite heterogeneous among the countries, but with the following general characteristics:

- broadly speaking, the **tendency to reduce the available infrastructure for SWL appears to be more an effect than a cause of the reduction of SWL traffic**; IM would like to avoid unexploited capacities because of the tight budget constraints they have, so they react by reducing the available train formation facilities and freight station as soon as the relevant traffic streams are declining;
- thus, the number of marshalling yards in operation have been in several countries significantly reduced in the last 10 years (-30-40 % on average), and/or plans for further downsizing are existing;
- countries pursuing SWL are the ones more oriented to the preservation of the SWL related infrastructures, while other countries are developing “marshalling-free” SWL service (requiring only limited shunting operations on flat yards) to combine wagons from different clients;
- in the medium term, however, **such decisions – although justified in the short term – might hinder future re-launch of traffic**, especially if the tracks in the yards or sidings or freight stations are removed, and the available land used for other purposes;
- the most critical issue is the **reduction of the private sidings**; rehabilitation or construction of sidings (and in some case their certification) is a significant expenditure and administrative burden for the companies owning the plants connected by the siding, and only some countries support with specific actions their survival and development. On the other hand, road connections to industrial plants are built and maintained at no cost for the companies.

Thus, infrastructure downsizing is a key aspect threatening the SWL re-launching. There is very likely risk of a **“vicious circle”** where traffic reduction is driving the closure of some key facility, and the latter will generate further traffic drop.

In terms of **cost structure**, the complexity of the SWL production chain imply 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, + 10% for charges for track access, in total 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, while commercial costs and overhead represent the remaining 20%.

Figure 2 – Typical cost structure of SWL services



Such complexity implies that the **cost efficiency is also a multidimensional problem**, and the search of production efficiency shall look for **optimising the utilisation of all involved resources** (wagons, shunting locomotives, marshalling yards, train capacity etc.) through **simplification of the production process** (e.g. avoiding two levels for distribution services and intermediate marshalling yard through flexibility in routing wagons), reduction of empty runnings, dynamic planning of train capacity utilisation, etc. Track access charges correctly set at the level that the SWL segment can sustain (as provided by EU directives) would probably also allow a further cost reduction.

Based on the analysis summarised above of SWL traffic, production and business models, a number of recommendations of possible actions for the elimination of relevant barriers & threats, and the exploitation of available opportunities, have been studied and filtered according to the evidence provided by the analysis, as well as the level of “relevance” indicated by relevant stakeholders and the likely feasibility given the current EU regulatory framework.

The following table summarises the proposed recommendations in terms of expected areas of impact, responsibilities for their implementation and level of priority.

Actions are classified as “high priority” ones when they have a general (Europe-wide) potential impact and are critical for the re-launch of SWL (since they are addressing the key issues synthesised in chapter Error! Reference source not found.).

Actions having a more limited scope of application and/or likely benefits (also in comparison with the related implementation costs and time) are instead classified as “low/medium” priority ones.

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 sustainability of SWL services	HIGH	<ul style="list-style-type: none"> Supervise (also through appropriate guidelines) & monitor the implementation of proper TAC regimes respecting EU regulation principles in terms of charges set at “directly incurred costs” and mark-ups levied only at a sustainable level (if any) (*) 	<ul style="list-style-type: none"> Ensure the implementation of proper TAC regimes respecting EU regulation principles in terms of charges set at “directly incurred costs” and mark-ups levied only at a sustainable level (if any) (*) Implementing conditions allowing workers polyvalence (as in other modes of transport) 	<ul style="list-style-type: none"> Implement capacity booking solutions Plan and operate enhanced production models mixing SWL with other (regular) rail freight flows to increase capacity utilisation
	MEDIUM / LOW	<ul style="list-style-type: none"> Support “short liner” (last mile) operation through specific funding (similar to Marco Polo) 	<ul style="list-style-type: none"> Support last mile operation as PSO in specific areas where no RU is interested to operate them at market conditions Align reduction of TAC between intermodal and SWL trains (where provision in favour of the former exist) Ensure the implementation of proper TAC regimes differentiating the levels by path quality / priority (***) 	<ul style="list-style-type: none"> Involve port authorities in the management of last mile services

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 infrastructure / facilities	HIGH	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> Realise active interaction between IMs, RUs and also shippers and local authorities concerning the “rightsizing” of essential infrastructure for SWL
Effective regulation of the rail freight transport	HIGH	<ul style="list-style-type: none"> Monitor the implementation of the relevant EU regulation such as the Recast Foster the implementation of a “static platform” providing user-friendly access to information about last mile infrastructure (**) 	<ul style="list-style-type: none"> Transpose relevant EU regulation (such as the Recast directive) if not done yet 	
	MEDIUM /LOW	<ul style="list-style-type: none"> Pressing on nat. regulators for quick reaction in case of access discrimination (***) 	<ul style="list-style-type: none"> Pressing on nat. regulators for quick reaction in case of access discrimination (***) Simplification of the requirements for the operators active only on secondary lines (****) 	
Effective regulation of the competing modes	HIGH	<ul style="list-style-type: none"> Ensure / verify the harmonisation of operating conditions with other modes, in particular concerning the infrastructure charging policies between rail and competing modes 	<ul style="list-style-type: none"> 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 	

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			<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Support R&D on technology that are not fully mature yet (e.g. power source for “intelligent wagons”) 	<ul style="list-style-type: none"> • Ensure the applicability of innovative technologies such as remote controlled shunting locomotives (e.g. in terms of safety provisions) 	<ul style="list-style-type: none"> • 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.)

(*) This will also mean that basic TAC shall be more linked to the gross tonnage of the train as key driver of the “directly incurred costs” (typically the variable part of maintenance & renewal costs).

(**) Actions already launched by EC in May 2014.

(***) Classified as medium/low priority for SWL, since they are general issues of EU or national regulation, not specifically linked to barriers for SWL development.

(****)The simplification of the requirements for the operators active only on secondary lines is already covered to a large extent by the Recast directive at art. 2 where the “undertakings which only operate regional rail freight services” and the “undertakings which only operate freight services on privately owned railway infrastructure that exists solely for use by the infrastructure owner for its own freight operations.” may be excluded from the application of the Chapter III concerning the licensing of RUs. Thus, this remain an issue only at national level.

As far as the competition within the railway market, during the Study the issue of how to better regulate the management of relevant infrastructure, e.g. in terms of ensuring maintenance and open access to service facilities, was also discussed.

As far as SWL re-launch is concerned, the priority appears to be a **proper and full implementation of existing regulation** (e.g. Dir. 2012/34), as well as the monitoring if its actual application, as already stated in the above table.

Concerning the **full separation of IM and RU** to better ensure IM independence, available data show that – so far – the general performance of SWL and the presence of new entrants in such market segment do not appear higher in the countries with an independent IM (e.g. Austria and Germany with IM integrated in a holding structure

with the incumbent RU have high SWL %, while SWL is disappeared in Spain and UK where IMs are fully independent). This, it is not possible to conclude that fully separated IM would automatically generate a favourable environment for SWL.

Concerning the possibility to **assign specific “last mile” infrastructure such as the marshalling yards to an IM independent** from the national one is a possibility already existing especially for relatively isolated network (such as in port areas). A wider scale application of such policy shall consider, however, that the multiplication of the number of IMs might risk generating an additional complexity in the service planning (that is already a complex process for SWL, given the high percentage of international transport).



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