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## Improving the container distribution by rail into Swiss sidings

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### Abstract

Nowadays a significant part of the maritime containers with origin or destination in Switzerland are distributed by rail into private sidings. The containers are transhipped in intermodal terminals from the long-distance shuttle-trains or barges to flat wagons of SBB Cargo. The wagons are distributed within the national single wagonload (SWL) network to the final recipients' sidings. The SwissSplit nowadays has some weaknesses, which reduce the competitiveness compared to the container distribution by truck: The terminal structure in Switzerland is very dispersed with a multitude of small terminals. The actual business model covers only the rail transport from the terminal to the destination siding, this causes inefficiencies in the overall distribution process. The conventional platform wagons used for the SwissSplit are quite old and have reached the end of their economic lifetime. Within the ViWaS project HaCon, SBB Cargo, Wascosa and ETH Zurich developed several approaches to improve the SwissSplit. In general a new business model covering the entire transport chain from the terminal to the siding and back to the container depot was developed, the SWL production schemes were improved and an optimized terminal network that eases the transfer of the wagons into the SWL network was introduced. A major part of the improvements was the development of a new type of flat wagon to improve the loading and unloading processes in the sidings. The wagon was tested within the SwissSplit-network of SBB Cargo. This paper describes the findings of the development and the feasibility tests of the new SwissSplit-Wagon and the overall feasibility of the improved SwissSplit.

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## 1. Introduction

The modal shift from road to rail and inland waterways is one of the major goals of the European Transport policy. The focus of researching distribution of maritime containers and their practical application is on the combined transport using rail or inland waterways to serve hinterland terminals. Thereafter trucks take over the final distribution of the containers to the final recipients. The possibility to organize a final distribution by rail is widely ignored. In Switzerland however, a large amount of containers are distributed by rail within the SwissSplit. SBB Cargo, as operator of the SwissSplit, now wants to improve the product in order to keep it competitive with trucking.

Thus, section 2 this paper describes the actual situation of the container distribution by rail in Switzerland, its weaknesses, some demand structures as well as the already identified optimization approaches for SwissSplit. Section 3 is a literature review about improvements in rolling stock for single wagon load container distribution by rail. Section 4 describes in detail the improvements made on the SwissSplit-Wagon. Section 5 gives a short overview about the other improvement approaches. Section 6 analyses the overall feasibility of the improved SwissSplit on basis of two example destinations in Switzerland. Section 7 describes the conclusions and further research that needs to be carried out.

## 2. The Swiss Split

### 2.1. Today's Swiss Split

The SwissSplit is a product of SBB Cargo for the distribution of maritime containers to the final destination sidings by rail. Figure 1 illustrates the entire transport chain from the overseas port to the final recipient in Switzerland including the SwissSplit part in this transport chain. Shuttle trains or barges transport the containers from the seaports to the existing transshipment terminals in Switzerland. The containers are then transhipped in the Swiss hinterland terminals from the long-haul trains or the barges to standard flat-wagons or container wagons of the national single wagonload (SWL) network. To fix the containers on the wagons, wooden blocks are nailed to the wooden floor of the SwissSplit wagons. Then the wagons are transported within the existing SWL production network of SBB Cargo into the sidings of the final recipients. The wagons are placed at the existing SWL loading ramps. There the containers are subsequently unloaded by forklifts or industrial trucks.

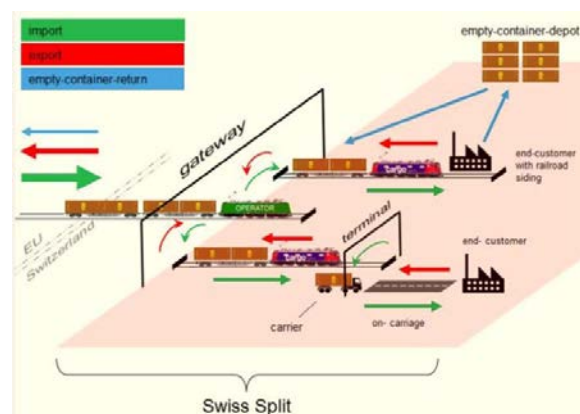


Fig. 1. Schematic diagram of SwissSplit services (source: SBB Cargo).

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