

# Loadspace Shipment Sharing: an Innovative Approach to Foster Utilization of Trucks

**Introduction:** The road freight transport is under high competition and margin pressure, has a high rate of empty capacities and is one of the principal generators of traffic jam costs. The focus needs to switch from limited efficiency potentials of a single fleet operator to higher efficiency potentials within the community. An article on how a sharing economy-approach can help to relieve issues.

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The road freight transport is one of the principal generators of traffic jam costs in Europe (compare ARE, 2015; INFRAS, 2017). Although fleet operators are increasingly using technologies such as transport management systems, telematics and consignment tracking to increase utilization, fleet utilization is not optimal (Mikulski & Kwasny, 2011). Trucks are often empty or not fully loaded (BFS, 2015). Due to strong competition, the road freight transport providers in Europe are under high margin pressure (Gruchtmann & Seuring, 2018) on the one hand and have empty capacities (Blaier, 2012) on the other hand. While the efficiency potentials have become more and more marginal within a single fleet operator, the focus on the community becomes more important.

The market for road freight transportation lacks possibilities to foster utilization of physical resources through a sharing approach such as loadspace shipment sharing (LSS) that would foster utilization and enable road freight transport providers to achieve higher margins.

Since community activities enable to level more efficiency potential than single fleet operators themselves, the creation of transparency in the cross-company perspective is required (Erceg & Sekuloska, 2019). In known applications such as the general cargo cooperation the focus lays on shipments. To optimally foster the efficiency potential in cross-company applications such as the LSS the loadspace availability has to be considered as well. By applying the LSS in the community of fleet operators the efficiency potentials would be levered. As a result of LSS, fewer vehicle kilometers are driven for the same amount of shipments and thus fewer trucks are required.

The LSS is defined as a concept through that transport orders and unused loadspaces can be matched and shared with other fleet operators within a community for a fee via a digital platform (derived from Botsman, 2015 & Zervas et al. 2016). This requires transparency about shipments as well as loadspaces within the community. The fleet operator community is to be understood as a closed circle of contractually bound transport companies. A quality audit of possible new community members should create an entry threshold to ensure understanding and cooperation of the fleet operator community. The business model of LSS clearly distinguishes itself from current business models to foster capacity utilization such as route optimization tools (fleet transparency through telematics), freight exchanges and freight mediators. Freight exchanges (e.g. Timocom) are open platforms to exchange shipments among fleet operators (Bloos & Kopfer, 2011). The exchanges through fleet operators take place after their shipments are dispatched on the own fleet. Thus, they only partially optimize the loadspace utilization. Freight mediators represent open platforms that mediate shipments directly from the shipper to fleet operators. Whereas Uber Freight offers FTL- and LTL-shipments to single truckers that reflects a derivate of the Uber taxi-concept (Uber Freight, n.d.), Pickwings spontaneously offers shipper-acquired groupage-shipments via its advanced platform (providing shipment data e.g. track & trace and controlling financials) (Pickwings, n.d.) at a compensation less than production cost to fleet operators. The digital forwarding company (e.g. Instafreight) deals with the organization of transports and has no fleet to be optimized regarding its utilization.

Whereas large fleet operators have their own efficiency fostering logistics networks, small and medium-sized fleet operators (operate regionally, thus have no potential to foster their utilization – potential is only realizable across-fleets) have to secure their existence through participation in a general cargo cooperation (Krajewska & Kopfer, 2006). A general cargo cooperation is offering its services to a larger area through connecting regional fleet operators. Fleet operators are cooperating in order sharing through handling the shipments over to another community partner for the main run / onward carriage and thereby leveling the general cargo cooperation network reaching a higher utilization in its main runs (Verdonck et al., 2013). Since the general cargo cooperation cooperates in order sharing but not yet in loadspace sharing, LSS builds its basis upon the mechanisms and concept elements of the general cargo cooperation.

In two current research projects in cooperation with more than 10 international road freight transport providers (among others Cargo24 AG, BDK Informatik AG, Hasler Transport AG, Krummen Kerzers AG, Lagerhäuser Aarau AG, TRAVECO Transporte AG, Zibatra Logistik AG, Cargo Trans Logistik AG), the Institute of Supply Chain Management at the University of St.Gallen (ISCM-HSG) develops the concept elements of LSS. The development is founded through the Swiss Innovation Agency “Innosuisse” as well as through industry. It identified basic requirements such as transparency and digital platform, coordination and further concept elements. The concept element transparency covers information sharing for the set-up and transparency over loadspaces and shipments for the operations. The concept element digital platform features the ICT platform for exchanging information on load spaces / shipments and planning data, evaluating the information, providing transparency and matching services. The coordination – central to the LSS concept – covers how the fleet operators interact among each other to cooperate for sharing shipments and loadspaces. Further concept elements are product management, branding, contribution management, incentives and governance. For further detail and inter-relationships see illustration 1. [\(View larger version\)](#)

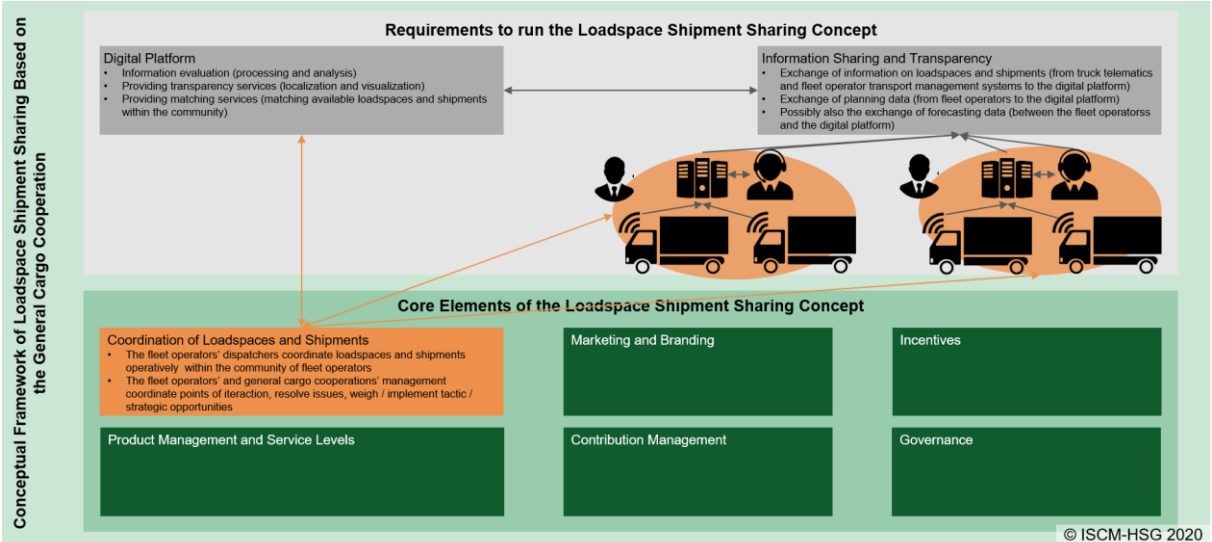


Illustration 1: The concept of loadspace shipment sharing with its requirements and core elements  
 Source: © ISCM-HSG, 2020

As the “COVID-19 Supply Chain Impact Update -blog” attempts to tackle issues and impacts related to, caused by, or being affected by COVID-19 and the actions taken to contain its spreading, we discuss the LSS-concept as well as the spotlight of the current situation on the concept:

- The LSS represents a business model innovation since it adds a revenue-stream for fleet operators and requires new forms of beneficial interaction (Timmers, 1998). A digital platform and transparency (over truck and transport management system data) are

mandatory to realize the business model innovation. Besides the digital platforms' task of linking data providers / users it provides the business model-conform architecture. Therefore, it is not an incremental "business as usual"-improvement.

- Through the LSS-concepts' ability to increase the truck utilization within a community of fleet operators by bringing fleet operators together it can lever efficiency potentials through cross-company operations in real time (matching available loadspaces and shipments within the community during the dispatching process). Other utilization-fostering business models do not consider a real-time cross-company optimization – they rather focus on a real-time single company (e.g. route optimization tools, freight mediator) or time-lagged cross-company utilization-fostering (e.g. freight exchange). Due to the fact that each company optimizes its loadspaces before handing shipments out to the freight exchange, an inefficiency within the open freight exchange-community is created. Single company and time-lagged business models lack in efficiency for the above-mentioned reasons.
- The LSS is able to alleviate bottlenecks such as traffic jam costs and carbon emissions: through the improvement of the vehicle utilization fewer vehicle kilometers are driven and thus fewer trucks are required. Now during the COVID-19 pandemic (shorter lead times) as well as in the post-Corona operations the significantly improved vehicle utilization foster value for fleet operator (improved margins) and society (less traffic jam hours).
- Considering the current bottlenecks in e.g. intra-European border crossings due to COVID-19 partial lockdowns, LSS-based operations would have led to less traffic jams due to higher utilization rates per truck and thus also shorter lead times (or in other words: less delayed shipments). Therefore, compare illustration 2. ([View larger version](#))



Illustration 2: a few (03.29.2020) and several closed border crossings (04.09.2020) in partial lockdowns due to COVID-19

Source: Ojala (2020) derived from sixfold.com

To conclude this article, the authors give insights into risk and rewards of the LSS-concept:

- Risks can be found in (too) high ICT costs or a lack of data protection for fleet operators and general cargo cooperations or reduced revenues from road taxes (e.g. heavy goods vehicle tax) for governments.
- Rewards through the improved utilization of trucks are higher margins and innovative image for fleet operators, new business opportunities for general cargo cooperations, lower costs for shippers as well as lower environmental impact through fewer carbon, noise emissions and traffic jams.

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