CO³ TEST PROJECT REPORT:

CREATION OF AN ORCHESTRATED INTERMODAL PARTNERSHIP BETWEEN MULTIPLE SHIPPERS

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Executive summary

This document describes the creation and management of an orchestrated horizontal community for collaborative intermodal transport between 4 shippers, 2 logistics service providers and a neutral trustee. This test case has been developed as the 2nd applied example in the context of the EU-financed project 'Collaborative Concepts for Co-modality' or CO³. More information about this innovation project can be found on the consortium website www.co3-project.eu.

TRI-VIZOR, a Belgian spin-off company of the University of Antwerp, acted as neutral orchestrator (=offline/online trustee) and project manager on behalf of CO³ consortium. It started the preparation of this test case in September 2011, working with both shippers and logistics service providers to realize the project, and concluded the test case in May 2013.

Conform the standard methodology promoted by the CO³ consortium, TRI-VIZOR applied a 3-phased approach to set up this test case:

Phase 1: identification of compatible shippers and transport flows
Phase 2: preparation of a collaborative concept and business case
Phase 3: operational implementation and management

Acting as 'offline trustee', TRI-VIZOR first identified a number of compatible shippers and calculated their potential transport network synergy. It then created a horizontal collaboration community with 4 of those shippers to set up a balanced and synchronized transport loop with Full Truck Loads between Belgium and the northwest of Spain.

The participating shippers in the project are:

- Baxter: a global healthcare company with intercompany flows between Belgium and Spain;
- Colruyt: a Belgian retailer importing wines and beverages from Spain to Belgium;
- Eternit: a Belgian company exporting building and construction materials from Belgium to Spain;
- Ontex: a fast moving consumer goods company with intercompany flows between Belgium and Spain.

On behalf of the community, TRI-VIZOR then designed the collaborative concept, calculated the business case and organized a Request for Proposal to help select the most adequate logistics service providers to organize the physical and operational transport aspects. Because increased sustainability and reduction of carbon emissions were explicit goals of the community, the choice was made to make maximal use of short sea shipping between Spain and Belgium. The participating logistics service providers in the project are:

- Corneel Geerts Transport: a Belgian family-owned provider of intermodal transport solutions;
- Transfennica: a Dutch-based short sea shipping operator and provider of integrated transport services.

Acting as 'online trustee' and community manager, TRI-VIZOR also took care of the transport order collection and processing, proactive FTL load planning and synchronization between Belgium and Spain, capacity booking with the logistics service providers, incident solving and management of the administrative and financial flows. Because the pick-up and drop addresses of the shippers in Belgium were located close by each other and the test volume was not large enough to create cost synergies on the

short sea trajectory, all transport synergies of the community were realized by optimally combining and synchronizing pick-up/drop times and locations in Spain. This process was supported by TRI-VIZOR's specialized planning unit and proprietary collaborative control tower, the 'Cross Supply Chain Cockpit®'.

The test case went live in January 2013 and finished in April 2013. The community successfully synchronized and shipped back and forth more than 60 FTL loads between Belgium and Spain during this period. This was sufficient to provide the CO^3 consortium with interesting learnings and conclusions with regard to efficiency (cost), effectiveness (service level) and sustainability (carbon emission) of the concept. In addition, interesting observations could be made with regard to scalability, legal aspects and fair gain sharing.

In terms of sustainability, the community achieved a substantial carbon emission reduction of more than 30% compared with individual road transport before the collaboration. In terms of service level, the shippers experienced no significant transport problems or delays, in spite of occasional operational and technical problems in the field. As such, short sea shipping was very well accepted by the shippers as a reliable and sustainable alternative for road transport.

In terms of profitability, the community experienced a slight cost increase of ca. 3% when compared with the total baseline cost of road transport before the collaboration. This was caused by an unforeseen drop in roundtrip volumes just before the go-live of the project, in combination with the suboptimal geographic spread of the shippers' pick-up and drop locations in Spain. This created a number of missed intermodal connections and a higher than foreseen number of empty road kilometers in Spain that had to be covered by transport company Corneel Geerts.

Looking to the future, TRI-VIZOR believes that orchestrated horizontal communities for synchronized and balanced intermodal closed loop transport, as described in this test case, can work very successfully and with a high degree of efficiency, effectiveness and sustainability. Critical success factors are a sufficient total amount of overlapping transport volume (critical mass), strategic and operational fit between the shippers in the community, careful selection of the community's corridors and geographical locations and the ability of a neutral trustee to design, manage and synchronize in real-time the operations of the community shippers. This requires deep knowledge and visibility of shipper transport networks as well as specialized and advanced ICT and collaborative planning (control tower + 'sense and respond') capabilities on the side of the trustee.

The neutral trustee can only perform its tasks well if it is supported by capable carriers and logistics service providers, who act as equivalent and transparent parties in the community. The advantages for LSP's and carriers to participate in a collaborative community are stable and guaranteed transport volumes, dense and balanced flows, minimal empty kilometers and a high degree of asset utilization (financial return-on-assets). Corneel Geerts and Transfennica, the participating LSP's in this test case, have definitely 'walked the talk' in demonstrating their belief and support for this new concept.

A classic challenge for intermodal transport providers is to find a profitable balance between the capacity they first have to put in the market and the amount of stable freight volume they can then attract to fill this capacity. The high fixed costs of rail and short sea capacity in comparison with road transport make it difficult and risky to organize new intermodal connections with a sufficiently high service level or frequency. To complicate matters, intermodal transport providers seldom have a direct commercial relation with shippers: they often interact with intermediaries such as logistics integrators and freight forwarders who apply an 'FTL groupage' business model. This limits the possibility to proactively bundle freight flows at the source and to create dense, balanced and synchronized transport volumes with long-term stability. This CO^3 test case

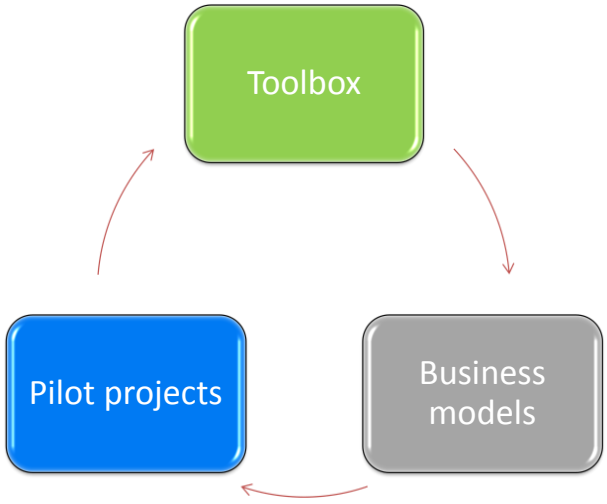
demonstrates that applying horizontal collaboration principles, i.e. working directly with a neutrally orchestrated shipper community, can help intermodal providers to solve this 'chicken-and-egg' problem. More specifically, Transfennica would be able to increase its guaranteed service level between Belgium and Spain from 2 sailings to 3 sailings per week in case the orchestrated shipper community would commit a sufficiently high and balanced critical mass of FTL volume to short sea transportation. Moreover, the test case indicates that orchestrated horizontal collaboration can offer a way for Transfennica to attract not only balanced FTL volumes but also synchronized LTL (co-loaded trailers or containers) flows from the community of shippers. This would open up an entirely new market segment for intermodal transport providers.

In this context, an anti-trust compliant legal framework or multilateral contract has proven to be a necessary building block and contributing factor to the success and stability of orchestrated horizontal communities. This also holds true for the pragmatic use of the Shapley value for fair gain and cost sharing between community members. Both concepts deserve and will need continued promotion, dissemination and support to become accepted as best practices in the European market.

Last but not least, from a European and national policy perspective, this CO^3 test case demonstrates that the smart introduction of carbon taxation (e.g. Ecotaxe Poids-Lourds in France) can help establish the necessary tipping point to stimulate shippers and logistics service providers to proactively bundle transport flows, to shift volumes from road to intermodal solutions and to create profitable and stable horizontal communities. Similarly, monetizing the realized carbon savings of a collaborative transport community might in the long run become accepted as a way to help reach a positive business case.

CO^3 Project: Background

The EU-funded project CO3 (Collaboration Concepts for Co-modality) aims to develop, professionalise and disseminate information on the business strategy of logistics collaboration in Europe. The goal of the project is to deliver a concrete contribution to increasing vehicle load factors, reducing empty movements and stimulate co-modality, through collaboration between industry partners, thereby reducing cost and transport externalities such as congestion and greenhouse gas emissions without compromising the service level. The project will coordinate studies and expert group exchanges and build on existing methodologies to develop legal and operational frameworks for collaboration via freight flow bundling in Europe.



THE CO3 APPLIED RESEARCH CYCLE

Furthermore, the project consortium of knowledge institutes and specialised industry players will develop new business models for logistics collaboration. The developed tools, technologies and business models will be applied and validated in the market via pilot studies. Finally, the CO3 consortium will promote and facilitate matchmaking and knowledge-sharing through conferences and practical workshops to transfer knowledge and increase the market acceptance of collaboration.

The core of the CO3 project is what is referred to as the *applied research cycle*. This cycle has been set up as a continuous learning and feedback loop between the models and tools needed for supporting collaborations, the most suitable business models for groups of companies wanting to collaborate and finally the actual test cases for collaboration. These elements are developed under individual work packages as shown below.

CO^3 Project Consortium

Coordination:

Tools and techniques: Strengthen the operational and legal framework

Identifying appropriate Collaborative business models:

The Logistics Laboratory: Case studies (CO^3 Trustee)

Knowledge transfer and networking