

NexTrust Deliverable 1.3 Report – Results of Pilot cases operated and validated in real market

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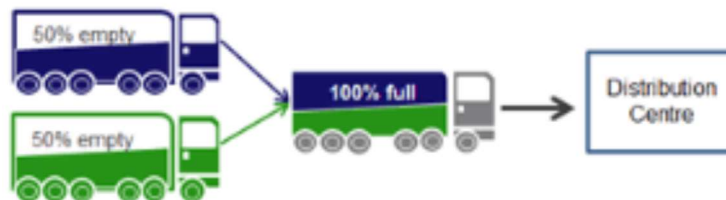
Executive Summary

The main objective of the NexTrust research project is to increase efficiency and sustainability in European logistics by designing interconnected, trusted networks that collaborate together along the entire supply chain. Its innovative business model aims to create long-term solutions. NexTrust acknowledges the current successful collaboration efforts and models in place in the market. It is focussing, in a first step, to establish a new way of working together, targeting where efficiency gains are needed, and where it is possible to achieve a breakthrough to solve real problems of inefficiency in the logistics sector on a sustainable basis.

NexTrust is hereby following a 3-step trusted network research methodology. The first research step is the “*Identification*” of opportunities, followed by *Preparation*, implementing potential matches into pilot scenarios, and then the *Operation* phase, where we validate the trusted network pilot scenarios in real market environments.

The herein presented Deliverable (1.3) Results of Pilot cases operated and validated in real market for pilot type in scope of European Less-than-truck-load (LTL) transport flows across shippers aims to elaborate on results of the in real market test of the scenario’s determined to combining and optimizing the examined flows in a trusted network environment to create “collaborative FTLs”, all while maintaining required service levels and replicating the benefits of just in time delivery inventory management.

Many shipments in Europe are not large enough to economically fill a truck on their own. They can use one vehicle on an exclusive basis, but at much less than full capacity (average efficiency is estimated at 43%) or they can use Less Than Truckload (LTL) ‘groupage’ services provided by logistics service providers that consolidate and transport shipments from numerous shippers to economically fill vehicles, as generally visualised below.



For the first period, the NexTrust research activities have confirmed that *smart visibility* is needed to enable a more intelligent, sustainable supply chain. In this way, European logistics will be able to build trusted collaborative networks by bundling transport flows, so as to yield significant reductions in GHG emissions while simultaneously improving transport cost efficiencies. NexTrust research methodology has been assessing the market with the focus on building up multiple LTL pilot cases, several of which will further advance in the second half of 2016.

The research activities resulting in the establishment of a NexTrust “protocol”, a conceptual collaboration framework to build these trusted FTL networks bottom up with like-minded partners (“communities”). The common understanding of approaching collaboration, even between competitors, was one important aspect prior to start the identification phase for potential bundling opportunities. NexTrust learned that the identification phase needs the appropriate collaboration components to achieve the breakthrough. The challenge is that “collaboration” has historically been seen a buzzword that invariably has different meanings and attitudes among key stakeholders in the supply chain.

The key prerequisite of NexTrust is that horizontal and vertical collaboration in the supply chain requires *Trust* in order to become a sustainable practice. Facilitating the process is the “neutral trustee” function, which is absolutely required to guarantee anti-trust compliance with EU law, to insure that companies’ own legal compliance rules are respected and that confidentiality is in place, allowing to exchange non-commercially sensitive information between the trusted collaborative partners. Furthermore, the trustee is responsible to ensure that the collaborative network will be constructed in such a way that a fruitful long term, *sustainable* relationship between partners can be maintained on a flexible, community basis.

The trustees who are responsible for the identification phase related and consequently this deliverable (1.2) is conducted by the NexTrust consortium members GS1 Belgium & Luxembourg (GS1-BE), Giventis International (GIV), Pastu Consult (PAS), Elupeg (ELU), TriVizor (TRV), GS1 Germany (GS1-DE), 2dgreens (2D), Critt Transport et Logistique (CRI) & Norwegian Logistics (NOL) who are coordinating and supporting the entire collaboration life cycle of the potential LTL pilot cases, from the identification of opportunities between partners in the network, to building the business case required to “package” the collaboration in a sustainable way.

The trustees were responsible for initially organising the NexTrust shippers/pilot case participants, explaining the NexTrust protocols and collaboration rules, developing collaboration legal guidelines with the support of the consortium partner law firm Kneppelhout Korthals Lawyers (KKL). Once a common “cultural” mind-set was in place, and an understanding of a new innovative way of trusted collaboration was established, the NexTrust shippers agreed with the trustees on the data collection and pilot case direction.

NexTrust’s main premise for the cultural mind-set is that re-engineering the supply chains can be used to carve out the currently fragmented logistics “silos” into smaller, manageable components that can then be restructured and replaced with more efficient connective networks to achieve benefits across entire supply chains. Enabling visibility across these fragmented “silos,” allows us to match and thus consolidate freight flows, creating synergies across shippers and LSPs.

Originally, the NexTrust LTL project team has planned 5 pilot cases for each pilot sub-category as listed below:

- Improving the efficiency of inbound transport to retailers in the Benelux (Pilot sub-category 1.1)
- Large shipper just in time (JIT) flows to retailers in the United Kingdom (Pilot sub-category 1.2)
- Combining SME-size shipper flows to retailers in the United Kingdom/France (Pilot sub-category 1.3)
- Flows from fresh and frozen food shippers across Europe (Pilot sub-category 1.4)
- Flows from high-tech/electronics shippers across Europe (Pilot sub-category 1.5)

The outcome at this stage is that the research activities achieved to design 11 (!) NexTrust pilot cases in the Inbound supply chain / assembly LTL distribution transport network.

The identified LTL lane matches have been put into distinct pilot case operations to create a new, more efficient supply chain network organisation. Furthermore, with active support from selected LSP’s, trusted collaborative networks including necessary physical building blocks such as cross-docks, multi pick-up/multi-drop processes and routes are set up; collaborative hub and spoke networks ; multi-user depots, etc. have been investigated.

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1. Introduction of the pilot cases

Pilot 1.1 Multiple supplier multiple retailer cookie platform

The Multi-Supplier/Multi-Retailer (MSMR) Cookie Platform has been setup in a pilot project to test the feasibility of the use of a consolidation platform for multiple suppliers and multiple retailers for the category of biscuits and cookies. Therefore, four major Belgian biscuits suppliers have consolidated their deliveries to four Belgian retail stores through a physical consolidation platform for biscuits and cookies. The final scale of the pilot was not big enough to demonstrate the profitability of the concept.

The aim is to reduce truck movements and to increase the truck's fill rate, but also to reduce inventory at the different stages of the distribution network. In order to realize its full leverage effects a lot more suppliers and retailers should adhere to such a consolidation platform. This pilot is the step up towards the full-blown consolidation platform where:

- all biscuits suppliers can store their Belgian inventory and replenish it with full truck transports;
- all retailers can order mixed full trucks with references of all suppliers;

A trustee model was put in place to guarantee complete impartiality and anti-trust compliance. To manage the logistics activities, an operate and orchestrate setup was put in place, where the orchestrator and logistics service provider are working intensively together.

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

This pilot addressed optimization opportunities for specialized temperature transport for companies involved in the production and distribution of fresh/frozen food (e.g. ice cream, fresh/frozen vegetables). The objective was to move LTL shipments to FTL-shipment 'cross-supply chain. The pilot initially targeted fresh/frozen food shippers. Both their intercompany transport and inbound retail shipments were in scope. We included structural lane data captured from other members of the NexTrust pilot user group in order to identify synergies with those shippers that shared similar service and specialized equipment requirements. However, additional participation was secured from only one additional participant. The target markets for this pilot was Benelux, France, United Kingdom, Germany, Austria, Poland and Scandinavia. After analysis, lanes from BL to DE and AT were implemented, offering gains in consolidation from LTL to FTL shipment and carbon savings, but no significant financial saving to the participants.

The pilot leader (with support from Giventis is a prominent private label producer of ice cream and frozen food products. It supplies its products to the largest retailers in Europe and has 2 production plants in Belgium and France. The logistics service provider the 2 shippers, with specialization in fresh/frozen food logistics, was intended to support the pilot as subcontractor for, setting up new collaborative cross-docks across Europe, and integrating the ICT information flows of both shippers. In the end, the 3PL's participation was limited to acting as the consolidation point/cross-dock for the shippers volume, which was optimised through the use of a third-party Control Tower, which provided a common platform for all participants by integrating their flows through a combination of automated and manual processes.

The outcome of the Pilot was that collaboration between the shippers was enhanced to the point that 25% of the volume that they had previously shipped as LTL on the identified lanes was consolidated to FTL shipments. This saving can be expressed as a reduction in truckloads carbon. However, financial savings were not forthcoming as consolidation opportunities that had been previously available to one shipper were not taken up during the period of the pilot, which led to the AS IS situation offering savings over and above the savings generated by the Pilot.

The Pilot had initially concentrated on 'International' Lanes that were >300KM – as consolidation over distance offered more value to the participants on a carbon basis (through increasing load factor) and as carbon savings were the participants' priority. Commercial rates on these lanes were exceptionally competitive, and significant financial savings were not expected from the outset of this pilot.

The conclusion is that there is a requirement for more, medium sized and smaller shippers to be involved for such a project to be commercially viable

- The Pilot demonstrates that there is sufficient LTL volume still available to support additional participants on the trial lanes
- The Pilot demonstrates that there is unused capacity available on existing FTL cross supply chain shipments to accommodate smaller shippers

2. Goal and objectives of the pilot cases

Pilot 1.1 Multiple supplier multiple retailer cookie platform

The Multi-Supplier/Multi-Retailer Platform has been setup in a pilot project to test the feasibility of the use of a consolidation platform for multiple suppliers and multiple retailers for the category of biscuits and cookies. Therefore, four major Belgian biscuits suppliers have consolidated their deliveries to four Belgian retail stores through a physical consolidation platform for biscuits and cookies. The scale of the pilot was not big enough to demonstrate the profitability of the concept.

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Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

This pilot addresses shipment optimization opportunities in frozen and fresh market across Europe. It has been tested how the shipments from a mutual departure area or to common delivery area or both can be combined and optimized in order to create sustainable trusted “collaborative FTL” movements.

“Collaborative FTL” requires that shippers accept a shift in transport capacity risk from the carriers to the shippers. This entails using “smart visibility” and a change in internal operational behaviour to synchronize flows at the execution level. This “smart visibility” was created by use of a third-party Control Tower, which provided a common platform for all participants by integrating their flows through a combination of automated and manual processes.

3. Participants in the pilot

Pilot 1.1 Multiple supplier multiple retailer cookie platform

The participants of pilot 1.1 is a subset of the participants of WP1, which is led by *GS1-BELGILUX*. The pilot 1.1 participants within the NexTrust consortium include: *TRI-VIZOR*, *Giventis*, *Vlerick Business School*, *Colruyt*, *Delhaize* and *Kneppelhout-Korthals*.

The participants of pilot 1.1 have decided to pilot a MSMRP for the category of cookies, for these reasons:

- Only suppliers of the same category (the cookies) are considered in order to guarantee the same transport conditions (ambient) and the same logistics activities (display building, co-packing,...).
- Trucks filled with products of the same category can dock at the same quay at the big distribution centres.
- The number of suppliers delivering cookies to the Belgian retail sector is limited (less than 100). At least one third of all suppliers is common to the participating retailers. The common suppliers might be even more important if the private label volume is also considered.
- Due to the important number of Belgian suppliers (app. 40), the platform should be setup with them first, because non-Belgian suppliers are much more difficult to convince to invest time and effort in Belgium, which is probably only a small market for them. Once the platform is operational, supplier outside Belgium could be encouraged to use the platform for their intermediary storage and/or deliveries.

For the pilot itself, four cookie suppliers, two additional retailers and a logistics service provider joined.

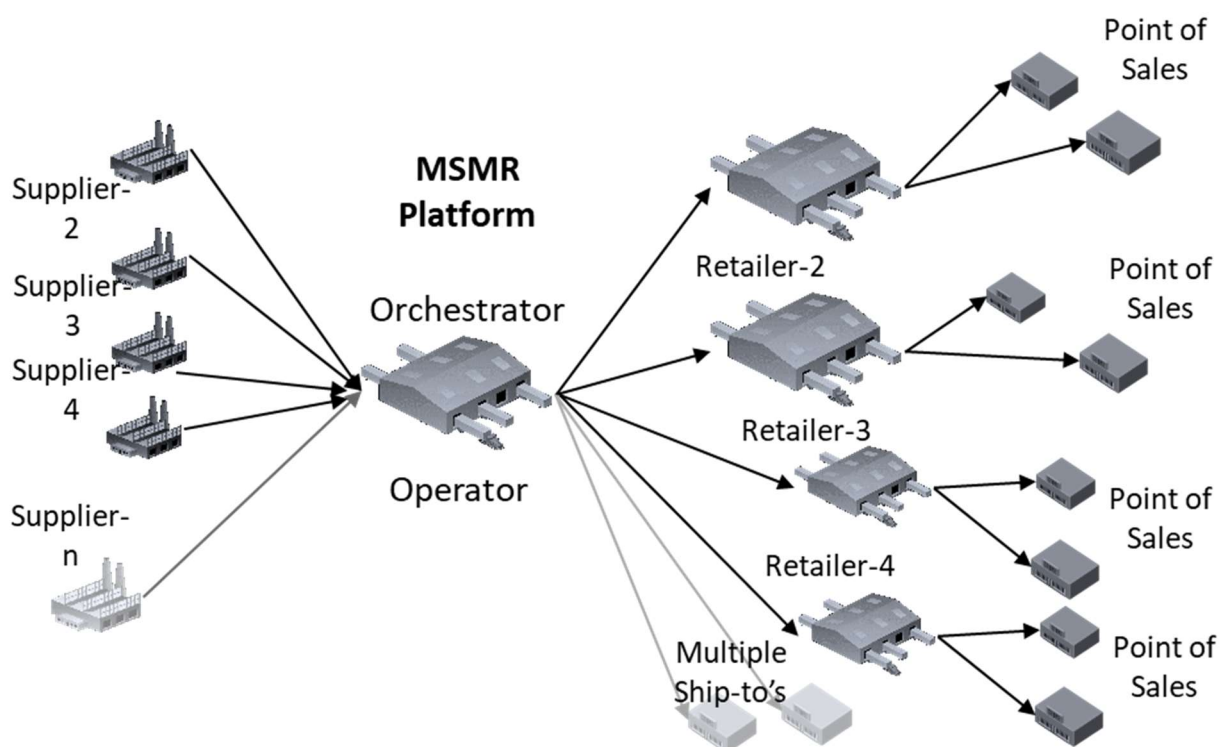


Figure 1 The piloted MSMR Platform for Cookies

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

The shippers are Belgian based manufacturers of frozen food products delivering product to retailers in circa 25 countries across Europe. The control tower function is being offered by an established Netherlands based 4PL and provides freight consolidation services to manufacturers and shippers to improve transport efficiency by optimising truck fill to reduce costs and carbon.

Shipper 1 is part of the Milcobel Group – Belgiums largest Dairy Co-operative and was founded in 1949, grew explosively in the 90s and has recently earned a place in the European top 5 manufacturers. They have a capacity of 200 million litres of ice cream in two ultramodern production facilities: Langemark (Belgium) and Argentan (France). With its factory based at Langemark, near Ypres in Belgium, it manufactures ice cream for private label– distributing mainly to retailers throughout Europe.

Shipper 2 is one of the independent businesses within Greenyard Foods. Greenyard is a global market leader in fresh and prepared fruits and vegetables, flowers and plants, fresh logistic services and growing media with almost €4 billion revenues a year. Counting the majority of Europe's leading retailers amongst its customer base, the group provides efficient and sustainable solutions to customers and suppliers through best-in-class products, market-leading innovation, operational excellence and outstanding service. The team of 1,597 employees grows and processes more than 400,000 tonnes of products annually, at 10 production sites.

Shipper 3 is a world player for the development and production of frozen potato products. As a Belgian company with its headquarters in Harelbeke and more production units in Nazareth, Wielsbeke, Tilburg (The Netherlands) they manufacture private label fries and derived potato products,

The control tower provider, headquartered in Utrecht the Netherlands and with offices in Gniezno Poland, and Brighton United Kingdom, helps organisations build a competitive supply chain advantage through reduced inefficiencies, lower distribution costs and increased availability of working capital. The Control Tower used in the Pilot was located in Utrecht. They specialize in the sustainable movement of shipments across Europe utilizing various modes of transportation. Its asset free, carrier neutral business model means that it is not restricted by a network therefore allowing the right provider to be chosen for the right lane while still benefiting from local market expertise. For the purpose of the Pilot they used only the participant's nominated carriers

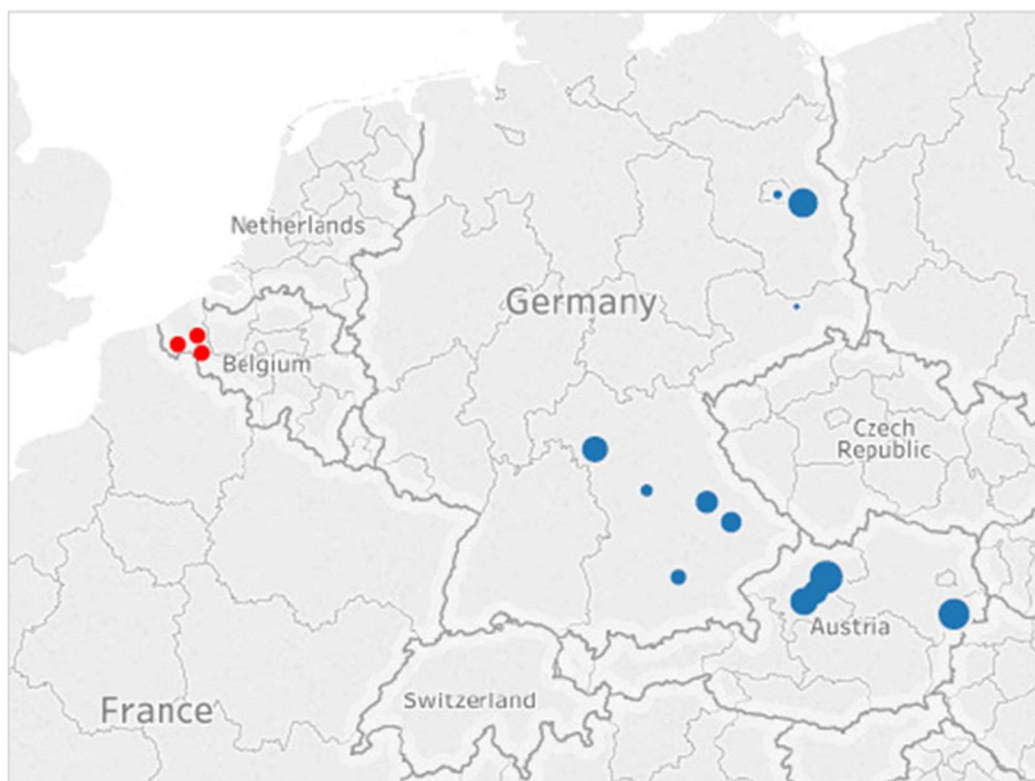
The role of Giventis, the Neutral Trustee, was to ensure that confidentiality and anti-trust rules were established and managed and to validate and analyse participant data, costs and calculate Gainshare and provide relevant specific confidential data to the participants. Giventis International BV is a Netherlands based information services company, offering a unique on-demand Web based service that assists with the re-engineering and optimization of transport networks, saving costs and reducing carbon emissions. Giventis ELG-Web™ is the premier cloud based platform for automated transport network collaboration and optimization. It's the product of collective learning from shippers, LSPs & carriers.

4. Description of 'as-is' Situation and Process

Pilot 1.1 Multiple supplier multiple retailer cookie platform

The Belgian retail distribution for cookies is currently organized as follows. There are more than 50 Belgian cookie suppliers of which approximately 40 supply regularly to the big retailers, e.g. *Delhaize, Carrefour, Colruyt*,... For their national retail distribution, more than 80% of the volume of these suppliers go to a very small number of "ship-to" platforms of the big retailers and may require bigger and more frequent LTL (Less-than-Truck Load) or even FTL (Full-Truck Load) transports. However, the vast majority of delivery points (retailer platforms and point of sales) only need small LTL quantities to be delivered. This long tail of LTL deliveries is quite expensive to supply and is not efficient from the perspective of the supplier.

GeoMap



AS-IS

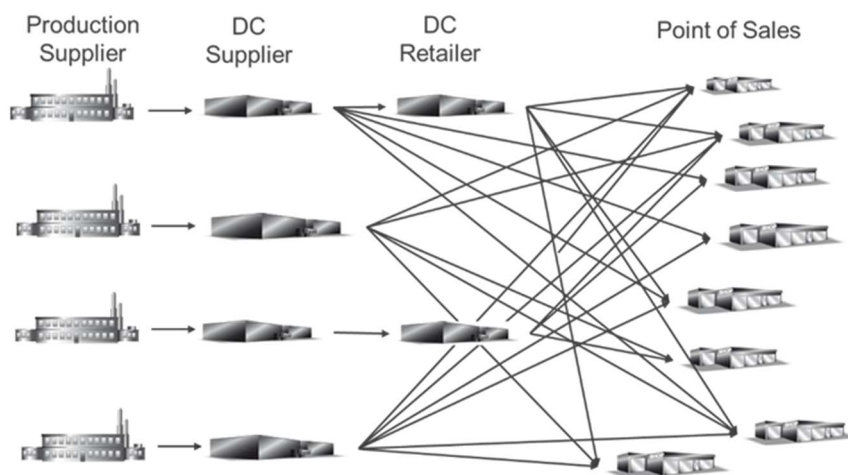


Figure 2 AS-IS situation before the MSMR Platform

As many small suppliers are involved, the big retailers from their side, are obliged to accommodate a large number of small LTL transports from small suppliers. At least one third of all suppliers is common to Colruyt and Delhaize. The common suppliers might be even more important if the private label volume is also considered.

Most cookies and biscuits suppliers have their transport outsourced, but still some have an own fleet. Sometimes the big retailers organize the pick-up at the supplier's site (Ex-works incoterm), but most often the deliveries are organized by the supplier.

With respect to warehousing, most suppliers have their own (insourced) warehouse. Very often, however, they struggle with capacity shortages and they need additional outsourced warehousing space.

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

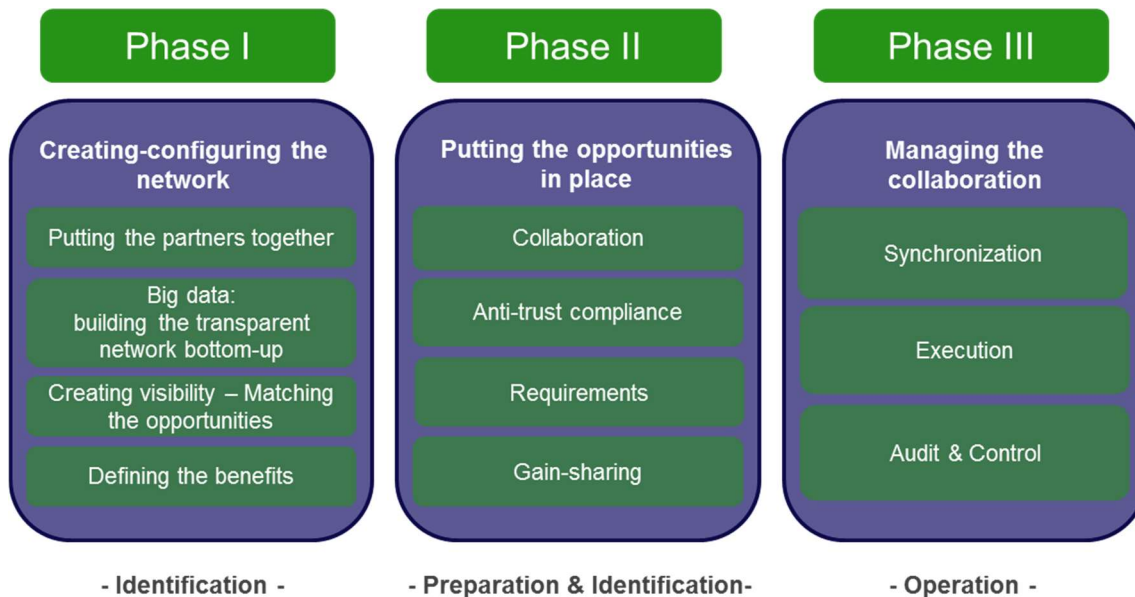
The as-is situation is that whilst each of the Pilot participants (in red) deliver to a broadly similar customer base and geography (in blue), they individually plan LTL and FTL shipments from their own factories and DC's in Belgium delivering to customers across Europe. The Pilot covers deliveries to customers in DE and AT from collection points in BE (see map below).

Whilst each participant seeks to optimise truck capacity utilisation the opportunities to consolidate volumes to increase drop size and volume per truck are limited to their own shipments and volumes and are therefore not fully optimised. This is exacerbated by the retail trend towards smaller more frequent deliveries to manage inventories and improve on-shelf availability.

The 'as-is' situation saw all three participants making LTL deliveries to most European destinations, with the highest concentration of compatible post-codes being in DE and AT. Deliveries were mostly to retail DC's or warehouses offering frozen storage and delivery services to larger retailers. The LTL delivery activity complemented FTL activity on the behalf of all three participants, with the seasonality of oen shipper, which typically increases through the Summer months, generating two distinct delivery profiles – which were both captured within the Pilot period. Typically their FTL activity increases during Summer as increased sales augment LTL shipment volumes to the point that they become viable FTL shipments.

The challenge was to combine LTL orders across all three participants in such a way as to benefit mutually from the additional orders/sales volume available (cross-chain collaboration). Essentially each participant was already benefiting from its own individual company volume, and consolidating orders to customers and creating multi-drop loads where the opportunity existed. The project findings (the delta between 'as-is' and the 'to-be' achieved in the Pilot phase - assumed that where such consolidation was/had been possible then it would have occurred.

5. of 3-step methodology



Pilot 1.1 Multiple supplier multiple retailer cookie platform

1. Identification

Based on the shipment data 2015 (full year), the trustees were able to calculate some key figures:

- Total number of common suppliers: 32
- Total year volume (pallets): 117.656

Based on these numbers, there should be a high enough potential to setup a profitable business case. However, this might require the involvement of a high number of small supplier on one side and a lot of small ship-to points on the other hand.

The pilot group decided to have the highest possible numbers of suppliers visited in order to convince sufficient participants for the pilot. Moreover, for every profile category there should be a representative sample involved in the pilot.

A limited pilot of the MSMR platform has been set up aiming to demonstrate the feasibility of the setup and at to gain better insights in the interaction and scale effects.

The community decided on a logistics service provider from a short list of potential candidates. They used its warehouse in Mechelen-Zuid as physical consolidation centre. An agreement with the 3PL was reached for the tariffs:

- inbound cost per pallet
- inbound administration cost per order
- storage cost per pallet
- outbound administration cost per order

- outbound cost per pallet
- transport cost per pallet (1 tariff for Belgium)

The working of the order to delivery process is depicted in figure 3. The starting point of the process is an approved forecast from the retailers for every reference of every supplier. This forecast triggers the stock replenishment flow from the supplier's production to the MSMR Platform. The purchase order of the retailer triggers the actual outbound delivery from the MSMR platform to the retailer's platform.

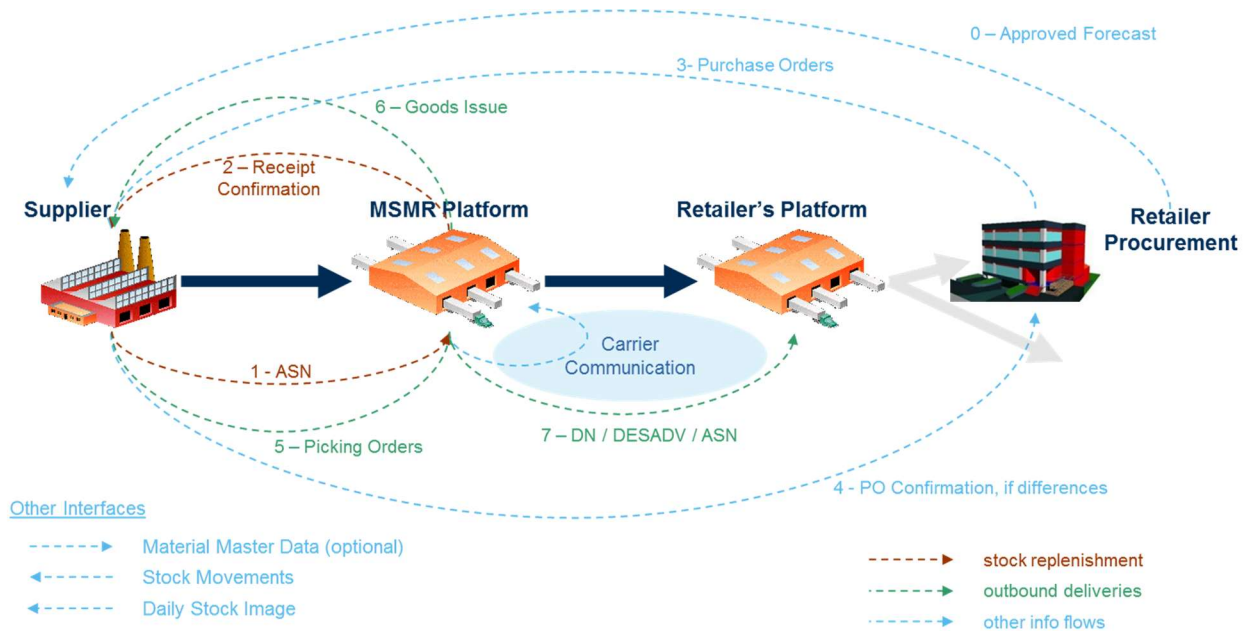


Figure 3 Flows of goods and information of the MSMR Platform pilot

2. Preparation

The pilot was conducted for 4 weeks, from the 6th to the 31st of March 2017. Because of the limited number of suppliers and retailers involved, this pilot was aimed at demonstrating feasibility, not profitability. Therefore, the resulting indicators of the table below should be interpreted appropriately. In order to find some data to compare with, the community decided to use the order data of the same week in the previous year. Even if the number of pallets is not exactly the same (1008 vs. 982), it provides a good benchmark for a rough analysis of the results of the MSMR Platform.

The physical location of the platform in Mechelen-Zuid was not the result of a gravity analysis, but solely based on the availability of warehouse space at the 3PL. So, this location meant at current a detour for most of the 4 suppliers of the pilot for their deliveries to the distribution centres of the participating retailers, as can be seen from the increased average distance covered and the CO2 exhaust.

More important is the impact on transport. It can be seen from the table that the fill rate of the trucks has doubled with the MSMR Platform, also reducing considerably the number of truck movements. Typically, this type of platforms embeds important leverage effects. Unfortunately, the number of participants at both sides, suppliers and retailers, were too scarce to demonstrate these effects within

the pilot. However, the analysis tool should be able to show these effects together with their saturation levels.

Nevertheless, some obvious gains were demonstrated in this pilot. First, there was a gain for the supplier delivering in LTL to the retailers of the pilot. From that supplier's perspective, its multiple LTL's to the distribution centre of each retailer separately were now substituted by one FTL to the consolidation centre. Second, the retailers used to receive FTL's from their supplier and thus carrying this in inventory during several consecutive days, could order only the necessary amount with their mixed FTL's.

During the pilot, the task of an orchestrator in the platform became more shaped. Its role is not only to better synchronize the orders on the platform but also to identify exactly the gains and costs and to redistribute them in such a way that all parties are incentivized to improve the platform operations. The table below summarizes the major advantages and drawbacks of the pilot.

Advantages	Drawbacks
Ground breaking: neutral and impartial collaboration among multiple retailers and multiple suppliers	Scale too limited to demonstrate leverage effects and profitability.
The feasibility has been demonstrated, not the profitability	Not all profiles of suppliers and retailers were involved in the pilot. Depending on the supplier's delivery profile, the platform could generate more benefits.
Provides valuable input for calculation of participant's individual business case and for scenario analyses.	Physical location of the consolidation centre was not the result of a gravity analysis. Moreover, it could not be checked whether 1 central or more dispersed distribution centres would be more appropriate.
Pilot shows a move from LTL towards FTL.	Only the category of cookies was piloted. Scenario analyses will reveal whether categories should be mingled at the consolidation centre.
Easy to understand how profitability and more sustainability can be achieved	The pilot was unable to show improvements in terms of distance covered and CO2, because the location of the warehouse was not the result of a gravity analysis.
Step towards a better utilization of limited capacities both in terms of vehicles, human resources and warehouse space	
International exposure and European context	
Could be the igniter for the setup of more neutral consolidation platforms!	

3. Operation

If the overall business case turns out to be profitable and consequently a critical mass of suppliers and retailers have demonstrated their engagement to participate, the MSMRP platform will be prepared for a launch in Q4 2018. With the pilot, NexTrust has demonstrated that operating the MSMR Platform is feasible.

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

The 1.4 Pilot is now completing stage 3 of the 3-step methodology and the results are being consolidated and audited to enable the accurate measurement of carbon and cost savings to define the success of the project vs objectives.

1. Identification

Detailed lane and delivery data was collected from all parties and aggregated to identify consolidation opportunities.

Managing the data collection and data normalisation task is a challenge as shippers use various formats and measures for weight & cases to pallets to measure shipment size and each has a range of ways to pay for transport including customer collections the costs of which are often included in the selling price.

The starting point for all of the pilot participants are within a 30km radius of each other. Bearing in mind the nature of their product all of the participating partners are delivering, with some exceptions, to food retailers and wholesalers across Europe.

The opportunity to consolidate LTL deliveries into FTL's either to the same delivery points or within a given postcode or region was identified through the aggregation of the data. Transportation rates provided to the Trustee enabled the calculation of the potential savings by participant, net of any on-costs incurred during the pilot period

The initial pilots include deliveries from Benelux into Germany, Belgium and Austria.

2. Preparation

Having identified and confirmed the Pilot routes preparation was done for the pilots to begin in January 2017 after the Christmas volume peak which would have impact each of the participating partners.

The pilots have been managed by a 4PL, to ensure that processes are in place to enable the easy expansion of the pilot(s) and the introduction of new volumes and partners.

Links between the shippers and transporters and the 4PL platform have been created and the tendering of the consolidated volumes to select the appropriate transport companies for each pilot lane took place.

3. Operation

The collaboration was managed by the 4PL, overseen by the participants and Giventis as the neutral trustee.

Participating shippers sent their orders to the 4PL who built consolidated loads of LTL shipments for each pilot lane. The 4PL scheduled in what order each load should be loaded to reduce the amount of cost incurred through the need to load from multiple loading points in Benelux. The 4PL also selected and ordered transport and measured the success of the pilot using the KPI's agreed by the pilot group.

6. Description of 'to-be' situation

Pilot 1.1 Multiple supplier multiple retailer cookie platform

Short description

A Multi-Supplier/Multi-Retailer Platform is aimed at creating transport and inventory efficiencies for both suppliers and retailers. An MSMRP should be considered as a physical platform with the incoming goods of the suppliers at the inbound side and the deliveries to the ship-to points of the retailers at the outbound side. The physical platform should ideally include warehouse space to store the inventory of the suppliers, if required.

TO-BE

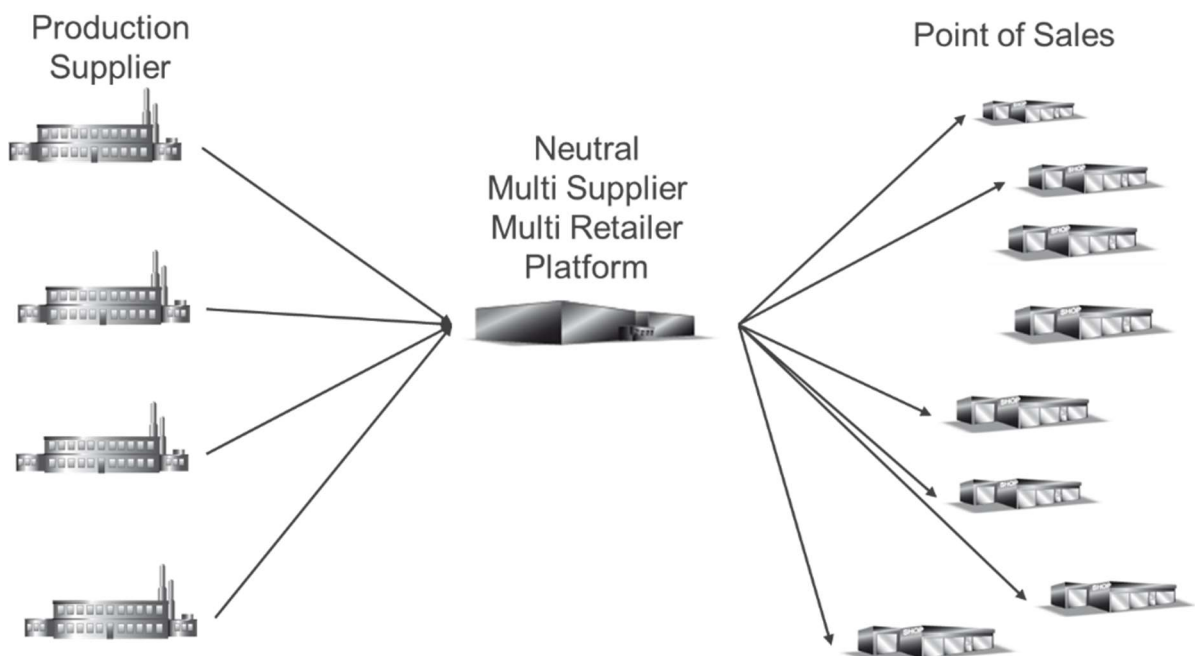


Figure 4 TO-BE situation with the MSMR Platform

The aim of a MSMRP is to improve the transport and warehousing efficiencies of deliveries of suppliers to common ship-to points. For their national retail distribution, most suppliers should deliver to a high number of “ship-to” points in a country. A very small number of these “ship-to” points coincide with the big retailers’ platform and may require bigger and more frequent LTL (Less-than-Truck Load) or even FTL (Full-Truck Load) transports. However, the vast majority of delivery points only need small LTL quantities to be delivered. On the one hand, LTL deliveries are quite expensive to supply and thus not efficient for the supplier. The retailers and their ship-to points, on the other hand, are obliged to accommodate multiple small LTL transports. An MSMRP will create a lot of opportunities, both for supplier and retailers. In an ideal situation, suppliers should only replenish in FTL their inventory on hand at the platform. Retailers should order following a mixed FTL concept. This means that retailers order a full truck, but composed out of an optimal mix of the products of the suppliers on the platform.

Operate & Orchestrate

As the suppliers on one side and the retailers on the other side are competitors, the neutrality of the platform is mandatory. Therefore, an Operate & Orchestrate model is used. This means that an orchestrator/trustee is used as a community manager to steer the platform from a managerial perspective, off-line. The orchestrator will also act as a trustee. From an operational perspective, the community of suppliers will select one or more logistics service providers to operate the platform and organizing the transports.

Optimal Scenario

Based on the outcomes of the pilot and all analyses performed with the calculation model, an optimal scenario is calculated. This optimal scenario provides the most appropriate configuration of the MSMR Platform.

Supplier’s profile

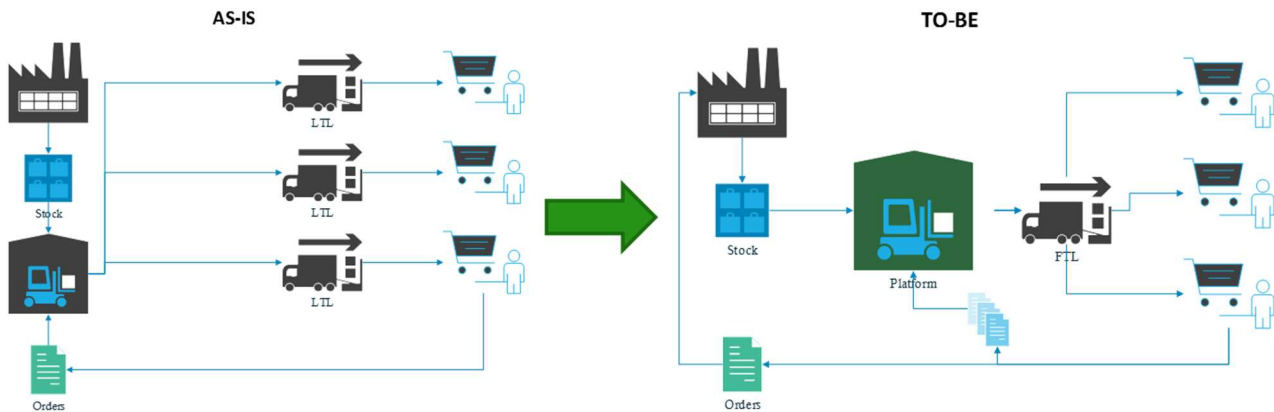
From the pilot and the modelling it is clear that the gains and benefits of the MSMR Platform vary with the profile of the supplier. Therefore, three profile types of supplier have been defined:

1. LTL Profile
2. FTL Profile
3. Cross-dock Profile

A good profiling of suppliers is important to be able to make a strong and rapid business case for new suppliers wanting to adhere the platform.

LTL-Profile

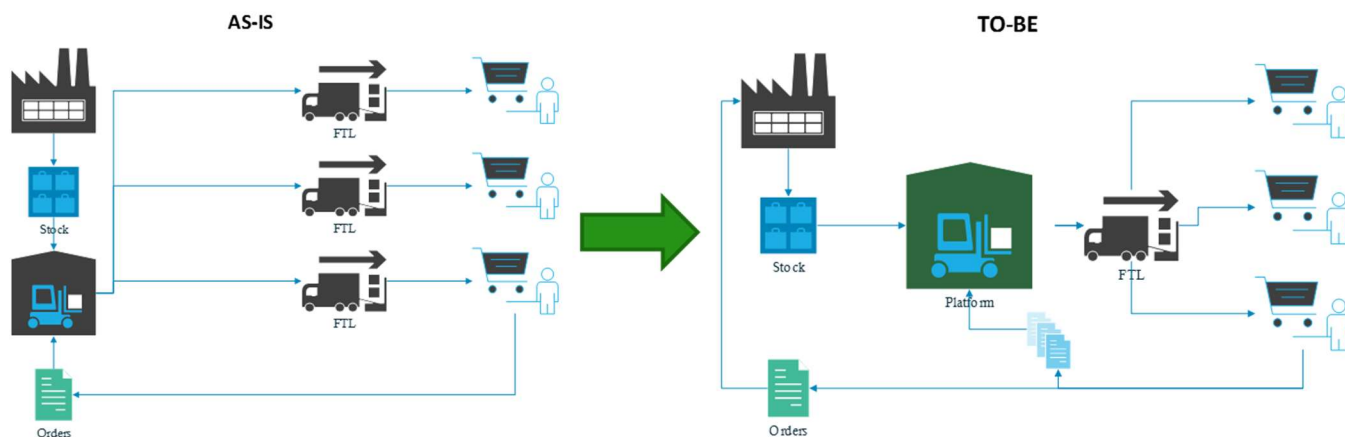
The supplier wants to move his full stock for the Belgium market to the platform. His deliveries to the big retailers are mostly in LTL.



PRO	CON
Guaranteed and flexible warehouse capacity (as needed during year)	What with own warehouse?
Savings on transport and warehousing possible	Joint orders = extra step in ordering process
Workforce/extra services can be allocated according to needs	Possible extra transport leg from factory to platform
Transport can be optimized amongst all participants with mixed FTL's	
In FTL to platform and to retailer = less vehicle KM's	
Important gains for many small deliveries ship-to's	

FTL-Profile

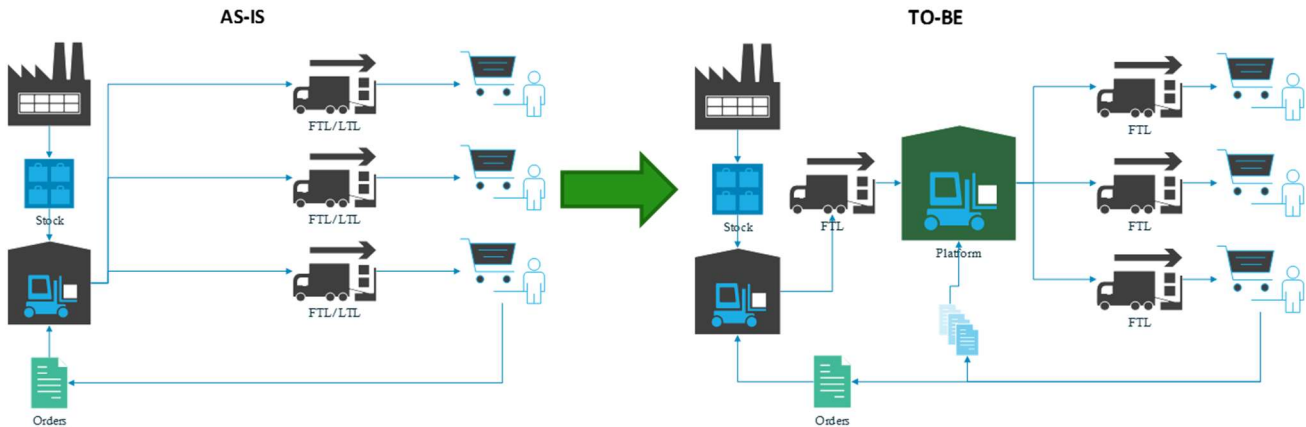
The supplier wants to move his full stock for the Belgium market to the platform. His deliveries to the big retailers are mostly in FTL.



PRO	CON
Orders/transport can be optimized in function of needs (not always FTL)	No transport savings for deliveries in FTL
Workforce/extra services can be allocated according to needs	Own warehouse becomes (partly) a sunk cost if not fully used anymore
Transport can be optimized amongst all participants with mixed FTL's	Joint orders = extra step in ordering process
Retailer can save inventory cost when FTL deliveries are replaced by mixed FTL's	
Important gains for many small deliveries ship-to's	

Cross-dock-Profile

The supplier wants to use the platform only for FTL-replenishment. Orders go in replenishment mode to the platform.



PRO	CON
Retailer can save inventory cost when FTL deliveries are replaced by mixed FTL's	'Replenishment stock' at platform is an extra cost (if supplier has enough warehouse capacity)
Location for spill-over inventory	Joint orders = extra step in ordering process
Retailer can save inventory cost when FTL deliveries are replaced by mixed FTL's	'Replenishment stock' at platform is an extra cost (if supplier has enough warehouse capacity)

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

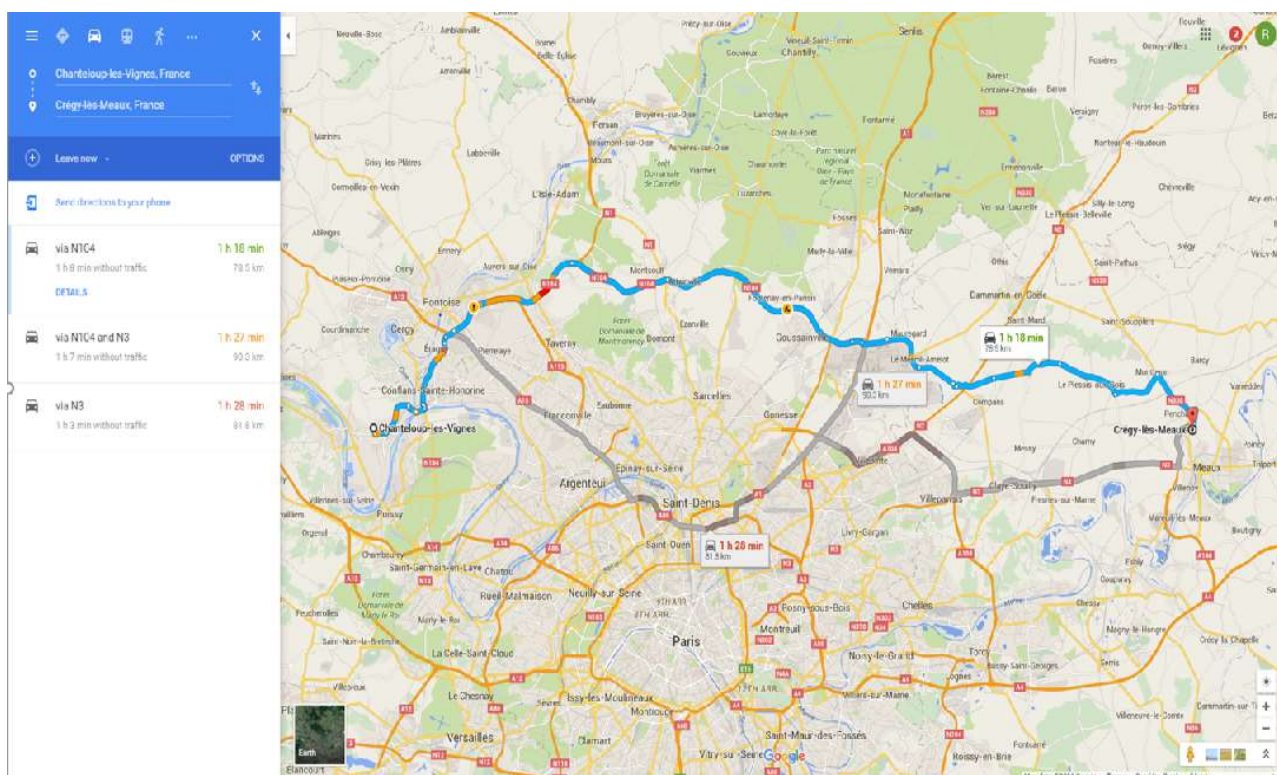
Analysis of the combined participants shipment, volume and cost data was done by the Neutral Trustee (Giventis) to ensure confidentiality and comply with anti-trust legislation. The analysis identified significant opportunities to reduce cost and carbon emissions were available to all of the participants if they collaborated to consolidate orders and shipments, thereby increasing the average shipment size and improving truck capacity utilisation.

Sum of Loads	Column Labels																									
Row Labels	Germany	United Kingdom	Netherlands	Belgium	France	Austria	Italy	Czech Republic	Denmark	Luxembourg	Poland	Spain	Ireland	Portugal	Sweden	Slovakia	Finland	Norway	Malta	Bulgaria	Switzerland	Hungary	Croatia	Greece	Cyprus	Grand Total
Belgium	73,187	34,548	26,575	42,818	22,757	13,533	13,219	1,385	853	1,048	949	79	507	726	14	428				48	16	59	51	17		232,817
fd2		410	8																							418
go1				6,901						758																7,659
np	43,398	17,888	21,974	7,971	8,334	5,806	1,340	1,091	819	201	357	50	507			253				48	2		51			110,090
pot	9,331	1,067		1,606			3,777																			15,781
sp	20,458	15,183	4,593	27,946	12,817	7,727	8,102	294	34	89	592	29		726	14	175					14	59		17		98,869
Denmark			6																							6
fd2			6																							6
France	64		23	5,478	15,740	60							426													21,791
fd2			23	1																						24
np	64			5,478	15,739	60							426													21,767
Germany			15,568																							15,568
fd2			3																							3
go1			15,565																							15,565
Ireland		1											1													2
fd2		1												1												2
Netherlands	3,046	10,093	3,168	307	3,702	110	97	23	486	75	19	391	28	3	449		114	86	84	24	49		32	27		22,413
fd2	3,046	9,736	3,168	307	3,702	110	97	23	486	75	19	391	28	3	449		114	86	84	24	49		32	27		22,056
pot		357																								357
Spain			1																							1
fd2			1																							1
Sweden		7																								7
fd2		7																								7
United Kingdom		22,458	11,505	195	367								303													34,828
cia		17,283																								17,283
fd2		5,175	11,505	195	367								303													17,545
Grand Total	76,297	67,107	56,846	48,798	42,566	13,703	13,316	1,408	1,339	1,123	968	896	839	729	463	428	114	86	84	72	65	59	51	49	27	327,433

Data Analysis Combine LTL volumes

Having quantified the consolidation opportunity with the individual participants and gained buy in to proceed to a pilot phase the next steps for the Neutral Trustee was to identify transport lanes which, without the need to involve retail customers to coordinate delivery times, offered the optimum opportunity to prove the business case. The involvement of retail customers was identified as an opportunity for further optimisation dependent upon the success of the pilot.

The identification of the most appropriate pilot lanes was done by the Neutral Trustee using ELG-Web collaboration platform to model shipment lane consolidation opportunities and identify carbon and cost reductions by lane. Lanes to from Belgium to Germany, Austria and within Belgium were chosen for the pilot phase.



Lane level analysis of pilot opportunities.

To enable the collaboration, it was agreed that it was appropriate to involve a 4PL to act as the consolidator. The appointment of the control tower, was overseen by the Neutral Trustee and supported by the participants.

It was agreed to retain a manual process during the pilot phase. Participating shippers sent their orders to the 4PL who built consolidated loads of LTL shipments for each pilot lane. The 4PL scheduled in what order each load should be loaded, to reduce the amount of cost incurred through the need to load from multiple loading points in Benelux. The 4PL also selected and ordered transport and measured the success of the pilot using agreed KPI's.

The pilot operation was managed by the partners with the Neutral Trustee managing, coordinating and disseminating confidential information as appropriate to protect the commercial interests of the participating partners.

7.Expected Impact

Pilot 1.1 Multiple supplier multiple retailer cookie platform

The results for the pilot were calculated using these assumptions:

- Transport cost were both in the AS-IS and in the PILOT calculated with a market conform stagger for distribution in Belgium, unless the supplier provided its own cost.
- No transport cost optimization: e.g. FTL stagger instead of LTL, fixed (cheaper) tariffs for short FTL trips,...
- Warehouse costs for the supplier were not considered as the different costs components were difficult to determine for the suppliers, therefore the cost of the MSMRP is extra. Thus no effects can be seen of possible improvements (lower or no stock at supplier,...)
- If the WACC for calculating the opportunity cost of inventory was unknown we based this on the Belgium WACC for the specific sector (via www.waccexpert.com)

The control cost (= extra cost for running the platform) was not taken into account for the pilot

Business case calculation

Based on the findings of the pilot and on additional data collected from the pilot partners, different analyses and scenarios are performed. In order to calculate the business case of the Cookies MSMRP, TRI-VIZOR uses its specific tool, which is customized to the requirements of this business case. The tool should be able to compute and report on the gains and cost of specific scenario for each party involved in the platform: suppliers, retailers, orchestrator and operators

1) GHG Emission reduction

	GLEC (one-way)	
	AS-IS	TO-BE
Period	2016 - weeks 10-11-12-13	2017: weeks 10-11-12-13
Total pallets	1009	982
Total weight	273421	266190
Number of trips	65	32 (IN) + 35 (OUT)
Avg distance (in KM)	72	115
Avg load fill rate	48%*	91%**
CO2 IN	/	2613
CO2 OUT	/	1254
CO2 total	2848	3867
CO2 per KG	0,010	0,015
CO2 per pallet	2,82	3,94

* Does not take into account possible other loads in groupage shipments

** Including rush orders (no stock at the platform): 2 inbound + 2 outbound (93% is the avg. load fill without rush orders)

2) Reduction in amount of trips

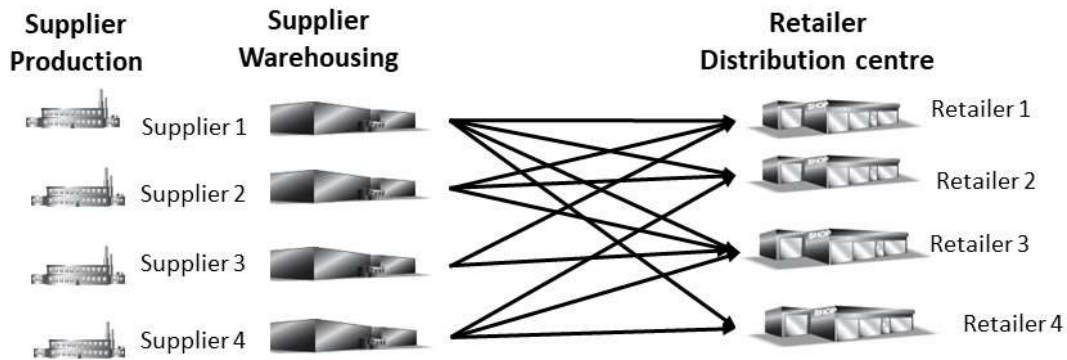
See table above

3) Increase in load factors

See table above

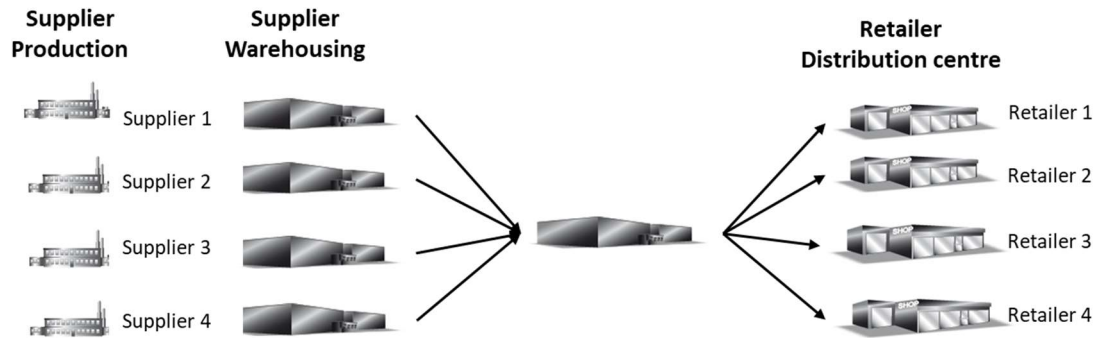
4) Change in costs & gain sharing

AS-IS - pilot



COST	SUPPLIER	RETAILER	TOTAL
Transport	T_S	T_R	$T_T = T_S + T_R$
Warehouse	W_S	W_R	$W_T = W_S + W_R$
Control	C_S	C_R	$C_T = C_S + C_R$
Total	$TC_S = T_S + W_S + C_S$	$TC_R = T_R + W_R + C_R$	TC

TO BE - pilot



COST	SUPPLIER	RETAILER	TOTAL
Transport	$T_{S^*} = T_S + x\%T_C$	$T_{R^*} = T_R + (100-x)\%T_C$	$T_{T^*} = T_{S^*} + T_{R^*}$
Warehouse	$W_{S^*} = W_S + y\%W_C$	$W_{R^*} = W_R + (100-y)\%W_C$	$W_{T^*} = W_{S^*} + W_{R^*}$
Control	$C_{S^*} = C_S + z\%C_C$	$C_{R^*} = C_R + (100-z)\%C_C$	$C_{T^*} = C_{S^*} + C_{R^*}$
Total	$TC_{S^*} = T_{S^*} + W_{S^*} + C_{S^*}$	$TC_{R^*} = T_{R^*} + W_{R^*} + C_{R^*}$	TC^*

Even if this pilot was not profitable due to its small scale, some obvious benefits have been demonstrated. First, there was a gain for the supplier delivering in LTL to the retailers of the pilot. From that supplier's perspective, its multiple LTL's to the distribution centre of each retailer

separately were now substituted by one FTL to the consolidation centre. Second, the retailers used to receive FTL's from their supplier and thus carrying this in inventory during several consecutive days, could order only the necessary amount with their mixed FTL's.

During the pilot, the task of an orchestrator in the platform became more shaped. Its role is not only to better synchronize the orders on the platform but also to identify exactly the gains and costs and to redistribute them in such a way that all parties are incentivized to improve the platform operations. The table below summarizes the major advantages and drawbacks of the pilot.

Advantages	Drawbacks
Ground breaking: neutral and impartial collaboration among multiple retailers and multiple suppliers	Scale too limited to demonstrate leverage effects and profitability.
The feasibility has been demonstrated, not the profitability	Not all profiles of suppliers and retailers were involved in the pilot. Depending on the supplier's delivery profile, the platform could generate more benefits.
Provides valuable input for calculation of participant's individual business case and for scenario analyses.	Physical location of the consolidation centre was not the result of a gravity analysis. Moreover, it could not be checked whether 1 central or more dispersed distribution centres would be more appropriate.
Pilot shows a move from LTL towards FTL.	Only the category of cookies was piloted. Scenario analyses will reveal whether categories should be mingled at the consolidation centre.
Easy to understand how profitability and more sustainability can be achieved	The pilot was unable to show improvements in terms of distance covered and CO2, because the location of the warehouse was not the result of a gravity analysis.
Step towards a better utilization of limited capacities both in terms of vehicles, human resources and warehouse space	
International exposure and European context	
Could be the igniter for the setup of more neutral consolidation platforms!	

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

In order to evaluate the success of the pilot, 3 datasets will be used:

Data set 1: All shipments executed during the pilot, seen as individual loads, without consolidation. GHG emissions calculated as individual shipments made without consolidation

DATASET 1	LOADS	PALLETS	AVERAGE
LTL <26 PAL	1.197	8.149	7
FTL >=26 PAL	19	550	29
TOTAL	1.216	8.699	7

Data Set 2: Simulation of all shipments, consolidated where possible per single shipper with no multi shipper consolidation. This models where single shipper consolidation could have taken place without collaboration.

DATASET 2	LOADS	PALLETS	AVERAGE
LTL <26 PAL	612	6.471	11
FTL >=26 PAL	73	2.228	31
TOTAL	685	8.699	13

Data set 3: All loads executed during the pilot, as they were physically executed, with the actual single and multi-shipper consolidation achieved by the use of a control tower

DATASET 3	LOADS	PALLETS	AVERAGE
LTL <26 PAL	385	3.971	10
FTL >=26 PAL	153	4.728	31
TOTAL	538	8.699	16

1.1 GHG emission reduction

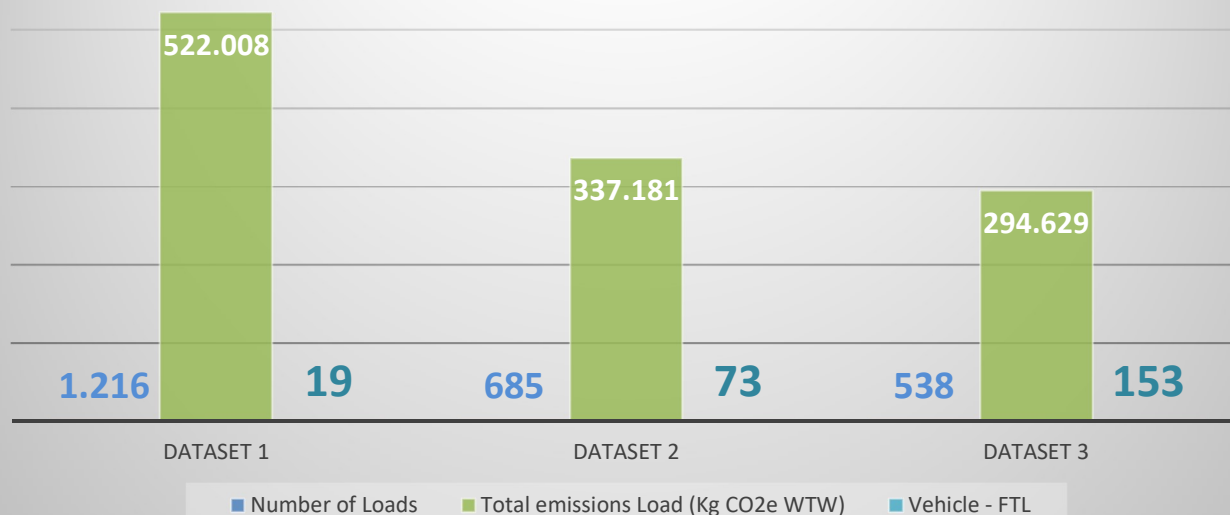
VU have calculated CARBON values for each of the aforementioned datasets collected during the pilot including the Baseline “As Is” and the actual = “To Be”. The basis of calculation and standards are understood and refined to EU standard

There are 3 sets of calculations available from the VU

- A) GLEC- (Global Logistics Emissions Council 6258 EU Standard). The GLEC standard assumes one temperature factor for all temperature controlled cargo and standard Km per Litre consumption for a variety of different vehicles/capacities the “as Is” assumption/calculation- is that shipments are moved by vehicles of appropriate capacity
- B) GLEC Ambient Tassou – Tassou is a source which provides variable temperature factors for different temperature regimes. More accurate. Assumes GLEC ambient values plus Tassou for temperature control
- C) GLEC/Actual Tassou – Assumes ACTUAL Km per Litre consumption figures for all FTL shipments plus Tassou for temperature control. Most accurate

Carbon savings relating to the efficiency savings delivered by each step of the consolidation process are shown in the following chart which demonstrates a 52% reduction in emissions between the “unconsolidated” (Dataset 1) and the actual consolidation results delivered by the pilot (Dataset 3)

Total emissions Load (Kg CO₂e WTW) per dataset



1.2 Reduction in amount of trips

The reduction in the number of vehicle trips, as calculated from the graph above – 1,216 – 538= 678 loads/trips = a 56% reduction in trips when using cross-chain consolidation vs no consolidation.

1.3 Increase in load factors

Analysis of the aforementioned datasets clearly demonstrates the efficiency improvements achieved through each step of the consolidation process for both LTL (<26 pallets) and FLT (>= 26 pallets) deliveries. The following table provides details on the % of the total volume that was consolidated either as a single or multi shipper delivery.

Shipment Categories	Pallets	Shipments	% Pallets	% Shipments
AGRISTO LTL SINGLE PARTICIPANT CONSOLIDATION	107	32	1%	6%
FTL CROSS CHAIN	2,172	70	25%	13%
FTL SINGLE PARTICIPANT CONSOLIDATION	2,806	91	32%	17%
LTL CROSS CHAIN	349	20	4%	4%
LTL SINGLE PARTICIPANT CONSOLIDATION	3,265	325	38%	60%
Grand Total	8,699	538	100%	100%

Data set 3: the “To Be” data shows an increase of 52% in the average load size of the previously unconsolidated LTL shipments and a 7.5% improvement in FTL vehicle fill versus the unconsolidated dataset.

1.4 Change in costs & gain sharing

The Pilot successfully demonstrates the impact of consolidating many LTL shipments through a control tower (Dataset 3 <-> Dataset 2 = 30% reduction in pallets shipped in LTL vs pallets shipped in FTL)

DATA 1	SHIPMENTS	PALLETS	AVERAGE	Unconsolidated Orders
LTL <26	1,197	8,149	6.81	
FTL >=26	19	550	28.95	
TOTAL	1,216	8,699	7.15	
DATA 2	SHIPMENTS	PALLETS	AVERAGE	Participant Consolidated
LTL <26	612	6,471	10.57	
FTL >=26	73	2,228	30.52	
TOTAL	685	8,699	12.70	
DATA 3	SHIPMENTS	PALLETS	AVERAGE	Cross Chain Consolidated
LTL <26	386	3,971	10.29	2,500 # Pallets moved from LTL - FTL
FTL >=26	152	4,728	31.11	30%
TOTAL	538	8,699	16.17	

Gainshare was calculated by the Neutral Trustee using the linear method as proposed by WP7, which provides a simple and fair method to calculate and share the benefits of the consolidation. For the pilot, the gain was shared by the 4PL issuing retrospective credit notes .

Although due to the changes in participant volumes and the resulting focus on more efficient lanes reduced the overall savings to circa 2% the Pilot successfully demonstrates that multi-shipper consolidation does deliver efficiency and cost savings and that the Vlerick linear gain share methodology works.

The following chart demonstrates the incremental improvement possible through multi-shipper consolidation; albeit reduced versus expectations by the impact of the commercial changes during the pilot.

8.Top 5 Lessons Learnt

Pilot 1.1 Multiple supplier multiple retailer cookie platform

- The benefits for every participant of the platform should be calculated in terms of total supply chain costs. Transport costs only will not be enough.
- In order to create sufficient leverage effects, the volume on the platform should be substantial enough. Moreover, there is a chicken and egg phenomenon: suppliers will not adhere and put their inventory on the platform if not 80% of their delivery points can be delivered from the platform. Inversely, retailers will not adhere if 80% of their suppliers is

not on the platform. We broke through this by first onboarding the retailers, because their engagement is less impactful as compared to that of suppliers, who might be obliged to move their inventories to the distribution centre in order to obtain the real benefits of the platform.

- The benefits of the platform for the suppliers may vary with their size and profile,
- A supplier having its transport and warehousing outsourced is more open to adhere.
- The real benefits of the platform will be in the long tail of smaller deliveries
- Suppliers appear sufficiently open to collaborate.

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

- Proof of concept: We have proved that using a control tower can meet the project objectives of reducing carbon, costs and vehicle trips – without loss of service
- The gain share formula needs to adjust with the Participant profile. It is an iterative process. There is no magic bullet/formula. We now know where there is capacity within the existing supply chain for the active participants – so we understand the required profile for new participants. We do not know the level of savings that would be required to move new, smaller participants from their existing suppliers to a collaborative solution. This is likely to differ as there is no one standard profile for new participants, but as the target group is the SME, it can be assumed that their freight buying behavior is likely to be less sophisticated than the large volume manufacturers, and that they will be more dependent on their existing supplier base. The data that we have now enables us to model the impact of the Linear Gain Share method with synthetic data representing such SMEs – and to understand how it may need to be adapted to attract participation
- The collaborative benefits are sensitive to volumes, order size and number of shipments.
- The pilot generated information that can be used to simulate the interaction of medium sized and small shippers in such a way as to understand the behaviour of pricing through the linear method and assess whether the associated costs might prove attractive to all parties
- To generate further savings, we have to work with customers to synchronise orders; booking times; delivery docks, and standardise order quantities

9. Further Research, Next Steps & Exploitation

Pilot 1.1 Multiple supplier multiple retailer cookie platform

Based on the findings of the pilot and on additional data collected from the pilot partners, different analyses and scenarios are performed. In order to calculate the business case of the Cookies MSMRP, TRI-VIZOR uses its specific tool, which is customized to the requirements of this business case. The tool should be able to compute and report on the gains and cost of specific scenario for each party involved in the platform: suppliers, retailers, orchestrator and operators.

The calculation model will be tuned with the scale and interaction effects identified during the pilot. Subsequently, all interested suppliers will be visited and these points will be addressed:

- Profile type
- Current situation: in or outsourced warehouse, in- or outsourced transport
- Interest to adhere to the MSMRP
- Willingness to adhere to the MSMRP and time-line

- Expected strategic changes that might impact a participation to the MSMRP
- Cost and volume data of the current situation

Based on the data obtained from the suppliers, the individual business cases and the overall business case of a number of scenarios will be calculated.

An Operate & Orchestrate governance model should be put in place. The Orchestrator is trustee and community manager of the platform and his aim is to maximize the gains. He acts on behalf of the platform community for all external affairs, e.g. tender process, finding new partners... The Orchestrator will closely monitor the gains and the costs and will redistribute them, based on the agreed gain and cost sharing rules. The Orchestrator also monitors the performance of the Operator.

The Orchestrator works intensively with the Operator, but the two functions should be separate and mutually independent entities. This was also tested with the pilot. The platform community should be able to replace the Operator and the Orchestrator without having the platform to collapse.

The operator is a logistics service provider. The selection of the appropriate logistics service provider to operate the platform should be based on a transparent request for proposal managed by the Orchestrator. The community can decide to have multiple operators, e.g. separate operators for warehousing and transport.

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

The results of the 1.4 pilot demonstrated that whilst a 4PL Control Tower was able to consolidate multi shipper volume to improve load size thereby reducing freight costs and emissions it was also clear that to develop a sustainable commercial collaborative operation will require more participants, preferably smaller shippers to provide the flexibility to further optimise vehicle utilisation.

The next steps for 1.4 is to seek and engage with additional potential partners to develop a commercially successful frozen food 4PL collaboration platform. For this to be viable it is probable that an interested third party logistics operator, or a consortium of a number of operators should be introduced in order to generate additional participants in other sectors and temperature regimes (for example baked goods, confectionery/ chilled and fresh). To this end contact has been made with other Pilot leaders (Trivisor and 1.4.1 ELUPEG) to propagate the concept of consolidation platforms and encourage Pilot consolidation activity through identified third party providers (Solstor, Wincanton)

A further next step is to use the available data to synthesise smaller shipper participant behaviour in order to promote future participation of such shippers in this and other collaborative models.

10. References & Exhibits

Pilot 1.1 Multiple supplier multiple retailer cookie platform

This is the official press release of the pilot project: <http://nextrust-project.eu/latest-news/press-release-april-2017>

Here is an overview of what has appeared in the press on the pilot project so far:

- Logistics.TV: [English](#) – [Dutch](#) – [French](#)
- Gondola Retail : <http://www.gondola.be/fr/news/food-retail/quatre-biscuiteries-deux-retailers-belges-testent-des-transportes-groupes> <http://www.gondola.be/nl/news/food-retail/vier-koekjesfabrikanten-colruyt-delhaize-testen-gezamenlijke-leveringen>
- Flows: <http://www.flows.be/nl/trade/retailers-en-koekjesproducenten-testen-gebundelde-logistiek>
- Kanaal Z (Belgian Business Television): <http://kanaalz.knack.be/nieuws/delhaize-en-colruyt-experimenteren-met-gedeelde-logistiek/video-normal-845513.html>
- ATV (Regional Antwerp television): <https://atv.be/nieuws/video-minder-vrachtwagens-dankzij-koekjesfabrikanten-die-samen-leveren-43559>
- Laatste Nieuws: <http://www.hln.be/regio/nieuws-uit-niel/koekjesfabrikanten-en-supermarkten-slaan-handen-in-elkaar-a3143562/>
- Verkehrs Rundschau: <https://www.verkehrsrundschau.de/nachrichten/weniger-transporte-dank-neuer-verlader-plattform-1942860.html>

Pilot 1.4 Collaborative FTL shipments within the frozen & fresh sector

None.

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Acronyms and Abbreviations

ACROYNM	EXPLANATION
2D	2 Degrees Network
ARC	Arcese Transporti
BDF	Beiersdorf
BLU	Bluewave
BOR	Borealis L A T
CI (dissemination level)	Classified, as referred to in Commission Decision 2001/844/EC
C-ITS	Co-operative Intelligent Transport Systems
CO (Dissemination level)	Confidential
COL	Colruyt Group
CRI	CRITT Transport et Logistique
CT	Co-ordination team
DEC (deliverable type)	Websites, patent fillings, videos, etc.
DEL	Delhaize
DEM (deliverable type)	Demonstrator, Pilot, Prototype
EC	European Commission
ELU	ELUPEG
EVO	EVO Dutch Shippers Council
FIEGE	FIEGE Logistik
FTL	Full Truck Load
GHG	Green House Gas
GIV	Giventis
GPP	General Project Partners
GS1-BE	GS1 Belgilux
GS1-CH	GS1 Switzerland
GS1-D	GS1 Germany
HUB	NexTrust Collaboration Hub
ICT	Information and Communications Technology
INEA	Innovation and Networks Executive Agency
KC	Kimberly-Clark Europe
KKL	Kneppelhout & Korthals
LSP	Logistics Service Provider
LTL	Less Than Truckload
MDZ	Mondelez
MS1	Milestone Number
NIB	Nextrust Industry Board
NOR	Norwegian Logistics
NPPC	Nextrust Pilot Participation Community
PAN	Panasonic Europe
PAS	Pastu Consult
PING	Pinguin Foods Polska
PU (Dissemination level)	Public
R (deliverable type)	Document, Report
RV1	Review Number

SME	Small and Medium-sized Enterprise
TRL	Technical Readiness Levels
TRV	Tri-Vizor
TX	TX Logistik
UNI	Unilever
VLE	Vlerick Business School
VU	VU University of Amsterdam
WEN	Wenzel Logistics
WKTS	Wolters Kluwer Transport Services
WP	Work Package
WPL	Work Package Leader
WPLG	Work Package Leader Group
YSC	Ysco