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NexTrust Pilot 1.1 Case Study:

The set-up of a Multi-Supplier/Multi-Retailer Platform (MSMRP)



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1. Introduction and Objective

Europe is considered as one of the leaders in logistics sector globally. Six EU Member States are ranked among the top 10 countries in terms of logistics performance for year 2014 (World Bank, 2014), while the market size of the logistics sector in Europe has been estimated equal to €878bn in 2012 (European Commission, 2015).

On the other side, the logistics cost remains a significant part of total cost in various sectors - 12% of total cost in manufacturing sector and more than 20% of total cost in retail sector (European Commission, 2007). Moreover, the freight supply chains across Europe account for 25% of the CO2 and particulate emissions.

Concurrently, the logistics' efficiency remains pretty low: 24% of goods vehicle-km in EU run empty while the average load factor for vehicles is equal to 57% (World Economic Forum, 2009) due to the lack of collaboration in the use of motive and warehousing assets.

Therefore, the enhancement of collaboration is considered as the solution towards the improvement of logistics sector. More efficient synchronized networks and decrease of operational costs are the main benefits for the companies involved in cooperation schemes (Lehoux et al., 2010), as cost savings and efficiency gains of 6-10%, according to Transport Intelligence (Graham, 2011), or a reduction of 9-30% in distribution costs (Vanovermeire and Sorensen, 2014) could be expected.

NexTrust, an EU grant funded Horizon 2020 project (Grant 635874), was setup to bring together like minded actors in the supply chain to raise asset utilisation levels and reduce Green House Gas emissions through collaborative pilots.

The innovative idea of NexTrust project is the development of interconnected, trusted networks that collaborate together along the entire supply chain towards the establishment of long-term solutions.

The main objective of the project is to establish a new way of working together, to solve real problems of inefficiency in the logistics sector on a sustainable basis. To this end, the project coordinates 20 different pilots which address actual problems across the length and breadth of European logistics.

Up to now, actors in the supply chain, such as manufacturers, importers, retailers, exporters and logistics companies are generally reluctant to pilot or utilise new methodologies or new routes to market as there are many examples of costly implementation failure.

In order to overcome actors' hesitation to participate, the most important aspects for successful collaboration were identified prior to the elaboration of the pilots:

- Careful planning of the project
- An agreement to, transparently, share the savings generated net of any additional costs
- Agreements on the planning and administrative processes to be used
- Routes to deal with any disagreements
- Importantly the use of a Trustee to receive data, analyse the best matched routes and distribute back the plans. This would be a daily (at least) dynamic process. The Trustee also covered the confidentiality and anti-trust concerns about the pooling of data.

Pilot 1.1 involves setting up a physical hub, a Multi-Supplier/ Multi-Retailer consolidation platform, where suppliers can ship to in Full Truck Loads (FTL), and from which combined FTL shipments leave towards the retailers.

The feasibility of such a platform, as a more sustainable and cost-saving alternative to the current way of working, was tested in Belgium for the category of cookies with a group of retailers (both small and large), suppliers (both SME and multinational) and an LSP platform operator.

The Belgian retail distribution for cookies consists of more than 50 Belgian cookie suppliers of which approximately 40 supply regularly to the big retailers, e.g. Delhaize, Carrefour, Colruyt etc. More than 80% of the volume of their national retail distribution goes 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 only need small LTL quantities to be delivered.

As a result, the big retailers are obliged to accommodate a large number of small LTL deliveries from various small suppliers involved in the process. This long tail of LTL deliveries is expensive to supply, not efficient for the supplier, and creates avoidable congestion and GHG emissions. However, significant number of suppliers are common, as in the case of Colruyt and Delhaize where at least one third of all suppliers are common, without considering the private label volume that would increase this figure.

Currently, most cookie suppliers outsource their transport, but some still have their own fleet. Sometimes the big retailers organize the pick-up at

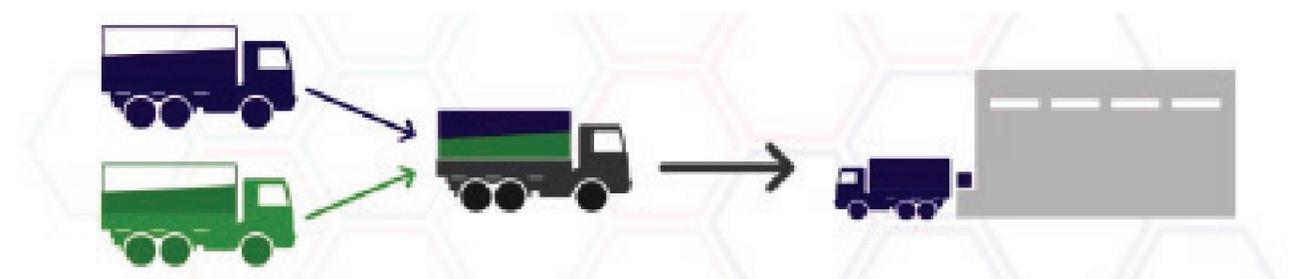


Figure 1: MSMRP pilot case

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 warehouse. Very often, however, they struggle with capacity shortages and need additional outsourced warehousing space.

2. Application of Pilot

The developed Multi-Supplier/Multi-Retailer Platform (MSMRP) aims at creating transport and inventory efficiencies for both suppliers and retailers. More specifically, the objective of the MSMRP is to improve the transport and warehousing efficiencies of deliveries of suppliers to common ship-to points. It 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. It should also include warehouse space to store the inventory of the suppliers, if required.

The MSMRP creates 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. Figure 1 depicts the proposed pilot case.

A limited pilot of the MSMRP was set up aiming at demonstrating the feasibility of the platform and at gaining better insights in the interaction and scale effects.

2.1 Partners

The Pilot leader for the MSMRP pilot was TRI-VIZOR, supported by Giventis, Vlerick Business School and Kneppelhout-Korthals. The retailers involved in the pilot were Colruyt, Delhaize, Okay and RPCG. In addition to these NexTrust core members, Kühne+Nagel was identified as the logistics service provider for this pilot. As mentioned above, Vlerick Business School supported the pilot as academic partner as well as Vrije Universiteit Amsterdam. The pilot was run under the guidance of GS1 Belgium. Table 1 presents the participants in the pilot.

Retailers	Colruyt Group	Delhaize	Okay	RPCG
Suppliers	Desobry	Poppies	Vermeiren Princers	Vondelmolen
Trustee (Lead)	TRI-VIZOR			
Trustee (Support)	GS1 Belgium&Luxembourg, Vlerick Business School, Giventis			
Operator and transport management	Kuhne+Nage			

Table 1: Pilot 1.1 Participants Summary

The test pilot ran from 6th – 31st March 2017.

The architect TRI-VIZOR set up the pilot framework, taking into account the following pilot parameters: processes, order-intake and communication lines, platform location, execution of the pilot, invoicing, gain sharing mechanism.

The distribution centre of Kuehne + Nagel in Mechelen served as the consolidation platform, coordinating most of the transportation between suppliers and the platform as well as the platform and retailers. Moreover, during the pilot, TRI-VIZOR monitored/evaluated the processes and adapted when necessary with the partners involved.

2.2 Methodology

The methodology used across all the pilots was based on a 3 Step process which was an operationally enhanced version of the CO3 methodology.

The 3 Steps are:

- Identification
- Preparation
- Operation



Phase 1: Identification

The category of cookies was selected to pilot the MSMRP as only suppliers of the same category were considered in order to guarantee the same transport conditions (ambient) and the same logistics activities (display building, co packing, etc.). Moreover, trucks filled with products of the same category can dock at the same quay at the big distribution centres.

The shipment data for year 2015 was used to identify companies with common suppliers. According to the results, the total number of common suppliers for Colruyt and Delhaize, selected to participate in the pilot, is equal to 32 and the total year volume is equal to 117,656 pallets, underlying a high enough potential to setup a profitable business case. In addition, the platform was setup with the Belgian suppliers as it was much more difficult to convince non-Belgian suppliers to invest time and effort in Belgium, which is probably only a small market for them.

Initially, a limited pilot of the MSMRP platform was set up, aiming to demonstrate the feasibility of the setup and to gain better insights in the interaction and scale effects.

The Kuehne + Nagel Belgium (K+N) was selected as logistics service provider from a short list of potential candidates. K+N used its warehouse in Mechelen-Zuid as physical consolidation centre. An agreement with K+N was reached for the tariffs for the following: inbound cost per pallet, inbound administration cost per order, storage cost per pallet, outbound administration cost per order, outbound cost per pallet and the transport cost per pallet (1 tariff for Belgium). The K+N subcontracted the transport activities to Ninatrans.

Phase 2: Preparation Phase

In order to calculate the business case of the Cookies MSMRP, TRI-VIZOR used its specific tool, customized to the requirements of this business case. The tool is able to compute and report on the gains, cost and difference in GHG emissions for each party involved in the platform: suppliers, retailers, orchestrator and operators. The calculation model was adapted with the scale and interaction effects identified during the pilot. All interested suppliers were visited to address the following points:

- 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 were calculated. Because of the limited number of suppliers and retailers involved, this pilot was aimed at demonstrating feasibility, not profitability. Order data of the same week in the previous year was used to evaluate pilot's results.

Phase 3: Operation Phase

The profitability of the overall business case was examined within this phase. A Trustee model 'Operate & Orchestrate' was used in the pilot in order to ensure the neutrality of the platform. An orchestrator/trustee was used as a community manager to steer the platform from a managerial perspective. TRI-VIZOR and Giventis acted as trustees guided by Kneppelhout & Korthals Lawyers. TRI-VIZOR also tested some active orchestration concepts to achieve better synchronization of the suppliers' and retailers' supply chains. In case that the overall business case turns out to be profitable and a critical mass of suppliers and retailers demonstrate their engagement to participate, the MSMRP platform will be ready to be launched in the last quarter of 2018. NexTrust illustrated through the pilot the feasibility of the MSMRP Platform.

2.3 Suppliers' profiles

Three profile types of supplier were defined, through visits and talks with a first subset of suppliers. Each of these profiles required a specific approach within the MSMRP pilot. The particular pros and cons for each profile were discussed and they are presented in the following section.

- 1. 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.
- 2. Table 2:** Pros and cons for LTL Profile

PRO	CON
Guaranteed and flexible warehouse capacity (as needed during year)	Use of their 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 FTLs	
In FTL to platform and to retailer = less vehicle KMs	
Important gains for many small deliveries ship to's	

- 3. 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.

Table 3: Pros and cons for FTL Profile

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	

4. 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

3. Results/Impacts

Significant results have been derived after the implementation of the case study. The results could be divided into two main categories:

1. Results concerning the entire transport sector
2. Results concerning the logistics sector

Concerning the transport sector, a significant increase in the load factor of trucks was observed, due to the operation of the MSMP platform. More specifically, the load factor of trucks was almost doubled, from 48% to 91%, resulting to significant reduction of trucks movements. The reduction of trucks movements has a positive impact on traffic congestion and on CO2 emissions as well.

Apart from the transport sector, significant results for the logistics sector were also observed. These results focus on the shippers and retailers participating in the pilot case. More specifically, the main gain for the suppliers is the substitution of multiple LTL's sent to each retailer with a FTL sent to the consolidation centre.

With regard to the retailers, the benefit concerns the storage area needed. Up to now, the retailers could order separately from each supplier. As a result, the amount received by the suppliers was stored for several days, increasing the total cost for the retailers. With the use of the platform, the retailers could order only the necessary amount from various suppliers, receiving a mixed FTL instead of a separate FTL from each supplier.

4. Lessons Learnt

The elaboration of the case study generated, apart from significant results, interesting conclusions that could be used as guidelines for the establishment of similar platforms in the future and in different environments and sectors.

The benefits for the participants and users of the platform are the most critical factor for its successful establishment and use. One of the most significant benefits for the participants is the potential gain in terms of cost. This gain should be calculated in terms of total supply chain costs and not only in terms of transport costs. Therefore, cost for storage, loading and unloading should be also considered in case of using a consolidation centre.

Regarding the participants' willingness to collaborate, the suppliers have been found quite open to new opportunities for collaboration. However, their operation model has been identified as critical for the successful establishment of the platform. More specifically, as indicated through this pilot, suppliers that already outsource their transport and warehousing activities, are more willing to participate in such platforms. In addition, as indicated through the pilot's execution, the benefits of the proposed platform vary with the size and the profile of the suppliers while these benefits will be mainly in the long tail of small deliveries.

On the other side, one of the main problems is to have enough volume, as this is required in order to create sufficient leverage effects. The existence of a "chicken and egg" phenomenon, as the suppliers will not adhere to the arrangement and put their inventory on the platform unless 80% of their delivery points can be delivered from the platform and the retailers will not adhere if 80% of their suppliers are not on the platform. In order to solve this problem, the retailers should be attracted initially to the platform, as happened in this pilot, as their engagement is less impactful compared to the respective engagement for the suppliers.

5. Conclusions

A Multi-Supplier/Multi-Retailer Platform (MSMRP) was developed and tested within Pilot 1.1, aiming at creating transport and inventory efficiencies for both suppliers and retailers. The aim of the MSMRP was to improve the transport and warehousing efficiencies of deliveries of suppliers to common ship-to points.

The pilot was tested for cookies industry in Belgium. The feasibility of the platform was demonstrated, indicating that significant results and gains could be achieved as soon as more suppliers and retailers participate in the platform. As regards to the pilot's results, the implementation of a MSMRP for cookies industry in Belgium will have a positive impact on traffic congestion, as it results in significant reduction of truck movements.

The Multi-Supplier/ Multi-Retailer consolidation platform is considered as innovative due to the combination of multiple suppliers and retailers in the same platform. The major advantage of the developed platform is the neutrality, achieved through the introduction of a neutral trustee, who acts as the orchestrator in order to synchronize more efficiently the orders and the deliveries. In addition, the pilot indicated that the collaboration of small and mid-sized enterprises with the retailers could enable their participation in sustainable, collaborative and smart logistics.

6. References

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