

NexTrust Deliverable 2.1 Report – Network Identification

Deliverable

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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 (2.1) "Network Identification" of European full truck loads (FTL) of shippers (manufacturing companies) is the first research step of "*Identification*" to develop interconnected trusted collaborative networks along the FTL transport supply chain across Europe. In particular, collaboration opportunities for FTL road bundling and FTL conversion to intermodal services were analysed and identified.

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 FTL pilot cases, several of which will move into the operational phase 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 are responsible for the identification phase related and consequently this deliverable (2.1) is conducted by the NexTrust consortium members Giventis International (GIV) and Pastu Consult (PAS), who are coordinating and supporting the entire collaboration life cycle of the potential FTL 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 that are not visible today. Information and communication technology (ICT) including collaborative tools (C-ITS) is clearly identified as a major supportive need to add value as catalyst and enabler for trusted collaborative networks. The ICT enabling function is the key component and door opener to identify the accurate appropriate and efficient collaboration opportunities. At the same time, it shall be underlined that NexTrust learned that tackling cooperation only from ICT side will not lead to success, if the cultural mind set is not in place. Hence, NexTrust research is to find and establish in the near future successful innovative collaboration scenarios under market conditions, which will be then supported by scalable ICT solutions.

The freight flow analysis and in particular the NexTrust FTL Network Identification phase has involved the participation of 17 NexTrust multi-national shippers and three intermodal LSPs, representing six industry sectors, and encompassing approximately 15.000 structural transport lanes with a corresponding 615.000 FTLs.

The first identification results confirm that creating *smart visibility* is a cornerstone for the second step of preparation to come. The plan is now to put the identified FTL lane matches into distinct pilot case scenarios to create efficient round trips and avoiding empty runs on the European road transportation. Furthermore, in the second step, NexTrust will also look to prepare some pilot cases focused on converting road FTL’s to intermodal transportation. It is expected that this pilot cases can reduce GHG by 30% to 70%.

The next deliverables will be able to report more about the results of the second research step “preparation” and the start-up of first pilot cases in market environment.

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Introduction

This deliverable is the report for D2.1, Network Identification, due month twelve (May 2016). The report describes the application and top line results of the “identification” phase of the NexTrust Three-Step *Trusted Network* Methodology as it relates to pilot activities in Work Package (WP) 2, *Shipper full truck load (FTL) & intermodal collaboration*.

First results of the pilot cases are expected to be presented in the second half of 2016.

Project Overview

NexTrust's objective is to increase efficiency and sustainability in logistics by developing interconnected trusted collaborative networks along the entire supply chain. These trusted networks, built horizontally and vertically, will fully integrate shippers, LSPs and intermodal operators as equal partners. To reach a high level of sustainability, we will not only bundle freight volumes, but shift them off the road to intermodal rail and waterway. NexTrust will build these trusted networks ideally bottom up, with like-minded partners, adding multiple layers of transport flows that have been de-coupled and then re-connected more effectively along the supply chain. We will develop C-ITS cloud based smart visibility software to support the re-engineering of the networks, improving real-time utilization of transport assets. NexTrust will focus on research activities that create stickiness for collaboration in the market, validated through pilot cases in live conditions. The action engages major shippers as partners, plus SME shippers and LSPs with a track record in ICT innovation.

The pilot cases cover the entire scope of the call and cover a broad cross section of entire supply chain (from raw material to end consumers) for multiple industries. The creation and validation of trusted collaborative networks will be market oriented and implemented at an accelerated rate for high impact.

The main pilot case sectors (looking from supply and demand side):

- LTL (less-than-truck load) transportation (WP1)
- FTL flows optimisation including FTL road conversion to intermodal (WP2)
- Optimising carriers network capacity (road and intermodal) (WP3)
- E-Commerce (multi-vehicle collaborative delivery network) (WP4)

The herein presented deliverable D.2.1 belongs to the sector of FTL and WP2.

NexTrust shall achieve a high impact with improved asset utilization and logistics cost efficiency, creating a sustainable, competitive arena for European logistics that will be an inspirational example for the market.

Purpose and Scope of NexTrust Deliverable 2.1 Report – Network Identification

The purpose of this report is to show evidence of the research work done to date in the “identification phase” of pilot cases in WP 2. Activity has encompassed pilot case categories with multiple geographic and industry scenarios:

- Cross-shipper, cross industry full truckload (FTL) collaboration on closed loop and round trips (backhauls)
- Intermodal Conversion: move full road truckloads to intermodal services

Specific purpose: freight flow visibility

- One main challenge is that shippers, carriers, freight forwarders and LSPs all have sometimes limited visibility to available real time transport capacity and/or demand for services, both for spot transport execution and long(er) term transport execution opportunities.
- This limits opportunities for trusted horizontal and vertical collaboration amongst the industry actors.
- Where different actors do find each other, they often do not have the right tools to execute this trusted collaboration. This includes tools to build up the trusted environment: from planning to dynamic routing, structure partnerships, identifying opportunities, manage daily tasks, and communicate in real time with each other.

Identifying freight flow matches

- NexTrust is using a neutral trusted ICT platform to match freight flows and trade lanes of different supply chain actors.
- The plan is to move from independent supply networks (“silos”) to open anti-trust compliant global networks where resources are compatible, accessible and easily interconnected
- NexTrust envisages creating a trusted network-powered environment, connecting the actors into a transport community, addressing the lack of visibility and accessibility across the industry players.

Evidence of the Deliverable: Identification Phase

Three-Step *Trusted Network* Methodology

The NexTrust methodology to test and validate pilot cases for collaborative trusted networks is following a proven Three-Step-trust-approach (see Figure 1) first designed and tested on limited small scale by the NexTrust trustee partners TRI-VIZOR, Giventis, Kneppelhout Lawyers and Pastu in the EU FP7 funded CO3 *project*. Deliverable 2.1 encompasses the “**identification phase**” of the 3-Step Methodology.

This methodology will be further tested and developed, and, in a successful scenario, further standardised for the EU logistics arena.

In the **identification** phase, the trustee collects and analyses transport flow data of shippers/LSPs who have expressed the interest to identify collaboration synergies between them. It is important that this process is managed in complete confidentiality - supported with agreement between partners - and that any commercial sensitive information is shared only and exclusively through the trustee. The precondition is the design of an anti-trust compliant legal framework that defines how to handle the collected data between the stakeholders. The role of the trustee in this framework has to be neutral and free of commercial conflict of interest.

The “mapping & matching” analyses of transport data flows are being executed with specialised, cloud-based “big data” ICT software, ELG-Web™ developed by Giventis, which has demonstrated its effectiveness in the NexTrust first research activities.

In order to meet the analysis demands across multiple pilot scenarios and modes, the ICT platform has been improved and enhanced to meet the analysis requirements for NexTrust specific pilot scenarios. Starting with the deployment of an upgraded cloud based framework, these enhancements are now supporting the analysis of FTL road bundling/backhauls, but also other WP's, such as LTL bundling in different logistics sectors, and multi-modal full load flow bundling for mode conversion. These enhanced capabilities have enabled NexTrust pilot teams to utilise the results of precise simulations and visualisations, especially for mode conversion.

The **identification** phase encompasses a clearly defined set of tasks and activities, as illustrated in the *Trusted Network Function/task Checklist* (see Figure 2).

As described in the checklist, the three primary task groups cover **legal**, **pilot participation**, and **data collection/analysis**.

Legal: Partner KKL, with support from GIV and PAS, developed a multi-party non-disclosure/confidentiality agreement template similar to any NDA's existing on the market for use in pilot cases by LSPs, shippers, and NexTrust project partners acting as neutral trustees. The key elements of this document/template provided structure for the *identification* and *preparation* phases of NexTrust pilot cases in NexTrust. The task was complex in that companies participating in the pilots, all of whom have internal legal departments, required their specific internal compliance requirements be addressed with regards to competition law and data confidentiality, among other requirements.

Partner KKL, with support from GIV and PAS, developed a comprehensive set of collaboration legal guidelines first draft for use in the pilot cases. The guidelines encompass key tasks of the NexTrust pilot case, Three-Step Methodology, with a heavy emphasis on competition law and anti-trust legal compliance.

Pilot Participation: WP2 pilot teams recognized early in the pilot case lifecycle a need for sufficient shipper volumes to create critical mass, especially for mode conversion. Consequently, NexTrust partners invited additional shippers to participate in pilot cases. Selection criteria are based on their willingness to accept NexTrust protocols. Just as important, these shippers share a common cultural mind-set that supply chain collaboration in and of itself can be a strategic imperative.

Data collection/analysis: The on-going challenge for this deliverable is the capture and analysis of transport data. It is complicated in that we must convince pilot participants to follow a common data format for the submission of their transport data so as to produce *accurate* and optimal analysis results. NexTrust partner GIV, with support from PAS, developed a transport data format template to be used as a standardised form for the collection of shipper and LSP transport data (Figure 3). Additional input was provided by GS1 Germany (GS1-D) in order to incorporate GS1 standards, where applicable. As such, GS1's Global Location Number (GLN) has been incorporated as a potential future unique location identifier in the ELG-Web platform.

Partner GIV used the data format templates received from shippers and LSPs to upload transport data to the ELG-Web™ transport analysis software platform (Figure 4). Multiple analysis algorithms and constraints were employed for:

FTL road bundling: search lanes and identify "backhaul/round trip" combinations (matches) with efficiencies of better than 20% empty with at least once per week flow frequency.

FTL intermodal conversion: search lanes and identify bundling opportunities within efficient catchment areas at origin and destination, matching against current and future ("blue-sky") intermodal capacity.

Top line, aggregated results:

Industry sectors represented: 6

Number of lanes: 14.234

Corresponding number of loads: 614.447

FTL road bundling: 4.733 potential collaborative routes identified across continental Europe and UK.

Entering **preparation** phase with a minimum of 13 unique pilot scenarios involving eight shippers. 30.000+ FTL's are in scope.

FTL intermodal conversion: 20.000 FTL's along ten freight corridors could be converted from road to rail

Entering **preparation** phase with first results: start with converting 6.000 FTL with potential to move to operations phase for intermodal pilot cases in second half of 2016.

NOTE: Network Identification is on-going as more transport flows are added to the data base and shippers agree to pursue new collaborative route scenarios.

Figure 1: NexTrust 3-Step Methodology

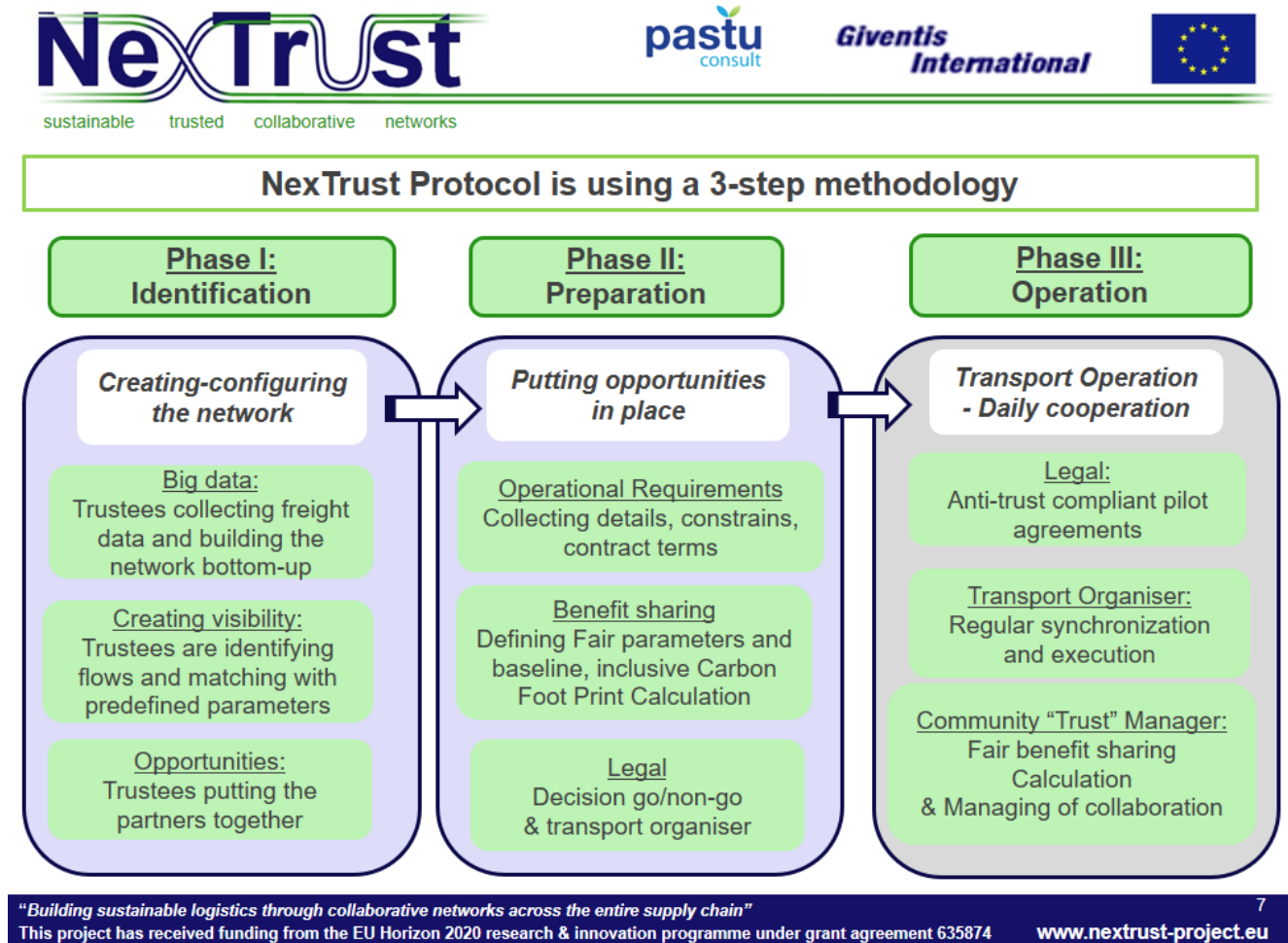


Figure 2: Trusted Network function/task checklist-identification

 					
"Coordination of Trust" for Pilot Cases					
Trusted Network Functions-Checklist					
PILOT ID:					
PILOT COORDINATOR:			ROLE (shipper/retailer/supplier)		
Team member (1)			Trustee (1)		
			Trustee (2)		
Identification	Task #	ROLE	RESPONSIBLE PARTIES	START DATE	STATUS
Pilot participant recruiting (if applicable)		TEAM			
NDA's for data collection-participation		TRUSTEE			
Legal documentation: Anti-Trust Compliant					
Collaboration Guidelines		TEAM			
Capture transport flow data		TEAM			
Standardization: incorporate GS1 standards, e.g. GLN, etc. if appropriate		TEAM/WP6 (standization)			
Intermodal: identify-capture specific attributes, parameters applicable to rail, barge, sea, etc.		TEAM/WP3 (LSP/intermodal)			
Cleansing /normalization of flow data (responsibility of data provider)		TEAM			
Analysis of synergy opportunities		TEAM			
Selection of best matches		TEAM			
NDA to share matches between specific partners		TEAM			
Share "best match" opportunities with applicable partners		TEAM			
Agree on opportunities for business case development with partners involved in business case (GO / NO GO)		TEAM			
Situation analysis: "how does it look today; how could it look tomorrow?"		TEAM			

[illegible]

EXAMPLE

Lane Bundle Lane Map

X

A: SANGUINETTO, Italy, 37058

O: ROMAGNANO SESIA, Italy, 28078

B: CANNOCK, United Kingdom, WS118

D: CHORLEY, United Kingdom, PR77DW

Acronyms and Abbreviations

Before issuing a document, check that all used acronyms and abbreviations are listed in the table in this section.

Please list **only** the acronyms used in the document

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 Belgium and Luxembourg
GS1-CH	GS1 Switzerland
GS1-D	GS1 Germany
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
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