OUTPUT FACT SHEET

Pilot actions (including investment, if applicable)

Version 2

Project index number and acronym	CE1044 – TalkNET
Lead partner	NORTH ADRIATIC SEA PORT AUTHORITY
Output number and title	Output O.T3.5 PA for multimodal nodes/terminals efficiency and optimization: new WMS (Warehouse Management System) model.
Investment number and title (if applicable)	//
Responsible partner (PP name and number)	PP15 – Codognotto Polska
Project website	https://www.interreg-central.eu/Content.Node/TalkNET.html
Delivery date	May 2020

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature and demonstration character

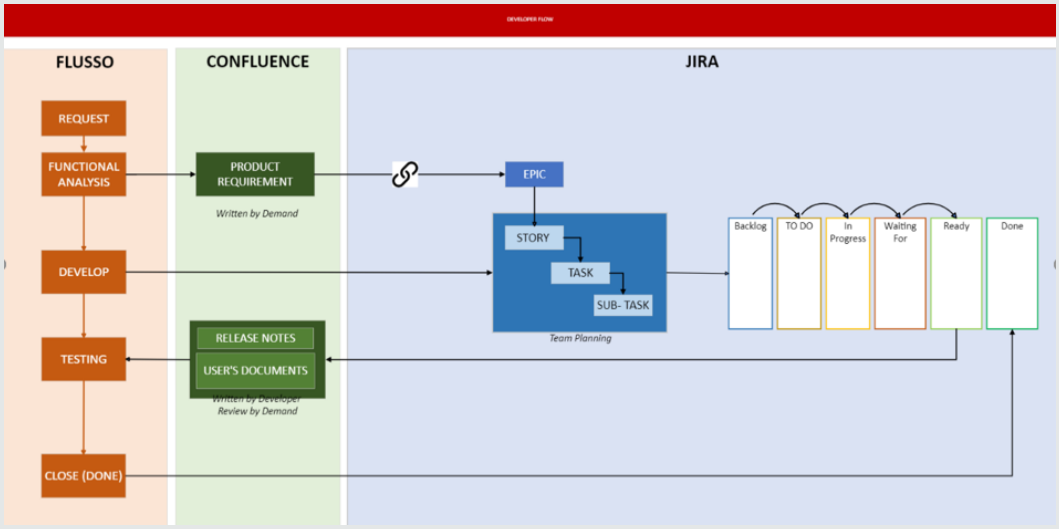
Industry 4.0 is nowadays more impacting the logistics segment than others. The reason is the need to automatize the process and manage data within every warehouse to obtain a seamless flow of data and freight. In the framework of the TalkNET EU project, Codognotto Polska sp. Z.o.o. - with the support of the Logistics & Distribution Business Unit and the Marketing & Innovation Area at the Group level - tested a Warehouse Management System Integrated Platform. The test of the WMS defined a model to overcome the necessity of nodes management optimization of ports and freight villages and track possible enhancement due to the reduction of human errors, a potential solution to be applied for future warehouse service that Codognotto PL is integrating on the basis of future client's requests.

The new Warehouse Management System Integrated Platform model consisted of the following elements:

- Software (in the pilot case CLICK REPLY)
- Process to automate the management of orders through interfaces
- Interfaces developed with a special tool (in the pilot case ALTOVA)
- Methodology.

In detail, the new methodology approach allowed defining, for example, how to automatise a WMS software (in the pilot case "Click Reply") to satisfy customer requests autonomously (i.e., the orders) without human interactions, or reducing the operator's support. The pilot was able also to monitor workflows thanks to introducing a Business Intelligence Software (in the pilot case PowerBi), resulting in an overall efficiency of the nodes.

The need to automate the communication phases between the systems to streamline and speed up the processes necessarily entails the standardization of messages between the various systems. At the time of the pilot testing, different formats satisfied this need, such as EDIFact, XML, CVS, TXT, Web-Services, etc. In light of this, the testing Team needed to codify and standardise them. The new methodology allowed mapping standard and non-standard interfaces to data and streamlined the process within the WMS, defining the flows involved in the supply chain process.



Process

For example, for each interface, it was tested a Product Requirement (based on a standard template) to trace and describe its development from the initial demand to the outcome and go-live beneficial for the maintenance phase.

LO-PR Requirement Title

Target release	
Epic	
Document status	
Document owner	
Designer	
Developers	
QA	
Request from	

Estimate

Task	Owner	Time	Cost €

Attachment

Goals

Background and strategic fit

Assumptions

Requirements

	Title	User Story	Importance	Owner	Note
1					
2					

Product Requirement Template

The tested WMS Platform differed from the solutions already on the market at the time of the pilot because the system adapted to the business needs through a method that allowed designing interfaces between a WMS and other external systems with a structured and predictable approach.

This Methodology made this goal possible thanks to the definition of a vocabulary of objects (under NDA), which established specific attributes and characteristics (such as, for example, desired delivery date, the estimated delivery date) and a design and development process to reduce the risk and reduce the time to market for this kind of solutions.

For testing the new WMS Integrated Platform, it was identified one of the group's warehouses in Italy as the ideal logistic node with which the Polish office interfaces daily (due to the absence of a warehouse in Poland). The staff working in the hub collected and exploited data efficiently, and API (application programming interface) connections were generated, assuring data flows from Codognotto to BSH (BSH Hausgeräte GmbH, a customer of Codognotto Logistics Business Unit selected for the testing).

After accurately testing the new WMS and proved its efficiency, today it is operational in daily logistics practice and for Codognotto Polska and probably at the entire Codognotto Group level, there is the plan to apply this model as a standard that Codognotto implements for all new depositors who join the Codognotto network. Codognotto, upon request, makes it accessible for testing by JS and interested CE transport & logistic stakeholder, readers of the output factsheets (with the proviso of signing an NDA).

The current pilot contributed to the project objectives to support the diffusion of innovative solutions (i.e., WMS) for sustainable logistics in the intermodal sector at the transnational level capable of being included in new policy instruments of Central Europe.

NUTS region(s) concerned by the pilot action (relevant NUTS level)

Due to market reasons, the original location for the implementation of the pilot (Lodzki, PL712) was replaced with a warehouse in Pontenure (ITD51), which nevertheless laid the groundwork for a future new warehouse in Poland. The warehouse was starting up and had no active WMSs, so it was considered the perfect place for a test.

Investment costs (EUR), if applicable

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Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

The pilot involved the following target groups/beneficiaries:

- Logistics and Distribution Business Unit operators at Group Level
- Shippers, customers of the logistics services at Program level and EU level
- Transport & Logistics operators collaborating with the COD Group in order to offer a complete service to customers
- All actors along the supply chain in general

In practice, the digital connection operated in the framework of TalkNET allowed the test of a model of seamless connections among different players operating in the hub (such as BSH, other clients but also suppliers and other services e.g., EDIEL): indeed, the new WMS Integrated Platform allowed to collect orders from clients in the WMS and to transfer data to different TMSs (Transportation Management System) of carriers both for FTL (Full Truck Load) and LTL (Less Than Truckload) shipments.

Considering the volume of orders managed by the warehouse used to test the pilot (about 105.000/year), the implementation of the new WMS Integrated Platform has created advantages in terms of:

- 2 FTE (Full Time Equivalent – intended as workload that is equivalent to a person employed full time) savings at yearly basis
- better visibility on the status of shipments (timeliness of data)

In addition, based on the pilot, further customisations per clients, per specific market / product or supply chain can be developed.

The impact was an improvement of the operational capacity and process optimisation for all logistics chain involved. The study model is planned to be applied to all Codognotto warehouses and promoted as a benchmark in the framework of DTLF (Digital Transport and Logistics Forum).

In terms of fund leverage: after accurately testing the new WMS and proved its efficiency, today it is operational in daily logistics practice and for Codognotto Polska and probably at the entire Codognotto Group level, there is the plan to apply this model as a standard that Codognotto implements for all new depositors who join the Codognotto network. In terms of fund leverage, it is estimated that in Poland the creation of a new warehouse with the new system will cost approximately €300.000.

Sustainability of the pilot action results and transferability to other territories and stakeholders.

The innovative aspect carried by the pilot consisted of an implementation of a digital cooperation system using the physical hub as a point of data collection, which enables to share improved synergies with the players involved in the operations.
The pilot can stand for a model to be deployed in other company's warehouses. From a technological perspective, the implemented pilot-defined methodology made the overall supply chain process smoother and traceable. Other actors can implement the new methodology regardless of the chosen supplier (in the pilot, CLICK REPLY). This is possible because the designed WMS Integrated Platform has strong adaptability and interoperability with other IT tools. The platform can easily adapt to different frameworks in the digital connections between hubs and stakeholders. It enhances the idea of a connected logistics chain that needs to take place in B2B (business-to-business), A2A (application to application), and B2A (business to application) digital links. Furthermore, the digital connection does not require applying any particular software, which, however, needs to be customised based on the needs analysis of the clients and running ICT systems.
Therefore, in terms of transferability interests, other logistics companies, manufacturers, and infrastructure providers could benefit from the solution adopted and follow a similar pathway with particular reference to the level of know-how detectable in the Central Europe area.

In future, Codognotto will implement the WMS Integrated Platform in the other warehouses, streamlining the work and increasing the number of orders daily performed by each human resource operating than before (reduction of 2 FTE per year as previously mentioned).

The database schema, code and system integrations are owned by Codognotto Group. The property does not include:

- Altova Platform (which is the platform used to run the flow) owned by Altova Software;
- Jira and Confluence documentation and project management software, owned by Atlassian Company.

The database schema, code and methodology can be release using the CopyLeft license based on The GNU General Public License v3.0 - GNU Project - Free Software Foundation licence terms.

Lessons learned and added value of transnational cooperation of the pilot action implementation (including investment, if applicable)

In general, the Programme area lacks ICT competencies that allow real-time data sharing in the logistics chain. Data management is today a challenge since it represents the concrete added value of a company. Data loss could determine the lack of competitiveness by a company, and it could also determine its market foreclosure and loss of reputation.
Despite this, the pilot showed that digital cooperation increases the operational capacity of a company. The right balance between these two aspects still needs to deepen and approached correctly. In this framework, territorial cooperation represents a critical point since the players along the BAC (Baltic Adriatic Corridor) needed to find a correct agreement on the level of digital cooperation to be applied.

Conclusions about the added value of transnational cooperation have been gathered during meeting of the working groups for the pilot project assessment held on 27th-28th May 2020. The results of the pilot action carried out by Codognotto Polska have been assessed, and the following results can be highlighted in relation to mutual learning among project partners:

Identified strengths of the pilot action are:

- Creation of an integrated management system non-binding for the operators' software
- Increase of freight traffics
- Consistent data sharing opportunities, avoiding expensive delays and errors
- Provides competitive advantage, enhances security, improves relations with customers and warehouse labor management
- Enhance of terminal efficiency
- Cooperation between the stakeholders in the supply chain improves mutual synergies
- Individualization of specific needs of customer/partner

Potential deployment of the tested innovation:

- Possible application in all European terminals, especially intermodal ones
- Experience of PCS system implementation in many ports should be an example (new good practice)

Among the critical points, the potential risk of data leakage, the significant development and implementation costs along with the necessity to individualise/customise the service have been underlined.

Contribution to/ compliance with:

- **relevant regulatory requirements**
- **sustainable development – environmental effects. In case of risk of negative effects, mitigation measures introduced**
- **horizontal principles such as equal opportunities and non-descrimination**

The pilot is in line with DTLF requirements. The board of the European Commission pursues the development and validation of a trusted concept for shared information at different levels, i.e., between businesses, within and between countries and different traffic modes along given corridors and supply chains.
Additionally, the enhancement of the capacity of supply chain management increases the potential exploitation of intermodal solutions.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links
If applicable, additional documentation, pictures or images to be provided as annex

D.T3.1.1 Meetings to involve key players of freight transport
D.T.3.2.5 PA for multimodal nodes/terminals efficiency and optimization: new WMS model
SoftRay final report about pilot action related to a new warehouse management system model