



# CLUSTERS 2.0

Transport Modularization, a Cluster perspective

www.clusters20.eu

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### **CLUSTERS 2.0 Vision**

Transport planning and optimization within logistics clusters and across networks of clusters through collaboration, co-ordination and standardisation







## CLUSTERS Terminology

Agglomeration – Clusters – Logistics Clusters

Agglomeration: grown structures of industry attracting related industries

Clusters: Local competing companies co-operating for growth and innovation

Logistics Clusters: Nodes along major trade routes co-operating to reduce transport costs and superior levels of services

#### Well established clusters

- Advance in competition: from imitation to innovation, from low investment to high
- Productivity through
  - > specialisation and better access to specialised information
  - Better linking with institutions and public goods
  - > Lowering transaction costs

Logistics clusters, less researched:

- Some agglomeration grow, some not
- Growth can be observed in ports and airports, but transferable?
- Good access to auxiliary industries as main benefit?
- What about collaboration, information sharing, knowledge exchange ....







### PI nodes

- > PI nodes are high performance logistics centers aiming towards "universal interconnectivity"
  - Fast, cheap, easy and reliable interconnection of PI containers
  - Avoid load breaking
  - Targeting price level: FTL prices equal intermodal LTL
- PI nodes are routing and accumulating sites within the PI network and gateway for entities outside the PI
- Automation of loading, sorting and storage operations through standards applied on PI-containers
- > PI nodes a "Vison towards efficiency" but
- > How to move from existing nodal structures to PI?
- > How to establish collaboration there?
- > What business model for modular units and automated operations?





### Pl nodes efficiency

- Interrupting transport process to increase load efficiency:
  - Consolidation increase consignment per stop
  - Consolidation to increase load efficiency of truck
  - Transfer to adapted vehicles
- > Inefficiencies
  - Waiting time at cross docks and warehouses
  - Time consuming processes and handling
  - (Timely) synchronisation of incoming and outbound flows

Truck driving is only 30% of its operation time!

#### Cost scaling direct delivery vs. hub









# CLUSTERS2.0 Modularisation

CLUSTERS 2.0 aims to overcome inefficiencies at hubs

- Unstructured cargo
  - Limit the possibilities to stack
  - Not in line with vehicle dimensions
- > Fast transshipment
  - At cross docks and warehouses
  - On trip
- No changes in trailer measures and dimensions
- > Business model and exploitation
  - Take into considerations role and business models
  - Exploitable products
- > Develop and test prototypes
  - NMLU functional testing
  - NMLU operational testing
  - Intermodal testing





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### NMLU Prototype Testing









### Findings

- Handling the proto hoods is impossible without a fork lift, plastic version must be light weight
- All handling tests succeeded, handling is safe
- 5 pallets fit easily on NMLU bottom and can be secured.
- Tests with all storage types succeeded
- Handling of the hoods for covering loose cargo, but not optimal. Hoods as additional element to enable stacking in addition to Modular Load Units and stackable cargo.





### NMLU Prototype Testing



#### Findings

- NMLU can be used on existing roller bed equipment
- Loading and unloading of 1 NMLU (5 Euro pallet footprint) in less than 1 min
- Building of a NMLU (5 pallet footprint) in less than 5 min
- Pallet with hood no problem in warehouse
- NMLU lifting would need equipment up to 5t
- Space at the end of warehouse conveyor can be a limitation
- If the trailer fits to the ramp semi-automated (un-)loading and moving is easy and fast





# Cluster Mode Shift Concept

Modularisation provide the basis for freight sharing and modal shift:

- Quick Check: Macro Stream analysis for matching
- Massification: Set up intermodal Stakeholder workshops applying the massification concept in Pireus, Trelleborg, Dourges, Trieste, Bologna, Zaragozza
- Intermodal Scan: Assess potential at shippers to make use of Clusters and intermodal services: data, business model and network planning

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COW

brussels airport

the heart of Europe

# **CLUSTERS 2.0 Consortium**

Project Co-ordinator

GROUP

ΡΤ

the mind of movement P&G **YIC** ARMINES Fraunhofer blueareen INTERNATIONAL UNION OF RAILWAYS m IML WFS argus enide Worldwide Flight Services Making every journey better **<ECK** SEAbility Anallian EQUIMODAL Trelleborgs Hamn AB -Port of Trellebor CONSORZIO 🗦 innova*train* **JAN DE RIJK** easy cargo moving LOGISTICS **PCT** Uralo Vole d'excellence logistique & supply chai ZARAGOZA. LOGISTICS







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