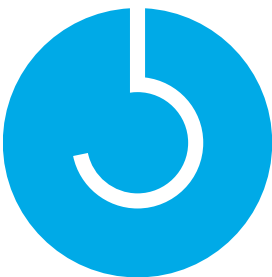




Dry Port Development



AN INTRODUCTION TO THE TASK

Task 5.1 in TransBaltic focused on the Dry Port Concept, understood according to the following definition: **“A dry port is an inland intermodal terminal directly connected to seaport(s) by rail where customers can leave/pick up their units as if directly at a seaport”** (Dr Violeta Roso, Chalmers University of Technology, Department of Technology Management and Economics).

Based on their location, dry ports may be categorised as distant, mid-range and close range dry ports. A dry port can be regarded as a part of a seaport moved some 30-200 km into the hinterland in order to satisfy the customers demand and at the same time to ease operational constraints, for example traffic bottlenecks in the main port area.



Figure 1: Lahti Region, Finland, is a good example of an outstanding macro scale location for a dry port

The dry port concept is very applicable to the BSR conditions as several container ports around the Baltic Sea encounter problems with the lack of space, queuing times, road access and low share of rail transport mode in cargo supply. For that reason dry ports, located in the proximity to TEN-T links, could offer an additional capacity to the container ports. At the same time, the dry port concept offers hinterland regions the possibilities to improve their logistics competitiveness, create jobs and reduce transport costs as well as CO2 emissions.

There is lack of an overall experience across the BSR in using this concept in practice as a driver for regional development. One of the main purpose of the TransBaltic Task 5.1 was thus to test the suitability of the dry port concept in several areas around the BSR based on the voiced interest of some project partners. The WP 5.1 task has been led by the Finnish TransBaltic partner LAKES - Lahti Regional Development Company. The following TransBaltic partners actively participated in the task work: Region Skåne, Region Västerbotten, Västra Götaland Region, Region Sjælland, ILIM - The Institute of Logistics and Warehousing, Self-government of the Warmisko-Mazurskie Voivodship and Hamburg Port Authority. Associated partners representing logistics service providers, trade and industry were very active.

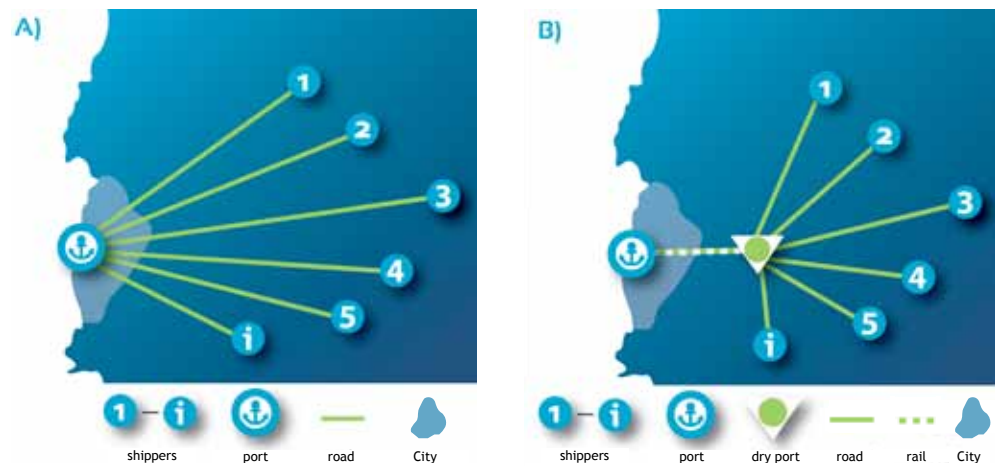
BACKGROUND & CHALLENGES

The case of dry port development is very different to seaport development. Management routines in the seaport development tend to be established; all stakeholders are familiar with their roles and are usually eager to fulfill it:

- The EU has policies and instruments: TEN, Motorways of the Seas, interest to develop ports as a part of the trans-European transport network, and offers financial support for the investments.
- EU member states are in many cases financing/participating in the development of the port infrastructure or at least providing the transport infrastructure (road, rail, sea fairways) connecting to the port.
- Cities and municipalities are usually acting as landlords, and are often very eager to develop the ports in their area and finance the infrastructure expansions. Municipalities are aware of the positive economic impact and jobs generated by the sea ports. In some cases, municipalities or a region around the port even at least partly owns the terminal operating in the port.
- Companies running as the terminal operators invest in superstructure and actively manage, promote and develop the port terminal.
- Customs has a clear role, legislation and custom codex developed for the port operations.
- Transport operators (road and rail as well as shipping lines) have good practices and interest to develop the operations.

The dry port implementation process is not defined and the implementation path is not generally known. There are no established roles how different stakeholders (EU, State, Region, Municipality, terminal operator, transport operators, customs) should share the risk in the Dry Port Implementation. Many times a dry port is seen as a regular hinterland terminal/warehouse business, where the terminal operator should take the risk - sometimes including the needed infrastructure investments, like railway link to the main railway line. The difference of a dry port and a regular hinterland terminal is not always seen. The dry port concept is defined although the definition is not very widely known:

A dry port is an inland intermodal terminal directly connected to seaport(s) by rail where customers can leave/pick up their units as if directly at a seaport. "As if directly at the seaport" is a very crucial part of the definition, because it implies a certain level of integration with seaports as well as availability of services that may be found at a seaport, such as storage, maintenance of containers, customs clearance, etc. Therefore, dry ports are used much more consciously than conventional inland terminals, with the aim of improving the situation resulting from increased container flows, and a focus on security and control by the use of information and communication systems. Scheduled and reliable high-capacity transportation to and from the seaport is essential and determines the dry port's performance and its environmental role. Based on their function and their location, dry ports may be categorised as distant, mid-range and close. (Dr Violeta Roso, Chalmers University of Technology, Department of Technology Management and Economics)



We can find examples where the dry port implementation has led to operational cost savings, opened new markets, improved economic activities and reduced CO₂ emissions (see Fig. 2 below).

	Distant	Midrange	Close
Seaports	<ul style="list-style-type: none"> Less congestion Expanded hinterland Interface with hinterland 	<ul style="list-style-type: none"> Less congestion Dedicated trains Depot Interface with hinterland 	<ul style="list-style-type: none"> Less congestion Increased capacity Depot Direct loading ship-train
Seaport cities	<ul style="list-style-type: none"> Less road congestion Land use opportunities 	<ul style="list-style-type: none"> Less road congestion Land use opportunities 	<ul style="list-style-type: none"> Less road congestion Land use opportunities
Rail operators	<ul style="list-style-type: none"> Economies of scale Gain market share 	<ul style="list-style-type: none"> Day trains Gain market share 	<ul style="list-style-type: none"> Less time in congested road terminals Avoiding environ - mental zones
Road operators	<ul style="list-style-type: none"> Less time in congested roads and terminals 	<ul style="list-style-type: none"> Less time in congested roads and terminals 	<ul style="list-style-type: none"> Less time in congested road terminals Avoiding environmental zones
Shippers	<ul style="list-style-type: none"> Improved seaport access Environment marketing 	<ul style="list-style-type: none"> Improved seaport access Environment marketing 	<ul style="list-style-type: none"> Improved seaport access
Society	<ul style="list-style-type: none"> Lower environmental access Job opportunities Regional development 	<ul style="list-style-type: none"> Lower environmental access Job opportunities Regional development 	<ul style="list-style-type: none"> Lower environmental impact Job opportunities

Figure 2: Description of freight flows without and with a dry port and a dry port typology (Dr Violeta Roso)

In theory, many logistics stakeholders seem to agree with the potential benefits of dry ports. At the same time, in practice they are not confident an active role in the dry port implementation would bring them profitability. One of the main reasons for such perception is that the way the investment, risk and profit should be shared between stakeholders involved remains unclear.

OBJECTIVES

Being aware of the challenges mentioned above, several TransBaltic partners decided to explore the dry port concept and analyse capacities for dry port implementation in their geographical area. The task started with four active sites: Swedish region of Västerbotten, Polish region of Warmia-Mazury, port of Hamburg and Finnish region around Lahti. However, in the course of the action, some additional partners decided to join the task in order to make some dry port feasibility analyses: Region Skåne, Region Sjælland and ILIM - The Institute of Logistics and Warehousing. The growing interest of the TransBaltic partners is a clear indicator showing the viability of the dry port concept. In addition to the local dry port studies, Task 5.1 had also more general purpose to give recommendations how the dry port concept implementation could be accelerated in the Baltic Sea Region.

KEY ACTIVITIES

The process and key activities in the task implementation are shown below.

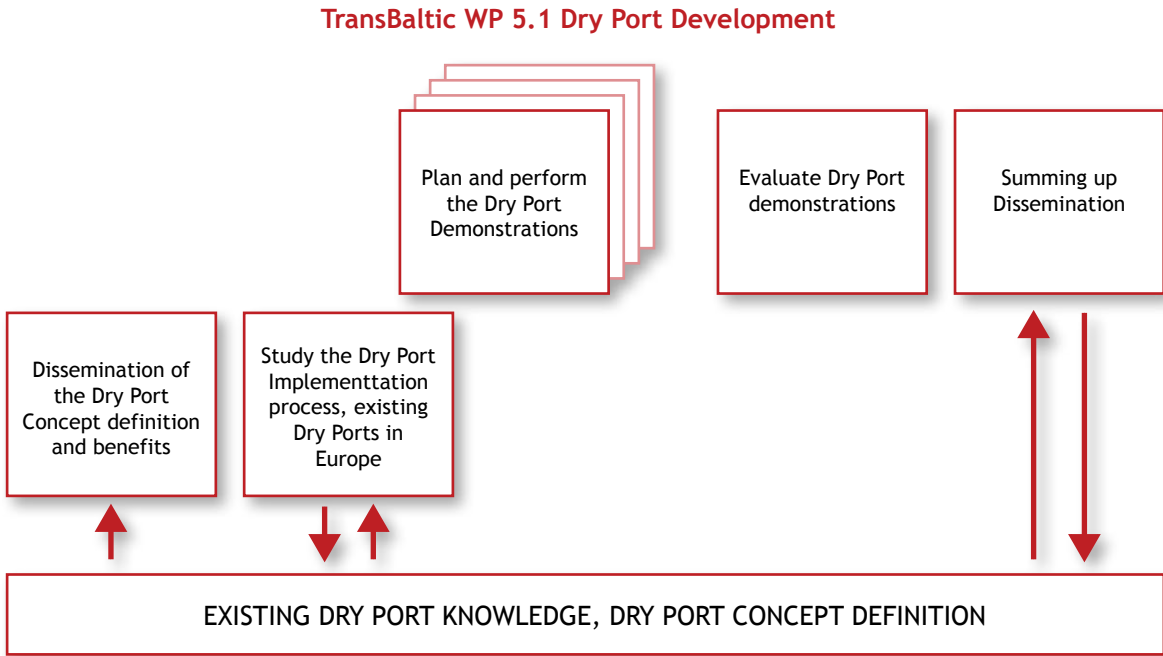


Figure 3: The dry port development process and activities in the TransBaltic project (Task 5.1)

Task 5.1 started with a comparative review of existing dry port experience and the dry port implementations. This knowledge - both theoretical and practical - was distributed to the TransBaltic partners and associated industrial stakeholders through organised seminars. Main topics addressed were:

- what are the benefits per actor (consignor/consignee, shipping line, port, port terminal, forwarder, road and rail operator, municipality) and how soon the benefits can be reached after the implementation (economical, operational, other impacts);
- what are the needed actions of involved stakeholders during the implementation stage;
- who should lead the establishing stage of a dry port facility;
- what kind of total budget is needed for the establishing stage, how big is the economic risk, how the risk should be shared;
- what is the minimum annual turnover volume;
- what kind of facilities and resources are needed (yard area, handling equipment, personnel, ITC);
- what kind of train operations are needed, how to ensure that train operations are economically competitive.

Sharing of the existing dry port knowledge formed a basis for the regional dry port studies performed by the Task 5.1 partners. Conclusions on the Baltic Sea Region dry port development were made after the numerous local feasibility studies, and results and recommendations were reported to the TransBaltic project management. Thus, the task outcomes contributed to the general findings and recommendations made by the TransBaltic project.

KEY RESULTS

The task results point out that the dry port concept could be an essential part of the future transport solutions in the Baltic Sea Region. Dry ports seem to offer several benefits which are relevant for various stakeholders.

Dry ports should be part of transport policy as they can offer benefits for several stakeholders

European Union:

- Dry port concept supports the cohesion and co-modality objectives of the EU transport and regional policies.
- Dry port concept offers possibilities to reduce CO2 emissions by increasing the efficiency of road transport and the modal shift from road to rail. A dry port including empty container depot can reduce the transport of empty containers significantly.
- Dry port concept could be a component of the future TEN-T network (now under revision).

Ports and areas around the ports:

- Dry ports offer expansion areas for seaports with limited space.
- Dry ports can partly solve problems caused by increasing truck traffic close to the seaports.

Hinterland regions:

- Dry ports can generate jobs.
- Dry ports can increase logistics competitiveness of the hinterland regions.

Transport and logistics companies:

- Dry ports can offer new business models and open new markets.

TransBaltic Task 5.1 proposes that the dry port concept becomes part of the future EU and BSR transport policies.

Start a dry port with existing infrastructure, invest when volumes grow

A dry port implementation starts normally with limited volumes. It seems that existing dry ports are developing gradually - the situation in which "shippers can leave and/or collect their goods in intermodal loading units as if directly at the seaport" is seldom reached immediately. Especially in the areas with relatively low population, a starting dry port may expect annual volumes of 15 - 20 000 containers.

The limited transport volumes and the high investment costs of new dry port infrastructure can lead to a challenging situation where the Dry Port investment is not bankable. The cost of a new dry port infrastructure including the rail infrastructure can be tens of million euros. Logistics services are under heavy competition and thus the investment cost can stand out even in case of very long-term agreements.

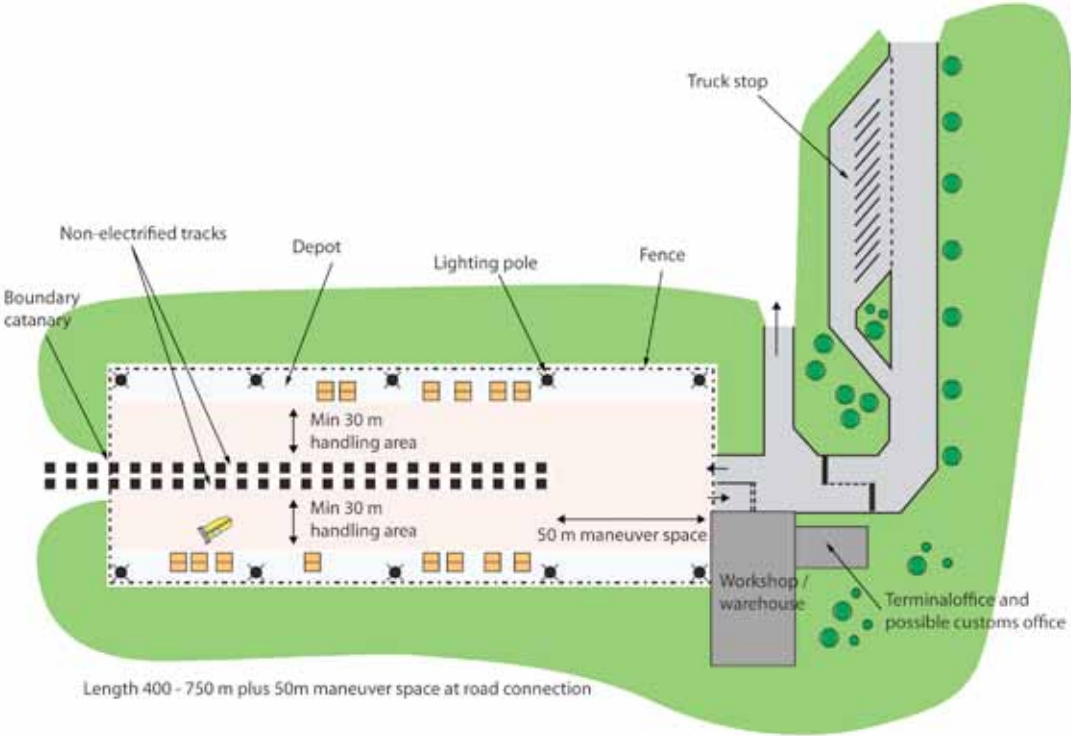


Figure 4: Schematic illustration of the dry port terminal part (based on Trafikverket’s principles for efficient terminals)

TransBaltic Task 5.1 proposes that existing infrastructure should be taken account when establishing a new dry port. Many regions may have a stock of such areas (for example old industrial grounds) at their disposal to offer in the initial stage of the dry port implementation.

Even if the layout of the present facilities may not be optimal or it may need some maintenance, the existing infrastructure might offer a cost-efficient way to introduce dry port services. Investments in the dry port expansion should be made when the volumes grow.

Rail and road between the dry port and seaport can supplement each other

A dry port implementation may also be challenging from the transport network point of view. Rail infrastructure between the seaport and the planned dry port may have its limitations. It might be that the railway network capacity is not available for cargo trains during the peak hours of daytime, and container trains between the seaport and the Dry Port can run only during nights. It is also quite obvious that if the rail traffic is having some difficulties, for example due to winter conditions, passenger trains are usually prioritised before cargo trains. Trade and industry - the end customers of the logistics services - may not be satisfied with a service, which is not available during daytimes or which is not secure enough in all conditions. Instead of making remarkable infrastructure capacity investments, which are needed only during few peak hours, it might be more cost efficient and environmental friendly to let different transport modes supplement each other.

Swedish Transport Administration has recently introduced the High Capacity Transport approach. One of the key elements of High Capacity Transport is to utilise existing infrastructure. This approach was illustrated through the so called DuoTrailer pilot between Malmö and Gothenburg. In brief, the idea behind is that the DuoTrailer is allowed to operate between the defined terminals on a high standard road, in this case four-lane motorway. The DuoTrailer concept reduces transport cost and CO₂ emissions. It could be that:

- The most environmental friendly, cost efficient and reliable transport solution between a dry port and a seaport can be achieved by letting the rail and road transport modes supplement each other.
- If the service level of the dry port-seaport transport link is based on only one transport mode, the total cost and environmental influence will be heavier when both the infrastructure construction and operational effects are taken into account.

Standard Truck
Cargo: 16 tons, 100 m³
Fuel Consumption: 37 l/100 km

EMS-Truck
Cargo: 24 tons, 150 m³
Fuel Consumption: 48 l/100 km

Duo2-Truck
Cargo: 32 tons, 200 m³
Fuel Consumption: 53 l/100 km

TransBaltic Task 5.1 proposes that that the High Capacity Transport / Duo Trailer concept should be utilised:

- 1
- For transports between a seaport and a dry port:
 - a. Even if the sea port-dry port connection would be served by one train up and down per day, there will always be customers who are not able to cope with the train service timetable. A DuoTrailer can serve these customers and offer needed transports between the sea port and dry port in such a case.
 - b. If the train connection is not possible (no rail infrastructure available or not economically viable rail service).
- 2
- For transports between a dry port and major customers (like mills, other terminals).

Compared to a standard truck:
-16 % Fuel and CO₂

Compared to a standard truck:
-27 % Fuel and CO₂

Figure 5: Environmental benefits of the DuoTrailer concept (source: www.duo2.nu)

BRINGING THE RESULTS FURTHER

TransBaltic Task 5.1 has been one of the catalysers for the dry port development in the Baltic Sea area. A growing number of regions around the Baltic Sea Region have expressed interest in implementing dry ports during the TransBaltic project. It is likely that the started development and deployment activities will continue after the project lifetime.

It also seems that the TransBaltic project has been able to deepen the relations and collaboration between public and private actors in many regions. This intensified public-private dialogue may add to the sustainability of dry port development processes the more so as Task 5.1 created a good basis for complementarity of transport modes in that regard. An increasing variety of public and private stakeholders opt for putting the 'High Capacity Transport' approach on the policymaking agenda. The pilot demonstration in Sweden has recently been followed up by the Finnish Ministry of Transport who has indicated strong interest in pursuing a test case.