OUTPUT FACT SHEET

Pilot actions (including investment, if applicable) Version 2

Project index number and acronym	Interreg CE Transport and Logistics Stakeholders Network (TalkNET), CE 1044
Lead partner	North Adriatic Sea Port Authority
Output number and title	O.T3.8 PA for ECO-innovations on alternative fuels deployment: development of new e-mobility services
Investment number and title (if applicable)	Not applicable
Responsible partner (PP name and number)	Freeport of Budapest Logistics Ltd.
Project website	https://www.interreg-central.eu/Content.Node/TalkNET.html
Delivery date	20th May 2020

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

Last mile delivery is the most critical part of the distribution process of goods as it accounts for up to 28% of the total delivery cost and also has a significant negative environmental impact. Any change in the last mile delivery has an immediate impact on the quality of services, the efficiency of delivery as well as customer satisfaction. The relevant strategic documents of Budapest Municipality as well as national and European ones are in line to decarbonize the last mile of urban freight transportation, with the aim to reduce the share of gasoline powered vehicles and promote low-emission solutions.

The main aims of the pilot action was to analyze the possibilities of the reduction of:

- the carbon emissions of last mile city logistics in Budapest;
- and further negative externalities of city logistics,

to contribute to create a more livable and greener Budapest.

The pilot action concentrates on two areas:

- Developing an intermodal logistics center for low-emission delivery in the Freeport of Budapest: there is a need for a number of logistics centers in Budapest also being able to host electric vehicle fleets where the vehicles can be charged and the logistics centers are close enough to the city center to complement efficient, low-emission last mile deliveries. Being an optimally located hub, the Freeport of Budapest is a potential logistics center for low-emission deliveries.
- Introducing a zero-emission cargo zone in downtown of Budapest: the city center suffers from the negative effects of road transport including freight delivery. A possible solution for reducing these negative impacts is controlling the access of delivery vehicles.

The results of the analysis demonstrates that the Freeport of Budapest is an ideal location to become a base for e-city-logistics in Budapest. Its proximity to the city center and retail areas allow relatively low-range electric freight vehicles to take a full delivery round without a need to recharge during the route. This unique advantage and the available infrastructure make the Freeport the number one potential location for e-city-logistics in the Budapest region.

Based on the pilot action a fleet of 160 e-cargo vehicles shall be established to serve app. 9,500 commercial units from the Freeport as a hub by a fleet operator. Meanwhile the Freeport shall develop and provide the infrastructure: parking area and a network of app. 75 chargers for the vehicles with a calculated cost of appr. euro 800,000-1,000,000. A further option is to install solar panels on top of the buildings and mostly in unused areas of the port with an investment of appr. eur 700,000 to produce renewable energy locally.

1. In case of the solar panels to be installed on the appr 1.7 hektars of empty land the technical parameters are as follows: nominal output power (DC) is 650 KWP, output power (AC) is 550 KVA. Total energy saving is appr 670,000 KWH/year.
2. In case of the solar panels to be installed on the roof of 3 warehouses nominal output power (DC) is 180 KWP, output power (AC) is 150 KVA. Total energy saving is appr 180,000 KWH/year.
3. Appr 75 charges are planned to be installed including fast charges, wall chargers and – mostly – regular chargers in an area of appr 3 hektars to charge to fleet of 160 cargo vehicles.

There are several pilot projects throughout Europe targeting last-mile city logistics with the involvement of zero-emission vehicles however river ports are usually not involved in such initiatives for various reasons (lack of available land, distance from the city centre etc). Such projects also requires a strong commitment from the authorities involved and a close cooperation of various market players which seems to be on place under the current leadership of Budapest.

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

HU11 - Budapest

Investment costs (EUR), if applicable

N/A

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

E-cargo solutions in city logistics are currently not profitable to operate. Therefore a logistical service provider will not invest solely for the sake of the profit although there are several pilots in operation around Europe and also there are limited-range experiments in major cities. A close cooperation and a strong commitment – manifested in the introduction of regulations such as a ban of combustion cargo vehicles, regulation of delivery hours, limitation of cargo parking places etc. - of the **municipality** is of utmost importance of to implement such a project. Municipalities can benefit directly from e-cargo projects as living conditions of **citizens** – ultimately: voters - will improve with the reduction of different forms of emission. Also city centres will become more liveable places for the citizens and as a result urban centres will be more attractive and it helps to reverse the migration from the city centres to the outskirts. (which has various advantage from the point of view of urban development, taxation etc.) Further development of the technology is also necessary but as the production of electric trucks will become cheaper and prices are reduced participants of existing e-city logistic systems – event in a pilot stage - will have a comparative advantage. Therefore an operational pilot is a learning place – a kind of a living lab - for all **logistical companies**, too. Also **various range of clients** (from big multinational chains to small shops or producers) who are part of a logistical chain will learn and benefit from the results and can adopt to the new technology.

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

1.Sustainability

PP8' main aim is to develop the port's services and to adapt its operation to new challenges in order to operate as a viable business entity. Therefore all 3 aspects of sustainability of its PA shall be analyzed.

Institutional:

PP8 cannot implement to PA alone as the operation of an e-cargo fleet is outside of its core business activity. Therefore a cooperation with a fleet operator is a necessity. Once a long-term agreement with an operator set, PP8 will be able to install and operate the infrastructure as part of the port's infra network (solar panels, chargers, network, surface-parking are etc).

Financial:

PA also analyzed various financial scenarios which all indicate that long-term – more than 10 ys - return can be foreseen. It can be reduced if there is a public grant from HU and EU resources (currently non available). On top of that financial viability is heavily influenced by governmental or municipality legislation and regulations (restrictions on diesel trucks).

Political:

PA implementation is heavily influenced by the Hungarian Government and the Municipality of Budapest and its districts. If the regulatory environment is in favour of the e-cargo fleet – and unfavour of diesel trucks - the private players (such as PP8 and fleet operators) will be ready to invest and operate.

2.Transferability

PP8's PA defines challenges also other logistic hubs – not only ports – are facing with. Therefore results of the PA can be directly transferred to other territories not involved in the project. As per the AF visual and video campaign supports the transfer of knowledge (PP8 is also planning to present PA results in a short video). Stakeholders consulted in the PA preparation process had a very positive attitude and links will be maintained in the future, too.

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

The transnational dimension of the pilot action preparation process is highlighted by the involvement of key players of the logistics – who are in most cases international market players from CE countries. Added value of transnational cooperation is guaranteed by the fact that PPs – including PP8 – is to share an on-going process aimed at the improvement of multimodal logistics nodes efficiency throughout the entire project life-time. Furthermore this process was based on a transnational framework being part of the clusters of the project which resulted the creation of various foras of exchange of PA results and benefits. This output will be made available to policy makers, economic actors and logistics players of different CE countries and will positively benefit the competitiveness of freight transport – specifically last-mile solutions - in a rapidly changing environment. Also it helps to create the conditions to redirect freight traffic flow to more sustainable solutions and support public actors in the decision making process. On top of that there is a mutual learning exercise implemented in the framework of the project: Freeport of Port has and will benefit from the experiences and results of other partners preparing and implementing various pilot actions. Also Freeport has presented its results to the partnership and has held stakeholder consultations in the preparation process of the output to gain and share knowledge and experience.

In particular, conclusions about 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 Freeport of Budapest 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:

- Payback calculated in ten years
- Comprehensive approach and generation of electricity by renewable resources
- Positive impact from the environmental point of view and noise
- Additional services to be added to the port

Potential deployment of the innovation:

- Similar concept developed and deepened by other ports such as Trieste and Venice (green port concept application)
- Ongoing analyses also from Verona Freight Village (attracted for environmental advantages but stopped by the costs)
- Port operators and terminalists have a positive attitude for e-vehicles but the payback would be longer than the concession (necessity to act on the regulatory)

Among the critical points, it was mainly underlined that first of all there is the necessity of a direct support and modification of regulatory framework at local and national level, the necessity to establish a strong network of commercial partners and also the direct shippers involvement is needed. Moreover, technological aspects are still a limit for commercial vehicles and in general Diesel market share still far away to be touched.

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**

Relevant regulatory requirements:

The Hungarian Government's "Jedlik Ányos Plan" puts the importance of electromobility-related developments and innovations on the front the government's focus. It was reviewed in 2019 including policy goals to 2020, 2025 and 2030. As manifested in The Electric Mobility Act is in force from 1 October 2019 regulating electromobility services. It intends to facilitate e-mobility through legislative amendments, including by formulating an authority protocol for the installation of charger stations, reviewing and amending the Electricity Act, introducing green license plates for hybrid and electric vehicles, permitting the use of bus lanes, as well as introducing parking and road toll incentives.

The Municipality of Budapest is responsible for the development of strategic transportation and city logistics documents SULP and SUMP. There is a plan to set a CargoZEZ which is hindered by the fragmented system of 23 districts of Budapest and debates of the boundaries of the CargoZEZ. Nevertheless representatives of the Municipality are involved in the PA process and also expressed interest to cooperate in the future.

Sustainable development – environmental effects:

The replacement of diesel trucks with electric trucks and the decrease of emission and noise not only in the urban centres but also in general on all transport routes where e-trucks are in use. Furthermore installation of solar panels in the Freeport of Budapest area – the main hub of the fleet – will further reduce emission as a major part of the electricity to be used for charging will be produced locally (also with no network loss).

Horizontal principles:

Impact of the pilot action of PP8's on horizontal principles is neutral.

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

This output has a direct link to previous deliverables and outputs such as:

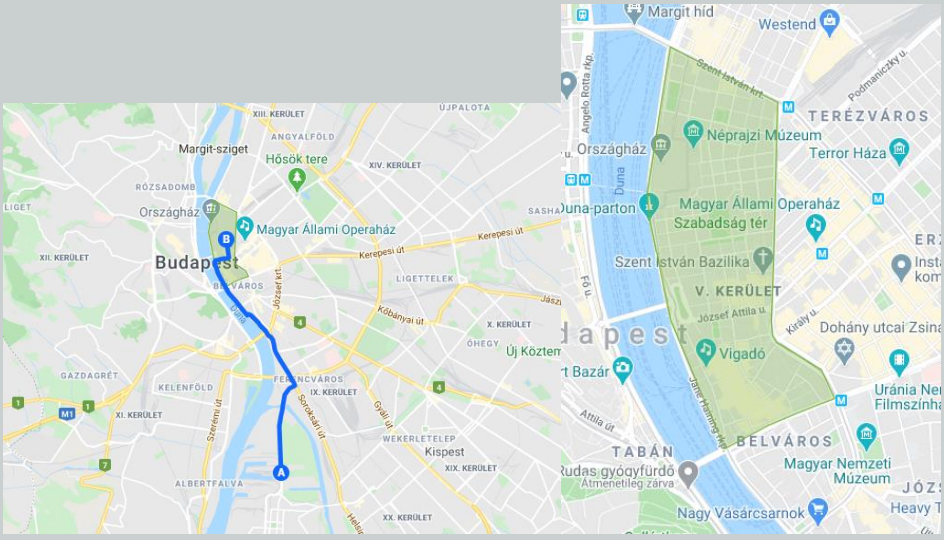
- D.T2.2.7 (Analysis on ECO-solutions deployment – BUDAPEST) which was part of the D.T2.4.3/O.T2.3 (knowledge tool) and included the analysis of the 2 main topics and SWOT. Analysis provided the bases of the drafting of the action plan and has indicated the need of the development of e-mobility (e-cargo) solutions.
- D.T2.5.8 (Action plan on ECO solutions – BUDAPEST) as a results of action planning the modification of the pilot action was initiated – and approved by the JS – in order to switch the topic from LNG to e-mobility (e-cargo solutions)
- D.T2.4.4 (stakeholder inputs) which provided valuable inputs for re-planning the pilot action
- D.T3.1.2 (summary report on stakeholders) as part of this deliverable PA was verified with the stakeholders.

Figures, pictures and images demonstrating the results of the study:

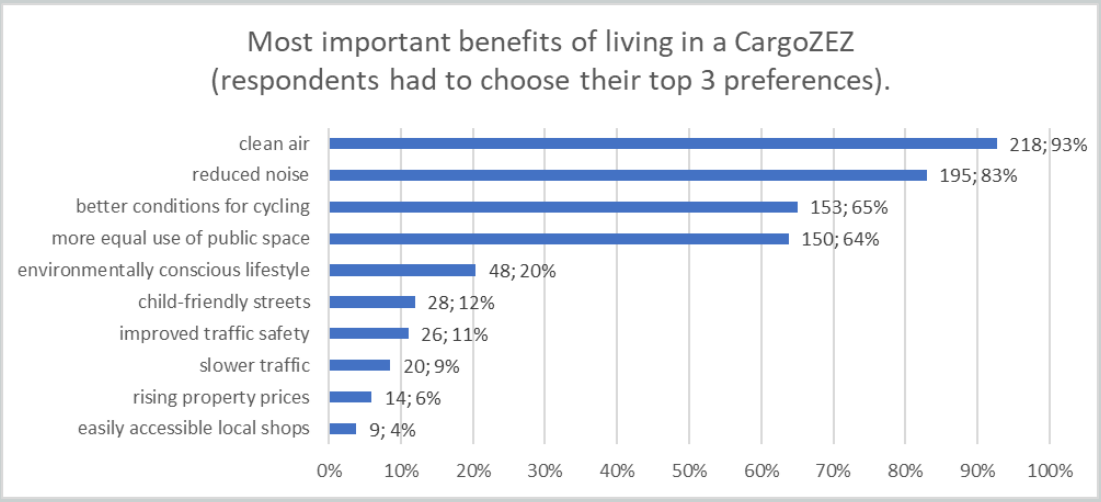
Freeport of Budapest Logistics Ltd. – core area

SOURCE: https://tervlap.hu/cikk-nezet/nem-vart-kihivassal-szembesultek-a-csepeli-szabadkikoto-elso-irodahazanak-tervezoi

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



The shortest route between the center of the potential CargoZEZ and the Freeport of Budapest; Right: Boundaries of a potential zero-emission zone in downtown Budapest



Most important benefits of living in a CargoZEZ (respondents had to choose their top 3 preferences)