O.4.4 POSITION PAPER ON TECHNOLOGICAL SOLUTIONS FOR EMISSION REDUCTION

WP4 – Analysing and piloting new sustainable mobility solutions

Act.4.4. – Pilot actions for adopting technological solutions for emission reducing

AUTHOR: PP3 ITL
Status: Final
Distribution: public
Date: 22/02/2023

DISCLAIMER

This document reflects the author's views; the Programme authorities are not liable for any use that may be made of the information contained therein.

Table of Contents

Main challenges

MIMOSA has addressed the challenge of reducing the environmental impacts of passengers' transport solutions in the Italy-Croatia area. Thanks to the pilot actions developed and tested in the MIMOSA Activity 4.4, it was possible to collect data and evidence on different technological solutions able to reduce the emissions related to different modes of passengers' transport. With the aim of testing enhanced sustainable transport modalities, piloting the adoptions of technological solutions for reducing transport emissions, Activity 4.4 titled "Pilot actions for adopting technological solutions for emissions reducing" envisaged an analysis, a feasibility study and a mapping activity.

The main technical and political challenges faced by the MIMOSA Activity 4.4 pilot actions were related to:

- Test innovative governance models in providing micro mobility sharing service at local level;
- Test new solutions for data collection and analysis (in particular in relation to ships and e-bikes solutions);
- Define innovative business models for the activation of new green ships connections between Italy and Croatia;
- Improve the urban planning aspects related to the creation of more reliable and effective e-charge infrastructure networks.

This O.4.4 MIMOSA Position paper on technological solutions for emissions reducing is a strategic document focused on these different tested solutions for reducing transport emissions.

Current situation and lessons learned

The MIMOSA project has promoted the development of innovative transport solutions aimed to reduce the environmental impacts of people mobility. These emissions reduction was related both to providing in a more efficient and sustainable way existing public transport systems and to the need to define new effective and attractive transport solutions able to reduce the dependency on car use.
In the context of Activity 4.4, these are main lessons learned related to innovative electric light vehicles sharing service developed in Emilia-Romagna Region:

- High-quality bikes and unisex models are the key success factor for effective and attractive e-bike sharing services. High-quality and unisex e-bikes mean paying particular attention to the technical characteristic of the purchased e-bikes;
- E-bikes need more assistance and maintenance compared to traditional bikes. For this reason, it is fundamental to foresee at least one assistance point able to check regularly the e-bike functioning;
- E-bikes GPS monitoring platform. In order to select the most suitable management platform, it is important to consider the ease of use of the platform as well as the possibility to export the collected data in different formats;
- GPS precision in collecting the data. There are huge differences in the "geographical data resolution" of different devices.

Based on the current situation and the actual implementation stage of the "Analysis on environmental impact of passenger ships in Port of Rovinj" pilot action, the key lesson learned can be summarized as follows:

- There is a clear and statistically significant relationship between the characteristics of the passenger ships docking in the Port of Rovinj and the air emissions' concentration;
- The key indicators to be monitored are those regarding CO2, NO, NO2, SO2, PM1, PM2.5 and PM 10;
- The pollutant emissions are strictly dependent on the vessel dimensions.

Based on the current situation and the actual implementation stage of the "Feasibility project on creation of a new green maritime link between the ports of Abruzzo and ports of Croatia" pilot action, the key lesson learned are:

- New ships connection between Abruzzo Region and destinations on the Croatian coast are deemed technically and economically feasible;
- Liquefied natural gas (LNG) ships are at present an effective technological solution in terms of providing more sustainable and reliable ship connections between Italy and Croatia. With the growing costs of traditional ships' fuels, LNG ships are an increasingly attractive solution;
- New maritime connections are financially sustainable only in the summer period;
- The Italian transport demand interested in travelling to Croatia from the Italian Central-Adriatic regions is providing a remakable basis for the activation of new summer ship services;

- The activation of such Italy-Croatia ship connections requires an adjustment of the port infrastructures.

Based on the existing situation and the actual implementation stage of the "Mapping on existing/planned electric charging points" pilot action in Emilia-Romagna, the key lessons learned are the following:

- Electro mobility is a fast-growing sector. The public sector is called upon to create a reliable e-charge infrastructure in the short run.
- Many private operators are developing their own e-charge infrastructure. As many different standards are available, the e-charge points interoperability is a growing issue to be addressed;
- In some cases, the e-charge infrastructures growth is not adequately planned and managed by public authorities. This can lead to unbalanced geographical development of the e-charge infrastructures;
- Local and regional monitoring tools are needed in order to have a clear view of the existing e-charge points network and of the short-term planned development;
- E-charging infrastructures mapping tools need to be developed based on new methods for data collection and analysis. This is key to improved planning.

Proposed Solutions and Recommendations

Based on the MIMOSA Activity 4.4 pilot actions, the following recommendations can be drawn, with the aim of extending their application to other territorial contexts of the Programme area and also within other Cooperation Programmes. The key strategic recommendations are:

- Importance of **public-private governance models** able to increase the number of public and private stakeholders involved in the provision of new sustainable transport solutions;
- A **long-term** and sustainable transport solution (both environmental and economic sustainability) requires a high level of commitment from both private and public stakeholders. It is fundamental to define governance models able to distribute responsibilities in an effective way. Another important aspect is related to the definition of business models able to support the sustainable transport solution beyond the period of EU funding;

- **Data** are fundamental for better public policy-making processes. It is important to organize new/improved public transport solutions in terms of better data collection and data analysis. Skilled persons working on data collection and analysis are fundamental;
- **E-mobility** is a fast-growing sector but not always the needed electric infrastructure network grows in a proportional way. Public authorities are called to steer the e-charge infrastructures network development in a balanced way;
- In the Adriatic area there is a significant **lack of maritime connections between Italy and Croatia**. Often the existing services are activated only during summer months, while the long travel duration makes the existing services not so attractive. It is important to start to plan for new direct ship connections between Italy and Croatia, differentiating the offer in terms of starting and arrival ports;
- The **ships sector,** and in particular the **cruise sector**, is a **high-emission sector**. Cruise ships are still responsible for a very high quota of pollution emissions in the port areas. For these reasons, it is important to start thinking of new technologies able to reduce the sector's emissions by adopting new fuel solutions (LNG ships for example).

Conclusions and relevance for the EUSAIR area

The above-mentioned MIMOSA pilot projects contribute to analyze and collect data on different technologies available for the reduction of the negative impacts of the transport sector on air quality. In particular, the analyzed pilot actions contributed to EUSAIR "Pillar 3 Environmental Quality" and to "Pillar 1 Blue Growth".

The collected evidence indicates possible ways of promoting better technologies for air quality improvement at the EUSAIR level by enhancing the data sharing between the local and regional Italian and Croatian public authorities, by improving the tools for exchanging good practices, by developing common methodologies and technologies for transport emissions monitoring and analysis, and by organizing dedicated events aimed to better train the people working on sustainable transport solutions.

References

- (D.4.4.1) No.1 Innovative electric light vehicles sharing service supported by “Mobile Hub” in Emilia-Romagna Region.
- (D.4.4.2) No.1 Analysis on environmental impact of passenger ships in Port of Rovinj.
- (D.4.4.3) No.1 Feasibility project on creation of a new green maritime link between the ports of Abruzzo (Ortona/Pescara/Vasto) & ports of Croatia (Dubrovnik/Šibenik/Zadar/Split).
- (D.4.4.4) No.1 Mapping on existing/planned electric charging points.