

# O.4.2 MIMOSA POSITION PAPER ON PROTOTYPES ON PAYMENT SYSTEMS APPLICATIONS

WP4 – Analysing and piloting new sustainable  
mobility solutions

Act.4.2. – Piloting sustainable different transport  
modalities and e-services

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## Summary of key priorities

The MIMOSA project aims to increase multimodality and to improve services for making more accessible, low-carbon and sustainable the mobility of passengers of Italy and Croatia. A cross-border cooperation approach is necessary for solving the common problems of predominant road traffic and of low-level connectivity between the two countries, for providing the citizens and tourists with a wider offer of mobility sustainable options. For all these reasons, one of the main WP4 project results is linked to the development of smart solutions and services related to payment systems applications which can be used to push for a change in passengers' behaviour towards more sustainable transport solutions.

In order to contribute to test new solutions aimed to push a change in passenger mobility, in the MIMOSA Activity 4.2 a concrete pilot action has been carried out. It concerns the development of a smart card/ticket as a tool for boosting the use of multimodal and sustainable transport solutions, which enables the integration of different public transport services while offering lots of benefits for passengers. The pilot project tested under action 4.2. has allowed Mimosa to achieve project-specific object 2: to improve multimodal sustainable passengers connections and to harmonize and standardize services. That was achieved by offering to passengers alternatives to individual car travelling between Italy and Croatia, to overcome problems created by congestion, pollution, lack of accessibility and connectivity, from the organizational and technological point of view.

This position paper focuses on the payment tool developed and tested in the Activity 4.2 and the related lessons learned. The key objective is to share this experience with other decision and policymakers at regional and national levels, hoping they can include the solution in their regional public transport policies and plans with the aim of the transferability of the MIMOSA key outputs.

## Introduction to the problem statement

The area of Italy and Croatia tackle bottlenecks in multimodal connections, lack of efficient multimodal networks and low connectivity to peripheral areas. The prevalent road transport is having negative consequences since road traffic congestion and pollution negatively affect the whole area. Studies state that, globally, demand for mobility will continue to grow over the next three decades, all over the world. Therefore, the communities must be able to respond to the increasing mobility needs of people and goods and stay competitive, while answering to the emissions reduction challenge in the transport sector.

There are some key priorities to go towards emissions reduction: Avoid (i.e. avoid travel, or avoid travelling alone in your car and thus inefficiently), Shift (i.e. shift to more environmentally friendly modes) and Improve (i.e. improve the energy efficiency of transport modes and vehicle technology).

Considering these key sustainability challenges, one important contribution can arise from the improvement of the public transport payment systems. In fact, better integrated/simplified payment systems can increase public transport attractiveness and accessibility, both for local residents and tourists. To this end, the Mimosa pilots developed in Activity 4.2 provided some evidences on how to improve the public transport payment systems at local and regional levels.

## Analysis of the current situation

The Istrian Development Agency (IDA) conducted several types of research on payment systems applications, starting from the Italy-Croatia ICARUS project, focussing on mobility needs and gaps in the Istrian region. The research began with collecting and analysing data about traffic and travellers demand in Istria County in order to propose applications of cross-border payment systems in traffic.

The result of the research states that the population in Istria is mostly using their own vehicle and tourists when arriving in the Istrian region (54% of them) arrive by car while 84% in total arrive by road transport. In the area of urban transport, the emphasis is placed on the problem of traffic jams on the roads in the centres of major cities and tourist destinations and on parking. The younger population and tourists are looking for alternative transport solutions during their stay especially if they could get the information on their smartphones. The conducted survey showed that reasonable prices, harmonized timetables and new solutions would encourage behavioural change. The great potential for the development of intermodal mobility lies in bikes and bus/train transport connectivity and most of the survey respondents are willing to use available intermodal solutions. Regarding the payment for transport services, respondents expressed their interest in payments with cards and smartphones.

The integration of different transport services within a single mobility offer is a key issue for travellers, amplified in recent years due to increasing concerns over emissions, congestion, and a need for mobility solutions that are cost-effective and convenient. The concept aims at increasing public transport and reducing traffic, especially on the road links, thereby enhancing the quality of life for citizens. Mobility as a Service (MaaS) is the end goal that many transport professionals have in their sights, making it easy and more practical for people to get from their front doors to end destinations. This should be regardless of how many types of transportation they need to use, or other services that they may need to pay for along that journey. Obviously, this calls for a seamless

integration where the harmonization of the single solution payment systems and the possibility to pay for different sustainable solutions with a single tool (App, ticket, etc.) is playing a fundamental role.

In recent years, there are many examples of smart cards used in the public transport sector, with several small to medium-scale implementations. Hence, the use of smart card technology in the field of transport applications is becoming widespread and covers different transport solutions. The use of an electronic smart card as an alternative to traditional tickets is now becoming a viable option for many public and private operators.

The smart card technology was first used in transport to improve the collection and apportionment of revenues from passengers' fare payments. Most examples of smart cards in transport are in this area. Integrated payment or the sharing of a common payment mechanism between operators has been addressed by the public transport companies in order to offer the passenger a convenient way to pay for journeys which may involve travel with more than one operating company. An acceptable and secure solution to this problem opens the market for smart cards to more applications within the transport sector.

Payment trends in the transport industry have evolved rapidly in the last 10 years, from cash to payment cards. As a new technology for enhancing public transport services, smart card ticketing for public transport is becoming increasingly popular across the world. Now smart cards have become one of the major public payment options in public transport systems.

## Proposed solutions and recommendations

In order to encourage passengers to use multimodal and sustainable transport solutions, within action 4.2. IDA developed Smart card (Via Istria) which unifies and integrates different services.

Smart card development was focused on promoting the existing bike-sharing systems, cultural sights, landscapes and other cultural/natural/entrepreneurial offers. The goal is to influence passengers to change their behaviour toward more sustainable mobility choices and push them to use multimodal and sustainable transport solutions. The smart card integrated services and it provided benefits when low-carbon solutions are used. Based on the Mimosa pilot experience, a better integrated and attractive payment system requires:

- Digitalization of the ticketing solution;
- Involvement of the key transport and touristic stakeholders both public (mainly local and regional transport operators) and private (sightseeing services, car share, bike rentals);

- Define solutions to increase the number of users discounts and reward systems for general public traveling in a sustainable way.

Pilot action is widely described in report D.4.2.1.- Via Istra (Smart Card).

According to the activities conducted in the Mimosa project, the following recommendations are given:

1. **Ranking services is very important.** Services to be considered are: public transport, discounts (or free entry) at museums, discounts at restaurants, tourist attractions, information on the tourist cycling offer at the regional level.
2. **Planning the sale network and marketing at key locations.** The Card/App sale and marketing should be focused on: the airport and eventually airlines and hotels, campsites and beach facilities.
3. Most tourists will probably buy the Card online, and the **development of an App** is necessary to answer a rising demand for customized information. Mobile phones support ticket solutions with QR code and this can ease interoperability with different partners.
4. **Securing resources.** The development costs can vary significantly based on several variables, such as: the services subcontracted, the type of fee charged by the App developers (based on users or fixed price) and the duration of the contract.

The role of incentives for public transport users (including discounts on buses, rails, etc.) is fundamental in promoting more sustainable transport behaviours. It is very important to integrate the public transport network with private transport services (bike sharing, micro-mobility, scooter, car and on-demand minibus sharing). Its value proposition is providing a one-stop shop for mobility services and a door-to-door and seamless travel experience based on users' preferences. The main challenges in developing such solutions are the collaboration and agreements with transport operators and tourist operators.

To provide these innovative payment systems, dedicated Apps are playing a fundamental role. In the Mimosa case here analyzed, the App provides to users' real-time multimodal travel planning and payment system. In particular, it has NFC (Near Field Communication) technology to validate tickets directly from the mobile phone. The key App data input data are: static data on bus stops, lines, schedules, as well as real-time data on delays and fares. Smart card improves passenger experience, reduce operating costs for transport providers, and helps make public and other transport greener.

The development of Smart Card "Via Istria" contributes to better fulfilling the needs of travellers. In fact, it eliminates the need for queuing to buy a closed-loop transit card or ticket and massively improves operational efficiencies for the transport operator. It also transforms the often-stressful

travel experience by ensuring quick entry to the transit system without needing a specialist transit card.

The results of IDA's pilot activities can be implemented not only for touristic purposes. It should be noted that Smart card could transform the major needs of tourists. So that sectors such as transportation, accommodation, restaurants, entertainment centres, travel insurance, and health insurance are included. Still, Smart card (Via Istria) can be implemented in other regions and counties within the whole Programme area.

## Conclusions and relevance for the EUSAIR area

The technological advancements and innovations threw up a range of new mobility options within the 4th industrial revolution. These major technological developments include big data, AI, the Internet of Things (IoT) and the emergence of new forms of energy. All these important innovations can be used in order to improve the existing public transport payment systems. Within this general context, the introduction of the Smart card (Via Istria) encourages the use of public transport, as well as the mobility of passengers and the combination of different types of transport. It showcased how new and more attractive payment systems can be developed and implemented.

More in detail, the Mimosa case study on this topic showed the pro and cons of a "traditional" payment system based on a card. One of the key pros is related to the possibility to use these smart cards also for the provision of other services (tourism, commercial, etc.), for both residents and tourists. The development of such a solution requires the involvement of different key stakeholders, related not only to the transport sector but also to tourism and commercial sectors. The key goal of these services is to reach the highest number of final users in order to increase the quota of people travelling in a sustainable way.

In the last years, new forms of public transport payment systems are emerging based on the use of credit cards and/or dedicated apps operating at the international level. These solutions at the moment are used mainly in the big cities and further analysis has to be conducted in order to use these solutions also in the Italy-Croatia cities.

Looking at a wider perspective, the technical activities conducted in Mimosa Activity 4.2 contributes to accomplishing the objective of improving the connectivity of transport networks which characterizes the second pillar of the EUSAIR strategy (i.e., "Connecting the Region"). In addition, the engagement of some MIMOSA partners in projects of the 2021-2027 programming period offers the opportunity to further transfer the obtained results, creating synergies for the advancement of



passenger mobility. In this regard, the technical activities conducted in the Mimosa project have the potential to open new opportunities for follow-up projects.