D.4.2.1 SMART CARD DEVELOPMENT IN ISTRIA REGION

Working Package n:	4. Analysing and piloting new sustainable mobility solutions
Activity (n. and description):	4.2. Piloting sustainable different transport modalities and e-services
Deliverable (n. and description):	D.4.2.1. Smart Card development in Istria region
Responsible Partner:	IDA Ltd. (PP9)
Status:	Final
Deadline (as from the original AF):	12/2021
Finalized on:	12/2021

1. Background, scope and description of the pilot action

Background

Desk research about mobility needs and pilot action in programme area and Istria region

Studies state quite confidently that, globally, demand for mobility will continue to grow over the next three decades. We must therefore be able to respond to the increasing mobility needs of people and goods and stay competitive, while answering to the emission reduction challenge in the transport sector.

There are three primary ways to go towards emissions reduction:

- Avoid (i.e. avoid travel, or avoid traveling alone in your car and thus inefficiently)
- Shift (i.e. shift to more environmentally friendly modes)
- Improve (i.e. improve energy efficiency of transport modes and vehicle technology)

State of the art

Connection between business hubs in Europe, primarily in Italy, Austria, Germany, UK, Serbia, and BiH is weak because there is lack of frequent and accessible flights and train connections. Reaching Zagreb from Pula remains a matter of almost 3 hours. While it is true that Istria has some of the infrastructure (Istarski Y highway in great condition, local airport close to the centar of Pula), actual connections are not great. Airline travel to and from Pula airport is tailored to seasonal holiday travel, and not to the year-round regional and international business travel needed by many ICT companies. In winter, international flights to Pula airport are few or non-existent, so business travelers use Venice, Zagreb, Trieste or Ljubljana airports. Train lines:
– commonly used in Western and Central Europe for affordable and convenient business travel
– are not available. Public transportation in Istrian towns does not exist outside of Pula.

Aviation

Pula Airport registered 777,568 passengers in 2019 (+103% compared to 2014); flights are operated by legacy and low-cost carriers. In 2019 services covered 21 countries and 67 destinations across Europe. Traffics are seasonal and we understand that this due to the fact that the main travel purpose is leisure: in 2019 the Airport registered 916 passengers in January and 186,159 in July. The Airport is connected to the City of Pula by privately operated shuttle services (Brioni d.o.o. and Fils d.o.o.). One public transport service is available in summer. Other bus services connect the Airport and urban centres of the Istrian Peninsula. Taxi services operate from the Airport across the region. Based on the outcomes of the ICARUS stakeholder workshop we understand that hotels typically arrange guests transfers from/to the Airport.

Road

The BINA Istra motorway (known as the Istrian "Y" Motorway) is the toll road connecting Pula with the town of Umag and the city of Rijeka. We understand this is a key transport axis to access Istria and travel across the county.

Maritime

Istria has seasonal / summer ferry and catamaran domestic and cross-border services.

Coach & bus

Coach services operate across the peninsula and connect the main Istrian cities to domestic and international destinations. Main operators include FlixBus (Brioni d.o.o. operates services to Munich, Slovakia, Budapest and Milan), Fils, Črnja Tours, Eurolines e Autotrans (Arriva Group).
Road public transport services are only available in Pula and are operated by Pula Promet.
An e-bus service is available in Poreč; this is run by the City and currently funded by a EU project.

Rail

Istria has one north-south railway axis connecting Pula and Buzet via Lupoglav. This is a single track non-electrified line. On average there are about 5 services per direction between Pula and Buzet in a summer working day in 2020; the trip duration is two hours (90 km). There is not a rail connection from Istria to the rest of Croatia, and in particular to Zagreb. A bus services connects Lupoglav and Rijeka; the latter city is on the main Croatian rail line. The railway line from Učka to Rasa in the south of Istria is not operational.

Other services concerning shared mobility, bike sharing schemes are available in Poreč, Pula, Pazin and Umag.

Scope of the pilot action

(D.4.2.1) No. 1 Smart card development in Istria Region

Smart card development will focus on existing e-bike chargers, bike share systems, cultural sights, landscapes and other cultural/natural/entrepreneurial offers on different routes which influence passengers to change behavior towards their mobility choices and push them to use multimodal and sustainable transport solutions in order to reach smart card integrated services and benefit advantages when using low-carbon modalities. In particular the pilot was focused on:

- **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&reward systems for general public travelling in a sustainable way.**

Description of the pilot/investment

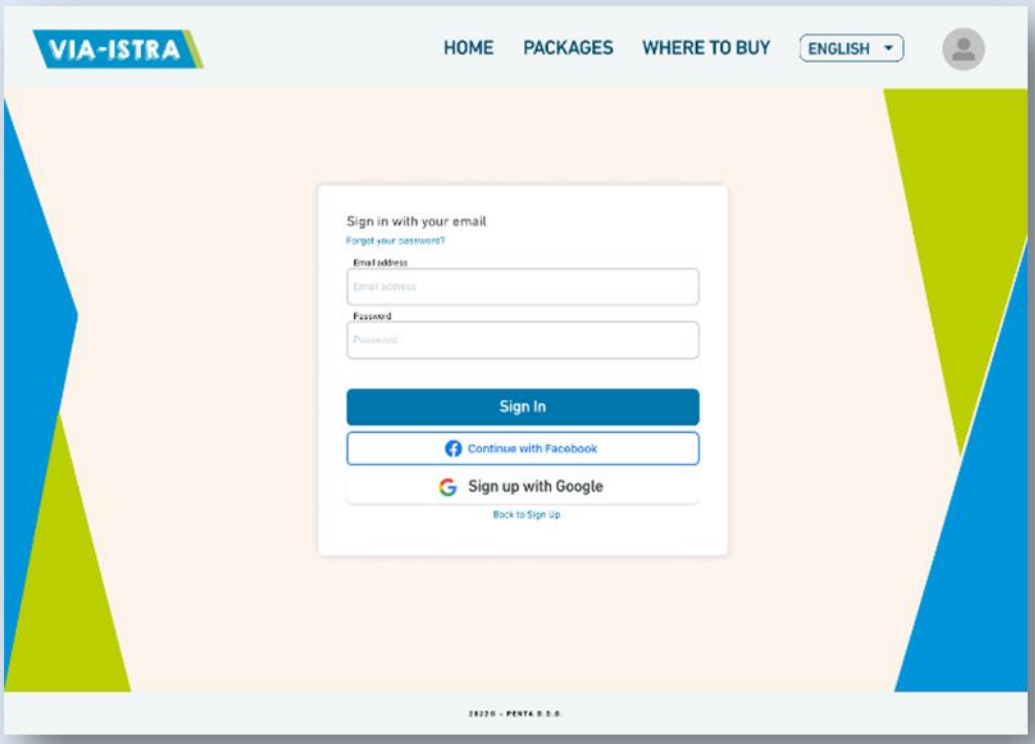
Pilot actions will test new solutions such as timetable harmonization, car/bike sharing, ICT solutions for seamless information flow, intelligent and integrated multimodal payment systems, dynamic travel planning and cross-border intermodal services. All these actions call for behavioral changes and the application of new concepts, such as "Mobility as a Service".

The user is placed at the very center of transport services. IDA jointly works with public authorities to help them nudge their citizens into adopting new sustainable behaviors and the new set of services as more efficient and beneficial for all. MaaS Platforms and Apps incorporate trips planning engines but add extra functions, which would not normally be available through a Travel planning App. These functions include booking and payment, ticketing and validation, mobility incentives and credits, and ability to nudge participants influencing their travel behavior (e.g. active travel nudges). A card is a pre-paid pass and discount card.

Typically, the cards provide free public transportation and discounts at museums and other tourist attractions for visitors. The cards can be purchased for different number of days and may be digitalized and accessed by users through their smart phones. A MaaS App is a sale channel for smart cards.

2. Implementation of the pilot action (including a description of the externalized services/supplies/works)

D.4.2.1) No. 1 Smart card development in Istria Region.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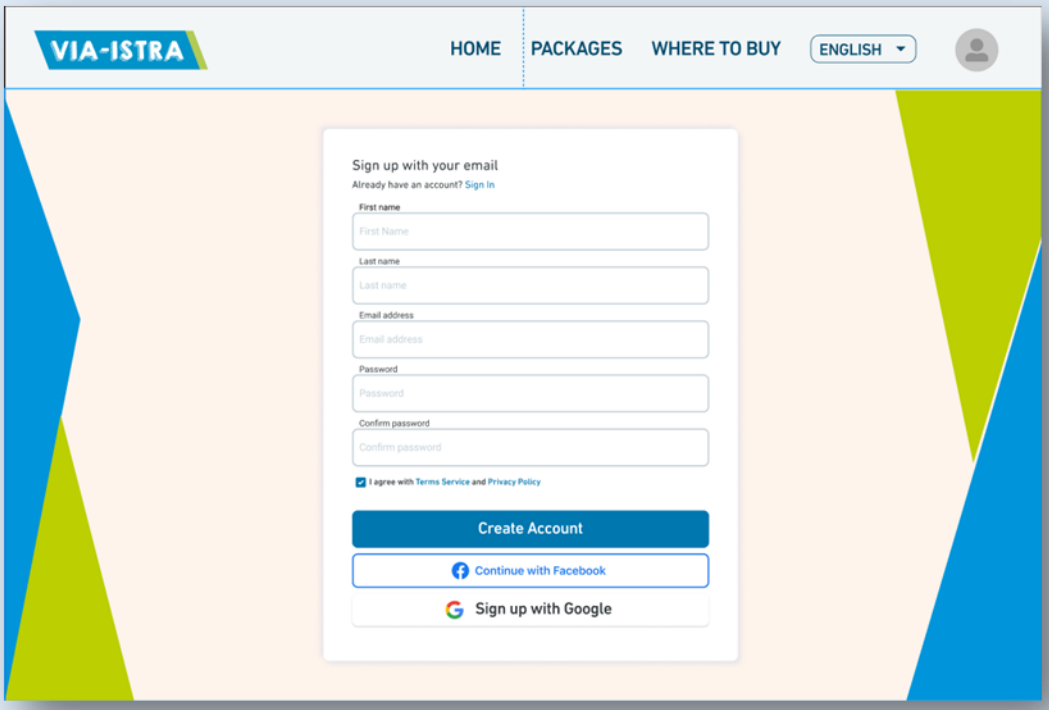
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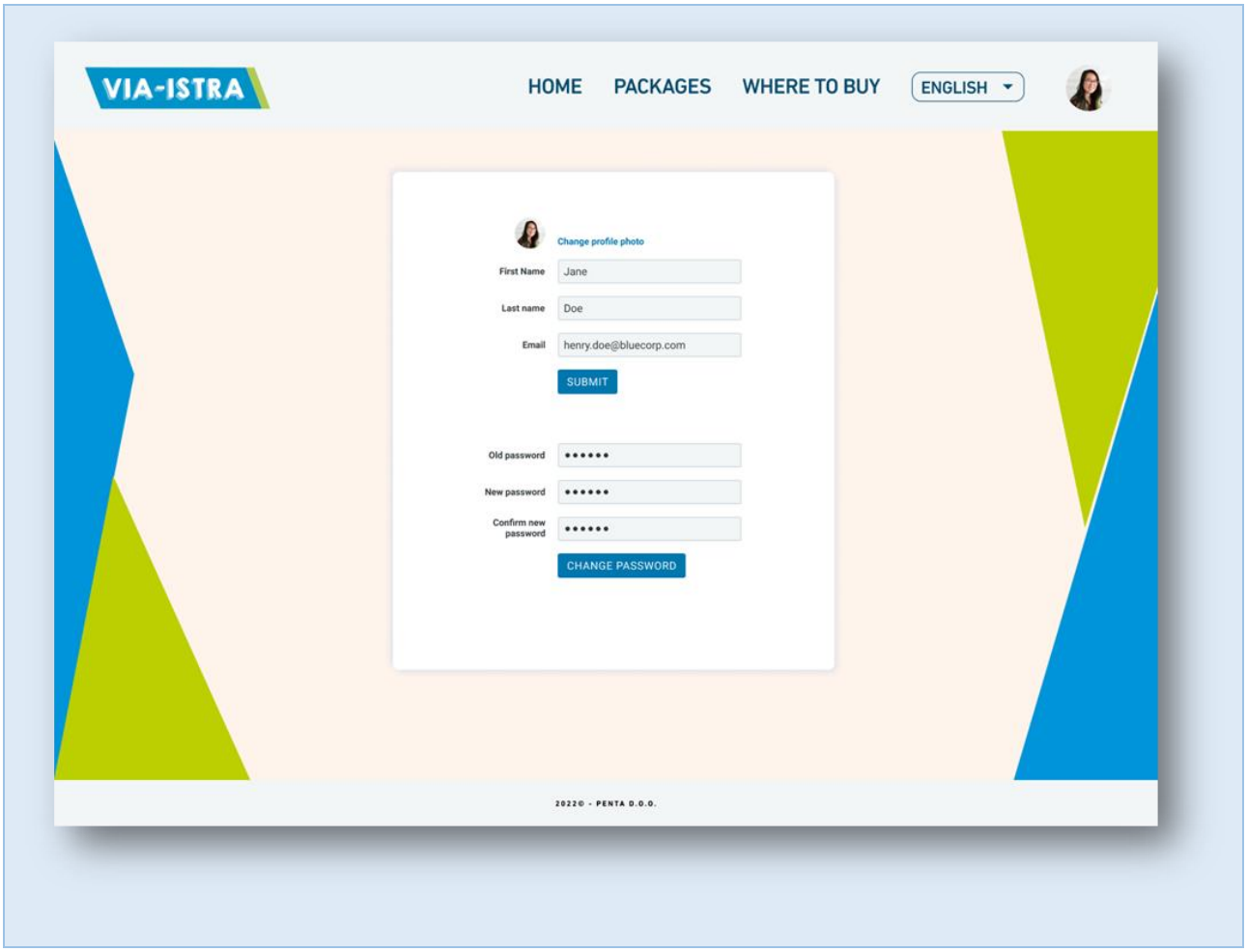
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New password
Confirm new password
CHANGE PASSWORD
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ONE PASS FOR CARE-FREE VACATION
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7, 3 or 1 day pass
You can either buy card in person, or use our mobile and web applications to buy it.
Once you buy pass through our web application we will send you a QR code to your email address which you'll be able to use at any of places included in our package.
7 days pass
3 days pass
1 day pass
BUY NOW
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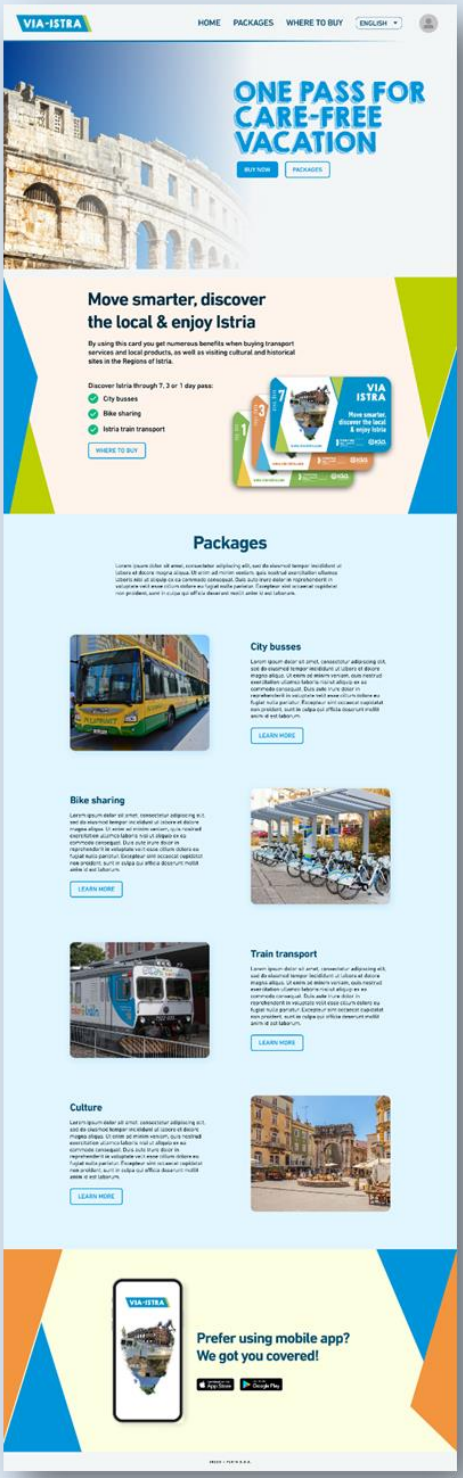
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Move smarter, discover the local & enjoy Istria
Discover Istria through 7, 3 or 1 day pass:
City busses
Bike sharing
Istria train transport
WHERE TO BUY
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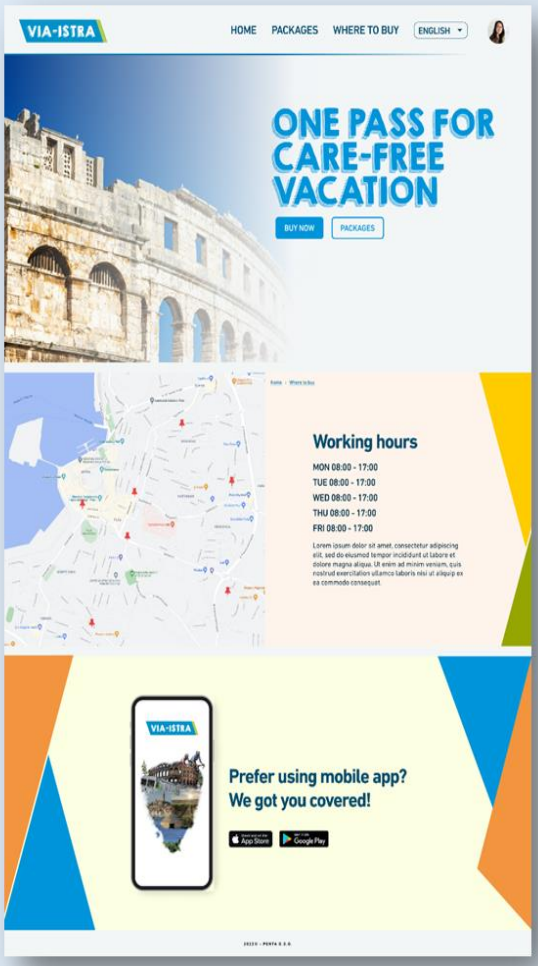
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Prefer using mobile app?
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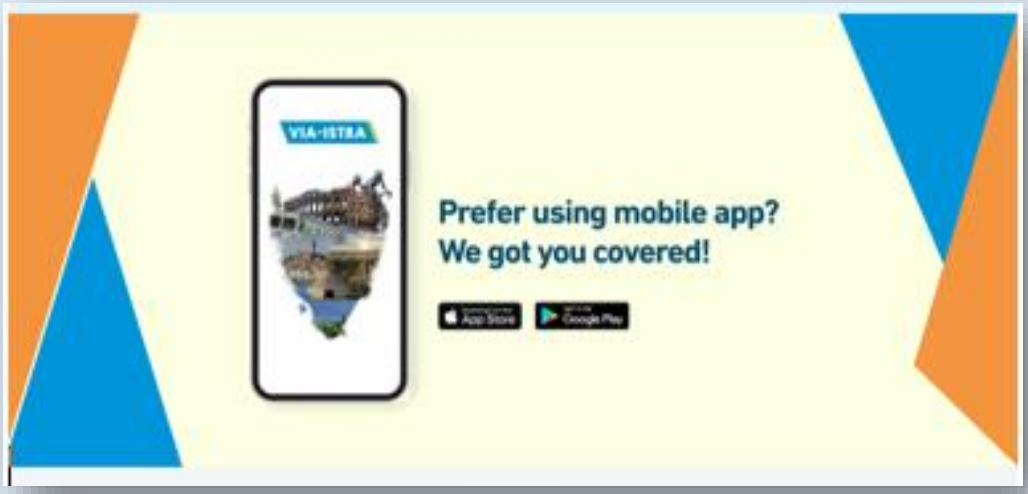
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Prefer using mobile app?
We got you covered!


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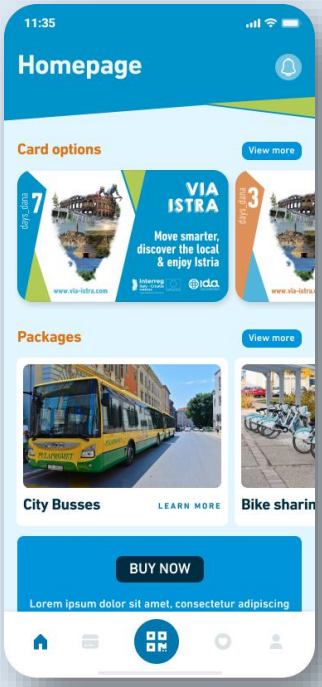
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Homepage
Card options
View more
VIA ISTRA
Move smarter, discover the local & enjoy Istria
Packages
View more
City Busses
LEARN MORE
BUY NOW
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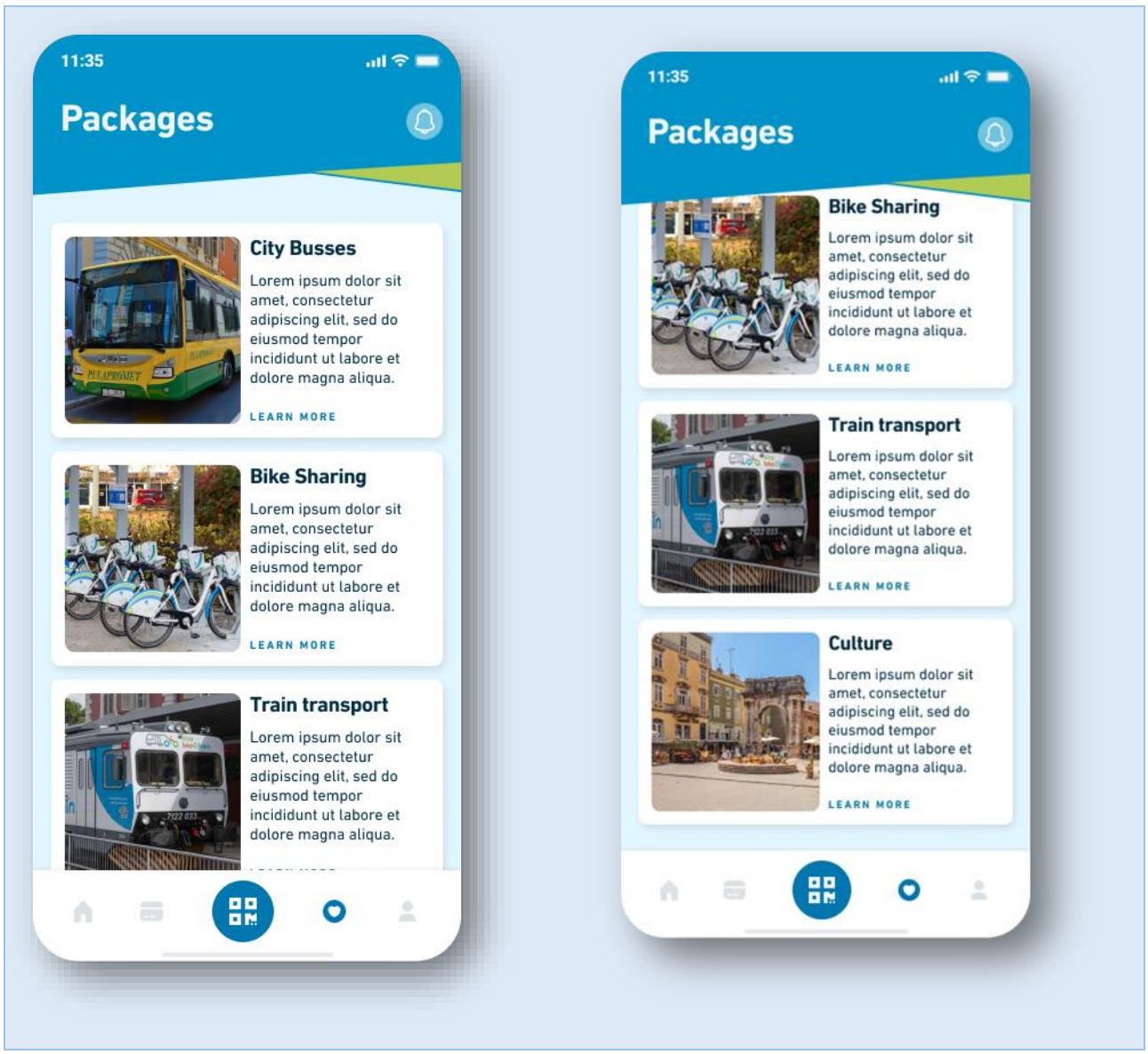
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LEARN MORE
Bike Sharing
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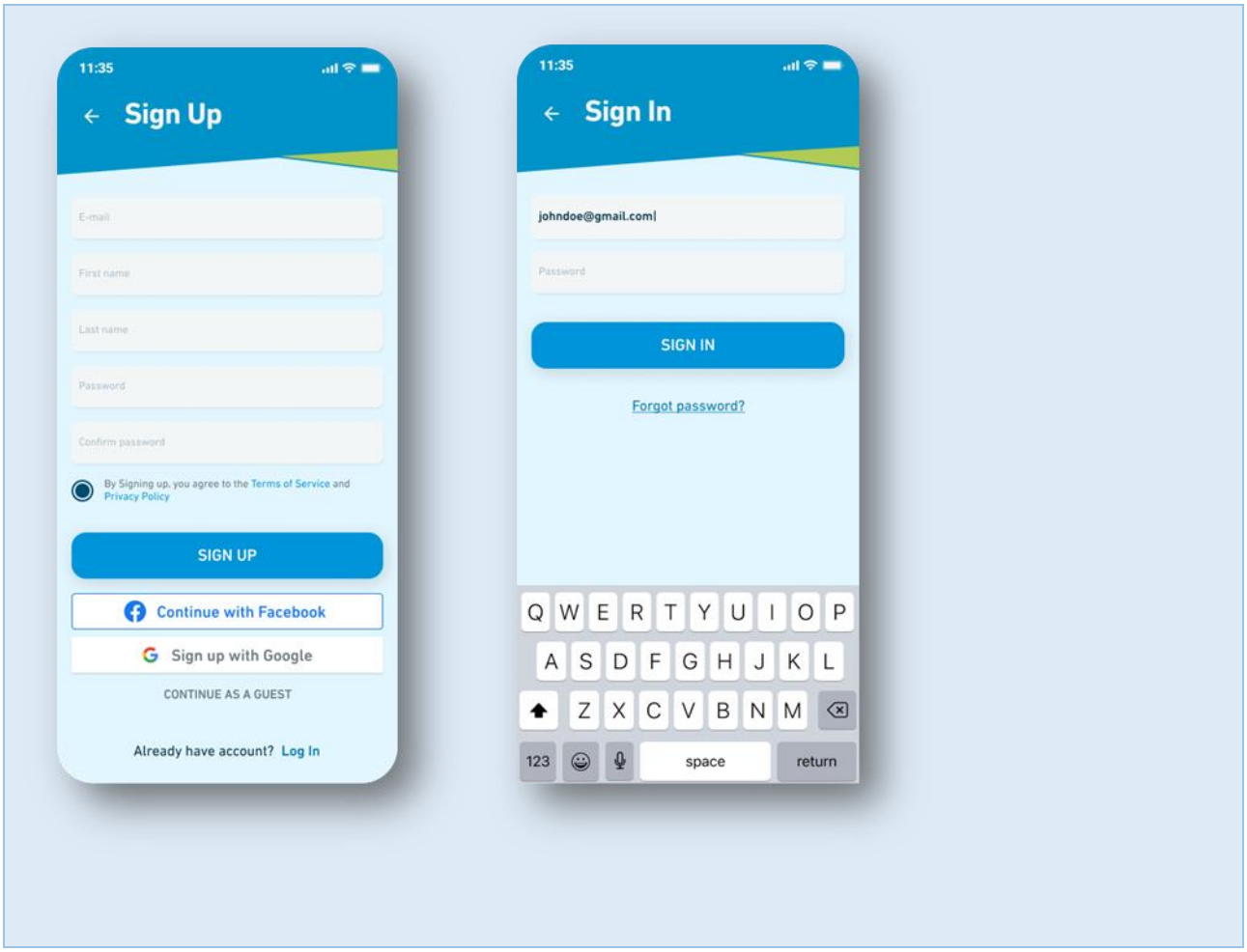
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Sign Up
E-mail
First name
Last name
Password
Confirm password
By Signing up, you agree to the Terms of Service and Privacy Policy
SIGN UP
Continue with Facebook
Sign up with Google
CONTINUE AS A GUEST
Already have account? Log In
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Sign In
johndoe@gmail.com
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SIGN IN
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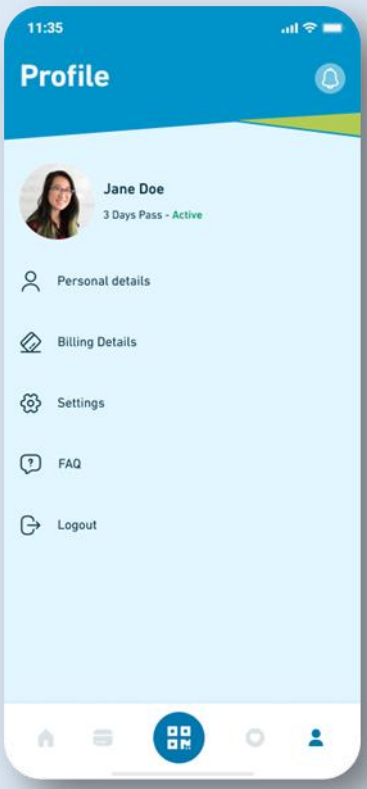
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3 Days Pass - Active
Personal details
Billing Details
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FAQ
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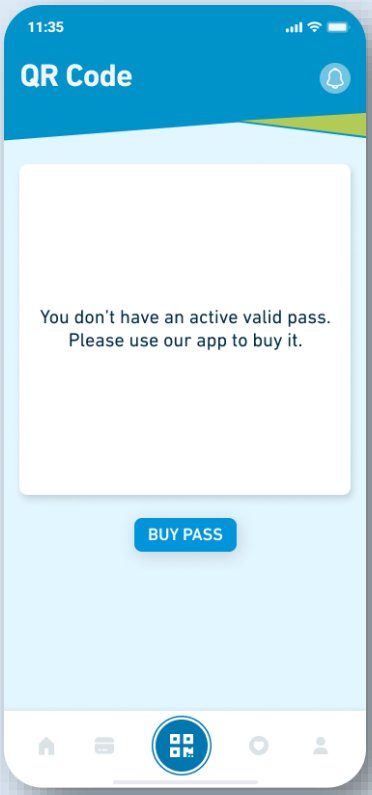
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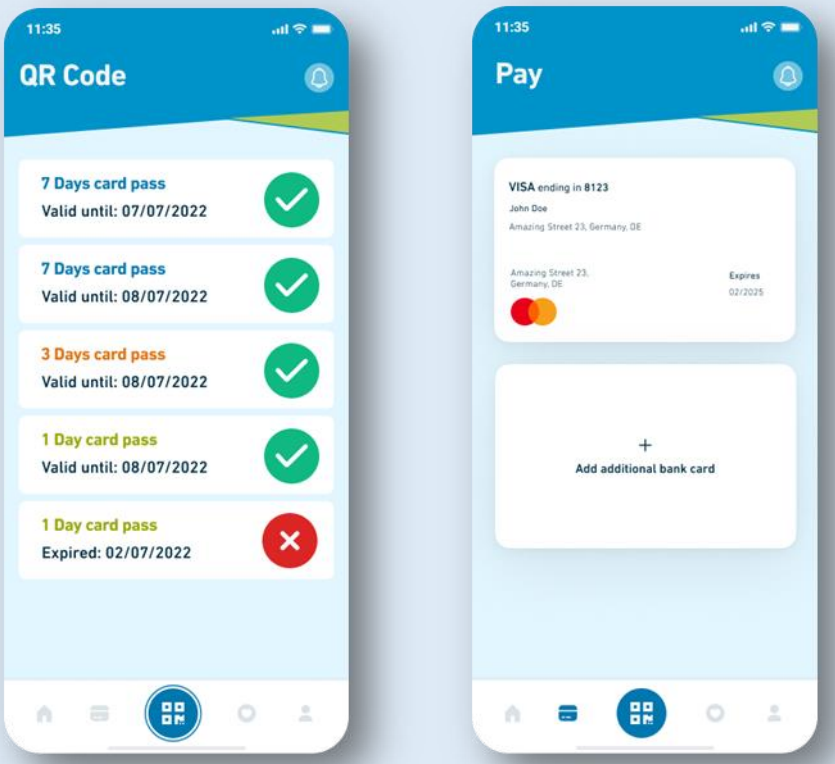
QR Code
You don't have an active valid pass.
Please use our app to buy it.
BUY PASS


11:35
QR Code
7 Days card pass
Valid until: 07/07/2022
7 Days card pass
Valid until: 08/07/2022
3 Days card pass
Valid until: 08/07/2022
1 Day card pass
Valid until: 08/07/2022
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Expired: 02/07/2022
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VISA ending in 8123
John Doe
Amazing Street 23, Germany, DE
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Germany, DE
Expires
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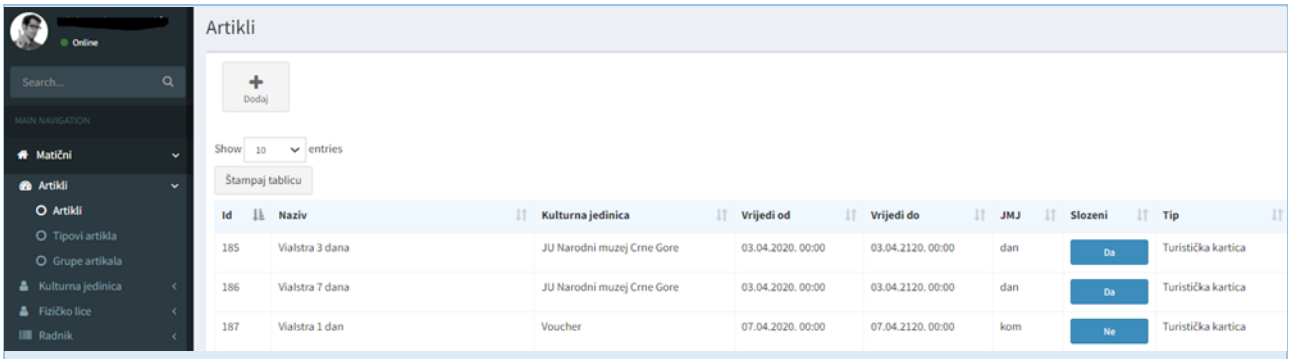
Add additional bank card

Slika 13:Primjer turističke kartice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3. Information about stakeholders' role/involvement

For the first step of project implementation, IDA organised meetings with potential stakeholders and a big number of municipalities, cities and departments in the region expressed their interest. Roles and involved representatives are described in the table and general conclusion is that meetings will be held on regular basis in order to gather relevant information, discuss current and potential needs and to identify potential actions and challenges.

Type of stakeholder	Stakeholders and brief description	Role in implementation plan
Public authority/ decision makers	**Regional authority** Istrian region – Department for sustainable development Istrian region – Department for tourism **Local authority** Barban municipality Lupoglav municipality Lanišće municpality Poreč municipality **Rovinj and Kanfanar** Medulin City of Pazin Cerovlje municipality	**Istrian region** ➢ contribution with relevant informations according to identified needs: modernisation of Istrian railways ➢ integrated passenger transport ➢ information for bike share systems ➢ infrastracture investment ➢ interes in train/bike connection **Barban municipality** ➢ bike share development ➢ cyclotouristic offer development **Lupoglav** ➢ central Istria tourism development ➢ important train station in Istria **Lanišće** ➢ sustainable development of tourism and following activities ➢ diversivication od cyclotouristic offer and investment in cycling infrastructure **Poreč** ➢ SUMP and SEP development ➢ contributioin with new ideas based on mobility needs **Rovinj and Kanfanar** ➢ **high importance role according to development of new cycling route which will connect hinterland – coast area in Istria** **Medulin** ➢ interes in cycling infrastructure **Pazin** ➢ contribution with measures identified with local strategies: intermodality increase ➢ investment in cycling infrastructure ➢ bike share development **Cerovlje** ➢ investment in improvement or enlargement of local srvices for rural area which include free time (Cerovlje is one of the node of Istrian railway)
Private operators	• Pepeks d.o.o. • FILS d.o.o. • BRIONI d.o.o. • ARRIVA • FLIXBUS • Ati d.o.o. • Črnja tours d.o.o.	➢ to be established communication with private and public transport providers

Stakeholders involved

Type of stakeholder	Quantify	Level of involvement	Notes
EU, National or Regional Institution	2	Inform	• contact with the office of EU parliament representative Vlater Flego as member of Committee on Transport and Tourism. • contact with Region of Istria: department for Tourism, department for Traffic and department for Economy
Local Institution	13	Consult/collaborate	• Municipalities: Buje, Buzet, Labin, Novigrad, Pazin, Poreč, Pula, Rovinj, Umag i Vodnjan. • Tourist boards: Pula, Raša, Središnja Istra (Central Istria)
Trade association	2-5	Collaborate	Hotel associations, local commercial associations etc., in order to define commercial agreement and key features of the card that we would like to have.
General public		Inform	Tourists and regional population through questionnaires, media,..
Public transport operators	2-5	Consult/collaborate	Local public transport operator, National rail services provider and other public transport operators

MIMOSA pilots provided an opportunity to improve knowledge in topic related to the ICT/ITS applied to the public transport sector, as well as the regulatory issues of the passengers intramodality and the application of data collection and planning methods supporting action plans in strategic sectors of the mobility services. MIMOSA pilots enhance the capability of IDA in dealing with the sustainable mobility design.

4. Lessons learnt and conclusions

1. Rank service importance

Services to consider are:

- transport - public transport
- discounts (or free entry) at museums;
- discounts at restaurants and other tourist attractions for visitors;
- information on the region touristic cycling offer.

We recommend ranking services and include first services with higher demand based on a market analysis; transport services must be included and priority should be on public transport, airport transfers, bike sharing and bus services. The App / Card should be open to add new services. We recommend focussing on the touristic experience that sustainable mobility brings, rather than

selling transport services between touristic sites - poles. The App / Card must include payment functionalities to provide users added value.

2. Plan the sale network and marketing at key locations

Tourists arrive in Istria by car (85%) and by airplane (roughly 15%). We recommend the Card / App sale and marketing should focus on:

- the airport and eventually airlines;
- hotels, campsites and beach facilities;

Most tourists will probably buy the Card on-line (like in Valencia) and the development of an App is necessary to answer a rising demand for individualised information. Mobile phones support M-ticket solution with QR code and this can ease interoperability with the partners.

3. Secure resources and resource the team

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);
- the duration of the contract.

Securing (public) funding and political - institutional support to the project is a must for the success of the initiative. The project may tentatively take 1 year to launch.

A dedicated project team is needed to plan and deliver the project. This should have a user centric and entrepreneurial attitude.

Contribution of this experience in promoting new sustainable mobility solutions in your city

To encourage the use of public transportation, incentives focus on offered to help reduce the cost to the user, including discounted bus, rail, or public transportation passes as well as integrating the public transport network and private transport services (bike, 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 user's preferences.

The expectations related to this pilot were realistic due to the previous market research and stakeholder communication in project ICARUS.

The main challenge was collaboration and agreements with transport operators and tourism businesses.

Developing the Card was a complex process and it required extensive stakeholder engagement.

Agreement is needed on the following key elements:

- how the tickets are redeemed by the different service providers;
- who is managing payments;
- how much are the services that the Card includes;
- who is selling the card and providing customer support.

Technology integration

Technology was not an issue and we note that providing the Card users with a QR code for transport services eases technology integration (it is sufficient that bus drivers or train staff have QR code reading software installed on their devises - e.g. mobile).

A product oriented and customer-centric mindset, as well as strict cooperation with the technology provider (workshops, frequent contracts and review meetings) are needed to develop the App / Card.

Political – institutional support

Public support and leadership eased the Card development process and its further upgrades.

Enabling technologies

The App provides users real time multimodal travel planning and payment. In particular it has NFC (Near Field Communication) technology to validate tickets directly from the mobile phone. Key App data input data are:

- Static data on bus stops, lines, schedules;
- Real time data on delays; and
- Fares.

Technology was not an issue and we note that providing the Card users with a QR code for transport services eases technology integration (it is sufficient that bus drivers or train staff have QR code reading software installed on their devises - e.g. mobile).

In principle technology is not an issue but interoperability of ticketing / payment needs agreement with the App / Card partners.

Technology is not a major obstacle to the development of this initiative. Rising demand for individualized information suggests that the initiative should focus on an App; a physical card option can also be delivered to complement the App.

5. Problems found and adopted solutions

COVID - 19 IMPACT ON MOBILITY

On March 11, 2020, the World Health Organization (WHO) has declared COVID-19 a global pandemic. Many countries have closed their borders and imposed curfews – resulting in sharp reductions in transport demand also on regional and continental level. It is highly likely that the corona virus outbreak will have longer-term impacts to our individual behavior and lifestyle, the way we work, consume and travel. Public transport but also shared mobility services are on the one hand vectors for distribution of the virus. On the other hand, they are severely impacted by travel bans and individual concerns in order to avoid public gatherings leading to reduced travel and transport demand.

MaaS Global is in the business of moving people around and when people are not moving, they are seeing their sales drop to a fraction of what they were. For any business this is the definition of a crisis, and for this business too, although as a startup, its effects are different than they would be for an established business.

The central idea of MaaS is a promise that it will get you where you need to go, but how they get you there is not fixed. At a time of an emergency or a disruption, the need for alternative modalities and maybe new alternative packages is accentuated.

Electric bicycles, electric scooters, and other personal electric vehicles have long been touted for their economic and environmental benefits. But now we're seeing how these types of vehicles are being effectively employed as one more option to defend commuters from contracting and/or spreading coronavirus.

One of the biggest underlying factors leading to the rapid spread of coronavirus around the world has been the virus' ability to spread among people packed in close quarters, often days before symptoms emerge. Thus, it has become a common recommendation to avoid packed public spaces such as overloaded city buses and subway cars. While many commuters had already sworn off such forms of public transportation years ago after discovering the benefits of electric bicycles, e-scooters, and other micro mobility options, other travelers fearing the spread of coronavirus are just now discovering these convenient transportation alternatives.

The COVID-19 virus pandemic has hit the world at a scale, pace and intensity like few events in living memory. Industries and governments have all been hit in one way or another, mostly for worse not better. One of the most dramatic changes has been in the transport section, with an almost overnight, unprecedented reduction in travel. At present, most countries are in some form of lockdown, with journeys severely restricted and reduced to essential trips only. In order to thrive – not just survive – in a new world already awakening from the COVID-19 nightmare, it will be important to better understand the opportunities available for MaaS, for it to be a key societal building block in the future.

This crisis has not simply meant a shutdown of people travelling entirely. Rather, there are examples of individuals and companies using alternative forms of transport that they would previously not have considered. In the future, a willingness to look at alternatives may well increase.
Mobility-as-a-Service can provide unique value in a new world of social distancing, increased working from home, changed transport assets and commuters turning to increasingly varied and disparate transportation options.

Covid-19 impacts on mobility in Istria Region

As in the rest of the world, the County of Istria will also experience the effects of the Covid-19 virus, both negative in terms of economic crises and positive in terms of increasing use of alternative, eco-friendly transportation options such as bicycles, especially in the suburbs and cities. Another positive thing this virus has given us is that we have much cleaner and healthier air during lockdown.
When the virus hit Italy, the Region of Istria was most at risk of infection in Croatia because Italy is near the Region and there is a lot of people that daily crosses the border in order to go to work in Italy. As so, Istria County was among the first regions in Croatia to introduce virus protection measures. One of the measures was also the abolition of public transport which ultimately resulted in an increase in the use of bicycles as a major means of transportation in cities. As the most of County is currently working from home, we can see only a few cars in our cities through the day and all the roads are empty. There have been reports that more and more people are cycling and some bicycle shops, although closed, are seeing progress as more and more people are looking for alternatives to public transportation and are interested in buying a bike.
Although this virus will have many negative effects on economic indicators and society as a whole, it will still be possible to learn something from this situation - that we are not stronger than nature, that we have to protect the environment in which we live and cannot pollute it. Now people will certainly think more about this topic and hopefully there will be a change in behavior in terms of transportation.

6. Expected follow up (after project closure)

In the area of urban transport, the emphasis is placed on the problem of traffic jams on the roads in the centers of major cities and tourist destinations and on parking. Upgrading the network and increasing capacity should be accompanied by improvements to the public passenger transport (PPP) system, pedestrian and bicycle path systems, etc.

Keeping in mind the pilot action performed by IDA, some of the interchange nodes will be more visible and what is more important it can be useful for better understanding and dealing with passenger needs.

The technological advancements and innovations thrown up a range of new mobility options within the 4th industrial revolution.

These major technological developments include big data, Artificial Intelligence (AI), the Internet of Things (IoT) and the emergence of new forms of energy. Internet of Things technologies are significantly influencing the future of mobility as they introduce a new, continuous communication channel between mobility stakeholders, increasing the ability to capture and share data. Also, the production on a massive scale of new, compact forms of energy, will allow for economies of scale and extended journey range, which will drive the adoption of electric mobility solutions.

This pilot action will be the first step for further promotion of Istrian railways and their high potential for modernization. It can enable gathering of all relevant stakeholders and dealing with existing needs and challenges in the region.

Also, it is in line with different plans and documents and its implementation will enable to reach MIMOSA goals and open new opportunities for follow up projects.