

## D.4.2.3

# Bike+train+ferry transnational corridor in North Adriatic axis (case-study)

PP3: Venice International University

A.4.1 ICARUS strategies for seamless intermodal  
mobility solutions

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# 1 Introduction

## 1.1 The ICARUS project: aim and objective

The goal of the Interreg Italy-Croatia ICARUS project is to create new intermodal solutions taking into consideration passengers' mobility needs and allowing the maximum level of flexibility for users.

This goal will be achieved thanks to:

- Improvement of passengers' intermodal connections in and between the territories of the Programme area;
- Foster of behavioural change of transport users and increasing the use of intermodal low carbon transport solutions;
- Creation of seamless multimodal and environmentally friendly intermodal transport solutions
- Easing the sustainable transport integration of the coastal and hinterland areas
- Boost of existing or new maritime connections among the Italian and Croatian coasts by raising the level of service of ports land side.

To improve passenger intermodal connections and ease access to the coast for the hinterland population, mobility behavioural change the involved area will be promoted using the Mobility as a Service (MaaS), a concept which moves passenger needs from the transport means to the mobility service. MaaS and ICT are among ICARUS' three pillars, which also include Intermodal Mobility and behavioural change.

Within the ICARUS programme, the partners carry out and implement 8 pilot projects and a case study focusing on timetable harmonisation, car/bike sharing within transport nodes, ICT solutions for seamless flow of information, integrated intelligent multimodal payment systems, dynamic travel planning and cross-border intermodal services.

The planned activities will be tested in the regions of Emilia-Romagna, Abruzzo, Veneto, Friuli Venezia Giulia, Primorsko-Goranska, Istrian Region and throughout the Croatian railway area.

## 2 Work methodology

### 2.1 Case study: bike-train and bike-ferry transnational corridor in north Adriatic

The actions involved in the case study, which aims to promote the development of a multimodal transnational soft corridor between Italy and Croatia for leisure use, are initially desk research actions, then will be carried out a field verification.

The desk research analyses the presence of cycling corridors, studying the usability for transnational connections and providing advices for large scale implementation.

The focus of this research is cross-border connections through bicycle corridors, thus defined as existing connections through codified bicycle routes and multimodal transport connections through the use of ferries and trains. The objective is to measure the state of the art of the cycling offer on the market, highlighting problematic nodes and black spots in the network, in order to identify possible large-scale connections.

The study investigates seamless solutions such as bike-train and bike-ferry integration based on the availability of existing public services and cycle routes. The research evaluates the tour operator opinions and insights on several aspects, also in the view of the upcoming post-Covid period.

Intermodality makes using more than one mode of transport during a single journey as easy as possible. This is an important issue for cycling tourists, as it can be a significant opportunity for people wishing to take truly sustainable holidays.

Currently, railway operators are only obliged to "allow passengers to take bicycles on the train, where appropriate on payment of a fee, if they are easy to handle, if this does not adversely affect the specific rail service, and if the rolling stock permits it" (EC Regulation 1371/2007). Regarding the possibility to carry bicycles on buses, the situation is even more complex: only a few public bus lines are equipped with a trolley where bicycles can be loaded. On ferryboats and motorboats, the space for carrying bicycles is often limited and depends on the number of passengers.

## 2.2 Territory of research

The area considered in the research includes the regions of North-Eastern Italy, Emilia-Romagna, Veneto and the Autonomous Region of Friuli Venezia Giulia, and Istria for Croatia.

The area was chosen for some interesting aspects in relation to the research objectives.

The physical conformation of the area, facing the Adriatic basin, allows for fairly frequent connections by sea, by ferry, which are interesting to evaluate as a type of passenger transport for modal interchange.

The territorial seamlessness of the regions, interrupted only in the short 43 km stretch of the Slovenian coast, allows for the development of a very viable bike tour hypothesis, to be carried out in the period of one week starting from Veneto and arriving in Istria, or according to different options depending on the detours inland. In the cross-border area of the North Adriatic, it presents itself as dynamic, constituting in the area the first port of call for bicycle tourism coming from Northern Europe.

Cyclists from the Netherlands, Scandinavia, Germany and the United Kingdom are the main tourists visiting the area. Referring to a more local market, there has also been a recent increase in demand among tour operators' clients for cyclists from regions in southern Italy who rarely choose destinations further north to spend their vacations.

According to those working in the sector, the area presents a route with exotic characteristics, where it is easy to reach places that have elements of value between scenic beauty, the sea and beaches, cultural sites and characteristic points, to connections with the past and a common cultural reference, which finds a continuity of meaning in the legacy of the Serenissima Republic of Venice.

## 2.3 Research methodology

The study focuses on market research on the current offers of tour operators and related holiday packages.

In the first phase, the analysis maps the relevant operators present in the ICARUS Programme area, consisting of a preliminary survey of their offers in terms of cycling tours.

Subsequently, the market analysis proceeds with a study on the different profiles present.

Once the interlocutors have been identified, the research continues by conducting in-depth interviews with selected tour operators and cycling tourism experts.

The different points of view of the interviewees, tour operators active on the local and international market, together with the area promotion agencies, provide indications to define the state of the art of cycling tourism in the North Adriatic cross-border axis.

## 3 Field research

### 3.1 Phase 1 - Market research: mapping of the relevant operators

The desk research focused on mapping tour operators and experts who could be interviewed in order to obtain in-depth information on the state of the art of cycling tourism on cross-border routes.

Name	Country	Typology	Services
Velo-Lake	Nago, Trento, IT	bike rent	renting, shuttle transfer, guided tour
IDA	Pula, HR	regional agency	ICARUS partner
Cyclando	Modena, IT	web platform	third party resale bike tours
Girolibero	Vicenza, IT	bike-tour operator	guided tour
Cycling Venice Lagoon	Venezia, IT	bike-tour operator	renting, guided tour
Venice Bike Experience	Treviso, IT	bike-tour operator	renting, guided tour
Go-Bike Tour	Monfalcone, IT	bike-tour operator	renting, shuttle transfer, guided tour
Parenzana	Istria, HR	regional tourism department	promotion and event organization
Istra Bike	Pazin, HR	web platform	trails and bike tours promotion
Fun Active	Bolzano, IT	bike-tour operator	renting, guided tour
Maremonti Istra	Pula, HR	bike-tour operator	guided tour



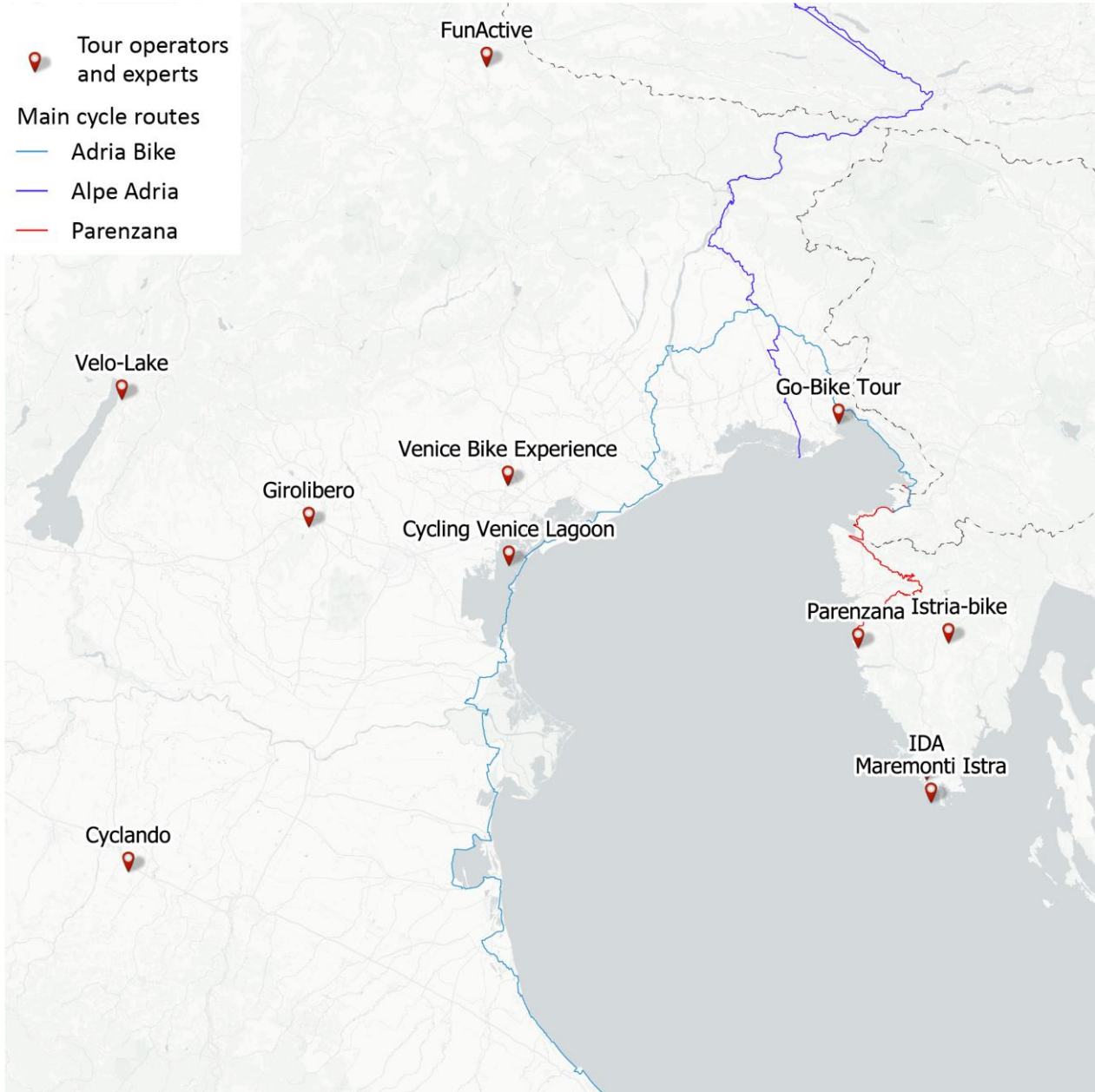


Figure 1. Main tour operators and experts

## 3.2 Phase 2 - interview design

The interviews with tour operators investigated the presence of "codified" bike corridors between Italy and Croatia used for leisure purposes, whether existing bike routes can be recognized as such, and what multimodal transportation options are connected to them (train, ferry).

The focus was on understanding the current state of the bike tour market in the survey area, identifying who the active operators are, what their target market is, what countries the bike tourists come from, what marketing strategies they use to target their audience.

In addition, the main infrastructures that make up the bike corridors were mapped, analysing their condition in order to understand the presence of black spots or bottlenecks in the system.

Below is transcribed the abstract and interview outline used to conduct the in-depth interviews with the tour operators and experts who took part in the survey.

### Interview abstract

*Venice International University is a partner in the EU project [Interreg ICARUS \(Intermodal Connections in Adriatic Ionian Region to Upgrow Seamless Solutions for Passengers\)](#). We are surveying the key players and tour operators of the bike tourism sector between Italy and Croatia for an analysis of cross-border cycling corridors and related multimodal transport options (train, ferries). The objective of the study is to investigate the current status of bike tour offerings. Once the routes have been mapped, we will test on the field their effective usability and possible large-scale connections.*

*The research focuses on the bike routes in Emilia Romagna, Veneto, Friuli Venezia Giulia, Istria and Dalmatia, with a market analysis of the existing offers and a study of the state of infrastructure and services.*

### Interview outline

#### Cross-border cycling corridors

- *The research focuses on the bike routes in Emilia Romagna, Veneto, Friuli Venezia Giulia, Istarska and Dalmacija regions. Are you aware of any cross-border bicycle corridors between Italy and Croatia, in other words, are there coded cycling tourism routes? If so, are the bicycle routes also coded with connected multi-modal transportation options (train, ferry)?*
- *What kind of cycling infrastructure is present in these corridors? What is their current condition? What are the bottlenecks?*

- *Is the availability of existing routes and related services, such as hospitality, public transportation transfers, sufficient? Which services are lacking? What other services could be implemented?*
- *What is the current market for cross-border cycling tourism? What is the target group for bike tours? Which countries do the customers come from? Which tour operators are active? What are their marketing strategies?*

#### Your bike tours

*For operators with cross-border routes*

- *Do you have cross-border bike tour options?*
- *What services are offered on your bike tours? Do you have bike tours that include multi-modal transportation of bikes by train, bus or boat?*

#### Development and possible scenarios

- *What actions could public policymakers take to encourage the development of cross-border cycling corridors? What innovative solutions could be introduced?*

### 3.3 Phase 3 - interviews of the relevant operators

In order to obtain insights regarding the state of the art of cross-border cycling corridors, key players active in the field of cycling tourism were selected for in-depth interviews.

Based on the market research carried out, eight contact persons were identified: these included key informants and tour operators active with bike tour proposals in the ICARUS Programme area.

The interviews were conducted between January and February 2021. It should be noted that forced closures due to regional restrictions in the autonomous provinces of northern Italy made it impossible to reach some tour operators.

The interviewees are divided into two main groups: the first group includes bike tour organisers and package tour retailers, who offer guide services and bike rentals; the second group includes sustainable tourism promoters and managers of bike infrastructure projects.

The interviewees were cooperative and helpful. The answers to the interviews were comprehensive and positive feedback was gathered in relation to the questions posed.

The interviews with Girolibero and Cyclando were useful to understand the functioning of the European market and to understand the market logic of the main players.

The comparison with local operators such as Velo-Lake, Venice Bike Experience, Venice Cycling Lagoon and GoBike Tour for Italy, IDA, Parenzana and Istra Bike for Croatia, were useful to get more knowledge about the state of the regional cycling infrastructure, local development strategies, problems and bottlenecks in the system.

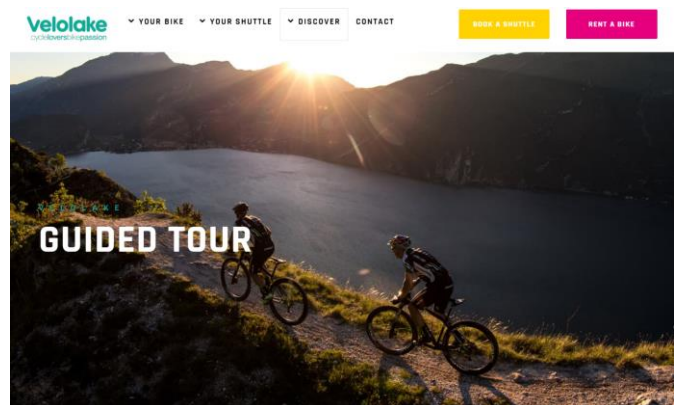
Each of the interviewees provided important information and suggestions for the implementation of cycling tourism in the North Adriatic cycling corridor region.

The role of proper tour operator is design and selling travel packages.

The main tour operators producing and selling directly in the Italian market travel offers in the North Adriatic corridor are FunActive and Girolibero. They also sell packages produced by foreign partners, who in their turn sell their products for Italy. Foreign operators rely on the main Italian operators to organise certain tours and they do the same where they cannot.

**Profiles of tour operators and experts interviewed**

<b>Name</b>	Giulio de Girolami
<b>Organization</b>	Velo-Lake
<b>Website</b>	<a href="https://velolake.com/">https://velolake.com/</a>
<b>Country</b>	Nago (Trento), Italy
<b>Typology</b>	bike rent, bike-tour operator
<b>Market segments</b>	cycling tourism, mtb, trail, road bike, gravity and downhill, long distance and strong elevation road bike, all rider segments
<b>Services</b>	renting, shuttle transfer, guided tour
<b>Operation area</b>	Trentino province, Monte Baldo, Lake Garda, Dolomites
<b>Cycling corridors</b>	Alpe Adria, Dobbiaco-Lienz, Adige cycle routes
<b>Main topics</b>	<ul style="list-style-type: none"> <li>• cycling tourism as a variety of activities, secure future growth</li> <li>• standardization and safety of bikeway</li> <li>• consortium of bike operators</li> <li>• environmental impact of e-bikes</li> </ul>



<b>Name</b>	Marco Rossato
<b>Organization</b>	Cycling Venice Lagoon
<b>Website</b>	<a href="https://www.cyclingvenicelagoon.com">https://www.cyclingvenicelagoon.com</a>
<b>Country</b>	Venice, Italy
<b>Typology</b>	bike-tour operator
<b>Market segments</b>	road bike
<b>Services</b>	guided tour, renting
<b>Operation area</b>	Lido di Venezia
<b>Cycling corridors</b>	Munich-Venice and Adria Bike cycle routes
<b>Main topics</b>	<ul style="list-style-type: none"> <li>• Venice-Trieste cycle route project</li> <li>• absence of connections with footbridges or ferries in Venice Lagoon</li> <li>• need connections between bicycle infrastructure and tourism services (accommodations, repairs)</li> </ul>



<b>Name</b>	Riccardo Sedola
<b>Organization</b>	Cyclando
<b>Website</b>	<a href="https://cyclando.com/">https://cyclando.com/</a>
<b>Country</b>	Modena, Italy
<b>Typology</b>	web-platform
<b>Market segments</b>	mtb, e-bike, road bike
<b>Services</b>	resale bike tours and bike&boat tours
<b>Operation area</b>	Emilia-Romagna, Veneto, Istria, Dalmatian islands, Kvarner Gulf
<b>Cycling corridors</b>	Adriabike and Alpe Adria cycle routes, EuroVelo8, secondary roads codified
<b>Main topics</b>	<ul style="list-style-type: none"> <li>• cycling tourism as a slow vacation with attached services</li> <li>• tailored bike tours according to requests</li> <li>• no coded public transportation system parallel to the bicycle infrastructure</li> </ul>



<b>Name</b>	Antonio Fasolato
<b>Organization</b>	Girolibero
<b>Website</b>	<a href="https://www.girolibero.it/">https://www.girolibero.it/</a>
<b>Country</b>	Vicenza, Italy
<b>Typology</b>	bike-tour operator
<b>Market segments</b>	all rider segments
<b>Services</b>	bike tours, bike and family tour, bike and boat tours
<b>Operation area</b>	Veneto, Austria, Slovenia, Friuli-Venezia Giulia, Istria, Dalmatia, Kvarner Gulf
<b>Cycling corridors</b>	Alpe Adria cycle route, Parenzana
<b>Main topics</b>	<ul style="list-style-type: none"> <li>• cycling tourism as a comfortable weekly cycling holiday</li> <li>• tourist flows increasing in the cross-border section</li> <li>• connection Istria with Venice possible by private ferry, tour operator reservation required</li> <li>• e-bikes allow tour operator to reach wider range costumers</li> </ul>

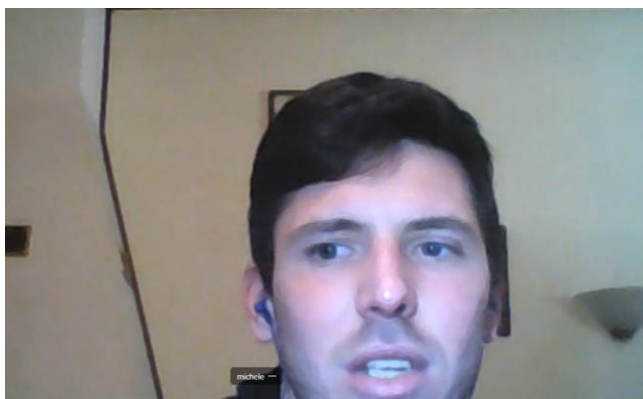




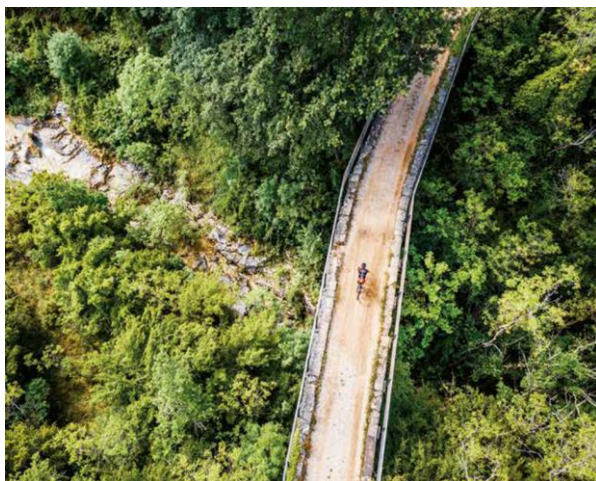
<b>Name</b>	Pierpaolo Bridda
<b>Organization</b>	Venice Bike Experience
<b>Website</b>	<a href="https://www.girolibero.it/">https://www.girolibero.it/</a>
<b>Country</b>	Treviso, Italy
<b>Typology</b>	bike-tour operator
<b>Market segments</b>	all segments, family and kids, road cycling
<b>Services</b>	bike tour experience (history, nature, taste itinerary), renting, educational
<b>Operation area</b>	Veneto, Venice Lagoon, Friuli-Venezia Giulia, Dolomites
<b>Cycling corridors</b>	Alpe Adria, Venice-Gemona, Munich-Venice cycle routes
<b>Main topics</b>	<ul style="list-style-type: none"> <li>• cycling tourism as slow tourism crossing landscapes</li> <li>• promotion of unpaved routes</li> <li>• implementation of boat transfer during summer in Venice</li> <li>• connections bike tours and train for transfers</li> </ul>



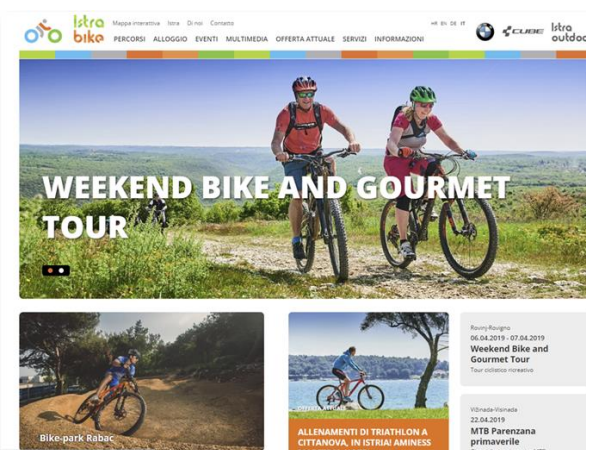
<b>Name</b>	Michele Presot
<b>Organization</b>	Go-Bike Tour
<b>Website</b>	<a href="https://www.gobiketour.it/">https://www.gobiketour.it/</a>
<b>Country</b>	Monfalcone (GO), Italy
<b>Typology</b>	bike-tour operator
<b>Market segments</b>	road and trekking bike, family and kids
<b>Services</b>	renting, mechanic, shuttle transfer, guided tour
<b>Operation area</b>	Friuli-Venezia Giulia, Slovenia, Istria
<b>Cycling corridors</b>	Alpe Adria, Isonzo's and regional cycle routes, Parenzana
<b>Main topics</b>	<ul style="list-style-type: none"> <li>• cycling tourism as cycling through holiday destinations</li> <li>• boat transfer Grado-Trieste and Trieste-Muggia</li> <li>• fostering connections along the Venice lagoon</li> <li>• attention to safety in mixed bicycle-vehicular ways</li> <li>• e-bikes allow to ride who had never imagined it</li> </ul>



<b>Name</b>	Davor Dobrila
<b>Organization</b>	Parenzana
<b>Website</b>	<a href="https://www.istra-istria.hr/">https://www.istra-istria.hr/</a>
<b>Country</b>	Istria, Croatia
<b>Typology</b>	regional tourism department
<b>Market segments</b>	cycling and trekking
<b>Services</b>	regional promotion
<b>Operation area</b>	Istria
<b>Cycling corridors</b>	Parenzana, EuroVelo 8
<b>Main topics</b>	<ul style="list-style-type: none"> <li>• Parenzana connections in Istrian hinterland</li> <li>• new cycle route from former railroad Kanfanar-Rovinj</li> <li>• development of cross-border tourism</li> <li>• new services for sustainable tourism</li> </ul>



<b>Name</b>	Martin Čotar
<b>Organization</b>	Istra Bike
<b>Website</b>	<a href="http://istria-bike.com/">http://istria-bike.com/</a>
<b>Country</b>	Pazin (Istria), Croatia
<b>Typology</b>	web-platform
<b>Market segments</b>	road and trekking bike, mountain bike, family and kids
<b>Services</b>	renting, guided tour, bike park
<b>Operation area</b>	Istria
<b>Cycling corridors</b>	Parenzana, Eurovelo 8, Eurovelo 9
<b>Main topics</b>	<ul style="list-style-type: none"> <li>• cycling tourism as a variety of activities, including training and pleasure</li> <li>• public-private tourism promotion strategy</li> <li>• important role of tour operators</li> <li>• possible connection of the Parenzana to Pula</li> <li>• attention to the attractiveness of cycle routes</li> </ul>



### 3.4 Phase 4 - data processing and discussion

This section presents the processing of the interviewee responses in an aggregated form.

Particular attention is given to the definition of cycling corridors according to national regulatory codes and cycleway management organisations. According to the Italian<sup>1</sup> and European Cyclists' Federation<sup>2</sup> regulations, there are construction and technical parameters to guarantee the cyclability of a route. There are main standards such as minimum width, gradients, radii of curvature and road signs. Then are identified the main bike routes in the regions Veneto, Friuli-Venezia Giulia and Istria. The report shows the mapping of bike tour offers on the market. In addition, it describes the target groups to which the tour offers relate. Finally, the report highlights the respondents' considerations and suggestions concerning the implementation of cycling tourism in the macro region of the North Adriatic bike corridor.

#### 3.4.1 Cycling corridors

The research conducted a reflection on the definition of cycling corridors. Cycling corridors are generally identified as important transport routes for cycling. They consist of a network of cycling infrastructure to support the travel needs of travellers (holiday or tourism demands), along a route that connects various points of interest. Cycling corridors are made up of different types of tracks, routes dedicated only to cycling and hiking, the network of minor roadways, paths bordering the main green and blue infrastructure. They are also connected to stations and piers which facilitate intermodal connections to destinations which are not directly accessible by bike.

Cross-border cycle routes are mainly designed for tourism and leisure activities, it is possible to say that in this case the road represents the aim of the trip, so attractiveness is a priority requirement. On the other hand, routes designed for daily mobility, whose road is a means to reach the destination, have continuity as a primary requisite.

Regarding the classification of routes, it should be made clear that it is not essential to have exclusively cycle paths. Although these are the strength of European cycling destinations. Cycling corridor routes are on and off-road, on municipal and regional roads and are designed to provide the following conditions: safety, comfort, way-finding, contact with nature, variety of the route.

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<sup>1</sup> <https://temi.camera.it/leg17/post/la-legge-sulla-mobilita-ciclistica.html?tema=temi/mobilita-sostenibile>

<sup>2</sup> <https://ecf.com/>

### 3.4.2 Cycle route standardization

The research analyses the main standardisation of cycling routes in the North Adriatic cross-border cycling corridor.

The Italian normative standardisation of the National Tourist Cycle System recognises planning requirements in terms of attractiveness, usability and interconnection to networks, and service provision. The technical requirements concern aspects such as architectural and landscape quality, safety, practicability (of the road surface), signposting and recognisability, and services.

European Cyclists' Federation (ECF) developed the European Certification Standard (ECS) a methodology to assess cycling routes and evaluate their quality. It can be used to survey and assess the quality of national/regional routes, and to certify EuroVelo routes if the criteria are met. It can also help set up national standards where they do not exist and harmonise the different regulations in the European states.

The cycling conditions of a route can be categorised as follows, measured by various indicators:

#### Safety

A route is safe when it is on roads dedicated to cycling or with low traffic, when it is uniform, has no danger spots and conveys a sense of security.

- **traffic:** The route has a high level of traffic if it is mainly on cycling infrastructure or on roads with moderate traffic or 30 km zones, with crossing of roads with higher traffic only at a few intersections;
- **homogeneity:** the route has a high level if it does not present changes in type and volume of traffic;
- **dangerous points:** the route has a high level if it has none or at most one dangerous point that can be eliminated with a reasonable cost-benefit ratio;
- **sense of safety:** the route has a high level if it has no points that could frighten users, for instance dizziness or fear of injury.

#### Continuity

A route is continuous if it runs on roads that are directed to connect the destination points in a extensiveness way, if it is also connected to a wider transport network, by train, bus or ferry, which allows reaching destinations not directly accessible by bicycle and shortens long detours. Continuity can be determined by the following indicators:

- **detours and differences in height:** the route has a high level if it connects 2 points with a limited plano-altimetrical deviation;
- **extensiveness:** the route has a high level if it allows several important destinations to be reached within a range of short distances, while it has a low level if it has few easily accessible destinations;

- **crossing barriers:** the route has a high level if it does not contain any physical disruptions that make it impossible to travel on. All natural (river, cliff etc.) or artificial (railway, motorway etc.) barriers can be crossed with adequate cycling infrastructure (bridge, ferry, subway etc.)
- **integrated:** the route is at a high level if it is possible carrying bikes on public transport to access the route is legally and physically possible, if there are a minimum number of reliable services a day during the local cycling tourism season each carrying a minimum number of assembled touring or trekking bikes, in addition, if the accessibility of public transport stops and stations is guaranteed (e.g. if a train station is considered accessible, platforms must be accessible by ramps or lifts, not only stairs).

### Attractiveness

A route is attractive if it runs on roads with a good flow rate, good environmental quality, decent paving and adequate facilities. Attractiveness is important for leisure time routes and can be measured with the following indicators:

- **degree of flow:** the route should have few interruptions that cause loss of time, energy and require attention, for instance roundabouts, crossroads, breaks and junctions with other types of roads;
- **environmental quality:** the route has a high level if the surrounding environment is attractive and various, if there is at least one significant cultural or natural attraction on a day section;
- **surface and width:** the route has a high level if its surface is suitable for use by cyclists with any type of trekking or touring bike in normal weather conditions during the local cycling season, the pavement shall be smooth and solid enough to ride, so it must either be asphalted or covered with another resistant material;
- **signing:** the route has a high level if there are one or more information services (signs, panels, tourist offices, internet points, guided tours);
- **services:** the route has a high level if there are accommodation services cyclist-friendly (camping, hotel, home stay, hostel), water available every 15 km, food, drink and rest areas (fountains, bike grills, rest areas) and technical services (repair, rental and recovery of bikes, bike sharing, intermodality);
- **promotion:** the route has a high level if there are websites providing detailed information about the route, included interactive maps, points of interests, accommodation databases, integration of public transport timetables and the download of GPS-tracks, if this information are easily accessible and readable on a smartphone for checking it on the route.

### 3.4.3 Cross-border cycling corridors

In the cross-border axis between Italy and Croatia, there are a number of corridors that need to be joined together.

The main routes identified in the cycle corridors used for cross-border connections were three:

- the Alpe Adria bike path,
- the Adriabike cycle path, part of the EuroVelo 8 Mediterranean cycle route;
- the Parenzana.

In addition to these, there are also the Claudia Augusta cycle route in the Altainate variant, which runs from Bavaria down through the Alps and Valsugana to the northern lagoon of Venice.

There is a rather large flow of cycling tourists from Germany, Austria, Slovenia, Great Britain and north Europe. Usually, a few of Italians choose to travel in Italy.

Cycling tourists from northern Italy prefer the southern regions, while the reverse phenomenon does not occur at all. It should also be noted that Trentino Alto Adige represents a special situation as it can be said to be included in Austria in terms of infrastructure.

Veneto and Friuli-Venezia Giulia, on the other hand, are attractive to the international market but is still irrelevant to the Italian market. A similar argument can be said for Croatia.

However, it should be noted that an increasing number of Italians are choosing to take cross-border tours between Italy and Croatia, although they are still few in relation to the foreign market, because the route travels abroad, takes on a somewhat exotic character, and is evocative because it retraces the places of the Serenissima Republic of Venice in Istria.





Figure 2. Cycle routes in the North Adriatic axis

## Main cycling corridors

### Adriabike, The Upper Adriatic Cycle Route

Adriabike is a 1000 km long cycle route across the North Adriatic, part of EuroVelo 8 Mediterranean Route, connecting the Alps and lakes of Slovenia with the beaches and lagoons along the Italian Adriatic coast. The Italian section of EuroVelo 8 is not completed. The developed section crosses the Po Valley, passes through Venice and arrives at the border with Friuli-Venezia Giulia. The route from Bibione to Muggia is still under development. In the Slovenian section the EuroVelo signposting has been implemented. Beyond the Croatian border the route is already developed, it runs along the entire Istrian coast to Dalmatia. The main route runs on state and local asphalt roads, alternatively it can be run on variants with unpaved roads.

The cycle route is sub-divided into three routes designed to provide three week-long holiday proposals, featuring sun, sea, nature and culture. In the Slovenian section, the 360 km long *The Emerald Green Road* connects Kranjska Gora - Nova Gorica - Koper - Trieste, descending along the Isonzo and crossing the Karst to reach the Mediterranean, passing through a section of Parenzana in Istria.

The *Road of the Serenissima*, goes from Istria to the Venetian lagoon for 358.2 km, crossing the Gulf of Trieste, the lagoon of Grado and Marano, following the rivers and the Venetian littoral to reach Venice. The *Road of the merchants and the burci* connects the ancient capitals of the northern Adriatic, Venice-Ravenna, along the trade routes of river and lagoon sailors, along a 348 km long route, passing through Padua, Chioggia, the Po Delta and Comacchio.



Figure 3. Adriabike Map

Several intermodal transport services are active along the cycle route, the route website<sup>3</sup> indicates the main possibilities. The proximity of the route to many railway lines allows the traveller to freely choose which sections to ride on two wheels and which sections to use with the bike+train service. Short routes can be made by returning to the starting point by train.

In the lagoon areas between Veneto and Friuli-Venezia Giulia, the Adriabike cycle route is served by a few bike+ferry transfers, as an alternative to detours on ordinary roads. The local public transport service of the Friuli-Venezia Giulia region provides summer connections by motorboat between the most important seaside destinations in the region, in addition to the Trieste - Muggia line, that operate all year round. The navigation service offered by Delfino Verde college during the tourist season, from June to October, Trieste to Grado and to the seaside destinations on the coast with a scheduled passenger and bicycle transfer service. It also connects Grado to Lignano, from where two other motor vessels depart to Marano Lagunare and Bibione. During summer 2021 an additional ferry service with bike transfer between Lignano and Grado starts, co-financed by the Interreg-Italy-Croatia program MIMOSA<sup>4</sup>. The navigation service allows ten bicycles to be carried on board, and in the event of a suspension of services, it provides a replacement service with buses and bike transfers.

Analysing the trends in the cycling tourism market, the operators predict that the Trieste-Lignano Sabbiadoro-Venezia cycle route will be one of the most attractive Italian cycle routes under construction, together with the Garda and the Tyrrhenian cycle route<sup>5</sup>.



Figure 4. Maritime services in Friuli-Venezia Giulia - TPL FVG

<sup>3</sup> <https://adriabike.eu/en/intermodality/>

<sup>4</sup> <https://www.italy-croatia.eu/web/mimosa/-/new-boat-connection-in-friuli-venezia-giulia-region>

<sup>5</sup> Isnart-Unioncamere and Legambiente 2020 Report

### **Parenzana, The Route of Health and Friendship**

In the Istrian region, the main existing route is the Parenzana -, a partly paved and partly unpaved cycle route from Trieste to Poreč.

The route crosses the north-western part of the region through tunnels, viaducts, several bridges and lookouts. The Parenzana was originally a narrow-gauge railway that operated from 1902 until 1935, connecting the ports of Trieste and Poreč with other towns in the interior of the peninsula. The original route of the train was 123 km, 33 towns from Trieste to Poreč, today it would cross three countries: Italy 13 km, Slovenia 32 km and Croatia 78 km. In 2002 the Istrian Administrative Department of Tourism in cooperation with the Association for the Reconstruction of the Poreč-Koper-Trieste Railway started to arrange the entire railway route for the use of hikers and cyclists.

The old railway stations, most of which have been converted into residences, and the milestones indicating the distances in kilometres from the beginning of the railway line, marked with the acronym TPC (Trieste-Parenzo-Canfanaro) indicate the initial project to connect these three cities, which was never completed.

The entire track has been arranged and marked by characteristic signposts, secured by guard rails on bridges and viaducts, the tunnels have been lit and auxiliary facilities set up that tell the story of the route to visitors.

Along the route there are several services available to cyclists and hikers located in a 5 km distance from the route: bike rentals, bike repair spots, charging stations for e-bikes, rental flats and hotels included in the bike&bed project, equipped picnic spots, sites of interest to discover with guided tours, areas with fitness and workout equipment.

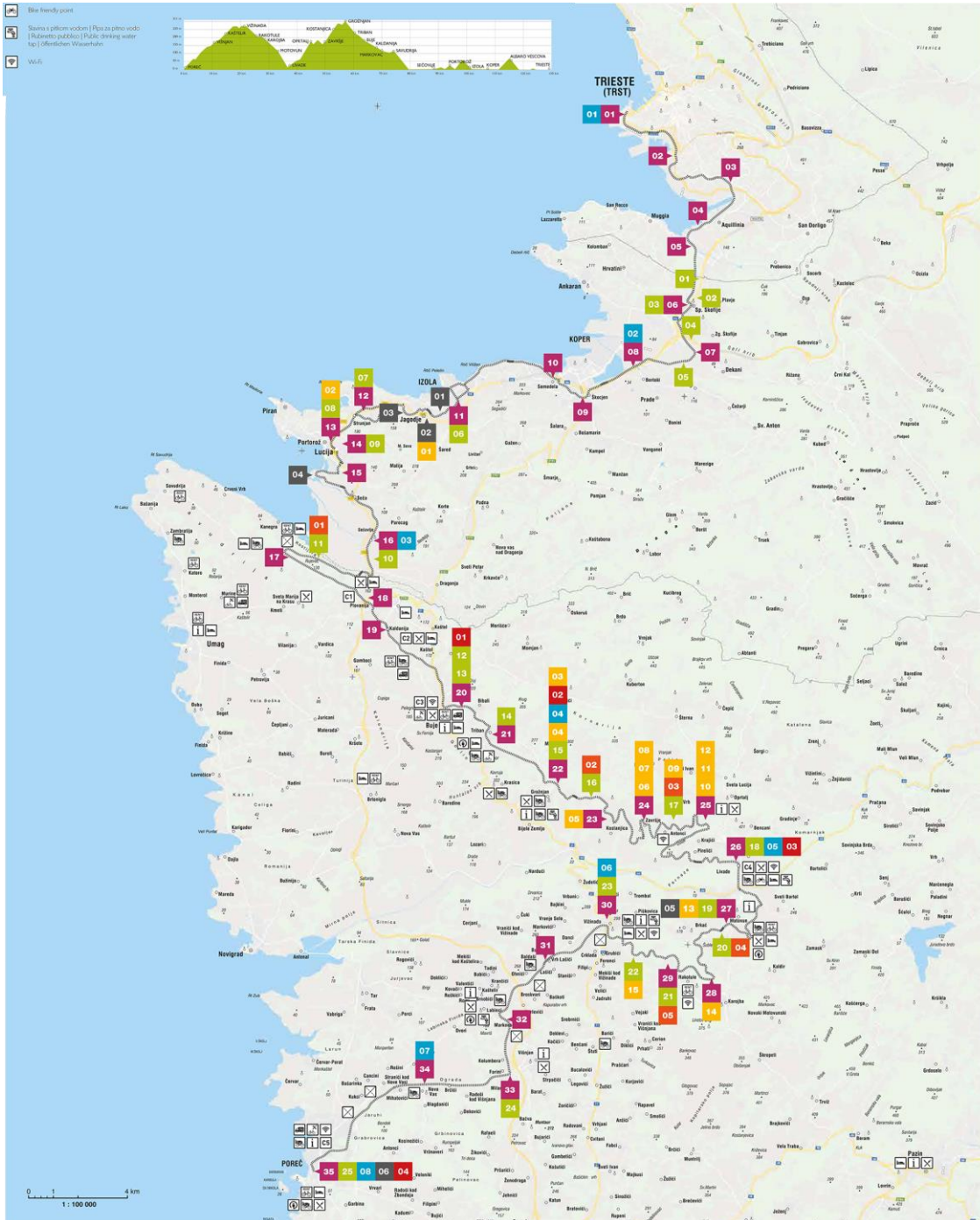


Figure 5. The Route of Health and Friendship - Parenzana Map

## Regional routes in the North East of Italy

In the north-eastern regions of Italy, there are also international and local cycle routes organised in thematic itineraries for wine and food tasting, nature and landscape exploration, such as along the main rivers, but they are disconnected from each other.

The Veneto Region began to codify local routes earlier than other regions, but the existing bike routes still do not have sufficient standards to be attractive to foreign tourists from northern Europe. Many routes run on unpaved tracks, and although they cross areas of great beauty they are less attractive than routes where the road surface is more comfortable and flowing. In the perception of German and Austrian tourists, unpaved roads are not suitable for long distances, especially for older tourists, who represent an important segment of the bike tour market.

Regarding accommodation, the north-eastern regions of Italy are quite well equipped. However, bike assistance services are lacking, except where there are specialised bike shops, generally no mechanics can be found able to fix high-end touring bikes or e-bikes that require the use of specific software for the electronic component.

In Veneto, tour operators and the regional administration promote bike tour packages in characteristic places through shared projects. The travel proposals of *Veneto in bicicletta* are developed on five itineraries divided into daily excursion stages to be covered in one week. A large part of these routes also run on dirt tracks.

One route goes from Lake Garda to Venice along the banks of the rivers Adige, Bacchiglione and Brenta; *the Veneto Ring* starts from the lagoon, continues to the Island of, leads to Chioggia, Padua, Vicenza, Bassano and Treviso; the *Via del Mare* starts from Rovigo and arrives on the coast following the route of the Adriabike cycle route; another route connects the Alps to the lagoon starting from Belluno, descending from Treviso and arriving in Venice; and, the Treviso-Ostiglia route retraces the former railway line decommissioned after the Second World War, which over time has become a natural green way about 116 kilometres long, of which about 50 have been converted into a cycle path.

Generally, there are no public buses that allow bike transfers. To skip a stage, there is no choice but to rely on private companies. This is a problem that is emphasised in an area where the railway infrastructure is close at hand.

However, there are best practices which, starting from the demand of tour operators, have led to agreements with administrations to develop bike+bus lines on specific routes which are very popular with cyclists.

There are not many ferries operating in the lagoon, except for the ACTV ferries in the Venice area. The ferry boats allow people to take their bikes on board on the routes Venice (Tronchetto) - Pellestrina Island and Venice (Tronchetto) - Lido - Punta Sabbioni.

In Friuli-Venezia Giulia runs the Italian part of Alpe Adria<sup>6</sup>, a cycle route consisting of eight cycling stages connecting Austria to the Adriatic Sea via the Alps. The Alpe Adria cycle path, incorporating old railway tracks and numerous tunnels, makes the Alpine crossing a pleasure bike tour.

The 415 km long route from Salzburg to Grado is organised in eight one-day stages. Along the route it is possible to find train and bus stations to skip stages or reach other destinations. There is the “Bici Bus” project of the Friuli-Venezia Giulia Region, a bus that can transport up to 20 bicycles in the luggage trailer. There are also joint rail links between Italy and Austria along the route with the MI.CO.TRA<sup>7</sup> project connecting Udine to Villach and the light metropolitan train service Bici + Treno F.U.C.<sup>8</sup> with bike transfer on the Udine-Cividale line.

The cycle route is growing, the route from Villach to Udine is on a dedicated track, made according to northern European standards. The route then continues on the road to Palmanova, and the last section to Grado runs on a cycle path.

Alpe Adria is a highly attractive cycling corridor for Germans and Austrians, many of whom, however, stop on the Austrian side where the infrastructure has been well developed and where there are more services for cyclists.

Friuli-Venezia Giulia launched the Regional Cycling Mobility Plan called PREMOCI<sup>9</sup> which developed the RECIR<sup>10</sup> project, network of cycle routes of regional interest consisting of ten cycle routes totalling approximately 1,300 kilometres, of which 450 km have already been completed.

The regional government is also working on other cycling promotion projects, involving hotel associations to provide facilities and spaces, such as a repair point and laundry for cyclists. It also cooperates with the association A'mare in bici<sup>11</sup>, which represents wine producers, restaurants and various types of accommodation in the area between the hills and the sea, from Palmanova, the Collio and Gorizia to Aquileia, the lagoon of Grado and Duino. In this area cycling tourist can find assistance services, bike rentals, specialised shops, e-bike recharging points and taxi-bike transfers.

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<sup>6</sup> <https://www.alpe-adria-radweg.com/>

<sup>7</sup> <https://www.turismofvg.it/bici-treno-mi-co-tra>

<sup>8</sup> <https://www.turismofvg.it/bici-treno-f-u-c>

<sup>9</sup> <https://www.regione.fvg.it/rafvfg/cms/RAFVG/infrastrutture-lavori-pubblici/infrastrutture-logistica-trasporti/ciclovie/>

<sup>10</sup> ibidem

<sup>11</sup> <https://www.amareinbici.it/>

One of the main problems of the cycling network is the section of route between Monfalcone and Trieste does not have an infrastructure currently suitable for slow tourism, the route runs along the Strada Costiera, a very busy motorway but with a high landscape value. A project to provide the stretch with a safe cycle path is currently under study. The current alternative to the coastal road is also not suitable for the target group of tourists on cycling holidays, as it is a rather difficult route along the Karst paths. It would also be desirable to have more connections with the Isonzo area, where several nature trails branch off, to further develop cycling tourism in the region.

Recently, the Friuli-Venezia Giulia Region, in the scope of the ICARUS, introduced the pilot project Bici&Bus<sup>12</sup>, a shuttle bus and bike transfer to pursue the objective of improving interoperability between different means of transport and to connect the different cycling routes in the regional and cross-border territory. The service connects Trieste to Poreč and runs every weekend throughout the summer until October.

### **Regional routes in Istria**

The Parenzana is accessed from Muggia after leaving the historic centre. Once on the route of the old Istrian railway, there are numerous signs for access to the regional route network. In addition to the Parenzana, tourist routes in Croatia take secondary roads that reach the coast, on combinations of paved and unpaved paths, dedicated exclusively to cycling.

The bike tours offered by tour operators often use them in an attempt to combine the historical and scenic aspects of the seaside resorts with the safety and flowing qualities of the infrastructure through forests and hills in the inland.

In Istria, the main investment in sustainable tourism is made by IRTA, the Agency for the Development of Tourism in Istria, a consortium consisting of the Region with five hotel companies, the Tourist Board and the Istrian Region. IRTA's action is to promote the bike&outdoor department, coordinating the publication of promotional material, signposting of routes, web communication, promotion and organisation of cultural, sporting and other events of interest to the entire region. It collaborates with the Croatian Government and cooperates in EU projects. One of the actions it has promoted is the provision of facilities for cyclists, there are hotels and many points where it is possible to carry out repairs on your own. There is also coordinated signing in the region indicating the different routes.

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<sup>12</sup> <http://www.dorlandobus.it/progetto-icarus/>



On the Istra bike portal<sup>13</sup> you can explore 160 tracks of cycling routes in the region divided into various categories, road, trekking and mountain bike routes, which are mainly used by sportsmen for day tours. The Bike Park Rabac is a peculiarity of the region, it is a 25 km long circuit where cyclist can enjoy short daily mountain bike tours on unpaved trails. It also offers guided tours on both muscular bikes and e-bikes, including equipment rental.

The intermodal transport system in Istria is not yet well developed. To reach Istria there are no trains from Italy, except to Pula or Rijeka, but reaching those stations would make the bike tour much longer, and they do not fit into the itinerary that can be covered in a week. Buses are not an efficient service either, there are not many connections to Italy from Poreč, but from Pula there are two per day in the direction of Trieste that take about 4 hours. There are a number of local tour operators that offer bike transfer services by shuttle bus.

A very important connection between Italy and Croatia is provided by Venezia Lines, a company of high-speed vessels that connects the main towns of Istria to Venice on a daily basis for day trips. It operates as a de facto scheduled service even though it is a private operator, carrying not only passengers but also about ten bicycles. The service is often used by tour operators through direct agreements and thus allows for a return for cyclists travelling with their own vehicles.

Due to the limited transportation of bicycles on the return trip to Italy, tour operators renting the equipment usually make agreements with hotels in the destination and retrieve the bikes once the tourists have completed the tour. This makes it difficult for a self-driven cyclist who does not use a tour operator to return home at the end of the holiday.

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<sup>13</sup> <http://www.istria-bike.com/>

## Mapping of bike tours

### Bike tour offers in the North Atlantic corridor

The most active operators in the cross-border corridor from Venice or Trieste to Istria are Girolibero and FunActive. There are also a number of small local tour operators in Italy, as well as in Croatia. Another one is Inselhupfen, which offers bike&boat tours between Istria and Dalmatia.

The proposals for organised trips have in common that they are easy, can be covered by a wide range of people and have daily stages of around 50 km.

The best routes reach sites of artistic and natural interest, pass through rural areas without car traffic and require adequate services in terms of bicycle hire, luggage transport, intermodal mobility solutions and reception.

The best season for a bike tour is between June and July, but it would also be feasible in May and September. In August, however, it is rather difficult to book rooms in hotels for one-night stays.

Name	Services	Bike tour	Market segments	Additional services
Velo-Lake	shuttle bus transfer	Passo del Tremalzo	Gravity and Downhills, mtb	
		San Giovanni al Monte - Malga San Giovanni	Gravity and Downhills	
		Monte Altissimo - Rifugio Graziani	trail	
		Passo Santa Barbara, Monte Velo	enduro	
		Bike Park Alto Garda, Dos Casina	Gravity and Downhills	
		Dolomiti Bike Park Experience	all riders segments	Bike pass
		Monte Zugna Gravity Experience	gravity and enduro	
		Daily pass Alto Garda Bike Arena	Gravity and Downhills, mtb	
	guided tour	Navene	Gravity and Downhills, mtb	
		Naranch	enduro, mtb	
		Passo del Ballino	road bike	
		Garda tour		
		3 Lake - Ampola	all riders segments	

		Monte Velo	road bike	
		Val del Diaol	steep and rocky route	
		Sarca cycle route	cyclotourims	
		Monte Baldo round	road bike	
		Lake Tenno	mtb, family	
		Ponale		
		Navene	panoramic medium level	
<b>Cycling Venice Lagoon</b>	Venice Lido bike tours	Ride in the morning	all riders segments	Bicycle, Helmet, Bottle of water
		Ride in the afternoon		
		Ride all day		
		Ride with your family		
	Cicchetti bike tours	Cicchetti by morning	all riders segments	Bicycle, Helmet, Bottle of water, Spritz e Cichetto
		Cicchetti by afternoon		
<b>GO!Bike Tour</b>	bike tours	Isonzo bike tour		
		Grado		
		Izola, Parenzana		
		Alberoni reserve		
<b>Maremonti Istra</b>	bike tours	Kamenjak for family	family	
		Kamenjak & wine tasting		
		Parenzana bike trail		
		Cape Kamenjak		
		Pula's old town, beaches & fortifications		
		Rovinj ebike tour	e-bike	
		Rovinj private ebike tour, wine and olive tasting	e-bike	
		Pula - Rovinj / Rovinj - Pula		
		Fazana promenade tour		
		On the way to lighthouse		
		ebike Pula private tour	e-bike	

		mtb training day in Istria	mtb	
<b>Girolibero</b>	bike tours	Land of Venice	all rider segments	Hotel reservations, luggage transport, medical/baggage insurance, information material, telephone assistance
		Adige, Passo Resia - Mantova		
		Bolzano-Bassano-Venice		
		Garda - Venice		
		Terme Euganee	family (specific solution)	
		Innsbruck - Verona/Venice		
		Venezia - Trieste		
		Venezia - Porec		
		Lake Garda	family (specific solution)	
		Bolzano-Cortina-Venice		
		Garda - Adriatic cycle route		
		Slovenia Lake Bled		
		Tauri cycle route (Krimml - Passau)		
		Emerald route (Lubiana - Piran)		
		Austria - Slovenia, Alpe Adria (Salzburg - Bled)		
		Albania, Tirana, Lake Ocrida, Adriatic	all riders segments	
		Peschiera - Mantova Cycle Route	all riders segments	
		Sile Cycle Route, Treviso via Claudia Augusta		
		Brenta Parc (Bassano del Grappa - Padova)		
		Colli Euganei and wine route		
		Bicibus Recioto, Soave and gambellara		
		Bicibus Castelfranco - Padova		
		Rice and bike, Abbadesse cycle route		
Villas of Vicenza and wines of the Berici Hills				
Altopiano di Asiago in E-bike				
Val di Sole				

		Castelfranco Veneto - Sile cycle route		
		Vicenza and Palladio, bicigusto baccalà		
		Mincio and tortellini, bicigusto Peschiera - Mantova		
		Wines of Valpolicella bicigusto in ebike		
		Lake Garda and Valpolicella	all riders segments	Hotel reservations, luggage transport, medical/baggage insurance, information material, telephone assistance, bike rent, customized stages
		Vicenza and Terme dei Colli Euganei		
		Castelfranco - Treviso		
		Valsugana, Brenta cycle route		
		Treviso and Sile		
		Colli Euganei, Arquà Petrarca, Montegrotto Terme		
		Riviera del Brenta		
		Friuli, villa Manin		
		Portogruaro, Concordia, Caorle		
		Lido di Venezia, Pellestrina		
		Vicenza, Montagnana		
		Alpe Adria cycle route in Friuli		
		Valle dei Laghi, Terlagio - Riva del Garda		
		Vicenza - Este		
		Ravenna and Lidi		
		VENTO, Piacenza - Cremona		
	bike and family tour	Po and Delta, natural reserve Mesola	family	
		Valsugana cycle route, Levico	family	
	bike and boat tours	South Dalmatia, Korcula, Vis and Hvar	family, bike, trekking and boat	
		Mantova, Po Delta, Chioggia, Pellestrina, Lido		
		Dalmatia, Split - Dubrovnik		
		Croazia, Kvarnar Gulf		

		Mantova		
		Dalmatia, Trogir, Primosten, Sibenik, Zara		
<b>Cyclando</b>	bike tours	Castels of Slovenia		
		Istria		
		Venice - Porec		
		Alpe Adria in 10 days		
		Monaco - Venezia in 12 days		
		Drava cycle route (Dolomiti - Adriatic)		
		Slovenia bike and relax		
		Istrian coas, Trieste - Pula		
		Austria, Alpe Adria		
		Venice - Verona		
		Padova		
		Emilia-Romagna		
		Trentino		
		Bad-Tolz - Venice		
	bike and boat tours	Dalmatian islands	mtb	boat
		South Dalmatia – Kapetan Jure	ebike	
		Kvarnar Gulf	road bike	
		Istria, bike and boat	ebike	
		Dalmatian national parc	mtb, ebike	
		Kvarnar Gulf Islands	mtb, ebike	
		Dalmatia, Dubrovnik - Split	ebike	
		Dalmatian national parc - Romantica		
		Dalmatian islands + Princeza		
Isole Dalmazia meridionale - San Snova				
mountain bike tours	Austria	mtb		
	Emilia-Romagna			

<b>Istra Bike</b>	trails	Umag - Novigrad		
		Porec		
		Vrsar - Funtana		
		Rovinj		
		Labin - Rabac		
		Central Istria		
		Pula - Medulin		
		Istria		
	guided bike tours	Bike Park Rabac	ebike	Info point, Bike shop, rental mechanical and electric MTB, road and trekking bicycles and equipment, repair for bicycle, safe bicycle storage facility for guest, bicycle washing area, bike transfer service
		Skitača	mtb	
Family Gastro		trekking		
Maro Adventure		family		
	Maro Kids	pump track		
<b>Venice Bike Experience</b>	bike tour experience	Venice sunset, Lido di Venezia	Fatbike	fatbike, ferry-boat ticket, taste itinerary, hotel shuttle
		fatbike experience	Fatbike, family and kids	
		Wind land, north Venice Lagoon	all segments, family and kids	bike, ferry-boat ticket, hotel shuttle
		Islands of Venice	all segments, family and kids	bike, ferry-boat ticket, taste itinerary, hotel shuttle
		Sunset in lagoon		

		Prosecco hill's castles	ebike	ebike, aperitif taste, hotel shuttle
		greenway	all segments	bike, taste itinerary, hotel shuttle
		Ville venete tour		
		Lemene castles		
		Brenta		
	cycling holiday	Dolomiti Roads	road cycling	
		Veneto Speed		
	cycling holiday	White Week		
		Cortina 21		
		Villach		
		La piave		
		Prosecco Route		
	weekend	weekend in villa		
		weekend at lake		
		countryside houses		
<b>FunActive</b>	bike tours	Dolomiti - Lake Garda	ebike	
		Alpe Adria, Salzburg - Grado	ebike	
		Dolomiti cycle route	ebike	
		Friuli, Prepotto and Gradisca		
		Drava - Alpe Adria		
		Dolomiti - Venice		
		Lake of Carinzia and Alpe Adria	ebike	
		Monaco - Venice	ebike	
		Istria, Trieste - Pula		
		Venice - Trieste - Istria		
		Dolomiti - Trieste	ebike	
		Dolomiti gran tour		
		Prosecco		



	Dobbiaco - Bressanone		
	Porec - Pula		
	Trieste - Porec		
	Alpe Adria, Villach - Grado		
	Parenzana		

## Target groups

Cycling tourism is not a precisely defined concept, it includes wide-ranging visions in the bike tour market. At the basis of its growth there are motivations related to the experience of cycling holidays: the pleasure of slow travel, attention to physical fitness and comfort, the active dimension of the holiday.

The interviews and the analysis of the offer proposed by both public and private tour operators bring out other important indications for understanding cycling tourism.

There are three main **types of cycling tourism products**:

- **Day trips.** The excursion can be proposed to the user a day trip, or it can be an activity that complements the stationary holiday;
- **Weekend cycling.** These products propose medium-length routes that require one or two overnight stays;
- **Cycle tours.** In the case of tours organised by tour operators, the duration is weekly, while if the tours are self-guided, it can be up to fifteen days.

The research shows that the tour operator's vision refers to the weekly cycling holiday.

Originally, classic cycling tourism can be defined as a pure, hard bike trip, for 1000 km with a backpack, spending the night in bivouacs or in hotels. This derives from the German, Anglo-Saxon and Danish approaches that developed the cycling tourism market. As it has spread to a wider public, it has taken on an experiential trend, linked to natural, historical and gastronomic factors. The holiday packages offered propose physical activity combined with services and facilities, luggage transport and accommodation as basic services.

The tour operator also takes care of organising the return logistics, which are often complex when it comes to cross-border tours covering long distances. Generally self-guided tour presents problems especially on the return journey, when getting back becomes complicated because the transport connections are not obvious. The perspective of the tour operator that offers cross-border travel is that of the cyclist who relies on the operator to provide all the services for comfortable travel and who has a good budget.

Further clarification should be made on the type of bike that is used and therefore the type of route that can be taken. Some tour operators offer touring packages for city bikes and touring bikes as standard, then there are others who focus on mountain bikes and racing bikes, and in recent years gravel bikes have emerged as a hybrid of mountain bikes and racing bikes, also in terms of philosophy.

This study shows that cycling tourism has different forms depending on the target group and the type of tourism product.

Depending on the bike category, three **kinds of target groups** can be identified:

- **Slow or leisure cycling tourism**, by tourists looking for a slow journey with all the pleasures it has to offer, nature, landscape, culture, food and wine, to be enjoyed with friends or family;
- **Sport cycling tourism on the road**, where the focus is on fitness, performance and, in some cases, competitiveness;
- **Sport mountain cycling tourism**, which emphasises adventure and direct contact with nature.

This distinction defines the different needs of tourists and influences the mapping, wayfinding, routes design and tourism promotion tools.

There is a rather clear standardisation describing the category of customers. They are usually foreign tourists from Europe, mainly from Germany, Austria, northern Europe, Great Britain and Scandinavia, or from overseas American or Australian, less from France and a few from Spain. In terms of age, the average is over 50 and under 70. They have good financial resources and demand good quality services, they want to have everything planned, with solutions ready to solve the unexpected.

The tours generally have a range of prices available depending on the level of the hotels they offer. Prices for a week's holiday per person are around €6-800, including accommodation and breakfast, luggage transport, assistance, maps and route descriptions, meals are not included.

There are also services and offers of package tours for travellers who use bikes only for recreational purposes. Families and group travellers, attracted by the opportunity to ride through the region through natural landscapes and close to the sea, they spend their holidays in Istria during summer. Families and slow-tourists choose to take short cycling excursions of 30-50 km in a day.

These cycling tourists come mainly from Germany, Austria, Italy and Slovenia. There are also Hungarians and Dutchmen who travel to Istria not strictly to spend a cycling holiday, but for day trips based at camping sites.

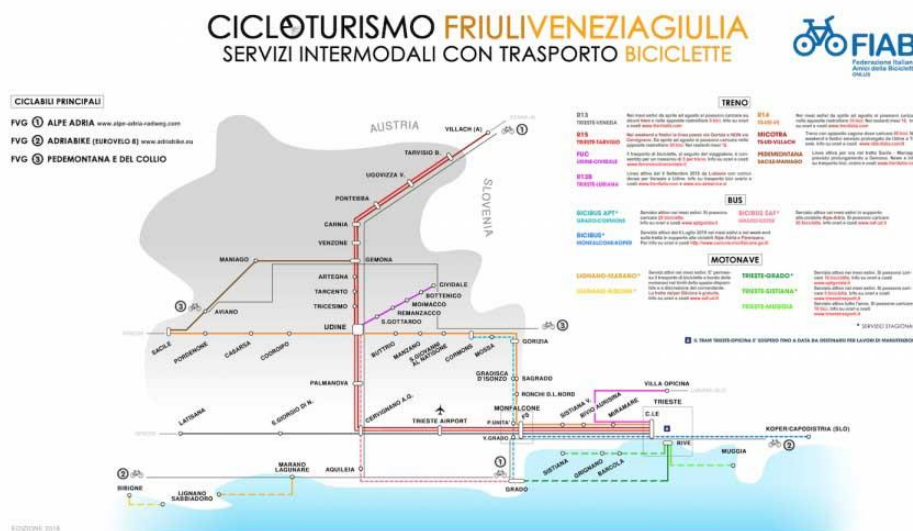
In the hilly and mountainous areas of north-eastern Italy and central Istria, sportsmen and women, such as tri-athletes or road bicycle riders, who want to take a training holiday are the cyclists who open the tourist season. For them, various tour operators organise training experiences on the road and along unpaved tracks, for racing bikes, gravel bikes and mountain bikes, offering high-level equipment hire and organising transfers to take them to various places, often linked to tasting itineraries.

## Marketing strategies

Tour operators aim to build customer loyalty by working on their own reputation and trying to satisfy different needs, including adapting the travel packages they offer to the needs of cycling groups. In addition, operators promote travel packages regularly on their websites, through advertising on social networks and through cooperation with travel agencies. In order to reach new customers, some tour operators organise joint promotional actions for outdoor activities, such as *Activitaly*<sup>14</sup>, a network of companies representing operators dedicated to active and sustainable tourism.

The services offered tend to avoid being partial to a topic, focusing instead on the territory where many themes can be found and proposing a mix of tailor-made experiences, from tasting to nature explorations.

Regional governments provide coordinated signposting and standardised publications with route information. In some more advanced cases, information on intermodal services is provided to promote cycling tourism. For instance, the Friuli-Venezia Giulia region in collaboration with the Italian Federation of Friends of the Bicycle published a manifesto with the entire regional cycling network connected to bicycle transport systems, with transfers by train and ferry.



Manifesto for cycling tourism and intermodal services – FIAB

<sup>14</sup> <https://activeitaly.it/>

## Suggestions

### Cycling infrastructures

In order to increase cycling tourism, new and better infrastructure is needed.

The planning of cycle routes and the implementation of cross-border routes must involve as many authorities as possible, because cycle routes allow people to cycle with a low environmental impact, to travel safely and to discover the area they are crossing in a different way. In fact, it is defined as a slow and sustainable economy because travelling at 15-20 km/h allows environmental conditions to be enhanced. Besides the development of cycle routes that allow safe and pleasant travel, it is important to improve the tourist offer based on cyclists' accommodation, hotels and restaurants with safe and secure places to store the bike. Indeed, bike tourism assumes more value if it creates new opportunities for secondary destinations, where tourists can spend leisure time and have cultural experiences. In this way, cycling tourism can be considered as a territorial product, in the meaning that cycling tourists do not only ride on beautiful cycle roads but also come into contact with the territorial realities.

In the case of overnight stays, bike storage facilities are needed, as well as places to recharge batteries or make small repairs, and the hotelier needs to have a relationship with a mechanic who can do more complex repairs.

They also need public transport services that can carry the bike and fill the gap where there are no directly accessible bike routes. The tour operator otherwise takes care of all the problems.

If there were more infrastructure, self-guided tours would also be facilitated. In Austria and South Tyrol there are many possibilities for self-guided tours, sometimes structured and sometimes not. There are many private companies with equipped vans that provide assistance on the spot, and bike transport and logistics services organised by hotels along the cycle routes.

In the North Adriatic cycling corridor between Venice and Trieste, there are signed sections of the Adriabike route connecting the lagoon with a ferry transfer from Venice Lido and the Cavallino peninsula. The Lido-Punta Sabbioni line, however, presents a critical issue in the bike transfer due to the possibility of refusal by the captain of the ACTV ferry, in case there are too many bikes and a large number of passengers.

The route then runs along the coast, passing Jesolo and arriving in Caorle. In order to continue the route along the coast in the next section towards Trieste, it would be necessary to implement the motorboat transfer service already active during the summer between the northern Adriatic lagoons in the Brussa-Bibione and Bibione-Lignano sections. This would allow to run the route along the coast also during the rest of the season and enjoy the most beautiful lagoon landscapes.

The alternative to this route is an inland detour. The route currently runs towards Concordia Sagittaria

and Portogruaro, then on to Aquileia and Grado, follow successively stretches of road along the coast and inland routes.

After Monfalcone, it is recommended to develop a safe and direct road to Trieste.

At present this section is rather bottleneck. The direct connection is the Strada Costiera, a busy state road not recommended for cycling despite its charm and the places it links. There is an inland route as an alternative to this section, but it is a mountain route with few connections to the coast and is not suitable for the target group of bike tour tourists.

The exit from Trieste towards Muggia is also a critical point, currently solved by the transfer via ferry of Delfino Verde, a de facto scheduled service, from Trieste Molo Bersaglieri to Muggia.

In order to improve cycling tourism in Istria, it would be significant to complete the network of cycle connections between the main destinations, to complete the works initiated such as the section started between Rovinj and Kanfanar, and to promote the construction of routes and signs from Poreč to Kanfanar. There is also an ongoing feasible study to develop a cycling connection along the west coast from Umag to Pula and the southern part of the peninsula.

In addition to infrastructure, it is also necessary to invest in services, accommodation, and experiences related to the cycle route. The choice of a cycle route is in most cases based on the quality of the destinations that can be reached along it. Selecting a series of naturalistic and historical points of interest, including tasting and cultural experiences, could be the basis for a week-long package of bike tours across Istria.

### **Bike transfers**

Access to public transport along the bike corridor is rather limited.

The Venice-Trieste section is served by a railway with a high frequency of trains, but it is located rather inland from the bike route along the coast, so there is a 20 km road to reach the Latisana station from Lignano or the Marano Lagunare. A transfer service connected to the trains would be fundamental to promote cycling tourism. Strategic nodes could be identified along the route to be connected with buses that allow the transport of bicycles, for example from Monfalcone and Cervignano to Grado.

The case of Grado is emblematic because a very popular cycle route ends there, but there is no train station or public bike transfer service.

The number of small regional transport stations with a few tracks would make the access to trains easier, but on the other hand there is a problem with the frequency of services. During the tourist season, there could be an increase in the number of morning and evening runs when cycling tourists usually travel from one place to another.

The research shows that more connections between the various destinations in Istria and Trieste would be advantageous. In Trieste there would be access to the train network connected to the main European lines.

To enhance the value of a route it is also useful to think about a return by another means, not only transfer but a different travel experience offers. For example, the Grado-Trieste stretch done by bus, after a tour of the city the return to Grado is done by ferry, which is seen as an added experience to the tourist day.

Moreover, a system of connections by motor vessel could be organised to easily link the different coastal resorts to allow an alternative to multi-day trips and return to the starting base, or to skip stages. Connections via ferry operate in this sense between Trieste and Muggia and CROSSMOBY programme connecting Ankaran-Koper-Izola-Piran in Slovenia. In addition to these a ferry between Vrsar and Rovinj could be implemented.

## Cycling tourism definition

In general, we can affirm that cycling tourism is a form of tourism focused on the bicycle as a mean of transport as well as a motivation for the holiday. The popularity of this form of active holiday is greater in those European countries where the culture of cycling is more developed. In Italy and Croatia, cycling is mainly understood as a form of recreation, leisure and sport.

Cycling tourism has acquired a different meaning as a result of its evolution and popularity. From the romantic vision of the initial sporting challenge, which saw cyclists from northern Europe riding a thousand kilometres and camping in the Alps, to the form of an experiential holiday. The reasons why travellers choose an active cycling holiday are linked to the attractiveness of the different regions, such as the cultural heritage, natural landscapes and gastronomic offerings.

Tour operators offering cross-border package tours define cycling holidays as a way of getting to places where one can stay actively.

Tour operators active on regional and local scales consider cycling tourism to be a sum of possible targets: both sportsmen and women who want to train on the road or off-road, and travellers who want to experience exploration and outdoor activities by bike.

Regional tourism agencies and authorities see cycling tourism as one of the outdoor activities, even integrated with others.

The outcomes of the interviews led to several possibilities to define a cycling tourism classification. Cycling tourists can be divided into three groups:

- **have a holiday for cycling:** those who choose to take a bike tour as a holiday, riding dozens of kilometres every day throughout the holiday, staying in tourist destinations where it is possible to enjoy leisure activities between stages;
- **have a holiday by bike:** those who want to have a cycling holiday, reaching places of interest, crossing pleasant landscapes and enjoying a period of outdoor activity, moving easily by bike between holiday locations;
- **have a holiday where it is possible to cycle:** have a holiday where it is possible to use the bike occasionally, riding on characteristic routes or for training and challenges.



## 4 Preparatory study: E-bike impact on cyclo-tourism

### 4.1 Desk-research

#### **E-Mobility**

The e-bike diffusion process contributes to the e-mobility revolution of the coming years. Together with e-mopeds and e-scooters, it is part of a “bottom-up” process that will lead to a global shift towards a low-carbon economy, to which electric cars should be added in the near future. Low-emission mobility enabled by e-bikes meets the guiding principles of the European Commission, as it is one of the most feasible and immediate solutions against pollution. It contributes to respect the Paris Agreement and the WHO public health guidelines, which state that greenhouse gas emissions from transport should be close to zero by mid-century.

Currently, transport is responsible for 24% of direct CO<sub>2</sub> emissions from fuel combustion, with the majority from cars<sup>15</sup>. This is compounded by rapidly rising global temperatures. To rapidly cut transport emissions on a large-scale transport and maintain a tolerable 1.5°C temperature rise in the coming years, we need to invest much more in cycling.

A higher number of e-bikes could influence the transport system, having positive effects on traffic safety, increased accessibility, reduced congestion, enhanced physical and mental health for people through active mobility, reduced air and noise pollution, and providing a modal choice to replace the car over distances that are considered too long for a conventional bicycle. Thus, the e-bike has the potential to seriously contribute to more sustainable mobility, both at local and regional level. In addition, from the user's point of view, studies show that the electric motor reduces physical effort and is particularly useful on climbs, starts and headwinds, therefore suitable for active mobility also for recreation, such as during a holiday.

#### **E-Cycling tourism**

All tour operators interviewed by "Bike Summit 2020", the 2nd Isnart-Unioncamere and Legambiente Report, noted a quite remarkable change in the cycling tourism market due to the introduction and development of e-bikes, focusing on a process of environmental awareness on both the demand and supply side that is currently underway. In Europe, annual growth averaged 34% between 2006 and 2016,

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<sup>15</sup> European Cyclists' Federation

with Germany and the Netherlands leading the way, accounting for more than half of sales<sup>16</sup>. The highest diffusion occurs in countries with a high cycling culture, where cycling is used primarily as a means of transport and secondarily for recreational and exercise purposes. Actually, in Germany, e-bike sales are projected to exceed one third of all bicycle sales in the long term.

The e-bike can replace the car for different travel purposes, including leisure travel, as it significantly reduces obstacles related to time consumption, physical effort and long distances. On the other hand, lacking of safe parking, in cities as well as tourist destinations has been a significant a bigger problem when using the e-bike, as well as traffic safety and bad cycling infrastructure<sup>17</sup>.

There are e-bikes for road use, e-trekking bikes that are designed to explore rougher terrain than cycle paths and to be equipped with panniers, e-mountain bikes for off-road cycling and for exploring nature or riding on trails that can only be reached by trained people.

E-bikes are considered zero-emission vehicles and run on clean energy. In terms of performance, e-bike cycling is the most efficient option for travelling. Besides being a greener transport option, it offers more freedom of movement without time restrictions and the possibility to travel alone if you wish. It avoids crowded conditions and reduces congestion on the roads.

Battery recharging can take place in the evening after a long day of intensive use, outside peak hours, putting less strain on the grid and benefiting from lower tariffs. In addition, long-life e-bike batteries do not need to be replaced for many years and can be recycled. Most, as opposed to car batteries, are lithium-ion and do not contain lead. An advantage of e-bike is that it produces little waste, so it reduces its carbon footprint.

The rise of the e-bikes and the further development of long-distance cycle routes, such as the in the EuroVelo network, have also boosted cycling tourism by making cycling holidays more attractive for people of all ages and ability. Local residents also benefit from the cycling route infrastructure, regional connectivity and services that accommodate cycling tourist who ride e-bikes.

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<sup>16</sup> Confederation of the European Bicycle Industry

<sup>17</sup> Alfred Söderberg, Emeli Adel, Lena Winslott-Hiselius, *What is the substitution effect of e-bikes? A randomised controlled trial*, 2020

## 4.2 Interview and data elaboration

The research in addition to investigate bike tour offers, studies the impact of e-bikes in the growth of the bike tour market, considering what opportunities they represent for the tour operators and what needs they require, for instance regarding new infrastructure.

### Interview outline

#### Focus on E-bikes

*The use of e-bikes is growing rapidly around the world and has the potential to positively impact traffic safety, improving accessibility and health for cyclists, and reducing air and noise pollution. E-bikes present new challenges to the operator and new market opportunities, but they also require specific infrastructure needs.*

- *In your opinion, what impact have e-bikes had on the bike tour market?*
- *What needs have you observed from customers? What kind of infrastructure is needed?*

### Tour operators' point of view

The e-bikes have had a positive impact on the whole field of cycling tourism.

The entry of e-bikes into the market has expanded the cycling tourism sector to people who had not imagined cycling holidays as beyond their possibilities. The e-bikes have changed the way people travel by bike, benefiting the domestic market as they enable even culturally unfamiliar tourists to travel to different places in a short and effortless time.

When e-bikes first appeared on the market, some tour operators were reluctant to use them in their bike tour offers. Nowadays, however, many tour operators have changed their minds and include e-bikes in their tours and organise specific tours. They have observed that e-bikes have a greater expectation of the public in terms of age groups interested in cycling. In fact, people who stopped cycling at the age of 70 because they were no longer confident, can continue to do so with no effort thanks to electric power-assistance. They also make it easier to ride on terrain that was previously considered difficult, such as climbs, embankments or forest roads.

With the increased focus on environmental sustainability and the discovery of new ways to travel, e-bikes are currently growing in popularity and becoming a driving force in the bike economy. According to studies by Shimano Steps, Italy has one of the largest potential markets for investment. E-bikes are attracting new customers who had never before approached cycling tourism, allowing them

to extend the distances they can cover. E-bikes make it much easier for tour operators who, with the same offer, can have a much wider appeal to the public.

The battery is lighter and powerful, their performance allows daily routes of 70-80 km to be covered without complete discharge, even with intensive use. In addition, the battery charging cycle is short enough to be carried out overnight.

A critical element of the e-bike is its weight, minimum 25 kg without panniers, which can represent a problem when carrying it by hand. The problem arises when accessing trains, getting off and moving on station platforms. In addition, adapting the bicycle infrastructure to e-bikes requires adjustments, such as the removal of architectural barriers.

A significant limitation for e-bikes is assistance; mechanics are not used to the complexity of electronic components, which also require the use of specific software for repairs.

However, the process of upgrading services has been slow, in Istria it has taken about ten years to adapt infrastructure, such as charging stations or equipped repair points, to be attractive to the e-bike market. Fairs, events and the promotion of accessible tourism to a wider target audience has led tourism operators to become aware of the advantages of this new cycling sector.

Some operators still view the popularity of e-bikes with antipathy, especially cyclists who use bikes to achieve sporting goals, who do not see the possibility of sharing the same excitement in reaching a destination through an assisted mode. E-bikes allow anyone to ride 1,000m of elevation gain, but during the past few tourist seasons this has created congestion on routes that are not meant for mass use, slowing down the flow of traffic and affecting safety.

The growing affluence of cyclists has shown that a change in mentality towards sustainable mobility is even more necessary. According to some operators, the growth trend of e-bikes will not stop any time soon because it meets the needs of more people, even those who do not usually practise sport, facilitating them to make less physical work.

On the other hand, there are others who take the opposite view and see this as a phenomenon caused by government incentives for e-bike purchases.

## 5 Preparatory study: cycling tourism in post-Covid scenarios

### 5.1 Desk-research

The sudden change caused by the health crisis has in a short period of time produced a profound revision in the way societies and citizens live, work and travel. In the new normalcy of living with the coronavirus, slow tourism models and outdoor activities have a relevant relevance.

According to the Bike Economy Observatory<sup>18</sup>, cycling tourism is the most innovative and interesting opportunity for enhancing territories, guaranteeing a growing trend and an induced effect on the territory in terms of tourist spending greater than the average tourist.

The growth of the sector is combined with the expansion of travel proposals provided by specialised tour operators, who plan different tourism experiences combined with cycling.

#### **A promising sector for the economy**

Analysing the data on the bike economy shows that cycling tourism is one of the most promising sectors in Europe. After the brutal acceleration caused by Covid-19, sustainable mobility has become a central issue in the debate on urban and territorial regeneration.

In 2019 in Italy, cycling tourism, including Italian and foreign tourists, generated almost 55 million overnight stays, generating a total expenditure of 4.7 billion euros, of which 3 billion generated by the international component of tourists. The survey shows that the average daily expenditure per capita of a cyclist is around 75 euros<sup>19</sup>.

The origin of tourists from the Italian regions is almost half from Veneto, Lombardy and Emilia-Romagna. The origin of international flows is also very concentrated, with Germany accounting for a quarter of the total, followed closely by Austria with 20%, France and the United Kingdom between 5 and 10%, with the USA and several central and southern European countries also coming next. The vast majority of global cycling flows, almost 70%, pass through the vast area between Friuli-Venezia Giulia, Veneto, Trentino Alto-Adige, Lombardy, Emilia-Romagna and Tuscany.<sup>20</sup>

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<sup>18</sup> <https://osservatoriobikeeconomy.it/index.php>

<sup>19</sup> Ismart-Unioncamere and Legambiente 2020 Report

<sup>20</sup> ibidem

The reasons for holiday choice are many, the interest in the bike trip itself is certainly primary but there are several motivations that act as a corollary to destination choice logic. Cycling tourists combine the opportunity to experience the natural beauty of the place with cultural motivations.

It is not taken for granted that the cyclist is a sportsman who is exclusively interested in cycling. The demand for an active holiday is combined with the pursuit of various other interests in a way that is not dissimilar to other forms of tourism. The largest proportion of cycling tourists (83% of the total) are interested in excursions in the area where they spend their holidays and intend to satisfy this demand also through travel experiences complementary to cycling, such as a boat trip, or services related to personal well-being (spas, saunas). Specifically, the share of cycling tourists who buy these types of services is twice as high as the average share of other tourists<sup>21</sup>.

Different declinations of the tourism model confirm the existence of a varied and complex scenario.

### **Cycling tourism during the pandemic**

Cycling tourism is well aligned with the principles of the Low Touch Economy, the adaptation that businesses around the world have been forced to make to succeed due to Covid-19, responding to the need for safety, health, distance and short-range activities, for the following reasons:

- it has an ecological impact, reducing the emission impact of 1.5 million tonnes of CO<sub>2</sub> each year;
- it allows physical activity, even without too much effort if supported by an e-bike;
- it is an ideal response to the need to regenerate after a phase of discomfort due to confinement;
- it is versatile and adapts to all kinds of contexts;
- it has qualities of natural physical distancing;
- it is particularly suitable for proximity tourism (staycation, holidays close to home);
- it is particularly suitable for short or very short stays.

Coexistence with the coronavirus and the restrictions that will probably have to be adopted for a still indefinite period of time present a real opportunity for the spread of cycling tourism as a holiday model and for the development of many smaller destinations that are not usually considered as holiday destinations. This possibility encounters an important consumer base of potential demand, with the bike bonus in Italy in 2019 1.7 million bikes were sold. This meets the (re)organisation and adaptation of the hospitality and accommodation system to the circumstances imposed by living with the coronavirus. The local transport system has also been partly recalibrated to support tourist accessibility.

In the summer of 2020, the pandemic condition influenced the choice of accommodation, with many tourists opting for camping sites, but also the choice of type of holiday. The possibility of "practising sport" in the choice of destination is worth 32% of the total, at the same level as the choice of holiday

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<sup>21</sup> ibidem

linked to the presence of natural beauty and cultural heritage. The activities most practised in the new holiday contexts emerge above all trekking (39%) and cycling in its various forms (31%), considerably surpassing the activities practiced in the more traditionally chosen seaside destinations, like diving, surfing and sailing. A further spatial aspect is the combination of regions of origin and destination areas. Tourism flows had a strong proximity character, with one third of the total involving the region of residence of the cyclists<sup>22</sup>.

### **Towards a sustainable travel model**

The Tracking Transport 2020 data shows that transport causes 24% of global carbon emissions<sup>23</sup> and is a big cause of pollution and environmental degradation that threatens biodiversity. It has also been estimated that tourism contributes 8% of carbon emissions. Cycling tourism can be seen as a way of travelling towards a more sustainable model, which can reduce the negative effects of pre-pandemic tourism behaviour. According to the European Cyclists' Federation (ECF), cycling tourism is a good practice and can help to reimagine travel models in the Decade of Ecosystem Restoration<sup>24</sup>. The slow form of travel by bicycle encourages a model of tourism that cares for communities and territories, bringing us closer to achieving the United Nations Sustainable Development Goals (SDGs).

ECF is working to communicate and raise awareness about the benefits and the positive impact of the safer, sustainable and excellent holiday option during the recovery and beyond to grab the attention to policy makers to make a case for cycling tourism for obtain greater funding.

Their vision cycling tourism allows to people of all ages, abilities and budgets, have a wide range of high-quality well-development active holiday option in every EU country. With the campaign "Restart Cycle Tourism" they envisage not only greener but more active and healthy holidays for all, for a future not dominated by mass tourism, but one in which local economies in every part of Europe and small and medium-sized business of all kind can benefit for people exploring Europe's hidden destinations by bicycle.

In conclusion, it is possible to say that cycling tourism could be a very important model of tourism on an economic level, on a socio-environmental level in relation to the customer target audience and the ever-increasing presence of e-bikes. It contributes to building a decarbonised, healthy, inclusive and green future.

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<sup>22</sup> ibidem

<sup>23</sup> <https://www.iea.org/reports/tracking-transport-2020>

<sup>24</sup> <https://www.decadeonrestoration.org/>

## 5.2 Interview and data elaboration

Following the survey about the existing offer in the bike tour market, which packages were offered and which target groups were interested, [the interview investigated the status of bike tourism during and after the Covid-19 pandemic, and what are the upcoming challenges related to living with the virus.](#)

### Interview outline

#### Focus on cycling tourism and Covid-19

*The evolution of transportation depends on many external factors, and Covid-19 certainly had a dramatic influence on this sector. In the pre-Covid-19 period, cycling tourism was gradually expanding; even during the summer of 2020, travelers' vacation choices focused largely on cycling journeys. [Isnart 2020 \(Italian National Institute for Tourism Research\) data on tourism](#) show that the choice of cycling, in its various modes, amounted to 31% among the most practiced sports activities.*

- *In your opinion, how is cycling tourism perceived during the Covid-19 pandemic?*
- *In your experience, have you found any particular changes or criticalities? If so, what solutions have you chosen to adopt?*

### Tour operators' point of view

In 2020, all outdoor activities increased in general, but on a short-range basis as many countries posed difficulties for access by foreign visitors. The conditions related to the pandemic have allowed the bike economy to take on considerable importance and it is thought that it could have exponential growth margins, up to the levels of Made in Italy. The tourism economy is more developable thanks to experiential tourism carried out by bike and especially by e-bike, giving a greater expectation of the public to discover any place, and climb any hill. The Covid-19 has accelerated this trend, which instead of being spread over the next 4 or 5 years has been compressed into a few months. If, for example, in Italy foreign tourists mainly pass through the northern regions, in the near future with further expansion of infrastructure and accommodation facilities they will also be able to reach the central and southern regions.



For tour operators working mainly with the foreign market, the 2020 season produced very low income. Girolibero, one of the main tour operators in the Italian market and in the Programme area, reported that during the last season, compared to previous years, they lost 90% of their income. They forecast for 2021 is to reach 20%, but normative difficulties continue to discourage a large part of potential customers.

In times of pandemic crisis, many tourists did not choose organised trips with public transport connections, opting for short distance destinations. However, the period benefited those who were willing to take the risk, for instance rental operators who were able to get new bikes before the end of the lockdown were at an advantage, meanwhile the demand grew exaggeratedly putting the market on standby.

Despite the difficulties of the pandemic, cycling tourism for the local market has resisted, as well as all outdoor activities involving small groups of people where physical distance is guaranteed. For instance, GoBike Tour, a tour operator based in Friuli-Venezia Giulia with cross-border routes to Slovenia and Croatia, has had significant revenues by offering short-range tours. In 2020, starting the tourist season in July, it had similar earnings to the entire 2019 season that started in May.

Istria Bike estimated that in Istria there were only 10-15% more presences in the whole outdoor activities compared to the previous year. During the summer, the people counter installed on the Parenzana cycle path recorded 40,000 fewer people than in 2019. It is estimated that the tourists and travellers who arrived were mainly from the region, people who decided to make a shorter trip than usual by looking for nature trails where they could do outdoor activities.

For the year 2021 it is expected that a season will be organised with temporary and still emergency solutions, postponing the planning of a tourist season according to pre-Covid-19 trends for 2022.

A further fact is to be observed. The operators of the sector are trying to differentiate their products in order to meet the needs of tourists who are looking for new experiences of active holidays in the open air. As cycling tours have become more popular than in the past, they introduce new hiking tours. Trekking is still unheard of in the Italian and Croatian markets, the impulse towards this type of product was latent and now that it has emerged, they expect it to become more and more established.

Nevertheless, according to some opinions gathered, the drive to find alternative destinations and ways of travelling is likely to fail once the usual pre-pandemic modes of travel become possible again. Behaviour and cultural views of holidays will need further incentives to change towards active types of tourism. To respond to this, it is necessary to develop infrastructures and create attractive host contexts.

## 6 On-field test

Once the desk research phase was completed, we proceeded to design a field test on a bike-train-ferry corridor between Italy and Croatia.

### 6.1 Research goals

The pilot test carried out has the aim of:

- investigate the **state of the art of the cycling tourism offer** in terms of cycle routes, network of codified and non-codified regional cycle routes, route related services, multimodal transport and package holidays including cycling experiences.
- **test a route** in a soft corridor that would allow the use of a large number of **multimodal transport solutions** along the Adriatic coast, as an alternative to secondary inland road routes.
- test on the field the qualities of the cycling supply, in terms of safety, attractiveness, wayfinding and connection to other cycling networks, presence of ancillary services and accommodations.
- **collect data on bottlenecks and black spots** and **suggest recommendations** for implementing public policies (infrastructure, services, cooperation)

### 6.2 Setting-up of the test: bike tour selection and test organization

The on-field test, which was not originally planned, connected the desk-based work with the field research. Existing bike tour offerings that emerged from the mapping of operators was taken into account in the route hypothesis that was drawn. Starting from a structured offer, detours and connections with transport systems were proposed to test the actual possibility of integration.

#### **On the field test hypothesis**

Comparing the offers identified in the market research, it was chosen to conduct a bike tour along the route starting in Venice and ending in Poreč. The trip will mainly follow the Adriatic littoral with transfer by train and ferry. The return travel will be by ferry with bike transfer.

#### **Program**

The route will be done in 6 daily stages, with accommodation in hotels where the tour operator transfers the travellers' luggage. The tour operator supplies detailed travel directions along selected routes and coordinates intermodal transfers. The following is a list of the day's stages:

1. Venice - Jesolo/Caorle:  
 along the dam and the lagoon, with vaporetto to Punta Sabbioni (35 km);  
 or proceed inland along the Sile River (80 km).
2. Raid inland, towards the Julian Alps, in the direction of Portogruaro (35 km).
3. Concordia Sagittaria/Portogruaro - Grado/Aquileia:  
 with boat from Marano Lagunare (65 km);  
 by train to Latisana + boat from Marano Lagunare (45 km);  
 without train and ferry (85 km).
4. Grado/Aquileia - Trieste (80 km);  
 or short variation by train or ferry Grado-Trieste (40 km)
5. Trieste – Piran/Portorož (35 km) with ferry Trieste - Muggia
6. Piran/Portorož - Poreč (70 km) along hilly route

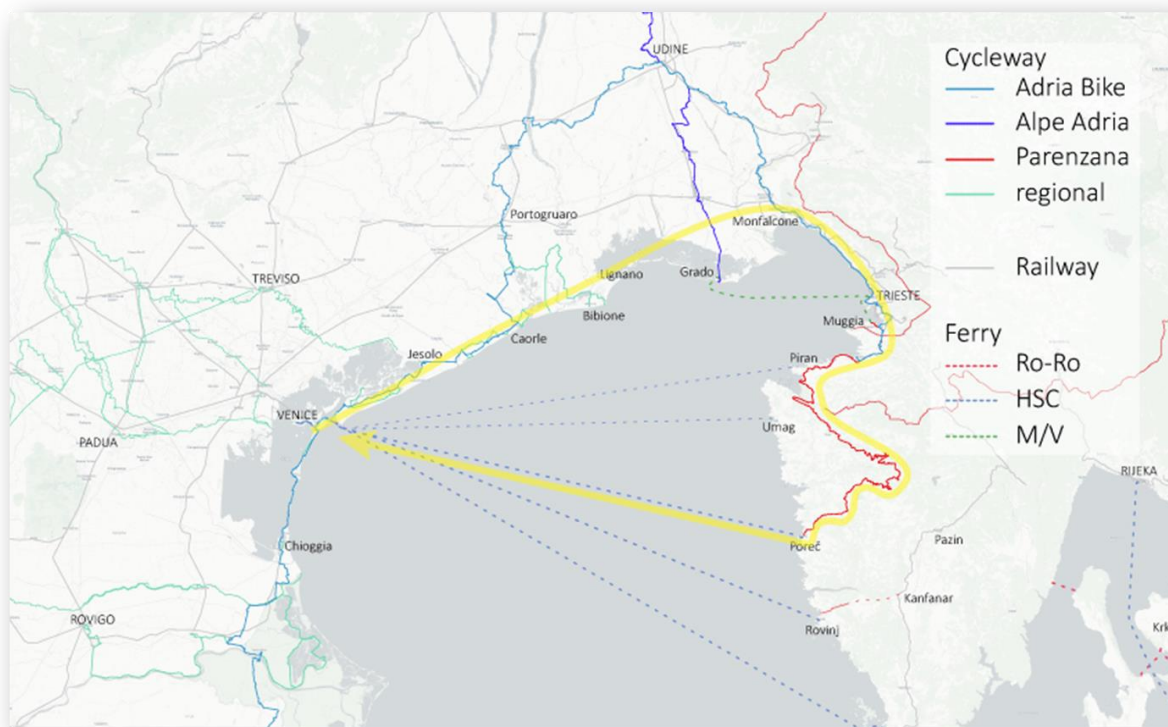


Figure 1. Test tour hypothesis for the north Atlantic cycling corridor

### 6.3 Test Tour options: market research

Three bike tour options offered by major tour operators are considered for planning the on-the-field test. Following the information about the bike tours of Girolibero and FunActive (both Italian operators) and Inselhupfen (German operator). The proposed bike tours are all self-guided. Included services are luggage transport, hotel accommodation with breakfast, information about the route, assistance service and some tickets for train or ferry transfers.

In addition to the existing offers of bike tours we suggest some possible integrations or variations that could involve services of other tour operators involved in the research.



Figure 2. Girolibero bike tour map



Figure 3. FunActive bike tour map



Figure 4. Inselhupfen bike tour map

## Option 1: Girolibero bike tour

### Venice to Poreč

**Tour link:** <https://www.girolibero.it/en/tours/from-venice-to-porec>

**Tour type:** self-guided tour.

**Tour info:** total length: 315/340 km; total vertical up: 1.390 m; terrain: 92% tarmac, 8% unpaved.

### Price (June 2021):

- 540 € for 7 nights hotel accommodation in double room, 3\* hotels with breakfast
- 630 € for 8 nights hotel accommodation in double room, mainly 4\* hotels, some 3\* hotels, with breakfast

### Included services:

- Welcome briefing in English
- App including maps, points of interest and GPS tracks, digital tour information
- Luggage transportation
- Hotline service
- Transfers: Ferry transfer on day 2, 24 hours ACTV ferry ticket (both bike transport not included)

### Not included in the base tour price:

- Local taxes (approximately 10-15 €)

### Additional optional services (on request):

- Supplements per person 150 € Season 3
- Reductions 100/130 € 3rd person in room (Cat. B/A)
- Transfer Poreč-Venice by ferryboat around 7-8 am (approx. 4 hours). Price 65-85 € p.p. (+10 € for own bikes), depending on the season. If the ferry boat is not available the service will be replaced by a private transfer.

### Bike rent:

- Touring bike 85 €
- E-bike 195 €
- Tandem 170 €
- helmet 15 €

Day	Itinerary	Distance	Note
1st	Mestre/Venice	-	Arrival in Mestre.
2nd	Mestre – Jesolo/Caorle/seacoast	40 - 65 km	Cycle along the stunning seacoast. Ferry transfer from Venice to Lido and from Lido to Punta Sabbioni.
3rd	Jesolo/Caorle/seacoast – Portogruaro	60 - 40 km	Passing through lagoon towards Julian Alps.
4th	Portogruaro – Palmanova/Aquileia	60 - 70 km	Passing among rivers, canals and ancient Roman towns. Possibility to shorten by train (20 km) from Portogruaro to Latisana.
5th	Palmanova/Aquileia – Trieste	70 - 50 km	Mainland and towards the sea on gulf of Trieste. Possibility to shorten by train (30 km) from Monfalcone to Trieste. *
6th	Trieste – Piran/Portorož	45 km	Crossing Slovenia and Istria often cycling along cycle paths. **
7th	Piran/Portorož – Poreč	55 km	Cycling down along hilly route in Istria.
8th	Poreč	-	After breakfast, end of services.

\* Transfer on the motorboat *Delfino Verde*<sup>25</sup>, an APT service with bicycles on the boat, from Grado (Molo Torpediniere) to Trieste (Molo Bersaglieri), additional bicycles could be transfer by shuttle service GoTransfer FVG<sup>26</sup>.

\*\* Transfer on the motorboat *Delfino Verde*, an APT service with bicycles on the boat, from Trieste (Molo Bersaglieri) to Muggia additional bicycles could be transfer by shuttle service GoTransfer FVG.

<sup>25</sup> <https://www.delfinoverde.it/servizi-di-linea/>

<sup>26</sup> <https://www.gotransferfvg.it/>

## Option 2: FunActive bike tour

Venice - Trieste - Istria (Resold by Cyclando<sup>27</sup>)

**Tour link:** <https://www.funactive.info/tour/venezia-trieste-istria-8-giorni-7-notti/>

**Tour type:** self-guided tour.

**Tour info:** total length: 255 - 430 km

**Price (June 2021):**

- 789 € for double room in hotels 3 and 4 category with breakfast + High season supplement

**Included services:**

- Personal tour information, well planned routes, detailed documents (maps, route description, places to visit, important telephone numbers)
- Luggage transfer from hotel to hotel
- Ship transfer on Day 4
- Telephone service hotline for the entire tour

**Not included in the base tour price:**

- Arrival to the starting point of the tour, Departure at the end of the tour
- Drinks, tourist tax and all extras, Lunch, Dinner

**Additional optional services (on request):**

- Single room supplement 199 €
- Ferry boat Poreč-Venice every Wednesday and Saturday approx. at 7-8 a.m. arrives at approx. 10.45 a.m. in Venice. Price per person: approx. € 65 – 85. Price per bicycle: approx. € 10 (4 bikes available). Rental bikes can be left at no charge at the last Hotel in Poreč.
- Taxi transfer from the harbour in Venice to Mestre or airport, price is approx. € 45 – 55

**Bike rent:**

- 21-gears bicycle 79 €
- top bike 119 €
- E-bike 169 €

Day	Itinerary	Distance	Note
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<sup>27</sup> <https://cyclando.com/route/da-venezia-a-parenzo/>



1st	Mestre/Venice	-	Individual arrival
2nd	Venice/Mestre – Jesolo/Caorle	35 - 80 km	Two possibilities: cycle along the dam and the lagoon to Venice or cycle through the back-country following the river Sile to Jesolo/Caorle.
3rd	Jesolo/Caorle – Concordia Saggittaria/Portogruaro	30 - 35 km	Leaving the sea for a while towards the direction of the Julian Alps in the mainland.
4th	Concordia Saggittaria /Portogruaro – Grado/Aquileia	65 km (A) 45 km (B) 80 km (C)	Stage besides the beaches of the Adriatic, is possible to take the boat from Marano Lagunare until Aquileia (A), the first part could additionally shorten by a train ride to Latisana (B), or cycling without taking the boat (C).
5th	Grado/Aquileia – Trieste	40 - 80 km	Stage through the hinterland of Trieste, alternatively short variant by using the train to reach the city (ticket not included).*
6th	Trieste – Piran/Portorož	35 km (A) 65 km (B)	Few kilometres in Italy, the rout continues in Slovenia predominantly on cycle paths. Is possible to take the boat from Trieste to Muggia (A) or cycling without taking the boat (B).
7th	Piran/Portorož – Poreč	70 km	Cycling cross over the border into Croatia, the route goes through the Croatian part of Istria.
8th	Poreč	-	Individual departure.

- \* Transfer on the motorboat *Delfino Verde*, an APT service with bicycles on the boat, from Grado (Molo Torpediniere) to Trieste (Molo Bersaglieri), additional bicycles could be transfer by shuttle service GoTransfer FVG.

### Option 3: Inselhupfen bike tour

Venice - Poreč (Resold by CycleCroatia)<sup>28</sup>

**Tour link:** <https://www.inselhuepfen.com/en/hotel-and-bike-trip-from-venice-to-porec/>

**Tour type:** self-guided tour.

**Tour info:** total length approx. 365 km

**Price (June 2021):**

- 780 € for 7 nights hotel accommodation in double room incl. breakfast

**Included services:**

- Welcome briefing in English, Route descriptions & maps, Hotline service
- Luggage service from hotel to hotel
- Ferry transfer on 2nd day (bike not included)

**Not included in the base tour price:**

- Journey to Venice, Transfer from Venice to Mestre in case of traveling with own bikes
- Local tax: approximately 10 – 15 euro/person
- Entrance fee for sights, individually lunch & dinner as well as beverages, Tip for Transfer driver
- Optional train transfers: Portogruaro – Latisana and Monfalcone – Trieste

**Additional optional services (on request):**

- Return transfer Poreč – Venice by boat: approx. 65 – 85 euro/person (+ 10 euro/bike), depending on the season. If the ferry boat is not available the service will be replaced by a private transfer.
- Additional nights in Venice, in Mestre or Poreč

**Bike rent:**

- Hybrid bike 85 €
- E-bike 195 €
- Helmet 15 €

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<sup>28</sup> <https://cyclecroatia.com/hotel-bike-trip-from-venice-to-porec/>

Day	Itinerary	Distance	Note
1st	Mestre/Venice	-	Individual arrival.
2nd	Mestre – Jesolo/Caorle	40 - 65 km	Ferry boat to and on to Punta Sabbioni, cycling along the coast.
3rd	Jesolo/Caorle – Portogruaro	60 - 40 km	Leave the lagoon behind and cycle northwards in the direction of the foothills of the Julian Alps.
4th	Portogruaro – Palmanova/Aquileia	60 - 70 km	Possibility to shorten the stage by taking a train from Portogruaro to Latisana (20 km). The tour leads along the border between the regions of Veneto and Friuli Venezia Giulia.
5th	Palmanova/Aquileia – Trieste	70 – 50 km	Cross the river Isonzo by bike in the direction of the sea. Opportunity to shorten the route from Monfalcone to Trieste by train (30 km). *
6th	Trieste – Piran/Portorož	45 km	Few kilometres in Italy and cross the border to Slovenia. **
7th	Portorož – Poreč	55 km	Cross the border to Croatia and reach Istria.
8th	Poreč	-	The journey ends after breakfast in your hotel.

\* Transfer on the motorboat *Delfino Verde*, an APT service with bicycles on the boat, from Grado (Molo Torpediniere) to Trieste (Molo Bersaglieri), additional bicycles could be transfer by shuttle service GoTransfer FVG.

\*\* Transfer on the motorboat *Delfino Verde*, an APT service with bicycles on the boat, from Trieste (Molo Bersaglieri) to Muggia additional bicycles could be transfer by shuttle service GoTransfer FVG.

## 6.4 Tour organization

After consulting the offers it was decided to purchase the travel package offered by Cyclando, which is based on a bike tour designed by FunActive.

The basic offer was adapted according to the needs of the group of researchers taking part in the bike tour.

Three researchers would participate in the tour from the beginning, on the third day one of the researchers would return and two project partners would join the group along the route before the fourth stop.

The basic package included:

- overnight stay in a 3\* and 4\* hotel in a double room with private facilities;
- high season supplement;
- breakfast;
- welcome briefing;
- luggage transport from hotel to hotel;
- boat transfer on day 4;
- elaborate route, detailed travel documents (maps, route descriptions, places to visit, important telephone numbers);
- GPS tracks;
- telephone assistance throughout the tour;
- luggage medical insurance.

We chose these extra services:

- accommodation option of single rooms.
- rental of 4 bikes, two touring bikes and two E-bikes.
- booking the return transfer initially planned by ferry, which was later changed to a shuttle due to the suspension of the ferry service due to the pandemic.

The tour operator was flexible in adapting the initial proposal to the needs of the group of researchers and organised a customised combination of services for each.

## 6.5 Test of North Adriatic transnational corridor from Venice to Poreč

The pilot action of the project was the realization of the bike tour from Venice (Italy) to Poreč (Croatia) between 28th June and 4th July 2021. We left Venice in three Venice International University (VIU) researchers, on the third day a colleague returned home. On the fourth day we were joined by two partners of the Institute for Transport and Logistics (ITL) to continue the tour.

### The report

The study focuses on the quality of the route, in terms of cycling infrastructure, accessibility and safety of the routes, and the attractiveness of the cycling experience along the route. An important aspect of the research is the investigation of the intermodal connections along the route, which allow a continuity of connection to a wider system of routes through. We also evaluate route signposts, modal exchange nodes or to connect to other cycling corridors. Analysing the additional services for cyclists riding in the corridor, we evaluate the presence of accommodation with storage and service facilities for bicycles, small equipped workshops or places to carry out repairs.

Moreover, during the bike tour we identified the main bottlenecks and black spots in the system for which we provide recommendations for the implementation of public space policies for administrations and advice for tour operators.



Figure 1. Map of the bike tour

### 6.5.1 Stage 1, 28<sup>th</sup> June 2021, Venice – Jesolo

Starting from Mestre (Venice) we crossed the Ponte della Libertà to the island of Tronchetto where we took the ferry-boat to the Lido of Venice. After a transfer shift we reached Punta Sabbioni. Cycling along the beautiful coastline of Litorale del Cavallino, a peninsula in the north of the lagoon, lined with fishing boats and small villages, we reached Jesolo.

#### Stage report

Distance covered by bike: 35 km

Intermodal solutions used: 2 ferry-boats



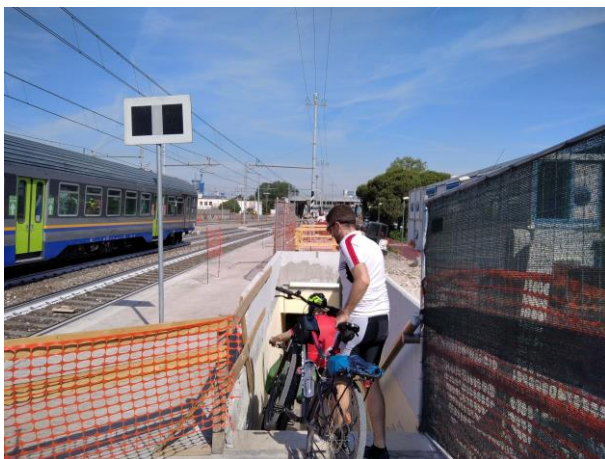
Figure 2. Map of the 1<sup>st</sup> stage

### **Mestre – Tronchetto**

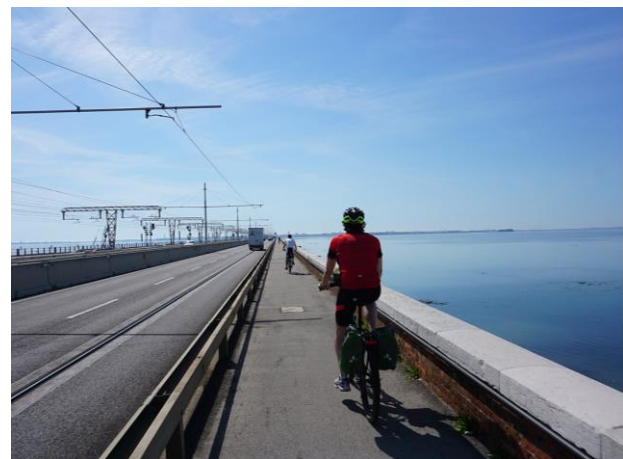
The tour operator provided the bicycles, which were delivered to the hotel in Mestre the day before departure. Before departure we met a tour operator staff member taking over our luggage to the hotel in Jesolo. During all the stages, the hoteliers took over our luggage and handed it over to local transporters who had been appointed by the tour operator for the transfers between the various arrival places of the daily stages. The carrier handed over our bikes, panniers, maps and documentation about the route.

From the hotel we followed the bike path to the Venice Porto Marghera station. We crossed the tracks through a subway, which had been arranged in an emergency situation when work was being done on the railway line, and a temporary ramp was set up to carry the bikes (Fig. 3).

Afterwards, a cycle path with a dedicated seat was put in front of us until we reached the Ponte della Libertà (Fig. 4). The cycle path runs along the carriageway separated by guard rails crossing the lagoon to the island of Tronchetto.



*Figure 3. Venice Porto Marghera station*



*Figure 4. Ponte della Libertà*

### **Tronchetto – Lido and Lido – Punta Sabbioni ferry-boat transfer**

From the Tronchetto ferry pier we took a ferry of ACTV (Venetian public transport company) that crosses the Giudecca Canal from where you can admire Venice passing by Fondamenta delle Zattere, Punta della Dogana and Piazza San Marco (Fig. 5). The ferry has no bike racks. We had the possibility to place them in the bow, near the exit, along one side of the space dedicated to vehicles (Fig. 6).

It was necessary to change ferry at Lido because two different shipping lines connect Venice to Punta Sabbioni. The additional ticket of 1€ per person for transporting the bike is really low.

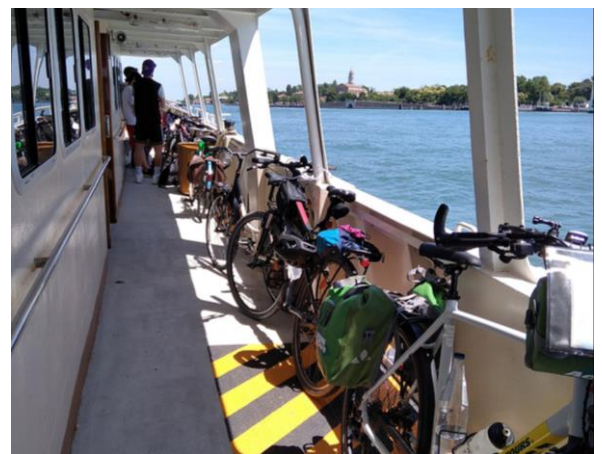


*Figure 5. Ferry on the Giudecca Canal*

Once on the Lido we had to reach the other pier to board the motorvassel *foraneo* leaving for the Cavallino peninsula. The boat we took actually didn't have a space to store the bikes, we were allowed to place them along one side of the corridors outside the passenger cabin (Fig. 7). For the first transfer via ferry, even though there was no dedicated space to store the bikes, there were no difficulties in accessing the service for cyclists. On the other hand, for the second transfer, despite having a ticket on departure, the possibility of loading one's own bicycle on board is not a given. This depends on the number of passengers and the presence of a maximum of 4 or 5 bikes on board. The necessity to change transport, getting on and off the ferries, complicates the bike transfer difficult, even though this is a well-established route for those travelling by bike in the lagoon.



*Figure 6. ACTV ferry-boat*



*Figure 7. ACTV motorvassel*



### **Punta Sabbioni – Lido di Jesolo**

Landing at Punta Sabbioni, on the Cavallino peninsula we found widespread signage indicating the route up the lagoon, the route coincides with the EuroVelo8 road. The route runs on a secondary paved road along the north side of the peninsula.

Along the Pordelio canal, a cycle path is being built in a unique environmental and naturalistic context, offering the possibility to visit a delicate environment without compromising it. The new section of the cycle path connects Venice to Cavallino Treporti. It is an infrastructure designed to integrate with the environment, between the jetties and the salt marshes typical of the Venice lagoon which are periodically submerged by the tides (Fig. 8). The new cycle path on the water will be the longest in Europe, according to the Cavallino Treporti Municipality, and adopts innovative technological solutions. It will also be lit with low-impact LEDs so that it can be used safely even at night.

Passing through the village of Cavallino we reach the road that runs alongside the Casson Canal. The asphalt path stops there. We crossed a floating bridge at the mouth of the River Sile (Fig. 9) and continued on a very wide dirt road along the watercourse, between cultivated fields and reeds.



*Figure 8. New Pordelio canal cycle path*



*Figure 9. Sile floating bridge*

We ran on the shared road with the motor vehicles, which was initially unpaved with gravel, rather dusty and not very flowy, then the path became asphalted. At this point it is possible to connect to the regional GiraSile route, which is very well signposted with maps and direction signs, to Treviso. We continued our route towards the Adriatic coast. For a stretch of a couple of kilometres we cycled on a carriage road, but not very busy. Rounding the town centre of Jesolo (Fig. 10), we ran by the side of the road until we reached an asphalt bike path that was quite bumpy and interrupted by several driveways to reach Lido di Jesolo.

The stretch of roadway between the end of the bike path along the Sile and the beginning of the bike path to Lido di Jesolo was the least comfortable part of the day.

When we arrived at Lido di Jesolo we crossed the pedestrian area and reached the hotel booked by the tour operator. At the hotel we could deposit the bike in the uncovered car park in the unguarded courtyard behind the entrance, accessible directly from the private road (Fig. 11).



*Figure 10. Jesolo*



*Figure 11. Hotel bike deposit*

#### **Bottlenecks:**

- no dedicated space for bike storage on ferries;
- change of ferry makes transfer to the lagoon uncomfortable;
- stretch of road on a potentially busy driveway;
- hotel's bike storage area outdoors and not secure.

### 6.5.2 Stage 2, 29<sup>th</sup> June 2021, Jesolo – Portogruaro

*Leaving the Adriatic coast behind us, we reached the eastern Venetian countryside on the mainland. We crossed the reclaimed plain of the Lower Piave Valley, an ancient marshy area between Eraclea and Caorle, which in the 20<sup>th</sup> century became fertile countryside. Crossing the canals between the cultivated fields we skirted the Brian canal, passing beside the Ca' Corniani cycle-station, a multi-purpose hub with a bike and kayak rental. Following the road in the direction of the Julian Alps we crossed the Livenza and Loncon rivers. We reach Concordia Saggittaria, founded in 42 BC as Iulia Concordia by the Romans. We concluded the second stage by following the River Lemene to Portogruaro, the river port of the Serenissima Republic of Venice.*

#### Stage report

Distance covered by bike: 63 km

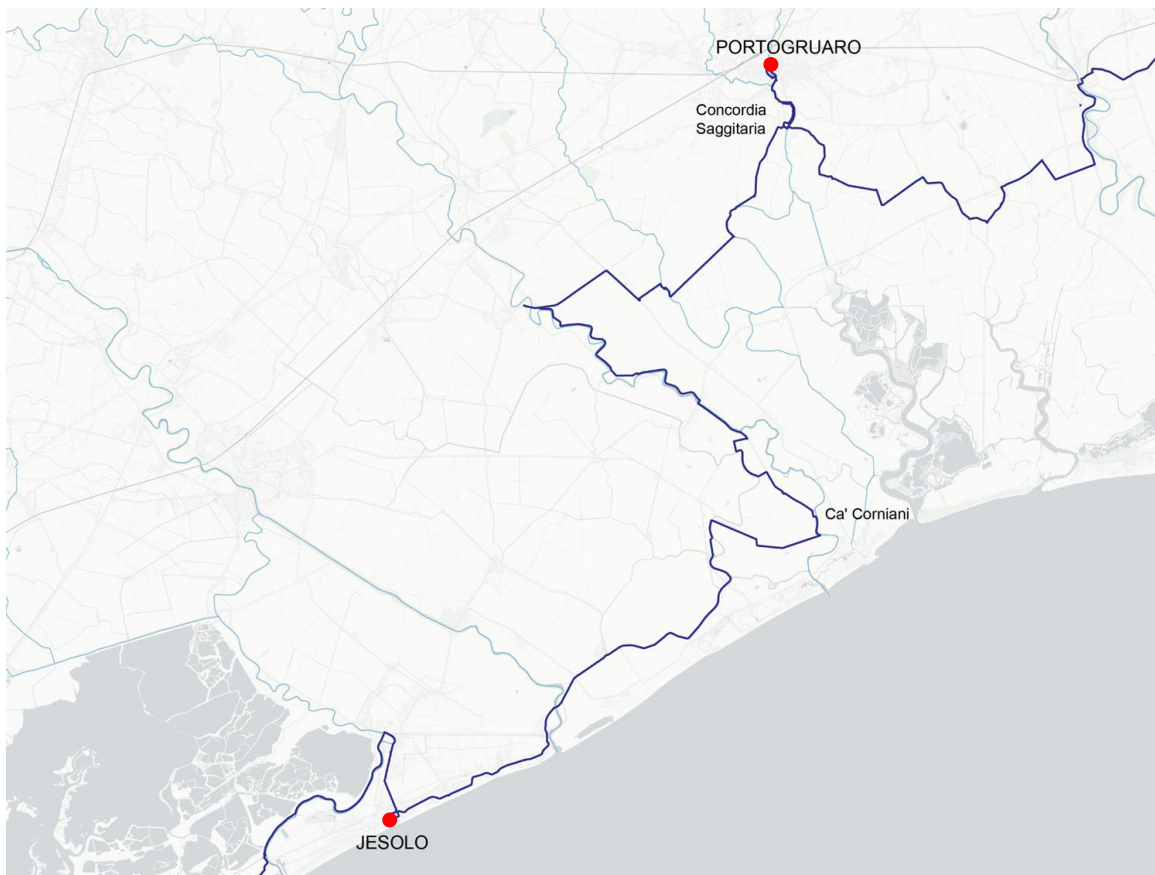


Figure 12. Map of the 2<sup>nd</sup> stage

### Lido di Jesolo – Torre di Mosto

We left Lido di Jesolo early in the morning and rode along the bike lane and along stretches of carriageway to Jesolo Pineta (Fig. 13). Leaving the town we took the asphalt driveway along a pleasant stretch with limited traffic through cultivated fields, crossed the boat-bridge on the Piave River (Fig. 14) and continued past Torre di Fine along the navigable canals with architectural features of the water pumps (Fig. 15). When we reached the Brian dam (Fig. 16) we headed in the direction of Caorle along a secondary asphalt road.



Figure 13. Lido di Jesolo

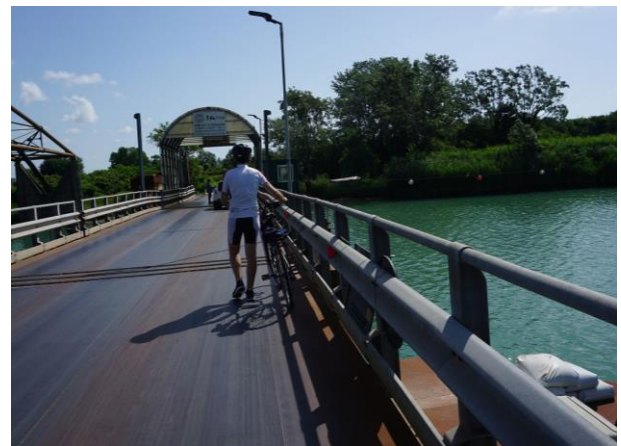


Figure 14. Piave boat-bridge



Figure 15. Water pumping station



Figure 16. Brian dam

Before the crossroads leading to Caorle we turned inland towards San Giorgio di Livenza. Cycling along the road we arrived at Ca' Corniani, an old restored estate with a cycle station providing services to tourists. The 1,770-hectare Ca' Corniani area (Fig. 17, 18) constitutes a multifunctional centre connected by a 10-km-long cycling and hiking network to a series of landscape works and rest areas for visitors. Through the cycle path that runs alongside the driveway we reach the Livenza river, we run along a secondary asphalt road on the right bank and arrive in Torre di Mosto (Fig. 19).



*Figure 17. Ca' Corniani cyclo-station*



*Figure 18. Ca' Corniani estate*



*Figure 19. Livenza river bank*

### Torre di Mosto – Portogruaro

Crossing the plain and the Postumia canal we reached the Lemene river, and following the asphalt road along the bank we arrived at Concordia Sagittaria. After passing the centre of the ancient Roman city, we reached the cycle bridge leading to the cycle path along the river, on which we rode to Portogruaro (Fig. 20, 21). We visited both the two ancient centres, rich in history and characteristic buildings. During the evening we had the pleasure of tasting typical local products in a suggestive tavern.

For the second day in a row there was no opportunity to store the bikes in a secure deposit, the hotel where we stayed offered outdoor parking in a private area.



Figure 20. Town center of Portogruaro



Figure 21. Piazza della Repubblica, Portogruaro

### Bottlenecks:

- hotel's bike storage area outdoors and not secure.

### 6.5.3 Stage 3, 30<sup>th</sup> June 2021, Portogruaro - Grado

*From the Venetian mainland, sailing into the Marano Lagoon, to the ancient cities of Aquileia and Grado. Saying a farewell to a travel colleague, we left Portogruaro and the Alps behind us and descended the plain. We spent the morning on the roads between the agricultural canals, we reached Latisana following the beautiful towpath that runs alongside the Tagliamento River. After Precenico we crossed the woods of Muzzana del Turgnano. We headed towards Marano Lagunare from where we sailed with a motorboat for a short cut. During the navigation we visited a renovated "casone da pesca" (fishing house). Once landed, we cycled along an endless gravel road to the marvellous ruins of Aquileia. From there we carried on southwards to Grado, crossing the homonymous lagoon.*

#### Stage report

Distance covered by bike: 66 km

Intermodal solutions used: 1 motorboat

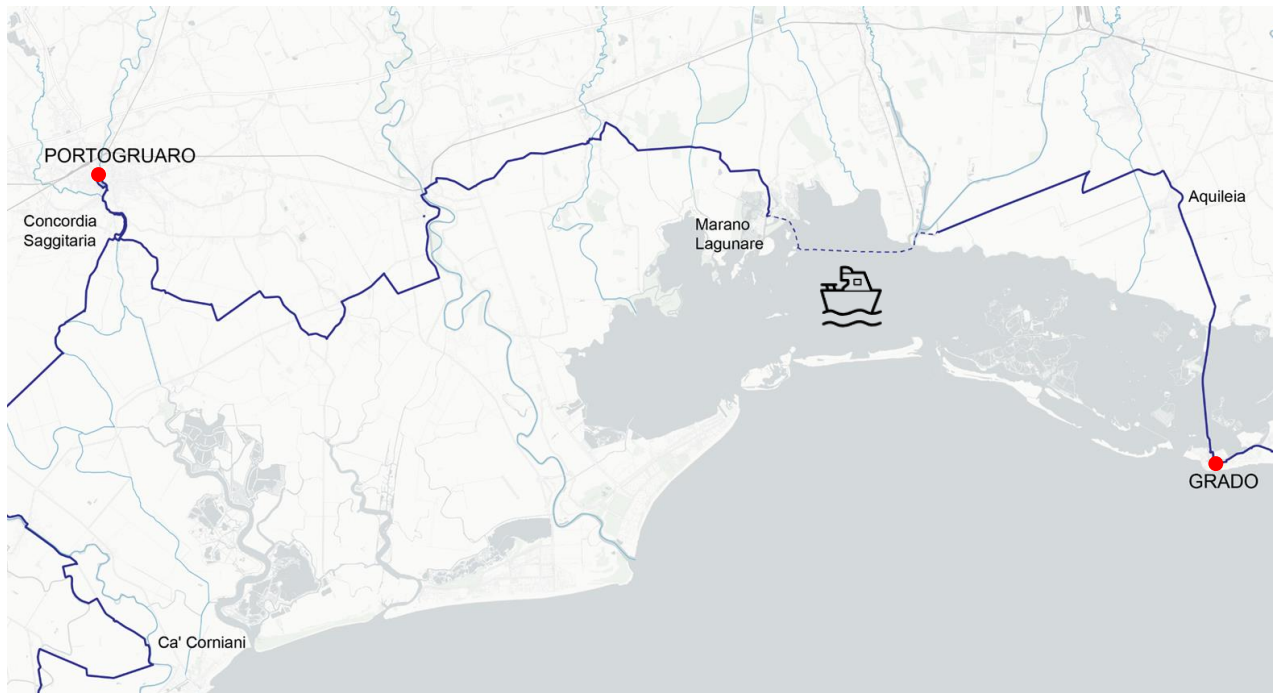


Figure 22. Map of the 3<sup>rd</sup> stage

### Portogruaro – Marano Lagunare

On the departure of the third day a member of the VIU group concluded his bike tour experience with the group and returned to Venice by train transfer from Portogruaro station.

Leaving the hotel we rode along the paved bike path to Concordia Sagittaria. After crossing the cycle bridge over the Lemene (Fig. 23) we took the road in the direction of Aquileia. Throughout the morning we rode along the plain on secondary asphalt roads running between cultivated fields.

At the village of San Filippo we started to follow the regional GiraTagliamento route in the river park along the Tagliamento. The route connects the inland villages to the sea, starts in Alvisopoli and ends in Bibione.



*Figure 23. Lemene cycle bridge*



*Figure 24. Tagliamento cycle route*

We passed San Michele al Tagliamento running on the unpaved road on the bank of the river (Fig. 24) and we arrived at Latisana. From there we continued to Precenicco passing by the cycle path on a dedicated road that connects the urban centres. We crossed the cycle bridge over the Stella (Fig. 25) and headed towards the nature reserve of the woods of Muzzana del Turgnano. The route runs along a pleasant stretch of unpaved road in an area of tall hardwood vegetation and intercepts the route of the pilgrims in the 3rd stage of the Romea Strata Aquileiense (Fig. 26). The wood is the remainder part of the ancient "Silva lupanica", the large forest that once covered the entire plain between the Livenza and Isonzo rivers. Once out of the forest we returned to the asphalted road for the short stretch leading to Marano Lagunare.





*Figure 25. Stella cycle bridge*



*Figure 26. Reserve of Muzzana del Turgnano*

### **Marano Lagunare – Grado**

When we arrived at the port, after a lunch break at the restaurant of a fishmonger's shop, we took the transfer by motorboat in the direction of Aquileia, thus avoiding the inland road that passes through Cervignano del Friuli. The transfer booked by the tour operator was carried out on a small motorboat belonging to a tourist agency that offers trips in the Marano lagoon. There was enough space on board to accommodate two pairs of tourists in addition to us. Our bikes were set up in the vertical rack at the stern of the motorboat (Fig. 27).



*Figure 27. Bikes on motorboat*



*Figure 28. Motorboat on arrival*

The boat trip also included a Prosecco tasting and a guided tour. During the navigation we visited a small island to see a very suggestive and renovated "casone da pesca", a typical fishing house now used for lunches and parties by groups of friends (Fig. 29). The transfer took us to Barancole. Once we got off, we rode along a straight unpaved road for about 7 km until we reached the Terzo river. We arrived at Monastero where we crossed the EuroVelo8 itinerary of the Via Giulia Augusta which led us to Aquileia. We visited the archaeological area of the ancient Roman city and the patriarchal basilica of Santa Maria Assunta (Fig. 30). Along the road from Portogruaro to Aquileia we found fragmented signposts referring to short-range itineraries, especially in the stretches outside the inhabited centres; in order to orient ourselves we often resorted to the use of the application with the maps provided by the tour operator.



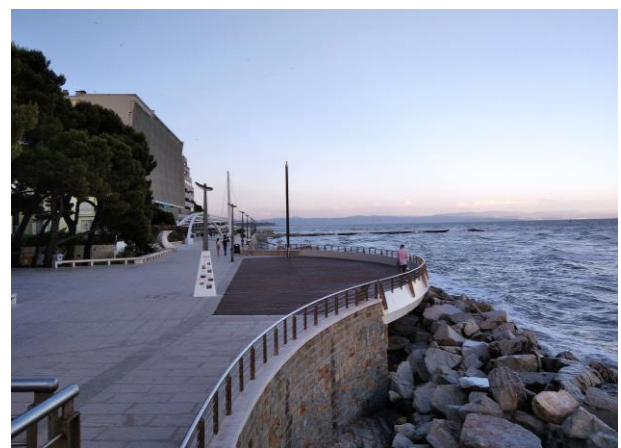
*Figure 29. Renovated fishing house*



*Figure 30. Basilica of Aquileia*



*Figure 31. Cycle path to Grado*



*Figure 32. Largo Pier Paolo Pasolini, Grado*

We left Aquileia behind us and continued along the asphalt cycle path along the embankment of the Belvedere Canal and over the Figariola Bridge to Grado (Fig. 31). We arrived at the hotel where we met the two tourmates of ITL. We could deposit the bikes in the car park inside the hotel where we found the other two bikes provided by the tour operator for the new travel companions. In the evening we enjoyed a walk along the sea and through the streets of the lagoon city (Fig. 32).

**Bottlenecks:**

- no information on the timetable of the navigation service, neither for the purchase on site of tickets for the transfer by motorboat, it is necessary to contact the agency and book the service;
- no signposts in the area to follow the itinerary, there are only signs for local routes, excluding Eurovelo8.

#### 6.5.4 Stage 4, 1<sup>st</sup> July 2021, Grado - Trieste

*From Grado, through Monfalcone, up the coast to arrive in the Gulf of Trieste.*

*We left Grado with two new travelling companions. After passing Grado Pineta we crossed the Valle Cavanata nature reserve, along the high lagoon embankment. We reached the mouth of the River Isonzo and continued towards Monfalcone, crossing the port and the town centre. We passed Duino and the resurgent river Timavo. We took shelter from a heavy rainfall and continued our ride down towards Trieste. We cycle along the coast, where high plateaus plunge into deep blue water and white cliffs rise up to the sea, the road follows through suggestive resorts like Duino, Sistiana, Miramare, and Barcola.*

#### Stage report

Distance covered by bike: 73 km

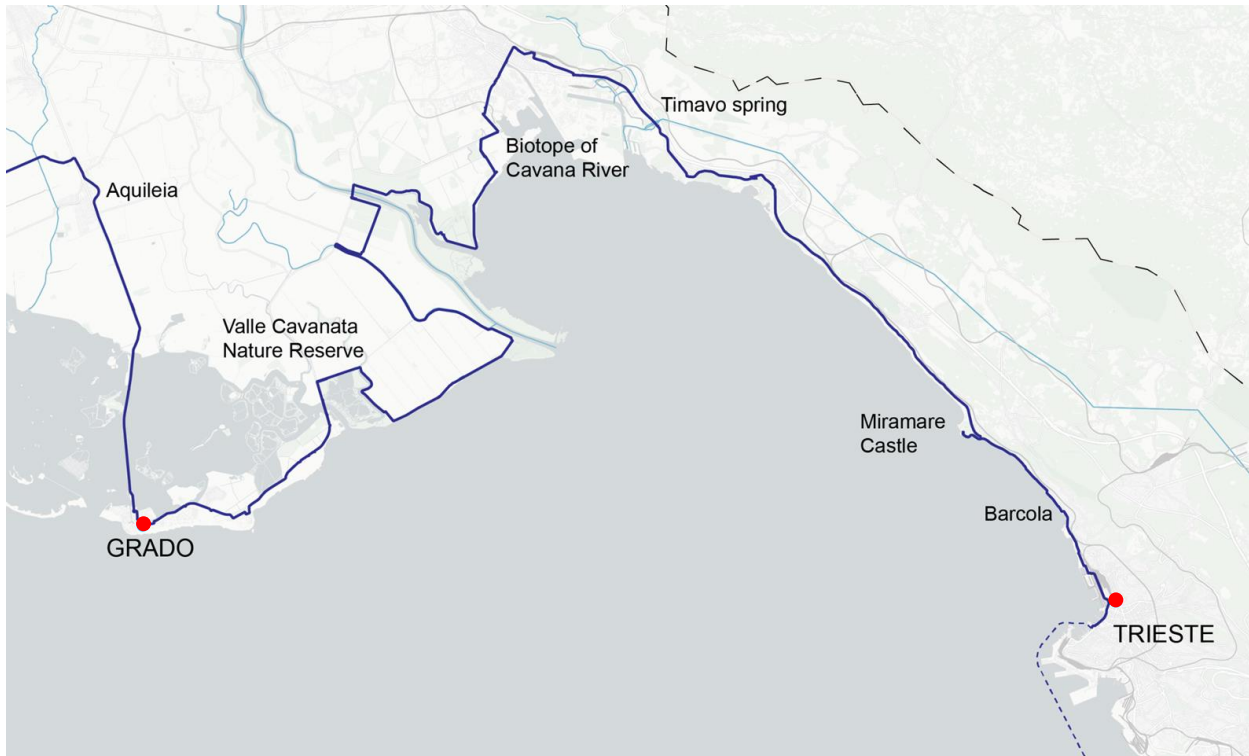


Figure 33. Map of the 4<sup>th</sup> stage

### Grado – Monfalcone

We left Grado together with our new tour partners, running on the cycle path along the Grado canal directed to the east (Fig. 34). When we arrived at the Pineta di Grado, we took the dirt path along the coast overlooking the characteristic landscape of the lagoon (Fig. 35).



*Figure 34. Cycle path, Grado*



*Figure 35. Pineta di Grado*

Running on the cycle path of the bridge over the Primero Canal we get into the Cavanata Valley Nature Reserve (Fig. 36), an area used in the past as a "fishing valley". Its particular conformation makes the area ideal for the resting, nesting and wintering of numerous bird species. For this reason, it has been declared a wetland of international value, and in respect of the environment, some routes have been created that can be travelled freely, while others can be followed with a guide.



*Figure 36. Valle Cavanata natural reserve*

We stopped for a short stop to refill water in a restaurant affiliated with the regional circuit for the promotion of cycling tourism "A'mare in bici" near the Biotopo del Caneo (Fig. 37). Along the unpaved cycle path there are several signs and areas equipped for cyclists to take a break. Continuing along the coast we arrived in Monfalcone, passing through the industrial area and running along the urban cycle paths we reached the station (Fig. 38).



*Figure 37. Cycle route accommodation in Caneo*



*Figure 38. Cycle path in Monfalcone*

### **Monfalcone – Trieste**

We decided to continue our cycling route from Monfalcone to Trieste directly by bike avoiding to take the train. The transfer suggested in the itinerary recommended to us by the tour operator would have simplified the route, but it would have denied us one of the most fascinating part of the entire bike tour (Fig. 39). We chose to run the coastal road as the inland option would have extended the route by another 20 km and would have required additional effort due to the greater height difference. We rode slightly uphill on cycle paths and by the side of the road we reached Duino and the source of the Timavo. We run along the coast passing through Sistiana. From the Costiera Triestina we could admire the stunning landscape of the sheer cliffs, but the passage is dangerous, it is not protected and it shares the state road with a high traffic of vehicles (Fig. 40).



*Figure 39. Costiera Triestina landscape*



*Figure 40. Costiera Triestina*

We made a detour to Miramare Castle (Fig. 41). The castle and its park were built at the request of Archduke Maximilian of Habsburg, who commissioned the construction of a residence on the coast of Trieste overlooking the sea and surrounded by a large garden (Fig. 42). The castle hosts a museum and the park is always open to the public for free. We visited the park taking our bikes with us because there was no dedicated space to store them.



*Figure 41. Miramare Castle*



*Figure 42. Park of Miramare*

Going down the road we reached the waterfront of Trieste, the Barcola, where the local people usually spend their free time. In this area, the cycle path runs in the pedestrian zone, close to gardens and people taking the sun (Fig. 43). The cycling access to the city is from the Porto Vecchio, an industrial area currently being redeveloped with a cycle path leading to the city centre (Fig. 44). We finished the day's stage by reaching the hotel a few hundred meters from the Trieste station. We were offered the possibility of parking our bikes in a small storage room of the hotel accessible from the rear entrance.



Figure 43. Barcola



Figure 44. Porto Vecchio

**Bottlenecks:**

- no attractive alternative of transfer by train compared to the possibility of enjoying views and experiences along the coastal road;
- dangerousness of the passage along the Trieste coast due to the high volume of traffic.



### 6.5.5 Stage 5, 2<sup>nd</sup> July 2021, Trieste - Piran

*Sailing from Trieste to Muggia. We cycled the Parenzana road, descended from the hills to Koper. We continued on the coastal cycle path to Izola, Portorož and Piran.*

*Early in the morning we took the Delfino Verde motorship from Trieste to Muggia. We solved the first technical problem of the journey thanks to the assistance of the Info Point of the Alpe-Adria cycle route. We cycled the Parenzana road, a former railway, through hills and tunnels, which carried us across the border into Slovenia. We descended from the hills to the coast via Koper. We continued on the pleasant coastal cycle path to Izola and Portorož. We closed the day's stage by heading to Piran.*

#### Stage report

Distance covered by bike: 35 km

Intermodal solutions used: 1 motorboat



Figure 45. Map of the 5<sup>th</sup> stage

### Trieste – Parenzana

On the fifth day of the tour we did a short stage by bike. We left Trieste in the morning, embarking from the Molo Bersaglieri on the boat with bike transfer service Delfino Verde (Fig. 46, 47), which connects the city centre with Muggia, on the other side of the Gulf of Trieste, avoiding the industrial area to the east of the city. The motorboat has a lot of seats in the cabin and on the upper deck and is used as a regular service by tourists and commuters, with racks for transporting up to twenty bikes on board. The motorboat trip offers a complete view of the entire Gulf, from the Marian Sanctuary of Monte Grisa to the Slovenian coast.



Figure 46. Delfino Verde ferry transfer



Figure 47. Delfino Verde ferry transfer

When we arrived in Muggia we visited the little town that was part of the Venetian domain (Fig. 48). We took a break to do some simple repairs to the wheels of our bikes, helped by the efficient staff of the info/bike point. The infopoint is the starting point for the Parenzana cycle route (Muggia-Parenzo) and the arrival point for the Alpe Adria Trail, acting as a connection between the two slow tourism routes. At the infopoint it is possible to rent any equipment suitable for cycling tourism, bicycles, E-bikes, accessories, helmets and useful technical assistance material (Fig. 49).



Figure 48. Muggia town centre



Figure 49. Infopoint in Muggia

### Parenzana – Piran

From Muggia we headed towards the access to the Parenzana, a cycle path connecting Italy, Slovenia and Croatia along the site of an old railway. Entering Slovenian territory, we could see the higher quality of the cycle path and widespread signposts. The Parenzana cycle route alternates between forest passages, passing through villages, crossing roads on bridges (Fig. 50) and cycling subways in complete safety.

After about ten kilometres of asphalt cycle path through the woods, we reached Koper (Fig. 51), passed through the beautiful old town and headed towards the waterfront.



Figure 50. Parenzana



Figure 51. Koper

On the coast between Koper and Izola there is a wide cycle and pedestrian path on an asphalt road (Fig. 52), access is also allowed to scooters. The regeneration of the coastal section was made possible by the bypassing of the road through tunnels. Arriving in Izola we took the road that runs uphill into the inland to connect with the Parenzana, the asphalt cycle path has several rest areas equipped with picnic facilities or exercise equipment (Fig. 53). After about 5 km we descended to Portorož where we had a lunch break by the sea.



Figure 52. Cycle path between Koper and Izola



Figure 53. Rest area of Parenzana

We rode the last part of the day along the waterfront to Piran on a path shared by cyclists and pedestrians on the shore and inside tourist resorts (Fig. 54). We arrived in Piran in the early afternoon and enjoyed a swim in the sea (Fig. 55). The hotel had parking for bicycles in a warehouse in front of the main entrance.

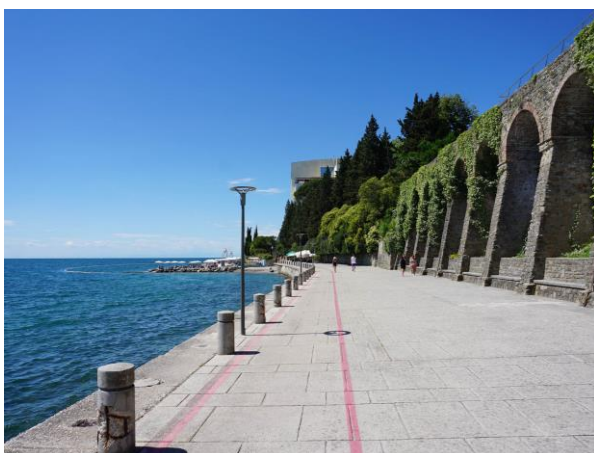


Figure 54. Cycle path between Portorož and Piran



Figure 55. Piran town centre

### 6.5.6 Stage 6, 3<sup>rd</sup> July 2021, Piran – Poreč

*Descending along the coast, through the Sečovlje Salina Nature Park, into the hills, reaching the sea again near Novigrad and arriving in Grad Poreč.*

*Cycling along the coast past Portorož we reached the Sečovlje Salina Nature Park, a magnificent landscape shaped by salt mining, a place where various types of bird nest. We entered the Istrian hinterland and continued through a section of the Parenzana road through the hills, passing small villages and olive groves. We reached the sea again near Novigrad. We took the last stretch southwards and arrived in Grad Poreč, the final stage of our journey.*

#### Stage report

Distance covered by bike: 70 km

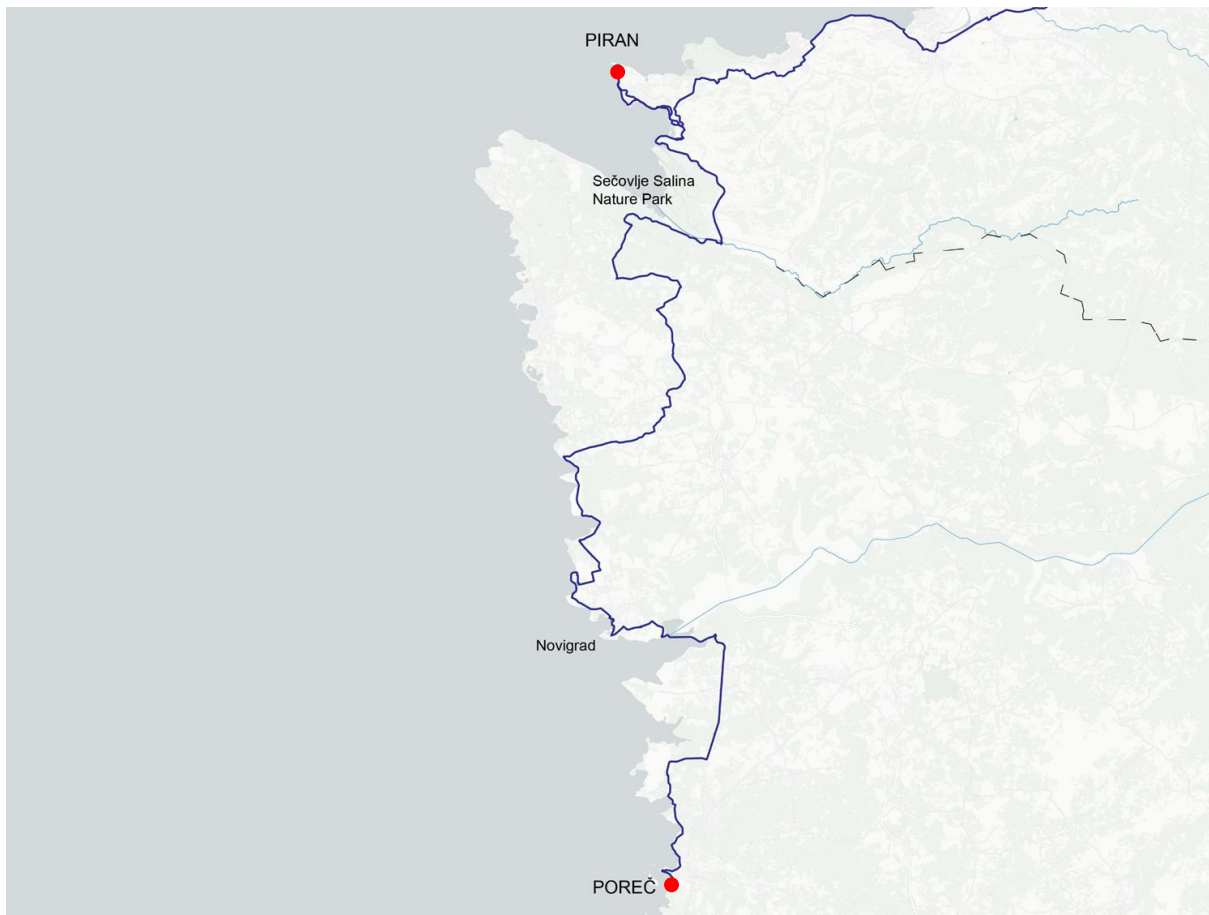


Figure 56. Map of the 6<sup>th</sup> stage

**Piran – Poreč**

The last day of the bike tour was also the longest. In the morning we rode again along the cycle path between Piran and Portroz, continuing down the Istrian coast (Fig. 57). We descended along the coast until we reached the cove of the Sečovlje Salina Nature Park (Fig. 58). The reserve is the biggest wetland on the coastline inhabited by highly interesting plant and animal species that have managed to adapt to the extreme salina living conditions. In this area people harvest salt using an old method.



*Figure 57. Road on Istrian coast*



*Figure 58. Sečovlje Salina Nature Park*

In this section the Parenzana has an uphill gravel track, definitely the most difficult of those covered in the tour (Fig. 60). We left the official route of the old railway and crossed the border between Slovenia and Croatia, entering the inland cycle paths in the middle of the vegetation (Fig. 61).



*Figure 60. Unpaved road of Parenzana*



*Figure 61. Inland cycle path*

We rode on asphalt secondary roads with signs and maps of Istria Bike (Fig. 62) connecting the inland villages. We passed along the wine road through Kmeti, Buscina, Juricani. At Babici we turned in the direction of the coast and passed through the large camping site of Umag on the cycle path between the bungalows (Fig. 63).



*Figure 62. Istria Bike signpost*



*Figure 63. Camping cycle path*

Having also passed Novigrad (Fig. 64) we continued along the route that runs over the Antenal bridge (Fig. 65) beside the road.



*Figure 64. View of Novigrad*



*Figure 65. Antenal bridge*

A further uphill road led us to Tar, from where the cycle path alternated between stretches on its own road and stretches alongside the carriageway (Fig. 66). We finally arrived in Porec following the main road and visited the town centre and the Euphrasius Basilica (Fig. 67) before going to the hotel.



*Figure 66. Cycle path in Istrian mainland*



*Figure 67. Euphrasian Basilica*

The hotel that hosted our last night of the bike tour was located on the opposite side of the bay and offered an excellent view of the old town of Porec (Fig. 68). We left our bikes in the uncovered parking space at the back of the hotel where the tour operator's staff would pick them up the next morning.



*Figure 68. View of Poreč*

#### Bottleneck:

- disproportionate daily load of cycling kilometres, in the stage of the previous day relatively few cycling kilometres were foreseen, in the last stage, also running on dirt tracks, the cycling hours increased considerably.



### 6.5.7 End of the tour, 4<sup>th</sup> July 2021, return to Venice

Shuttle bus transfer from Poreč to Trieste and then to Venice (Fig. 69).

The transfer has been organised as an alternative to the transfer via ferry di Venice Lines, service not available this season due to Covid 19. The tour operator organised a single transport both for the rented bikes and for us passengers, taking us to Venice, the starting point of the tour.



*Figure 69. Transfer Poreč-Venice*

Bottleneck:

- Return by shuttle bus is unattractive, on the contrary, many cycle tourists did not choose travel packages that did not include returns made in a more sustainable way or that offered an additional travel experience to complete the bike tour.

## 6.6 Data evaluations

In the pilot action we analysed various aspects of safety, attractiveness and continuity of cycling services in the North Adriatic cross-border corridor. We identified some general and some more specific aspects. Then we list the bottlenecks and black spots of the system and also suggest recommendations to improve the condition of the cycling corridor and implement services for cyclists.

### 6.6.1 Bottlenecks analysis

#### Ferry boat transfer

Limited transport of bicycles on ACTV vehicles departing from Venice to reach the islands. Uncomfortable solution that forces the change of ferry boat at the Lido to proceed with the bike tour. Despite the good ticketing service, the conditions for transporting bicycles on board the ferries are not comfortable. Generally, there are no racks where to park bikes and the parking space is shared with vehicles in the case of ferries or with passengers in the case of motor vessels. In the specific case of some vessels, the transport of bikes is dependent on the presence of other cyclists, and a maximum number of bikes can be taken on board at the discretion of the captain.



*Figure 69. Ferry boat transfer*

**Confusing wayfinding or lack of indications**

Signs between local routes and tour operators' indications with stickers, if they increase there is a risk of congestion. In some places the signposts are overabundant, in other cases they are missing altogether.



*Figure 70. Signal surplus*

**Train transfer attractive**

Alternative multimodal transport options to the cycle route should be based on the attractiveness of the transfer experience (historical trains, rack railways).



*Figure 71. Monfalcone train station*

### Wayfinding with regional cycle path

Lack of existing paths in the hinterland of Trieste towards the Isonzo and in the area of Muggia, few indications for existing info-point.



Figure 71. Muggia info-point

### Safety

A stretch of road Costiera Triestina with beautiful landscapes is dangerous due to the large volume of vehicle traffic as it runs on a mixed roadway.



Figure 72. Costiera Triestina

### Unbalanced daily load of km by bike

Relatively few kilometres of cycling were planned for the initial flat sections. On some days, when we rode through hilly areas, even on dirt tracks, the hours of cycling increased considerably.



*Figure 73. Parenzana*

### Return

By travelling along the Parenzana and arriving in Poreč and finish the bike tour, in absence of Venice Lines ferry transfer, the loop can be closed in Trieste, with the return via motorboat, then a cycle tour to Venice or a transfer via train.



*Figure 74. Ferry transfer*

## 6.6.2 Recommendations

Below are some indications for public administrators and tour operator to promote the choice of cycling tourism as a holiday to actively experience the territory.

### Recommendations to public administrators

- Public transport equipment and service design: improving the offer with suitable vehicles and services, (ACTV and Trenitalia)
- Missing cycling links: from a safety point of view the cycle route of the Costiera Triestina should be improved.
- Wayfinding along the route: in some places the signposts are overabundant (e.g., Girasile and other local routes), in other cases they are missing altogether (Mestre and surroundings of the station), or are very rare (Eraclea and Caorle)
- Promotion of wayfinding signs for regional routes and connection with other cycle routes (Isonzo, Muggia).
- Bike stations: there is a lack of integrated rental services, repairs, info points, accommodations.
- Implement awareness of the market and the cycling tourism chain, develop dialogue between policy makers and tour operators, combine knowledge and understand how to support the development of cycling. Where it has no direct competence, it could offer itself as a promoter.
- Directly supporting cooperation projects on cycling issues.
- Promotion of existing services offered by private operators: opportunities for integration into regional networks (motorboat transfer Marano Lagunare).

### Recommendations to private (tour operators)

- Accommodation: select alternative hotels with storage space for bikes.
- Connection to tourist attractions: integration of the service with environmental, landscape and historical guides.
- Distribution of km of stages: redistribute the load of km more evenly during the days of the bike tour.