EU Strategy for the Adriatic and Ionian Region
EUSAIR

Interreg
ADRION
ADRIATIC-IONIAN
European Regional Development Fund - Instrument for Pre-Accession II Fund
EUSAIR FACILITY POINT

EUSAIR Transport MasterPlan

Feasibility Study

ADRION Cycle Route

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List of Abbreviations

AICYR: Adriatic-Ionian Cycle Route

CO2: Carbon Dioxide

CO2e: Carbon Dioxide equivalent

dB : decibels

DEMO-EC: Development of sustainable Mobility management in European Cities

EC: European Commission

ECE: Economic Commission for Europe

ECF: European Cyclists' Federation

EFEHR: European Facilities for Earthquake Hazard and Risk

ESI: European Structural Instruments

ETC: European Territorial Cooperation

EU: European Union

EUSAIR: EU Strategy for the Adriatic – Ionian Region

FIAB: Italian Environment and Bicycle Federation

FVG: Friuli Venezia Giulia

GHG: Greenhouse gas

HEAT: Health Economic Assessment Tool

IPA: Instrument for Pre-accession Assistance

Lden: Day–evening–night noise level

MIMS: Minister of Infrastructure and Sustainable Mobility (Italy)

NECC: National EuroVelo Coordination Centre

NOx: Nitrogen oxides

NSS: National Bicycle Strategy of Greece

National Bicycle Strategy

PEP: Pan-European Programme

PM: Particulate Matter

ReCIR: Regional Interest Cycle Route Network (Italy)

RRF: Recovery and Resilience Facility

SNCT: National System of Tourist Cycleways (Italy)

SNMC: National Bicycle Mobility System of Italy

SUMP: Sustainable Urban Mobility Plan

TSG: Thematic Steering Group

UNECE: United Nations Economic Commission for Europe

WHO: World Health Organization

1 Introduction

The following report provides details for a feasibility study of the ADRIONCYCLETOUR project, a common and joint cycleways system in the Adriatic-Ionian Region. The ADRION cycling route runs along the coast and connects to the hinterland areas, connecting all the Adriatic-Ionian region's countries, from Sicily to Greece.

The ADRIONCYCLETOUR project was planned as part of the Transport and Tourism sub-groups (TSG2 and TSG4) within the EUSAIR framework. The project seeks to create a dedicated cycling route or lane that would traverse the participating countries, connecting various destinations and promoting sustainable tourism, recreational cycling, and alternative modes of transportation.

Figure 1 ADRIONCYCLETOUR project map

It is envisioned as a means to enhance regional connectivity, foster tourism development, and contribute to the overall goals of the EUSAIR strategy.

The report is divided into the following eight main chapters.

European territorial framework provides details on regulation, programs, and funding opportunities at the European level for cycling infrastructure planning, design, and implementation.

ADRIONCYCLETOUR chapter provides an overall review of the Adrion cycling lane project and its most updated status.

The national-level framework chapter describes the available national cycling strategies, infrastructure design regulations, possible funding opportunities, and the current status of the Adriatic cycle route for Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Montenegro, North Macedonia, Serbia, and Slovenia.

The analysis of design alternatives includes studies for possible realignment and comparison studies for the sections of the Adrion cycle route that are yet to be implemented in Greece and an alternative EuroVelo 8 route in Croatia.

Seismic and hydrological analyses are carried out for both the planned and studied alternative routes.

The seventh chapter of the report includes studies for wayfinding and signage for EuroVelo and national routes.

The report concludes with an overview of the socio-economic and environmental benefits of cycling, providing details on the impact of cycling on transport, the environment and health, the economy, and the job market.

2 European Territorial Framework

Cycling contributes to the EU's green transition by reducing road congestion and noise pollution and improving air quality. It also plays an essential role in improving health through cleaner air and more physical exercise and in enhancing economic growth by creating new, green jobs and encouraging the circular economy.

A study commissioned by the European Parliament in 2012 estimated that Europe has over 2.2 billion cycle tourism trips and 20 million overnight cycle trips every year. These have an estimated economic impact of €44 billion.[1]

Cycling policies are the Member States' responsibility, with each country setting up its own regulatory framework. Practical measures are taken at the local or regional level, including developing cycling networks and adapting the public transport network to facilitate combined trips. The EU-level intervention involves promoting cycling, providing financial support – through the European structural and investment funds and the Recovery and Resilience Facility – and sharing best practices. The sustainable and smart mobility strategy, the Commission's communications on the new EU urban mobility framework, and 'Save Energy' all stress the need to increase the modal share of public transport, walking, and cycling in urban areas. There is, however, no EU-level strategy.[2]

2.1 European Parliament resolution of 16 February 2023 on developing an EU cycling strategy (2022/2909(RSP))

The European Parliament has just adopted its first resolution dedicated exclusively to cycling in all its aspects. Calling on the Commission to develop a dedicated European cycling strategy, the solution also urges the Commission to recognize cycling as a fully-fledged transport mode and to put it on equal footing with the other modes. Cycling should be integrated into urban mobility – for instance, with cycle highways between suburban areas and city centers, secured bike parking facilities close to urban transport nodes, and affordable e-bike and bike-sharing schemes. Cycling should also be integrated into interurban transport – for example, by building cycle lanes parallel to railway tracks or inland waterways when upgrading the TEN-T network or by making more places available for bikes inside trains.

Cycling is a valuable alternative for travel over short distances in urban and rural areas and for tourism, but this potential has to be unlocked. Therefore, the resolution asks for more investment by Member States, local authorities, and other stakeholders in cycling infrastructure, related facilities, and cycling-related training and awareness raising. In this way, more people interested in cycling could get (back) on a bike. According to the resolution, cycling also has the potential to create 1 million new jobs by 2030 by absorbing

[1] https://ecf.com/what-we-do/cycling-tourism
[2] https://epthinktank.eu/2023/02/16/towards-a-european-cycling-strategy/

and reskilling workers. To achieve this, enhancing the production of bikes and e-bikes within the EU is crucial.

Cycling can offer an affordable transport alternative for vulnerable social groups exposed to transport poverty. The resolution, therefore, encourages Member States and local actors to develop support systems to purchase bicycles or participate in bike-sharing systems.

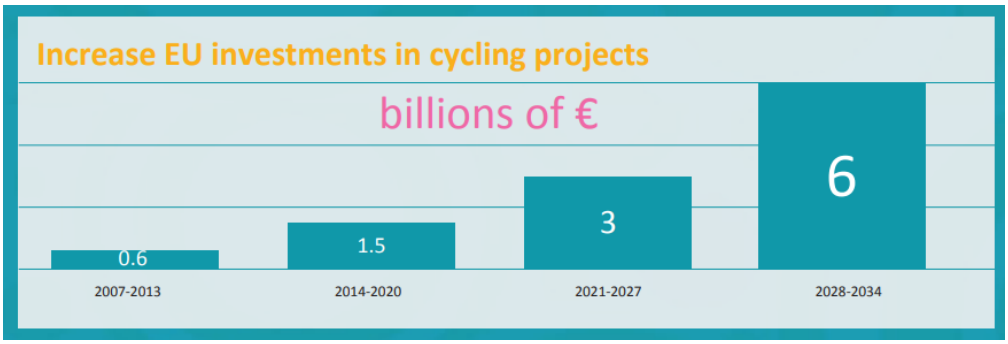
To help prevent accidents, the Commission is invited to work with the Member States to draw up standard road-safety guidelines and recommendations for micro-mobility, e.g., on speed limits, helmet requirements, and training. The resolution also suggests that the Commission declare 2024 the European Year of Cycling.

The TRAN committee adopted the draft resolution on 31 January 2023 and voted in plenary on 16 February. In its complete statement on the resolution, the Commission noted that cycling has already been considered in several Commission initiatives, such as REPowerEU and the Fit for 55 packages. However, the security of cyclists remains a critical issue to resolve. To this end, the Commission plans to set up a dedicated expert group and develop recommendations.[34]

The European Parliament adopted the resolution "Recommendations for Delivering Green Growth and an Effective Mobility in 2030" and calls for the European Commission to develop a European cycling strategy to double the number of kilometers cycled in Europe by 2030. The central objectives of that resolution are:

- Cycling should be an equal partner in the mobility system
- Grow cycle use in the EU by 50% at an average in 2019/2020 - 2030
- Cut rates for cyclists killed and seriously injured by half (in km cycled) in 2019/2020 - 2030
- Raise EU investment in cycling to €3billion in the 2021-27 period and €6billion from 2028-34

Figure 2 Increased EU investment in cycling through years



An 18-point action plan is formulated to develop more bicycle infrastructure, support the production of bicycles, components, and batteries "made in Europe," and grow two million jobs in a "cycling ecosystem" encompassing manufacturing, tourism, retail, health, and sports that already employs one million people in Europe. To reach this goal EU aims to accelerate the development of EuroVelo, which just this year turned 25.

In Europe, a common rule for the construction of bicycle infrastructure doesn't exist, but the Europe Commission provides a "Guidance for Cycling Projects in the EU." It contains existing EC-funded projects,

[3] https://www.europarl.europa.eu/doceo/document/TA-9-2023-0058_EN.pdf
[4] https://epthinktank.eu/2023/02/16/towards-a-european-cycling-strategy/

guidance, best practice, and other publications produced within Europe. Particular focus has been given to collating information and advice on cycling measures, again supported by city case study information.[5]

That guideline aims to help experts and administrators with projects about cyclist infrastructure and sustainable mobility besides giving engaging content to other stakeholders involved in bicycle use policies and infrastructure development.

2.2 European Cyclists' Federation

European Cyclists' Federation (ECF)is a non-profit member-based umbrella federation of local, regional and national civil society organizations that promote cycling for both transportation and leisure. ECF has around 70 member organizations across more than 40 countries, it unites the European cycling movements as the only civil society voice at the pan-European level and the world's largest and best-known cyclists' advocacy organization. The ECF's vision is to improve and increase cycling across Europe.[6]

ECF's activities include

- conducting cycling advocacy and research,
- providing tools and resources,
- developing the EuroVelo network and organizing the Velo-city conference series.

As one of its primary activities, ECF works to influence legislation in favor of cycling. Apart from raising general awareness around the benefits of cycling, its advocacy involves lobbying and engaging with politicians, policymakers, and other stakeholders at the EU and European level as well as international fora such as the United Nations Climate Change Conference.[7]

Membership in ECF is open to organizations interested in promoting cycling as a daily means of transportation and recreation.

ECF Full Membership is open to groups of cycle users from around Europe on a local, regional, or national level. ECF Full Members are entitled to vote in ECF Annual General Meetings.

ECF Associate membership is open to organizations that still need to meet the criteria for full membership but who support the aims of ECF, i.e., cycling organizations from outside Europe or other bodies interested in cycling.[8]

ECF has proactively supported cycling tourism due to its economic, social, environmental, cultural, and health benefits.

ECF 2030 Strategies includes:

- More Cycling: Cycling levels in Europe should increase by at least 50% compared to 2017. Most of the increase will need to occur in countries and cities where cycling levels are still relatively low, but we also want to see people of all genders, ethnicities, ages, and abilities cycling more often.
- Safer Cycling: The rate of cyclists killed or seriously injured in road collisions should be reduced by at least 50% compared to 2019. Safer and more comfortable cycling infrastructure is vital to achieving this and will significantly increase cycling levels.

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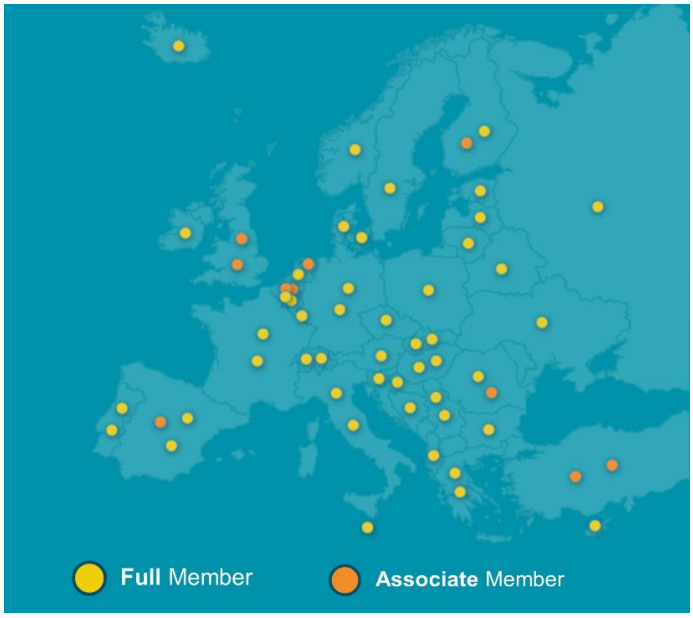
[5] https://transport.ec.europa.eu/transport-themes/clean-transport-urban-transport/cycling/guidance-cycling-projects-eu_en
[6] https://ecf.com/about-us
[7] https://en.wikipedia.org/wiki/European_Cyclists%27_Federation
[8] https://ecf.com/who-we-are/how-become-ecf-member

- Stronger Political Support: Cycling should be prioritized by policymakers at all levels across Europe as a sustainable and healthy part of the mobility mix, not only for everyday cycling but also for recreational cycling and sustainable cycling tourism.
- Higher Investment: Public investments in safe and comfortable infrastructure and other measures to improve and enable more cycling should increase significantly. EU funding for cycling in the 2021-2027 Multiannual Financial Framework should increase to at least €6 billion.[9]

Figure 3 ECF members in Europe



It has promoted cycling tourism by lobbying for more support and funding from the EU, building relations within the tourism industry (e.g., the European Union Federation of Youth Hostel Associations), appearing at trade shows and conferences, and working with partners on cycling tourism projects. Furthermore, EuroVelo is a Tourism Manifesto for Growth & Jobs member.

The most crucial example of ECF supporting cycling tourism is EuroVelo, the European cycling route network. This ambitious project aims to create a network of long-distance cycle routes crossing the continent by 2020. However, it is essential to note that EuroVelo is more than just a tool for cycling tourists. Local communities can also use it along the route.[10]

2.3 EuroVelo Cycling Routes Network

EuroVelo, the European cycle route network, is an initiative of the European Cyclists' Federation (ECF) in cooperation with national and regional partners. EuroVelo incorporates existing and planned national and regional cycle routes into a single European network.

The planning of the national cycle route network in Denmark inspired it. The Danish cycle network was Europe's first official national cycle route network, launched in May 1993. Since the beginning, the vision was international, and the scope was to make more people cycle in Denmark and Europe. It was, therefore, natural to plan a European cycle network, and the work started the following year, in 1994.

In 1997 an application was submitted to the European Commission (EC) for funding for the EuroVelo project. The project started developing in 1995-1996 within the European Cyclists' Federation (ECF).

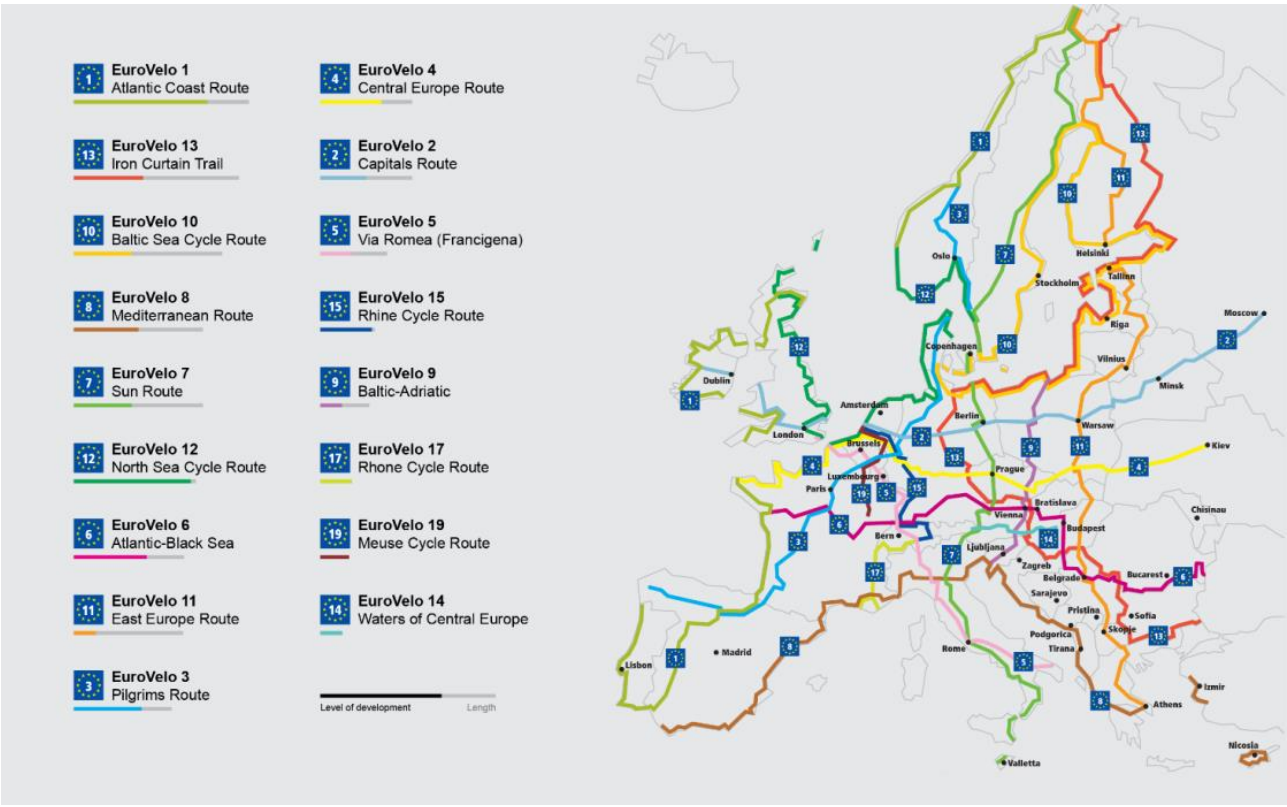
[9] https://ecf.com/about-us
[10] https://ecf.com/what-we-do/cycling-tourism

As part of the application, contributions are sought for match funding from many organizations, which helped in raising awareness about the network. The application is successful, enabling much work to be done on developing EuroVelo over the coming years.

In 1998, ECF, Sustrans (United Kingdom), and Frie Fugle (Denmark) signed a contract to manage the project. The work included communication with printed newsletters, a business plan, various manuals, and feasibility studies for each route. In June 1998, the first prospect about EuroVelo's development and background was published. In the following years, we produced EuroVelo Newsletters and received grants from the European Commission – DG Transport, leading to the opening and launch of the first EuroVelo route, EuroVelo 12 – North Sea Cycle Route, in 2001. [11]

The network has grown day by day and now is made up of 17 routes, totaling over 90,000 km, and cross 42 different countries, of which well over 45,000 km are using developed cycle paths and low-traffic roads. The EuroVelo routes comprise existing and planned cycle routes at regional and national levels.

Figure 4 EuroVelo routes



All EuroVelo routes have a length of at least 1,000 km, connect at least two countries, and have an internationally recognizable identity/theme. The routes should be based on existing or planned national or regional cycling routes wherever possible. [12]

There are currently 17 EuroVelo routes in the network:

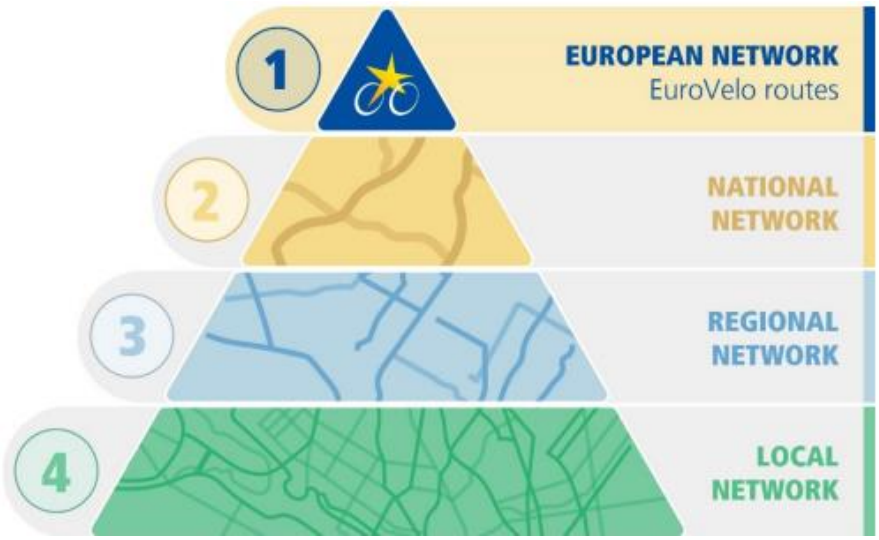
- EuroVelo 1 – Atlantic Coast Route
- EuroVelo 2 – Capitals Route
- EuroVelo 3 – Pilgrims Route
- EuroVelo 4 – Central Europe Route

[11] https://pro.EuroVelo.com/news/2022-11-09_EuroVelo-an-exciting-journey
[12] https://unece.org/fileadmin/DAM/trans/doc/2020/wp5/WP5_id_2020_06e.pdf

- EuroVelo 5 – Via Romea Francigena
- EuroVelo 6 – Atlantic-Black Sea
- EuroVelo 7 – Sun Route
- EuroVelo 8 – Mediterranean Route
- EuroVelo 9 – Baltic-Adriatic
- EuroVelo 10 – Baltic Sea Cycle Route
- EuroVelo 11 – East Europe Route
- EuroVelo 12 – North Sea Cycle Route
- EuroVelo 13 – Iron Curtain Trail
- EuroVelo 14 – Waters of Central Europe
- EuroVelo 15 – Rhine Cycle Route
- EuroVelo 17 – Rhone Cycle Route
- EuroVelo 19 – Meuse Cycle Route

The routes are numbered based on whether they cross Europe on a North-South or West-East axis. Currently, there are ten North-South routes (odd numbers 1-19) and seven West-East routes, including two circuits (even numbers 2-14). An extension of the network is possible. A formal process is established within ECF for this purpose.[13] The ADRIONCYCLETOUR's path coincides in some parts with EuroVelo routes 5, 7, 8, and 9.

Figure 5 EuroVelo Network



The EuroVelo network forms the backbone of many national, regional, and local networks across Europe.

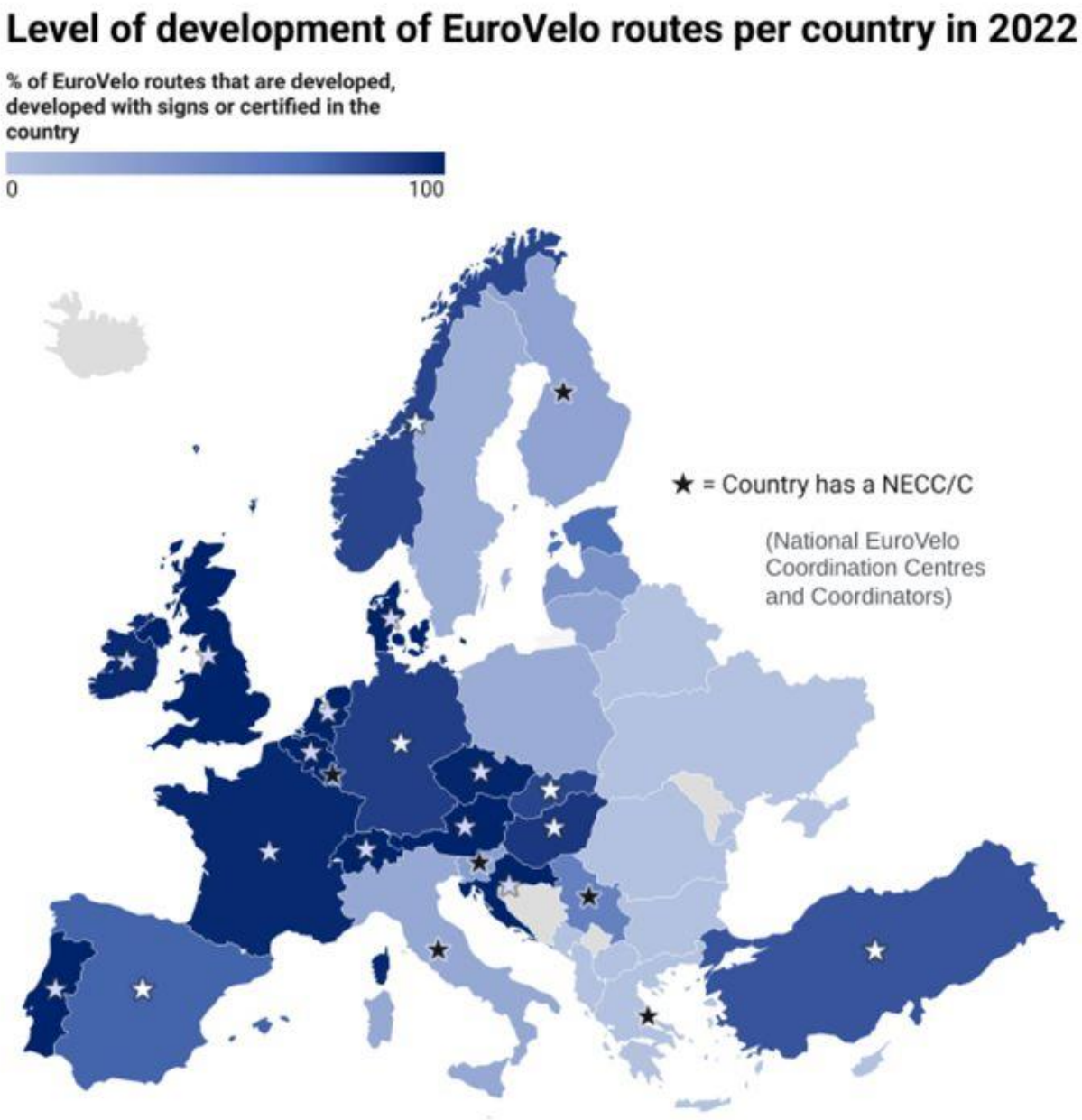
The objectives of the EuroVelo initiative are (ECF 2011 and ECF 2019a):

- To ensure the implementation of very high-quality cycle routes in all countries of Europe, carrying the best European practice across borders, harmonizing standards, and exchanging experiences.
- To communicate the existence of these routes to decision-makers and potential users, promote and market their use, and provide an essential port of call for information about cycling in Europe.
- To encourage many European citizens to try cycling, promote a shift to healthy and sustainable travel for daily trips and cycling tourism, and reduce the environmental impact of tourism and transport.

[13] https://unece.org/fileadmin/DAM/trans/doc/2020/wp5/WP5_id_2020_06e.pdf

- To help create lasting economic growth with more and better jobs.
- To support regional and rural development by connecting famous and less well-known tourism destinations and by improving the well-being of local communities by providing cycling facilities.
- To further European cohesion and mutual understanding by reminding citizens of the history, culture, and nature of Europe through cycling, stimulating direct face-to-face interactions between people, encouraging more women and families to take up cycling, and providing opportunities for disabled people to use the routes.[14]

Figure 6 Level of Development of EuroVelo Routes per Country in 2022[15]



Vitally important to the success of EuroVelo is the network of National EuroVelo Coordination Centers and Coordinators (NECC/Cs) that are found across the continent. They ensure the implementation, operation,

[14] https://unece.org/fileadmin/DAM/trans/doc/2020/wp5/WP5_id_2020_06e.pdf
[15] https://en.eurovelo.com/news/2022-07-26_over-2-000-km-of-newly-developed-eurovelo-routes-to-explore

and quality assurance of EuroVelo at a national level. In addition, they are responsible for communicating EuroVelo nationally, providing accurate and up-to-date information on the sections of EuroVelo routes that pass through their area, and ensuring the integration of EuroVelo routes into new publications.[16]

The data published in April 2021 shows that 60% of the network (51,538 km) is either developed (21%), meaning the routes feature signage in line with the respective national standard and a website providing information to users, developed with EuroVelo signs (36%), meaning its signage incorporates EuroVelo route information panels too; or certified (3%), meaning the route has successfully undergone the certification process in line with the European Cyclists' Federation's (ECF) European Certification Standard. This corresponds to EuroVelo 15 – Rhine Cycle Route, the first certified EuroVelo route.[17]

Figure 7 EuroVelo development status18

40% of the EuroVelo network is still under development or at the planning stage. Improving those parts of the network is a priority for the ECF to reach the goal of a high-quality EuroVelo network by 2030. This is an ambitious objective, but it can be reached by working in common with the network of National EuroVelo Coordination Centers and Coordinators across Europe and improving the routes via European projects and Long-Term Management Agreements.

Another third of the network, about 33,000 km of cycle routes, still needs improvements. Over a quarter of the network remains under development, meaning it is possible to follow the route either by signage or detailed information publicly available on the internet, but some sections may need further development.

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[16] https://ecf.com/what-we-do/EuroVelo

[17] [17] https://en.eurovelo.com/news/2021-05-12_first-ever-eurovelo-route-development-report-is-published

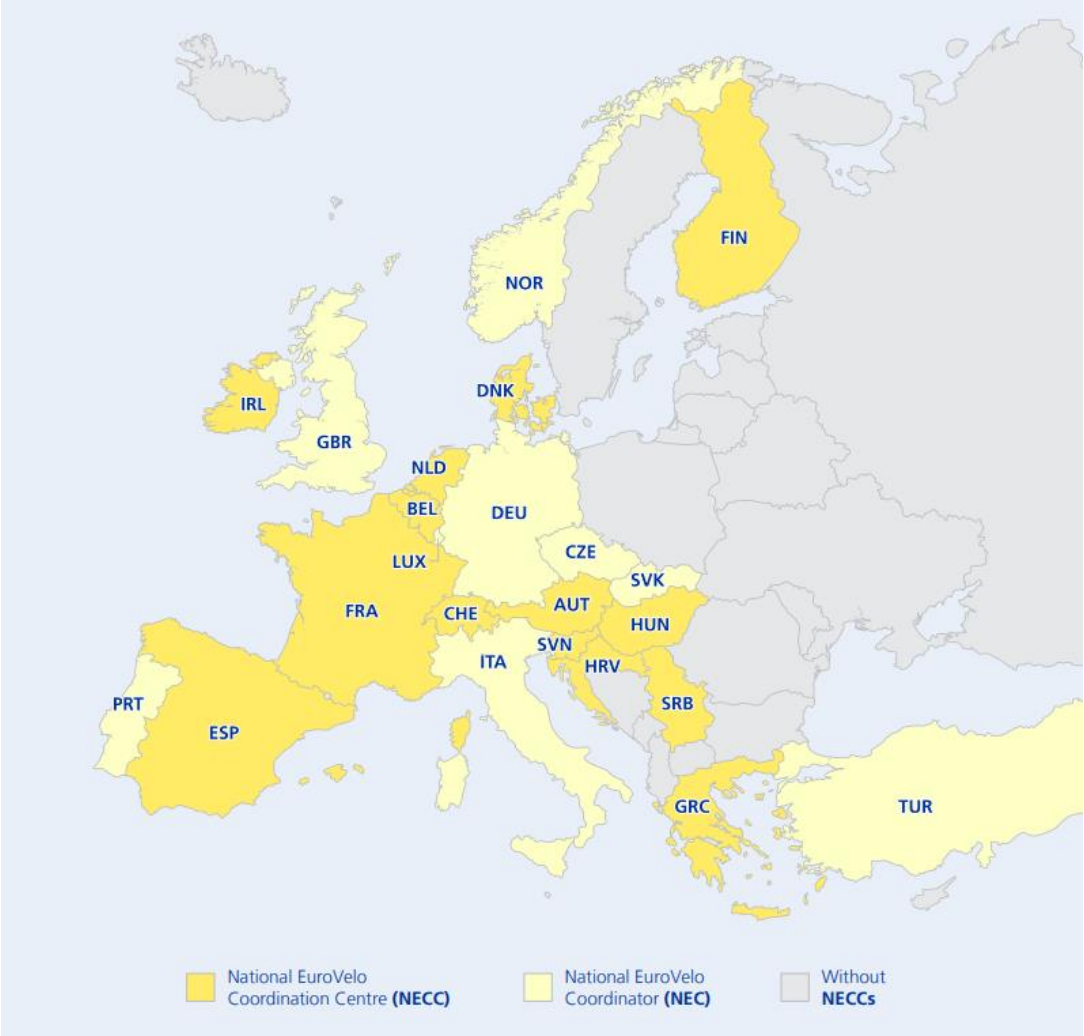
[18] https://en.eurovelo.com/news/2022-07-26_over-2-000-km-of-newly-developed-eurovelo-routes-to-explore

12% of the network is at the planning stage. The routes are not signposted in this last category, and no detailed information is publicly available online..[19]

23 National EuroVelo Coordination Centres (NECCs) - found across the continent - ensure the communication, implementation, operation, and quality assurance of EuroVelo at a national level.

National EuroVelo Coordination Centers represent a consortium of several national stakeholders – often including decision-making bodies on transport and tourism. In this case, dedicated national governance is in place, supported by stable funding for the national and transnational coordination of EuroVelo routes.

Figure 8 National EuroVelo Coordination Centres (NECCs)



National EuroVelo Coordination Centers are responsible for:

- The day-to-day management of EuroVelo routes in their country, including
  - Route infrastructure development
  - Public transport connections improvement
  - Services
  - Marketing and promotion
  - Usage monitoring and evaluation
  - Organization/Advocacy

[19] https://en.eurovelo.com/news/2021-05-12_first-ever-eurovelo-route-development-report-is-published

- Contribute to the development of EuroVelo as a whole and to achieving the overall goals of EuroVelo and ECF
- Take part in the governance of EuroVelo via the EuroVelo General Meeting and appointing EuroVelo Council members.
- Deliver an annual fee for the central Coordination of EuroVelo to ECF.[20]

ECF/EuroVelo Management Team Is responsible for:

- The day-to-day transnational management of EuroVelo, including
    - Route infrastructure development
    - Public transport connections improvement
    - Services
    - Marketing and promotion
    - Usage monitoring and evaluation
    - Organization/Advocacy
- Leverages the EuroVelo trademark to collect additional resources for the development of the initiative
- Organizes the annual EuroVelo General Meeting.

Figure 9 EuroVelo Governance

2.4 Pan-European Master Plan for Cycling Promotion

Another essential document aimed at implementing the cycling strategies of European states is the Pan-European Master Plan for Cycling Promotion, published in May 2021[21]. The document aims to develop and implement strategies to enforce cycling infrastructure nationally by 2030. The most significant advantages in promoting the construction of an efficient pan-European cycling infrastructure can be found in the following:

- The cycling infrastructure is contributing to sustainable economic development and stimulating job creation. The cycling industry and cycling tourism have high economic potential. In the pan-European region, an estimated 750,000 jobs are connected to cycling;[22]
- Promoting a more efficient transport system. Some 131 billion passenger-kilometers, replacing 42 billion passenger-car-kilometers, are cycled annually in the region;
- Reducing emissions of transport-related greenhouse gases. Doubling the current level of cycling would reduce greenhouse gas (GHG) emissions by 8 million tons of carbon dioxide equivalent (CO2e) with indirect economic benefits of € 1.1 billion per year in the region;

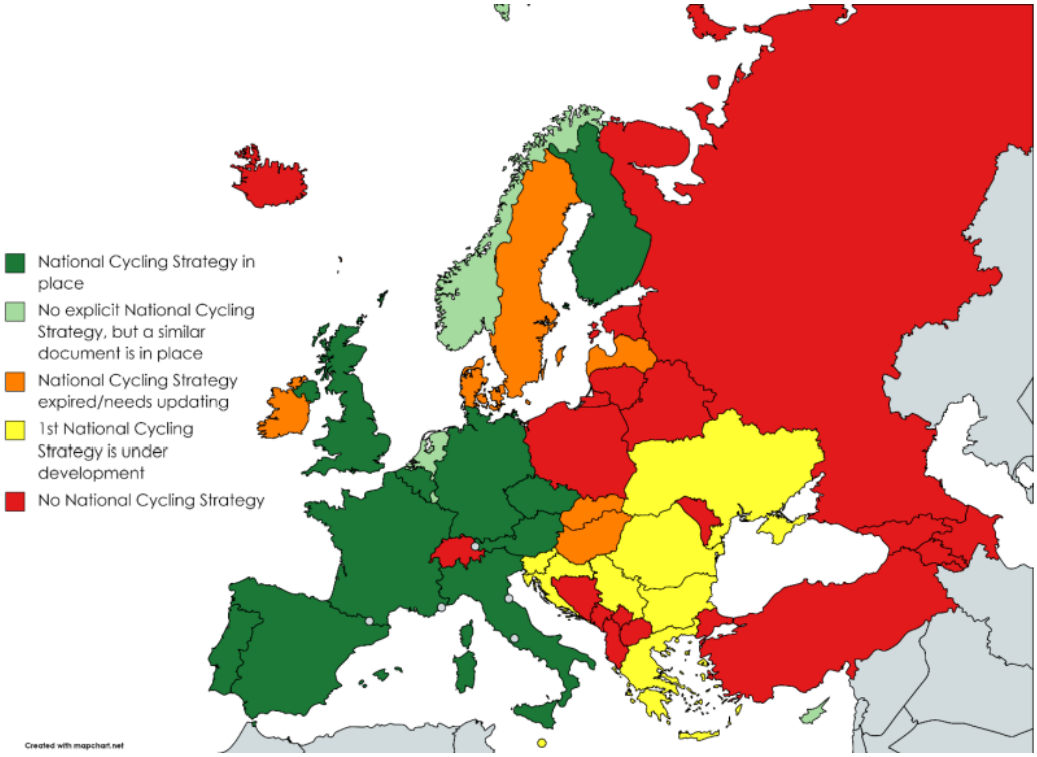
[20] https://pro.eurovelo.com/organisation/national-coordinators
[21] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf
[22] Riding towards the green economy: cycling and green jobs. Executive summary | THE PEP - UNECE

- Promoting policies conducive to healthy and safe modes of transport. Doubling the current level of cycling would prevent 30,000 premature deaths, with indirect economic benefits amounting to € 78 billion per year;
- Integrating transport, urban, and spatial planning policies. Cyclists' needs can be met by providing seamless infrastructure and enabling connectivity, accessibility, and multimodality when integrating transport, health, and environmental objectives into urban and spatial planning policies.[23]

2.5 The National Cycling Strategy

With the adoption of the Pan-European Master Plan for Cycling Promotion in May 2021 under the umbrella of WHO/Europe and the UN Economic Commission for Europe, 54 countries in the pan-European region are now politically bound to develop and implement strategies to develop cycling at their national level by 2030. With data from 44 European countries, ECF's analysis shows that most countries have a long way to go if they are to reach this objective[24]

Figure 10 Availability of National Cycling Strategy



A national cycling strategy is a multi-year plan that establishes a global vision to coordinate cycling policies, objectives, and actions. It sets clear interventions, instruments, and precise goals for the development of cycling at the national level. In short, a national cycling strategy ideally consolidates all policies taken at the national level to support cycling, thereby sending a political signal that cycling matters and should therefore be supported systematically by public authorities, businesses, academia, and civil society organizations. The national cycling strategy will be qualified when the following core criteria are fulfilled:

- Be a strategic policy document about the national government's vision on cycling (or active mobility) and be politically adopted (minister, government, or parliament).
- Include targets/objectives that describe what the strategy aims to achieve.

[23] https://thepep.unece.org/node/825
[24] https://ecf.com/system/files/The_state_of_national_cycling_strategies_second_edition_2022.pdf

- Put forward a catalog of concrete actions/activities/measures (within a given timeframe) to achieve said targets.[25]

The Netherlands made the first plan (1990), followed by the UK (1996) and Germany (2002). As of 2022, twenty European countries have adopted a national cycling strategy, of which 14 have legislation still in force, while in 6 others, the plans are being updated or need to be redeveloped. Among the remaining 24 countries, eight are currently in the process of developing a national cycling strategy for the first time.

For the EUSAIR region countries, only Italy has a national cycling strategy plan. The national cycling strategies are under development in Croatia, Greece, and Slovenia. In Montenegro and Albania, there are no plans available or under development. The following table summarizes the information for each country.

Table 1 National Cycling Strategies in EUSAIR Countries

European Country	National Cycling Strategy	Year of adoption	Years span	No. of strategy iterations	Endorsed Pan-Eu Master Plan	Bike as main mode 2019 (EB)	Cycling share
Croatia	Under development				Yes	6%	
Greece	Under development				Yes	2%	
Italy	Yes	2022	3	1	Yes	4%	
Slovenia	Under development				Yes	4%	
Montenegro	No						
Albania	No						

The following table presents a systematic overview of central government investments in EU member states of the EUSAIR region where the ADRIONCYCLETOUR is crossing. The figures include three primary sources:

- central government budgets, as announced in national cycling strategies or annual budget plans, for example
- EU funds from the 2014-2020 Multiannual Financial Framework period (primarily Structural and Cohesion Funds)
- National Recovery and Resilience Plans

To allow for a first comparison between the investment levels of different countries, we also state that annual investments per capita are stated. The figures presented are taken from the second edition of "The State of national cycling strategies in Europe (2022)" report. [26]

[25] https://ecf.com/system/files/The_state_of_national_cycling_strategies_second_edition_2022.pdf
[26] https://ecf.com/system/files/The_state_of_national_cycling_strategies_second_edition_2022.pdf

Table 2 Central government investments in cycling infrastructure in EU countries of EUSAIR region

Country	Population (2021)	1)Investments from central governments budgets	Annual per capita	2)Projected Investments from EU funds (2014-2020)	Annual per capita	3)National Recovery and Resilience Fund (2021 - 2027)	Annual per capita	Total annual investment per capita (1+2+3)
Croatia	4.1 million			€30 million	€1	€6 million (ECF estimate)	€0.2	€1.2
Greece	10.6 million	Unspecified		€31.2 million	€0.4	€25 million (ECF estimate)	€0.3	€0.7
Italy	59.1 million			€88 million	€0.2	€1.154 billion (thereof €600 million from NRRF)	€2.8	€3
Slovenia	5.4 million	Unspecified		€28.65 million	€0.8	€105.1 million	€2.8	€4

2.6 Recovery and Resilience Facility

The Recovery and Resilience Facility (RRF) is a temporary instrument that is the centerpiece of NextGenerationEU -the EU's plan to emerge more robust and more resilient from the current crisis.

The Facility entered into force on 19 February 2021. It finances reforms and investments in EU Member States from the pandemic's start in February 2020 until 31 December 2026. Countries can receive financing up to a previously agreed maximum amount.

To benefit from support under the Facility, EU governments have submitted national recovery and resilience plans, outlining the reforms and investments they will implement by the end of end-2026, with clear milestones and targets. The plans had to allocate at least 37% of their budget to green and 20% to digital measures.

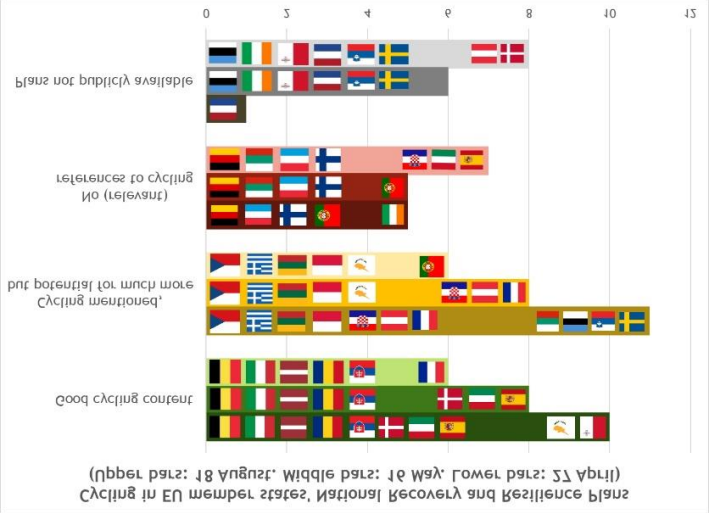
The Recovery and Resilience Facility is performance-based. This means that the Commission only pays out the amounts to each country when they have achieved the agreed milestones and targets towards completing the reforms and investments included in their plan.[27]

Other relevant EU policy instruments are the Recovery and Resilience Facility (RRF) and the EU Structural and Cohesion Funds. A total of €1.7 billion will be invested into cycling through the RRF, and, according to the latest figures publicized by the European Commission in 2022, as much as €2.3 billion went into cycling projects through the 2014-2020 Structural and Cohesion Funds. ECF expects even higher investments in the next generation of these funds (2021-2027). National and regional Operational Programmes are ideally

[27] https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility_en

embedded into national (and regional) cycling strategies to ensure and demonstrate the coherence of investments over time.[28]

Figure 11 Cycling in EU Member States National Recovery & Resilience Plans[29]



The following table provides details of the National Recovery and Resilience Plans and their links to cycling in EU countries of the EUSAIR region.

Table 3 National Recovery and Resilience Plans and their links to cycling in EU countries of EUSAIR region[30]

	State	Description	Investments for cycling		Km planned
			Declared	Estimated	
GOOD CYCLING CONTENT	**Italy**	Dedicated investment for the "Reinforcement of cycling mobility", with plans for cycling infrastructure maintenance and the realization of new 1,200km of touristic paths and ~570km of urban cycle tracks.	€600 million (0.3% of RRF)		1,770
CYCLING MENTIONED, but potential for a lot more	**Croatia**	€120 million action for "high-value tourism products" which includes investments for cycling infrastructure and the protection and development of active tourism, also with attention to the application of digital solutions on data monitoring for the rental/use of bicycles. But still no definition of cycling spending, and absence of cycling in the transport section.		€6 million (0.1% of RRF)	
	Greece	The plan largely speaks about green tourism / ecotourism / non-seasonal		€4.5 million	

[28] https://ecf.com/system/files/The_state_of_national_cycling_strategies_second_edition_2022.pdf
[29] https://ecf.com/news-and-events/news/final-analysis-cycling-becomes-mainstream-eu-member-states-covid-19-recovery
[30] https://ecf.com/news-and-events/news/final-analysis-cycling-becomes-mainstream-eu-member-states-covid-19-recovery

		tourism but the only cycling-related investment is the development of walking and cycling routes in the forest of Tatoi		(0.03% of RRF)	
	Slovenia	The sustainable mobility component of the plan mainly focuses on rail and alternative fuels; cycling is explicitly mentioned only in the sustainable tourism section, where investments on cycling trails and walking paths are envisaged.		€1 million (0.06% of RRF)	

2.7 Interreg Cycling Projects

Interreg is a key European Union (EU) instruments that strengthens cooperation between regions and countries within the EU. As part of the EU's Cohesion Policy, Interreg plays a vital role in promoting regional development, cohesion, and reducing economic disparities. For the 2021-2027 period, Interreg is focused on addressing current challenges like climate change, digital transformation, and social inclusion.[31]

The European Union, through the Interreg program, has fielded a number of projects to encourage cycling outside the urban context in member state territories. Below are is the list of the some of the relevant Interreg cycling projects:

- ADRIONCYCLETOUR Project of Italia-Slovenia Intrerreg;
- EU Cycle Project;
- ECO Cycle Project
- CYRONMED Project

2.7.1 ADRIONCYCLETOUR Project of Italia-Slovenia Intrerreg

Strategic objective : PO4 - A more social and inclusive Europe through the implementation of the European Pillar of Social Rights

Specific objective : SO 6 – Strengthen the role of culture and sustainable tourism in economic development, social inclusion and social innovation

Type : operation of strategic importance

ADRIONCYCLETOUR is one of the three strategically important Interreg VI-A Italy-Slovenia Programme projects. The project faces the challenge of making the Program area more attractive and accessible by promoting sustainable tourism linked to cycling.

The main objective is to help define the cycle route along the coast of the Adriatic Sea in Italy (Friuli Venezia Giulia and Veneto regions) and Slovenia (coastal network), including the primary cycle connections with the hinterland (internal network) and contribute to developing, at EUSAIR level, an innovative and attractive cross-border/transnational tourism product on the ADRIATIC-IONIAN Cycle Path.

The project will contribute to the sustainable development of the territory on a cross-border and macro-regional scale, promoting both sustainable tourism and mobility and supporting the tourism industry, in full respect of the environmental and historical heritage, both of the Program area and the whole EUSAIR area.

Developing a diversified cross-border tourist offer along the cycle routes, based on a slow tourism model and on the enhancement of the tangible and intangible heritage along them, and actions aimed at

[31] https://interreg.eu/about-interreg/

guaranteeing innovation and quality in the way of acting of responsible tourism operators and institutions, characterize the pillar of the project dedicated to sustainable tourism. The infrastructural improvement of some important axes of the cross-border cycle network and a more comprehensive offer of services in the name of multimodality, with a cross-border value, instead they are some of the most relevant outputs envisaged in the pillar dedicated to mobility to the benefit of the local population and tourists.

The innovativeness of the project lies in the integrated approach with which it addresses the issues of sustainable tourism and mobility through the "embedding" process of a EUSAIR flagship project idea, transversal between the tourism and transport sectors, pursuing in a cross-border context, objectives on a macro-regional scale.

The strategic project ADRIONCYCLETOUR will support a transversal project to the EUSAIR pillars, contributing to the sustainable development of the Program area and promoting both sustainable tourism and mobility. The planned actions will aim to develop the following:

- a diversified cross-border tourist offer along the cycle paths, based on a "slow tourism" model;
- cooperation between tourism service providers;
- the competitiveness of local service providers;
- the contribution to the inclusion of the entire ADRIATIC-IONIAN cycle route in the EuroVelo network;
- the contribution to the completion of the coastal cycle path and the primary cycle connections with the hinterland;
- a network of cross-border and internal intermodal services to support cyclists, integrated information tools on cycle paths and on the timetables of intermodal connections;
- the upgrading of infrastructure[32]

2.7.2 EU Cycle Project

EU CYCLE aims at improving the performance of 4 policy instruments addressed through interregional learning and regional action planning. It will thereby contribute to better quality cycling projects to raise the share of cycling in target regions via improved policies and state-of-the-art solutions, with a higher impact on decarbonizing transport.

The common challenge is that although cycling-related projects were supported by approximately €0.6 billion in subsidies between 2007-2013, good practices were not shared, and knowledge about them was unevenly distributed in the regions involved, so their policy instruments did not take them up. Since regional stakeholders and potential project holders aren't aware of good practices and potential adaptation advantages, lack of knowledge decreases interest in developing cycling projects and risk that the €166.1 million allocated for cycling in the policy instruments addressed are spent effectively.

Partners, all previously involved in Interreg projects on different subtopics – regional cycling, cycling tourism, urban cycling, multimodality, urban-rural connections, and territorial cooperation in cycling – have decided to share their experiences to increase capacities of using available funds entirely and in an efficient way for quality cycling projects.

Partners' relevant experiences in the six subtopics will be shared, jointly analyzed, and fed into an earmarked online database of 100 state-of-the-art cycling projects, while 24 will be added to the Programme Policy Learning Platform. Partners will work with regional stakeholders on adapting experiences learned in 4 regional Action Pans, improving their policy instruments' results. An Integrated

[32] https://www.ita-slo.eu/it/adrioncycletour

Cycling Planning Guide will be jointly elaborated to summarize the best solutions for the technical aspects of cycling.

EU CYCLE will increase capacities on the governance side of policy instruments and the side of potential beneficiaries to develop and realize projects.

The Puglia Region, involved in the Adrion Cycle tour, has been a partner of EU Cycle. [33][34]

2.7.3 'ECO-CICLE' Project

The 'ECO-CICLE' project aims to improve natural and cultural heritage policies by creating a European network to promote cycle tourism in natural areas. Funded by the Interreg Europe Programme, this project runs from June 2018 to June 2022.

The project's specific objective is to improve the implementation of regional development policies and programs in the protection and development of natural and cultural heritage. Achieving this goal will also enable us to meet other objectives:

- Make bicycles the official sustainable transport to access natural heritage.
- Encourage sustainable mobility beyond the strictly urban environment.
- Foster endogenous economic revival.
- Reach the EU2020 targets.

The ECO-CICLE good practice has enriched the cycling development of the Basilicata Region, which is involved in the Adrion Cycle tour.

European Commission statistics show that in countries with a national cycling plan, a higher percentage of people use the bicycle as their preferred transport mode.[35]

2.7.4 CYRONMED Project

CYRONMED - Cycle Route Network of the Mediterranean is fully financed with funds from the Interreg IIIB Archimed Community Initiative Program, and promoted by the Region of Puglia, had the objective to start the process of implementing the EuroVelo and BicItalia bicycle networks in the countries of the Mediterranean Archipelago.

For this purpose, all project partners were drafting the feasibility study of the EuroVelo and BicItalia routes (for the Italian regions) that fall within their territory. A technical manual for the design of "cycle routes" and a study on the potential of cycle tourism in the Mediterranean area were also produced.

In addition to the Puglia Region as lead partner, the Basilicata, Campania, and Calabria Regions, the Greek Municipalities of Athens and Karditsa, the Ministry of Urban Development of Malta, and the Cyprus Tourism Board participated in the project.

The project was implemented in two phases:

The first phase looked after the identification, through feasibility studies conducted by each partner, of the long-distance cycle itineraries of the BicItaliaand EuroVelo Network projects, passing through the territories of competence;

The second phase, on the other hand, was based on a more specific technical assistance activity provided by the Apulia Region to the Vaste Areas, engaged at the time in strategic planning processes to equip

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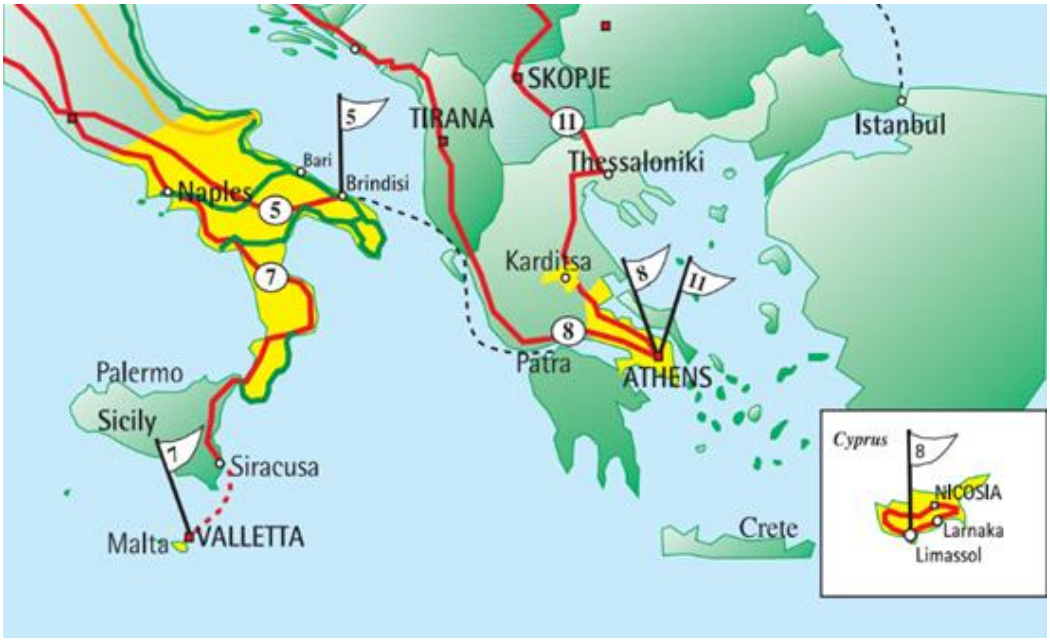
[33] https://ecf.com/projects/eu-cycle
[34] https://projects2014-2020.interregeurope.eu/eucycle/
[35] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf

themselves with cycle network plans for a vast area. For this purpose, meetings and technical seminars, conferences, and training activities were held.[36]

Figure 12 CY.RO.N.MED Routes



[36] http://mobilita.regione.puglia.it/index.php/component/k2/itemlist/category/31?Itemid=27

3 ADRIONCYCLETOUR

The Adrion cycling lane project idea comes from the EUSAIR cross-pillar TSG2 (Transport sub-group) and TSG4 (Tourism) labeled project "ADRIONCYCLETOUR," referred to a cycling route running along the coast and its primary cycle connections to the hinterland areas, that connects all the countries of the Adriatic-Ionian macro-region, from Sicily, Italy to Greece.

The Adrion cycling lane project comprises a coastal and an inland cycling network that is an integrated infrastructure for cycle tourism, urban and inter-urban mobility, sports, and leisure activities. Therefore, it can be regarded as a multifunctional cycle route, allowing tourists and citizens to move sustainably from one place to another. The project meets four objectives of the EUSAIR strategy:

- It connects the macro-region.
- It promotes coordination among the participating countries.
- It boosts their historical, artistic, cultural, and naturalistic heritage.
- It develops eco-tourism.

The construction of a joint, integrated cycleways system in the Adriatic-Ionian region has a significant value for the sustainable development of the EUSAIR macro-region. The Adrion cycling lane connects all the states of the macro-region. The project gains a great macro-regional value, contributing to the harmonious development of the territory and the promotion of sustainable tourism.[37]

Figure 13 ADRIONCYCLETOUR project map

[37] https://www.adriatic-ionian.eu/wp-content/uploads/2021/05/ESP-Spring-Newsletter-2021-2.pdf

Besides its symbolic value, expressed through the creation of direct connections between the EUSAIR territories, the project will contribute to improving connectivity within the macro-region (that is the goal of the 2nd Pillar of the strategy), as it promotes intermodal transport and sustainable vehicles contributing to the reduction of the environmental impact (that is the aim of the 3rd Pillar of the macro-regional strategy) and helps to diversify the tourism offer (that reflects the purpose of the 4th Pillar of the EUSAIR).

The ambition of the ADRIONCYCLETOUR is to create a transnational cycle route connected with other means of transport. Thus it may contribute to integrating the macro-region through transport networks or enhancing its multimodality. Moreover, a cycle route efficiently connected with railways, ports, and airports attracts more regional tourists.

The development of an Adriatic-Ionian cycling route should be a driver not only for the development of the coastal areas but also for the development of the hinterland and the landlocked countries of the macro-region. The project promotes virtuous processes in a macro-regional perspective. In the long run, the route will be connected to the local cycle paths in each country of the macro-region and to other macro-regional routes (e.g., the one under construction in the Danube region, promoting a cross-strategy approach) and the EuroVelo network.

EuroVelo, the European cycle route network, is an initiative of the European Cyclists' Federation (ECF) in cooperation with national and regional partners. EuroVelo incorporates existing and planned national and regional cycle routes into a single European network. EuroVelo is a network of 17 long-distance cycle routes connecting and uniting the European continent.[38]

Figure 14 ADRIONCYCLETOUR project current status

[38] https://pro.EuroVelo.com/organisation/about

The results of the project can lead to an awareness-raising process. If citizens become more aware of environmental issues and are encouraged to see the benefits of sustainable and slow tourism, governments will be more keen to invest in further developing cycling routes in their countries.

ADRIONCYCLETOUR project aims first to use the cycle ways already planned or currently under development and encourage each country to act at financing and territorial planning levels.

Each country and each region involved in the project is autonomously developing its segment of the cycle route with its own funds. The EUSAIR is where the project has been conceived, and all the efforts are coordinated. [39]

The ADRIONCYCLETOUR project, selected as the flagship project to be embedded into 2021- 2027 programming documents, aims to establish and develop the ADRIATIC-IONIAN CYCLE ROUTE (AICYR), which consists of a cycling route running along the coast of the entire Adriatic and Ionian basin from Italy (all the involved Regions) to Greece, crossing the EUSAIR concerned Countries (coastal network) and its primary cycle connections to the hinterland areas of the EUSAIR countries (inland network).[40] The challenge is now to channel funds for the realization of this extensive project.[41]

Figure 15 ADRIONCYCLETOUR funding status

Flagships were proposed as solutions for the main challenges of macro-regional importance consistent with national needs and the EU policy objectives for a greener, low-carbon, and more connected Europe.

[39] https://www.adriatic-ionian.eu/wp-content/uploads/2021/05/ESP-Spring-Newsletter-2021-2.pdf
[40] https://www.adriatic-ionian.eu/2020/12/17/online-workshop-adrioncycletour-an-integrated-project-for-the-adriatic-ionian-region-cycle-routes/
[41] https://www.adriatic-ionian.eu/wp-content/uploads/2021/05/ESP-Spring-Newsletter-2021-2.pdf

Countries will meet concrete actions at the national level to follow common goals/solutions for the region.[42]

EUSAIR relies on different EU funds for its implementation. The primary funding source has been the Interreg program ADRION, a transnational program that overlaps with its geographical area. As it relies on limited resources, EUSAIR coordinates all participating authorities in channeling the other existing regional and national funds to finance the identified priorities or flagship projects. This work is named the "embedding process" and is a demanding effort of great importance as it can turn a great idea such as the ADRIONCYCLETOUR into a practice.

The first challenge EUSAIR has to face is the fact that member states and candidate countries draw the resources from different funds, the European Structural Instruments (ESI) funds for the former and the Instrument for pre-accession assistance (IPA) funds for the Western Balkans. They share only the Interreg-European Territorial Cooperation (ETC) programs: the already mentioned ADRION and the cross-border programs such as Italy-Albania-Montenegro.[43]

The ADRIONCYCLETOUR is not just a cycling route that connects the coast – it creates connections with the hinterland areas and capital cities, also involving the participating countries that do not face the sea basin. The ambition of the ADRIONCYCLETOUR is to create a pleasant transnational cycle route connected with other means of transport for your return. It promotes the historical, artistic, cultural, and naturalistic heritage of the region and develops the new trend of eco-tourism.[44]

The route intends to have a twofold function: infrastructure integrated with the public transport systems (rail, road, sea) for cycle tourism and sustainable urban and inter-urban mobility.

3.1 ADRIONCYCLETOUR and EuroVelo

The ADRIONCYCLETOUR's path coincides in some parts with EuroVelo routes since they are part of a different project of the continent scale, and consequently, in the EuroVelo, there aren't references about ADRIONCYCLETOUR. The ADRIONCYCLETOUR will predominantly be in line with the Mediterranean route (EuroVelo 8), but it will also be related to the Sun Route (EuroVelo 7), the Via Romea Francigena (EuroVelo 5)and the Atlantic-Black Sea (EuroVelo 9).[45]

EuroVelo 8 , named the Mediterranean Route, is a 7,560 km (4,700 mi) long EuroVelo cycling route running from Cadiz, Spain to Athens, Greece, and then continuing to İzmir, Turkey and to the island of Cyprus. The route runs east-west across Europe mainly along or close to the Mediterranean coast, passing successively through 12 countries: Spain, France, Monaco, Italy, Slovenia, Croatia, Bosnia-Herzegovina, Montenegro, Albania, Greece, Turkey, and Cyprus.

The northern and eastern part of the entire proposed ADRIATIC-IONIAN Cycle Route (coast network from Venice/Italy to Patras/Greece) coincides with the "Mediterranean Route - EuroVelo 8", part of the European cycle network EuroVelo.[46]

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[42] https://www.adriatic-ionian.eu/2020/06/12/eusair-flagships-all-summed-up/
[43] https://www.adriatic-ionian.eu/wp-content/uploads/2021/05/ESP-Spring-Newsletter-2021-2.pdf
[44] https://eusairfacilitypoint.adrioninterreg.eu/library/print-newsletter-on-adrioncycleroute
[45] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf
[46] https://www.adriatic-ionian.eu/2020/12/17/online-workshop-adrioncycletour-an-integrated-project-for-the-adriatic-ionian-region-cycle-routes/

Figure 16 EuroVelo 8 Mediterranean Route Map

Eurovelo 7 is one of the longest routes of the cycling network created by the ECF and also one of the "straightest" in following a north-south direction: in more than 7,400 kilometers, it goes from the North Cape in Norway to the island of Malta in the Mediterranean, via Finland, Sweden, Denmark, Germany, the Czech Republic, Austria, and Italy.[47] ADRIONCYCLETOUR overlaps with EuroVelo 7 is Sicily and Calabria regions of Italy.

Figure 17 EuroVelo 7 map

EuroVelo 5 , named the Via Romea Francigena, is a 3,900 km (2,400 mi) long EuroVelo cycling route running from Canterbury to Rome and ending at the Italian port of Brindisi. The route crosses Europe passing successively through six countries: UK, France, Belgium, Luxembourg, France again, Switzerland and Italy. ADRIONCYCLETOUR overlaps with EuroVelo 5 in Puglia region of Italy.

[47] https://www.bikeitalia.it/eurovelo-7-il-percorso-del-sole/

Figure 18 EuroVelo 5 map

EuroVelo 9 , named the Baltic – Adriatic - is a 2,000 km (1,200 mi) long EuroVelo cycling route running from the city of Gdańsk, Poland on the Baltic Sea to Pula, Croatia on the Adriatic Sea. It is. This north-south cycle route runs through Central Europe and passes successively through six countries: Poland, Czech Republic, Austria, Slovenia, Italy, and Croatia. EuroVelo 9 overlaps with ADRIONCYCLETOUR in short sections in Italy, Croatia, and Slovenia.

Figure 19 EuroVelo 9 map

The following map shows the overlap of different EuroVelo routes with ADRIONCYCLETOUR.

Figure 20 ADRIONCYCLETOUR overlap with EuroVelo

The following table shows the EuroVelo routes passing through the EUSAIR region and overlapping with ADRIONCYCLETOUR per level of development.[48]

Table 4 Current State of EuroVelo Routes Related to ADRIONCYCLETOUR

EuroVelo Route*	Length in KM	Planning stage	Under development	Developed	Developed with EV signs	Certified**	
EuroVelo 5 Via Romea (Francigena)	3204	47%	6%	20%	27%	0%	47%
EuroVelo 7 Sun Route	7639	23%	34%	31%	12%	0%	43%
EuroVelo 8 Mediterranean Route	7639	13%	37%	28%	22%	0%	50%
EuroVelo 9 Baltic-Adriatic	2204	8%	48%	9%	35%	0%	44%

[48] https://pro.EuroVelo.com/download/document/EuroVelo%20Route%20Status%20Report_Final_20210520.pdf

3.2 ADRIONCYCLETOUR and BICITALIA

BicItalia represents the network of national cycle routes and promotes all aspects of cyclability (excluding racing) as a sustainable means of transport, both within and outside the urban context. BicItalia is a national network of cycle routes between different regions of the country and promotes connections with other countries.[49]

Figure 21 ADRIONCYCLETOUR overlap with BicItalia

BICITALIA was launched in 2000 by the Italian Environment and Bicycle Federation (FIAB) for Italy; it is coordinated with EuroVelo on a European scale. It does not consider only local or regional networks and paths unless they are integrated with national and international networks.[50]

The ADRIONCYCLETOUR overlaps with five out of the ten projects of national cycle routes, namely:

- B1 – Sun Route
- B3 – Ciclovia Francigena Route
- B6 – Adriatic Route
- B11 – Apulian Aqueduct Cycle Route
- B14 – Magna Graecia Route

The BicItalia interconnects with other transport systems, particularly the railway's network.[51]

[49] https://ciclovie.parcoaltamurgia.it/en/bicitalia/
[50] https://it.wikipedia.org/wiki/BicItalia#cite_note-1
[51] https://www.adriatic-ionian.eu/wp-content/uploads/2021/05/ESP-Spring-Newsletter-2021-2.pdf

Figure 22 BICITALIA network map[52]

3.3 Accessibility of ADRIONCYCLETOUR to Points of Interests

Further analysis is carried out to show the accessibility of the country's population to the planned ADRIONCYCLETOUR by walking (1.2 Km), cycling (3 Km), and car (7.5 Km).

In addition, the analysis is further detailed with accessibility by the mentioned modes of transport to health infrastructures, education infrastructures, and mobility hubs, including airports, ports, train stations, bus stops, and other points of interest.

[52] https://fiabitalia.it/progetto/bicitalia/

The analysis for availability and proximity to mobility hubs provides an overview regarding accessibility and connectivity for cyclists. Integration with mobility hubs allows cyclists and tourists to easily access and connect with different modes of transportation, such as trains, buses, ferries, and airplanes. This integration encourages tourists to use their bicycles. It enables cyclists to seamlessly transition from one mode of transport to another, combining the convenience of cycling with the efficiency of other forms of transportation.

In addition, having bike lanes close to mobility hubs allows travelers to easily rent bikes or bring their own and explore the region on two wheels. It promotes tourism, offers a unique way to experience the local culture and attractions, and contributes to a positive visitor experience.

Proximity to a healthcare facility is essential since having a healthcare facility nearby can be crucial in emergencies. Immediate access to medical care can save lives in critical situations and ensure adequate and timely medical care for cyclists.

Access to educational facilities encourages the use of cycling infrastructure among the younger generation as an alternative and environmentally friendly mode of transport.

Having points of interest along a cycling route enriches the visitor experience. Tourists can explore and appreciate the cultural, historical, natural, or recreational attractions the region offers.

Including points of interest near a cycling route helps promote regional tourism and increased economic activity and local development.

Additionally, positive experiences near the route can motivate cyclists to return in the future, contributing to repeat visits and long-term tourism sustainability.

The table and diagram below summarize the analysis across the entire route.

Table 5 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport Across EUSAIR Region

	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stations	No Sea Ports	No of Points of Interests
By Walking 1200m	4,894,779	2,128	794	28	192	93	272	78,880
By Bike 3000m	6,439,854	2,568	934	36	225	101	315	96,036
By Car 7500m	9,046,990	3.135	1,170	49	288	141	446	124,258

4 National Level Framework

The following chapter provides details regarding the availability and details of national cycling strategies and guidelines, planned route for ADRIONCYCLETOUR, existing planning documents for ADRIONCYCLETOUR design and funding in each country of the EUSAIR macro-region where the ADRIONCYCLETOUR project crosses.

4.1 Albania

The EuroVelo 8 route in Albania is 350 km long, starting in Shkodra and ending in Saranda.

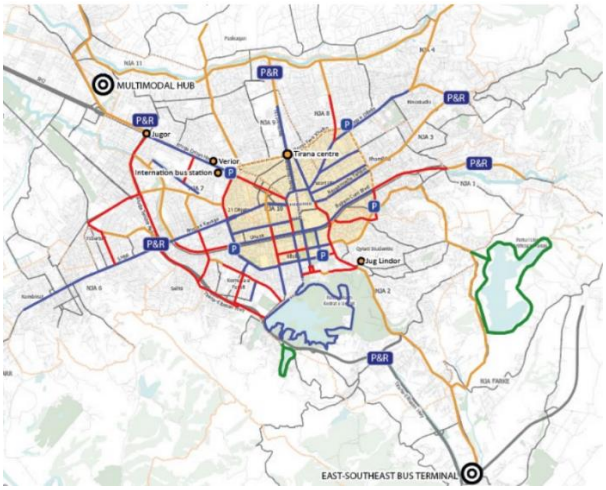
The Go2 NGO has developed a plan for developing the route in the country, including four tour packages. The first is along Lake Shkodra, a cross-border territory between Montenegro and Albania: a protected area rich in cultural monuments. The second tour is focused on the Buna River, with many rural settlements. The third is focused on central Albania, Tirana, and the metropolitan region. The last package is programmed to be in the south, starting from Fier and ending in Saranda. These are the proposals coming from civil society, but an actual project concerning cycle routes has not yet been undertaken at the governmental level.[53]

4.1.1 National Cycling Strategies and Guidelines

Albania does not have a national cycling strategy. However, the Albanian government has been promoting cycling and improving the country's cycling infrastructure. In 2019, the government adopted a new transport strategy[54] that focuses on sustainable mobility, intending to reduce greenhouse gas emissions from the transport sector and promote active transport modes such as cycling and walking.

Additionally, several local initiatives and organizations have been working to promote cycling in Albania, such as the "Bike for Life" campaign, which aims to raise awareness about the benefits of cycling and improve cycling infrastructure in the capital city of Tirana. There are also plans to develop a cycling network in Durres, a popular tourist destination on the Albanian coast. It is fundamental to drafting the Durres SUMP (2019), which plans and identifies the expansion of the cycling infrastructure throughout the municipality. Another critical document for soft mobility planning in Albania is the Tirana SUMP[55] (2020). One fundamental objective regarding cyclability in this plan is pushing cycling and micro-mobility as an alternative to private motorized transport.

Figure 23 Planned cycle paths from the SUMP of Tirana



[53] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf
[54] https://www.infrastruktura.gov.al/wp-content/uploads/2020/07/3rd-Monitoring-Report-of-Sectorial-Transport-Strategy-and-Action-Plan-2016-2020_June-2020.pdf
[55] https://tirana.al/en/uploads/2020/12/20201210161709_sump_tirana-volume-ii_the-plan_200724.pdf

Figure 24 Planned cycle paths from the SUMP of Durres

4.1.2 Planned Route for ADRIONCYCLETOUR

The ADRIONCYCLETOUR in Albania Matches the route of EuroVelo 8, the Mediterranean cycle route. The Albanian section is under development.

The EuroVelo 8 route in Albania starts in Shkodër, located in the country's northwestern part at the border with Montenegro. From there, the route heads south along the Albanian coastline, passing through several towns and villages. One of the first town's cyclists will encounter is Lezhë, approximately 40 kilometers south of Shkodër.

Subsequently, the route continues into the most urbanized part of the country, continuing into the valley of the Ishmi River to reach the capital Tirana.

Continuing southward, cyclists will reach the coastal city of Durrës, Albania's second-largest city and an essential hub for trade and tourism. This area is the country's most strategic part; almost 33% of Albanians live in the corridor between the metropolitan areas of Tirana and Durres, where most of the nation's economic resources are concentrated.

The EuroVelo 8 route continues southward along the coast, passing through several other towns and villages, including Fier, Lushnjë, and Divjaka. The Divjaka-Karavasta National Park is located near the city of Divjaka and is home to various bird species, including flamingos, wetlands, and dunes.

The route then passes through the city of Vlorë, which is a major port and one of the country's oldest cities. After leaving Vlorë, the EuroVelo 8 route heads southward along the coast, passing through several smaller towns and villages before reaching the Greek border.

Figure 25 ADRIONCYCLETOUR project route passing through Albania

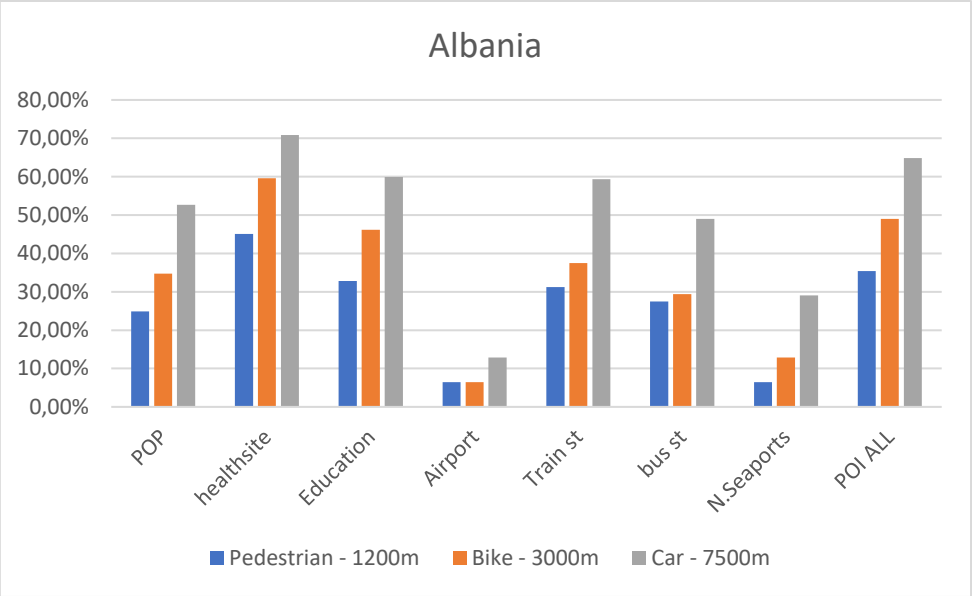
Further analysis is carried out to show the accessibility of the country's population to the ADRIONCYCLETOUR by walking (1.2 Km), cycling (3 Km), and car (7.5 Km).

In addition, the analysis is further detailed with accessibility by the mentioned modes of transport to health infrastructures, education infrastructures, and mobility hubs, including airports, ports, train stations, bus stations, and other points of interest. The table and diagram below summarize the analysis.

Table 6 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport in Albania

	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stations	No Sea Ports	No of Points of Interests
By Walking 1200m	666,229	394	86	2	10	14	2	8,216
By Bike 3000m	931,206	521	121	2	12	15	4	11,382
By Car 7500m	1,410,428	619	157	4	19	25	9	15,053

Figure 26 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport



4.1.3 Existing Planning Documents for Cycling Design and Funding for ADRIONCYCLETOUR

At the time of drafting this report, no document was found regarding the planning and funding for the ADRIONCYCLETOUR in the country.

4.2 Bosnia and Herzegovina

Only 14 km of the EuroVelo 8 was planned to pass through Bosnia and Herzegovina. However, at the time of drafting this report on June 2023, temporarily, the itinerary of EuroVelo 8 - Mediterranean Route has been moved from the coast of Bosnia and Herzegovina to the Pelješac Peninsula in Croatia. This is because the conditions are currently better for cycling in that location.

The situation will be monitored going forward and, in consultation with the relevant bodies in Bosnia and Herzegovina and Croatia, the route may be returned to Bosnia and Herzegovina in the future.[56]

4.3 Croatia

The Croatian section of the ADRIONCYCLETOUR matches with Croatian EuroVelo 8 - Mediterranean Route. It is 1,116 km long from Istria to Dubrovnik. The route goes through eight UNESCO sites, three national parks, and four natural parks.

Ivana Karuza, Head of the EU and related projects department of the Croatian national tourist board, spoke about the Action Plan for the development of the Croatian route EuroVelo 8 - Mediterranean Route during the workshop “ADRIONCYCLETOUR: an integrated project for the Adriatic-Ionian Region cycle routes.” The Action Plan lists 248 specific activities to be implemented in the period 2018-2030, including the removal of barriers, the improvement of safety, and the strengthening of the network of bike rentals and detailed information availability.[57]

[56] https://en.eurovelo.com/ev8/bosnia-and-herzegovina
[57] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf

4.3.1 National Cycling Strategies and Guidelines

Croatia is developing its own National Cycling Strategy, and meanwhile, another critical document for transport planning in Croatia is the Transport Development Strategy of the Republic of Croatia (2017 – 2030)[58].

The National Transport Development Strategy Plan of Croatia was adopted in 2019 and is a comprehensive document that outlines the government's vision for promoting cycling as a sustainable mode of transportation in the country. One of the hypotheses of this document is "There is a potential for the development of a specific bike system (infrastructure and bikes) in particular concerning e-mobility."[59]

The plan focuses on improving infrastructure, promoting cycling culture, and increasing safety for cyclists on the roads. One of the critical goals of the strategic plan is to increase the number of cycling trips taken in Croatia from the current rate of 2% to 10% by the year 2025. The plan outlines several specific actions that the government should take over the next several years to achieve this goal. These actions include:

- Developing and expanding cycling infrastructure: The plan calls for creating a network of safe and accessible cycling routes throughout the country, including urban and rural areas. The government will work to identify key priority routes and invest in developing new infrastructure, such as bike lanes, paths, and parking facilities.
- Promoting cycling as a mode of transportation: The plan aims to increase public awareness of the benefits of cycling and encourage more people to take up cycling as a mode of transportation. The government will work to create a positive cycling culture in Croatia through public awareness campaigns, education, and events.
- Improving cycling safety: The plan includes enhancing cyclists' safety, including developing new regulations and enforcement measures to protect cyclists from accidents and improving the legal framework for cycling. The government will also work to improve road infrastructure, signage, and lighting to ensure that cyclists are visible and safe on the roads.
- Encouraging cycling tourism: The plan recognizes the potential of cycling tourism in Croatia and includes measures to promote the country as a cycling destination. This consists of developing new cycling routes and packages and promoting existing routes, such as the Adriatic Cycle Route.

4.3.2 Planned Route for ADRIONCYCLETOUR

The ADRIONCYCLETOUR in Croatia Matches the path of EuroVelo 8, the Mediterranean cycle route. This section is developed, even if it still needs certification for the EuroVelo route.

The EuroVelo 8 route passing through Croatia is known as the Adriatic Cycle Route, and it follows the Croatian coastline from the border with Slovenia in the north to the border with Montenegro in the south. The route is approximately 11.000 kilometers, and it follows a mix of dedicated bike paths, shared roads, and low-traffic local roads, with a few short sections of gravel or dirt paths.

Starting in Buje, located near the border with Slovenia, the route passes through several historic towns and cities, including Umag, Poreč, and Rovinj. In Umag is the start of another cycle route known as the Green Istria Route, and it offers cyclists an alternative to the main Adriatic Cycle Route. The Green Istria Route is inland and passes through the Istrian peninsula in western Croatia.

The Adriatic route continues southward through Pula, home to a well-preserved Roman amphitheater and several other historic sites. After leaving the Istrian peninsula, one reaches the city of Rijeka, the third

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[58]https://mmpi.gov.hr/UserDocsImages/dokumenti/INFRASTRUKTURA/Infrastruktura%2010_19/Transport%20Development%20Strategy%20of%20the%20Republic%20of%20Croatia%202017-2030%2029-10_19.pdf

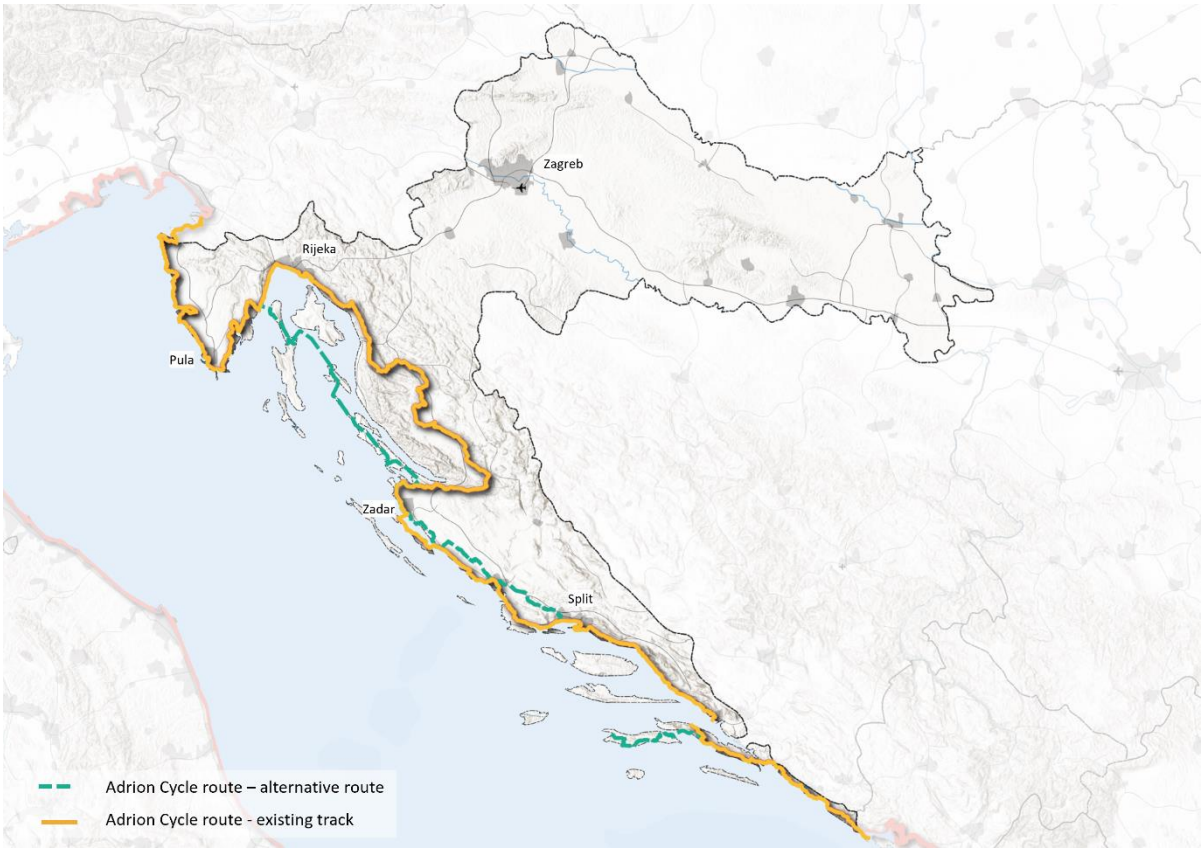
[59] Transport Development Strategy of the Republic of Croatia (2017 – 2030), pg. 58

largest city in Croatia in terms of population. The route then heads through the Kvarner region, passing through towns such as Opatija and Crikvenica, known for their scenic waterfronts and beaches. After passing through Crikvenica, the route moves inland and into the valley of the Gacka and Lika rivers to take advantage of a more favorable orography.

Further south, the route returns to the shores of the Adriatic Sea, and it crosses the Dalmatia region; in fact, the city of Zadar is reached, the second-largest town in the region of Dalmatia and the fifth-largest city in the country. From Zadar, the route continues southward along the coastline, and it passes through several coastal towns and cities, including Šibenik, Split, and Dubrovnik.

Croatia has an alternative Euro Velo 8 route passing through his territory. It passes through some of the most important islands in terms of size and tourist attraction in Croatia (such as Cres and Pag) and has alternative routes in the Dalmatian hinterland.

Figure 27 ADRIONCYCLETOUR project route passing through Croatia



The route starts from the port of Brestova, located on the eastern side of Istria, where after taking a ferry you disembark on the island of Cres. Here, after passing through the northern portion of the island, the route arrives at the port of Merag where, in the island of Rab. After crossing the small island of Rab and reaching the town of Banjol, the route reach the fifth largest Croatian island, Pag.

The Alternative section of Euro Velo 8 crosses all the way to the bridge at Paški Most, where It rejoins the mainland. From here, the alternative route rejoins the EuroVelo 8 route as far as the town of Zadar. After Zadar, the route, instead of crossing the island of Ugljan, continues along the coast to the town of Biograd na Moru. From here the alternative route continues inland through places such as Banjevci and Primorski Dolac to Split.

The last section of the alternative route finally proposes to pass through the island of Korčula (the second most inhabited island in the Croatian Dalmatian archipelago) before arriving in Sabbioncello and then returning to the main EuroVelo 8 route.

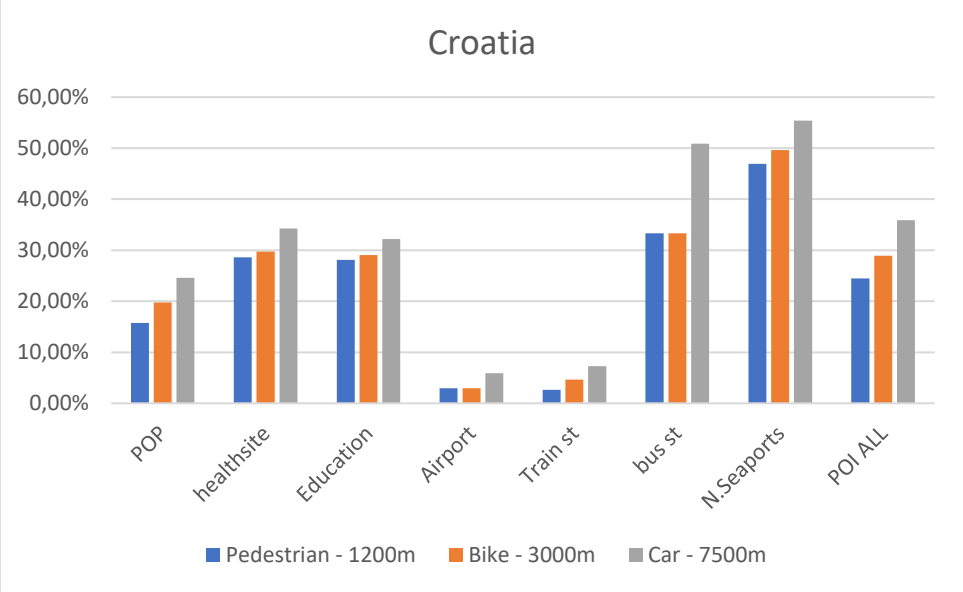
Further analysis is carried out to show the accessibility of the country's population to the ADRIONCYCLETOUR by walking (1.2 Km), cycling (3 Km), and car (7.5 Km).

In addition, the analysis is further detailed with accessibility by the mentioned modes of transport to health infrastructures, education infrastructures, and mobility hubs, including airports, ports, train stations, bus stations, and other points of interest. The table and diagram below summarize the analysis.

Table 7 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport in Croatia

	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stations	No Sea Ports	No of Points of Interests
By Walking 1200m	677,864	370	222	2	4	19	121	17,556
By Bike 3000m	852,448	385	229	2	7	19	128	20,776
By Car 7500m	1,060,372	443	254	4	11	29	143	25,754

Figure 28 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport



An alternative design of EuroVelo in Croatia is studied as an alternative route for the ADRIONCYCLETOUR section in the following chapter.

4.3.3 Existing Planning Documents for Cycling Design and Funding for ADRIONCYCLETOUR

At the time of drafting this report, no document was found regarding the planning and funding for the ADRIONCYCLETOUR in the country.

4.4 Greece

Three EuroVelo routes pass through Greece: EuroVelo 8, EuroVelo 11, and EuroVelo 13. The country has an extended network of secondary roads, but there is a need to develop a national strategy for cycling tourism. Among the things to do in the arrangement of organized packages for cyclists.[60]

In Western Greece, EuroVelo 8 – Mediterranean Route (5,900 km) passes through the Greek regions of Epirus, Western Greece, Peloponnese, and Attica.

From North to South, EuroVelo 11 – East Europe Route (6,000 km) travels through Central Macedonia, Thessaly, Central Greece, and Attica.

Along the northern border with Bulgaria EuroVelo 13 – Iron Curtain Trail(10,400 km) visits Greece twice: from Promachonas in Serres to the countryside of Drama and from Kyprinos to Kastanies in Evros, along the Arda river. It therefore passes through the Regions of Central Macedonia and Eastern Macedonia, and Thrace.[61]

The ADRIONCYCLETOUR in the country also programs to allow cyclists to reach the islands. For example, thanks to multimodality transport, it will be possible to get Zante by boat, where many options for cycling are provided.[62]

4.4.1 National Cycling Strategies and Guidelines

The Ministry of Environment and Energy drafted and sent for consultation to the relevant ministries the National Bicycle Strategy (NSS) for the period 2020 – 2030.[63]

Key objectives of the National Cycling Strategy are:

- To increase the use of bicycles for citizens' travel from 2020 to 2030.
- To increase the use of bicycle travel in combination with other modes.
- The integration of shared-use bicycle systems into the urban transport system,
- The use of bicycles to transport light goods over short distances,
- Strengthening cycle tourism,
- Promoting cycling as a suitable economic means of daily transport, sport, and recreation
- Increasing the use of cycling to tackle climate change,
- Providing incentives and supporting expertise to increase the use of cycling in the public and private sectors.

The National Cycling Strategy aims to increase cycling - a key pillar of sustainable mobility alongside public transport and walking - to improve citizens' health, reduce air pollution and noise and enhance the quality of public space in the country's cities and towns.

The National Cycling Strategy is harmonized:

- With the global Sustainable Development Goals (SDGs),
- with the policies of the World Health Organization,
- with the recent EU guidelines on environment and climate change,
- the European Road Safety Council's directives.

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[60] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf
[61] http://eurovelo.gr/en_GB/greece-establishes-a-national-eurovelo-coordination-centre/
[62] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf
[63] https://ypen.gov.gr/to-podilato-apokta-ethniki-stratigiki/

Following the consultation with the relevant ministries, the National Cycling Strategy will be subject to online public consultation with all stakeholders and citizens.

In addition, a memorandum of cooperation recently signed between the ministries of transport and tourism, the Central Union of Municipalities in Greece (KEDE), and the "Cities for Cycling" NGO foresees that the center will see to the extension of the EuroVelo cycling routes in Greece and the promotion of cycling as a tourism activity.[64]

Greece's National EuroVelo Coordinator Center is planning to organize activities, design infrastructure, and launch information campaigns for the cycling network in collaboration with ministries, organizations, unions, and other tourism bodies.[65]

4.4.2 Planned Route for ADRIONCYCLETOUR

In the initial northern section, the Greek area of the ADRIONCYCLETOUR corresponds totally with that of the Greek EuroVelo 8 route. The EuroVelo 8 route enters Greece from Albania and follows the coastline of the Ionian Sea. Cyclists can explore the picturesque region of Epirus, with its rugged mountains, charming villages, and crystal-clear beaches. The route takes riders through places like Igoumenitsa, Parga, and Preveza.

Figure 29 ADRIONCYCLETOUR project route passing through Greece

[64] https://news.gtp.gr/2021/10/12/greece-to-establish-eurovelo-coordination-center-to-promote-bike-tourism/
[65] https://news.gtp.gr/2021/06/16/bike-tourism-transport-ministry-looks-to-coordinate-eurovelo-activities-in-greece/

Moving southwards on the EuroVelo route, it goes around the Ambracian Gulf instead of passing through the tunnel under the gulf, lapping the famous "Amvrakikos Wetlands National Park." Once back on the sea, the route continues to veer southwards, continuing its coastal route.

The cycling route continues as far as the Gulf of Patras where, at the town of Antirrio, the route forks: Euro Velo 8 continues through the Attica region to the capital Athens and then disembarks in Turkey; the ADRIONCYCLETOUR continues south through the Peloponnese peninsula.

After crossing the famous Rion-Antirion Bridge, it finally reaches the city of Patras, the third largest city in Greece. The route then continues along the coast, passing the main coastal towns of the Peloponnese.

The ADRIONCYCLETOUR reaches the peninsula's south coast. The route cuts inland through the first peninsula to the large city of Calamata. Then the route continues to Areopolis, which cuts through the second peninsula of the Peloponnese and finally reaches Monemvasia, the last continental stage of the ADRIONCYCLETOUR.

The route has a final section on the island of Crete. It crosses the island from east to west in the southern part, allowing the cyclists to cross the island's most scenic and mountainous region, reaching the towns of Timbaki and Ierapetra.

Finally, the route ends in the eastern foothills of the island at the village of Zakros.

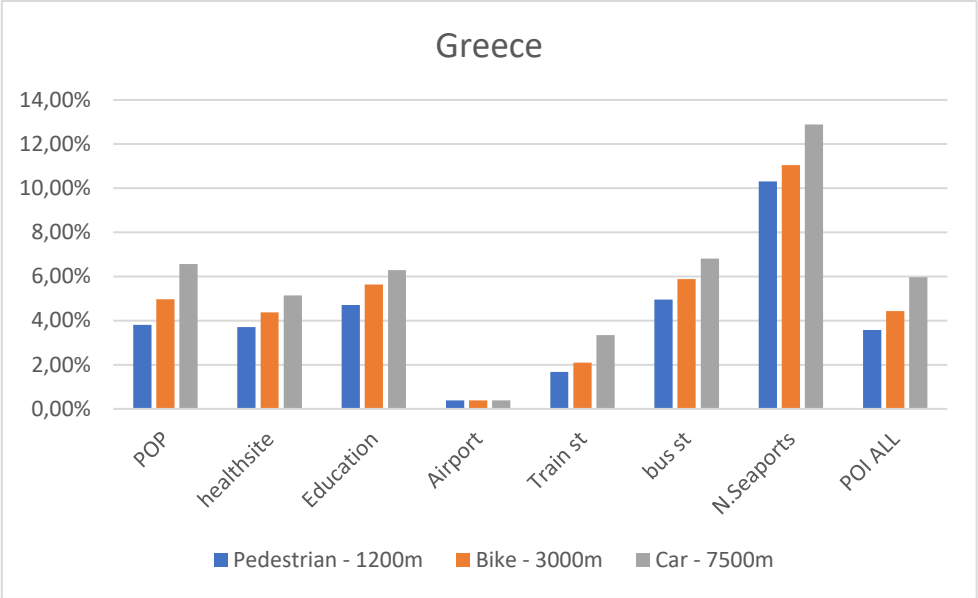
Further analysis is carried out to show the accessibility of the country's population to the ADRIONCYCLETOUR by walking (1.2 Km), cycling (3 Km), and car (7.5 Km).

In addition, the analysis is further detailed with accessibility by the mentioned modes of transport to health infrastructures, education infrastructures, and mobility hubs, including airports, ports, train stations, bus stations, and other points of interest. The table and diagram below summarize the analysis.

Table 8 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport in Greece

	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stations	No Sea Ports	No of Points of Interests
By Walking 1200m	436,870	179	86	1	4	16	56	6,110
By Bike 3000m	570,445	211	103	1	5	19	60	7,573
By Car 7500m	754,045	248	115	1	8	22	70	10,201

Figure 30 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport



An alternative design for the ADRIONCYCLETOUR section in Greece is studied in the following chapter.

4.4.3 Existing Planning Documents for Cycling Design and Funding for ADRIONCYCLETOUR

At the time of drafting this report, no document was found regarding the planning and funding for the ADRIONCYCLETOUR in the country.

4.5 Italy

The ADRIONCYCLETOUR in Italy overlaps with EuroVelo Network crossing the country, the BicItalia cycleway national network, and the National System of Tourist cycle routes.

When completed, the ADRIONCYCLETOUR will encompass 10 Italian regions for 2,977 km. The route will be developed on its own track or shared tracks in case of low traffic.

The national network be integrated into the trans-European cycle network EuroVelo. The following four EuroVelo routes cross Italy:

- EuroVelo 5 – Via Romea (Francigena)
- EuroVelo 7 – Sun Route
- EuroVelo 8 – Mediterranean Route
- EuroVelo 9 - Baltic – Adriatic

Italy sees EuroVelo as an essential component of its national cycling network. It is therefore planning to develop further sections of EuroVelo 7 – Sun Route (Verona-Florence), adding 392 km, and on EuroVelo 8 – Mediterranean Route (Venice-Turin), adding 732 km.[66] The EuroVelo 5, EuroVelo 7 and EuroVelo 8 lanes overlap with ADRIONCYCLETOUR.

[66] https://ecf.com/system/files/The_state_of_national_cycling_strategies_second_edition_2022.pdf

BicItalia is a national network of cycle routes between different regions of the country and promotes connections with other countries. The ADRIONCYCLETOUR overlaps with the following lanes of BicItalia:

- B1 – Sun Route (Ciclopista del Sole)
- B3 – Ciclovia Francigena Route
- B6 – Adriatic Route
- B11 – Apulian Aqueduct Cycle Route
- B14 – Magna Graecia Route

The coastal network of the ADRIONCYCLETOUR is encompassed in the national system of tourist cycle routes, planned with Law 208/2015. The national system aims to create ten safe and quality national cycle routes for sustainable tourism to enhance historical, cultural, and environmental itineraries along the country.

The ADRIONCYCLETOUR overlaps with five out of the ten projects of national cycle routes, namely:

- Magna Grecia cycle route,
- Apulian Aqueduct cycle route,
- Adriatic cycle route,
- VenTo cycle route, and
- Trilive cycle route.

The national cycle routes are planned to be interconnected with other transport systems, particularly the railway network[67]

4.5.1 National Cycling Strategies and Guidelines

The National Bicycle Mobility System of Italy (SNMC) is constituted of three main national-scale cycling networks:

- National Cycleways Network "Bicitalia" - (Law No. 2/2018)
- The National System of tourist cycleways – (Law No. 208/2015)
- Networks promoted by regions and autonomous provinces

The 'General Plan for Cycling' envisages integrating these three networks into a single national network of approximately 20,000 km of cycling routes in the future.[68]

Italy has adopted its first cycling strategy called the General Plan of Cycling Mobility 2022-2024, including a €1.154 billion investment. The Minister of Infrastructure and Sustainable Mobility (MIMS) approved the plan after recognizing the need for more sustainable transport and cycling's potential. The plan is set for three years and includes different focus areas to ensure change on the urban level and a bigger scale, such as regional and national.

It aims to improve long-term planning and strengthen urban and interurban cycling mobility systems in line with European recommendations. The published plan specifies a series of objectives, including increasing

[67] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf
[68] Piano Generale della mobilità Ciclistica Urbana ed Extraurbana - https://www.mit.gov.it/nfsmitgov/files/media/notizia/2022-08/PG%20Mobilit%C3%A0%20Ciclista%20e%20allegati.pdf

Figure 31 ADRIONCYCLETOUR project route passing through Italy

the safety of cyclists, improving signage, and creating a shared space between different road users. In addition, the aim will be to create new urban and extra-urban cycle paths, with a focus on cycling tourism.[69]

In the national cycling strategy, Italy refers to EuroVelo, the European cycle route network, and tries to explore opportunities to help develop, promote, and benefit from EuroVelo. Italy sees EuroVelo as an essential component in its national cycling network and is therefore planning to develop further sections of EuroVelo 7 – Sun Route (Verona-Florence), adding 392 km, and on EuroVelo 8 – Mediterranean Route (Venice-Turin), adding 732 km.

The FIAB association-"Federazione Italiana Ambiente e Bicicletta" since November 2011 has held the role of EuroVelo National Coordinator and is the referent for Italy for all EuroVelo network planning and strengthening activities.

The plan's general goals are to equip Italy with resilient transportation systems, clean transportation with zero net emissions, active and safe mobility, and social inclusion to make transport more accessible and, finally, better use of public space.[70]

The main objectives of the plan are:

- 20% increase in the cycling modal share of provincial capitals/metropolitan cities
- Increase the density of cycling infrastructures in provincial capitals/metropolitan cities to the national average value of 32 km per 100 km3
- Creation of enclosed parking spaces for at least 30 bicycles and outdoor parking spaces for at least 30 bicycles for every public building and facility
- Update the standards of urban planning and building codes legislation with specific reference to cycling and the introduction of services for urban cycling. These services include bike sharing, cycle parking, and charging stations for e-bikes.
- Interventions in signage along cycle paths and crossings leading to schools
- The affixing of directional arrows indicating the direction of travel of the lane, especially when there is only one lane
- Implement speed management interventions (30 km/h zones, etc.)
- Increasing the possibility of carrying bicycles on public transport, especially trains
- Designated bike rails along the flights of stairs of the access paths to the platforms
- Bike-sharing stations near public transport stop.
- Construction of covered and guarded shelter for bicycles at 50% of public transport stations[71]

Additional national regulations for cycle mobility in Italy includes:

The law 2/2018, "Disposizioni per lo sviluppo della mobility in bicicletta e la realizzazione della rete nazionale di percorribilita' sciolistic," pursues the goal of promoting the use of bicycles as a means of transportation for both daily needs and tourism and recreational activities, to improve the efficiency, safety, and sustainability of urban mobility, protect the natural and environmental heritage, reduce the adverse effects of mobility about health and land consumption, enhance the territory and cultural heritage, and increase and develop tourism activity.

The "Piano Generale della Mobilità Ciclistica," provided for in Law 2/2018, has long-term planning to improve and enhance urban and interurban cycling systems per European guidelines. A whole series of objectives are specified in the text, including:

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[69] https://ecf.com/news-and-events/news/importance-national-cycling-strategies-italy-implements-new-general-plan
[70] https://ecf.com/system/files/The_state_of_national_cycling_strategies_second_edition_2022.pdf
[71] https://ecf.com/system/files/The_state_of_national_cycling_strategies_second_edition_2022.pdf

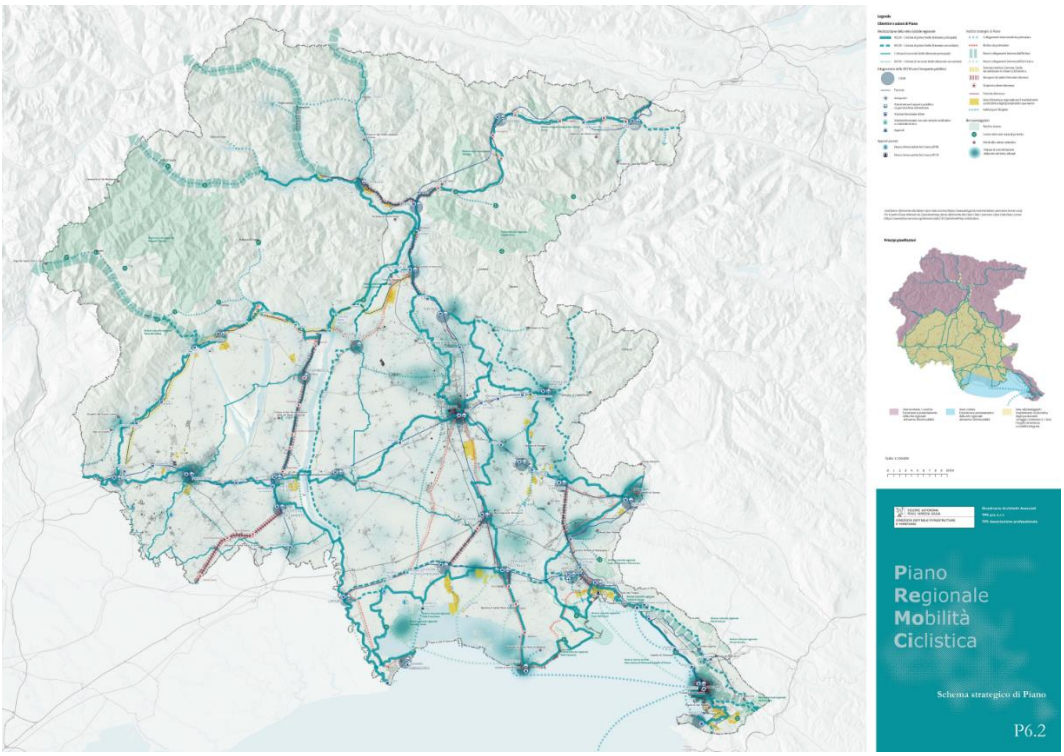
- increasing the safety of cyclists;
- improving signage;
- creating a shared space between different road users;
- the creation of new urban and extra-urban cycle routes is aimed at, also to cycle tourism.

The "Codice della strada" (Highway Code) is the primary regulation code that regulates road traffic and indicates a general transportation regulation. It also regulates bicycle use (art. 182). In the last period, this code was integrated with new aspects such as, for example, cycle line, bike box, bikeway, school road, bicycle contraflow, etc. The Ministerial order 30 Novembre 1999, n. 557 “Regolamento recante norme per la definizione delle caratteristiche tecniche delle piste ciclabili.” is in charge of regulating the construction of different type of dedicated bicycle infrastructure.

At the regional level (Italy is divided into 20 regions), the Regional Bicycle Mobility Plans must be consistent with the Regional Transportation and Logistics Plan, intended to regulate the entire regional bicycle system. The Regional Plan must also be drawn up based on the Urban Plans for Sustainable Mobility and the related programs and projects submitted by municipalities and metropolitan cities and must define, among other things, the Regional Bicycle Network and the cycleways included in the Network called BicItalia that fall within the regional territory.

An integral part of the Regional Bicycle Mobility Plan is the Regional Plan for the Allocation of Funding for Bicycle Mobility and the Implementation of Integrated Bicycle Route Networks.

Figure 32 Cyclist Mobility Regional Plan of Friuli Venezia[72]



[72] *https://www.regione.fvg.it/rafvg/cms/RAFVG/infrastrutture-lavori-pubblici/infrastrutture-logistica-trasporti/ciclovie/*

4.5.2 Planned Route for ADRIONCYCLETOUR

The ADRIONCYCLETOUR in Italy overlaps with EuroVelo 5, EuroVelo 7, and EuroVelo 8 in Italy. In the northern part of Italy, the ADRIONCYCLETOUR overlaps with EuroVelo 8, the southern part with EuroVelo 7, and a small section in the south with EuroVelo 5.

ADRIONCYCLETOUR overlaps with EuroVelo 8 in Veneto and Friuli-Venezia Giulia.

In the Friuli Venezia Giulia Region, the Eurovelo 8 cycle route follows the FVG 2 directorate of the Regional Interest Cycle Route Network (ReCIR). The route is not a continuous cycle path but uses roads with motorized traffic in some sections and is characterized by uneven surfaces in other sections.

Since January 2020, the Friuli Venezia Giulia Region has equipped itself with a system for monitoring cycling, and pedestrian flows through self-powered counting stations installed in the cycling sections of the municipality of Lignano Sabbiadoro, Cervignano del Friuli, Grado, and Trieste.[73]

Figure 33 EuroVelo 8 in Italy

The EuroVelo 7 in Italy follows the BicItalia route B1, known as the Ciclopista del Sole (the Sun Cycle Route), through from the Austrian border into South Tyrol, then through the cities of Verona, Mantua, Bologna, Florence, Grosseto, Civitavecchia, Rome, Latina, Naples, Salerno, Reggio Calabria, Messina and Siracusa in Sicily. The Italian section of the EV7 terminates in the Sicilian town of Pozzallo from where ferries connect to Valletta in Malta. ADRIONCYCLETOUR overlaps with EuroVelo 7 in Sicily and Calabria regions of Italy.

[73] https://www.regione.fvg.it/rafvg/cms/RAFVG/infrastrutture-lavori-pubblici/infrastrutture-logistica-trasporti/FOGLIA26/

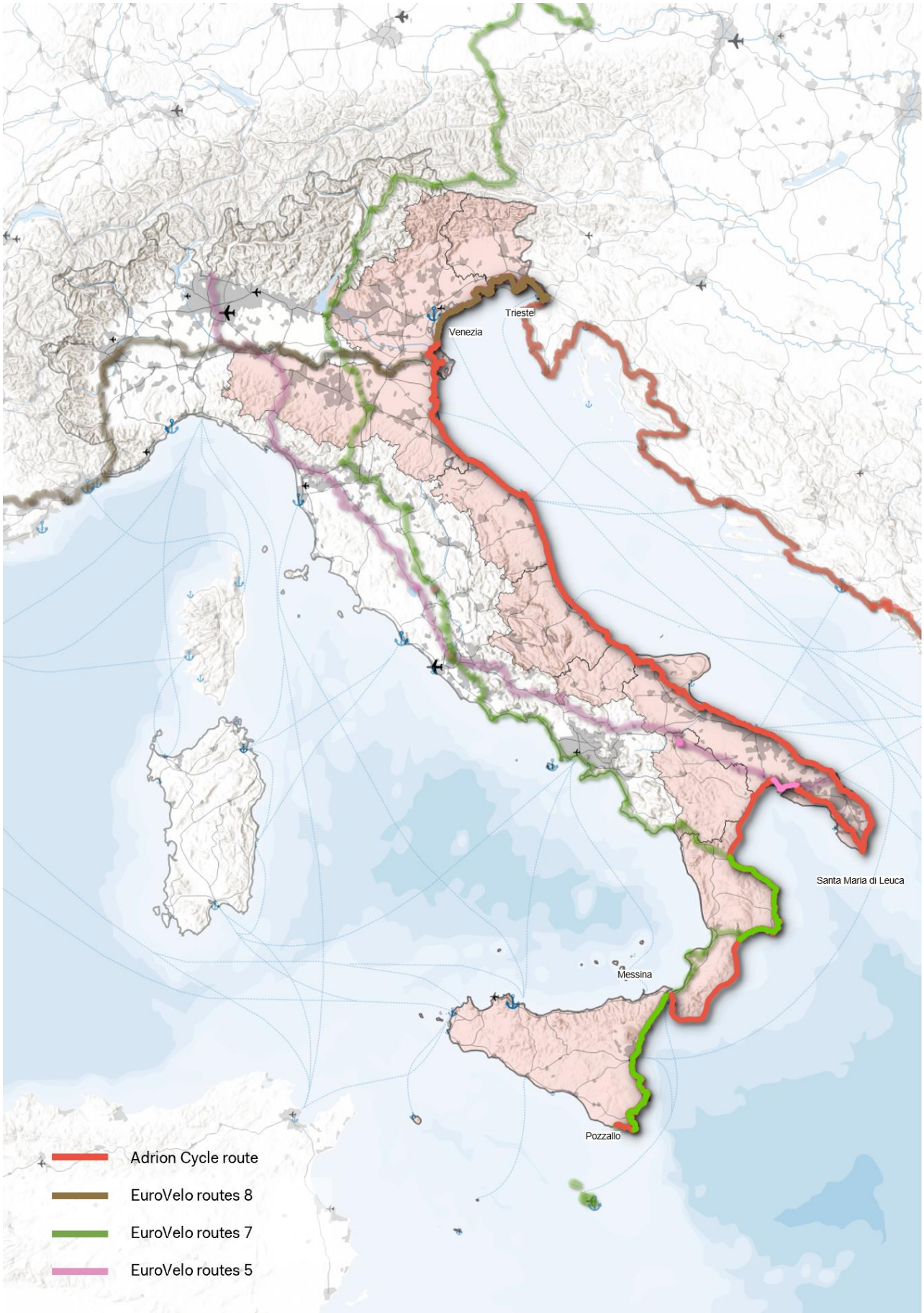
Figure 34 EuroVelo 7 in Italy

The EuroVelo 5 in Italy follows the BicItalia BI 3 Ciclovia dei Pellegrini cycle route passing through Rome and following a mainly inland route towards the west of the country before heading east to Brindisi. The route in Italy follows more closely the traditional route of the Via Francigena, a route which has recently been awarded EU funds to reinstate hostelry organization and for route improvement. In Italy, the EV5 goes through Milan, Pavia, Fidenza, Piacenza (EV8) Parma, Berceto, Aulla, Florence (EV7), Siena, Bolsena, Rome (EV7), Fiuggi, Cassino, Benevento, Ariano Irpino, Candela, Gravina in Puglia, Taranto and Brindisi. ADRIONCYCLETOUR overlaps with EuroVelo 5 in Puglia region of Italy.

Figure 35 EuroVelo 5 in Italy

EuroVelo project has spurred FIAB **(**Italian Environmental and Bicycle Federation), the leading Italian environmental association that promotes cyclist mobility, to plan a National Cycleways Network,

Figure 36 ADRIONCYCLETOUR overlap with EuroVelo in Italy



"Bicitalia," with twenty extensive routes through 20 regions of Italy with the overall length of 20,000 Km[74]. It constitutes the national infrastructure network integrated into the trans-European cycle network of EuroVelo.

Figure 37 BicItalia routes overlap with EuroVelo and other national cycling routes in Italy

Bicitalia is a bicycle network project for recreation and tourism purposes and consists of cycle routes of national interest dedicated to cyclists and non-motorized users in general. Currently, the RCN - Bicitalia is not consolidated. Most routes are not entirely accessible and do not have signage or wayfinding. For the national network development, Italy has decided to create the National System of tourist cycleways to be later integrated into the National Cycleways Network' Bicitalia.'

The following is the list of the twenty BicItalia lanes:

1. BI1 - Ciclovia del Sole, 1600 Km, Overlaps with EuroVelo 7
2. BI2 - Ciclovia del Po, 1300 Km, Overlaps with EuroVelo 8
3. BI3 - Ciclovia Francigena, 2000 Km, Overlaps with EuroVelo 5
4. BI4 - Ciclovia Dolomiti – Venezia, 350 Km
5. BI5 - Ciclovia Romea Tiberina, 800 Km
6. BI6 - Ciclovia Adriatica, 1300 Km, Overlaps with EuroVelo 8
7. BI7 - Ciclovia Tibur Valeria, 300 Km
8. BI8 - Ciclovia degli Appennini, 1500 Km

[74] https://fiabitalia.it/progetto/bicitalia/

9. BI9 - Ciclovia Salaria, 300 Km
10. BI10 - Ciclovia dei Borbone, 400 Km
11. BI11 - Ciclovia dell'Acquedotto Pugliese, 500 Km
12. BI12 - Ciclovia Pedemontana Alpina, 1100 Km
13. BI13 - Ciclovia Claudia Augusta, 350 Km
14. BI14 - Ciclovia della Magna Grecia, 600 Km
15. BI15 - Ciclovia Svizzera mare, 500 Km
16. BI16 - Ciclovia della Sardegna, 1250 Km
17. BI17 - Ciclovia Alpe Adria Radweg, 180 Km
18. BI18 - Fano Grosseto, 400 Km
19. BI19 - Ciclovia Tirrenica, 1000 Km
20. BI20 - Ciclovia Aida, 950 Km

The ADRIONCYCLETOUR overlaps with five out of the ten projects of national cycle routes, namely:

- B1 – Sun Route (Ciclopista del Sole)
- B3 – Ciclovia Francigena Route
- B6 – Adriatic Route
- B11 – Apulian Aqueduct Cycle Route
- B14 – Magna Graecia Route

The Ministry of Infrastructure and Transport (MIT) and the Ministry of Artistic, Cultural and Tourist Heritage (Mibact) proposed the national system of tourist cycle paths project between 2015 and 2018.

The project goal is to offer ten safe and quality national cycle routes for sustainable tourism that enhance the historical, cultural, and environmental itineraries along the entire peninsula.

The cycle paths have been identified on proposals from the territories and associations of the sector and will reach an extension of approximately 6,000 kilometers, referring to the "EuroVelo" project, the 17 cycling corridors that cross the European continent.

Figure 38 Italian funding frameworks for National system of tourist cycling lanes

Figure 39 ADRIONCYCLETOUR overlap with BicItalia

The routes are partly existing and passable: the project envisages their completion or entire construction, as high-quality, gentle routes, reserved exclusively for non-motorized journeys, respectful of the environment and landscape, user friendly, with signs and ad hoc services, for non-professional cycling but for users of all abilities.

The national system was born with the identification of the first four tourist cycle paths in the 2016 Budget Law: the Cycle Path of the Sun (la Ciclovia del Sole), the Ven-To, the Grab, and the Cycle Path of the Apulian Aqueduct (la Ciclovia dell'Acquedotto Pugliese), identified following the EuroVelo cycle network and taking into account suggestions for plans already drawn up by local associations and bodies. In 2016, MIT and the implementing bodies signed the memoranda of understanding.[75]

In 2017, the national cycle path system was increased to ten cycle paths with another six cycle paths of national interest. For three of these, the Memoranda of Understanding were signed with the respective regions: Ciclovia del Garda, Ciclovia della Magna Grecia, and Ciclovia della Sardegna.

The other planned three routes are the Venice–Trieste cycle path, the Tyrrhenian cycle path, and the Adriatic cycle path.

Through the 2016 and 2017 budget laws, the national system of tourist cycle paths was financed with national resources for a total of 372 million from 2016 to 2024: with the co-financing of other entities, the sum of 750 million was reached.

The ten projects are:

1. Ven-To cycle route, 680 kilometers from Venice to Turin
2. Ciclovia del Sole, 300 kilometers from Verona to Florence
3. Water cycle path, 500 kilometers from Caposele (AV) to Santa Maria di Leuca (LE)
4. GRAB Cycle Route Rome – Grande Raccordo Anulare delle Biciclette, 44 kilometers in Rome
5. Garda cycle path, 140 kilometers along the shores of Lake Garda
6. Magna Graecia cycle path, 1000 kilometers from Lagonegro (PZ) to Pachino (SR)
7. Sardinia cycle path, 1230 kilometers from S.Teresa di Gallura (OT) to Sassari passing through Cagliari
8. Adriatic cycle path, 820 kilometers from Lignano Sabbiadoro (UD) to the Gargano
9. Trieste-Lignano Sabbiadoro-Venice cycle path, 150 kilometers from Venice to Trieste
10. Tyrrhenian cycle route, 870 kilometers from the France-Italy border to Rome.[76]

The coastal network of the ADRIONCYCLETOUR is encompassed with following five national system of tourist cycle routes. The National System of tourist cycleways is constituted of 10 cycle routes. They are funded by the Recovery Plan and national funds.

- Magna Grecia cycle route,
- Apulian Aqueduct cycle route,
- Adriatic cycle route,
- VenTo cycle route, and
- Trilive cycle route.

The 1,130 km Magna Grecia cycle route involves three Italian regions: Calabria, Sicilia, and Basilicata, which signed a protocol of understanding in 2019. The Magna Grecia cycle route will be part of the EUSAIR and EuroVelo 7 (the Sun Route from the North Cape to Malta).

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[75] https://www.mit.gov.it/sites/default/files/media/notizia/2018-05/Opuscolo%20Ciclovie%202018mod.pdf
[76] https://www.mit.gov.it/node/5383

The Apulian Aqueduct cycle route is a 400 km cycling route from Santa Maria di Leuca to Grottaglie that follows the route of historical aqueduct pipelines. A previous INTERREG project (CY.RO.N.MED.) allowed the identification of this cycling path in Southern Italy. With that project, the Region was the first in Italy to allow the free transport of bikes on trains. Half of this route passes through already existing roads and tracks. Puglia Region has built the first 15 km section.

The Adriatic cycle route crosses six Regions (Puglia, Molise, Abruzzo, Marche, Emilia-Romagna, and Veneto) for 1,109 km, of which 311 km have already been built. It can be considered the country's leading urban cycle route, as it crosses an interrupted coastal conurbation of large, medium, and small towns. It is beneficial for tourism, commuters, and daily movements, as it is flanked by the Adriatic railway, which allows intermodal integration.

The VenTo cycle route aims to connect the city of Venice to the city of Turin with a system of connected cycle paths that follow the course of the Po River. When finished, it should be 732 km long. The part

Figure 40 ADRIONCYCLETOUR overlap with national system of tourist cycleways of Italy

involved in the ADRIONCYCLETOUR is 101 km long. Till now, only 52 km have been accomplished and are safe for cyclists.

Trilive cycle route The Trilive (Trieste-Lignano-Venezia) cycle tour will be 331 km long and cross two Italian regions: Veneto and Friuli Venezia Giulia. Arriving at the border with Slovenia, it is a hinge between the two countries.

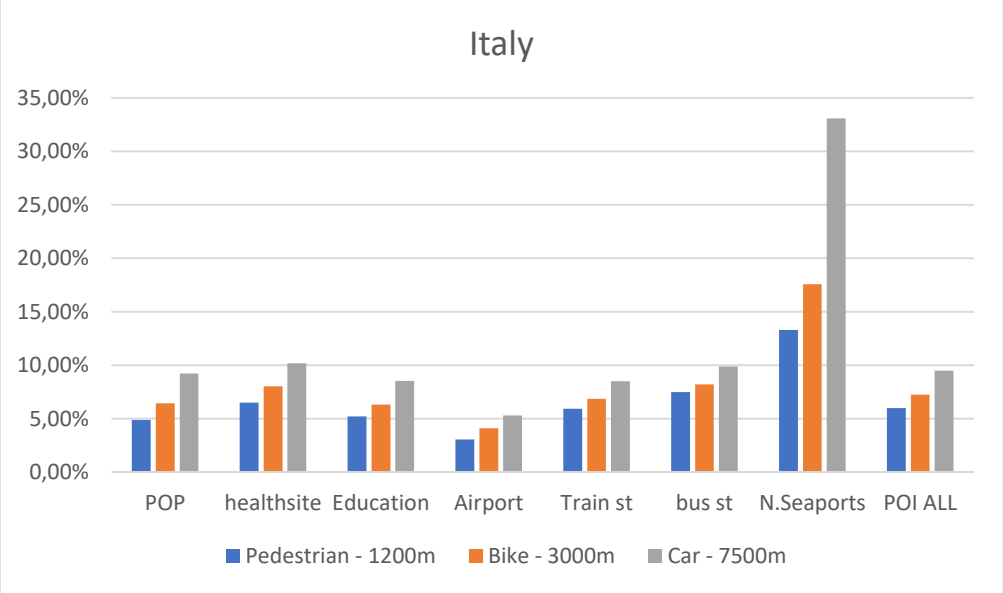
Further analysis is carried out to show the accessibility of the country's population to the ADRIONCYCLETOUR by walking (1.2 Km), cycling (3 Km), and car (7.5 Km).

In addition, the analysis is further detailed with accessibility by the mentioned modes of transport to health infrastructures, education infrastructures, and mobility hubs, including airports, ports, train stations, bus stations, and other points of interest. The table and diagram below summarize the analysis.

Table 9 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport in Italy

	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stations	No Sea Ports	No of Points of Interests
By Walking 1200m	2,983,336	1,123	374	23	172	40	84	42,291
By Bike 3000m	3,933,125	1,388	453	31	199	44	111	51,307
By Car 7500m	5,629,148	1,756	612	40	247	53	209	67,169

Figure 41 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport



4.5.3 Existing Planning Documents for Cycling Design and Funding for ADRIONCYCLETOUR

Italy's Ministry of Sustainable Infrastructure and Mobility (Mims) has received approval for its first General Plan for Cycling Mobility, which includes a total investment of 1.2 billion euro.

For tourist cycle routes, the National Plan of Recovery and Resilience is set to invest 400 million euro between 2022-2026 to construct 1,235 additional kilometers of cycle paths and carry out necessary maintenance works on the existing network. For urban cycle routes, this fund allocates 200 million euros

for the construction of 565 kilometers of routes in urban areas and to strengthen connections between railway stations and universities by June 2026.[77]

The main source of funding for cyclist mobility in Italy are:

European Development Fund includes:

- European Regional Development Fund
- Cohesion Fund

(Currently exist a financial framework pluriannual 2021-2027)

National Funding includes “Ministerial order n.517 of 2018” and “Recovery Plan” predict funding for the construction of part of the “Nation system of tourist cycling lanes.

The following shows in detail the framework of the funds allocated for each cycling route. .

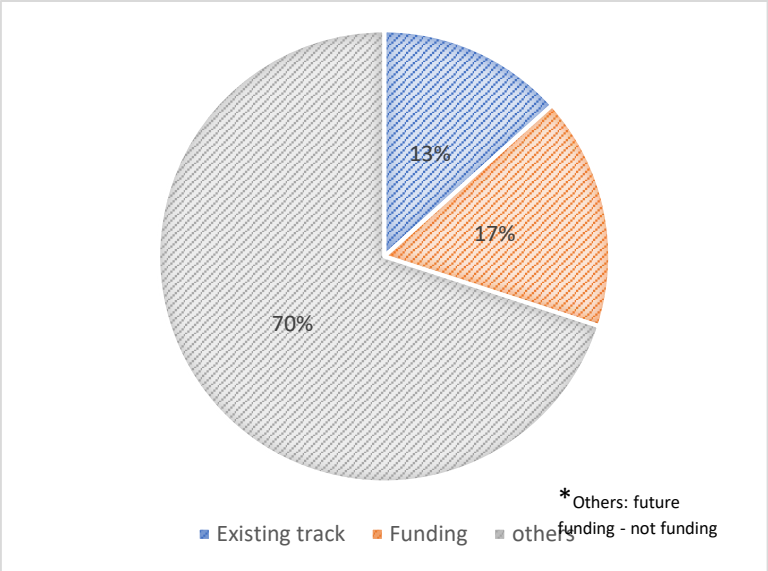
Table 10 Italian funding frameworks for National system of tourist cycling lanes

TABELLA 2: IL QUADRO DELLE RISORSE ASSEGNATE ALLE DIECI CICLOVIE TURISTICHE NAZIONALI PRIORITARIE (milioni di euro)				
DIECI CICLOVIE TURISTICHE NAZIONALI PRIORITARIE	**Risorse assegnate con DM n. 517/2018**	**Risorse PNRR assegnate con DM n. 4/2022**	**Ulteriori risorse assegnate con DM n. 4/2022**	**Totale delle risorse assegnate**
Ciclovia Tirrenica	16,62	44,50		61,12
Ciclovia Adriatica	16,62	74,00	27,50	118,12
Ciclovia Ven-To	16,62	51,00		67,62
Ciclovia del Sole	16,62	22,50		39,12
Ciclovia della Sardegna	16,62	33,00		49,62
Ciclovia dell’Acquedotto Pugliese	16,62	39,50		56,12
Ciclovia della Magna Grecia	16,62	61,50		78,12
Ciclovia del Garda	16,62	30,00		46,62
Ciclovia GRAB	14,88			14,88
Ciclovia Trieste - Lignano Sabbiadoro - Venezia	16,62	30,00		46,62
Totale:	**164,46**	**386,00**	**27,50**	**577,96**

The following graph summarizes the current funding status of the cycling paths in Italy that will form ADRIONCYCLETOUR. Lacks funding in the southern regions of Puglia, Basilicata, and Calabria.

[77] https://futuretransport-news.com/italy-launches-its-first-general-plan-of-cycling-mobility/

Figure 42 Current status of funding of ADRIONCYCLETOUR in Italy



ADRIONCYCLETOUR is one of the three strategically important projects of the Interreg VI-A Italy-Slovenia Program. The project faces the challenge of making the Program area more attractive and accessible through the promotion of sustainable tourism linked to cycling. The main objective is to help define the cycle route along the coast of the Adriatic Sea in Italy (Friuli Venezia Giulia and Veneto regions) and Slovenia (coastal network), including the main cycle connections with the hinterland (internal network), and contribute to developing, at EUSAIR level, an innovative and attractive cross-border/transnational tourism product on the ADRIATIC-IONIAN Cycle Path.

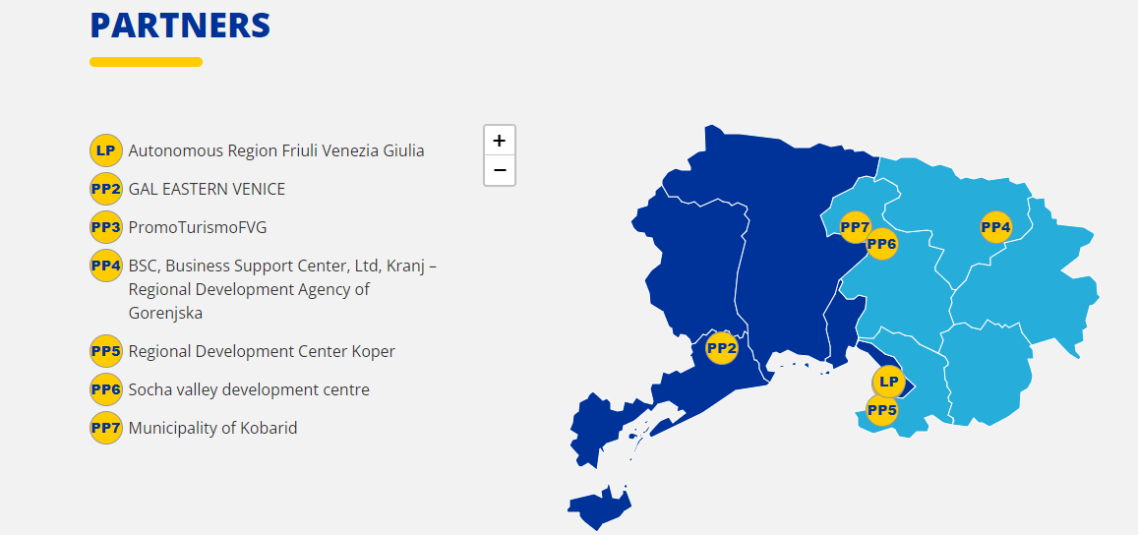
Figure 43 ADRIONCYCLETOUR Interreg Italy-Slovenia[78]

The project will contribute to the sustainable development of the territory on a cross-border and macro-regional scale, promoting both sustainable tourism and mobility and supporting the tourism industry, in full respect of the environmental and historical heritage, both of the Program area and of the whole EUSAIR area.[79]

[78] https://www.ita-slo.eu/it/adrioncycletour
[79] https://www.ita-slo.eu/it/adrioncycletour

The project, with a total budget of 4,375,000.00 euros, of which 3,500,000.00 euros co-financed by the ERDF, represents a significant and relevant opportunity to implement the strategic goals of defining the Adriatic-Ionian cycle path, developing from one point from an infrastructural and sustainable tourism point of view, also at a macro-regional level EUSAIR, the cross-border coastal cycling route of the Adriatic Sea in Italy (Friuli Venezia Giulia and Veneto) and in Slovenia, including its main cycling connections with inland areas, in compliance with the Community guidelines on the matter, thanks to the increase in multimodality (bike-boat, bike-train, bike-bus) of a cross-border nature.[80]

Figure 44 ADRIONCYCLETOUR Interreg Italy-Slovenia Partners



In the specific, there are no references about the Adrion Cycle route in several documents of cycle route planning at a national or regional scale.

The following map shows the funding status of the ADRIONCYCLETOUR in Italy.

[80] https://www.regione.fvg.it/rafvg/cms/RAFVG/fondi-europei-fvg-internazionale/cooperazione_territoriale_europea/news/0085.html

Figure 45 ADRIONCYCLETOUR planned and funded tracks in Italy

4.6 Montenegro

The first sustainable mobility plan for carbon-neutral tourism in Montenegro was developed in 2016. EuroVelo 8 (Mediterranean route) is planned to pass through the country for an overall length of 175-195 km. Cycle tourism is yet to be widespread in Montenegro. Thus the incorporation in the EuroVelo network will provide the country with safer corridors for cycle tourism, reduction of road accidents, and improvement of accessibility.[81]

4.6.1 National Cycling Strategies and Guidelines

Montenegro has yet to have specific national legislation dedicated to cycling. However, general traffic regulations and laws apply to cyclists, ensuring their safety and defining their rights and responsibilities on the roads. Moreover, Montenegro needs to develop a national cycling strategy.

4.6.2 Planned Route for ADRIONCYCLETOUR

Montenegro. The EuroVelo 8 route enters Montenegro from Croatia at the Debeli Brijeg border crossing and follows the picturesque coastline of the Adriatic Sea.

Starting from the Croatia border, the route passes through the Bay of Kotor, a UNESCO World Heritage site known for its stunning fjord-like landscapes. Cyclists can enjoy riding along the bay's shores, passing through towns like Herceg Novi, Perast, and Kotor. These towns are renowned for their historical architecture, medieval fortresses, and well-preserved old towns. The cycling route continues southwards, passing through Tivat. From there, the route follows the coastline, offering scenic views of the Adriatic Sea and the surrounding mountains.

Further along the route, cyclists will reach Budva, one of Montenegro's most popular tourist destinations. The EuroVelo 8 route then continues southwards, passing through the coastal towns of Petrovac and Sutomore. The final stretch of the route in Montenegro takes cyclists to Bar, known for its historic old town and important port. The Bar marks the southernmost point of the EuroVelo 8 route in Montenegro before it continues into Albania.

[81] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf

Figure 46 ADRIONCYCLETOUR project route passing through Montenegro

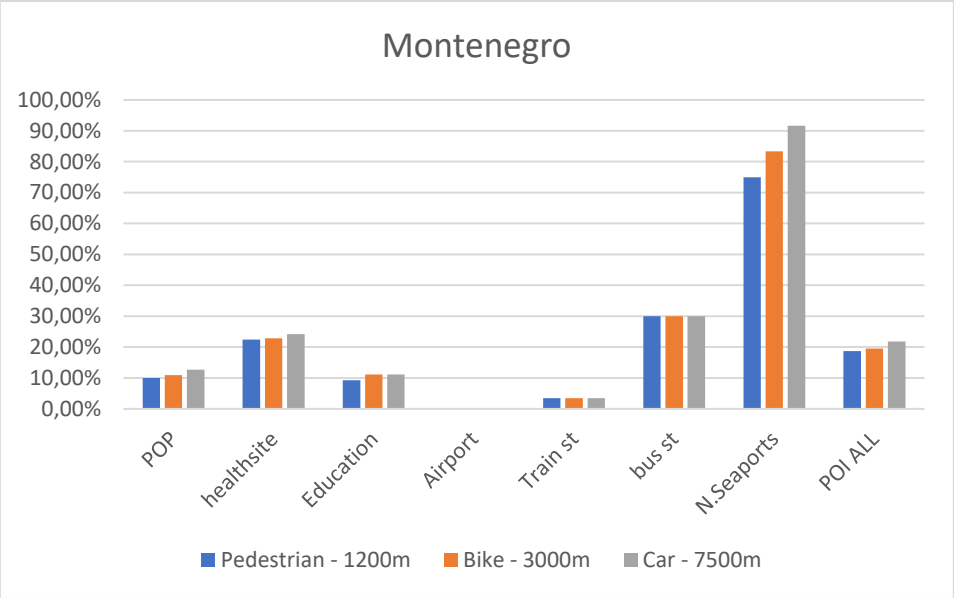
Further analysis is carried out to show the accessibility of the country's population to the ADRIONCYCLETOUR by walking (1.2 Km), cycling (3 Km), and car (7.5 Km).

In addition, the analysis is further detailed with accessibility by the mentioned modes of transport to health infrastructures, education infrastructures, and mobility hubs, including airports, ports, train stations, bus stations, and other points of interest. The table and diagram below summarize the analysis.

Table 11 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport in Montenegro

	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stations	No Sea Ports	No of Points of Interests
By Walking 1200m	69,821	50	10	0	1	3	9	2,359
By Bike 3000m	75,758	51	12	0	1	3	10	2,463
By Car 7500m	88,108	54	12	0	1	3	11	2,741

Figure 47 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport



4.6.3 Existing Planning Documents for Cycling Design and Funding for ADRIONCYCLETOUR

The essential document for planning cycling infrastructure is the "Rulebook on cycling infrastructure"[82].

It includes all the regulations regarding the cycling infrastructure in Montenegro.

It assures that a bicycle path outside the cities is designed considering a peak load of more than 300 cyclists per hour is expected on a specific section or optimal movement routes from the starting point to the destination. The bicycle lane is planned outside the road profile when feasible and economically justified.

The minimum dimensions of bicycle lanes are determined by the width of the bicycle (0,60 m), the maneuvering space of the bicycle (0,2 m), and the width protective belt (0,25 m). The traffic cross profile of the bicycle road is the sum of the bicycle width (0,6 m) and the width of the maneuvering space (0,2 m) on both sides of cyclists and is at least 1 m for one cyclist, and at least 2 m for two cyclists. So the bicycle path is intended for two-way traffic of cyclists and is at least 2.5 m wide, while a one-way bicycle path is made with a width of at least 1 m and a two-way path of at least 2 m.

Regarding the slope, the minimum cross slope of the bicycle road in that direction is 1.5%. The minimum transverse slope of the bicycle road in the curve is directed towards the center of the curve and is 2.5%. The cross slope of the bicycle road on which speeds higher than 20 km/h are reached is from 2.5% to 5.0%. The minimum cross slope of the bicycle-pedestrian path is 1.5%. The transverse slope of the bicycle lane is equal to the slope of the road. The bicycle path's transverse slope depends on the construction material from which it is made and cannot be less than 2.5%.

At the time of drafting this report, no document was found regarding the funding for the ADRIONCYCLETOUR in the country.

4.7 North Macedonia

Currently, the country has concise cycle routes, but more and more cities are investing in cycling infrastructures. North Macedonia is involved in EuroVelo 11 and EuroVelo 13, but the country has not yet

[82] The rulebook is published in the "Official Gazette of the Republic of Montenegro", no. 77/2021 of 16.7.2021. and entered into force on 7/24/2021.

defined routes. Challenges are related to the morphology of the territory, the high mountains, and the need for new infrastructures.

The development of a cycle route along the Via Egnatia path, in connection with the ADRIONCYCLETOUR and the EuroVelo network, is proposed by representatives of the Center for sustainable initiatives of North Macedonia. [83]

However, when drafting this report, no document was found regarding the proposed design, planning, and funding for the ADRIONCYCLETOUR in the country.

4.8 Serbia

Serbia Three EuroVelo routes pass through Serbia: the Atlantic-Black Sea (EuroVelo 6), the Iron Curtain Trail (EuroVelo 13), and the East Europe Route (EuroVelo 11). Moreover, the already cited Savska route project meets all the requisites to become part of the EV network. As mentioned above, the ADRIONCYCLETOUR does not only have a coastal dimension but includes the construction of an inland network. Part of this inland network should be the Adriatic circle route: the core idea of this route is to connect Belgrade, Sarajevo, and Dubrovnik, planning to involve Serbia, Bosnia, and Herzegovina, Croatia, and Montenegro for a length of 1,400 km.[84]

When drafting this report, no document was found regarding the proposed design, planning, and funding for the ADRIONCYCLETOUR in the country.

4.9 Slovenia

By the end of 2018, over 77 cities in Slovenia had adopted a Sustainable Urban Mobility Plan, and numerous actions have been planned to develop cycling infrastructures.

Parenzana is among the most popular routes in Slovenia. It is a regulated cycling path that connects Slovenia to Italy and Croatia. The ADRIONCYCLETOUR connects Kranjska Gora with Ravenna in Italy.

The route combines the beauty of historical centers with parks and archeological sites. Slovenian Istria offers multimodal services for transporting bikes by train and boat.

Moreover, there is Bike Alpe-Adria, a new platform that offers cycling trips through the Slovenian lakes, the Alps, and the beaches of the Adriatic Sea. [85]

4.9.1 National Cycling Strategies and Guidelines

While the National Cycling Strategy of Slovenia is still under development, an essential document concerning the overall transportation strategy in the Country is the "Transport development strategy of the Republic of Slovenia"[86]. This document assumes that the current situation in the field of sustainable mobility in Slovenia could be better, even if measures are being implemented for sustainable mobility is a priority for the Slovenian Ministry of Infrastructure.

In particular, the Slovenian Ministry of Infrastructure has been implementing various measures to promote soft mobility, focusing on sustainable and non-motorized forms of transportation such as walking, cycling, and public transport. These initiatives aim to improve the quality of transportation options and encourage people to choose greener and healthier modes of transport.

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[83] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf
[84] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf
[85] https://eusairfacilitypoint.adrioninterreg.eu/wp-content/uploads/2021/12/ESP-Spring-Newsletter-2021-22.pdf
[86] https://www.gov.si/assets/ministrstva/MzI/Dokumenti/Transport-Development-Strategy-of-the-Republic-of-Slovenia-Until-2030.pdf

Slovenia is investing in developing Cycling Infrastructure: The ministry has been actively involved in developing cycling infrastructure throughout the Country. The initiatives include constructing and improving cycle paths, bike lanes, and shared pedestrian and cycling paths. The objective is to create a well-connected and safe network that encourages cycling as a viable mode of transportation.

Moreover, the policies and planned initiatives emphasize the importance of integrating Cycling with Public Transport. The ministry has been working to integrate these two modes of transportation effectively. Efforts have been made to provide bike racks and secure bicycle parking at public transport stations. These strategies encourage people to use their bikes for first- and last-mile connectivity to complement their journeys by bus or train.

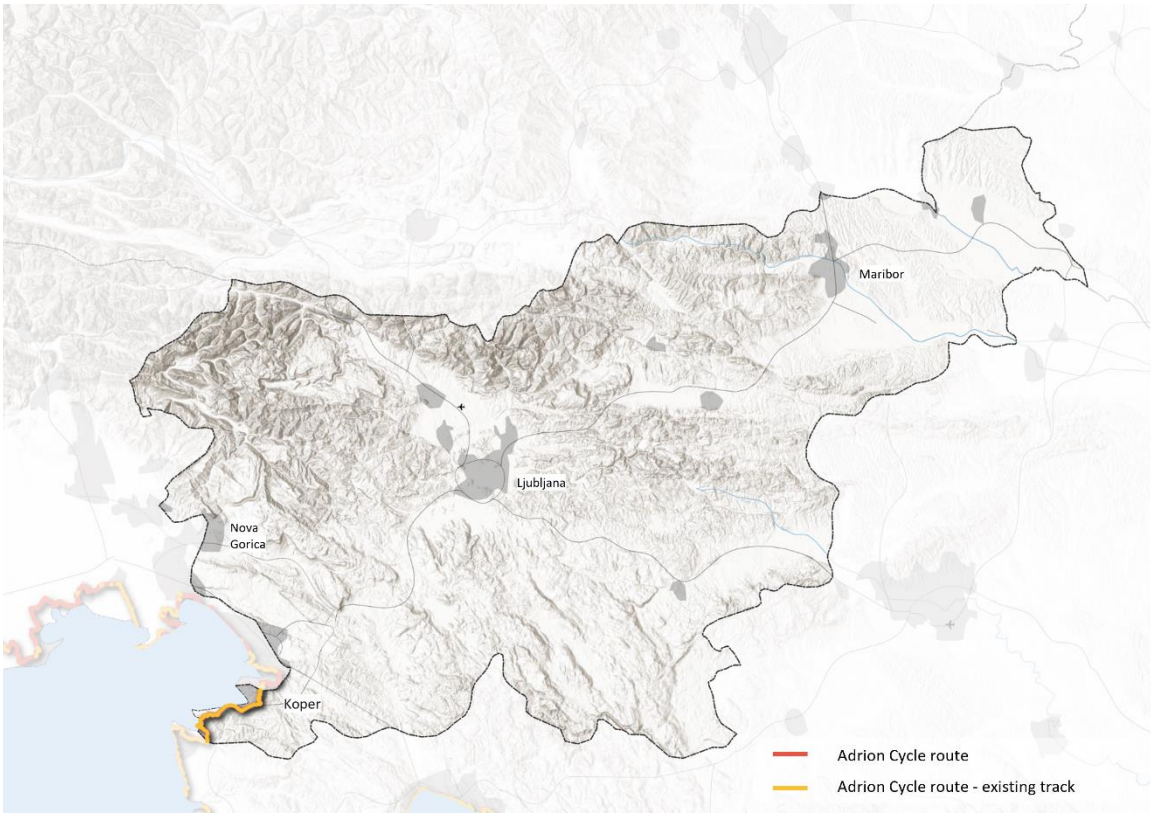
Another vital document regarding active mobility is the "Action Plan for Slovenia"[87], part of the project DEMO-EC which is a European project to integrate mobility management in city development/planning by analyzing, exchanging, and dissemination of good practices to improve the effectiveness of policies in the field of low-carbon in transport.

This project is based on actions that encourage the use of cycling. Action 1, in particular, aims to Increase the number of public bikes, bike parking facilities, and bike sharing and the number of kilometers of remote cycling connections. The objective is also to increase bike usage among tourists and local/regional inhabitants in the urban centers and in the countryside.

4.9.2 Planned Route for ADRIONCYCLETOUR

The ADRIONCYCLETOUR in Slovenia coincides with the Slovenian section of EuroVelo 8. This section is built and already equipped with a EuroVelo sign.

Figure 48 ADRIONCYCLETOUR project route passing through Slovenia



[87] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1585224545.pdf

The route enters Slovenian territory near the town of Koper. After passing through this town, the route continues along the Adriatic coast to the town of Izola. The route then passes through the Piran peninsula to the town of Lucia, from where it crosses the border into Croatian territory.

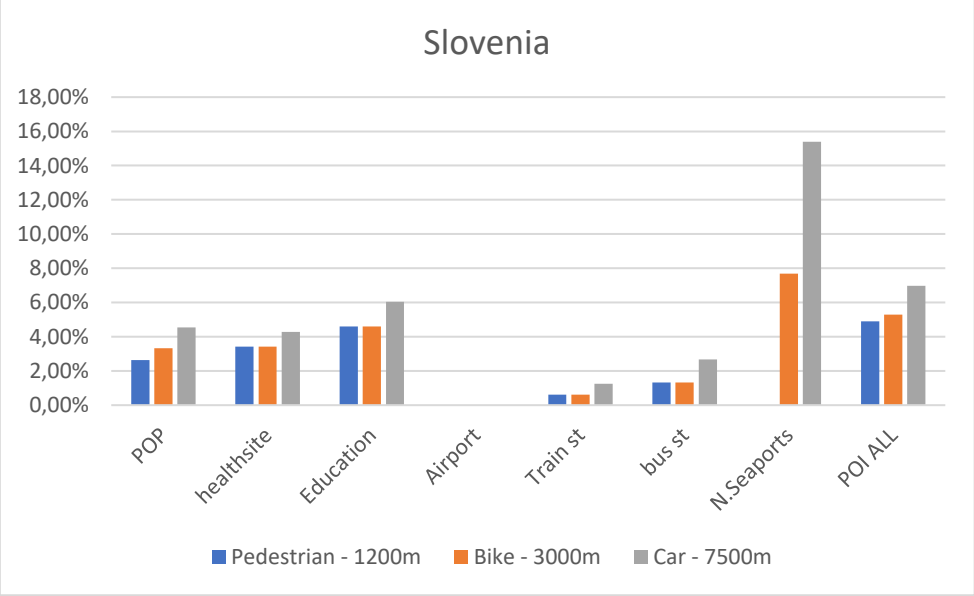
Further analysis is carried out to show the accessibility of the country's population to the ADRIONCYCLETOUR by walking (1.2 Km), cycling (3 Km), and car (7.5 Km).

In addition, the analysis is further detailed with accessibility by the mentioned modes of transport to health infrastructures, education infrastructures, and mobility hubs, including airports, ports, train stations, bus stations, and other points of interest. The table and diagram below summarize the analysis.

Table 12 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport in Slovenia

	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stations	No Sea Ports	No of Points of Interests
By Walking 1200m	60,659	12	16	0	1	1	0	2,348
By Bike 3000m	76,872	12	16	0	1	1	2	2,535
By Car 7500m	104,889	15	21	0	2	2	4	3,340

Figure 49 Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport



4.9.3 Existing Planning Documents for Cycling Design and Funding for ADRIONCYCLETOUR

While the national cycling strategy is still being developed, the Spatial Development Plan is a key document for Slovenian spatial planning. The Slovenian Spatial Plan[88] (2004) states that:

The concept of a cycling trail network consists of the network of national long-distance and main cycling links, which interconnect urban centers and tourist districts and provide links to the long-distance regional European cycling links EuroVelo No 8 and EuroVelo 9, running through Slovenia.

[88] https://www.gov.si/assets/ministrstva/MOP/Publikacije/sprs_eng.pdf

Depending on the spatial possibilities and available road infrastructure, the existing transport routes shall be used for cycling trails under little or no pressure from motorized traffic. New cycling trails shall be built where there is no such possibility.

Regional cycling link networks shall be developed in the directions of long-distance and main road links and connected to the European cycling links. Cycling networks will also be built in cities, towns, and other settlements for short-distance daily movements. Cycling trails and lanes shall be provided in the most important directions of personal transport in urban areas and linked to public transport stops and car parks.

Municipalities create spatial development plans at the local level to guide land use and transportation planning. These plans often include provisions for cycling infrastructure, such as dedicated cycle paths, bike lanes, and bike parking facilities. They help ensure that cycling infrastructure is integrated into urban and regional planning.

At the time of drafting this report, no document was found regarding the funding for the ADRIONCYCLETOUR in the country.

5 Analysis of Design Alternatives

Considering alternative designs for cycling infrastructure helps achieve inclusivity, maximize reach and connectivity, enhance safety and comfort, promote active lifestyles, support tourism and economic development, and provide flexibility for future growth. It allows planners to create a cycling network that serves a broader population, connects to essential destinations, and adapts to evolving needs, ultimately encouraging more people to choose cycling as a sustainable and efficient mode of transportation.

The following chapter details studies for proposing an alternative design for sections of the ADRIONCYCLETOUR that still need to be implemented in Greece and an alternative EuroVelo 8 route in Croatia that is mentioned in detail in the previous chapter.

Figure 50 ADRIONCYCLETOUR planned and studied alternative route

Alternative designs allow for a more inclusive and equitable cycling infrastructure serving a broader population range. By considering different design options, such as varying route alignments or accommodating different types of cyclists (e.g., commuters, recreational riders, or families), the infrastructure can cater to the diverse needs and preferences of the community. This promotes accessibility and encourages a more significant portion of the population to adopt cycling as a mode of transportation or recreation.

Alternative designs enable the cycling infrastructure to cover a larger geographic area and connect more points of interest. By exploring different route options, opportunities are identified to extend the cycling network and link it with essential destinations, such as schools, parks, commercial areas, public transportation hubs, or cultural attractions. This connectivity enhances the usability and value of the cycling infrastructure by providing convenient access to various destinations and facilitating multimodal transportation options.

Providing access to points of interest, such as parks, recreational areas, or scenic routes, promotes active lifestyles and encourages people to engage in physical activity. Designing cycling infrastructure that passes through or connects to these destinations makes it more attractive and appealing to individuals seeking opportunities for exercise, leisure, or outdoor recreation. Increased physical activity through cycling contributes to improved health outcomes and a more sustainable approach to transportation.

Table 13 Comparison of Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport for the Planned and Alternative Design

	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stops	No Sea Ports	No of Points of Interests
By Walking Current Design	4,894,779	2,128	794	28	192	93	272	78,880
By Walking Alternative Design	4,931,285	2,199	809	29	189	95	261	81,276
By Cycling Current Design	6,439,854	2,568	934	36	225	101	315	96,036
By Cycling Alternative Design	6,499,520	2,649	955	37	219	103	311	98,985
By Car Current Design	9,046,990	3,135	1,170	49	288	141	446	124,258
By Car Alternative Design	9,163,713	3,222	1,203	52	280	142	445	128,510

Alternative designs considering tourism-related points of interest can boost local economies and support tourism development. By integrating cycling infrastructure with popular tourist sites, cultural landmarks, or scenic routes, the region becomes more attractive to cyclists and encourages tourism. This, in turn, benefits local businesses, such as cafes, restaurants, accommodations, and shops, creating economic opportunities and contributing to the growth of the tourism sector.

To provide an alternative design option, further analysis is carried out to show the accessibility of each country's population to the planned and proposed alternative design for the ADRIONCYCLETOUR by walking (1.2 Km), cycling (3 Km) and car (7.5 Km).

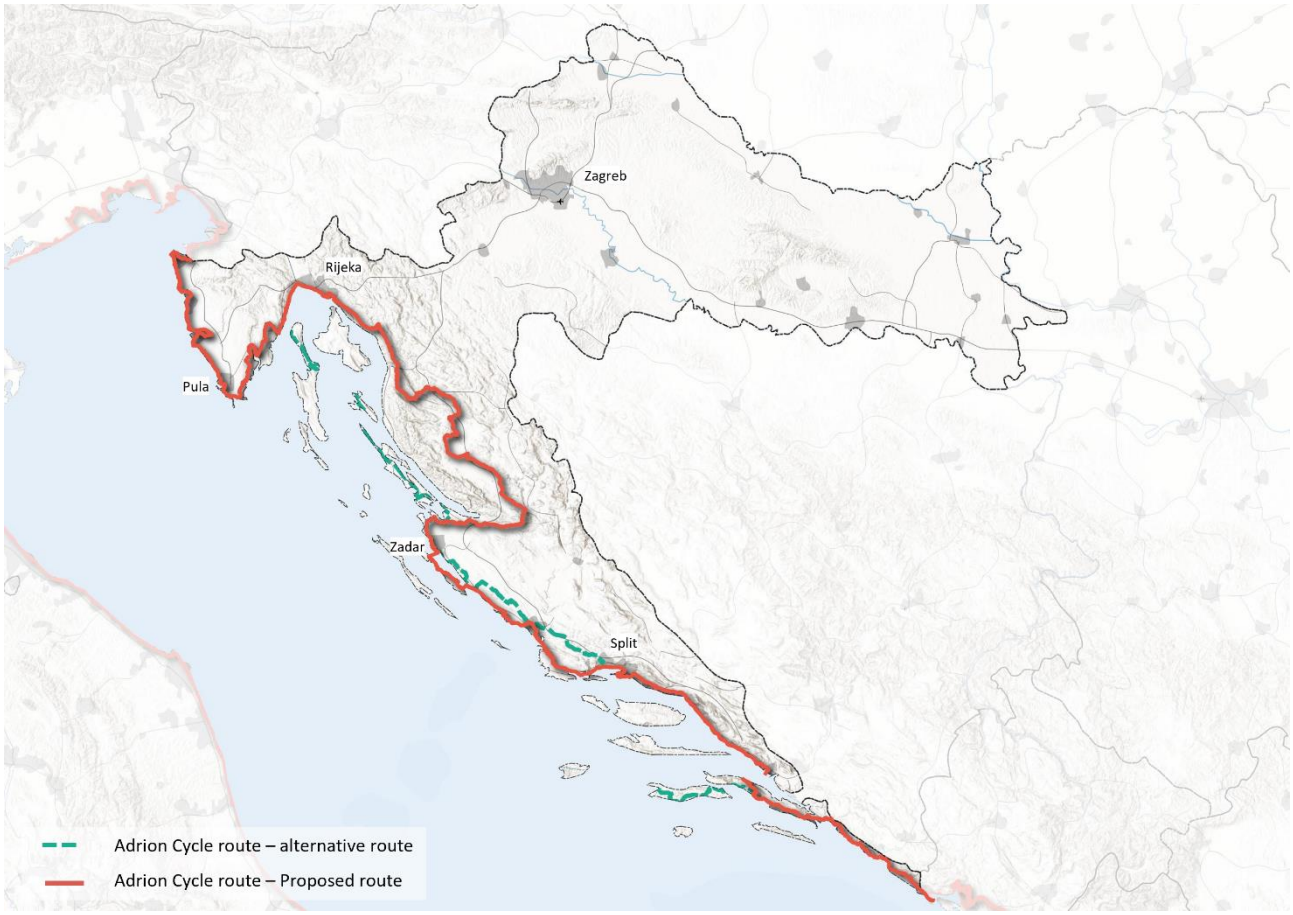
In addition, the analysis is further detailed with accessibility by the mentioned modes of transport to health infrastructures, education infrastructures, and mobility hubs, including airports, ports, train stations, bus stops, and other points of interest. The table below summarize the analysis.

It is worth emphasizing that the proposed alternative design constitutes a preliminary recommendation, necessitating comprehensive study and analysis to ascertain its feasibility and practicality.

The comprehensive analysis, as depicted in the table 13, reveals the significant advantages of the proposed alternative design in terms of its extensive reach to a larger population through walking, cycling, and car transportation modes. Notably, this design showcases its potential by incorporating a multitude of health

and education infrastructure facilities, as well as other points of interest, all conveniently situated in close proximity to the proposed route, accessible by means of walking, cycling, or car travel.

Figure 51 ADRIONCYCLETOUR planned and studied alternative route in Croatia



However, it is imperative to note that while the alternative design excels in terms of its proximity to airports, the impact on other mobility hubs remains relatively unchanged. Further investigation and assessment are indispensable to comprehensively evaluate the viability and potential of the proposed alternative design in relation to the various mobility hubs. These critical findings emphasize the necessity for meticulous analysis before finalizing the recommended design, ensuring that it aligns with the overarching goals and objectives of the project.

Table 14 Comparison of Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport for the Planned and Alternative Design in Croatia

Croatia	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stops	No Sea Ports	No of Points of Interests
By Walking Current Design	677,864	370	222	2	4	19	121	17,556
By Walking Alternative Design	538,895	343	191	1	1	16	115	16,503
By Cycling Current Design	852,448	385	229	2	7	19	128	20,776

By Cycling Alternative Design	649,960	352	200	1	1	16	123	19,535
By Car Current Design	1060372	443	254	4	11	29	143	25754
By Car Alternative Design	805086	380	223	5	3	25	140	23785

The proposed alternative route, exclusively applicable to the Croatia and Greece sections of the ADRIONCYCLETOUR, warrants a comprehensive examination of its impact on various crucial factors. To elucidate the discernible disparities, a meticulous analysis has been undertaken, employing a series of tables that meticulously compare the planned route against the proposed alternative in terms of population accessibility, points of interest, health and education facilities, and mobility hub connectivity.

Figure 52 ADRIONCYCLETOUR planned and studied alternative route in Greece

These comprehensive assessments analyses the accessibility of the planned and alternative routes, discerning their respective merits across three primary modes of transportation: walking, cycling, and car travel. By evaluating these modes, it becomes evident how the proposed alternative route accentuates its capacity to reach a larger population while effortlessly accommodating diverse means of transportation.

Additionally, an in-depth examination of the proposed alternative route reveals its unparalleled proximity to an assortment of points of interest, underscoring its potential to provide an enriched and immersive experience for both locals and visitors. Moreover, this alternative route strategically situates itself in close

vicinity to vital healthcare and education facilities, thereby fostering enhanced accessibility and convenience in these domains.

To evaluate the alternative route's impact on mobility hubs, each hub is independently assessed to discern any noteworthy discrepancies. While the alternative route showcases a noteworthy improvement in proximity to airports, its influence on other mobility hubs appears to exhibit comparatively marginal alterations. These findings underscore the imperative need for continued, rigorous analysis, and meticulous consideration to ascertain the ultimate compatibility and viability of the proposed alternative route within the broader framework of the ADRIONCYCLETOUR.

Table 15 Comparison of Access from to ADRIONCYCLETOUR to Population and Points of Interest by Different Modes of Transport for the Planned and Alternative Design in Greece

Greece	Total Population	No Health Infra.	No Education Infra.	No Airports	No Train Stations	No Bus Stops	No Sea Ports	No of Points of Interests
By Walking Current Design	436,870	179	86	1	4	16	56	6,110
By Walking Alternative Design	612,345	277	132	3	4	21	51	9,559
By Cycling Current Design	570,445	211	103	1	5	19	60	7,573
By Cycling Alternative Design	832,599	325	153	3	5	24	61	11,763
By Car Current Design	754,045	248	115	1	8	22	70	10,201
By Car Alternative Design	1,126,054	398	179	3	8	27	72	16,422

6 Seismic and Hydrogeological Analysis

The following chapter provides the seismic and hydrological analysis for the ADRIONCYCLETOUR. Providing comparison studies for planned and the proposed alternative design for the ADRIONCYCLETOUR.

The primary concern when designing a cycling lane is the safety of cyclists. Seismic analysis helps ensure the safety and structural integrity of the cycling lane in areas prone to seismic activity. Earthquakes can generate significant ground motions that impose dynamic loads on structures, including roads and bridges. The seismic analysis considers the effects of ground shaking and soil liquefaction, which can compromise the stability of the road surface.

By conducting a seismic analysis, the potential impact of seismic forces on the cycling lane can be assessed. Seismic analysis helps engineers assess the long-term performance of the cycling lane under seismic events. By considering the anticipated ground motion and potential failure modes, engineers can implement reinforcement techniques, such as adding additional support structures or incorporating flexible design features, to reduce the risk of damage and disruption during an earthquake. This helps minimize the downtime and repair costs associated with post-seismic repairs.

A hydrology analysis and flood risk assessment help ensure the safety of the cycling lane by identifying potential flood-prone areas along the route. Flooding can create hazardous conditions, including submerged or washed-out lane sections, fast-moving water, or debris accumulation. Flooding events can damage roads, bridges, and other infrastructure components, leading to costly repairs and disruptions in service.

Understanding the hydrological characteristics of the region, such as rainfall patterns, drainage systems, and water flow, allows engineers to design the cycling lane to minimize the risk of flooding and ensure the safety of cyclists.

By considering floodplain boundaries, wetland areas, or other environmentally sensitive zones, designers can avoid or minimize disturbance to these ecosystems during construction.

Considering hydrological conditions and flood risks during the design phase allows for creating a resilient and adaptable cycling lane. The infrastructure can better withstand and recover from flood events by incorporating features such as elevated sections, flood-resistant materials, or removable barriers. This enhances the long-term functionality of the cycling lane and its ability to serve as a reliable transportation option, even in the face of changing hydrological conditions.

It is noteworthy that the geographically referenced data pertaining to the raising sea level is absent from openly accessible databases. Consequently, hydrological studies have been precluded from incorporating this subject matter.

6.1 Seismic Analysis for ADRIONCYCLETOUR

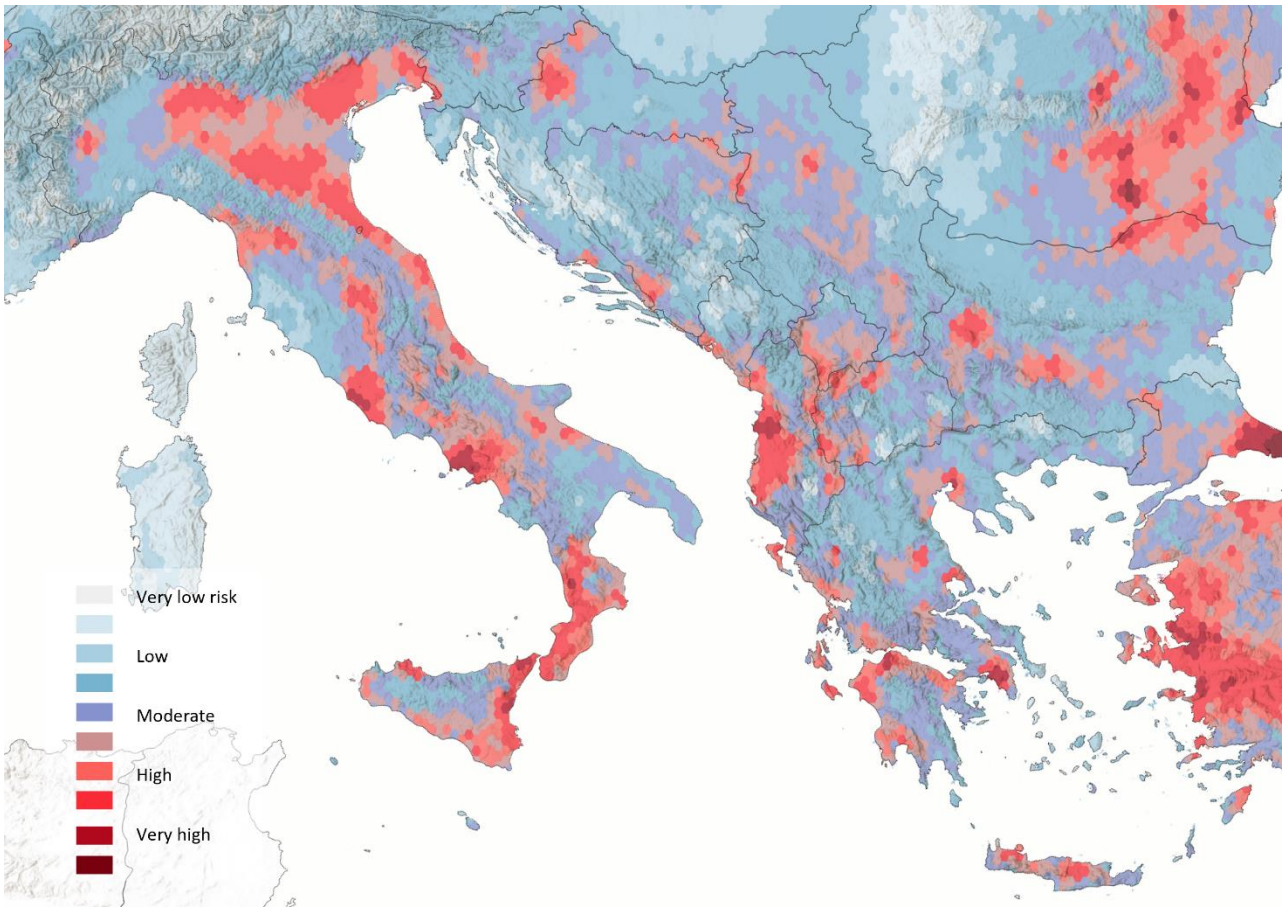
To assess the seismic risk caused by earthquakes for the ADRIONCYCLETOUR, the data provided by risk.EFEHR[89] is taken into consideration. This platform, hosted at the EUCENTRE [90], provides the risk services of the European Facilities for Earthquake Hazard and Risk (EFEHR), a consortium of organizations and community resources to advance earthquake hazard and risk assessment in the European-Mediterranean area. The European Seismic Index was calculated using the European Seismic Risk Model (ESRM20)[91].

The European Seismic Risk Index is calculated by dividing the average annual loss by the GDP per capita. Two types of loss are considered: economic loss (in Euros) and loss of life. The resulting economic risk index

[89] http://risk.efehr.org/
[90] https://www.eucentre.it/
[91] http://risk.efehr.org/esrm20/

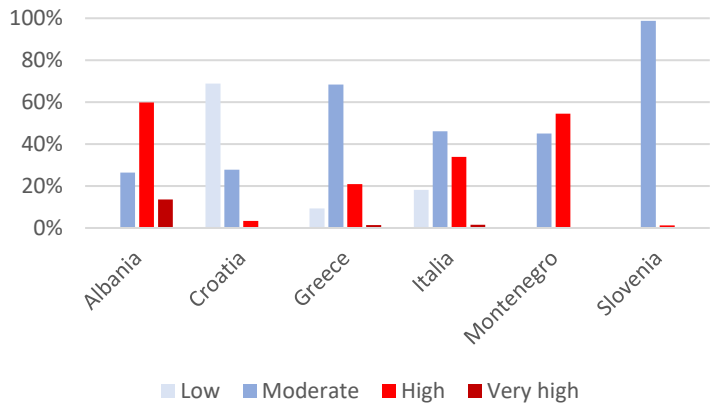
and loss of life risk index are then normalized using min-max normalization. Given that both indices are heavily skewed by the extreme population range and property value densities between urban and rural communities, a cube root transformation is applied before min-max normalization.

Figure 53 Seismic risk in the EUSAIR region



The average of the two indices is then found, leading to a final seismic risk index that varies from 0 to 1 and has been mapped to the following qualitative risk categories: very low, low, moderate, high, and very high. The seismic risk index has then been disaggregated to a hexagonal grid with a height of 0.17 decimal degrees. With the risk value, this grid was finally cross-referenced with the sections of the new ADRIONCYCLETOUR to quantify the seismic risk conditions of different sections of the route for both the planned and proposed route. The results are shown in the figures below.

Figure 54 Seismic risk for ADRIONCYCLETOUR per country



For the planned route, it can be seen how the risk factor changes greatly depending on the state. Italy has several sections characterized as high risk: the whole of the Sicilian portion, the Riviera "Romagnola" and "Marchigiana," and finally, the section immediately before Trieste are classified as high risk (35% of the total). The other sections present a low risk (18%) and a moderate risk (46%).

In Slovenia, the short section is characterized by moderate risk and therefore is not particularly critical.

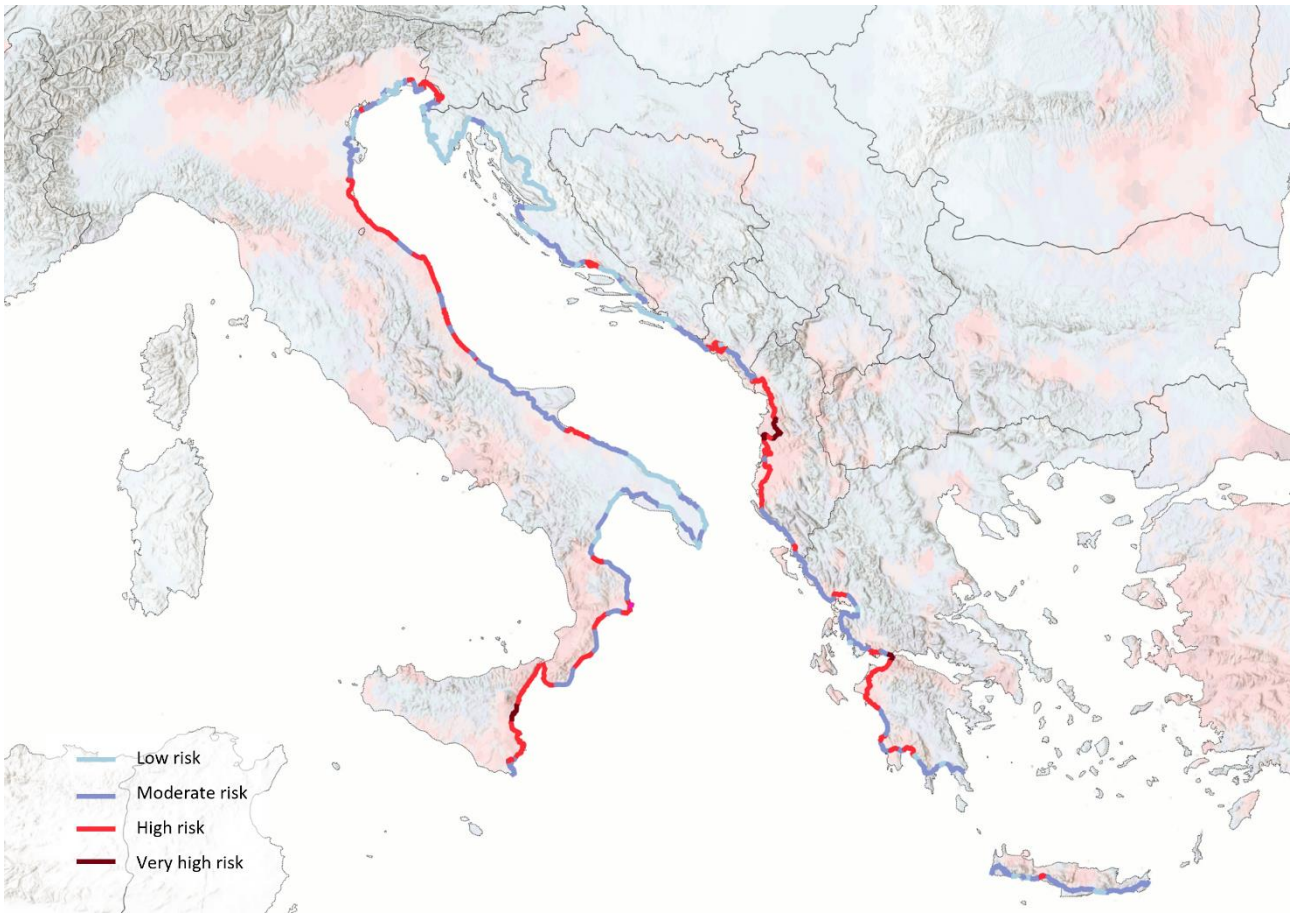
The Croatian section is also relatively manageable. Most routes are characterized by low (69%) and moderate (28%) risk. Only 3% of the Croatian route presents a high risk (mainly in the section near Split).

The Montenegrin section is characterized by almost half having a moderate risk (45%) and the other half having a high risk (55%), particularly at the Bay of Kotor.

The Albanian section is characterized by many high and very high-risk conditions (60% and 14% of the total). The sections run from the state's northern border, through the capital Tirana and Durres, and down to Vlore.

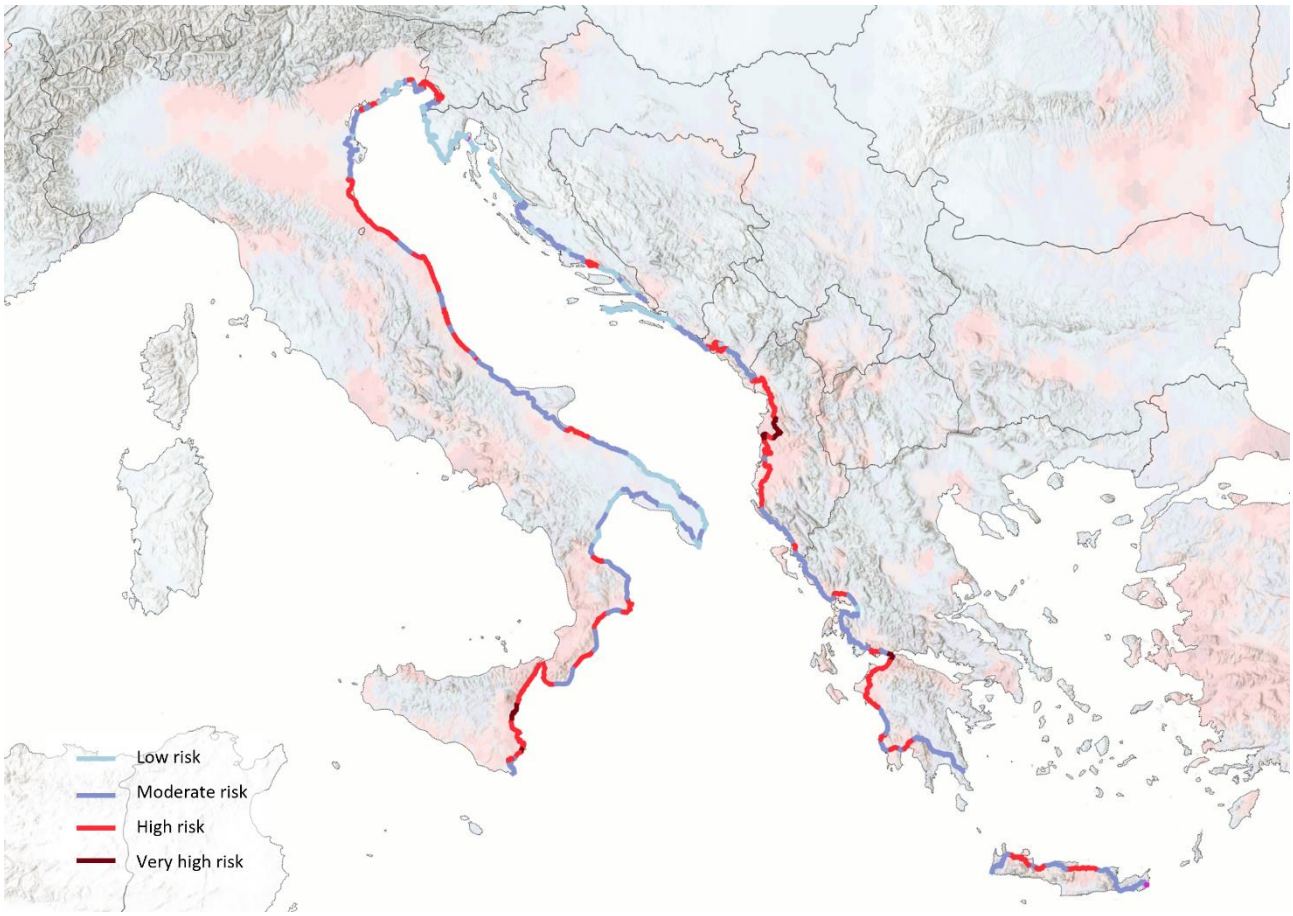
Finally, the Greek section is more manageable. The low- and moderate-risk portions are in the majority (9% and 68% of the total), while the high-risk portions are mainly found near the Gulf of Patras.

Figure 55 Cross section of the ADRIONCYCLETOUR planned route with seismic risk



However, slight changes can be observed for the alternative route. Alternative routes are proposed only for Croatia and Greece sections, so the seismic risk in the other countries remains as previously described.

Figure 56 cross section of the Adrion alternative route with seismic risk



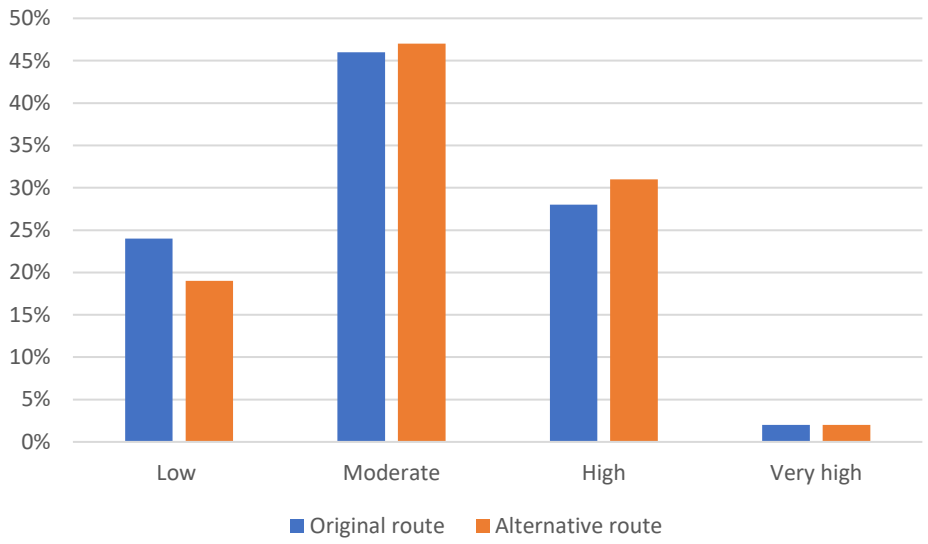
Croatia's new section passing through the Dalmatian islands is manageable and characterized by low risk. The alternative section immediately near the city of Split also presents a moderate risk and is, therefore, comparable to the planned route.

Significant changes, however, can be found in the Greek section of the alternative route. Here, in the section passing through the island of Crete, The risk is significantly higher in the towns of Heraklion and Chania.

Concluding and comparing the two tracks of the ADRIONCYCLETOUR, it can be observed that 24% of the original route is characterized by low risk, 46% by moderate risk, 28% by high risk, and 2% by very high risk. Instead, the alternative route has 19% of the original route characterized by low risk, 47% by moderate risk, 31% by high risk, and 2% by very high risk.

Therefore, the original route appears relatively more convenient and less prone to high risk. It has more low-risk and fewer high-risk routes. However, it is essential to consider that the risk is calculated from economic loss (in Euros) and loss of life, increasing considerably in more urbanized and inhabited environments. So, serving riskier stretches means going to more populated and more affluent areas that can benefit more from a transnational cycle route.

Figure 57 Comparison of seismic risk for the planned and alternative route



Moreover, cycling infrastructure can assist communities during seismic events in several ways. Firstly, it offers an alternative mode of transportation when roads and bridges become damaged or impassable. Dedicated bike lanes and paths allow people to navigate the city, particularly for shorter distances, even when motorized transportation is challenging. Secondly, cycling infrastructure can serve as designated evacuation routes during major seismic events or emergencies. Strategically planned bike paths and lanes can connect crucial areas like residential neighborhoods, schools, hospitals, and emergency shelters, bypassing congested or damaged roadways. This ensures a safer and more efficient evacuation or access to essential services.

Furthermore, cycling infrastructure plays a significant role in post-event mobility. When roadways require repairs, cycling infrastructure provides alternative routes for commuting and accessing vital services. This helps minimize congestion and facilitates the movement of emergency vehicles, aiding in the overall recovery process.

6.2 Hydrogeological Analysis for ADRIONCYCLETOUR

To assess the hydrogeological risk for the ADRIONCYCLETOUR, the possible flood data of European rivers is cross-referenced with the route data. To perform the analysis, the River Flood Hazard Maps at the European scale [92] were used to perform the analysis.

The datasets in this collection depict flood-prone areas in Europe and the World for river flood events of different magnitudes (from 1-in-10-year to 1-in-500-year). The maps have been developed using hydrological and hydrodynamic models driven by the climatological data of the European and Global Flood Awareness Systems (EFAS and GloFAS). European-scale maps comprise most of geographical Europe and all the river basins entering the Mediterranean and Black Seas in the Caucasus, Middle East, and Northern African countries.

The analysis used a scenario of a Flood Hazard Map with a 100-year return period. This geographical representation illustrates areas at risk of flooding based on a statistical calculation known as the "100-year return period."The 100-year return period does not mean a flood of such magnitude will occur exactly once every 100 years. Instead, it represents a statistical probability that a flood of that magnitude will occur in any given year. In other words, a 1% chance of occurrence in any given year.

[92] https://data.jrc.ec.europa.eu/collection/id-0054

Analyzing the original ADRIONCYCLETOUR, it can be seen that most of the cycle route remains outside areas potentially in danger of flooding.

Up to 12% of the routes are in danger of flooding in Italy. These are mainly found on the Ionian ridge (at the Bradano and Basento rivers, for example), on the Adriatic ridge (Chienti, Tronto, Cesano rivers, and similar), and especially at the Po river delta (in the stretch from Lido di Volano to Chioggia). Lastly, a final problematic area is the one in Friuli in correspondence with the Piave Tagliamento and Livenza rivers.

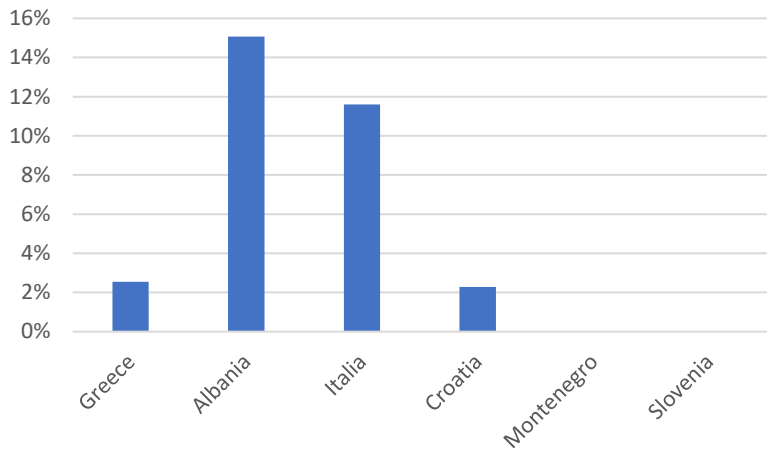
The Slovenian section is not critical, as is the Croatian section, where only 2% of the routes run in flood-prone areas. This part is concentrated almost exclusively in the hinterland around the Croatian town of Otočac, where the Gacka River flows and is near the Lika River.

Figure 58 cross section of the Adrion planned route with flood risk

The Montenegrin section appears unproblematic, while the Albanian section has the highest percentage of tracks in the flood-prone territory (15%). The most problematic parts appear to be those surrounding the Lumi Drin River, immediately after the Montenegrin border, and those further south near the Shkumbini River.

Finally, the Greek part appears less problematic, with a 3% section that is potentially floodable.

Figure 59 Flood risk for ADRIONCYCLETOUR at each country



Considering the alternative design scenario for ADRIONCYCLETOUR, the changes are not significant. In Croatia, the route, passing along the islands of the Adriatic archipelago and not passing inland, is much less prone to flooding, losing one percentage point (from 2% of the total to 1%). On the other hand, Greece is precisely the same, intercepting almost the same amount of flood-prone areas. However, the differences appear so slight between one route and another that the presence of flood-prone areas along the routes of the two routes is not a determining factor in choosing one or the other route.

Figure 60 Cross section of the Adrion alternative route with flood risk

7 Wayfinding and Signage for EuroVelo and National Routes

Wayfinding and signage strategies are crucial in guiding cyclists along EuroVelo and other national and regional routes and ensuring a safe and enjoyable cycling experience.

The United Nations Economic Commission for Europe (UNECE), with ECF, has produced wayfinding recommendations for EuroVelo routes. To identify EuroVelo routes, an easily recognizable EuroVelo route information panel, added to the existing signage system, should be used.

Here are some critical aspects of their recommendations:

1. Signage Design: The recommendations suggest using a clear and standardized design for signage along cycling routes. This includes using recognizable symbols or logos to indicate EuroVelo routes and clear and legible text displaying route numbers, directions, distances, and relevant information.
2. Route Numbering: EuroVelo routes are typically assigned specific route numbers displayed on signage. The recommendations emphasize using easily identifiable and consistent numbering systems to help cyclists recognize and follow the correct route.
3. Sign Placement and Visibility: The recommendations emphasize the importance of proper sign placement and visibility. Signs should be strategically located at decision points, intersections, and along the route to provide clear guidance. They should be placed at appropriate heights and angles for optimal visibility to ensure that cyclists can easily spot and interpret the signage.
4. Multilingual Signage: EuroVelo routes often pass through multiple countries with different languages. The recommendations suggest using multilingual signage or international symbols and pictograms to ensure that cyclists from various countries can understand the information provided on the signs.
5. Distance Markers: The recommendations highlight using distance markers along EuroVelo routes to indicate the remaining distance to specific destinations, landmarks, or essential points. Distance markers help cyclists plan their journey, gauge their progress, and estimate travel times.
6. Safety and Warning Signs: Signage should include safety and warning signs to alert cyclists of potential hazards, such as sharp turns, steep descents, pedestrian areas, or road conditions. These signs play a crucial role in ensuring the safety of cyclists and managing potential risks along the route.

Figure 61 EuroVelo, Signing of EuroVelo cycle routes[93]

[93] https://pro.EuroVelo.com/download/document/2016_Signing_EuroVelo_e_full.pdf

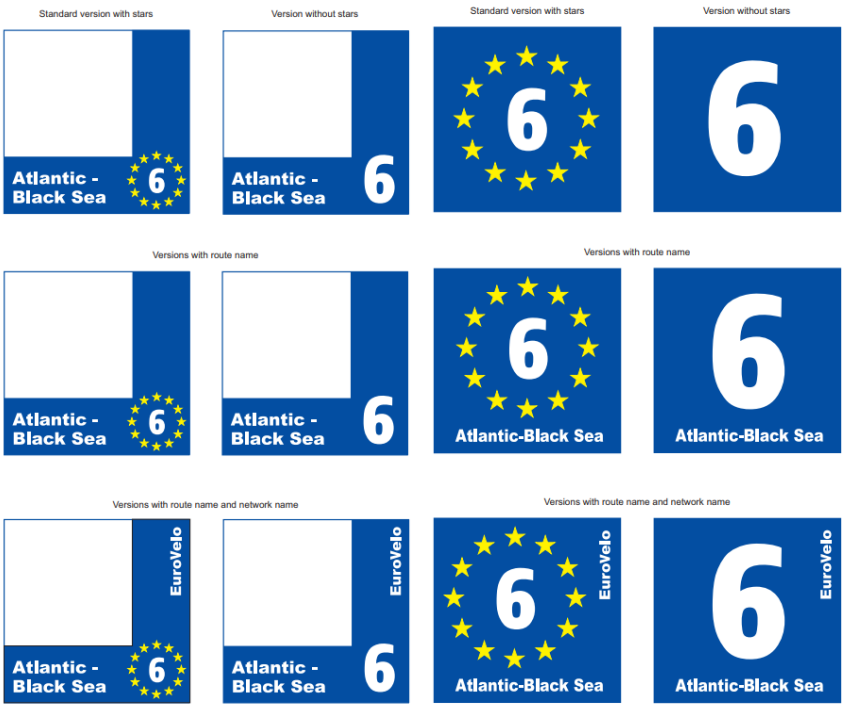
To identify EuroVelo routes, an easily recognizable EuroVelo route information panel, added to the existing signage system, should be used. This route information panel is a signing element widely used in several European countries to sign cycle routes. It comprises the following components:

- Background (color, Council of Europe blue): displays a European aspect
- Route number (color, white): essential for quick route identification
- Council of Europe stars (color, yellow): displays a European aspect
- EuroVelo route name (optional, the name can be in the local language)
- EuroVelo network name: EuroVelo or EuroVelo.com (optional, confirmation of EuroVelo route status)[94]

EuroVelo signage can be incorporated within existing national signage systems.

EuroVelo routes typically have standardized signage to ensure consistency across countries and regions. This includes a consistent logo or symbol for EuroVelo routes and route-specific signs indicating direction, distance, and other relevant information. EuroVelo routes are typically assigned specific route numbers displayed on signage to help cyclists identify and follow the correct route. The numbering system is designed to be intuitive and easily recognizable.

Figure 62 Examples for incorporation of the EuroVelo route information panel



Signage along EuroVelo routes often includes distance markers that indicate the remaining distance to specific destinations or landmarks. These markers help cyclists plan their journey and track their progress.

Wayfinding signage along EuroVelo routes includes directional signs that provide clear instructions to guide cyclists. These signs indicate the direction of the route, intersections, turns, and any deviations or alternative routes.

[94] https://pro.eurovelo.com/download/document/2016_Signing_EuroVelo_e_full.pdf

Figure 63 Italy wayfinding and signage

EuroVelo routes may intersect with regional or local cycling networks or attractions. In such cases, additional signage may indicate connections to these networks or highlight points of interest, such as tourist attractions, accommodation, or services.

EuroVelo routes often pass through multiple countries and regions with different languages. To cater to international cyclists, signage may include multilingual information or use symbols and pictograms that can be easily understood regardless of language barriers.

Signage along EuroVelo routes includes safety and warning signs to alert cyclists of potential hazards, such as steep descents, sharp turns, road conditions, or pedestrian areas. These signs are essential for ensuring the safety of cyclists and managing expectations.

Figure 64 Greece wayfinding and signage

Figure 65 Croatia wayfinding and signage

It's important to note that signage strategies and regulations for EuroVelo routes may vary between countries and regions. The European Cyclists' Federation (ECF) oversees EuroVelo and collaborates with national cycling organizations and local authorities to develop consistent wayfinding systems.

Wayfinding for ADRIONCYCLETOUR can be incorporated with EuroVelo 8 since they share a large path across the EUSAIR region

8 Overview of Socio-Economic and Environmental Benefits of Cycling

Promoting cycling will contribute to sustainable livelihoods, a better environment, improved health and safety, greater social inclusion and economic prosperity, and overall improvement in the quality of life of our citizens.

Cycling contributes to implementing the 2030 Agenda for Sustainable Development and pursuing the Sustainable Development Goals. Of particular relevance are:

- Goal 1 (End poverty in all its forms everywhere),
- Goal 2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture),
- Goal 3 (Ensure healthy lives and promote well-being for all at all ages),
- Goal 5 (Achieve gender equality and empower all women and girls),
- Goal 7 (Ensure access to affordable, reliable, sustainable and modern energy for all),
- Goal 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all),
- Goal 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation),
- Goal 11 (Make cities and human settlements inclusive, safe, resilient and sustainable),
- Goal 12 (Ensure sustainable consumption and production patterns),
- Goal 13 (Take urgent action to combat climate change and its impacts) and
- Goal 17 (Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development).

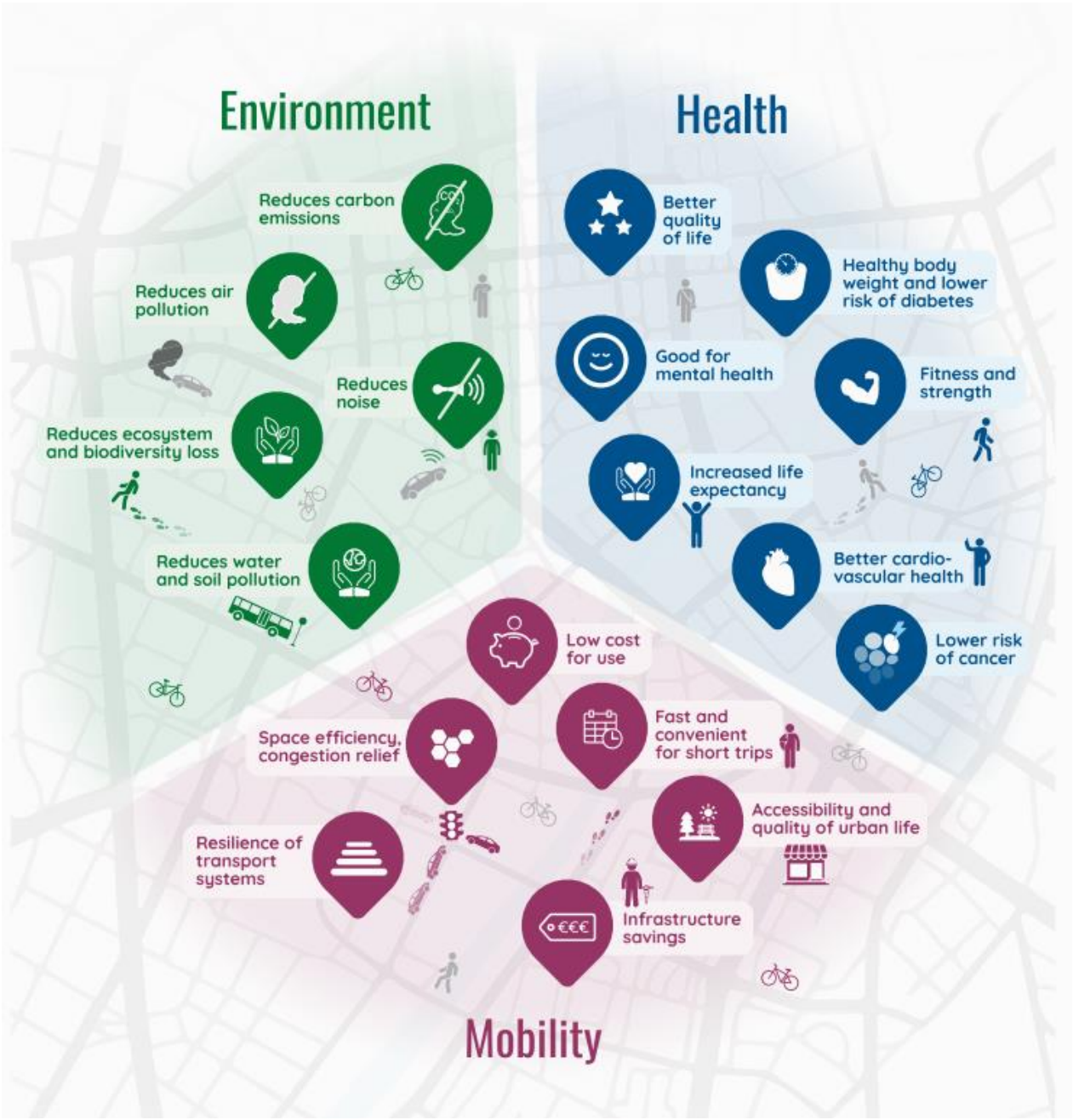
Walking and cycling are viable mobility options for essential trips – especially short- and medium-distance – even during transport system-disrupting events such as pandemics.

Figure 66 United Nations 2030 Sustainable Development Goals

In addition, promoting and investing in active mobility and cycling has several significant impacts on transport, the environment and health, the economy, and the job market, which are studied in detail in the following pages. Benefits are calculated by applying state-of-the-art instruments (e.g., the WHO/Europe

Health Economic Assessment Tool (HEAT) for walking and cycling) derived from studies based on the assumption that the objective of doubling cycling across the region will be achieved.

Figure 67 Active mobility benefits[95]



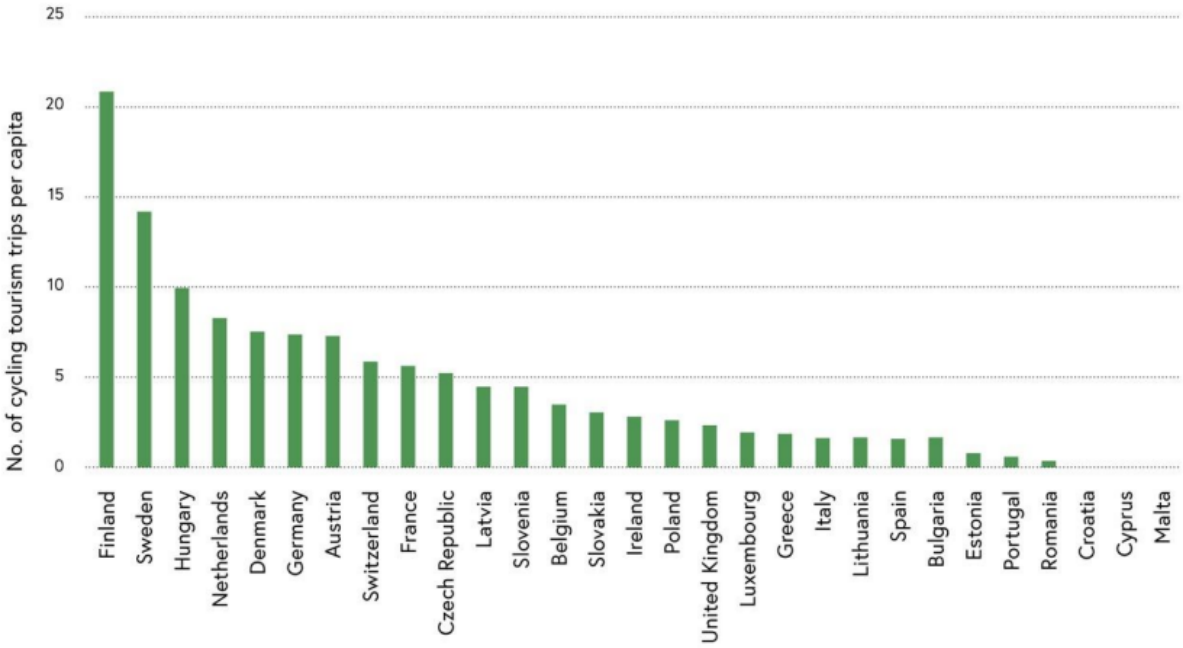
European Commission statistics show that in countries that have a national cycling plan in place, a higher percentage of people use the bicycle as their preferred transport mode.[96]

Cycling tourism has great promise, especially for peripheral regions, offering significant development potential for new touristic regions. In the European Union, tourists make over 2.2 billion cycle trips and 20

[95] https://unece.org/sites/default/files/2023-03/THE%20PEP%20Brochure%20ENG%20.pdf
[96] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf

million overnight cycle trips each year, making such tourism an important factor in regional economic development.[97]

Figure 68 Cycling tourism – Number of trips per capita[9899]



8.1 Cycling Supports Sustainable Mobility

European cities are challenged by increasing urbanization and population growth, and public space is limited. City structures rarely allow for the construction of additional areas for motorized traffic, and the current infrastructure is stretched to the limit.

Cycling is one of the most space-efficient modes of transport. A parked car needs more than eight times, and a moving car 28 times the space required by a moving bicycle. Cycling is the fastest and most efficient mode of travel for distances up to five kilometers.

With proper infrastructure, cycling is the fastest and most efficient way to travel short distances, as cyclists can usually follow the most direct route at a higher average speed. Some 131 billion passenger kilometers are cycled annually in the pan-European region, replacing approximately 42 billion car kilometers annually. Doubling cycling would double the number of kilometers shifted. This assumption is based on current data: the average for the analyzed portions of the pan-European region is 144 kilometers per year. However, it should be noted that cycling replaces not only car trips (32 percent) but also public transport trips (42 percent) and 26 percent of walking trips. Electric bicycles compete favorably with cars for trips of up to 10 kilometers, and electric cargo bicycles are efficient where car traffic is limited or banned. Compared to walking, cycling extends catchment areas for routes to and from stations from two to six kilometers with the same energy input.

The space efficiency of cycling helps to prevent congestion, making it possible to convert areas formerly dominated by motorized traffic into leisure areas providing a high-quality living environment. Cycling is

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[97] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf
[98] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf
[99] Source: European Cyclists' Federation, Cycling Barometer 2013; and Swiss Federal Roads Office, "Velofahren in der Schweiz 2014", in Materialien Langsamverkehr, vol. 132 (2015).

independent of timetables and external energy. Reducing congestion by doubling cycling will yield indirect economic benefits of €4.9 billion.[100]

Replacing car trips with cycling trips reduces road construction and maintenance costs for municipalities. Based on findings of the Organization for Economic Co-operation and Development (OECD) data on infrastructure investment and infrastructure maintenance, expert calculations show that doubling the current level of cycling in the countries included in the estimates would save € 0.7 billion in road infrastructure investment and € 0.4 billion in road maintenance.[101]

8.2 Reduced Emissions and Energy Savings

The transport sector is one of the main GHG emitters and the only industry in which emissions have increased since 1990. By replacing passenger-car-kilometers, cycling directly reduces fuel consumption, GHG emissions, air pollutants, and noise. Doubling cycling in the region will have the following indirect economic benefits.

Replacing passenger-car-kilometers also reduces fuel consumption, GHG and air pollutant emissions, and noise. According to ECF, passenger cars emit about 271 grams of CO2e per km. Doubling the current cycling rate will reduce GHG emissions by 8 million tons of CO2, yielding € 1.1 billion in indirect economic benefits annually.

Air pollutants such as nitrogen oxides (NOx) and particulate matter (PM) are caused to a great extent by motorized traffic. NOx is mainly emitted by diesel vehicles and exceeds the health-compatible limits in several cities. Consequently, the number of low-emission zones is increasing. Furthermore, WHO estimates that almost 83 percent of the population of the cities for which PM data exist are exposed to concentrations of particles with a diameter of less than 10 µm (PM10), exceeding the WHO air quality guidelines.

Cycling, which emits neither NOx nor PM, significantly improves air quality, especially where it is most needed: in cities.

The indirect economic benefits of reducing air pollution by doubling the current cycling rate will amount to € 0.4 billion annually. Assuming that the fleet comprises 41 percent diesel cars and 54 percent petrol cars and that the share of the fleet that meets emission standards is known, the costs of air pollution can be estimated using the Handbook on External Costs of Transport.

The indirect economic benefits of reduced noise pollution from doubling the current level of cycling will amount to € 0.4 billion per year. The European Environment Agency states that “road traffic is the most dominant source of environmental noise with an estimated 125 million people in the European Union affected by noise levels greater than 55 decibels (dB) Lden (day-evening-night level)”. As cycling is noiseless, a higher modal share – especially in cities with high population density and low distances between home and transport routes will reduce noise pollution and increase the quality of life.

Riding a bike uses no fossil fuel except where electric bicycles are recharged using fossil-generated electricity. The indirect economic benefits of the energy saved by doubling the current level of cycling amount to € 2.6 billion per year. Replacing passenger-car-kilometers reduces fuel consumption. In calculating these benefits, a fuel price of € 0.08 per kilometer and € 1.32 per liter (average of diesel and petrol, Eurostat, 2014) and an average consumption of 6.1 liters per 100 kilometers (ECE) have been used. Cycling thus contributes to the decarbonization of the economy.[102]

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[100] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf
[101] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf
[102] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf

8.3 Cycling Contributes to a Healthier and Safer Society

Physical activity has multiple health, social, environmental, cultural, and economic benefits for individuals, communities, and nations. Regular activity is a well-established factor in preventing no communicable diseases, including heart disease, stroke, type 2 diabetes, and breast and colon cancer. It also helps avoid another significant no, communicable disease risk factors such as hypertension and obesity and is associated with improved mental health, delayed onset of dementia, and improved quality of life and well-being.

According to WHO, levels of insufficient physical activity are high worldwide: 27.5 percent of adults and 81 percent of adolescents do not meet the global minimum recommendations for physical activity (150 – 300 minutes of moderate-intensity aerobic physical exercise or at least 75 to 150 minutes of vigorous-intensity aerobic physical activity per week for adults and at least 60 minutes of moderate-to-vigorous-intensity physical activity daily for children and young people aged 5 to 17).

The global cost of physical inactivity is estimated to be $54 billion per year in direct health care in 2013, with an additional $14 billion attributable to lost productivity.

Cycling significantly reduces physical inactivity. Regular cycling to work has been found to reduce the absolute risk of mortality by about 10 percent.

While active travelers should consider health risks such as the increased risk of road traffic injuries and rate of air pollution inhalation, the health benefits of physical activity outweigh the associated risks or costs with a median rate of 9 to 1.

Reduced absenteeism at work resulting from the doubling of the current level of cycling will amount to € 7 billion in indirect economic benefits per year.

A high percentage of cycling among daily trips significantly impacts cyclists' mental and physical health, reducing the number of sick days taken, healthcare costs for public and private health insurance, and loss of workforce. Doubling the current level of cycling would prevent 30,000 deaths (primarily from increased physical activity) and provide an indirect annual benefit of € 78 billion.

However, to ensure that cycling delivers its full health benefit, it is imperative to address safety issues. A dedicated cycling infrastructure and road design to reduce the average driving speed will encourage cycling and reduce the number and severity of collisions involving cars, cyclists, and pedestrians.

Using OECD data on car crash fatalities, European Union injury estimates, and casualty-related costs from HEAT, the indirect economic benefit of avoiding car accidents (reduced deaths and serious or slight injuries) by doubling the current level of cycling is estimated at € 3.0 billion per year. Based on a German cost-benefit study, the indirect economic benefit of avoiding material damage from car accidents after doubling the current level of cycling in the region will amount to € 4.9 billion per year.[103]

8.4 Economic Benefits

Current levels of cycling produce benefits of 150 billion EUR per year for the EU Member States. More than 90 billion EUR of these benefits are positive externalities for the environment, public health, and the mobility system. In comparison, a recent study by the European Commission estimated the negative externalities, i.e., the costs for the environment, health, and mobility, of motorized road transport at 800 billion EUR per year. With only around half recouped in charges and taxes, leaving a shortfall of around €400 million for taxpayers to pick up the tab.[104]

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[103] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf

[104] https://ecf.com/news-and-events/news/road-safety-fewer-eu-road-deaths-most-fatal-crashes-still-include-cars

Investments in cycle projects also have very advantageous benefit-cost ratios and are excellent value for money. About 650,000 jobs are associated with the cycling economy.

The benefits of cycling appear not only in specific, isolated fields like transport or environmental policy but also in many other areas where the EU has competencies, such as industrial policy, employment, tourism, public health, and social affairs. Most European countries still have much potential to reach higher levels of cycling. [105]

The aggregated financial benefits from cycling for all the EU Member States are presented below.

Figure 69 Current benefits of cycling in EU[106]

Benefit	Estimated Value (billion euros)
CO2 emissions savings	0.6 – 5.6
Reduction of air pollution	0.435
Reduction of noise pollution	0.3
Fuel savings	4.0
Longer and healthier lives	73
Less sickness absence at the workplace	5
Bicycle market	13,2
Cycle tourism	44
Easing of road congestion	6,8
Saving on construction and maintenance costs for road infrastructure for motorised vehicles	2,9
Total annual benefits	**150 - 155 bn euros**

Goldstein Research analysts forecast that the Europe bicycle industry is set to reach almost 20 billion by 2024 and is expected to grow at an annual rate of 5.5%. The European car market is expected to grow by only 1.7% until 2024. [107]

There are an estimated 2.3 billion cycle tourism trips annually in the EU, with a total economic value of 44 billion euros. Cycle tourism is linked to ca. 525 000 jobs in the EU.[108]

Value of reduced air pollution through cycling: 435 million euros. Air pollution is the single most considerable environmental health risk in Europe, causing around 400 000 premature deaths per year.[109]

[105] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1630597001.pdf
[106] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1630597001.pdf
[107] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1630597001.pdf
[108] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1630597001.pdf
[109] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1630597001.pdf

Figure 70 General benefits from cycling-related investments[110]

8.5 Saving on Road Construction & Maintenance Costs Through Cycling

The annual costs for constructing and maintaining infrastructure for motorized transport that are saved through cycling amount to 2.9 billion euros per year in the EU.

One mile of a high-quality protected bike lane is estimated to cost 0.21 million EUR, whereas an urban freeway costs 50 million USD per mile, or 240 times as much.[111]

8.6 Cycling Contributes to Sustainable Economic Development and Job Creation

Cycling creates jobs. Approximately 750,000 jobs are linked to cycling in the pan-European region, which has increased recently.

Relevant economic sectors include

- the construction/maintenance of cycling infrastructure, the bicycle-racing industry;
- cycling-related research;
- bicycle repair;
- bicycle hire schemes; and
- bicycle courier services.

Calculations based on the report, Cycling Works: Jobs and Job-Creation in the Cycling Economy indicate that doubling the modal share of cycling in the European Union (8 percent as of 2014) would create an additional 400,000 jobs and an additional € 3.5 billion turnover in retail bicycle sales. Cycling supports the rural and local economies.

According to one study, cyclists spend, on average, three to four times as much money in each place visited as car-borne visitors, while daily cyclists ride shorter distances than they would drive by car and hence prefer local shops over shopping malls outside a town or city. Thus, cycling promotes local supply and a carefully devised mixture of residential areas and accompanying infrastructure as the basis for a sustainable form of living.[112]

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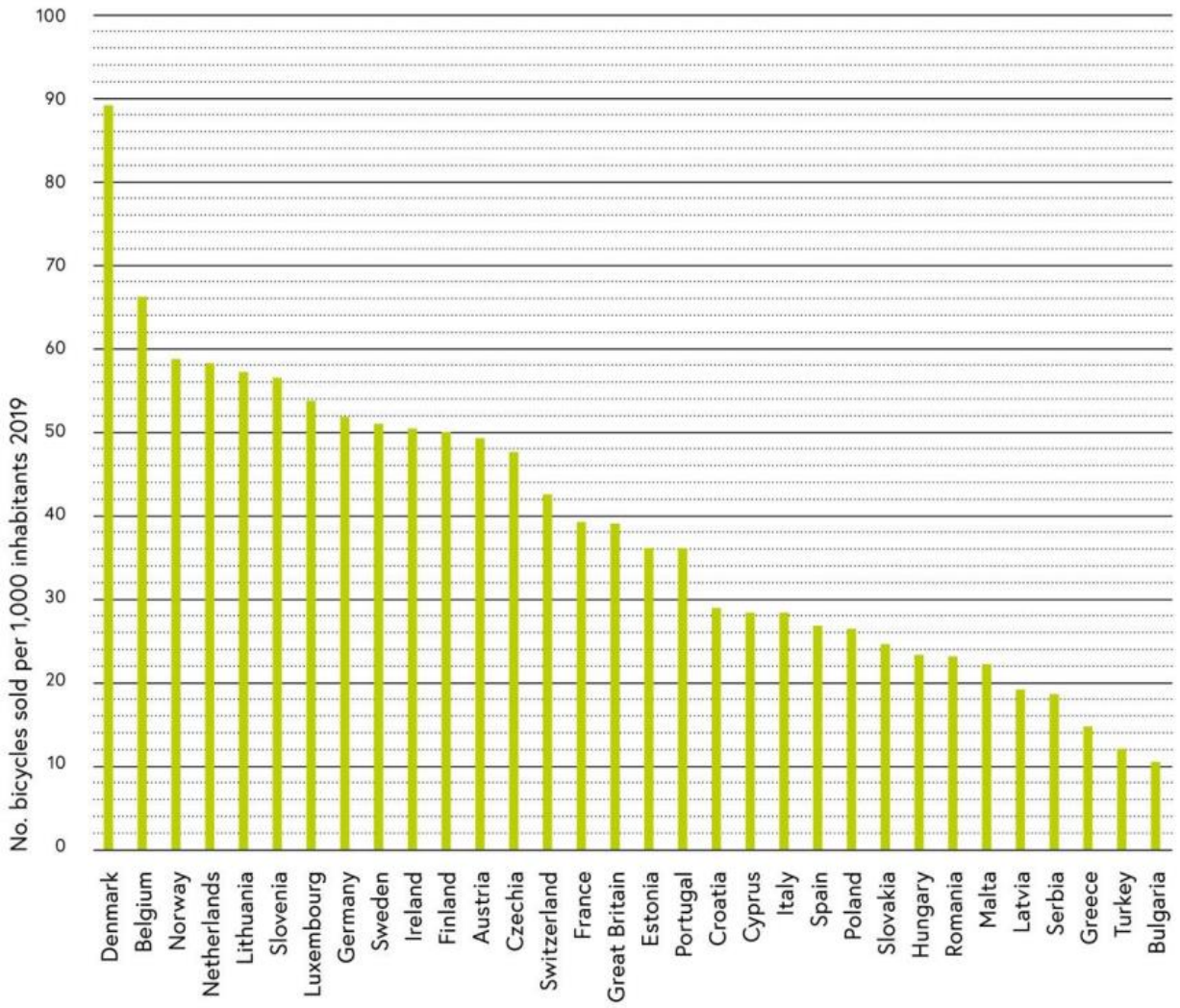
[110] https://www.ecf.com/sites/ecf.com/files/UnlockingFunds_Italy_final_1.pdf
[111] https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1630597001.pdf
[112] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf

Figure 71 Bicycle sales 2019[113][114]



[113] https://thepep.unece.org/sites/default/files/2021-06/MASTERPLAN_2021-05-20-II_BF%203%20June_0.pdf

[114] Source: For the European Union, Confederation of the European Bicycle Industry (CONEBI), 2020 European bicycle industry and market profile, 2020 edition incl. Turkey; for Serbia Cycling Association of Serbia; for Switzerland Vélosuisse (Swiss Association of Bicycle Suppliers), for Norway Bicycle retailer's organization; population figures for EU 28 incl. Switzerland, Serbia, Norway, Turkey from EUSTAT.