EU Policies on Sustainable Transport in Cross-Border Maritime Areas Connecting European Coasts

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Abstract The goal of the chapter is to review the European projects on the topic of sustainable passenger transport in cross-border maritime areas, financed in the last EU programming period (2014-20). Moreover, main EU policies will be reviewed, with a twofold specific approach: a) mapping measures related to foster better permeability and accessibility of the ‘maritime’ borders between EU Member States; b) collecting insights concerning the implementation of the principles linked to the paradigm of sustainable mobility.

Keywords Cross-border passenger transport. Maritime transport. European Territorial Cooperation. EU Cooperation Programme. EU cross-border policy.

1 Introduction

The aim of this chapter is to summarise recent European policies on cross-border maritime and coastal transport. For this purpose, 13 European projects on the topic of mobility and passenger transport were identified, among those financed during the 2014-20 programming period and implemented in the cross-border maritime territorial dimension. As the funded projects fit into EU strategies, we believe that through their analysis we can identify the main lines of EU policy.

The projects were identified through the online databases provided by the European Commission (Keep.eu, Cordis, TRIMIS): 10 out of 13 within the cross-border funding programmes of the Interreg CBC and 3 concerning feasibility studies and/or infrastructural works included in the Connecting Europe Facilities (CEF) Programme. The overwhelming project proportion financed by Interreg framework depends on the number of funding priorities specifically addressing the cross-border territorial dimension, including those targeting Member States (MS) geographically ‘separated’ by an internal maritime border line. Differently, considering EU funding programmes based on whole Member States’ territorial eligibility, the specific features of the cross-border maritime dimension (strictly linked to the topic of connectivity and passenger transport) are linked to few particular cases, prevalently financed within the CEF framework and basically addressed to feasibility studies/implementation/enhancement of infrastructures identified as key-drivers for cross-border connectivity.

Based on this empirical dataset, the chapter provides a targeted analysis of the objectives, implementation phases and results of the selected projects to highlight the following main issues: quality, safety, and environmental sustainability of maritime passenger transport services in the maritime and coastal context. The chapter is organised into four main paragraphs: 1) a literature and EU policies review on maritime and coastal passenger transport services in cross-border areas; 2) an analysis of the 13 selected projects financed by European Programmes within the maritime cross-border dimension; 3) further insights concerning objectives and results of the project, focusing on their pilot actions; 4) conclusions and remarks on the overall framework of the financed projects and on the related European policies.
Framing the transboundary maritime dimension in the issue of internal borders and territorial spaces of EU Member States means, above all, defining the conventional characteristics of this geographical area. The United Nations Convention on the Law of the Sea (1982), signed by 165 countries and the European Union itself, traditionally accepted in its general outlines even by non-signatory countries (Bieda, Adamczyk, Parzych 2019), defines 12 nautical miles as the limit to the territorial waters of each state (UN 1982, Art. 3) and establishes the low tide line along the coast as the measurement baseline (UN 1982, Art. 5). Turning then to the transboundary maritime dimension, the Convention establishes the principle of “delimitation of the territorial sea between States with opposite or adjacent coasts” (UN 1982, Art. 15), defining it in legal terms as follows: “when the coasts of two States are opposite or adjacent to each other, neither State shall have the right to extend its territorial sea beyond the median line each point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each of the two States is measured”, and placing it as an effective maritime boundary line. Moving on from the mere internationally shared legal-territorial definition to EU policies, the 2006 Green Paper [EC COM(2006)275 final] represents one of the first structured interventions to propose an integrated vision of the European Commission (EC) concerning the sustainable development of the maritime territorial dimension. In this document, the role and strategic importance of an extremely peculiar ‘geographical area’ of the European Union, where major social, economic, political and environmental issues and interests have to be balanced, clearly emerge. The topic of the ‘border’ (internal and external), as well as maritime and coastal transport, inevitably play a predominant role in the European strategy. Moreover, as the EC emphasises in the introduction to the Communication, “more than two thirds of the Union’s borders are coastal and the maritime spaces under the jurisdiction of the Member States are larger than those on land”, and similarly, the numbers generated by maritime transport and European ports lead to define planning and management priorities shared between the Member States: 90% of foreign trade and 40% of domestic trade transits by sea, 3.5 billion/t of goods and 350 million passengers a year pass through European ports, not to mention the spill-over effect on employment and the ancillary industries in terms of services and other sectors involved [EC COM(2006)275 final]. But on top of all this, the sustainability topic bursts in. The maritime dimension (human activities) strongly affects the marine dimension (natural ecosystem) conditioning the delicate balance that should be established for a sustainable coexistence. Also for this reason the
binary concept ‘marine-maritime’ becomes a reference topic within European Territorial Cooperation (ETC) Operational Programmes (Interact 2013). If we add to this framework the administrative-territorial restrictions included in the maritime ‘border’, the conflicts due to the dynamics: ‘user-user’ and ‘user-environment’, increasing. In this way, the sustainable development goal – without suitable planning and management tools, shared at European level – it is getting harder to achieve (Li, Jay 2020). Since 2005, the European Commission has set as one of its strategic objectives 2005-09 the fundamental need for an integrated maritime policy aiming to develop a thriving maritime economy, exploiting the full potential of all sea-based activities in an environmentally sustainable manner supported by scientific research, technology and innovation. [EC COM(2005)12 final]. This objective is realised in the specific 2007 Communication on Integrated Maritime Policy for the European Union [EC COM(2007)575 final] based on the results of the multi-stakeholder consultation process launched by the 2006 Green Paper, collected in Report EC COM(2007)574. In this way – from 2005 until today – a series of key points and specific tools have emerged within the EU maritime policy: a) an integrated and cross-sectoral approach for policies concerning European seas and oceans; b) the development of a Work Programme and an Action Plan coordinating all the specific projects, managing policies and decision-making levels within a governance framework; c) the development of fundamental tools such as Maritime Spatial Planning (MSP) – included an implementation roadmap (2008) –; d) an Integrated Coastal Zone Management (ICZM) coordination instrument; e) the creation of the European Marine Observation Network. The new architecture for the EU Integrated Maritime Policy is based on specific ‘areas of intervention’: the first objective is to create optimal conditions for the sustainable use of the oceans and seas, in this way, maritime transport, ports and related sectors play a strategic role as the ‘backbone’ of the maritime cluster. The topic of maritime transport features as a strategic element in all the maritime strategies launched by the European Commission. The Blue Growth strategy [EC COM(2012)494 final] defines the state of the art of existing European initiatives and identifies new opportunities for development, focusing on a number of specific areas of intervention in the field of transport: a) support to the EU Maritime Transport without Barriers for the simplification of administrative procedures of maritime transport between MS and development through the realisation of the Blue Belt (a belt of free maritime movement ‘in and around Europe’); b) support for innovation in maritime transport both in terms of infrastructure and new technologies and propulsion in the nautical sector; c) within the Focus Area on ‘Maritime, coastal and cruise tourism’, Public Administrations are invited to adopt a strategic approach related to investments on enabling infrastructures: e.g., mooring capacities, ports and passenger transport
services (in this case also in terms of tourism spillover for the coastal areas). Finally, in the recent Communication of 2021 [EC COM(2021)240 final], the topic of maritime transport further emphasises the direction to increase its environmental sustainability also considering the objectives of the EU Green Deal (90% reduction of GHG emissions for all modes of transport). Again, the key issues to addressed are: fuels and vessel propulsion, the role of ports as energy hubs, intelligent solutions and autonomous systems for optimising traffic flows and increasing short sea shipping. Surely, in the case of the above-mentioned policies, transport is part of a general guideline aiming at combining the development of the maritime economy with environmental sustainability; in the same way, the cluster of policies on mobility and maritime transport find their ‘natural’ space of development and implementation both in strategies and communications exclusively related to mobility and transport in Europe (up to the recent Sustainable and Smart Mobility strategy [EC COM(2020)789 final]), and in terms of strategic planning in communications and directives related to MSP and ICZM. On the European Parliament and Council Directive related to MSP framework (Directive 2014/89/EU), in Art. 5, among the objectives of MSP, Member States must contribute to the sustainable development of the maritime transport sector. In fact, the MSP is an integrated tool for achieving the objectives set by a series of EU policies related to different sectors, including EC COM(2009)8 final that defines the “Strategic goals and recommendations for the EU's maritime transport policy until 2018”. The 2014 MSP Directive (Directive 2014/89/E) includes maritime transport routes and related traffic flows among the activities and uses relevant to oceans and seas (Art. 8). This because of maritime transport is the “main and traditional economic activity using maritime spaces” (Zaucha, Gee 2019, 477).

In the latest 2022 Report [EC COM(2022)185 final] outlining the progress achieved in the implementation of Directive 2014/89/EU, emerged the need to adapt the MSP to the potential increasing of maritime transport (particularly the short sea shipping) consistently with the new Sustainable Mobility Strategy of December 2020 [EC COM(2020)789 final]. Also concerning the cross-border issue of maritime borders, in terms of planning, management and programming of interventions and actions, it is the MSP to provide the main guidelines and tools on the matter, especially to build the specific concept of Transboundary Marine Spatial Planning (TMSP), demonstrating how important it is to collaborate across borders, especially where the nature itself of marine resources and maritime activities is essentially cross-border (Li, Jay 2020). Clearly, this specific cross-border planning tool is firstly conceived for the conservation of the marine environment and the sustainability of human activities affecting it, taking into account the national guidelines of individual Member States and considering the issue of transport in terms of the impact of economic
traffic and port infrastructure. This because: “by definition the shipping transport is considered as an international activity that naturally crosses different countries” (Pınarbaşı et al. 2020, 13, table A1). Furthermore, the maritime transport sector (as we have seen at the beginning) is regulated by international conventions and only in a collateral way can be influenced by MSP actions, although as an activity affecting maritime space it cannot be neglected together with the related stakeholders (Gómez-Ballesteros et al. 2021). In any case, cross-border maritime policies in terms of mobility and transport have specific relevance and concrete development opportunities in European Funding Programmes, in particular within European Territorial Cooperation (ETC). More specifically, it is the case of the Cross-Border Cooperation Programmes (Interreg A and IPA CBC) that provide the greatest contribution in this area for transport development, especially those including large maritime areas in the programme area: e.g., Italy-Croatia, Italy-France Maritime, Italy-Greece, and South Baltic.

The objective, as stated by the European Commission in the Regional Policies, is “to tackle common challenges identified jointly in border regions and to exploit the untapped growth potential in border areas, while enhancing the cooperation process with a view to strengthening the overall harmonious development of the Union”. ¹ Furthermore, the fundamental boost provided by the macro-regional strategies, defining a framework for cooperation shared between Member States in the same geographical area. It’s approved by the European Council and supported in many cases by the Structural and Investment Funds. At the maritime level, the Strategy for the Baltic Sea Region (EUSBSR) [EC COM(2009)248 final] and the Strategy for the Adriatic-Ionian Region (EUSAIR) [EC COM(2014)357 final] are particularly relevant. Both identify cross-border connections and transport as key priorities in both maritime and terrestrial areas, with specific focus on cross-border accessibility, overcoming physical and administrative barriers, environmental sustainability and multimodal development. Other funding opportunities for maritime and coastal cross-border regions area available in addition to the European Territorial Cooperation, such as the Connecting Europe Facilities (CEF) infrastructure investment funds and the research and innovation funds of the European Commission (Framework Programme – Horizon). Considering the evolution of the Interreg A CBC funding programmes, we can see that transport plays a relevant role at least since 2000-06 programming period (Medeiros 2018):

### Table 1  Main thematic goals of Interreg A programmes from 1989 to 2020. Source: Medeiros 2018

<table>
<thead>
<tr>
<th>Interreg A</th>
<th>Main Goal</th>
<th>Financed Policy Priorities</th>
</tr>
</thead>
</table>
| I. 1989-93 | Prepare the border areas for the opening of the Single Market, with an eye to economic and social cohesion. | • Aid to SMEs  
• Tourism and culture  
• Energy supply  
• Rural development and commerce  
• Education and training  
• Protection of environment  
• Water supply and waste disposal  
• Accessibilities infrastructure  
• Spatial planning |
| II. 1994-99 | Develop cross-border social and economic centres through common development strategies. | • Aid to SMEs  
• Tourism and culture  
• Energy supply  
• Rural development and commerce  
• Education and training  
• Employment and mobility  
• Health  
• Protection of environment  
• Water supply and waste disposal  
• A better public administration  
• Accessibilities infrastructure  
• Information and communication  
• Spatial planning |
| III. 2000-06 | Develop cross-border economic and social centres through joint strategies for sustainable territorial development | • Aid to SMEs  
• Rural development  
• Urban and coastal development  
• Education and training  
• Culture  
• Employment and mobility  
• Health  
• Protection of environment  
• Energy efficiency and renewable energy  
• Better public administration  
• Legal systems  
• Information and communication  
• Transport |
Priorities for the Sustainability of Maritime and Coastal Passenger Transport in Europe, 3-28

IV. 2007-13 Reduce the negative effects of borders such as administrative, legal and physical barriers; tackle common problems and exploit untapped potential. Through joint management of programmes and projects, mutual trust and understanding are strengthened and the cooperation process is enhanced.  

- Entrepreneurship  
- Education and training  
- Employment and mobility  
- Equal opportunities  
- Management of natural resources  
- Information and communication  
- Transport  
- Link between rural and urban areas  
- Joint use of infrastructure

V. 2014-20 Tackle common challenges identified jointly in the border regions and exploit the untapped growth potential in border areas, while enhancing the cooperation process for the purposes of the overall harmonious development of the Union.  

- Aid to SMEs  
- Research and innovation  
- Education and training  
- Employment and mobility  
- Social inclusion  
- Low carbon economy  
- Combating climate change  
- Environment and resource efficiency  
- Sustainable transport  
- Better public administration  
- Information and communication

Taking into account the projects supported by CBC programmes in the field of transport and mobility from 2000 to 2013 we can count 411 projects (1.51%) (Medeiros 2018), while in the programming period 2014-20 the projects in the same thematic areas have been 279 (Mella 2021), though the transport and mobility projects related to maritime and sea cross-border areas are only a small chapter in the CBC book, as we will see in the following section.

Before addressing the analysis of programmes and policies it would be worth having a look at the evolution of the overall picture of the programmes’ geographical areas [fig. 1] and noting that in the public consultations done by the European Commission DG Regio the maritime dimension of transport connections is seldom explicitly mentioned; this is to say that we’re moving in a narrow sphere of the CBC domain.
In the 2021-27 programming period the maritime dimension is confirmed and in the new regulation is clearly stated that CBC cooperation strand should aim at addressing common challenges and to contribute in overcoming main obstacles. Regions and areas eligible for Interreg A cooperation are “separated by a maximum of 150 km of sea where cross-border interaction may effectively take place or in which functional areas can be identified, without prejudice to
potential adjustments needed to ensure the coherence and continuity of cooperation programme areas” [Regulation (EU) 2021/1059]. With the objective of achieving a better level of integration transnational cooperation around sea basins will involve partners in Member States and third countries.

3 An Overview on EU Funding Programmes 2014-20: Better Connections for CB Maritime and Coastal Areas

In this chapter we propose an overview of the projects financed during the European Programming Period 2014-20, related to the maritime cross-border dimension on the topic of mobility and passenger transport. Concerning the methodological level, the research was done using the main online databases provided by the different programmes, in order to understand which of the main EU funding lines have planned specific funds and/or thematic clusters for cross-border maritime geographic areas and which one of the eligible priorities included a focus on connectivity and passenger transport. In this first general survey, the following emerged as particularly significant: 1) the cross-border maritime programmes of the European Territorial Cooperation (ETC); 2) the financing instrument of the European agency INEA (Infrastructure and Environment Executive Agency, which from April 2021 was transformed into CINEA, European Climate, Infrastructure and Environment Executive Agency) named Connecting Europe Facility (CEF).

The cross-border maritime programmes of the ETC, certainly represent the most significant cluster specifically focused on this particular geographical dimension. According to their standard definition, they are

characterised by the presence of the sea in the geography of their programme areas. These stretches of sea separate entirely at least one of the countries from the rest of the programme area. In comparison to the ‘traditional’ cross-border programmes, where participating regions share a land border and where cooperation is based on proximity of the regions, maritime programmes may involve several member states and regions of the EU along maritime borders separated by a maximum of 150 km. (Interact 2013, 5)

Through the Keep.eu database – implemented by the Interact programme to provide aggregated data on projects and beneficiaries of cross-border, transnational and interregional cooperation programmes from the 2000-06 programming period – a textual search was conducted using two specific keywords (‘maritime’ and ‘sea’), in order to exclude the project developed on internal waterways border and selecting further restrictive criteria related to: “Interreg Cross
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“Border” (excluding IPA programmes); “Programming Period 2014-20”;
and the following thematic fields: “Improving transport connections”;
“Multimodal transport”; “Transport and mobility”; “Waterways, lakes
and rivers”; and excluding thematic fields related to “logistics and
freight” and “infrastructures” in order to maintain a clear focus on
passengers mobility. This screening resulted in the following for the
2014-2020 period: 23 projects, 189 European partners involved, 203
development consortia and 9 specific programmes [fig. 2].

![Figure 2](image_url)

Maritime mobility and transport projects funded by CBC programmes in 2014-20.
Source: Keep.eu

Analysing the 23 projects in terms of their content and implement-
ed activities, we realise a further selection to identify those projects
that, in terms of their characteristics, activities and implemented pi-
lots, focused on the following set of sub-topics: 1) quality of maritime
passenger transport and coastal areas, 2) safety and environmental
sustainability of marine and coastal transport services and nodes;
3) promotion and increase of multimodal services and accessibility.
On the basis of these characteristics, 10 projects were identified as
particularly significant [tab. 2].
### Table 2: Interreg V-A CB programmes: selected projects, 2014-20. Source: own elaboration and selection based on Keep.eu online database

<table>
<thead>
<tr>
<th>Project name &amp; implementation period</th>
<th>EU programme</th>
<th>EU contribution</th>
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<tbody>
<tr>
<td>ADAPT (2016-19)</td>
<td>Interreg Central Baltic</td>
<td>€ 1,636,075.00</td>
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<tr>
<td><strong>Project short abstract</strong></td>
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<tr>
<td>The project has been supported by the Interreg Central Baltic Programme Specific Objective “Improved transport flows of people and goods” and it was coordinated by the Swedish Maritime Administration (Sjöfartsverket). The project aimed at developing safe, time-saving and fuel-efficient routes – to be more sustainable from the environmental point of view and to reduce emissions – for the transportation of passengers and goods in the Åland and Stockholm archipelagos. Partners ensured safer routes with lower CO2 emissions with shorter connections for commuters and users of public transport.</td>
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<tr>
<td>Source</td>
<td><a href="http://database.centralbaltic.eu/project/31">http://database.centralbaltic.eu/project/31</a></td>
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| Efficient Flow (2018-21)             | Interreg Central Baltic | € 3,070,394.00  |
| **Project short abstract**          |                       |                 |
| The project is a joint Swedish-Finnish initiative that gathers six partners and that contributes to the development of the corridor to and between the ports of Gävle and Rauma and the ScanMed corridor between Stockholm and Turku. The project delivers improved processes, business models and ICT tools for enhanced information exchanged among ports, operators, and ships. One of the project’s main results is the flow optimisation in the regular ferry traffic to improve situational awareness and facilitate higher predictability and efficiency. |                       |                 |
| Source                              | [http://database.centralbaltic.eu/project/96](http://database.centralbaltic.eu/project/96) |                 |

| DEEP-SEA (2019-22)                   | Interreg Italy-Croatia | € 2,134,832.00  |
| **Project short abstract**          |                       |                 |
| The DEEP-SEA project is coordinated by Aries (Special Agency Venezia Giulia Chamber of Commerce) and it aims to tackle the problem modal split, dominated by private cars and polluting maritime transport, together with the limited integration of mobility services. The project, through the development of a model, is designed to support marinas operators (MOs) and Public administration in planning and implementing sustainable mobility in the partners areas, increasing the efficiency of mobility services and the adoption of e-mobility sharing mobility solutions. |                       |                 |

<p>| GUTTA (2019-22)                      | Interreg Italy-Croatia | € 1,020,000.00  |
| <strong>Project short abstract</strong>          |                       |                 |
| The GUTTA project aims to contribute to greener ferry routes between Italy and Croatia. The first preliminary objective is to release a web tool to reduce CO2 emission in ferry routes; then partners work on the assessment of the added value of the information contents of the CO2 emissions data collected under the EU Regulation 757/15 on MRV (Monitoring/Reporting/Verification). The project works also on the analysis of maritime mobility trends in the connections between Italy and Croatia, also considering the COVID-19 pandemic impacts. |                       |                 |
| Source                              | <a href="https://www.italy-croatia.eu/web/gutta">https://www.italy-croatia.eu/web/gutta</a> |                 |</p>
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<tr>
<th>Project name &amp; implementation period</th>
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<tr>
<td>METRO (2019-21)</td>
<td>Interreg Italy-Croatia</td>
<td>€ 2,520,000.00</td>
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</table>

**Project short abstract**

The project is coordinated by the University of Trieste (Department of Engineering and Architecture) and its goal is the improvement of the environmental sustainability of tourist maritime transport in the North Adriatic, addressing some specific challenges of the area: maritime connections between Italy and Croatia; reduction of traffic congestion caused by seasonal tourist flows; improvement in local stakeholders’ competitiveness. The project adopts a multidisciplinary approach to integrate technologies in the field of electrical shipboard power systems, ship design and land infrastructure study.


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<tr>
<td>MOSES (2018-19)</td>
<td>Interreg Italy-Croatia</td>
<td>€ 998,779.00</td>
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</table>

**Project short abstract**

The project, led by the Autonomous Region of Friuli Venezia Giulia in Italy, capitalises on the results of the IPA Adriatic project EA SEA-WAY, aimed to enhance the accessibility and mobility of passengers in the Adriatic area through the development of new cross-border sustainable and integrated transport services and the improvement of related infrastructures. The partnership main outcomes are: one pilot ICT tool for e-booking and e-ticketing solutions, one pilot electric car/bike sharing system, a pilot action for a maritime fast-line transport service, a feasibility study to increase sustainable marine transport routes, recovery of operational quay in port of Susak.

Source [https://www.italy-croatia.eu/web/moses](https://www.italy-croatia.eu/web/moses)

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<tr>
<td>SUTRA (2019-21)</td>
<td>Interreg Italy-Croatia</td>
<td>€ 2,360,000.00</td>
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**Project short abstract**

The overall objective of the project is to promote sustainable mobility on the Adriatic coast and its hinterland. By mainstreaming innovative mobility concepts for passenger transport, urban centres in the area covered by Italy-Croatia Programme aims at reducing traffic congestion, improve air quality and reduce CO2 emissions. The main outputs of SUTRA are: ten new eco-friendly multimodal transport services for passengers, one new maritime link between Italy and Croatia (between Caorle and Poreč) and a cross-border Manual for smart design and integration of soft mobility solutions in coastal areas.

Source [https://www.italy-croatia.eu/web/sutra](https://www.italy-croatia.eu/web/sutra)

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<th>Project name &amp; implementation period</th>
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<tr>
<td>DOCK-BI (2018-22)</td>
<td>Interreg Greece-Italy</td>
<td>€ 2,785,810</td>
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</table>

**Project short abstract**

The project, coordinated by the Consortium for the Industrial Development Area of Brindisi, aimed at upgrading port areas and cross-border ferry connectivity between the key ports of Brindisi (Italy) and Igoumenitsa (Greece). DOCK-BI address the cross-border challenge given by the unsatisfactory multimodal accessibility and the lack of integration and interconnection of transport modes between the two ports. The infrastructural interventions foreseen by the project were: parking areas, Igoumenitsa passenger’s terminal, street lighting, and access roads to Brindisi ferry port area.

Concerning Connecting Europe Facility (CEF), the selection of projects was conducted through the “Search Hub” of TRIMIS (The Transport Research and Innovation Monitoring and Information System), a web portal of the European Commission, conceived as an integrated transport policy support tool: through TRIMIS, data and information on research and innovation (R&I) in the mobility and transport sector are collected and provided in open-access. This tool also contributes to the development, implementation and monitoring of the European STRIA agenda (The Strategic Transport Research and Innovation Agenda) through which R&I priorities are defined to foster the decarbonisation and sustainability transition of the European transport sector. The database search concerning CEF-funded projects was based on the same thematic parameters set previously on Keep.eu for Interreg CBC (“Improving transport connections”; “Multimodal transport”; “Transport and mobility”; “Waterways, lakes and rivers”) but in this case the number of projects identified has been reduced to three. The CEF, as mentioned above, concerning the transport topic (this financing instrument, in addition to Transport, provides two other different sectors of intervention: Energy and Telecommunications),
supports, in terms of specific grants, the realisation of new transport infrastructures - or the regeneration and upgrading of already existing ones - according to forecasts and agendas scheduled by European policies and in particular by the TEN-T (Trans-European Transport Network) corridors - governed by Regulation (EU) no. 1315/2013, updated in a consolidated version in 2019 - and subjected by the EC to a consultation and review process between 2019 and 2021 [fig. 3]. The CEF-Transport projects have a total budget of €24.05 billion for the funding period 2014-20. The eighth Report of the European Commission on Economic, Social and Territorial Cohesion (EC, December 2021), first of all, takes stock of the EU policies aimed at achieving a “greener, low-carbon Europe”. Considering the transport sector and related greenhouse gas (GHG) emissions, the picture does not appear so reassuring. It is interesting to remark [fig. 4], how the data on GHG emissions from transport reveal that they have been increasing in recent years (2014-19), rather than following the general downward trend. In terms of the projection to 2035, it is also well emphasised how, despite the measures “currently planned by the Member States”, GHG emissions will decrease by a small percentage, maintaining indexes above 1990 levels. A second, parallel projection shows how “additional” and “more ambitious” measures are extremely urgent equally in all “transport modes”, if transport really wants to make its effective contribution to the achievement of the Green Deal targets (EC, Report December 2021, 72). In the last paragraph of the report, however, the role played by the CEF-Transport in the 2014-20 programming is highlighted, in terms of supporting European policies through the financing of cross-border projects, aimed at removing bottlenecks still existing between neighbouring Member States, and/or bridging missing links related to several sections of transport networks in the same territories. In 2014-20 [fig. 5], the largest funding amount was invested in rail transport, but Member States also benefited from substantial shares in maritime and road transport (EC, Report December 2021, 284). Also in the case of the three selected CEF projects [tab. 3] - as well as in the Interreg projects – preference was given to cross-border maritime projects, based on an intervention logic related to quality, safety and sustainability on maritime infrastructures, with potential elements of convergence on the topics of multimodality and accessibility.
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Figure 3  Trans-European Transport Network (TEN-T) – EU corridors. Source: EC, Mobility and Transport website https://bit.ly/3uoqbFt

Figure 4  GHG emission in the transport sector since 1990 and projections to 2035, EU-27. Source: EC 2021, 72 fig. 3.4
Figure 5  Connecting Europe Facility funding for cohesion and other countries by transport mode, 2014-20.
Source: EC 2021, 284 fig. 9.3

Table 3  Connecting Europe Facility (CEF): selected projects, 2014-20. Source: own elaboration and selection based on Trimis.ec.europa.eu online database

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<tr>
<td>Twin-Port IV (2020-23)</td>
<td>Connecting Europe Facility</td>
<td>€ 7,518,000.00</td>
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<tr>
<td><strong>Project short abstract</strong></td>
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<tr>
<td>The action – a follow-up of the previous three “Twin-Port” projects – is part of a Global Project aiming at the development and upgrade of the “Motorways of the Sea” between the ports of Helsinki (Finland) and Tallinn (Estonia). The action aims at upgrading the efficiency of the maritime link and at reducing the negative impact on the environment. Activities foresee the upgrading of port infrastructures and hinterland connections in the Port of Helsinki, while in the Port of Tallinn some areas will be reconstructed in order to improve the hinterland connection. The proposal is coordinated by the Port of Tallinn.</td>
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<tr>
<td>NextGen Link (2017-21)</td>
<td>Connecting Europe Facility</td>
<td>€ 11,259,630.00</td>
</tr>
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<td><strong>Project short abstract</strong></td>
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<td>The overall objective of the action is to upgrade the existing maritime link between the ports of Turku, Finland and Stockholm, Sweden and the port of Mariehamn in the northern Baltic Sea along the Scandinavian-Mediterranean Corridor. The project aims at improving the ports connectivity, at developing sustainable maritime transport routes and to promote green shipping and the use of alternative fuels following the EU’s clean fuel strategy (Directive 2014/94/EU).</td>
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<tr>
<td>Source</td>
<td></td>
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<tr>
<td>Project name &amp; implementation period</td>
<td>EU programme</td>
<td>EU contribution</td>
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<tr>
<td>Zero Emission Ferry (2014-17)</td>
<td>Connecting Europe Facility</td>
<td>€ 13.150.630,00</td>
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</tbody>
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*Project short abstract*

The action was financially supported by Connecting Europe Facility and coordinated by Forsea Helsingør ApS (Denmark), and its main objective was to introduce innovative concepts and technologies. The project converted to RoPax vessels powered with heavy oil to electrically powered ships. The actions took place in the comprehensive TEN-T network ports of Helsingør (Denmark) and Helsingborg (Sweden). The actions contributed to significantly improve the air quality of densely populated areas.


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### 4 Insights from Relevant Implemented Projects and Pilot Actions: Passenger Transport Sustainability in EU Maritime and Coastal Areas

Considering contents, activities and pilot actions of the selected projects, the most numerous groups have been selected within the Interreg Italy-Croatia Programme 2014-20 [tab. 1, projects 3-7], a cross-border territorial cooperation instrument that covers the territories of the two MS on the opposite sides of the Adriatic Sea. Out of the four thematic priority axes composing the Operational Programme, the axis on maritime transport (Priority Axis no. 4) has provided an ERDF (European Regional Development Fund) budget of €43.3 million (21.54%) allocated for the period 2014-20, out of an overall ERDF total of €201 million. As pointed out in the Key Facts of the Programme Manual, on which the financing and implementation strategy of the 2014-20 projects is based:

Regarding transport of passenger Adriatic Croatia is the second among the NUTS2 regions of Europe, with more than 13 million passengers transported in 2013. Nevertheless, the large majority of the passengers is represented by tourists having as destination Croatia, while the relatively low number of routes between the two shores of the Adriatic is affecting the accessibility of the overall area. Moreover, the high seasonality of tourism, the increasing numbers of visitors and travellers, together with the lack of efficient multimodal nodes in the area are generating traffic congestions in the coastal zones, especially in the areas of more important ports. The situation reveals the importance of transport in the overall economy of the programme area, but in the meanwhile represents an important challenge for the accessibility of the region in terms of connectivity, inter-operability and multimodality. (CP 2014-20, v. 5.0, pp. 14-15)
The situation related to traffic congestion in some places of the programme area (particularly due to seasonal tourism flows) is highlighted within the ‘weak points’ in the SWOT analysis related to the ‘sustainable growth’, leading the consequent need for a relevant reduction of road traffic in coastal urban areas, especially during the seasonal peaks of tourism. This is counterbalanced by two challenges/opportunities to be addressed, favouring their potential development: a) realising “more systemic, integrated and efficient maritime connections from/to the eligible territories and between them” (CP 2014-20, v. 5.0, p. 19); b) developing cooperation among the ports located in the programme area, especially implementing an integrated ICT system for the exchange of data and information, and integrated ticketing for passenger transport. It is also for these reasons that the Italy-Croatia Programme has identified within its thematic objectives (Thematic Objective no. 7): “Promoting sustainable transport and removing bottlenecks in key network infrastructures”, identifying as an investment priority [Investment Priority no. 7(c)] the development and strengthening of sustainable and low-carbon transport systems – including all the main transport modes – increasing of multimodal connections, especially at regional and local level (CP 2014-20, v. 5.0, p. 21). Considering the projects financed in Italy-Croatia, it seems interesting to highlight specifically some initiatives. For example, the DEEP-SEA project [tab. 1, project 3] has set as specific objective to provide support to marina operators and public administrations on the planning/implementation of sustainable mobility especially in terms of integration of services and multimodal solutions. At the same time, the focus of this project on alternative fuel technologies and electric boats is interesting. A technological focus is implemented under further development perspectives by the METRO project [tab. 1, project 5], in this case, with a target on tourist connections in the Upper Adriatic, this focus is based on ‘hybrid’ technological solutions (again for tourist transport boats) but also on refuelling/recharging infrastructures suitable for small marinas. The MOSES and SUTRA projects too [tab. 1, projects 6-7] are focused – including pilot actions – on the issue of passenger transport in coastal areas, in relation to the traffic problems specifically due to the relevant impact of tourist flows between the two shores.

The first (MOSES), capitalising a best practice of a previous IPA-Adriatic project, implemented a panel of pilot actions with a wide range of transport solutions testing with different perspectives of approach. In fact, new short-sea shipping lines have been tested by introducing e-ticketing and e-booking options and by developing feasibility studies taking into consideration hypotheses of vessels with a lower environmental impact. Concerning the passenger arrival destinations, the actions are targeted on the improvement/widespread of multimodal options, infrastructure accessibility, comfort and safety,
and info-mobility with a specific focus concerning the improvement of connections between coast and hinterland. E-bike and bike&bus services were tested to ensure travel between the main transport nodes. The SUTRA project implemented solutions for the integration of services, also focusing on sustainable and multimodal connections between coast and hinterland, including the possibility of activating new cross-border maritime links. It is important to emphasise in this project the activation of a network between the involved municipalities of the different areas, in order to co-design and implement mobility shared actions to improve accessibility and transport systems in the different communities, also through the experimentation of new governance models. Finally, the GUTTA project [tab. 1, project 4] – the last of the selected project financed by Interreg Italy-Croatia – has based its activities on the reduction of the environmental impact of the ferry lines between Italy and Croatia through three specific objectives within its work programme, proposing interesting solutions also in terms of research and innovation: a) the realisation of a web tool to optimise ferry routes in terms of CO₂, based on operational meteo-marine forecast data; b) assessment of the added value of the information content of CO₂ emission data (ex Reg. EU 757/15 – MRV); c) analysis of past and present trends in maritime mobility within Italy-Croatia area, also in relation to the post-pandemic horizon. The two projects selected in the cross-border Interreg Central Baltic Programme – ADAPT and Efficient Flow [tab. 1, projects 1-2] – are, in our opinion, interesting for the proposals they have been designed within the objectives of this cross-border programme. Central Baltic (CB) territorially involves Finland (including Åland), Estonia, Latvia and Sweden; the programme priority related to transport is in this case no. 3: “Well-connected region” and is focused on accessibility in the whole programme area, including also the economic competitiveness and tourist attractiveness. The programme promotes and support planning activities of integrated and multimodal transport systems also in the urban dimension, and the sustainable development of the network of small Baltic Sea ports. This priority is declined by the programme in two specific objectives (SO):

- SO 3.1: improvement of freight and passenger transport flows (reduction of travel time and reduction of CO₂ emissions through integrated multimodal systems; improvement of the area’s corridors and transport nodes);
- SO 3.2: improvement of the services of the small Baltic ports in function of local, regional and tourist mobility (upgrading of port infrastructure and equipment; planning and introduction of ICT systems; development of port network marketing).

The programme priority on transport and the two specific objectives respond in this case to specific needs highlighted by the socio-economic and territorial analysis of the Cooperation Programme
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In this case, the Central Baltic cross-border area is affected by accessibility gaps in peripheral areas, between islands and coastal areas and in rural regions. In these different territories also the urban contexts are lagging behind compared to relevant cities of the macroregion: the transport infrastructures and services are inadequate and several missing links still affecting passenger mobility and freight transport. Clearly, maritime transport on the Baltic Sea has a central function,

the most frequent passenger connections run between Finland and Estonia, Finland and Sweden [...] The most intensive passenger turnover (over 9 M passengers in 2013) is between Helsinki and Tallinn ports. The dependency on fossil fuels is, however, still high in all transport modes. (CP 2014-20, v. 3.1, pp. 14-15)

Furthermore, there is a wide network of small ports (commercial – tourist – fishing). These small ports are crucial for local and regional mobility and they should definitely be developed and strengthened. The specific objective 3.2 addressed this topic concerning small port. The Italy-Greece Programme, another cross-border Interreg – hence the DOCK-BI and INVESTMENT projects [tab. 1, projects 8-9], identifies in its Cooperation Programme as a strong key point (SWOT analysis on “Sustainable Growth”) the leadership of Italy and Greece in maritime passenger transport and in the volume of passengers transported, but at the same time highlights the weaknesses of poor accessibility in terms of multimodality, and in general in rural and peripheral territories. In addition, the obsolescence of traffic monitoring and management tools and the inadequacy/inefficiency of the railway infrastructure in the programme area, particularly in the eligible territories of Greece, produce a negative impact on the whole transport system. The most important opportunity provided by cross-border cooperation between territories is identified in this case in the possibility of jointly developing infrastructures and strengthening networking between all the authorities of the different transport systems in order to increase the efficiency and competitiveness of the whole area. The need to introduce the best use of ICT technologies in transport is also emphasised. Facing a decrease in maritime passengers in transit in the programme area over the period 2010-13, the increase of competitiveness of transport nodes (in all sectors) combined with a joint work on interconnections and multimodality represents a challenge to be grasped through the 2014-20 funding opportunities provided by cross-border cooperation (CP 2014-20, v. 3.1, pp. 7-9). Also in the case of the IT-GR programme, the thematic objectives include: “Promoting sustainable transport and removing bottlenecks in key network infrastructures” (TO-7). The priority Axis focused on the transport topic is the third: PA3 “Promoting
Multimodal Sustainable Transport System”, including decarbonisation and pollution decreasing in the urban areas. Considering what is planned by the programme in terms of needs, opportunities and challenges, the DOCK-BI project addressed the development of connections between the ports of Brindisi and Igoumenitsa (the latter being the most important Greek port for trade with Italy). The project is based on a big pilot action with several specific tasks involving the whole Ferry’s transport system on the maritime line. In cross-border terms, the common objectives concern: a) improving the multimodal accessibility of the two ports of call; b) providing for the integration and interconnection of transport modes between the two ports. Furthermore, on the Italian side: c) parking areas (cars and trucks) will be upgraded in the Brindisi hinterland; d) the access road network to the port of Brindisi will be improved; on the Greek side: e) the third passenger terminal at Igoumenitsa will be completed; f) the street lighting in the access roads to the Greek port will be improved. In the INVESTMENT project, on the other hand, the innovation process is at the heart of the cross-border transport services included in the financed proposal (Western Greece – Bari-Taranto-Ostuni). The main tool realised within the project life-cycle is an integrated ICT platform that can be functional for the needs of the whole panel of transport service users/operators (citizens, tourists, LPT operators). The architecture is conceived on the homogenisation, consolidation and sharing of data of the different transport modes, through three main e-services: 1) a multimodal public transit route planner able to optimise end-to-end routes by involving the transport network of the programme area; 2) a multimodal tourist tour planner, based on a wide range of daily tour proposals through the use of LPT; 3) a DSS (Decision Support System) supporting the network of LPT operators, planners and policy makers, according to the identification of specific interventions on bottlenecks present in the LPT network.

Finally, the last of the selected Interreg projects: MOBIMART [tab. 1, project 10] allows us to examine a different cross-border area, in this specific case characterised by a maritime space. Interreg Italy-France (maritime), in fact, includes a programme area from the coastal areas of Provence, Alpes-Maritimes and Côte d’Azur (France) to those of Liguria and Tuscany (as far as the province of Grosseto) on Italian territory, including the two large islands of Corsica and Sardinia. Transport is financed in Priority Axis no. 3 (“Improving the accessibility of territories”), with an ERDF allocation of €26.3 million (CP 2014-20, v. 3.1). In this area, the accessibility of territories between coastal areas and islands needs adequate infrastructures to guarantee the connections with the TEN-T networks and a cross-border governance able to integrate the different administrative levels involved. Environmental sustainability must involve ports and freight villages, developing multimodal solutions. The MOBIMART project
boosted the development of infomobility through an integrated platform able to connect the eleven public administrations involved in order to achieve a fruitful cooperation, through the exchange of data, involving the whole network of public transport services to set up and provide multimodal solutions. In the previous paragraph (§3), we have already analysed the general framework of the Connecting Europe Facility (CEF) financing instrument. The three selected projects addressed some specific challenges in order to develop and implementing targeted actions on maritime transport infrastructures and services. Twin-Port IV is one of the linked projects addressing different implementation steps of a single wide initiative on the route between the ports of Helsinki and Tallinn (within the framework of the ‘motorways of the sea’). The optimisation of this specific infrastructure (including road connections) aiming at increasing the efficiency and environmental sustainability of one of the congested maritime routes in the Gulf of Finland. The main aim is to make maritime transport an effective and sustainable alternative to road transport. In the same way, NextGen Link is part of an overall project, related to the introduction/experimentation of LNG fuel, in this case on the North Baltic Sea cross-border maritime link between Turku and Stockholm (Finland-Sweden). The project aims to improve connectivity between ports. The need for better connections in the peripheral region of the Åland Islands included within the project framework. The Zero Emission Ferry, a project involving the TEN-T ports of Helsingør (Denmark) and Helsingborg (Sweden). This is the last selected one of CEF-funded projects and its main aim is testing an exclusively electrically-powered ferry connection. The project involved both the vessels (plug-in system) and the charging infrastructure. The objective has been to switch, through a new technological solution, this ferry line to zero environmental impact, with a significant improvement in air quality, particularly considering the heavy traffic affecting the maritime link in that specific area.

5 Conclusions

The review presented in this chapter on the topic of sustainable transport in some cross-border maritime areas through the related European policies and their funding programmes has allowed to highlight a series of relevant insights useful for analysing and addressing the new programming period (2021-27) that has just begun.

First of all, the peculiarity of the cross-border maritime (and coastal) dimension of passenger transport has achieved over the years, and particularly in the previous funding period (2014-20), an increasingly relevant and strategic role in order to fully and effectively address two of the main objectives on the European Commission’s agenda:
• firstly, the construction of the European single market and the achievement of a territorial cohesion level able to making the internal MS borders increasingly ‘permeable’ and merely ‘formal’;
• then promoting and accelerating – especially over the past decade – the transition to a new EU mobility and transport ecosystem truly ‘sustainable’ and able to reduce GHG and pollution levels.

Concerning the first point, we have seen how the analysed projects have increasingly focused their activities and pilot actions, including the maritime dimension, to overcome those still persisting bottlenecks and realise the ‘missing links’ in order to guarantee ‘accessibility’, ‘connectivity’ and ‘multimodality’ also at cross-border level, particularly for the most marginal, peripheral and isolated areas of Europe. In this specific areas, where frequently the border and at the same time the barrier is the sea, the main challenge is to provide effective mobility for all citizens not only between states but also at a local and regional level (e.g., islands, peninsulas and archipelagos). Moreover, the Staff Working Document SWD(2020)331final that accompanied the Sustainable and Smart Mobility Strategy of the EC [EC COM(2020)789final] points out that, despite the large amount of funds used in the 2014-20 programming period, some of which specifically earmarked for “building cross-border links to better integrate national networks”, it is still specifically to work towards the achievement of objectives and standards in terms of accessibility and multimodality in the cross-border dimension (including the maritime dimension). The EU Funding programmes 2021-27 will probably continue to pursue these objectives, especially cross-border territorial cooperation programmes. Finally, concerning the transition towards sustainable mobility, we can remark how a significant number of the analysed projects addressed the environmental issue in the cross-border and maritime dimension also in terms of technological innovations (e.g., the GUTTA project for Interreg CBC and the Zero Emission Ferry project for CEF). Even in this case, the European strategy and related funding programmes will probably still invest in the testing of alternative fuels with less impact on the marine environment (e.g., ‘FuelEU maritime initiatives’), as well as in the technological experimentation of new forms of ship propulsion systems.
Bibliography

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