Interreg

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Italy – Croatia

CROSSCONNECT

INTERREG ITALY-CROATIA PROJECT CROSSCONNECT

Deliverable 1.3.1. Collection of mobility solutions

Version 1.0 – 28/02/2025

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Document Control Sheet

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1. Introduction

1.1 CROSSCONNECT overview and capitalisation approach

CROSSCONNECT, the "Cross-border Coordinated Sea-Land Approach Interconnecting Ports of the Adriatic Sea with Airports and Urban Areas," is financed by the Interreg Italy-Croatia Programme, specifically under Standard call, Specific objective 3.1. This objective focuses on developing and enhancing sustainable, climate-resilient, intelligent, and intermodal mobility, including improved access to TEN-T and cross-border mobility.

The overall objective of CROSSCONNECT is to develop and promote a multimodal coordinated sea-land approach based on sustainable and technologically advanced ICT solutions, in order to interconnect Croatian and Italian ports with urban areas and airports, improving passengers' mobility, focusing on innovation and sustainability in the blue economy to solve current inefficiencies.

1. **Key Elements of the Capitalisation Approach:**
2. **Knowledge Capture and Systematization**:
    a. **Data Collection**: Gathering key information, outcomes, and best practices within the project activities implementation.
    b. **Thematic Clustering**: Organizing project results into thematic areas (e.g., environment, innovation, ecc) to identify common challenges, trends, and solutions.
3. **Analysis and Evaluation**:
    a. **SWOT Analysis**: Conducting a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) of projects to evaluate their impact, success factors, and areas needing improvement. This ensures that lessons learned from previous experiences are clearly understood.

   b. **Success Factors Identification**: Determining what contributed to the success or failure of projects, such as partnerships, governance models, financing mechanisms, or innovative practices, to inform future initiatives.
   c. **Transferability Assessment**: Evaluating the potential for adapting solutions from one region to another, considering local socio-economic, political, and cultural contexts (as described in detail previously).

4. **Policy Influence**:
   a. **Embedding in Policy Frameworks**: Integrating the results and recommendations from Interreg projects into regional, national, and EU-level policies. This includes influencing regional development strategies, sectoral policies (e.g., transport, energy), and frameworks for sustainable development.
   b. **EU Strategic Alignment**: Ensuring that the capitalized knowledge aligns with broader EU strategies, such as the Green Deal, Digital Agenda, or Cohesion Policy, to create synergies between project results and overarching European objectives.
5. **Monitoring and Sustainability**:
   a. **Continuous Monitoring**: Tracking the long-term impact of previous projects to assess whether their results continue to deliver benefits. Monitoring helps to identify gaps in project implementation and ensure the sustainability of the solutions over time.
   b. **Sustainability Focus**: Ensuring that capitalisation efforts contribute to sustainable development, so that results are durable and continue to benefit regions after the projects have officially ended.
6. **Innovation and Adaptation**:
   a. **Encouraging Innovation**: Identifying innovative solutions that emerged from past projects and facilitating their further development and adaptation in different contexts. This can involve partnerships with research institutions and industry to develop new applications.

b. **Adaptation to New Challenges**: Using the capitalisation approach to adapt solutions to emerging challenges (e.g., climate change, digital transformation), ensuring that the knowledge from past projects remains relevant and useful in evolving contexts.

7. **Benefits of the Capitalisation Approach:**
   a. **Maximizing Value**: By reusing and adapting previous results, regions avoid duplication of effort and make the best use of public funding.
   b. **Enhanced Cross-border Cooperation**: Capitalisation strengthens collaboration between regions by promoting the exchange of successful practices and knowledge.
   c. **Informed Policy Development**: It helps policymakers at local, national, and EU levels make more informed decisions based on proven solutions and past experiences.
   d. **Efficiency and Effectiveness**: Future projects can build on existing knowledge and lessons learned, leading to more efficient and effective implementation of regional development initiatives.

The **capitalisation approach** is a strategic process aimed at amplifying the impact of Crossconnect project by ensuring that the knowledge and outcomes from past initiatives are systematically captured, shared, and adapted. By building on past successes, addressing weaknesses, and fostering collaboration, it contributes to more effective cross-border cooperation, policy development, and sustainable regional growth across Europe.

1.2 Purpose of the D1.3.1

D1.3.1 serves as a key deliverable in the context of a capitalisation or Interreg project. Its primary purpose is to collect, analyse and disseminate findings and insights from prior activities, contributing to the project's overall objective of enhancing cross-border cooperation and knowledge sharing. Specifically, the D1.3.1 document typically focuses on:

1. Synthesis of Results.

2. Capitalisation and Knowledge Transfer.
3. Actionable Recommendations.
4. Contributions to Policy and Strategy Development.
5. Enhancing Regional Cooperation.
6. Ensuring Long-term Impact

In conclusion, the D1.3.1 document serves as a comprehensive, action-oriented synthesis of a project's key findings and insights, with a focus on capitalising and transferring knowledge. It plays a crucial role in ensuring that the outcomes of the project are not only documented but also applied, replicated, and sustained in future initiatives or policy frameworks. It will be drafted in English.

2. Methodologies used for capitalisation

2.1 Assessment of previous Interreg projects: SWOT analysis results

The **SWOT** analysis of previous Interreg projects, as part of the assessment outlined in the D1.1.1 Capitalisation report, offers insights into the strengths, weaknesses, opportunities, and threats that have shaped the outcomes of cross-border cooperation projects. This analysis is based on a range of measures and criteria related to regional development, governance, cooperation, and the specific thematic goals of Interreg initiatives.
Briefly,

Adrigreen project

- Project description and objectives
  - to improve the integration of Croatian and Italian ports and airports with other modes of transportation in order to enhance the processing of passengers during the summer seasons and to improve environmental performances of the Adriatic maritime and aviation systems

- Partners involved - 10 partners (4 ports, 5 airports, 1 university)
- Project main outputs and deliverables
  - Capitalization manual, Cross-border forum, international investigation (identification of existing solutions), EIA, Joint action plans,
- Pilot action description
  - implementation of low-cost and smart solutions to better connect airports and ports with the local public transport systems, such as railways and public bus lines
  - implementation of integrated timetabling and information for passengers that shall continue their travel by other means of transport
  - adoption of smart solutions to improve waste&water management and to reduce energy consumption in small-medium regional Airport
- Key findings
  - 10 measures identified for transferability

Interpass Project

- Project description and objective
  - to enhance the intermodal connections between ports and airports in the Adriatic–Ionian Region in order to improve the processing of passengers, mainly cruise tourists and travellers reaching tourist destinations located on Adriatic and Ionian costs during the peak season.
- Partners involved – 8 partners, 3 airports, 4 ports, 1 university
- Project main outputs and deliverables
  - Integrated strategic plan, Transnational evaluation report, manual on identified solutions
- Pilot action description
  - Shorted processing time of passengers' baggage handling
  - Integrated timetabling and information
  - E-solutions for route planning, information provision and data collection

- Improve the connectivity between terminals with public transport and other modes of transport.

- Key findings
  - 12 measures identified for transferability potential

INTERCONNECT project

- Project description
  - To identify new solutions tailored to ADRION's specificities for the promotion of intermodal transport and guides the respective actors on how to turn connectivity plans into reality
- Partners involved – 9 partners, universities, regional development agencies, 1 port, 1 railway company.
- Project main outputs – CROSS-CONNECT Strategic road map, 64 measures identified

SWOT ANALYSIS OF DUBROVNIK REGION

STRENGHTS	WEAKNESSES
○ UNESCO list of World Heritage sites - the City of Dubrovnik with the island of Lokrum (1979 and 1994), ○ developed cruised tourism - long-term successful cooperation on "homeport" operations, between the port and the airport. ○ developed port-airport infrastructure, ○ location of port and airport, ○ favourable climate conditions, ○ Potential for development of selective forms of tourism (cultural	○ congested and dated road port-airport (no-alternative route), ○ Poor road connectivity between Dubrovnik Airport and Port of Dubrovnik (insufficient capacity to handle increased peak season traffic), ○ shortage of qualified workforce, ○ Poor road and maritime connectivity within the county (coast to islands and island to island), no railway connection,

tourism, adrenaline and rural tourism...),	
OPPORTUNITIES	**THREATS**
○ establishment of alternative route connection port-airport (fast road, waterborn transfer Cavtat-Dubrovnik), ○ prolongation of the touristic season, ○ Development of alternative energy sources within port-airport area ○ improvement of data sharing port-airport, ○ decrease of carbon footprint, ○ improvement of baggage handling process for home-port operation	○ competition of neighbouring states, ○ climate change, ○ Inconsistent environmental management and protection systems on a national level, which reflects on a local and regional level, ○ Disregarded development of rail network, ○ Dependence of air and maritime traffic on the global tourist demand

SWOT ANALYSIS OF VENICE REGION

STRENGHTS	**WEAKNESSES**
○ strong port-airport partnership (synergy) with the aim of reaching seamless intermodality between the two infrastructures, ○ interest of stakeholders in fly&cruise concept, good relationship with stakeholders, ○ experience in Fly&cruise concept, ○ membership "Deal for the development of the logistics of the Veneto Region",	○ different security and custom standards for luggage between airport and port, ○ need for dedicated space to separate luggage in port-airport area (extra costs for setting it), ○ lack of equipment for fly&cruise concept, ○ airport does not have check-in desks dedicated for Fly&Cruise passengers,

○ port-airport infrastructure plans, ○ custom agencies open to collaboration, ○ good relationship with the respective commercial partners (airlines for the Airport, cruise companies for the Port	○ the current timings for the delivery of the luggage from Airport to Cabin, mainly delayed due to logistics, make it hard to respect the Cruise schedule, ○ no integrated technology between Airport and Port both in terms of information sharing (i.e. Flight arrival time or Ship departure time) and of baggage handling. ○ no airport technology in place to identify cruise passengers luggage in commercial flights.
OPPORTUNITIES	**THREATS**
○ providing a unique service for Fly&Cruise concept, ○ seamless Fly&Cruise concept to improve passenger experience, ○ reduce physical barrier for heavy luggage handling to passengers, ○ reducing queing time and the overall port-airport transfer time, possibly widening the number of connecting flights' available ○ optimization of the passengers' logistics, with a significant reduction of the vehicles used, will meet the 2030 Net Zero objective of the Airport,	○ increased environmental impact of the Fly&Cruise concept, ○ limited number of passengers involved ○ possible limitations due to airlines internal regulations, ○ Different security restrictions between port and airport ○ Possible limitations due to customs and police laws

○ within the CROSSCONNECT project strong partnership between port / airport will be enhanced	

SWOT ANALYSIS OF PULA REGION

STRENGHTS	WEAKNESSES
○ Istra and Pula location, ○ experience in passenger transport (more than 120 years of public transport in Pula) ○ port road connection and short distance from airport, railway and city centre, ○ location of port to city centre, equipped gate and logistics, ○ well established payment system for public transport with advanced features such as a passenger entry control system, smart RFID cards, one-time QR cards, purchase of tickets via the web shop, card payment on the bus and more ○ new and modernised bus vehicle fleet (24 out of 36 busses are CNG), ○ regional support and financial stability, ○ the range of coastal area managed by PPA, several smaller ports	○ the lack of strategic plans to connect port with hinterlands, ○ budget constraints for port development (port is poorly developed for passengers), ○ port traffic schedule not synchronized with bus and railway schedule, ○ lack of professional staff in port area, ○ traffic jams in summer season (difficult to maintain bus timetable schedule), ○ absence of priority routes for busses in Pula town, ○ seasonality for establishing the line port- station and city-centre, not profitable out of season ○ no taxy-bus station near the port ○ communication – lack of knowledge of foreign languages by bus drivers

1.

OPPORTUNITIES	THREATS
○ development of cruise terminal, ○ possibility to position bus station near the port ship lines ○ connection of port and urban public transport payment systems (smart ticketing), ○ implementing green policies, ○ connection of port to urban areas (POI) (less road congestion, increased passenger satisfaction), ○ alignment of the timetable with the arrivals of guests from port-airport, ○ replacement of current old diesel buses / vehicles with electric one (zero emission buses and vehicle fleet)	○ traffic congestion by increased passengers, ○ lack of workforce, ○ competition from private carriers, ○ inadequate marketing plans, ○ dependence on tourism, ○ no synergy between main stakeholders, ○ no strategic and marketing development plans for port area, connection to city centre

SWOT ANALYSIS OF BRINDISI REGION

STRENGHTS	WEAKNESSES
○ existing infrastructure, ○ institutional support, ○ touristic and commercial attractiveness. ○ Experience in EU funded projects ○ awareness and necessity of smart solutions in transport, ○ STP Brindisi has extensive vehicle fleet, experience in passenger transport and ISO certifications for quality, ○ Well developed communication channels for passengers, ○ existing connection port-train station-airport, ○ strategic partnerships (smart ticketing), ○ proximity of port to city centre	○ fragmented service provision – improvement needed in coordination between different transport modes, ○ improvement in passenger information needed, ○ lack of integration with Google maps, ○ underdeveloped payment system, ○ investment in smart infrastructure, ○ absence of priority routes for busses, ○ limited availability for PugliaAirBus service, ○ language barriers, ○ investment in smart solutions costs, ○ misalignment of Airport-City bus schedule with flight timings, ○ lack of parking, inefficiency of road transport for freight, congested roads during tourist season
OPPORTUNITIES	**THREATS**
○ policy support, tourism growth, ○ public-private partnership, ○ reduction of environmental impact, ○ infrastructure development plans	○ regulatory changes, ○ economic fluctuations, ○ security concerns, ○ shortage of workforce ○ resistance to adoption of smart solutions,

○ enhanced connectivity and improvement in connection of different transport modes, ○ technological innovation and adoption of smart solutions, ○ increasing trend of cruise tourism, ○ development for alternative energy sources,	○ dependence of air and maritime traffic on tourist demand, ○ disregarded development of rail network, ○ climate change impact

In conclusion the most important opportunities for improvement that are transferable to CROSSCONNECT project and that will be addressed when creating pilot action plans refer to:

1. Integration of data sharing among different transport modes to provide passengers with information needed in real time and to increase their level of satisfaction (Dubrovnik region, Venice region, Brindisi region, Pula region).
2. adoption of smart solutions to improve baggage handling process (Venice region),
3. acquiring needed equipment to speed up baggage handling process (Dubrovnik region, Venice region,
4. decrease of carbon footprint through adoption of green solutions and electric mobility to reduce energy consumption and improve passengers mobility, replacing old diesel vehicles or ground handling equipment with electric ones (Dubrovnik region, Brindisi region, Pula region),
5. implementation of smart ticketing system in port area for public transport (Pula region),
6. improving connectivity of port area to hinterlands with new electric busses connection (Brindisi region).

2.2 Transferability assessment of key identified solutions: capitalisation Questionnaire

The transferability potential of identified measures from previous relevant project are assessed to CROSSCONNECT project and its objectives as well as their potential inclusion in foreseen pilot action plans.
Measures and activities identified in following deliverables from previous projects have been assessed:

- ✓ ADRIGREEN Capitalization Report (useful data related to intramodality, best practice, operational and technological schemes to reduce environmental impacts of airports and ports, innovative solutions, procedures and techniques, SWOT analyses, funding schemes) and Joint Action Plan for intermodal and multimodal passengers' transportation from/to ports and airports.
- ✓ INTERPASS Capitalisation manual on best practices, their replicability and adaptability, Integrated Strategic Plan for better connection port-airport, Transnational evaluation report on intermodal solutions to improve and speed-up tourists' transit between ports and airports.
- ✓ INTERCONNECT Strategic Roadmap – Towards passengers' sustainable mobility in ADRION region" to deepen measures and fields of interventions in connecting ports with hinterlands.

All measures have been summarised and evaluated by CBTG experts formed within the project and internal experts of each partner. Identified measures have been presented in table below.

List of evaluated measures for transferability in the context of CROSSCONNECT

PROJECT NAME	TYPE OF MEASURE	ASPECT, ACTIONS, ACTIVITIES*	DESCRIPTION OF MEASURE
INTERCONNECT	Integration of data sharing	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Information provision to travellers at transport hubs
INTERCONNECT	Integration of data sharing	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Harmonized timetables between different public transport modes
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 2: Integration of baggage handling procedures between ports and airports especially for the home ports.	Capacity building of the service providers, public institutions, and relevant bodies and development of common guidance as regards the technical, operational and financial aspects for achieving integrated baggage handling between ports and airport.
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 2: Integration of baggage handling procedures between ports and airports especially for the home ports.	Allocate specific national or regional funding schemes to the purchase of the relevant technological equipment to be installed in ports and airport for achieving integrated baggage handling procedures.

INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 3: Improving connectivity between airport and port by entering new PT connections between the two terminals	Allocate specific national or regional funding schemes to the purchase of the relevant technological equipment, fleet, and infrastructures for achieving direct connections with PT modes between ports and airports.
INTERCONNECT	Connectivity / intermobility	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Quality bus services (coverage, frequency) depending on users-needs
INTERCONNECT	Connectivity / intermobility	ASPECT 2: THE FUTURE OF ANY ADRION PORT	New services / enhanced public bus services connecting the port to the hinterland and other hubs of the multimodal transport systems;
INTERCONNECT	Strategic planning at EU, nat., reg., loc. level	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Improvement of social inclusion - Introduction of tactile paths and voice devices in zones of bus stops - Introduction of ramps for disabled on pedestrian paths
INTERCONNECT	Integration of data sharing	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Available, accurate information for public transport services
INTERCONNECT	Electrification measures	ASPECT 1a: SPECIAL PART DEDICATED TO ELECTROMOBILITY	Electromobility for PT (electric buses)

INTERCONNECT	Connectivity / intermobility	ASPECT 2: THE FUTURE OF ANY ADRION PORT	Better and fast connections among ports and the urban areas (where possible promoting walk/bike connections)
INTERCONNECT	Electrification measures	ASPECT 1a: SPECIAL PART DEDICATED TO ELECTROMOBILITY	Integration of charging points and charging services with renewable energy sources plants (e.g. photovoltaic equipment)
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 2: Integration of baggage handling procedures between ports and airports especially for the home ports.	Development of Institutional Agreements among the Ports and Airports and the involved parties, defining the responsibility allocation among them and clarify issues such as security controls and protocols, transfer procedures between the airport and the port etc.
ADRIGREEN	Electrification measures	Adoption of smart solutions to improve waste&water management and to reduce energy consumption in small-medium regional Port / Airports;	Decreasing fossil fuel consumption - Provide electric charging infrastructure stations for electric vehicles

ADRIGREEN	Electrification measures	Adoption of smart solutions to reduce energy consumption in small-medium regional ports /Airports	Installation of solar panels in different areas of the port/airport (e.g., rooftops of buildings and warehouses) for generating renewable energy
INTERCONNECT	Electrification measures	ASPECT 1a: SPECIAL PART DEDICATED TO ELECTROMOBILITY	Intermodal connections of charging services and public charging points in the intermodal nodes (airports, ports, railway stations, park and ride, etc.)
INTERCONNECT	Connectivity / intermobility	ASPECT 3: THE FUTURE OF ANY ADRION AIRPORT	New services / enhanced public bus services connecting city - city airport as well as the catchment.
INTERCONNECT	ICT solutions (green and sustainable)	ASPECT 3: THE FUTURE OF ANY ADRION AIRPORT	New integrated CIS system or Communication tool (mobile app) to establish information sharing between all transport providers and other stakeholders at airports to improve accuracy of Passengers information
INTERCONNECT	Connectivity / intermobility	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Transport hubs' interconnectivity

INTERCONNECT	ICT solutions (green and sustainable)	ASPECT 2a: SPECIAL PART DEDICATED TO CRUISE	Creation of CIS tool to share passenger and baggage information between airports, railway station and ports to enable easier transport and higher level of security and safety for the "homeport" operations
ADRIGREEN	Electrification measures	Adoption of smart solutions to reduce energy consumption in small-medium regional ports /Airports	Decreasing fossil fuel consumption - Purchase of electric vehicles and GPU (e.g., electric aircraft tug, electric baggage tractor, electric waste management vehicles etc.)
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 1: Integration of information systems between ports and airports especially for the home ports.	Capacity building of relevant stakeholders and bodies on the legal, financial, and operational (ICT expertise) aspects for creating an integrated information system between ports and airports. The capacity building will include specific guidelines as regards the needed procurements, agreements and contracts development, the content of cooperation among service providers, public institutions and relevant bodies, the data sharing and ownership policy, technological solutions, and relevant costs and the management of crisis situations.

ADRIGREEN	ICT solutions (green and sustainable)	Improvement in connectivity of port / airports to hinterlands	Implementation of low-cost and smart solutions to better connect airports and ports with the local public transport systems, such as railways and public bus lines
ADRIGREEN	Integration of data sharing	implementation of integrated timetabling and information for passengers that must continue their travel by other means of transport	Smart data sharing systems (for example: Installation of a multimedia outdoor totem to provide passengers on-time information on the ferries and trains transiting, airport flight schedule…)
INTERCONNECT	Electrification measures	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Shift to electromobility
INTERCONNECT	Integration of data sharing	ASPECT 2: THE FUTURE OF ANY ADRION PORT	Adequate information provision (including touristic ones), provided with a adequate level of signalling and safety as well as with effective ICT tools for user information provision; Providing adequate information through ICT tools, encompassing both fixed installations and mobile apps, with different languages, possibly also endowed with integrated ticketing features

INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 1: Integration of information systems between ports and airports especially for the home ports.	Development of Institutional Agreements for establishing strong cooperation schemes between the authorities and the relevant stakeholders as well as all the involved parties, for ensuring the provision of updated integrated information exchange which will promote intermodality and the use sustainable mobility modes of transport.
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 1: Integration of information systems between ports and airports especially for the home ports.	Development of a common and harmonized operational and technical architecture for the integrated information systems (devices, web platforms and mobile applications) that will provide services to the authorities, the relevant bodies, and the travellers.
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 4: Integration of timetable (departures and arrivals) between ports and airports especially for the home ports cruise cases.	Allocate specific national or regional funding schemes subsidizing the technological infrastructures needed, in order to achieve the integration of timetables for departures and arrivals between ports and airports.

ADRIGREEN	Electrification measures	Adoption of smart solutions to reduce energy consumption in small-medium regional ports /Airports	Decreasing fossil fuel consumption - Use of alternative renewable fuels (diesel from waste and residue) for diesel vehicles
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 1: Integration of information systems between ports and airports especially for the home ports.	Allocate specific national or regional funding schemes to the purchase of the relevant technological equipment to be installed in ports and airport as well as for the implementation of the relevant information platforms and mobile applications.
INTERCONNECT	ICT solutions (green and sustainable)	ASPECT 2a: SPECIAL PART DEDICATED TO CRUISE	New paths associated with adequate information provision (including touristic ones), provided with a adequate level of signalling and safety as well as with effective ICT tools for user information provision
INTERCONNECT	Strategic planning at EU, nat., reg., loc. level	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Cooperation among transport providers and local authorities / Stakeholders' engagement in sustainable mobility planning
INTERCONNECT	Electrification measures	ASPECT 1a: SPECIAL PART DEDICATED TO ELECTROMOBILITY	Upgrading of the electricity distribution network for the purposes of electric mobility

INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 3: Improving connectivity between airport and port by entering new PT connections between the two terminals	Update of the institutional and legal framework which will enhance connectivity between ports and airports. Synergies among airline companies, ferries and cruise industry, B2B agreements, updated business plans. The frameworks will have to specify issues such as the roles of each participated authority, the operational authority, the ownerships of the infrastructures, the fees and payment systems etc.
INTERCONNECT	Electrification measures	ASPECT 1a: SPECIAL PART DEDICATED TO ELECTROMOBILITY	Accessible and easy to use charging infrastructures and infrastructures interoperability in cross boarders areas
INTERCONNECT	Electrification measures	ASPECT 1a: SPECIAL PART DEDICATED TO ELECTROMOBILITY	Upgrading of common technical standards for the charging services and infrastructures (plugs, sokets, power, interoperability, charging systems, etc.)
ADRIGREEN	Connectivity / intermobility	Improvement in connectivity of port / airports to hinterlands	New protocols with public and private transport providers to experiment with new services to speed up the process of passengers from/to touristic destinations which are not well-connected
INTERCONNECT	Integration of data sharing	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Integrated information provision as for sustainable modes of transport

INTERCONNECT	ICT solutions (green and sustainable)	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Development of a MaaS (Mobility as a Sevise) approach
ADRIGREEN	Electrification measures	Adoption of smart solutions to reduce energy consumption in small-medium regional ports /Airports	Implementation of monitoring system of the energy consumption of airport/port equipment, buildings and other facilities for supporting decision-making and implementation of measures for improving energy efficiency.
INTERCONNECT	Connectivity / intermobility	ASPECT 2a: SPECIAL PART DEDICATED TO CRUISE	Create public transport solutions for not organized/independent tourists
INTERCONNECT	Integration of data sharing	ASPECT 3: THE FUTURE OF ANY ADRION AIRPORT	Adequate information provision (including touristic ones), provided with a adequate level of signalling and safety as well as with effective ICT tools for user information provision
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 4: Integration of timetable (departures and arrivals) between ports and airports especially for the home ports cruise cases.	Cooperation among authorities for serving the whole transport chain for a tourist/traveller; B2B agreements, necessary updates on the legislative framework for public transport provision, institutional agreements

INTERCONNECT	ICT solutions (green and sustainable)	ASPECT 3: THE FUTURE OF ANY ADRION AIRPORT	Creation of integrated ticketing and public transport systems aiming seamless travels from airports to touristic/urban areas
INTERCONNECT	Strategic planning at EU, nat., reg., loc. level	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Pedestrian and cyclist centre design - Setting physical barriers on main roads between lanes /Designing and equipping of the most used pedestrian crossing with road safety devices / Designing and arranging of most dangerous locations for cyclists / Shadowing pedestrian and cycling corridors
INTERCONNECT	Connectivity / intermobility	ASPECT 2a: SPECIAL PART DEDICATED TO CRUISE	Provision of sharing services at ports (bike and cars) for sustainable intermodality promotion / Electric light vehicles services for longer distances
INTERCONNECT	Connectivity / intermobility	ASPECT 3: THE FUTURE OF ANY ADRION AIRPORT	Direct connectivity of airports to the main touristic attractions in vicinity
INTERCONNECT	Electrification measures	ASPECT 1a: SPECIAL PART DEDICATED TO ELECTROMOBILITY	Integration of charging points with energy storage stations and battery management systems

INTERCONNECT	ICT solutions (green and sustainable)	ASPECT 3: THE FUTURE OF ANY ADRION AIRPORT	Introduction of Green - sustainable solution (bike and electric cars) for traveling to/from work for employees at airports (car sharing and similar sharing services) and for travelling inside of Airport city zone
INTERCONNECT	Strategic planning at EU, nat., reg., loc. level	ASPECT 1: THE FUTURE OF ANY ADRION CITY	Establish coordinators for sustainable mobility in companies/ institutions
INTERPASS	Strategic planning at EU, nat., reg., loc. level	Action 1: Integration of information systems between ports and airports especially for the home ports.	Development of European Guidelines for achieving information systems integration at transport hubs (especially between ports and airports)
ADRIGREEN	Electrification measures	Adoption of smart solutions to reduce energy consumption in small-medium regional ports /Airports	Decreasing fossil fuel consumption - Anti-idling communication campaign

ADRIGREEN	Integration of data sharing	implementation of integrated timetabling and information for passengers that must continue their travel by other means of transport	Improved connection between the ticket office and the ferry quays, as well as port connection with the local public transport system and railway station

Table 1. Identified measures for transferability

2.3 Cross-national evaluation of identified measures and solutions: Cross-border Transnational Working Group.

The CBTG is a cross-disciplinary team composed of technical experts, project managers, representatives from port authorities, urban transport companies, and other key stakeholders from both Italy and Croatia. The group is responsible for the technical guidance and strategic direction of the CROSSCONNECT project, ensuring that the project aligns with both regional needs and broader EU objectives, such as those outlined in the EU Green Deal.

PROCEDURE
INITIAL MEETING
- Date: 15/7/2014
- Objective: To initiate the technical planning process for the CROSSCONNECT project by evaluating the transferability of measures from previous projects and establishing a framework for pilot actions in the participating regions.

- Key Activities:
- Introduction and Context Setting: The meeting began with a comprehensive overview of the CROSSCONNECT project, its objectives, and its alignment with regional and EU policies.

This was followed by a discussion on the importance of leveraging existing knowledge from previous projects to avoid duplication of efforts and to build on proven strategies.

- **Review of Capitalized Knowledge:** The CBTG reviewed the outcomes and strategies from ADRIGREEN, INTERPASS, and INTERCONNECT. Each project was analysed in detail, with a focus on identifying measures that had demonstrated success and could be adapted to the CROSSCONNECT project. The discussion included an assessment of the technological solutions used, the challenges encountered, and the key factors that contributed to the success of each project.

- **Assessment of Transferability:** The RACER methodology was employed to evaluate the transferability of identified measures. Each measure was assessed based on its relevance to the CROSSCONNECT project, its acceptability to stakeholders, its credibility, the ease with which it could be implemented, and its robustness in the face of potential challenges. The results of this assessment were used to prioritize measures for inclusion in the CROSSCONNECT project.

FOLLOW-UP TECHNICAL MEETINGS

Dates: 5/9/2024

Objective: To finalize the selection of measures for transfer to the CROSSCONNECT project, develop detailed pilot action plans, and address any emerging technical challenges.

Key Activities:

- **SWOT Analysis Presentations:** Each region presented a SWOT analysis of their specific context, highlighting the strengths, weaknesses, opportunities, and threats related to their pilot actions. These analyses were used to refine the pilot action plans and ensure that they were tailored to the specific needs and conditions of each region.

- Selection of Pilot Actions: The CBTG engaged in an in-depth discussion to finalize the pilot actions to be implemented in Dubrovnik, Venice, Pula, and Brindisi. The selection process was guided by several criteria, including the potential impact of each action, its feasibility, its alignment with the project's objectives, and its contribution to the broader goals of sustainability and innovation.

ONGOING COORDINATION AND COMMUNICATION

- **Regular Updates and Reporting:** The CBTG established a schedule for regular updates and reporting on the progress of the pilot actions.

The CBTG reviewing and adapting successful measures from previous projects (ADRIGREEN, INTERPASS, INTERCONNECT) to the specific context of the CROSSCONNECT project.

- **Development and Testing of Solutions:** The group is responsible for guiding the development of ICT tools and green technologies that will be tested in various pilot actions across the participating regions.

- **Strategic Framework Development:** The CBTG contributes to the creation of strategic frameworks that will guide the implementation of sustainable and innovative intermodal transport solutions in the Adriatic region.

- **Monitoring and Evaluation**: The group monitors the progress of the project, evaluates the outcomes of pilot actions, and makes recommendations for adjustments as needed.

The following solutions have emerged:

- Integration of data sharing among different transport modes to provide passengers with information needed in real time and to increase their level of satisfaction (Dubrovnik region, Venice region, Brindisi region, Pula region).

- adoption of smart solutions to improve baggage handling process (Venice region),
- acquiring needed equipment to speed up baggage handling process (Dubrovnik region, Venice region)
- decrease of carbon footprint through adoption of green solutions and electric mobility to reduce energy consumption and improve passengers' mobility, replacing old diesel vehicles or ground handling equipment with electric ones (Dubrovnik region, Brindisi region, Pula region),
- implementation of smart ticketing system in port area for public transport (Pula region),
- improving connectivity of port area to hinterlands with new electric busses connection (Brindisi region).

3. Project main results and solutions

3.1 Complete list of mobility solutions positively assessed for capitalisation in CROSSCONNECT

Results of all survey questionnaire have ben summarised on project level to ensure cross-border approach and to evaluate transferability of measures to CROSSCONNECT project objectives and deliverables. Full list of identified measures is presented in table 1. In previous section.

Out of 54 adopted measures, 32 of them are identified within the project INTERCONNECT, 12 of them through project INTERPASS and 10 of them through project ADRIGREEN.

Project name	Adopted measures	Identified measures from the previous projects
INTERCONNECT	32	64
INTERPASS	12	12
ADRIGREEN	10	10
Total	**54**	**86**

Per type of the measure identified, survey results can be presented as follows:

Type of measure	Total adopted measures
Connectivity / intermobility	9
Strategic planning at EU, nat., reg., loc. level	16
ICT solutions (green and sustainable)	7
Integration of data sharing	8
Electrification measures	14
Promotion campaigns	
Total	**54**

Out of 54 adopted measures for CROSSCONNECT transferability:

- 16 of them are measures that require cooperation among partners and stakeholders though strategic planning at different levels (EU, national, regional, local);
- 4 of them are electrification measures of replacing technologies or processes that use fossil fuels with electric powered ones,
- 9 of them are related to improvements in connectivity / intermobility of different transport modes (ports to hinterlands; port / airport connectivity…),
- 8 of them corresponds to improvements in integration to data sharing between different transport modes in order to increase passenger satisfaction and enhance seamless travel experience,
- 7 of them are related to adoption of smart ICT green and sustainable solutions among interested parties.

A) Strategic planning at different levels measures adopted

Most important strategic planning measures for CROSSCONNECT transferability can be summarised as follows:

- need of development of common guidelines for capacity building among service providers, public institutions, relevant bodies and other stakeholders on legal, technological, financial and operational aspect for integration of baggage handling procedures and systems for home port operation; for creating an integrated information system between ports and airports; for serving the whole transport chain for public transport provision and for enhancing connectivity between ports and airports,
- development of Institutional agreements between ports and airports and the involved parties to tackle security and custom issues and transfer procedures between ports and airports as well as integrated information data exchange,
- defining specific funding schemes subsidizing technological infrastructure needed for each of the four field of actions,

- development of common and harmonised operational and technological infrastructure for integrated information systems in order to provide unique travel experience to travellers and enhance digital transformation process among institutions and relevant parties.
- Additionally, to enhance cooperation between project partners and institutional cooperation, Memorandum of Understanding (MoU) will be signed within CROSSCONNECT project, four memorandums, one per each territory. MoU will concretely formalise the established connection and commitment for the future steps to be undertaken to guarantee it.

B) Electrification measures

Total of 14 electrification measures have been adopted by project partners for CROSSCONNECT transferability potential. These measures are very important because they actively contribute to the achievement of EU Green Deal directive requests that airports and ports should follow. Origin of the measures is mostly from project INTERCONNECT (8 measures) and ADRIGREEN (6 measures) project.

Through CROSSCONNECT project partners have envisaged in their pilot actions purchase of electric vehicles and installation of solar containers.

C) Connectivity / intramodality measures

Most important measure that has been adopted relates to improvement in quality bus service (coverage, frequency) according to user needs as well as establishing new bus service protocols connecting the port with hinterlands.

Within CROSSCONNECT project new bus service protocols / enhancing already existing connectivity are planned to be introduced in Brindisi and Pula region.

D) Integration of data sharing

Most important measures adopted relate to improvement in information provision to traveller at all transportation hubs, establishing harmonised timetables between different

public modes in order to improve passenger travel experience and to provide necessary data on one place and, if possible, in real time.
Through CROSSCONNECT project activities will be undertaken in integration of data sharing for travellers in each respective area (Dubrovnik, Venice, Pula, Brindisi)

E) Adoption of smart ICT solutions (green and sustainable)

Transport sector is highly automatised sector where applying digital transformation concept is essential for not only transport companies, but also passengers and wider community. One of the most important aspects of digital transformation is adoption and implementation of new technologies and ICT solutions.
Within project CROSSCONNECT Dubrovnik region in its pilot action is planning to develop such tool which will be used for the optimization of passenger flows and inter modal transport from DBV to port of Dubrovnik and vice-versa.

3.2 Relevant solutions per pilot testing case and transport type – Dubrovnik region (Dubrovnik Airport and Dubrovnik Port)

3.2.1 Solution positively evaluated

According to the survey questionnaire results, CBTG work performed following group of measures have been identified for Dubrovnik region pilot action implementation:

- Adoption of smart and green ICT solutions and integration of data sharing,
- Electrification measures.

Main challenge identified: Integration of information provided to the passengers in port/airport and Carbon footprint improvement in port / airport area

Objective: The objective for Dubrovnik is to develop a robust ICT tool to optimize the flow of cruise passengers and enhance intermodal transport between the port and airport.

Additionally, the project aims to replace outdated fossil fuel-powered equipment with electric vehicles to promote green mobility.

Expected results:

- integrated data and information to cruise passengers from the arrival point to the departure point in port / airport area,
- increase of level of satisfaction for cruise and other passengers and making home port journey seamless,
- improved service provided to the cruise passengers especially for older passengers in port area,
- reduce of CO2 emission in port / airport area by implementation of electrification measures

These solutions have been identified for Dubrovnik region due to following reasons:

- DBV and DPA are connected only via state road D8 which is often congested in summer season. Spatial plans are in place to build new road that will ease traffic congestion. Even-though DBV and DPA cannot influence the matter, development of ICT tool should help cruise passengers' stakeholders in better planning transport form DBV to DPA and vice versa;
- Through previous projects DBV and has performed automation of cruise passengers handling process, however no electrification measures have been adopted. Therefore, within CROSSCONNECT such measures are identified as priority and shall be implemented for both partners.

3.2.2 Local state of the art and description of the Pilot Action

Homeport operation operations are performed each Thursday in four-hour period, from 9.30 till 13.30. Baggage handling process for cruise passengers has been automatised in previous to speed up baggage processing and increase level of satisfaction to cruise passengers. However, baggage is transported to aircraft with old diesel tractors. Additionally, currently no data integration is done with DBV and DPA to make passenger journey more seamless.

Within CROSSCONNECT project following pilot action is envisaged for implementation:

- Development of ICT tool for integrating timetabling and info sharing for passengers
- Adoption of green solutions and electric mobility to reduce energy consumption and improve passengers mobility

Development of ICT tool – adoption of green and sustainable solutions

DBV and DPA will jointly develop web application which will be used for the optimization of passenger flows and inter modal transport. Airport and port will import schedules in the tool, capacities of the terminal, parking area, etc. as well as public transportation data between port and airport (geo locations). By combining this data, cruise (and other) passengers boarding the bus in the port will know details about his flight (departure on time, check in counter number, gate number), exact pick-up and delivery location, as well as is there traffic jam on the way to airport. Besides integration of data for passengers this will improve their processing of passengers and their luggage from port to airport, reduce congestion in the port /airport area.

Electrification measures

DBV will adopt green solutions and move towards sustainable and environmentally friendly operations by replacing its old fossil fuel vehicles used for transfer from terminal area to dislocated area where cruise passengers are handled. Vehicles fleet will be replaced by purchasing electric bicycles, electric tractor (replacing old fossil fuel one) that is used for

processing of cruise passenger luggage from dislocated cruise passenger handling area to apron area.

DPA will purchase electric golf cars with trailer that will be used for passengers to be transported through the port area from the cruise passenger arrival point in port to ship embarking area. Due to the length of the port operative coast (2km) this is of great importance for elderly or disabled people, which will ultimately lead to greater passenger satisfaction and experience

3.2.3 Key pilot action outcomes, KPIs for the implementation of identified solutions in pilot testing actions

After the implementation of pilot action and through activities envisaged in Activity 2.2. Pilot implementation and testing of green and ICT innovative solutions to improve passengers' mobility between ports and the hinterland testing of implemented pilot action will be done. Results of the testing shall be incorporated in D2.2.1. Manual on tested solutions as well as lessons learned. In testing preparation phase KPI's will be developed to test effectiveness of implemented solutions. Additionally, results of the testing for each region will be summarised in D2.4.1 Joint evaluation at local and cross-border level with recommendations for transferability and guidelines for improving of home port operation also to other regions and countries of interest.

Methods for KPI's development should include:

- passenger satisfaction survey,
- successful tool implementation,
- installation of electric equipment and monitoring of its Carbon footprint effect

3.3 Relevant solutions per pilot testing case and transport type – Venice region (Venice Airport and Venice Port)

3.3.1 Solution positively evaluated

According to the questionnaire analysis for Venice region and work of CBTG group following group of measures have been identified for Venice region pilot action implementation:

- integration of data for cruise passengers through data sharing information and adoption of smart solutions in order to improve baggage handling process and to make it seamless.
- Installation of equipment to Improve baggage handling process and ensure future automatization: the purchase of equipment for the Upgrade of the Cruise Terminal of the Port of Chioggia for info sharing and installation of two full check-in counters.

Main challenge: The primary challenge in achieving the goals of the pilot project lies in the discrepancies between security and customs standards for luggage handling at the airport and port. These differences could hinder the efficient movement of passengers and their luggage between the two transport infrastructures, complicating the seamless flow of the Fly&Cruise journey.

Objective: The objective for the Venice region is to reach an agreement with local authorities to modify operational procedures, ensuring a seamless Fly&Cruise concept that enhances the passenger experience.

Expected results:

- ✓ Regional Development: The collaboration between the port and airport, particularly through the CROSSCONNECT project, will strengthen partnerships across various sectors, including logistics, customer service, infrastructure development, and environmental management.

- ✓ Boost to Tourism and the Travel Industry: A seamless Fly&Cruise experience will attract more tourists, fostering growth in both the airport and port sectors.
- ✓ Reduction in Carbon Emissions: Optimizing passenger logistics and significantly reducing vehicle use will contribute to achieving the airport's 2030 Net Zero target.
- ✓ Seamless Passenger and Luggage Logistics: By establishing a unified regulatory framework, we aim to eliminate discrepancies between the port and airport authorities, streamlining the movement of passengers and luggage and thus improving the overall efficiency of the Fly&Cruise journey.

These solutions have been identified for Venice region due to the following reasons:

- ➢ Existing discrepancies between security and customs standards at Venice Marco Polo Airport and the Ports of Venice and Chioggia,
- ➢ infrastructure upgrades as well as equipment installation are necessary to address existing inefficiencies.

3.3.2 Local state of the art and description of the Pilot Action

Airport and port infrastructures operate under distinct regulatory frameworks, making it difficult to establish a unified system for the movement of passengers and baggage. These differences hinder the development of a streamlined Fly&Cruise experience where passengers can move effortlessly between the airport and cruise terminal without delays or complications related to luggage handling and customs checks.

Within the CROSSCONNECT project, the following pilot actions are envisaged for implementation:

- ➢ **Integration of data for cruise passengers through data-sharing mechanisms and adoption of smart solutions to improve the baggage handling process and make it seamless.**

This action focuses on the development and implementation of advanced digital systems that allow real-time data exchange between airport and port authorities. By adopting smart solutions, the baggage handling process can be optimized, reducing delays and improving overall efficiency. This includes the use of automated tracking systems, digital check-in processes, and integrated software platforms that enable seamless coordination between stakeholders.

- **Purchase of equipment for upgrading the Cruise Terminal at the Port of Chioggia to enhance information-sharing capabilities.**

  To support the integration of operations between the airport and port, specialized equipment will be procured for the Cruise Terminal at Chioggia. This includes hardware and software solutions designed to facilitate real-time data sharing, enhance communication among stakeholders, and provide passengers with up-to-date travel information. The upgrades will also improve the terminal's ability to manage higher passenger volumes efficiently.

- **Installation of two full check-in counters to improve passenger flow.**

  The installation of additional check-in counters at the Cruise Terminal will significantly enhance the passenger handling capacity. These counters will be equipped with modern technologies to streamline the check-in process, including automated boarding pass issuance and integrated baggage tagging systems. This will minimize wait times and improve the overall travel experience for Fly&Cruise passengers.

These actions aim to achieve the primary objective of creating a smooth, seamless Fly&Cruise experience for travellers by reducing operational and regulatory bottlenecks at the local authority level and fostering agreements with key stakeholders.

3.3.3 Key pilot action outcomes, KPIs for the implementation of identified solutions in pilot testing actions

The integration of data-sharing mechanisms, installation of smart solutions for baggage handling, and infrastructural upgrades at the Port of Chioggia, including the addition of full check-in counters, will create an efficient and traveller-friendly experience. These measures address operational bottlenecks while ensuring alignment with local authorities and stakeholders.

The CROSSCONNECT strategic roadmap, developed through comprehensive stakeholder engagement, will serve as a blueprint for enhancing intermodal passenger transportation across the Adriatic region. This roadmap will not only address the immediate logistical challenges of Venice Marco Polo Airport and its ports but will also explore the potential for adapting these solutions to similar territories in the Adriatic region. Feedback gathered during site visits, interviews, and surveys will be integral to creating a dynamic and adaptable framework.

As indicated in previous section, pilot action implementation results will be summarized in D2.2.1. Manual on tested solutions as well as lessons learned. In testing preparation phase KPI's will be developed to test effectiveness of implemented solutions and will be evaluated in appraisal report for each testing site and summarised in D2.4.1 Joint evaluation at local and cross-border level.

Methods for KPI's development should include:

- passenger satisfaction survey / user feedback,
- stakeholder collaboration in developing procedures,
- successful equipment installation
- feasibility study finalised with goals and objectives identified for cruise passengers seamless travel,
- integration of data through advanced digital systems identification.

3.4 Relevant solutions per pilot testing case and transport type – Pula region (Pula Port and Pulapromet)

3.4.1 Solution positively evaluated

According to the questionnaire analysis results and CBTG group work, following measures are identified for Pula region:

- integration of data sharing and smart ticketing system installation,
- Introducing new electric bus line to foster Carbon footprint and enhance passenger experience connecting port and hinterlands with new routes.

Main challenge: Now existing routes to connect port to city centre in order to enable cruise passengers' easy access to city centre. Also, no ticketing system is in place in port area that would enable port passengers to purchase tickets for public transport bus line.

Objective: Introduction of new bus line from port to city centre which will operate with small electric bus, thus contributing to Carbon footprint. Enabling cruise passengers seamless journey by introducing smart ticketing system

Expected results:

- increase the comfort and availability of public transport services,
- reduce the harmful impact on the environment and CO2 emissions,
- increase safety in public transport (drivers and passengers),
- interconnection of different forms of transport,
- reduce vehicle operating costs,
- improved service provided to the cruise passengers.

These solutions have been identified for Pula region due to following reasons:

- in previous projects analysed one of the major recommendations was to improve connectivity and intermodality of port to urban areas. Since no such connection is currently in place in Pula, new bus line shall be introduced,
- City of Pula if often congested in summer season with great impact on air pollution and CO2 emissions, new electric measures implemented will reduce Carbon footprint,
- Data integration / smart ticketing system has been recognised as one of the most important aspects of passenger journey, improvements in this area will

3.4.2 Local state of the art and description of the Pilot Action

According to the current situation Pula port is not adequately connected to the city centre with direct bus lines. This represents significant barrier in cruise passenger journey and travel experience.

Pilot action envisaged:

- New bus line that will connect the end stops of various forms of transportation and the city centre.
- Integrated data sharing & smart ticketing
    - Integrated data sharing information for passengers with information's about bus, trains, airport and taxi
    - Smart ticketing system will be placed within Pulapromet totems to allow purchase of tickets for public bus transport in Pula port area.
- Electric measures to improve carbon footprint: purchase of electric equipment and solar containers (adoption of green solutions)

3.4.3 Key pilot action outcomes, KPIs for the implementation of identified solutions in pilot testing actions

The collaboration between Pulapromet (PP6) and Pula Port Authority (PP5) offers an opportunity to create a seamless transportation network that integrates both sea and land approaches in Pula region. The integration would ensure streamlined scheduling between maritime and bus services, optimize transportation routes, and strengthen Pula position as a strategic coastal hub promoting sustainable development and connectivity, making Pula a model for integrated urban and maritime transport in the Adriatic region.

KPI's will be developed during the testing phase and summarised in cross-border joint evaluation report. Methods for KPI's development should include:

- passenger satisfaction survey,
- successful new bus line introduction,
- smart ticketing / data sharing information established,
- installation of electric equipment and monitoring of its Carbon footprint effect

3.5 Relevant solutions per pilot testing case and transport type –Brindisi region (AdSPMAM and STP)

3.5.1 Solution positively evaluated

According to SWOT analysis, capitalisation assessment results of previous project and work of CBTG group following measures have been identified for Brindisi region:

- interconnectivity improvement of port and urban area measures,
- electric measures to reduce Carbon footprint,
- enabling data sharing information among different transport modes.

Main challenge: Lack of seamless and intermodal connectivity and infrastructure limitations.

Objective of the pilot action:

- Improve intermodal connectivity between the port, city, and airport.
- Enhance passenger convenience through digital and real-time information systems.
- Promote sustainable mobility (by reducing reliance on fossil fuels through the use of public transport system).
- Strengthening the integration of Brindisi's transport network with the broader Adriatic-Ionian Corridor and the TEN-T Network.

Expected results and benefits:

- Environmental Benefits: The deployment of innovative and smart infrastructure will significantly reduce CO2 emissions and noise pollution in urban and port areas thanks to the empowerment of the public transport service connections.
- Enhanced Passenger Experience: Real-time information systems and improved accessibility will provide passengers with a seamless and reliable travel experience.
- Operational Efficiency: The integration of digital platforms will enable better coordination among transport operators, reducing delays and optimizing service delivery.
- Economic Growth: Improved transport connectivity will enhance Brindisi's role as a regional hub, attracting more tourists and businesses to the area.

3.5.2 Local state of the art and description of the Pilot Action

Public transport in Brindisi is mainly provided by the urban bus network, operated by STP Brindisi S.p.A. Regular routes connect the port area with significant locations such as the central train station, Brindisi Airport, and key commercial zones. Despite the availability of these services, their frequency and efficiency could be improved, particularly in peak tourist seasons.

Several challenges hinder the efficiency of Brindisi's transport connections between the port and the city centre. A lack of seamless intermodal connectivity reduces the efficiency of passenger and freight movement, as existing transport options do not operate in a fully integrated manner. Seasonal congestion further exacerbates these inefficiencies, as high traffic volumes during summer and peak cruise periods lead to delays and increased environmental impact. Infrastructure limitations, such as outdated bus stops, inadequate pedestrian pathways, and the absence of real-time digital information systems, contribute to the challenges faced by residents and visitors. Moreover, the absence of a unified digital platform for real-time transport updates makes it difficult for passengers to plan their journeys effectively.

Therefore, the pilot action for Brindisi, implemented under the CROSSCONNECT project, aims to enhance the city's intermodal transport system by integrating innovative and sustainable solutions and will consist of following:

- **Smart Shelters and Information Poles** Four smart shelters and four information poles are being installed at strategic locations near the port and city center. These shelters are equipped with digital displays providing real-time information on bus schedules, connections, and port activities, ensuring passengers have up-to-date and accurate information.
- **Informative Panels/Variable Messaging Panels and Indoor LED Monitors/Led Panels**. Four Informative Panels/Variable Messaging Panels and n. three Indoor LED Monitors/Led Panels will be installed aimed at providing cross-connectional timing information on ferries, cruise ships (managed by PP7) and public transport bus services (operated by PP8) to passengers and tourists arriving and departing from the Port of Brindisi and other main transport hubs
- **Real-Time Data Integration and interoperability**. To better ensure data sharing on the panels (information/management system called GAIA of ADSMPMA), several services will be purchased as follows:

- Interoperable data acquisition services from STP Brindisi S.p.A. related to local public transport port / city / airport / railway station connections;
- Interoperable data visualisation services provided by STP Brindisi S.p.A. in relation to passenger vessels;
- Services for publishing information on variable message signs to be installed;

- **Signage** both horizontal and vertical, to guide departing and arriving passengers on foot from the embarkation/disembarkation area to the Passenger Maritime Station of Brindisi.

3.5.3 Key pilot action outcomes, KPIs for the implementation of identified solutions in pilot testing actions

The pilot actions outlined in this plan, including the implementation of smart infrastructure, the installation of informative panels and the integration of real-time data platforms, emphasize innovation and sustainability. These initiatives not only address the identified bottlenecks but also pave the way for a greener, more efficient, and user-friendly transport network.

The integration of smart mobility solutions, such as a unified ticketing and scheduling system, could enhance transport coordination and provide passengers with real-time updates. Infrastructure upgrades, such as the installation of smart bus stops, digital information panels, and improved pedestrian access, would further enhance the efficiency and convenience of transport connections.

KPI's will be developed during the testing phase and summarised in cross-border joint evaluation report. Methods for KPI's development should include:

- passenger satisfaction survey,
- successful smart shelters and information poles installation,
- data integration measures implemented – informative panels, / variable messaging,
- signage measures implemented in order to improve passenger satisfaction.

4. Conclusion:

Within the CROSSCONNECT project several activities have been undertaken to examine best practices in interconnectivity of ports to airports and hinterlands in order to identify measures that can be transferred to pilot action implementation within regions in the project (Venice, Pula, Brindisi, Dubrovnik):

- Summary of all measures identified within the previous INTERREG projects (INTER-PASS, INTERCONNECT, ADRIGREEN) and evaluation of identified measures by CBTG group experts and internal experts of each partner,
- CBTG group has been establish in order to identify additional innovative measures that can be transferred to CROSSCONNECT and to develop capitalisation scenario for each region.

According to the activities performed following measures have been highlighted for implementation not only within CROSSCONNECT project, but can be used in other projects and regions. Implementation of such measures usually due not require involvement of many stakeholders and can be implemented by transport providers themselves.

- shift to electromobility for public transport services through replacing fossil fuel fleet with electric ones,
- providing electric charging infrastructure, installation of solar panels, purchase of electric vehicles and replacing fossil fuel fleet in ports and airports area,
- improvement in quality bus service (coverage, frequency) according to user needs,
- establishing new bus service protocols connecting the port with hinterlands.
- improvement in information provision to traveller at all transportation hubs, establishing harmonised timetables between different public modes,
- development of integrated Communication information system / tool for passenger, baggage and other relevant data sharing among different transport modes

However, some identified measures require involvement of different stakeholders and are of strategic importance to the region. Most important identified strategic planning measures that require multidimensional approach can be summarised as follows:

- need of development of common guidelines for capacity building among service providers, public institutions, relevant bodies and other stakeholders on legal, technological, financial and operational aspect for integration of baggage handling procedures and systems for home port operation; for creating an integrated information system between ports and airports; for serving the whole transport chain for public transport provision and for enhancing connectivity between ports and airports,
- development of Institutional agreements between ports and airports and the involved parties to tackle security and custom issues and transfer procedures between ports and airports as well as integrated information data exchange,
- defining specific funding schemes subsidizing technological infrastructure needed for each intervention field,
- development of common and harmonised operational and technological infrastructure for integrated information systems in order to provide unique travel experience to travellers and enhance digital transformation process among institutions and relevant parties.

Implementation of strategic planning measures might be useful to stakeholders, policy makers and decision bodies in order to improve intermodality between port and airports and urban public areas and to define common framework and policies guidelines not only for homeport operation but also for other types of intermodality.