BLUEAIR PROJECT

BLUE GROWTH SMART ADRIATIC IONIAN S3

Deliverable T1.1.2

BENCHMARK REPORT

Project number: 1229_BLUEAIR

Work package: WP T1

Deliverable title: Benchmark report

Expected date: M9

Partner responsible for the deliverable: Technology Park Ljubljana

Document Author(s): TPLJ and UNIBG Team

Dissemination level: PU - Public

Status: Final

Version: v1.0

Date: 20 December 2021

BLUEAIR is implemented through the financial support of the ADRION programme

BLUE GROWTH INNOVATION POLICIES IN SEA BASIN GEOGRAPHIC AREAS

BEST PRACTICE IDENTIFICATION AND BENCHMARKING REPORT

Client:	Tehnološki Park Ljubljana d.o.o.
Project:	BLUEAIR, Blue Growth Smart Adriatic Ionian S3
Project deliverable:	D T1.1.2 Benchmark Report
Contact person of the client:	Peter Medica
No. purchase orders:	Contract nr. EU/1/2021
Service provider:	Poslovno svetovanje, Eva Kos s.p.
Place and date:	20.12.2021
Authors:	Eva Kos, Anuška Štoka, external experts Marijana Petrović, Nataša Bojković, Vladislav Maraš, Slobodan Mitrović, University of Belgrade Peter Medica, Technology Park Ljubljana, activity coordinator Sandra Bradeško, Mateja Prinčič, Technology Park Ljubljana

BLUEAIR is implemented through the financial support of the ADRION programme

Contents

BLUEAIR is implemented through the financial support of the ADRION programme

BLUEAIR is implemented through the financial support of the ADRION programme

Table of Figures

BLUEAIR is implemented through the financial support of the ADRION programme

BLUEAIR is implemented through the financial support of the ADRION programme

BLUEAIR is implemented through the financial support of the ADRION programme

List of Tables

BLUEAIR is implemented through the financial support of the ADRION programme

List of most used abbreviations

ADRION – Interreg ADRION Programme

AI-NURREC - Adriatic Ionian Network of Universities, Regions, Chambers of Commerce and Cities

BER - Blue Economy Report

BREXIT - Brexit is an abbreviation of two English words: 'Britain' and 'exit' and refers to the withdrawal process of the United Kingdom (UK) from the European Union (EU)

BSR – Baltic Sea Region

CEF - Connecting Europe Facility, and the Recovery and Resilience Facility

COSME - Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (SMEs)

CPMR - Conference of Peripheral Maritime Regions

DG MARE - Directorate-General for Maritime Affairs and Fisheries

DG REGIO - Directorate-General for Regional and Urban Policy is a Directorate-General

EAFRD - European agricultural fund for rural development

EASME - Executive Agency for Small and Medium-sized Enterprises

EEA – European Economic Area

EIB - European Investment Bank

EMFF - European Maritime and Fisheries Fund

ENI CBC Programme - European Neighbourhood Instrument for Cross-Border Cooperation

Erasmus+ Programme - EU's programme to support education, training, youth and sport in Europe

ERDF - European Regional Development Fund

ESF – European Social Fund

ESI - European Structural and Investments Funds

ESIF - European Structural and Investment Funds

ESPON Programme - European Observation Network for Territorial Development and Cohesion

EU – European Union

EUSAIR - EU Strategy for the Adriatic and Ionian Region

EUSBSR - EU Strategy for the Baltic Sea Region

GDP - Gross Domestic Product

GVA - Gross Value Added

H2020 - Horizon 2020 is the 2014-2020 financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness

Horizon Europe - Research and innovation funding programme until 2027

BLUEAIR is implemented through the financial support of the ADRION programme

I3 instrument - Interregional Innovation Investments (I3) instrument is a funding instrument under the European Regional Development Fund (ERDF)

INTERREG - is a series of programmes to stimulate cooperation between regions in and out of the European Union (EU), funded by the European Regional Development Fund

InvestEU - intends to deliver a boost to sustainable investment, innovation, and job creation in Europe by triggering more than €372 billion in additional investment over the years 2021-2027.

IPA - The Instrument for Pre-Accession Assistance, is a funding mechanism of the European Union.

IPI - Innovation Policy Index

JRC – Joint Research Centre

LIFE+ Programme - is the European Union's funding instrument for the environment and climate action.

MAs – Managing Authorities

NSC – North Sea Commission

NUTS – Eurostat nomenclature of territorial units for statistics

OECD - Organisation for Economic Co-operation and Development

PA INNO – Policy Area Innovation in EUSBSR

RII - Regional Summary Innovation Index

RIS – Regional Innovation Scoreboard

S3 - Smart Specialisation Strategy

SRIA - The Strategic Research and Innovation Agenda of the Black Sea

UfM - Union for the Mediterranean

UK - United Kingdom

UNEP - United Nations Environment Programme

UNWTO - UN World Tourism Organization

WestMED - Initiative for the sustainable development of the Blue Economy in the Western Mediterranean

BLUEAIR is implemented through the financial support of the ADRION programme

1. Introduction

This report is part of the Blueair project (BLUE GROWTH SMART ADRIATIC IONIAN S3), financed under the strategic, 3rd Call for proposals of Interreg ADRION Programme. Through the development of a macro-regional S3 on blue growth and the setting up of a dedicated Innovation Community, Blueair aims at enhancing institutional capacities of ADRION territories in the definition of a common S3 policy on blue growth and guaranteeing the alignment of local initiatives with the EUSAIR strategy.

Due to the project's strategic nature, key project activities and outputs were already included in the Call's Terms of Reference, Blue Growth Best Practice Identification and Benchmarking Report on Blue Growth Innovation Policies being part of them. During the preparation of the methodological framework for the two tasks in spring 2021, it became clear that both tasks are intertwined, complementary, and shall be carried out in parallel.

Blue growth innovation policy of the Adriatic-Ionian macro-region was benchmarked against other European sea basins using a self-assessment approach. In cooperation with the University of Belgrade, a Blueair Benchmarking Tool has been developed offering opportunities for continuous self-assessment and progress monitoring. At the same time desk research was carried out to examine innovation and blue economy performance of European sea basins through existing indicators. Through both these processes, gaps or potentials for improvement in Adriatic-Ionian blue growth innovation policy and performance were identified. The final step was to reveal best practices from these regions to provide inspiration on trans-regional blue growth S3 cooperation. As a result, only one report on blue growth innovation policies in sea basin geographic areas covering both best practice identification and benchmarking was finally prepared. Validation of results was carried out during a Validation workshop with participants to the self-assessment survey representing the considered sea basins. The present Report was amended accordingly.

A small notion needs to be added to the use of the term blue growth. After the project was submitted to the ADRION Programme in September 2019, the European Commission has published its communication on New Approach Towards Sustainable Blue Economy[1] in May 2021, replacing its Blue Growth communication from 2012. Considering the project title and all its main outputs, in this report we are still mostly using the blue growth term whilst stressing its sustainability aspect.

This report starts with providing descriptions of the considered sea basins in terms of their blue growth innovation policies and performance (Chapter 3). In Chapter 4 we summarise results from the benchmarking blue growth innovation policies through self-assessment. They are accompanied by comparisons between sea basins using the same blue growth Innovation indicators as in Chapter 3. Gap analysis summarising the main findings regarding the Adriatic-Ionian sea basin from Chapter 4 are completed with best practices on blue growth innovation cooperation from other sea basins, providing inspiration for policy development and practical actions on the territory. The comments stemming from the validation workshop that took place in November 2021 were included in the report as a whole, in the related chapters and summed up at the very end of the report.

[1] European Commission (2021), COM/2021/240 final: Communication on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future

BLUEAIR is implemented through the financial support of the ADRION programme

2. Executive Summary

In the Adriatic-Ionian region blue growth innovation policies are characterized by a fragmented situation, with pioneering and lagging regions searching for a joint knowledge-based approach to their innovation strategies to enhance the blue growth sectors in their territories. Moreover, regions and countries overlooking the same seas and rivers need harmonized blue growth policies to plan future innovation initiatives.

The Blueair project (BLUE GROWTH SMART ADRIATIC IONIAN S3), aims at enhancing institutional capacities of Adriatic-Ionian regions in the definition of a common S3 policy on blue growth and guaranteeing the alignment of local initiatives with the EU Strategy for Adriatic-Ionian Region (EUSAIR). Among the first tasks tackled by the project was to explore how S3 interregional cooperation is addressed in other European sea basins, to benchmark blue growth innovation policies and performance of EUSAIR compared to other European sea basins, to synthesise findings for EUSAIR in gap analysis, establishing challenges and potentials that could be further explored and to identify best practices from other sea basins that could inspire Blueair partnership in the facilitation of interregional cooperation in EUSAIR blue growth innovation policies. This report summarises results of these tasks and serves as a learning exercise not just for Blueair partnership and EUSAIR stakeholders, but provides insights that could be useful also to stakeholders from other sea basins. The subject was examined in as much detail as possible, given the limited resources at hand.

We compared transnational blue growth innovation policy governance, framework, instruments, process and implementation using a self-assessment approach. Results of this exercise are accompanied by existing EU indicators, reports and tools illustrating blue growth innovation policy performance in the sea basins. Validation of results was carried out during a Validation workshop with participants to the self-assessment survey representing the considered sea basins. The present Report was amended accordingly.

In the continuation we are summarising key points regarding the gaps identified, between Adriatic-Ionian and other European sea basins. We compared sea basins using the self-assessment to examine blue growth innovation policies and some indicators to examine blue growth innovation performance. Findings from these kinds of comparisons have to be approached with caution due to intrinsic characteristics of the basins. The aim was to identify differences as regards blue growth Innovation policy and performance that could serve as learning examples for Adriatic-Ionian Basin. The gaps are not to be understood only in terms of room for improvement, but also as potentials on which the area could build on and benefit from.

We would highlight the following findings regarding EUSAIR blue growth innovation performance:

- Even though Adriatic-Ionian basin is on a similar level as the Atlantic Ocean and the Western Mediterranean as regards the Regional Innovation Index average, the **Adriatic-Ionian basin is by far the fastest growing among all 6 basins**. From 2014 the Regional Innovation Index average increased for almost 10% points (non-EU countries excluded) or 8% points (non-EU countries included).
- Over time, **innovation performance differences** (as measured by Regional Innovation Index) **between regions in the Adriatic-Ionian basin have decreased for EU regions, while differences increased between EU and non-EU regions in the Adriatic Ionian basin**.
- **The Adriatic-Ionian basin is the basin with the second-lowest proportion of regions/countries with blue growth in their S3 priorities.** All non-EU countries are considered by the Eye@RIS3, however none of them opted for blue growth policy objectives. Out of Italian

BLUEAIR is implemented through the financial support of the ADRION programme

regions only two and none of Croatian regions have blue growth objectives in their S3 priorities.

- **The Adriatic-Ionian regions/countries stand out in terms of including Aquaculture and Fisheries most often in their S3 priorities**, which are not among the most innovation driven sectors. Certainly, there is potential for improvement in terms of widening the range of blue growth sectors included in S3, that could be addressed by the Blueair project.
- **Except for northern Italian regions, the Adriatic-Ionian regions do not tend to cooperate in S3 Thematic Partnerships.** For sure this is a potential that could be further researched and exploited by the basin.
- All sea basins experienced effects of the 2008 crisis, although some absorbed them better than others. The **least crisis resilient were the Black Sea and the Adriatic Ionian basins, which are the only ones that in 2018 remained under 2009 levels both in terms of Gross Value Added (GVA) and employment. In terms of the current crisis related to the pandemics this could be a worrying reference.**
- There are 33 clusters cooperating on S3 blue growth priority area in Europe and 67 in blue growth industries, however there are not many located in the Adriatic-Ionian basin.

There were also interesting findings concerning EUSAIR blue economy sectors:

- Seasonality of Coastal tourism is most expressed in Adriatic-Ionian and Black Sea basins. It exposes the sector to strong economic dependence upon a limited period of time to gain economic profits and severe losses in case of lack of visits over such time period. **Knowing that in 2018 77% of all blue economy jobs in the Adriatic-Ionian Basin were linked to the Coastal tourism sector, creating 57% of the total blue economy GVA, highlights the intensity of seasonality effects on local communities in the basin.**
- If climate friendly, sustainable travel experiences have been on the rise among travellers' expectations in recent years, the COVID crisis has further **boosted the demand for "slow tourism" and outdoor, nature-based destinations**.
- High overfishing is characteristic for Mediterranean and for Adriatic and Aegean Seas in particular. As experiences from other sea basins demonstrate, **the economic performance of the primary fishery production increases as fish stocks recover**[2] in that regard and with growing market prices, the Adriatic-Ionian basin has potential.
- **Aquaculture production remains highly concentrated in terms of both EU Member States and species farmed, hence the high potential for diversification**.
- **Innovative solutions** are needed to support transition to sustainable and low-carbon fishing, protection of marine biodiversity and ecosystems, the development of a sustainable and competitive aquaculture contributing to food security, the supply of quality and healthy seafood to European consumers.
- The Maritime transport sector is on the rise in all basins; however **the Adriatic-Ionian basin is among the fastest growing**.
- In terms of innovation potential, **greening the Maritime transport sector will be supported by both policies and funding in the following years**. Decarbonising Maritime transport (and fishing operations) will abate not only greenhouse gas emissions, but also air and water pollution and underwater noise, while opening up new innovation and economic opportunities.
- Even though the Shipbuilding and repair sector experienced difficulties in the Adriatic-Ionian Basin in the past decade, **the fact that the Maritime transport sector is growing fast presents**

[2] European Commission (2021). The EU Blue Economy Report 2021. Publications Office of the European Union. Luxembourg

BLUEAIR is implemented through the financial support of the ADRION programme

an opportunity also for the Shipbuilding and repair. This potential could be seized by keeping up with technology developments and innovations in the sector.

- The **improvement of cooperation between green shipbuilding stakeholders** is considered essential, as well as the **adoption of green shipbuilding technologies** (e.g. LNG fuel for propulsion, Advanced Propeller System, Sulphur Scrubber System, Fuel and Solar Cell Propulsion, etc.) in current macro-regional shipping industry.
- The six **most disruptive technologies** to implement in the industry 4.0 revolution in the shipyard sector in the Adriatic-Ionian are: **the Additive manufacturing, the Advanced Manufacturing Solutions, Big Data and Analytics, Augmented Reality, Cloud technologies and Cyber Security.**
- Being the fastest growing basin in terms of GVA in 2018, similarly to Maritime transport, also **the Port activities sector has prospect in the Adriatic Ionian basin**.
- A study on the Adriatic-Ionian ports[3] (Bari, Brčko, Durres, Igoumenitsa, Ravenna and Rijeka) has shown that **in the ports there is a need to decrease energy consumption, improve organization and logistics and introduce ICT**.
- The Commission[4] considers that, beyond transhipment and logistics, **the future of ports lies in developing their key role as energy hubs** (for integrated electricity, hydrogen12 and other renewable and low-carbon fuels systems), **for the circular economy** (for collecting, transhipping and disposing of waste from ships and other port industries, and for decommissioning ships), **for communication** (for submarine cables), **and for industry** (as industrial clusters).

The study has also shown the necessity for interregional S3 cooperation in EUSAIR. Interregional collaboration is one of the 7 'enabling conditions' for Smart Specialisation Strategy (S3) and thus will be central in the next programming period 2021-2027 for EU Cohesion Policy. Indeed, S3 implies building on cross-regional cooperation to strengthen regional competitiveness while minimising duplication and fragmentation of publicly funded activities across the European Union (EU). As a result, regional policymakers must aim to find complementarities and synergies with other regions to integrate their regions in the (European) Value Chain while addressing missing links in their innovation value chain and maximising their regions' innovative potential. EUSAIR should use these EU driven trends to encourage interest of regional Managing Authorities for transnational cooperation and alignment.

Building international links and strengthening interregional collaboration between regional eco-systems can be particularly beneficial for lagging regions. Collaboration with more developed regions can improve and facilitate knowledge transfer, technological upgrading and entrepreneurship. However, access to interregional/international networks can be a significant challenge for less-developed regions, and they tend to be under-represented in interregional collaboration activities. Whilst they have relatively strong levels of participation in collaborative programmes such as Interreg, their level of participation in competitive programmes such as Horizon 2020 tends to be lower than that of more advanced territories.[5]

[3] Nikitakos, N., Stefanakou A. (2021). Blue Growth and Related Smart Growth In The Adriatic-Ionian Macroregion. Policy Paper. Thematic Cluster (TC) 1 Blue Growth and related Smart Growth

[4] European Commission (2021). COM(2021) 240 final. Communication on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future

[5] Woolford, J., Amanatidou, E., Gerussi, E. and Boden, J.M. (2021). Interregional Cooperation and Smart Specialisation: a Lagging Regions Perspective. EUR 30691 EN. Publications Office of the European Union. Luxembourg.

BLUEAIR is implemented through the financial support of the ADRION programme

In order to better seize the opportunities and contribute to growth and jobs, the projects and initiatives should include the private sector, SMEs and start-ups. Apart from building transnational Interreg projects, eligible partnerships should strive to focus on big Horizon Europe projects, both on calls like Horizon Ocean Mission and other Horizon Europe opportunities.

As a starting point for these public-private R&D partnerships in the EUSAIR, there should be more focus on networking in and with the private sector, via Chambers of commerce or within specific thematic platforms that could allow to have partners also from the Adriatic Ionian Sea basin, working together on new technologies or applications with partners from the Western Mediterranean or Northern Europe.

3. Blue Growth Innovation Policies in European Sea Basins

3.1 Definitions

Sea basin

The optimal development of all sea-related activities in a sustainable manner calls for a coherent policy framework based on the proper involvement of all stakeholders. Seas are shared among different countries so interregional regional cooperation, including non-EU countries, is important. Moreover, each sea basin is different. There are specific conditions, opportunities and challenges for each sea basin, which require a targeted approach.

Through DG MARE the European Commission has developed **3 sea basin strategies**: for the Atlantic, the Western Mediterranean and the Black Sea and through DG REGIO it is closely involved in the development of **two macro-regional strategies with a strong maritime character**, in the Baltic Sea and the Adriatic and Ionian seas. The territories covered are shown in the below map.

The **macro-regional strategy** is defined as an integrated framework endorsed by the European Council, which may be supported by the European Structural and Investment Funds among others, to address common challenges faced by a defined geographical area relating to Member States and countries located in the same geographical area which thereby benefit from strengthened cooperation contributing to the achievement of economic, social and territorial cohesion[6].

The **sea basin strategy** is a structured framework of cooperation in relation to a given geographical area, developed by Union institutions, Member States, their regions and where appropriate third countries sharing a sea basin; a sea basin strategy takes into account the geographic, climatic, economic and political specificities of the sea basin[7].

While the macro-regional strategies address common challenges of a defined geographical area to achieve economic, social and territorial cohesion, the sea basin strategies are similar, however, they seek to provide a more coherent approach to maritime issues, with increased coordination between different policy areas. Also, in terms of geographic scope, macro-regional strategies include regions and countries that are not neighbouring a sea basin, while all regions and countries in sea basin strategies embrace seas. As it will be shown in the continuation, the process of strategy setting-up, regardless of whether it is a macro-regional strategy or a sea basin strategy, is at the same time driven by the regions and countries in both bottom-up approach and by the Commission in a top-down manner.

[6] REGULATION (EU) No 1303/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006

[7] ibid

BLUEAIR is implemented through the financial support of the ADRION programme

This report considers the following sea basins:

EU macro-regional strategies	EU Sea basin strategy	No EC steered strategy
• Adriatic and Ionian Seas: EU Strategy for the Adriatic and Ionian Region – EUSAIR • Baltic Sea: EU Strategy for the Baltic Sea Region – EUSBSR	• Atlantic Ocean: The Atlantic Strategy • Western Mediterranean: Initiative for the sustainable development of the Blue Economy in the Western Mediterranean – WestMED • Black Sea: Common Maritime Agenda for the Black Sea	• North Sea Basin: Conference of Peripheral Maritime Regions (CPMR) North Sea Region 2030 Strategy

Table 1: Sea basins considered by this report

The North Sea basin does not have a strategy but is characterised by extensive transnational cooperation, therefore it was included as well. The Arctic Ocean basin was left out since it is very specific and most distant to EUSAIR both geographically and politically.

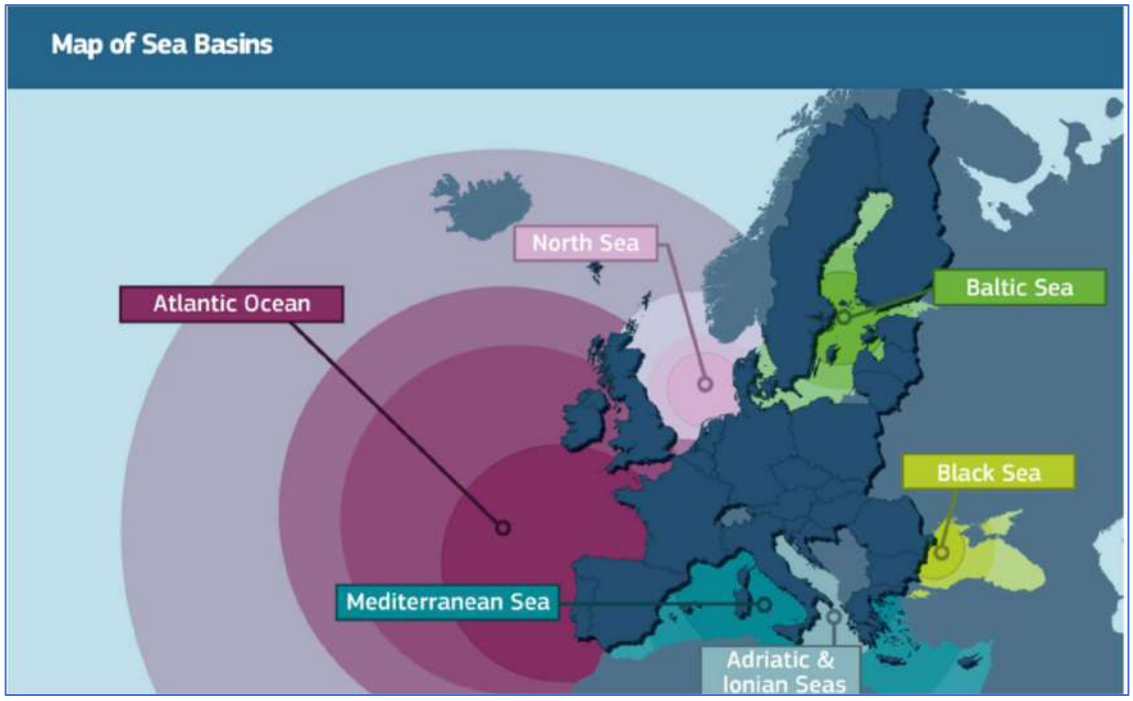


Figure 1:Map of Sea Basins, Blue Growth, EC 2014

BLUEAIR is implemented through the financial support of the ADRION programme

Below is a figure of countries comprising each of the European sea basins:

Northern Waters			Mediterranean				Black Sea
Atlantic	North Sea	Baltic Sea	Mediterranean	West MED	East MED	Adriatic-Ionian	
Strategy	*Sea basin*	*Strategy*	*Sea basin*	*Strategy*	*Sea (sub)-basin*	*Strategy*	*Sea basin*
ES	BE	DE	CY	ES	CY	EL	BG
FR	DE	DK	EL	FR	EL	HR	RO
IE	NL	EE	ES	IT		IT	
PT	DK	FI	FR	MT		SI	
	SE	LT	HR	PT			
	FR	LV	IT				
		PL	MT				
		SE	SI				

Figure 2: The Member States participating in the different sea basins, Blue Economy Report 2021

Blue Growth Innovation Policy

We can distinguish two aspects of the blue growth innovation policy: blue growth and innovation policy. On the European level there are numerous policies, reports and tools available for both topics, but very seldom are they combined.

Blue Growth

In 2012, the European Commission formulated its Blue Growth Strategy[8] to harness the potential of Europe's oceans, seas and coasts for growth and jobs. There blue growth is understood as "**growth in the blue economy**". To fully embed the blue economy into the Green Deal and the recovery strategy, the Commission has adopted a New Approach for a **Sustainable Blue Economy** in the EU[9] in May 2021, replacing the 2012 Blue Growth Communication.

According to the Blue Economy Report[10], the **EU's blue economy** encompasses all sectoral and cross-sectoral economic activities based on or related to the oceans, seas and coasts. Established blue economy sectors are: Marine living resources (including fisheries, aquaculture, seafood processing and distribution), Marine non-living resources, Marine renewable energy, Ports activities, Shipbuilding and repair, Maritime transport and Coastal tourism. The Blue Economy Report identifies also emerging sectors, that are either new (i.e. innovations), which may fall outside of national statistics and activities/sectors with limited data (ocean energy; blue bioeconomy and biotechnology; desalination;

[8] European Commission (2012). COM (2012) 494 final. Communication on Blue Growth opportunities for marine and maritime sustainable growth

[9] European Commission (2021). COM/2021/240 final. Communication on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future

[10] European Commission (2021). The EU Blue Economy Report 2021. Publications Office of the European Union. Luxembourg

BLUEAIR is implemented through the financial support of the ADRION programme

marine minerals; maritime defence, security and surveillance; research and education; infrastructure and maritime works).

Innovation Policy

In this study, we use the term **innovation policy** as policies that have an important impact on innovation, as suggested by Edquist among others[11]. We focus specifically on transnational, in our case sea-basin oriented, innovation policies that exist within the broader framework of EU innovation policy and reflect also national and regional innovation policies. The **EU innovation policy** encompasses both key policies targeting the actors in the innovation process (research and development, industrial, education and regional policy) and key framework conditions shaping the interactions and organising the flows of knowledge, skills and funds between those involved in the innovation process[12].

3.2 The Atlantic Ocean

The European (North East) Atlantic Ocean is not a typical sea basin as it covers a vast and diverse area, rather than an enclosed sea. It is split into the Celtic Seas, Bay of Biscay and Iberian Coast. Given the size of this region, there are great variations in physical and biological conditions. In terms of sea use, fishing is a major sector within the Atlantic, whilst coastal tourism and shipping are of great importance to all Member States bordering this area. In particular, the Gibraltar Strait and the English Channel act as major shipping gateways connecting Europe with the wider world. Whilst there is limited oil and gas production in the European Atlantic, this region has a high potential for the development of offshore renewable energy given its favourable physical and climatic conditions for wind, tidal and wave energy devices.

Historically the cooperation in the European part of the Atlantic Ocean involved 5 EU Member States: France, Ireland, Portugal, Spain and UK. Notably, the Atlantic cooperation was strongly affected by the withdrawal of the United Kingdom from the European Union in January 2020. The UK was part of all EU driven strategic cooperation agreements adopted prior to the Brexit and was excluded afterwards. The nature and extent of the cooperation with the UK in the Atlantic initiatives are currently unclear, which is also reflected in this report.

3.2.1 The Maritime Strategy for the Atlantic Ocean and Action Plan

The transnational cooperation in the Atlantic Ocean has a long history and had first materialised as a response to an environmental disaster caused by a supertanker Torrey Canyon on the shores of the United Kingdom in 1967. In 1972 and 1974 two conventions for the prevention of marine pollution

[11] Edquist, C. (2004). "Systems of Innovation: Perspectives and Challenges" in Fagerberg, J., Mowery, D., and Nelson, R (eds.). Oxford Handbook of Innovation. Oxford: Oxford University Press. p. 181-208
Edquist, C. (2011). Design of innovation policy through diagnostic analysis: Identification of systemic problems (or failures). Industrial and Corporate Change. 20: 1–29

[12] Reillon V. (2016). EU policies and instruments supporting innovation. In-depth Analysis. European Parliamentary Research Service

BLUEAIR is implemented through the financial support of the ADRION programme

were adopted, The Oslo and The Paris Convention. Both conventions were combined in 1992 into the OSPAR Convention – **Convention for the Protection of Marine Environment in North-East Atlantic**[13].

In 2008, the mayors of Atlantic Cities called through the Charter of San Sebastian for more ambitious, more open and more effective cooperation. The 2009 General Assemblies, both of the Atlantic Arc Commission as of the Conference of Atlantic Arc Cities, also signalled a clear will to go towards a system of territorial cooperation where the structural funds and sectoral programmes were more closely coordinated in a common effort. The presidencies of the two organizations met in September 2009 with the Spanish Presidency of the European Council, proposing a model similar to the Baltic territorial cooperation. Exchanges within the European Council in 2010 led to a decision that creates the Atlantic strategy as a sea-basin strategy rather than a macro-regional strategy in the image of the Baltic Sea Region Strategy. Although a subtle nuance, this entailed DG MARE being designated as the primary chef de file rather than DG REGIO and keeping more influence in the hands of national rather than regional capitals.

The broader policy framework of the Atlantic Sea Basin, the **Maritime Strategy for the Atlantic Ocean**[14] was adopted in 2011 by the European Commission. The strategy grouped the identified challenges and opportunities facing the Atlantic Region. Knowing the history sheds light on why four of five identified cooperation topics focus mainly on environmental issues: Implementing the ecosystem approach, Reducing Europe's carbon footprint, Sustainable exploitation of the Atlantic seafloor's natural resources, Responding to threats and emergencies and Socially inclusive growth.

The Strategy also envisaged a wide stakeholder engagement process of the Atlantic Forum to develop an action plan further detailing areas of cooperation. The timing of the Action Plan development and its revision effectively coincided with the EU financial periods planning to create enabling conditions for the efficient use of resources for the Action Plan implementation.

The **EU 2013-2020 Atlantic Action Plan**[15] was adopted in 2013. It set out practical steps to be taken in now 4 Member States with Atlantic coasts (Ireland, France, Portugal, Spain) and their outermost regions to boost the Atlantic Ocean Area's sustainable blue economy by 2020. Considering the wide range of institutions contributing to the plan's development, the environmental focus of the Strategy was broadened. The aim was to encourage investments, research and skill advancement in the following priorities: Promote entrepreneurship and innovation, Protect, secure and enhance the marine and coastal environment, Improve accessibility and connectivity and Create a socially inclusive and sustainable model of regional development.

The 2013 – 2020 Atlantic Action Plan underwent a mid-term review[16] in 2017 to assess its performance and draw lessons from its implementation to pave the way for the future. The review showed that even though the priorities were well aligned with the actual challenges of the area, with the EU policies and funding opportunities, the plan failed to influence the national and regional policy agenda. The objectives were deemed too broad and the monitoring and evaluation framework was missing. Based on the findings of the mid-term review, recognising the potential of the Action Plan to create even

[13] https://www.ospar.org/convention
[14] European Commission (2011). COM(2011) 782 final. Communication on Developing a Maritime Strategy for the Atlantic Ocean Area
[15] European Commission (2013). COM(2013) 279 final. Communication on Action Plan for a Maritime Strategy in the Atlantic area Delivering smart, sustainable and inclusive growth
[16] European Commission (2018). SWD(2018) 49 final. Commission staff working document on the mid-term review of the Atlantic action plan

BLUEAIR is implemented through the financial support of the ADRION programme

more impact for the coastal economy, the revised **Atlantic Action Plan 2.0**[17] was communicated by the European Commission in 2020. Its main objective is to unlock the potential of the blue economy in the Atlantic area while preserving marine ecosystems and contributing to climate change adaptation and mitigation. Its aims are in line with the global commitments for sustainable development and are fully integrated into the European Commission's policy priorities for 2019 – 2024, notably a European Green Deal, an Economy that works for people and a stronger Europe in the world.

The Atlantic Action Plan 2.0 includes four pillars which are integrally interconnected and transregional by nature and address key challenges and aim to foster sustainable blue growth and contribute to greater territorial cooperation and cohesion in the EU Atlantic area:

- Pillar I: Ports as gateways and hubs for the blue economy
- Pillar II: Blue skills of the future and ocean literacy
- Pillar III: Marine renewable energy
- Pillar IV: Healthy ocean and resilient coasts.

At the national level, **maritime strategies** have increasingly been put in place to stimulate sustainable blue growth and improve coordination. Ireland and Portugal developed tailored maritime strategies in 2012 and 2013 respectively, while France adopted a sea and coast strategy in 2017.

3.2.2 Transnational Governance

Atlantic Strategy governance structure

The **Atlantic Strategy Committee** (ASC) is the governing body of the Atlantic Strategy aiming to ensure the political and operational coordination of the Atlantic Action Plan and provide the framework for its implementation. The ASC comprises representatives from the four EU Member States, representatives from the European Commission, the Committee of the Regions, the Economic and Social Committee as well as representatives from coastal regions, cities and other relevant economic and social stakeholders. The ASC is chaired on a rotating basis by the participating countries. Each year the ASC Chair undertakes to organise the main Atlantic event – the Atlantic Stakeholder Platform Conference – on one of its coastal regions seeking to bring together all stakeholders to discuss the AAP implementation and bring forward new ideas, innovations to promote blue economy in the Atlantic.

Political coordination is in the hands of the participating countries' designated ministers responsible for maritime affairs. The Member States define the broad political guidelines (including the geography of the Atlantic strategy), take stock of implementation and emphasise ownership of the initiative. The Member States may decide, in consultation with the European Commission, to expand the membership of the Atlantic strategy to any interested State.

[17] European Commission (2020). COM(2020) 329 final. Communication on A new approach to the Atlantic maritime strategy – Atlantic action plan 2.0 An updated action plan for a sustainable, resilient and competitive blue economy in the European Union Atlantic area

BLUEAIR is implemented through the financial support of the ADRION programme

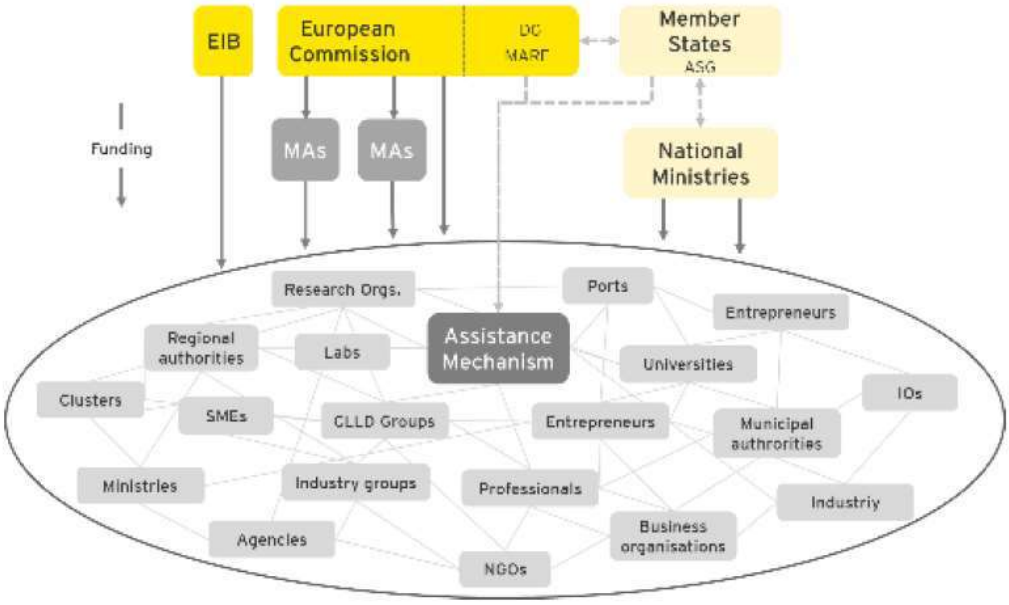


Figure 3:Schematic presentation of the governance and implementation system, EC SWD(2018) 49 final

The Directorate-General for Maritime Affairs and Fisheries (DG MARE) is the chef de file within the Commission for the Action Plan. It is responsible for supporting the Member States and promoting its implementation across the Commission. It also finances the Assistance Mechanism (see below).

The Atlantic Stakeholder Platform (ASP) aims to facilitate networking between the different stakeholders to make valuable contacts and explore areas for cooperation, share information and good practices, promote and identify interesting project ideas as well as funding opportunities and partnerships for their projects. The platform also offers a transnational publicity opportunity to deliver Atlantic Action Plan key messaging and further gain awareness of its' achievements. Conferences are organised on an annual basis.

The Atlantic Assistance Mechanism (AAM) was initiated by the European Commission in August 2014 to

- first provide stakeholders with updated information on the Atlantic Action Plan, its research and investment priorities, news, interesting events and networking opportunities and
- second serve as a "match-making platform" to find potential project partners and advise stakeholders on the use of EU and national or regional financial instruments for projects implementing the Action Plan.

The AAM consists of a network of National Hubs operating in France, Ireland, Portugal and Spain coordinated by a central office based in Brussels.

Some other transnational networks

CPMR Atlantic Arch Commission is an initiative of Atlantic regions from five states (Portugal, Spain, France, Ireland and the United Kingdom). Their policy work covers three main topics: Cooperation in the Atlantic, including efforts to follow up the Atlantic Strategy and its Action Plan and to form an Atlantic macro-region; Maritime Affairs, including Fisheries and Aquaculture, Innovation and Marine Renewable Energy; and Accessibility and Attractiveness, including Transport and Tourism. The AAC

BLUEAIR is implemented through the financial support of the ADRION programme

political ambition calls for an Atlantic macro-region that would ensure effective regional participation, creating a greater sense of ownership and political dimension for regions, which would, in that respect, act at the same level of partnership as nations, as co-chairs of the Strategy.

The Atlantic Transnational Network (ATN-RTA) is a platform for cooperation of civil society in the Atlantic area, formally launched in 2003. This transnational network gathers Economic, Social and Environmental Councils from regions of the Atlantic area. In the Member States where such institutions do not exist, similar regional organisations are represented in the network. The main objective of the network is to promote and foster cooperation between socio-professional representatives from civil society in order to influence European policies towards the Atlantic coast.

Atlantic Cities, formerly known as the Conference of Atlantic Arc Cities (CAAC), is an association, composed of 20 local authorities that represent almost 400 municipalities. It was established in 2000 with the goal to create a network with and for the cities placed at the edge of the Atlantic Ocean. Therefore, the platform wishes to develop a collaborative relationship between its members and to enable them to be heard by the European institutions, without forgetting citizen dialogue at the continental level.

AC3A – Association of the Chambers of Agriculture of the Atlantic Area – is an association that was set up in 1993. Its members are the Chambers of Agriculture from the Atlantic area (currently 28 Chambers). Its main role is to provide the opportunity to the Chambers of Agriculture of the Atlantic Area to experiment and exchange on the European level about agricultural issues in order to ensure that the sector remains dynamic, innovative and sustainable.

The **OSPAR Commission** was founded to administer the Convention of the Protection of Marine Environment of the North-East Atlantic, the OSPAR Convention, which was initiated in 1992. The Commission develops policy and international agreements in the field. In 1998 and 1999 it adopted strategies to direct future work.

3.2.3 Innovation Policy

The Atlantic Strategy and Action Plan

As already mentioned, due to the historic development of cooperation in the Atlantic Ocean, the Strategy is focusing mainly on environmental topics. The Innovation policy is therefore only indirectly included as part of sustainable management concerning blue economy sectors and related research.

Innovation is embedded in the implementation of all 4 priorities of the 2013 Action Plan in terms of investments in innovation, research and skill advancement. Furthermore, Priority I is dedicated specifically to the promotion of entrepreneurship and innovation.

The 2018 Action Plan review noted the objectives of the 2013 Action Plan lack focus. It suggests that instead of research and innovation being part of one or the other priority, they should be considered as horizontal topics, intertwined into all priorities.

In Action Plan 2.0. research and innovation (R&I) cut across all four pillars. In Pillar 1: Ports as gateways and hubs for the blue economy R&I plays a crucial role in greening the port infrastructure. Moreover, ports are seen as catalysts for business, scaling up innovative businesses. Pillar 2: Blue skills of the future and ocean literacy focuses on the development of human resources to take advantage of

BLUEAIR is implemented through the financial support of the ADRION programme

innovation and rapidly deploy blue technologies. A specialised blue education and training offer based on a business intelligence scheme is aimed to attract young talent to the blue economy, stimulate productivity and increase the competitiveness of the EU Atlantic area.

All-Atlantic Ocean Research Alliance Flagship

The All-Atlantic Ocean Research Alliance is the result of science diplomacy efforts involving countries from both sides of the Atlantic Ocean which aims at enhancing marine research and innovation cooperation along and across the Atlantic Ocean, from the Arctic to Antarctica. Aimed to align ocean observation efforts as to better understand the Atlantic Ocean and to promote the sustainable management of its resources, the European Union, the United States and Canada joined forces and co-signed the Galway Statement on Atlantic Ocean Cooperation for the North-Atlantic in 2013.

The Regional Innovation Scoreboard

As can be observed from the Regional Innovation Scoreboard (RIS) for the year 2021, most (18/22) Atlantic regions (NUTS1 for France, NUTS2 for all other countries, 2021 classification) are Moderate and Emerging innovators (including all 4 outermost regions – Madeira, Azores, Canarias and French outermost), while only four qualify as Strong Innovators. The majority (64%) of Atlantic regions is below the EU average.

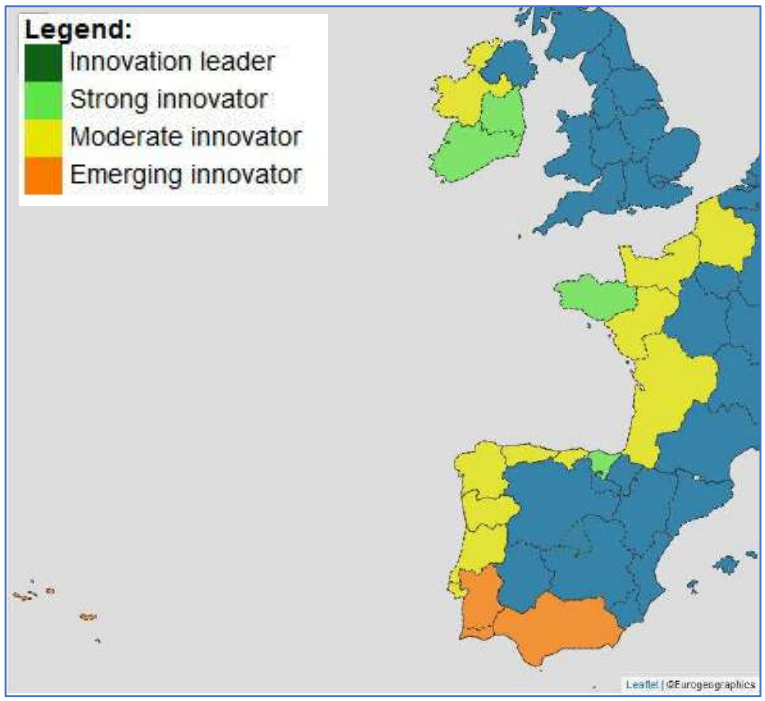


Figure 4:Regional Innovation Index, Source: Regional Innovation Scoreboard, 2021

The distribution of Atlantic regions on the RIS scale shows consistency with the dominant pattern in the EU, where the northern regions outperform the southern ones in terms of their RIS score (with exceptions).

BLUEAIR is implemented through the financial support of the ADRION programme

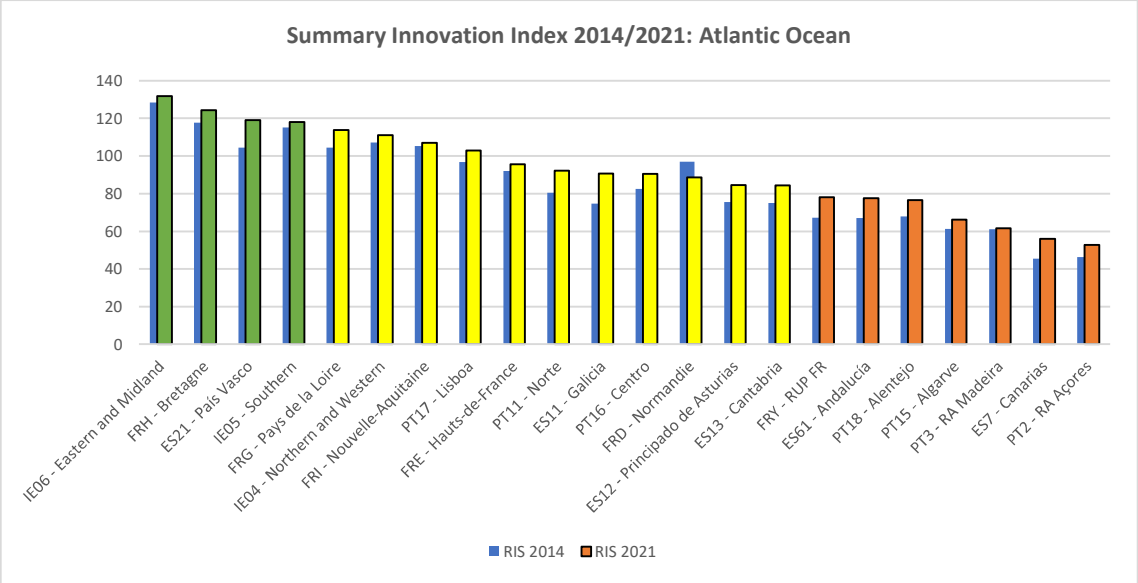


Figure 5: Summary Innovation Index difference 2014-2021 for Atlantic regions, Source: own calculations based on Regional Innovation Scoreboard 2021 data

Comparing the Summary Innovation Index from RIS 2014 (capture years 2012 and earlier) and 2021 (capture year 2018 and earlier) (Figure 5) it can be observed that the vast majority of the Atlantic regions have improved (in average by almost 8% points). However, EU performance increased by 14.2% points over these years, and comparing regions' growth performance with the EU better highlights differences in growth performance across European regions. Relative to the EU, only 2 Atlantic regions have improved performance (ES11 – Galicia and ES21 - País Vasco), while all the rest have decreased. The ratio between the number of regions with performance increase and decrease (relative to EU) is for Atlantic Ocean 9%:91%, while the EU ratio is 40%:60%. In the Atlantic Ocean, the performance actually worsened more for the best performing regions than for the lower performing ones. The reasons for such results could be attributed to low R&D investments. This is demonstrated by the fact that 95% of Atlantic regions perform below the EU average for the following indicators: R&D expenditure in the public sector, R&D expenditure in the business sector, PCT patent applications, Design applications. The potential of Atlantic regions lies in human resources and digitalisation as shown by well above EU average scores for the following indicators: Individuals with above-average digital skills, Population with tertiary education and Population involved in lifelong learning.

BLUEAIR is implemented through the financial support of the ADRION programme

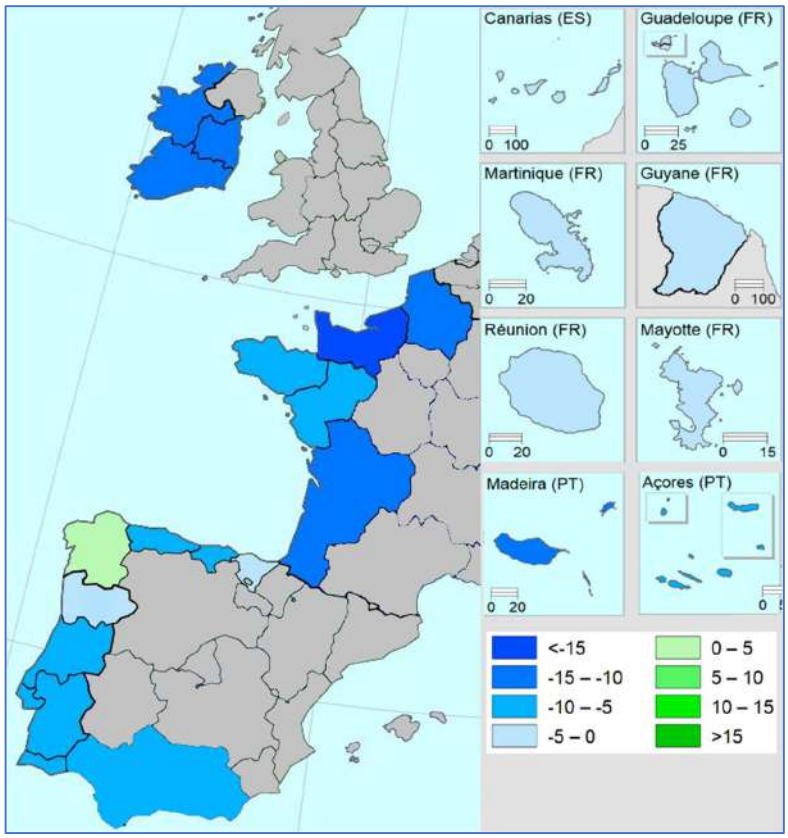


Figure 6:Regional Innovation Index change 2014-2021 (relative to EU), Source: Regional Innovation Scoreboard Report 2021, June

BLUEAIR is implemented through the financial support of the ADRION programme

Blue Growth in Smart Specialisation Strategies

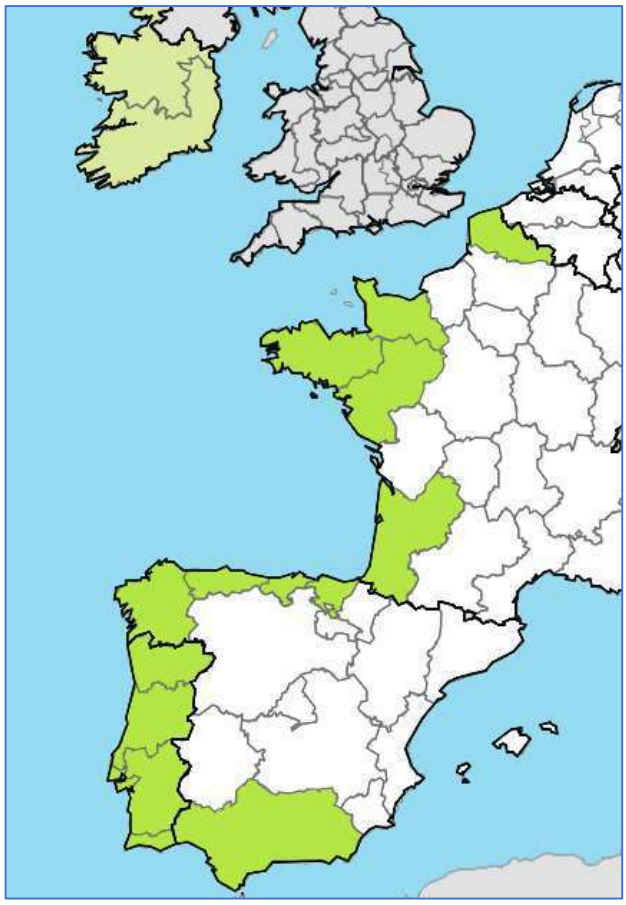


Figure 7: Atlantic Ocean S3 regions with blue growth in priorities, source: Eye@RIS3

The Eye@RIS3 tool shows only 3 out of 19 S3 regions and countries in the Atlantic Ocean area do not have blue growth policy objectives included in their priorities. Blue Renewable Energy (15) is the far most prevalent policy objective, followed by Marine biotechnology (11) and Transport & logistics (10 regions).

BLUEAIR is implemented through the financial support
of the ADRION programme

Cooperation in S3 Thematic Partnerships

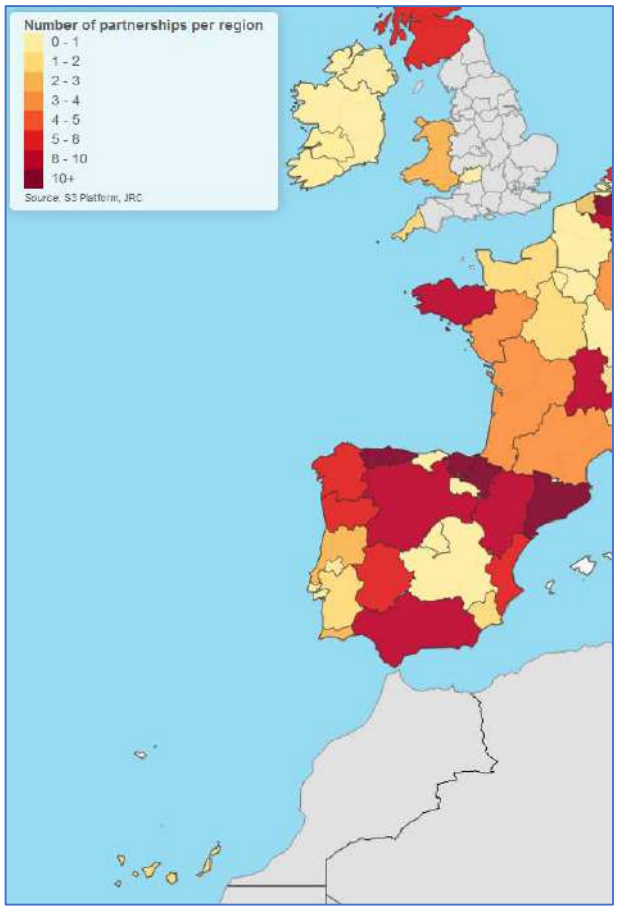


Figure 8: Atlantic regions in S3 thematic partnerships. Source: JRC Thematic Platforms Interactive Map, https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

Even though it is hard to relate different S3 partnerships to blue growth (Except Marine Renewable Energy) it is still relevant to investigate how active are Atlantic regions in these partnerships and in which. According to the JRC European S3 Platform most active are Spanish regions and one Franch region (Bretagne) in all three Thematic Platforms. There is potential in joining the Marine Renewable Energy S3 partnership for Atlantic regions since only 5 of the 15 that have Blue Renewable Energy objective in their S3 priorities are currently part of this partnership.

BLUEAIR is implemented through the financial support of the ADRION programme

3.2.4 Blue Economy Sectors

Blue Economy Report

For a general overview of performance in blue economy sectors, we will use the data from the Blue Economy Reports. Their approach in data capture includes only EU Member States and considers coastal NUTS3 regions (as opposed to NUTS2 used by RIS). When examining the numbers concerning the performance of the blue economy sectors for the Atlantic Ocean basin, Brexit has to be considered. For illustration, due to the inclusion of the UK in the 2020 Blue Economy Report, the Atlantic Ocean was the largest EU blue economy basin regarding GVA, representing 35,7% of the total EU GVA from these sectors in 2017. However, according to the 2021 Blue Economy Report (the UK excluded) GVA from the blue economy sectors dropped to 19,9% of the total EU GVA from these sectors in 2018. Similarly, employment in Atlantic blue economy sectors represented 29% of total EU employment in these sectors in 2017, UK included, while in 2018 this percentage dropped to 19,9%, the UK excluded.

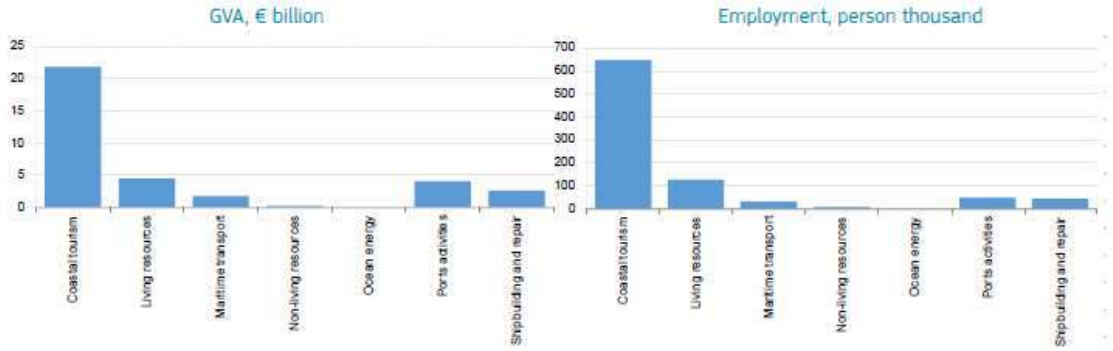


Figure 9: The Atlantic Ocean blue economy by sector, 2018, Source: Blue Economy Report 2021

According to the 2021 Blue Economy Report, one-fifth of all people employed in blue economy sectors in the EU comes from the Atlantic Ocean. The blue economy in the Atlantic Ocean generated €34.9 billion of GVA and employed 0.89 million people in 2018. The GVA is generated mainly by Coastal tourism (€22 billion), representing 63% of total GVA generated from blue economy in Atlantic, followed by Living resources (€5 billion, 14%) and Port activities (€4 billion, 11%). In terms of employment, in 2018 Coastal tourism (0.65 million people) employed more than all the other sectors combined, 73% of all persons employed in Atlantic blue economy. Living resources (0.13 million people, 15%) and Port activities (0.05 million people, 6%) are also sectors offering significant employment opportunities. There was only a slight increase in both employment and GVA from 2009 (slightly over 2%).

We are using data obtained from DG MARE for GVA and employment in time series, reflecting the trends. Figure 10 shows how sectors had developed over the years. The graphs do not display values for Marine Renewable Energy since employment and GVA from this sector have not been detected by Blue Economy Report 2021. The Non-living resources sector is missing as well since the numbers are very low (€0,02 billion GVA and 310 persons employed in 2018) , therefore they are hard to interpret.

The graphs show the 2008 crisis had not affected the Atlantic blue economy sectors severely. As regards GVA, only Coastal tourism had been affected, but had recovered already in 2013. Port activities sector had also struggled over the years, however the slight increase in 2018 could indicate the trend had turned. The crisis reflected more heavily on the jobs. Employment had been decreasing or stagnating, picking up slowly from 2015 only in Coastal tourism, Maritime transport and Shipbuilding and repair, while the trend had not turned by 2018 for Living resources and Port activities.

BLUEAIR is implemented through the financial support of the ADRION programme

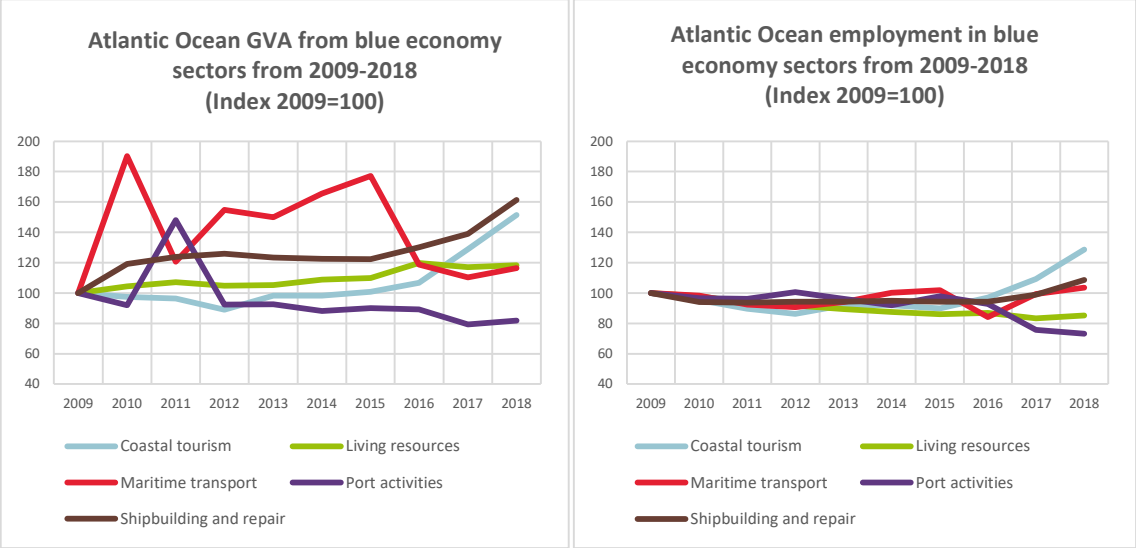


Figure 10: GVA and employment from blue economy sectors (from 2009 to 2018) without Marine Renewable Energy and Non-living resources Source: own calculations based on DG MARE data

According to the Action Plan review study maritime industries still represent a significant part of the economy in regions such as Brittany and Galicia, but the profile of local economies remains very diverse. Maritime employment retains economic significance for France, regions such as the Basque Country and the Algarve and cities such as Lisbon.

BLUEAIR is implemented through the financial support of the ADRION programme

Blue Growth Cluster Cooperation

Figure 11: Blue growth-related clusters in the Atlantic Ocean. Source: European Cluster Collaboration Platform, https://reporting.clustercollaboration.eu/all#

According to the European Cluster Cooperation Platform, the area is home to 8 cluster organisations that focus on blue growth objectives; these are spread evenly through the Atlantic coast. As a cooperation topic, Marine Renewable Energy is the most common among Atlantic clusters, since 5 are active in this field. Major urban centres including Dublin, Porto, Nantes, Bilbao and the region around it host a healthy ecosystem of research, development and innovation actors.

Atlantic blue growth clusters are: Circular Bioeconomy Cluster South-West, Ireland; Pôle Mer Bretagne Atlantique, France; VALORIAL, France; ACE Basque Energy Cluster, Spain; Fórum Oceano - Association of Maritime Economy, Portugal; Corporación Tecnológica de Andalucía, CTA Aerospace and Production Processes, Spain; Corporación Tecnológica de Andalucía CTA, Energy and Environment, Spain; Canary Islands Maritime Cluster, Spain.

BLUEAIR is implemented through the financial support of the ADRION programme

3.2.5 Financing Blue Growth Policy

The Action Plan review study, finalised in 2018 and still including the UK, identified more than 1,200 projects that could be attributed to the implementation of the Action Plan across the Atlantic area. Altogether, these projects represented an investment of nearly €6 billion, including funding from the EU, the European Investment Bank (EIB) and national, regional and private sources. The study results are summarised in continuation.

The success of the 2013 Action Plan in influencing funding priorities and investment decisions has been mixed. While some funding instruments at the EU level have specifically earmarked a budget for the plan's priorities or published calls for proposals supporting its implementation, the independent assessment found no instances of operational programmes at the national and regional level giving preference to projects that supported the implementation of the plan or otherwise prioritised it. With one prominent exception (the Atlantic area Interreg programme), very few operational programmes made specific links between their priorities and those in the Atlantic Strategy or Action Plan.

In particular, the action plan contributed to the following main achievements across the four priority areas:

- **Enabling smart growth in the Atlantic**

About 500 projects related to the promotion of entrepreneurship and innovation in the Atlantic area, accounting for the investment of around €750 million, e.g. targeting broadband connectivity in remote areas of Scotland and supporting maritime spatial planning in Macaronesia.

Significant European Regional Development Fund (ERDF), European Social Fund (ESF) and Youth Employment Initiative (YEI) resources have been committed in support of entrepreneurship and innovation. In particular, ERDF operational programmes have supported the competitiveness of SMEs, and research and innovation.

The ESF has promoted entrepreneurship alongside its support for more traditional employment, training and social inclusion measures. Overall, of the projects identified as supporting the implementation of the Action Plan at various levels, about a third of concerned projects was supporting entrepreneurship and innovation in the context of Smart Specialisation Strategies.

EU initiatives were also found to be in line with the priorities and objectives set out in the Action Plan. The European Research Area reform agenda has supported collaborative research and knowledge transfer across Europe, and related joint programming initiatives (JPIs), such as the 'healthy and productive seas and oceans' JPI, have been deployed with success in the Atlantic.

Horizon 2020 has supported EU research policy and funded research in the agri-food, aquatic resources and marine sectors. Not least to follow up on the political commitment behind the Galway Statement on Atlantic Ocean Cooperation, it has also supported marine-related research in the Atlantic and specifically earmarked a total budget of about €140 million, including €40 million for Arctic research. Horizon 2020 has thus contributed to strengthening maritime industries and developing related economic activities; it has not only supported innovation but also promotes entrepreneurship in the Atlantic area.

The Europe's programme for small and medium-sized enterprises (COSME) has supported SME innovation and development, e.g. by co-financing the Enterprise Europe Network, which has helped SMEs with international ambitions find business and technology partners or understand EU legislation.

BLUEAIR is implemented through the financial support of the ADRION programme

COSME has also supported closer cooperation among trade promotion organisations to improve the range of services offered to SMEs.

• Cleaner and more predictable Atlantic

Around 500 projects related to the protection, security and development of the environment were active in the Atlantic area. These represented an investment of around €2.1 billion and included projects aimed at marine renewable energy investment in France and the development of novel marine products with biotechnological applications in Portugal.

Projects aiming to protect, secure and develop the potential of the Atlantic marine and coastal environment fall into the following categories: maritime safety and security, invasive alien species, exploration of the marine environment, climate change, environmental protection, marine biotechnology, deep-sea mining and marine renewable energy. Projects covering the Atlantic marine and coastal environment have generally been financed from the ESIFs or Horizon 2020, but funding for the largest projects has tended to come from Horizon 2020 and the EIB. Almost 50% of all projects on the sustainable management of marine resources are transnational projects, with mostly average budgets.

Calls under LIFE sub-programmes have supported projects that protect, secure and develop the potential of the Atlantic area's marine and coastal environment, and in particular, those aimed at building climate resilience and mapping risks related to land-sea interactions. A significant level of resources supporting environmental protection and resource efficiency has been committed under the ERDF and the Cohesion Fund.

• A better connected Atlantic

About 100 projects, worth €2.4 billion, were aimed at improving accessibility and connectivity. These mainly targeted port developments in Spain and Ireland. While only 10% of 1200+ projects could be attributed to this priority, these projects account for over 40% of the €6 billion total, which means that priority 3 ranks first in funding terms. Its financial weight is partly explained by the fact that port infrastructure is particularly costly and requires significant public investment and financing.

More generally, projects aiming to improve accessibility and connectivity mostly focus on three key approaches: developing and upgrading ports, diversifying ports into new business activities and promoting networks and short shipping routes between European ports.

In terms of project numbers, the ERDF is the first source of funding for priority 3 projects, but the EIB is the most important in terms of value. Priority 3 has the lowest percentage of transnational projects (12%), as infrastructure development requires large projects focused on a specific area.

• A socially inclusive Atlantic

Around 100 projects were aimed at socially inclusive regional development, with EUR 360 million of investment in tourism infrastructure in Wales and remote health monitoring in Ireland, for example. The vast majority of these projects (about 80%, accounting for over 90% of the funds invested) have received support from EU structural funds. To a lesser extent, funding has also come through instruments such as COSME. Only around 20 % of the projects are transnational, which is in line with the focus on addressing local social issues and preserving local cultural heritage.

The study has also shown that the stakeholder community in the Atlantic Ocean area has grown stronger and more competitive when it comes to obtaining funding for marine and maritime projects,

BLUEAIR is implemented through the financial support of the ADRION programme

particularly when one looks at the success rate of the regular grant schemes financed through the European Maritime and Fisheries Fund (EMFF).

The Atlantic Assistance Mechanism has played a role in this success by reaching out to stakeholders in the region through dedicated events and networking sessions. It has also provided guidance and support for project development.

Relevant Interreg Programmes

For the future Interreg programmes (period 2021-2027) UK has announced that they will not join any Interreg programme with exception of Interreg PEACE+ between Ireland and Northern Ireland.

INTERREG Atlantic Area supports transnational cooperation projects in 37 Atlantic regions of five countries: France, Ireland, Portugal, Spain and the United Kingdom, contributing to the achievement of economic, social and territorial cohesion. The Programme overall objective is to implement solutions answering regional challenges in the fields of innovation, resource efficiency, environment and cultural assets, supporting regional development and sustainable growth. With a total budget of €185 million, which comprises a fund allocation above €140 million from ERDF, the Programme focuses on four main priority axes and specific objectives related to: Stimulating innovation and competitiveness (€62.8 million), Fostering resource efficiency (€39.6 million), Strengthening the territory's resilience to risks of natural, climate and human origin (€20.3 million), Enhancing biodiversity and the natural and cultural assets (€52.6 million).

The 2021-2027 programme is in development, there will be 4 priorities: P1 -Blue innovation for competitiveness, P2 -Blue environment, P3 -Sustainable tourism & culture and specific priority Better governance for the Atlantic Area.

Interreg 2 Seas 2014-2020 is a European Territorial Cooperation Programme covering England, France, the Netherlands and Belgium (Flanders). The Programme is partly financed by ERDF and has a total of €241 million ERDF to co-finance projects in the 2014 – 2020 period. Specific objectives: Framework conditions for innovation, Technological innovation, Social Innovation, Low-Carbon Technologies, Adaptation to Climate Change, Efficient Use of Resources and Materials and Circular Economy.

Interreg Sudoe programme with a total budget of €141 million promotes transnational cooperation to solve common problems in Southwest Europe, such as low investment in research and development, weak competitiveness of the small and medium-sized enterprises and exposure to climate change and environmental risks. The eligible regions are all the Spanish Autonomous Communities (except the Canary Islands), the six Southwestern regions of France, all continental regions of Portugal, the United Kingdom (Gibraltar) and the Principality of Andorra. The new programme is in preparation.

BLUEAIR is implemented through the financial support of the ADRION programme

3.3 The Baltic Sea

The Baltic Sea is a relatively shallow semi-enclosed sea basin. It is a brackish water ecosystem characterised by high biological production. The different functions possessed by the Sea, such as shipping, fisheries, wind farms or mineral extraction, are increasingly competing for the limited sea space. On top of this, the fragile Baltic ecosystem and the threats of climate change call for a balanced multi-sectoral approach.

3.3.1 The Strategy and Action Plan

The Baltic Sea Region is a highly heterogeneous area in economic, environmental and cultural terms, yet the countries concerned share many common resources and demonstrate considerable interdependence. The increasingly visible degradation of the Baltic Sea itself and the need to address the disparate development paths of the countries in the region and the potential benefits of more and better coordination led to a report published in late 2006 by the European Parliament calling for a strategy for the Baltic Sea Region. After the Commission presented Communication on the **EU Strategy for the Baltic Sea Region (EUSBSR)**[18] alongside a detailed **Action Plan**[19] in 2009, they were endorsed by the European Council in the same year, thus becoming the first macro-regional strategy of the EU.

The area covered by the EUSBSR is mainly the basin of the Baltic Sea, including also the hinterlands. It stretches from Lapland to the North of Germany and is home to around 85 million inhabitants. Involving 12 countries, it is the second-largest and most diverse macro-regional strategy: eight EU Member States (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden) and two EEA Member States (Iceland and Norway) and two Neighbouring Countries (Belarus and Russia).

[18] European Commission (2009). COM(2009) 248 final. Communication concerning the European Union Strategy for the Baltic Sea Region

[19] European Commission (2009). SEC(2009) 712. Commission staff working document on European Union Strategy for the Baltic Sea Region Action Plan

BLUEAIR is implemented through the financial support of the ADRION programme

Figure 12: EUSBSR map, Source: www.ec.europa.eu

The Strategy is divided into three objectives, which represent the three key challenges of the Strategy: **saving the sea, connecting the region and increasing prosperity**. The objectives are complemented by **sub-objectives**, which have been modified over time due to changes in circumstances and challenges. Most sub-objectives relate to more than one objective and they are also interlinked and interdependent. The current sub-objectives are:

- Clear water in the sea;
- Rich and healthy wildlife;
- Clean and safe shipping;
- Reliable energy markets;
- Good transport conditions;
- Connecting people in the region;
- Better cooperation in fighting cross-border crime;
- Improved global competitiveness of the Baltic Sea Region;
- Climate change adaptation, risk prevention and management.

During the years the Action Plan was updated three times (2013, 2015 and 2021) to streamline and focus actions towards the three objectives, to better embed the strategy into EU policies and funding programmes, to address the management and coordination needs and to respond to global challenges.

BLUEAIR is implemented through the financial support of the ADRION programme

The EUSBSR Action Plan updates are aligned with the programming of EU 7-year financial periods to ensure its actions are reflected in the operational programmes.

The 2021 Action Plan[20] includes 14 policy areas (PAs)and 44 actions representing the main topics where EUSBSR could contribute to improvements. The 14 policy areas are:

- PA Nutri,
- PA Hazards,
- PA Bio-economy,
- PA Ship,
- PA Safe,
- PA Transport,
- PA Energy,
- PA Spatial Planning,
- PA Secure,
- PA Tourism,
- PA Culture,
- PA Innovation,
- PA Health
- and PA Education.

The PAs are interlinked and interdependent, their actions are often cross-sectoral and their scope can serve several EUSBSR objectives and sub-objectives. Due to their cross-cutting nature and increased importance, the topics of climate change and cooperation with neighbouring non-EU countries (in the previous version of the Action Plan labelled as horizontal actions) are mainstreamed as essential elements in all 14 policy areas.

Each policy area develops actions and proposes activities for their implementation. Activities under an action can be – but are not limited to - projects (single or grouped in clusters), processes, networks or platforms, depending on the needs.

3.3.2 Transnational Governance

EUSBSR Governance Structure

The following section summarises the EUSBSR governance structure in brief as described in EUSBSR Action Plan 2021.

National Coordinators (NCs) and National Coordinators Group (NCG) - Each EUSBSR Member State nominates a **National Coordinator**. They have two kinds of tasks. On the one hand, they represent their governments in the NCG and on the other hand, they perform their tasks at the national level in their own capacity. The **National Coordinators Group** consists of representatives of all eight EUSBSR Member States and the European Commission. It is the core decision-making body within the

[20] European Commission (2021). SWD(2021) 24 final. Commission Staff Working Document, EU Strategy for the Baltic Sea Region Action Plan

BLUEAIR is implemented through the financial support of the ADRION programme

governance structure of the EUSBSR, acting as its executive board. The NCG Presidency rotates annually among the EUSBSR Member States.

Policy Areas (PAs), Policy Area Coordinators (PACs) and Steering Groups (SGs) – **Policy Areas** represent the expertise in their respective areas of activity and ensure the implementation of the Strategy and the Action Plan. Having an overview of the relevant sectors, PAs hold policy discussions and identify key ways to achieve the EUSBSR objectives through different means of action and determine how to best implement the required solutions. PAs are managed operationally by Policy Area Coordinators, supported and guided strategically by their respective Steering Groups.

Each Policy Area has a **Steering Group**. SG members are representatives of the national or regional governments of the EUSBSR Member States. They have two kinds of tasks: on one hand, they represent their governments in their respective SG and on the other, they perform their tasks as focal points at the national level. It is their task to support the respective PAC by guiding the development of the PA in general by policy discussions and by endorsing new objectives, developments and operation formats, including flagships, as well as acting as a liaison between their PA and the respective national/regional administration, ensuring linkages between macro-regional and national or regional policy processes. They are also cooperating with relevant managing authorities in their respective home countries, regarding the operational level.

EUSBSR Annual Forum - The purposes of the EUSBSR Annual Forum are to communicate the work of the Strategy, its objectives and achievements to stakeholders, policymakers and a wider audience, to stimulate policy discussions, to share results and to provide stakeholders with a networking opportunity.

The European Commission - DG REGIO provides strategic coordination and advice to the NCG on the managing and development of the Strategy. It also strives to ensure that the EUSBSR is duly considered in the design and implementation of all relevant EU policies and financial instruments.

DG REGIO promotes interlinkages and alignment between the EUSBSR and relevant EU-funded programmes during their programming and implementation (EU, national, regional and centrally managed funding instruments), including transnational and cross-border cooperation programmes.

The Baltic Sea Strategy Point - is a function providing administrative and technical support for EUSBSR management, development and communication.

The High Level Group on macro-regional strategies is an EU-level body, advising the European Commission on the coordination and monitoring of all macro-regional strategies, assesses progress made in their implementation and may provide policy orientation and strategic guidance. It is made up of official representatives of all EU Member States and the non-EU countries that participate in the macro-regional strategies. The annual meetings provide overall strategic guidance also for individual strategies, including EUSBSR.

BLUEAIR is implemented through the financial support of the ADRION programme

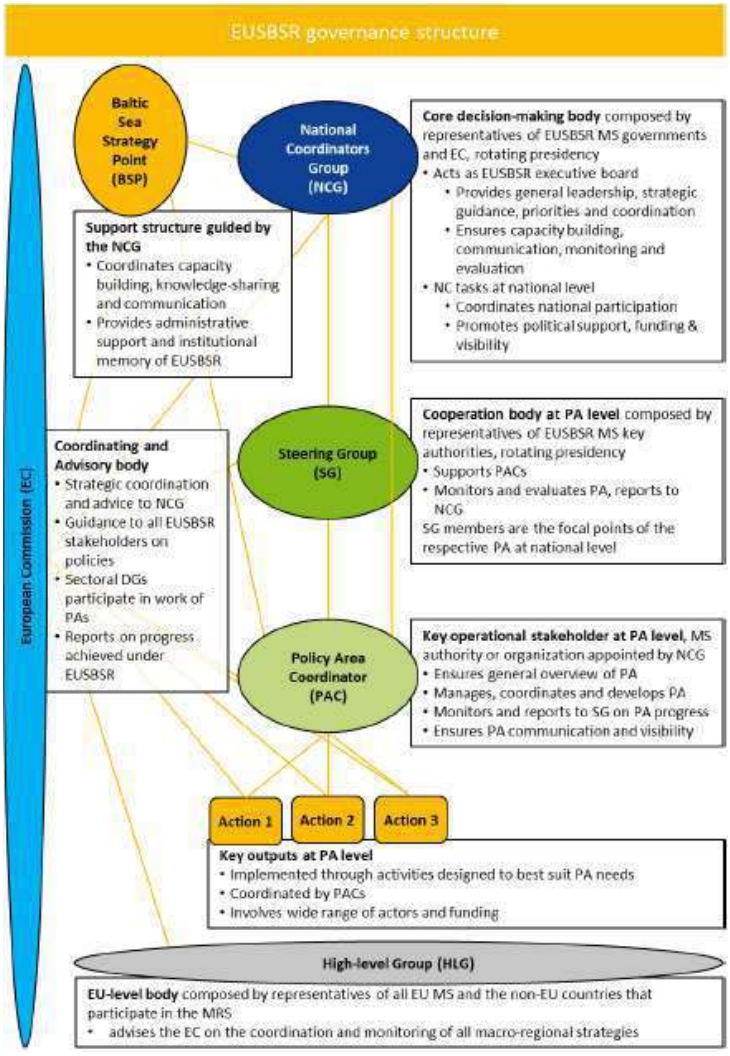


Figure 13: Simplified version of the EUSBSR governance structure, Source: EUSBSR Action plan 2021

Some Other Transnational Networks

The CPMR Baltic Sea Commission is an international, independent organisation of regional authorities at subnational level in the Baltic Sea region. At the time of this report, they have 18 members (6 Finnish, 10 Swedish and 1 German region and Association of Estonian Cities and Rural Municipalities). The Baltic Sea Commission, together with its Member Regions, supports the main goals of the EU Strategy for the Baltic Sea Region and works for a stronger involvement of regional stakeholders in the governance and implementation of the EU Strategy of the Baltic Sea Region. The further three policy areas the Commission is focusing on are: Maritime Issues, Accessibility and Transport and Renewable Energies.

The Baltic Marine Environment Protection Commission – also known as the Helsinki Commission (HELCOM) – is an intergovernmental organisation, a regional sea convention, the Helsinki Convention (Convention on the Protection of the Marine Environment of the Baltic Sea Area) and a regional

BLUEAIR is implemented through the financial support of the ADRION programme

platform for environmental policymaking. HELCOM has ten Contracting Parties: Denmark, Estonia, the European Union, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden.

The Baltic Sea States Subregional Co-operation (BSSSC) is a political network of regional authorities of 10 Baltic Sea states: Germany, Denmark, Finland, Sweden, Norway, Poland, Latvia, Lithuania, Estonia and Russia. The network is active in the following policy areas: Northern Dimension (see bellow), Maritime Policy, Cohesion Policy, Sustainable Development and Climate Change, Growth, Jobs and Innovation, Transport and Culture.

The Council of the Baltic Sea States (CBSS) is an intergovernmental political forum for regional cooperation. Consisting of 11 Member States (Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, Russia & Sweden) and the European Union, it supports a regional perspective on global challenges. The CBSS functions as a coordinator of a multitude of regional actors in the areas of its three long-term priorities: Regional Identity, Sustainable & Prosperous Region, Safe & Secure Region.

Union of the Baltic Cities (UBC) is one of the leading networks of cities in the Baltic Sea Region with member cities from Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russia and Sweden. UBC works through seven Commissions: Cultural Cities, Inclusive and Healthy Cities, Planning Cities, Safe Cities, Smart and Prospering Cities, Sustainable Cities, and Youthful Cities.

The Baltic Sea Parliamentary Conference (BSPC) was established in 1991 as a forum for political dialogue between parliamentarians from the Baltic Sea Region. BSPC aims at raising awareness and opinion on issues of current political interest and relevance for the Baltic Sea Region. It promotes and drives various initiatives and efforts to support a sustainable environmental, social and economic development of the Baltic Sea Region.

Barents Euro-Arctic Cooperation (BEAC) - cooperation in the Barents Euro-Arctic Region was launched in 1993 on two levels: intergovernmental Barents Euro-Arctic Council (BEAC) and interregional Barents Regional Council (BRC). The overall objective of Barents cooperation has been sustainable development.

The Northern Dimension (ND) is a joint policy of four equal partners: the European Union (EU), the Russian Federation, Norway, and Iceland. The ND policy aims at supporting stability, well-being and sustainable development in the region through practical cooperation. The Northern Dimension operates through four partnerships on the environment, public health and well-being, transport and logistics, and culture. The international university network Northern Dimension Institute (NDI) serves the information needs of the Northern Dimension policy. The Northern Dimension Business Council and the Northern Dimension Parliamentary Forum complement the cooperation and increase awareness of the ND within the wider society.

Vision and Strategies around the Baltic Sea (VASAB) is an intergovernmental multilateral co-operation of the Baltic Sea Region in spatial planning and development, guided by the Conference of Ministers responsible for spatial planning and development, steered by the Committee on Spatial Planning and Development of the Baltic Sea Region (CSPD/BSR) composed of representatives of respective ministries and regional authorities (Germany, Russia).

BLUEAIR is implemented through the financial support of the ADRION programme

3.3.3 Innovation Policy

The Strategy of the Baltic Sea Region and 2021 Action Plan

One of the 14 policy areas in 2021 Action Plan is PA Innovation, which is interlinked and interdependent with other policy areas. The four PA Innovation actions are cross-sectoral with their scope serving two EUSBSR objectives and several sub-objectives.

PA Innovation (PA INNO) promotes a globally competitive position within innovation for sustainable economic growth in the Baltic Sea Region (BSR) and provides a strong platform for an enhanced macroregional collaborative ecosystem for innovation, research, SMEs and digitalisation. It enables shared learning through knowledge-transfer activities; creates and strengthens networks across the BSR; aligns resources and regulations e.g. through coordination of funding sources; facilitates the joining up of forces in common programmes and investments and in the development of solutions for common challenges. Moreover, it raises the BSR's profile, visibility, and attractiveness as a partner of choice for international innovation cooperation within and beyond the BSR.

PA INNO stakeholders: In addition to institutions represented in the PA INNO Steering Group other national-level government agencies and organisations (such as innovation agencies), universities and other research and knowledge institutions, large scale research infrastructures, business development, cluster and technology transfer organisations, incubators and co-creation platforms/ecosystems, industry associations and companies are strongly involved in PA INNO as action/flagship operators and stakeholders. Furthermore, PA INNO stakeholders include banks/financial institutions, investors and business angels, NGOs and citizen communities.

Actions: The timing of actions is aligned with the 2021-2027 EU financial programming period.

1. **Challenge-driven innovation**

To deal with common BSR challenges such as climate change, resource efficiency, demographic change, pandemics, rapid urbanisation, healthy living and ageing, clean energy, inclusive societies, sustainable food and feed production and various environmental challenges of the Baltic Sea they aim to create and strengthen innovation ecosystems, develop shared solutions and related new pan-Baltic value chains (especially in 4 key areas: circular and bio-economy, blue growth, digitalisation and health). They are responding to the COVID-19 outbreak with the preparation of coordinated macro-regional recovery policies and actions. Smart specialisation is a key policy framework for challenge-driven innovation. EUSBSR will continue in its efforts in aligning regional S3 priorities and helping regions to draw on their collective strengths to carve out new innovation-focused value chain opportunities.

2. **Digital innovation and transformation**

The emerging digital technologies such as artificial intelligence, mixed (augmented and virtual) reality, blockchain, robotics and the Internet of Things are seen as key tools to tackle societal challenges, facilitate new businesses, innovations, services and more sustainable, usable and vital living environments and infrastructures, and to develop BSR innovation (e.g. smart city initiatives) and start-up ecosystems. Even in the Baltic Sea Region 'Industry 4.0' is a key challenge for SMEs. Through the development of common standards for interoperable public and private solutions (e.g. e-identity) and harmonising of data, they aim to support transfer of solutions across the BSR, new market opportunities and globally more competitive digital ecosystems. Smart Specialisation is perceived as a relevant policy framework to support digital innovation and transformation through scaling up

BLUEAIR is implemented through the financial support of the ADRION programme

innovation efforts (e.g. on Digital Innovation Hubs), accelerating cross-regional value chains (e.g. on digital transformation of bio-economy /circular economy) and generating new market opportunities in digital economy.

3. Co-creative innovation

Transnational platforms and change agents are identified as needed to connect Baltic Sea Region innovation ecosystems and to engage public, research and business groups in the collaborative process of co-creation to bridge the existing knowledge, skills and market access gaps for SMEs. Objectives of this action:

- to scale up the use of co-creation among Baltic Sea region SMEs through improving their capabilities and absorptive capacities to efficiently turn market demand-driven ideas into innovations;
- to connect innovation ecosystems across BSR to engage Baltic Sea Region SMEs, researchers, test facilities and end users in co-creation activities; to enhance the adjustment of regional innovation voucher schemes to BSR-wide transnational co-creation activities;
- to facilitate the understanding and change of mindset among policymakers and SMEs to scale up practical co-creation activities and;
- to promote transnational cooperation and SMEs access to RDI infra, and transnational exchange and joint development between Innovation Infrastructure Organisations and incubators.

S3 also serves as a suitable policy framework for co-creative innovation in the Baltic Sea region by offering a fertile testing ground for its regions to develop new and reinforce existing industry-led collaboration efforts.

PA Innovation Strategic Action Plan 2016-2020[21]

The Baltic Sea is the only sea basin where transnational cooperation in innovation has been further detailed and agreed upon in a special policy document. After the new Action Plan adoption in 2021, this document will have to be updated as well. This Strategy Guide aims to provide policymakers and innovation actors with guidance and inspiration for how best to utilise the EU Strategy for the Baltic Sea Region to effectively achieve EU and joint national goals.

Baltic Sea Region S3 Platform

The S3 Platform facilitates work on synergies in S3 within the BSR. The S3 Platform works closely with the PA INNO of the EUSBSR, the Baltic Sea Region Programme, DG REGIO and BSR countries and regions towards increased innovation and growth through S3s in the macro-region. Several joint meetings and events have taken place to share knowledge and exploit the synergies and to match-make stakeholders around similar S3 priorities which gave impetus to new collaborative initiatives around.

[21] Nordic Council of Ministers (2016). Policy Area Innovation Strategy Guide 2016 – 2020 – Putting the action Plan into Practice, Accessible at http://norden.diva-portal.org/smash/get/diva2:957324/FULLTEXT01.pdf

BLUEAIR is implemented through the financial support of the ADRION programme

In 2018, the **BSR S3 Directors' Network** was set up, composed of senior regional Directors who have a key responsibility for overseeing strategic direction for S3 in their regions. This strategic coordination mechanism emerged from the opportunity to capitalise on the multiple cross-border initiatives, avoiding fragmentation of efforts.

The Directors' Network was initiated within the BSR S3 Ecosystem Platform project (for more information see below in Flagships section). The Network aims to strengthen the BSR's collective capacity to share innovation knowledge and experience and to consider options and actions for joint S3 working across the BSR. In this way, it plays a key role in the sustainability of BSR initiatives.

PA INNO experiences and results on transnational S3 are providing strong evidence and basis for the next wave of S3 in the next EU programming period. Related to this, a network of ERDF managing authorities (MA Network) has been established to develop proposals on transnational S3 collaboration. Pilot projects on clean technologies and digital transformation have been created under the MA Network.

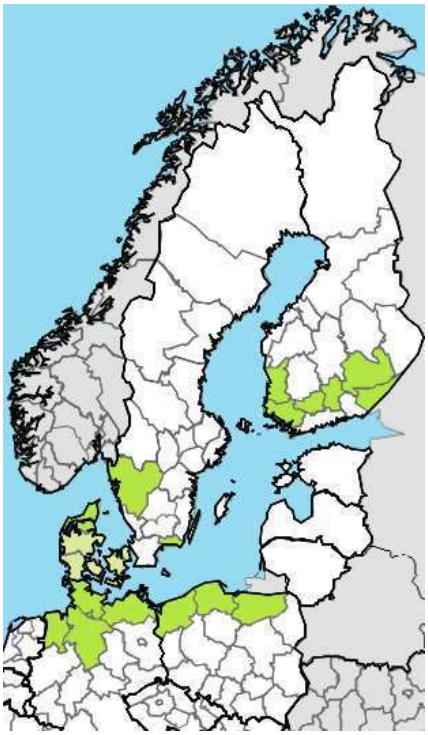


Figure 14: BSR S3 regions with blue growth in priorities, source: Eye@RIS3

The Eye@RIS3 tool shows 17 S3 regions in BSR have blue growth policy objectives included in their priorities. Transport and Logistics is the prevalent policy objective (15 regions), followed by Blue Renewable Energy (12) and Shipbuilding and repair (10 regions).

Flagships

SUBMARINER Network[22] - The network is a hub for projects, initiatives and activities at all levels. Taking offset in the SUBMARINER Roadmap, it encompasses transnational and cross-border regional development, innovation and research projects, as well as the various initiatives at local and business

[22] https://www.submariner-network.eu/

BLUEAIR is implemented through the financial support of the ADRION programme

levels. Via meetings, workshops, conferences and a comprehensive set of dissemination tools, network members are provided with a continuous platform for communication, exchanges of experience, joint project development and implementation. While its roots lie in the Baltic Sea Region, the SUBMARINER Network also reaches out beyond its geographical base to engage in partnerships across Europe. More information on this flagship is provided in the Chapter on best practices.

ScanBalt[23] - ScanBalt® fmba is Northern Europe's leading accelerator for inter-regional cooperation envisioning the region as a Global Hotspot for Health and Bio-Economy. ScanBalt creates value by promoting innovation and business, fostering inter-regional collaboration, reducing barriers, enhancing visibility and attracting resources. ScanBalt (**Baltic Sea Region Clusters Network**) established in 2001, gathers 24 members from Germany, Sweden, Finland, Estonia, Denmark, Netherlands, Poland, Lithuania and Latvia.

Baltic Science Link[24] is a network between leading research facilities of photon and neutron sources and their users. The project aims to support and encourage innovation and entrepreneurship in the Baltic Sea Region. Apart from the research facilities, the network also includes scientific institutes, universities and regional organizations that serve as service and promoting units.

Baltic Sea Region Digi co-lab[25] - is a set of projects which are relevant and directly connected to priorities of Digitalisation, described in the PA Innovation Strategy Guide 2016-2020. Two funded sub-projects are in the loop of the flagship, e.g. DIGINNO (Digital Innovation Network) and IoB (Internet of Business).

BSR S3 Ecosystem Platform[26] project aims to influence, improve knowledge and raise discussion among regional, national and EU-level innovation policymakers and experts of the opportunities, challenges and needed capacities related to the development of inter-regional innovation cooperation based on joint strategic fields in the Baltic Sea Region. It capitalises on a series of BSR projects working on macro-regional S3: LARS, Smart-Up BSR, BSR Stars S3 and GoSmart BSR (Interreg Baltic Sea), S34 Growth, BIOREGIO, ClusterFY and TraCS3 (Interreg Europe). More information on this flagship is provided in the Chapter on best practices.

[23] https://scanbalt.org/
[24] https://www.science-link.eu/
[25] https://mkm.ee/en/objectives-activities/information-society/information-society-services#bsr-digi-co-lab2
[26] http://www.baltic.org/project/baltic-sea-region-smart-specialisation-ecosystem/

BLUEAIR is implemented through the financial support of the ADRION programme

Regional Innovation Scoreboard

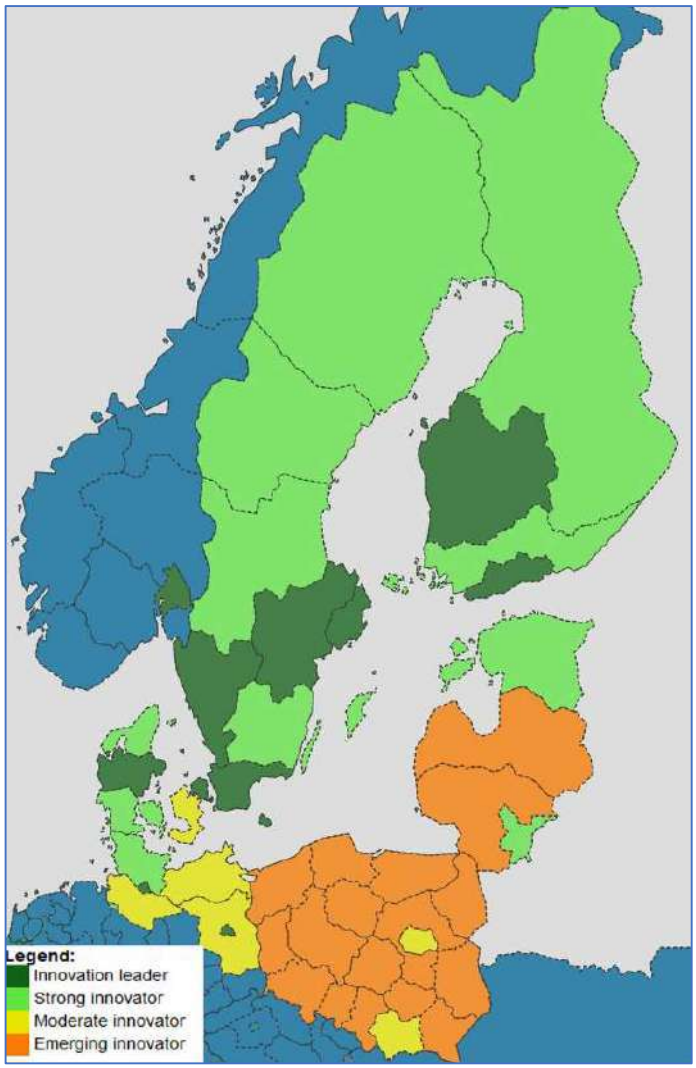


Figure 15:Regional Innovation Index, Source: Regional Innovation Scoreboard, 2021

As can be observed from the Regional Innovation Scoreboard for the year 2021, exactly half of Baltic Sea NUTS2 regions (23/46) are either Innovation Leaders or Strong Innovators (all Swedish, Finnish, Estonian regions as well as most Danish, half of German regions and one Lithuanian region). The other half are mostly (17/46) Emerging Innovators (most of Polish regions, Latvia and the largest of the two Lithuanian regions) or Moderate Innovators (6/46) (the rest of the German regions, one Danish region and 2 Polish regions). There are 6 Baltic Regions among the top 11 and further 4 among the top 25 Regional Innovation Leaders in Europe[27]. Stockholm and Helsinki - Uusimaa are the two highest innovation performing regions in Europe as regards the Regional Innovation Index 2021. The majority (61%) of Baltic regions are above EU average. The distribution of Baltic regions on the Regional Innovation Scoreboard scale shows consistency with the EU, where the northern regions outperform the southern ones.

[27] Holanders, H. (2021). Regional Innovation Scoreboard Report 2021. Publications Office of the European Union. Luxemburg

BLUEAIR is implemented through the financial support of the ADRION programme

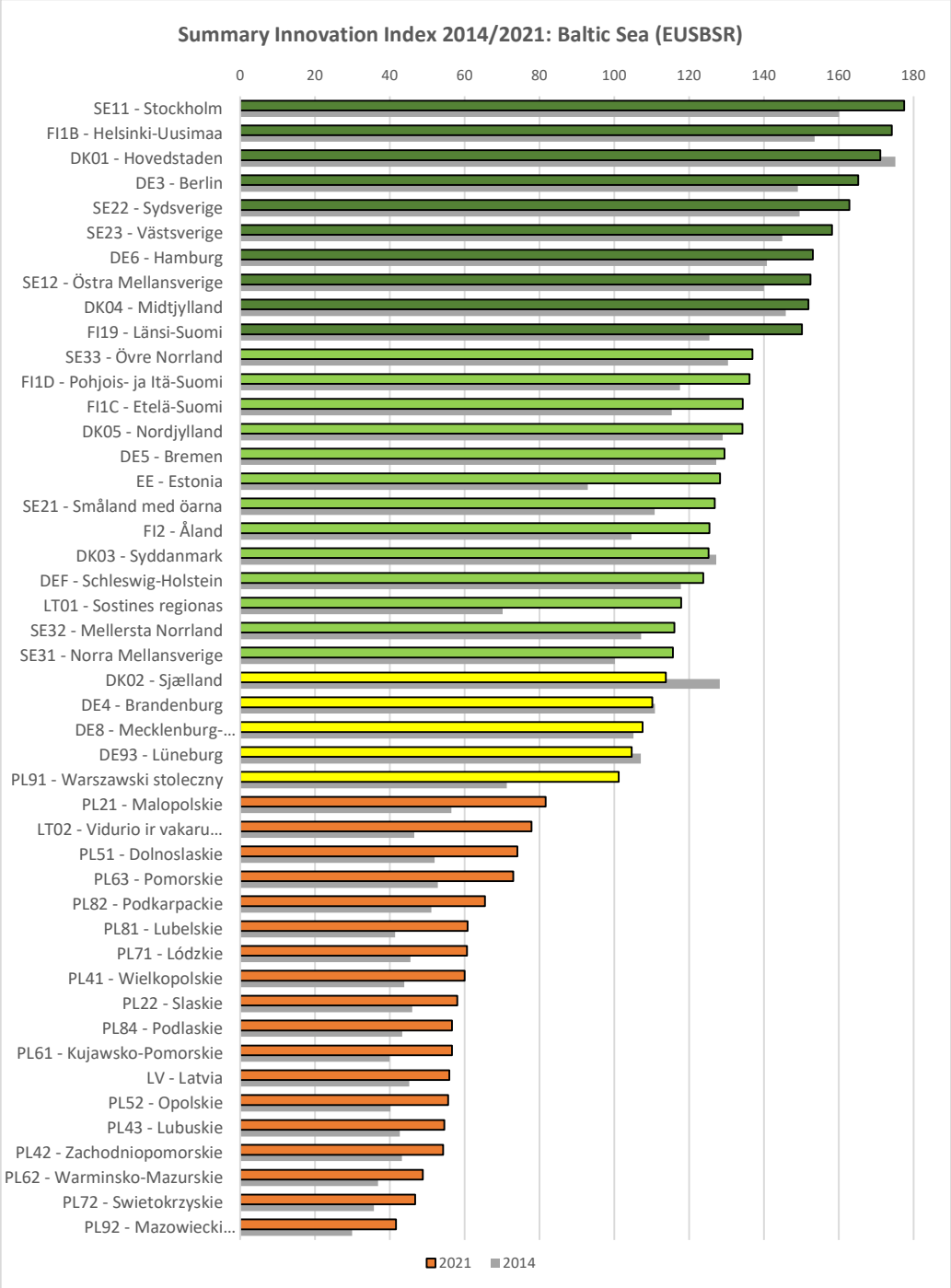


Figure 16: Regional Summary Innovation Index 2014/2021 for Baltic Sea Region (EUSBSR), Source: own calculations based on Regional Innovation Scoreboard data, https://interactivetool.eu/EIS

Comparing the Summary Innovation Index from RIS 2014 (capture years 2012 and earlier) and 2021 (capture year 2018 and earlier) (Figure 16) it can be observed that the vast majority of the Baltic regions have improved (in average by almost 16% points). However, EU performance increased by 14.2% points over these years, and comparing regions' growth performance with the EU better highlights differences in growth performance across European regions. Relative to EU, 22/46 Baltic regions have improved performance (one German (1/7), all Finnish regions, Estonia, both Lithuanian regions, more

BLUEAIR is implemented through the financial support of the ADRION programme

than half (10/18) of Polish regions and three (3/8) Swedish regions) in average by 7,5% points, while all the rest have worsened (in average by 7,6% points). The ratio between a number of regions with performance increase and decrease (relative to EU) is for Baltic Sea 48%:52%, while the EU ratio is 40%:60%. Both Lithuanian regions and one Polish (PL91 - Warszawski stoleczny) region are among the 10 fastest growing regions in Europe according to the Regional Innovation Scoreboard Report 2021.

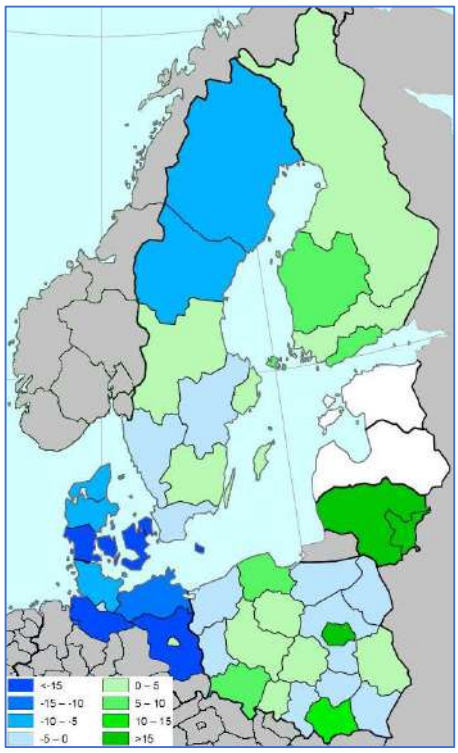


Figure 17: Innovation performance change 2014-2021 (relative to EU) in Baltic Sea Region (EUSBSR). Source: Regional Innovation Scoreboard Report 2021

In fact, Baltic regions are above EU average in 14/18 indicators and in 16/18 they reach 92% or higher of EU average. Baltic regions perform best in indicators such as digitalisation[28], SME innovators[29] and linkages[30], while they are close to the EU average in indicators related to intellectual assets[31], sales impact[32] and environmental sustainability[33].

[28] RIS indicator under title 1.3 Digitalisation: 1.3.2 Individuals with above basic overall digital skills (Regional)
[29] RIS indicators under title 3.1 Innovators: 3.1.1 SMEs introducing product innovations (Regional), 3.1.2 SMEs introducing business process innovations (Regional)
[30] RIS indicators under title 3.2 Linkages: 3.2.1 Innovative SMEs collaborating with others (Regional), 3.2.2 Public-private co-publications (Regional)
[31] RIS indicators under title 3.3 Intellectual Assets: 3.3.1 PCT patent applications (Regional), 3.3.2 Trademark applications (Regional) and 3.3.3 Design applications (Regional)
[32] RIS indicator under title 4.2 Sales impacts 4.2.3 Sales of new-to-market and new-to-firm innovations (Regional)
[33] RIS indicator under title 4.3 Environmental Sustainability : 4.3.2 Air emissions by fine particulates (Regional)

BLUEAIR is implemented through the financial support of the ADRION programme

Cooperation in S3 Thematic Partnerships

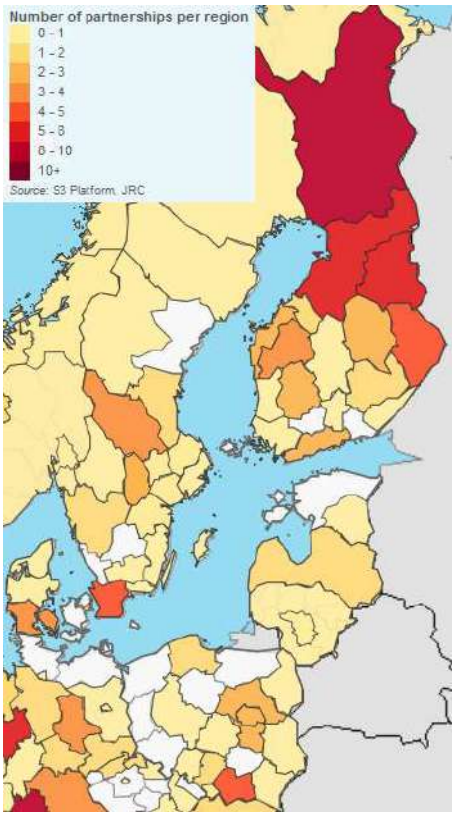


Figure 18: BSR regions in S3 thematic partnerships. Source: JRC Thematic Platforms Interactive Map, https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

Even though the BSR region is one of the most innovative regions according to Innovation Summary Index, it is not very active in S3 thematic platforms. The Finnish regions seem to be the forerunners as regards the membership in thematic partnerships mostly from the Industrial Modernisation Thematic Platform.

BLUEAIR is implemented through the financial support of the ADRION programme

3.3.4 Blue Economy Sectors

Blue Economy Report

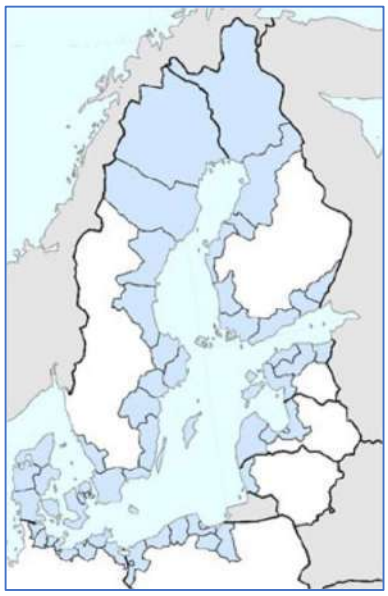


Figure 19: Blue Economy Report Baltic Sea perimeter. Source: Blue Economy Report 2021 Annexes

For a general overview of performance in blue economy sectors, we will use the data from the Blue Economy Reports. Their approach in data capture includes only EU Member States and considers only coastal NUTS3 regions (as opposed to NUTS2 used by RIS) neighbouring the Baltic Sea. This means that Blue Economy Report does not collect data for the whole EUSBSR territory. The non-coastal NUTS3 regions of the EUSBSR Member States and German regions which are bordering the North Sea are excluded.

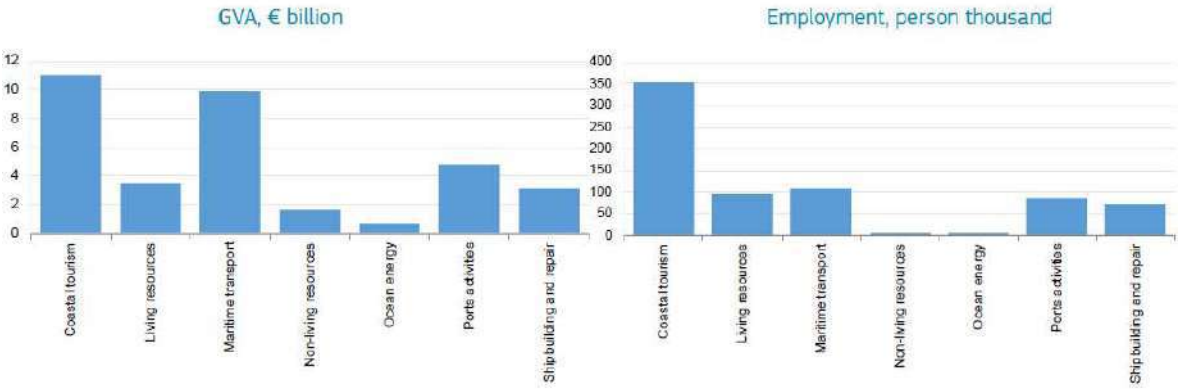


Figure 20:The Baltic Sea Strategy blue economy by sector, 2018. Source: Blue Economy Report 2021

According to the 2021 Blue Economy Report, one fifth of all people employed in blue economy sectors in the EU comes from the Baltic Sea. The blue economy in the Baltic Sea generated €34.7 billion GVA and employed 0.72 million people in 2018. The GVA was generated mainly by Coastal tourism (€11 billion) and Maritime transport (€10 billion), representing 32% and 29%, respectively of total GVA generated from blue economy in the Baltic. Actually, up to 2017, Maritime transport whad been the lead sector in GVA in the Baltic, Coastal tourism had been slowly catching up and in 2018 it took over. The rest of the sectors were somewhat evenly distributed both regarding GVA and jobs. In terms of

BLUEAIR is implemented through the financial support of the ADRION programme

employment, in 2018 Coastal tourism (0.35 million people) employed almost the same as all the other sectors combined, 49% of all persons employed in the Baltic blue economy. There had been only a slight increase in employment from 2009 (slightly below 2%) and almost no increase in GVA (0,5%).

To present trends in GVA and employment in different sectors we are using time series data provided by DG MARE for 2021 Blue Economy Report with the latest catchment year 2018. Figure 21 shows how sectors had developed over the years. The graphs do not display values for Marine Renewable Energy since even though this sector represented less than 2% in total Baltic GVA in 2018, it had grown from €0,0 to €0,8 billion from 2009, hence it had been the fastest-growing blue economy sector by far.

The graphs show that the 2008 crisis had only mildly affected the blue economy sectors. The GVA growth had stagnated or had even been negative until 2013 when all sectors except Non-living resources seem to had recovered. The same trend can be observed for employment, only the recovery started one year later, after 2014. The Non-living resources sector is in decline in Europe in general, more information on that is provided in the Benchmarking Chapter.

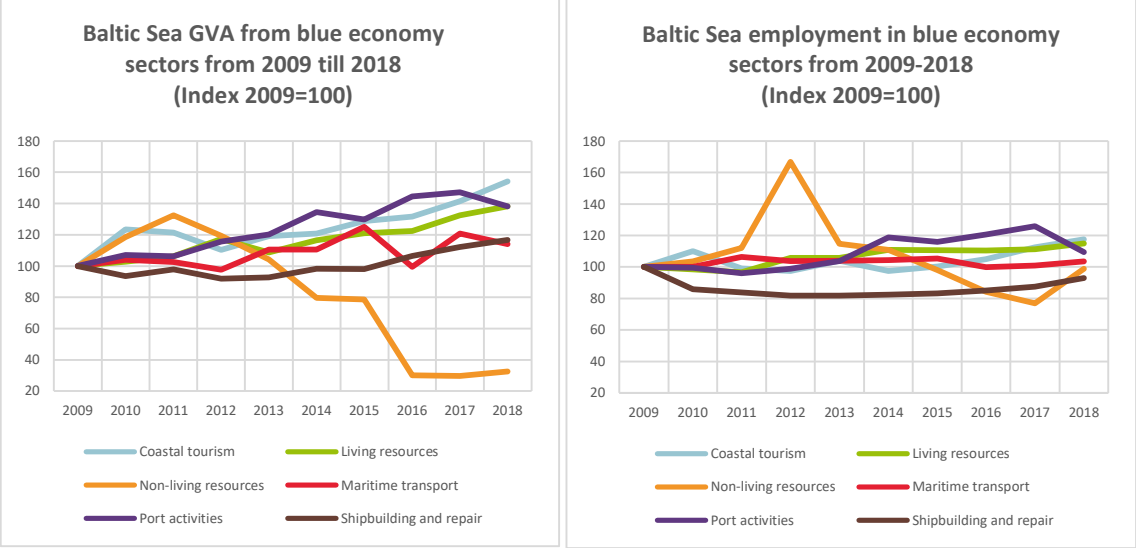


Figure 21: GVA and employment from blue economy sectors in Baltic Sea (from 2009 to 2018) without Marine Renewable Energy. Source: own calculations based on DG MARE 2021 data

Blue Growth Clusters

According to the European Cluster Collaboration platform, there are 9 clusters in the Baltic Sea Region active on the topics of blue growth (3 in Transport and logistics, 2 in Aquaculture, 1 in Blue Renewable Energy, 1 in Marine Biotechnology, 1 in Shipbuilding and repair and 1 in Offshore Mining, Oil and Gas). They are located in all participating countries, except Estonia and Lithuania.

BLUEAIR is implemented through the financial support of the ADRION programme

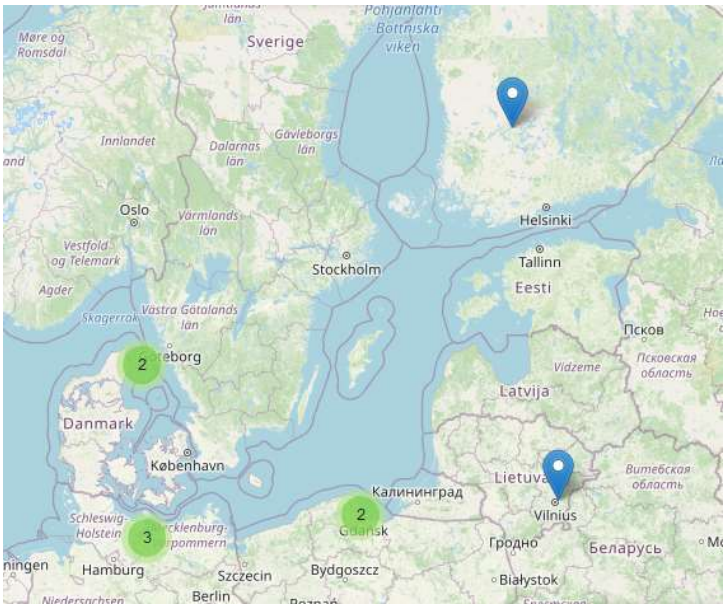


Figure 22: Blue growth-related clusters in the Baltic Sea Region. Source: European Cluster Collaboration Platform, https://reporting.clustercollaboration.eu/all#

Blue growth-related clusters in Baltic Sea Region are: Swedish Maritime Technology Forum; Energy Cluster Denmark; BioCon Valley GmbH®/BCV, Germany; BalticNet-PlasmaTec e.V./BNPT, Germany; Bioökonomie auf Marinen Standorten (BaMS) e.V., Germany; LIHH Logistics-Initiative Hamburg Managment GmbH, Germany; BSSC Baltic Sea & Space Cluster, Poland; Klaster LTPP, North South Logistics & Transport Cluster, Poland; Cleantech Cluster Lithuania; DIMECC Ltd., Finland.

3.3.5 Funding Blue Growth Policy

As the EUSBSR does not have specifically allocated financial resources, funding for operations under the Strategy is intended to come from existing financial instruments. In the period 2021-2027, the Interreg Baltic Sea Region transnational programme continues to support the implementation of the Strategy, especially as regards its governance. However, the limited programme budget cannot cover all the needs of the EUSBSR.

Therefore, EU 'mainstream' national and regional programmes, cooperation programmes and other EU funding sources are mobilised and used. These include i.e. ERDF, European Agricultural Fund for Rural Development (EAFRD), European Social Fund+, European Maritime and Fisheries Fund, Horizon Europe, TEN-T, Erasmus+, LIFE and the Connecting Europe Facility.

In general, funds from the European Investment Bank and other international financial institutions, as well as private sector financing are encouraged by EUSBSR to be used more.

The managing authorities (MAs) of EU funding programmes play an important role by ensuring the embedding of the actions of the EUSBSR Action Plan into their respective programmes and financial instruments. Close cooperation with the MAs and their networks is of the essence for all stakeholders of the Strategy. National Coordinators and members of Steering Groups cooperate with MAs at the national level, National Coordinators on the strategic level and Steering Groups members on the operational level. On the operational level, Policy Area Coordinators have the main responsibility for such cooperation regarding their respective policy areas.

BLUEAIR is implemented through the financial support of the ADRION programme

Most Relevant Interreg Programmes

This section is intended as a brief overview of Interreg programmes in the EUSBSR area that are important for transnational cooperation, these can be transnational or cross-border by nature. There are many more Interreg programmes active in specific parts of the area.

Interreg Baltic Sea Region Programme is the only programme in the area covering the whole EUSBSR territory and more. The Programme's cooperation area covers ten countries, eight of them EU Member States and two partner countries: Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Sweden and the northern parts of Germany as well as Norway and the northwest regions of Russia. Between 2014 and 2020, Interreg Baltic Sea Region provides EUR 282.4 million for finding joint solutions to common challenges. The 2014-2021 Programme is divided into four priority axes: Capacity for innovation, Efficient management of natural resources, Sustainable transport and Institutional capacity for macro-regional cooperation. The 2021-2027 Programme is also structured along four priorities: Innovative societies, Water-smart societies, Climate-neutral societies and Cooperation governance.

The Central Baltic Programme 2014-2020 is a cross-border cooperation programme. Its scope is to finance high quality projects in Finland (including Åland), Estonia, Latvia and Sweden, that aim at solving common challenges together and across borders. The Programme supports projects in four priorities: Competitive economy, Sustainable use of common resources, Well-connected region, Skilled and socially inclusive region. The 2021-2027 programme will have 4 priorities: Innovative business development, Improved environment and resource use, More accessible and inclusive labour market, Improved public services and solutions for citizens.

The Interreg South Baltic Programme aims at unlocking South Baltic's potential for blue and green growth through cross-border cooperation between local and regional actors from Denmark, Germany, Lithuania, Poland and Sweden. The funds available amount to ca. €78 million. The Programme focuses on 5 Priority Axes: Strengthening international activeness and innovation capacity of the South Baltic blue & green economy, Exploiting the environmental and cultural potential of the South Baltic area for the blue and green growth, Improving cross-border connectivity for a functional blue and green transport area, Boosting human resource capacities for the area's blue and green economy and Increasing cooperation capacity of local actors in the South Baltic area for the blue and green growth. The 2021-2027 priorities will be: INNOVATIVE - enhancing the level of innovation and internationalisation of local stakeholders, SUSTAINABLE - promoting sustainable environmental development and the blue and green economy, ATTRACTIVE – activating tourist potential, ACTIVE - improving cooperation governance.

BLUEAIR is implemented through the financial support of the ADRION programme

3.4 The Black Sea

The Black Sea Region is regarded as a 'strategic bridge' - an economic, geopolitical and trade corridor of strategic importance, connecting to the Mediterranean Sea via the Marmara and Aegean Seas; Europe with Asia, Central Asia, Middle East, South-east Asia and China. It is a dynamic, politically, economically socially and culturally heterogeneous region, characterised by the countries' close ties, but also by diverging interests.

The Black Sea is bordered by 2 EU countries – Bulgaria and Romania – as well as Georgia, Moldova, Russia, Turkey and Ukraine. Since Bulgaria and Romania joined the EU in 2007, the EU has strengthened regional cooperation with and between the countries surrounding the Black Sea.

There are several transnational cooperation frameworks in the Black Sea Region:

- In 1992 a Bucharest Convention - **Convention on the Protection of the Black Sea Against Pollution** was signed to strengthen cooperation on the topic of pollution.
- In 2007, at the time of the accession of Bulgaria and Romania to the EU, the European Commission proposed the **Black Sea Synergy Initiative** to strengthen prosperity, stability and security in the region, to date it has been the EU's key regional policy framework for the Black Sea Region.
- In 2019 **Common Maritime Agenda for the Black Sea** was endorsed to promote cooperation on maritime affairs and blue economy.

Since Common Maritime Agenda for the Black Sea as a sea basin strategy is the most relevant initiative for our topic and the most recent, we present it in more detail, the rest are described in brief in continuation of the chapter.

The fact that there are only two EU Member States part of this basin has a very strong impact on the basin performance as presented in the continuation. Data that could be analysed using the same indicators as for other basins are only available for Bulgaria and Romania. This has to be kept in mind when interpreting the results. The lack of data needed to support the regional policy directions resulted in the Black Sea Strategic Research Agenda (SRIA), more information is provided in continuation.

As for other basins, where there is no macro-regional strategy and hence a clearly defined territory, we are using the Blue Economy Report approach. Data are presented only for coastal regions of EU Member States and due to data availability NUTS2 instead of NUTS3 regions are considered.

3.4.1 Common Maritime Agenda for the Black Sea

To develop blue economy in the region, Bulgaria, Georgia, Moldova, Romania, Russia, Turkey and Ukraine endorsed the **Common Maritime Agenda for the Black Sea**[34] (CMA) and the Black Sea Strategic

[34] Bucharest Ministerial Declaration with Annexes (2019): Common Maritime Agenda for the Black Sea and Implementation Process. Available at: https://blackseablueeconomy.eu/206/common-maritime-agenda-black-sea

BLUEAIR is implemented through the financial support of the ADRION programme

Research and Innovation Agenda (SRIA) in Bucharest in May 2019. More information about SRIA is provided in the Innovation Policy section.

The Common Maritime Agenda for the Black Sea represents a follow-up to the commitment of the 2018 Burgas Ministerial Declaration "Towards a Common Maritime Agenda for the Black Sea" and a result of a process initiated and backed by the European Commission for the implementation of the Black Sea Synergy.

The overarching objective is to reinforce regional dialogue between countries and stakeholders to jointly address the challenges and opportunities of blue economy sectors in the area, ensuring environmental sustainability while fostering growth and promoting blue economy projects. The 3 main goals set are:

1. Healthy marine and coastal ecosystems
2. A competitive, innovative and sustainable blue economy
3. Fostering investment in the blue economy

and 10 further priorities declined into actions. Priorities and actions cover various cross-sectoral issues: environmental aspects, fisheries and aquaculture, green transport, coastal and maritime tourism, maritime entrepreneurship and clusters, marine research, innovative business models, financial investment, blue skills, ocean literacy.

The Common Maritime Agenda has recently launched its implementation phase. The CMA implementation started in 2020. Through the Black Sea Assistance Mechanism, administrations and stakeholders in the region get support to identify common priorities for cooperation at the sea basin level.

3.4.2 Transnational governance

Common Maritime Agenda for the Black Sea Governance Structure

The Common Maritime Agenda for the Black Sea is a voluntary, bottom-up regional cooperation framework on maritime affairs and blue economy driven and owned by the 7 countries involved. The Directorate-General for Maritime Affairs and Fisheries of the EU Commission (DG MARE) accompanies the process as a full member of the Steering Group, where each of the seven countries is represented, while the political coordination is ensured by Ministerial meetings.

Political Coordination is provided through ad hoc **Ministerial meetings** with representatives of the European Commission present. Operational Coordination is ensured through a Common Maritime Agenda for the Black Sea **Steering Group**, which coordinates the implementation of priorities and actions of the Agenda. It comprises representatives from the participating countries and is coordinated by one of the participating countries. The European Commission is closely associated with the work of the **Group Coordinator** and of the Steering Group. **Technical groups** involving experts and stakeholders may be established to ensure appropriate discussion and implementation at the operational level and to promote the definition and identification of projects. Key stakeholders should be involved as well. Sectoral meetings/business fora may be organised, at the initiative of one or more of the participating countries.

Black Sea Assistance Mechanism (BSAM) for the implementation of the Common Maritime Agenda provides guidance and support to governments, private investors, trade and industrial associations,

BLUEAIR is implemented through the financial support of the ADRION programme

research institutions and universities and to the general public regarding opportunities to engage in blue economy maritime activities in the Black Sea Region. It is organised in Central Team and National Hubs. It cooperates with Strategic Research and Innovation Agenda (SRIA) and BSEC Black Sea Virtual Knowledge Centre.

Some Other Transnational Governance Networks

Black Sea Synergy Acknowledging the importance of the Black Sea Region the European Commission has proposed Black Sea Synergy Communication to the Parliament and Council in 2007. The Synergy is EU driven initiative intended as a flexible framework to ensure greater coherence and policy guidance. It complements the EU's bilateral activities in the Black Sea Region and facilitates more sector-oriented EU support for the region. The initiative is inclusive in that participation is open to states in the wider Black Sea region. Key elements of the initiative include building confidence, fostering regional dialogue and achieving tangible results for states and citizens in the region.

Convention on the Protection of the Black Sea Against Pollution In 1992, the states on the Black Sea participated in the Diplomatic Conference on the Protection of the Black Sea Against Pollution. Out of this conference came the Convention on the Protection of the Black Sea Against Pollution, the so called "Bucharest Convention". This is the primary legal document that comprises the regional framework for the environmental protection of the Black Sea. The contracting parties to the Bucharest convention are: Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine. As a result of this, firstly, the Contracting Parties adopted the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea ("BSSAP") in 1996, which was later amended in the year 2002. Further revisions to the BSSAP were adopted by the Contracting Parties in the year 2009. Secondly, in the year 2008, the Ministers of Foreign Affairs of the EU countries and the countries of the wider Black Sea Region issued a joint statement to initiate the Black Sea Synergy cooperation.

CPMR Balkan and Black Sea Commission strives to encourage dialogue and cooperation between sub-state government levels in the wider Balkan and Black Sea area. It makes up an institutional framework to support the integration of these areas and improve their relations with the EU in the context of enlargement. Additionally, it promotes regionalization and acts as a bridge between programmes and strategies implemented by the EU and activities developed by other networks and institutions in the region, like the Organization of the Black Sea Economic Cooperation (BSEC). By participating in the preparation of concrete project proposals under the ENI CBC Black Sea Basin Programme, the BBSC becomes more involved in the Eastern Partnership and Black Sea Synergy area.

The Organization of the Black Sea Economic Cooperation (BSEC) is a regional economic cooperation organization that includes 12 member states tributary to the Black Sea except for Serbia. The organization does not have a specific thematic focus and supports activities in a wide range of policy fields, fostering multilateral political and economic activities.

The Black Sea Trade and Development Bank (BSTDB) is an international financial institution focusing on the Black Sea Region. The Bank is a supporting structure for regional cooperation and economic development through lending, guarantees and equity participation in private companies and public organizations in the member countries.

The Black Sea NGO Network was started up in 2008 by the Romanian NGDO Platform – FOND. The regional association has been organized with the support of the Romanian Ministry of Foreign Affairs and the European Commission, in the framework of the Black Sea Synergy. It includes 60 members and its work is mainly centred on the preservation of the environment and the support to sustainable development.

BLUEAIR is implemented through the financial support of the ADRION programme

3.4.3 Innovation Policy

Common Maritime Agenda for the Black Sea

The second goal of the Maritime Agenda, "A competitive, innovative and sustainable blue economy for the Black Sea", is particularly relevant as regards blue growth innovation policy in the region. There are three priorities with dedicated actions under this goal:

- Priority1: Foster innovative business models, stimulate research and innovation, and sustainable growth and up-to-date jobs
- Priority2: Promote transport and digital connectivity of the Black Sea
- Priority3: Promote blue skills and blue careers as an engine for innovation and competitiveness.

Strategic Research and Innovation Agenda for the Black Sea (SRIA)

At the same time (May 2019) as the Common Maritime Agenda, the ministers of the 7 countries endorsed also The Strategic Research and Innovation Agenda. The SRIA aims to advance a shared vision for a productive, healthy, resilient and sustainable Black Sea by 2030, while considering its special and unique ecosystem characteristics. In particular, its unique biodiversity, cultural heritage sites and the new local, national and transboundary policy measures.

It focuses on four key areas: to address fundamental Black Sea research challenges; to boost the Black Sea blue economy; to develop innovative infrastructures and to enhance blue workforce through education for new marine and maritime jobs and engaging citizens.

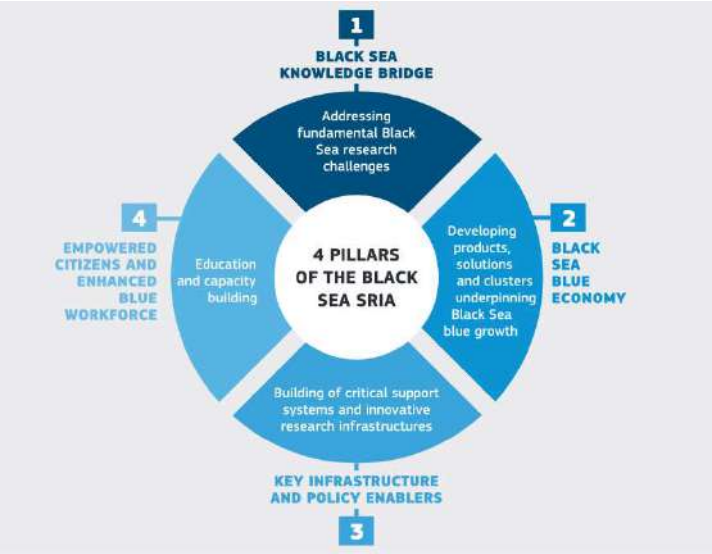


Figure 23: Main objectives of SRIA, Source: EC SRIA leaflet, accessible at: https://ec.europa.eu/info/sites/default/files/research_and_innovation/research_by_area/documents/blackseasria_factsheet_final_corrected.pdf

BLUEAIR is implemented through the financial support of the ADRION programme

Regional Innovation Scoreboard

For all three EU coastal regions (NUTS2, 2021 classification) part of the Black Sea Basin, the Regional Innovation Scoreboard for the year 2021, shows they are Emerging Innovators. On average they are below the EU average for 69% points.

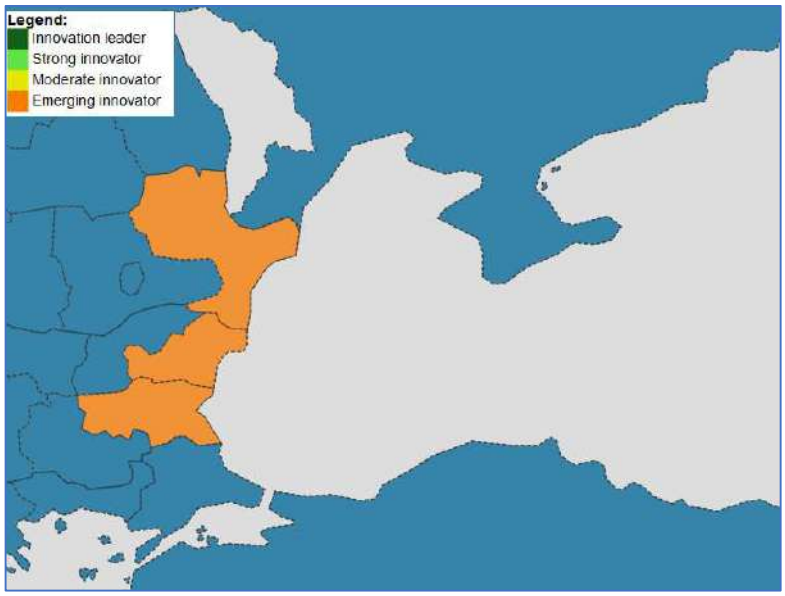


Figure 24: Regional Summary Innovation Index for Black Sea basin (NUTS 2, 2021 classification), Source: Regional Innovation Scoreboard, 2021

Comparing the Summary Innovation Index from RIS 2014 (capture years 2012 and earlier) and 2021 (capture year 2018 and earlier) (Figure 25) it can be observed that the two Bulgarian regions have improved, on average by 14%. However, EU performance increased by 14.2% points over these years, according to Regional Innovation Scoreboard Report 2021 and comparing regions' growth performance with the EU better highlights differences in growth performance across European regions. For Black Sea regions this means that none has improved performance relative to EU, the Summary Innovation Index decreased on average by 12% points and by 46%!. (Figure 26).

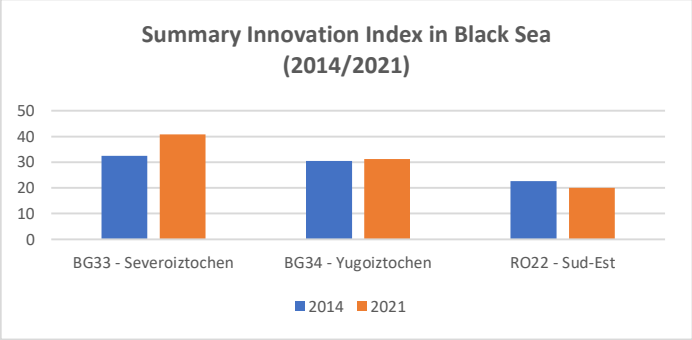


Figure 25:Regional Summary Innovation Index for the Black Sea (NUTS 2 regions, 2021 classification), Source: own calculations based on data from Regional Innovation Scoreboard, 2021

The ratio between the number of regions with performance increase and decrease (relative to EU) is for the Black Sea 0%:100%. Concerning the innovation performance, Black Sea regions are therefore among the lowest-performing and the slowest growing in Europe.

BLUEAIR is implemented through the financial support of the ADRION programme

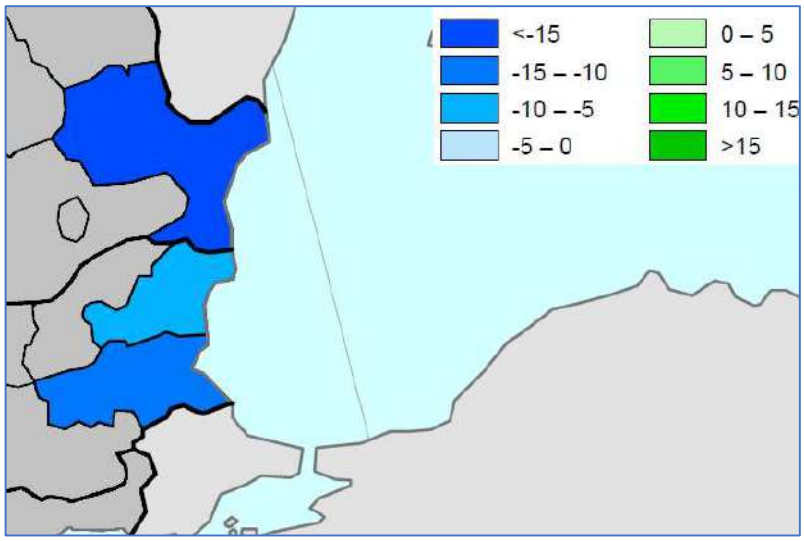


Figure 26: Innovation performance change 2014-2021 (relative to EU) in Black Sea regions (NUTS2, 2021). Source: Regional Innovation Scoreboard Report 2021

Blue Growth in Smart Specialisation Strategies

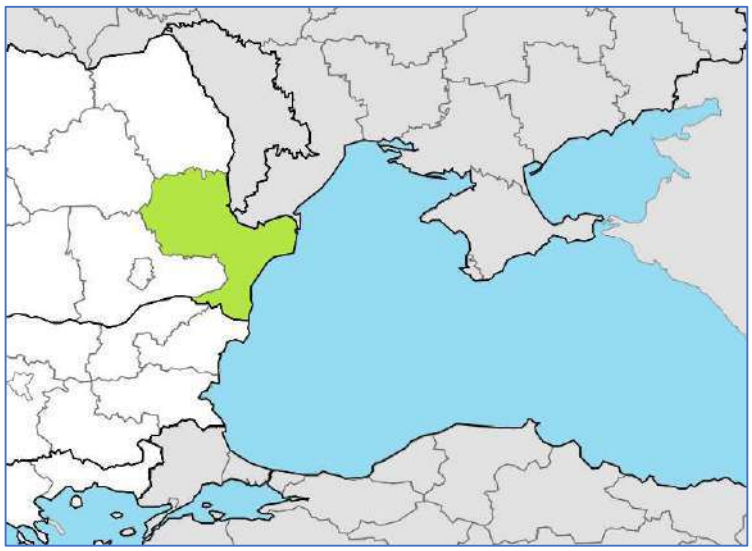


Figure 27: Black Sea S3 region with blue growth in priorities, source: Eye@RIS3

The Eye@RIS3 tool shows one of two S3 regions and countries in the Black Sea has blue growth policy objectives included in its priorities. Bulgaria has S3 priorities defined only on the country level and blue growth is not included. The only Romanian S3 region (RO22 - Sud-Est) has Aquaculture, Fisheries, Blue Renewable Energy, Coastal tourism and Transport defined as policy objectives in its S3 priorities.

Cooperation in S3 Thematic Partnerships

In the Black Sea Basin, only one Turkish region is cooperating in one S3 thematic partnership within Thematic Platform Agri-Food: Traceability and Big Data in the agri-food value chain.

BLUEAIR is implemented through the financial support of the ADRION programme

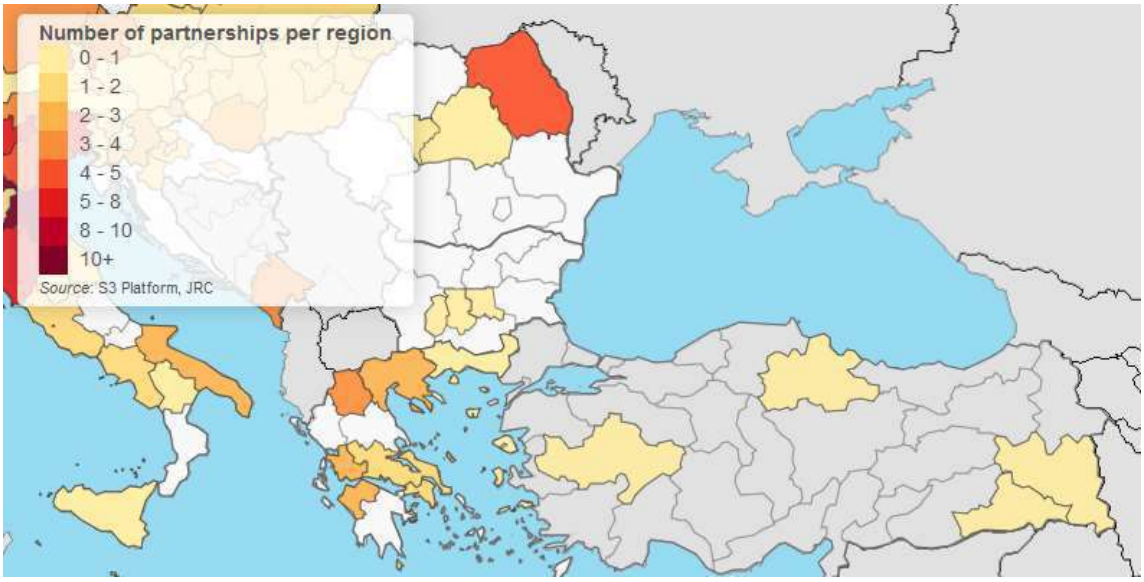


Figure 28: Black Sea regions in S3 thematic partnerships. Source: JRC Thematic Platforms Interactive Map, https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

3.4.4 Blue Economy Sectors

The Black Sea Region is an important crossroad through which many goods transit. It is an economic area with a potential for blue growth. The Region accounts for more than 34% of natural gas and oil imports to the EU; these are mostly produced onshore but recently there has also been development in offshore areas, i.e. in Romania 8% of its overall production is offshore crude.

The semi-enclosed area offers a privileged environment for the development of maritime activities. Tourism also bears importance for the littoral states and accounts for a significant share of the generated GDP. Fishing and aquaculture also represent important economic activities at regional level with differences between the States. The combination of different human activities performed in the same semi-enclosed area requires good planning, and even greater cooperation between countries due to the narrowness of the basin.

The blue economy in the sea basin is strongly dependent on the established maritime sectors, which continue to grow but still need to be modernised. In particular, the environmental sustainability, resilience and competitiveness of those sectors on the global market could be improved. Improving connectivity within the region should also be prioritised to make the most of the sea basin`s potential to develop the bridging role of the Black Sea on the East-West and North-South axes and between Europe and Asia[35].

[35] Bucharest Ministerial Declaration with Annexes (2019): Common Maritime Agenda for the Black Sea and Implementation Process. Available at: https://blackseablueeconomy.eu/206/common-maritime-agenda-black-sea

BLUEAIR is implemented through the financial support of the ADRION programme

Blue Economy Report

It has to be noted that Blue Economy Report only considers coastal NUTS3 regions in the data provided for the basins. For the Black Sea basin this means only 3 Bulgarian and 2 Romanian NUTS3 regions are included. The size of the blue economy in the Black Sea is therefore much smaller relative to the overall EU blue economy. In the Black Sea Basin, the blue economy generated €2 billion GVA (1,1% of EU's blue economy GVA) in 2018 and 0.16 million jobs (3,7% of EU's blue economy jobs), mainly in the Coastal tourism sector (101.000 jobs; €1,0 billion GVA), followed by Shipbuilding and repair (27.500 jobs; €0,5 billion GVA) and Port activities (14.700 jobs; €0,3 billion GVA). Black Sea is one of the two sea basins of the six considered in this study, which had experienced a decrease both in GVA and employment from 2009 till 2018; -0,5% in GVA and -4,7% in employment, however the negative trend caused by the 2008 crisis shifted in 2014 for GVA while employment was still stagnating in 2018.

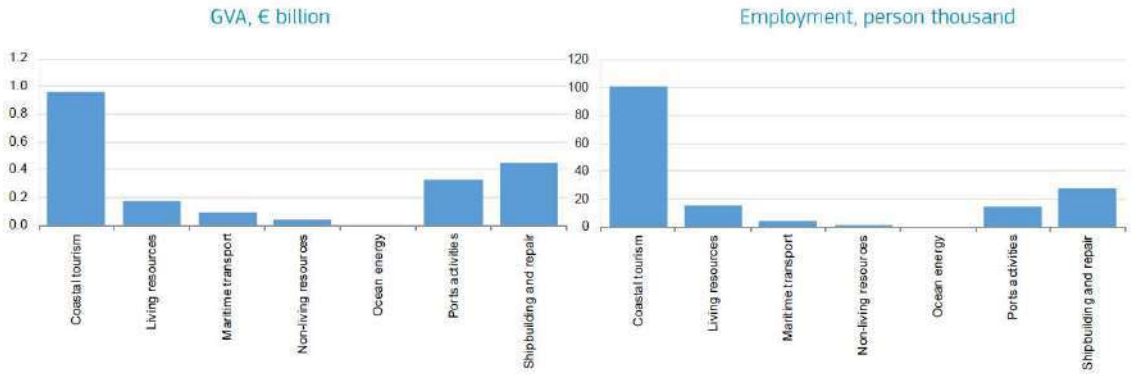


Figure 29: Black Sea blue economy sectors, 2018, Source: Blue Economy Report 2021

The below Figures show how the sectors had developed over the last decade up until the year 2018. The 2008 crisis affected all sectors both in terms of GVA and even more so in terms of employment. Even though by 2018 only Living resources (in terms of GVA and employment) and Shipbuilding and repair (in terms of GVA) had risen above the 2009 levels, all sectors show a positive trend in 2018 as regards GVA. However, majority of sectors were still struggling in 2018 as regards employment. The only two sectors with a positive employment trend in 2018 were Maritime transport and Coastal tourism.

Coastal tourism, the largest Black Sea sector was the most affected both in terms of GVA and employment. At the lowest point in 2014, it only reached 30% of the 2009 GVA and 22% of the 2009 employment.

BLUEAIR is implemented through the financial support of the ADRION programme

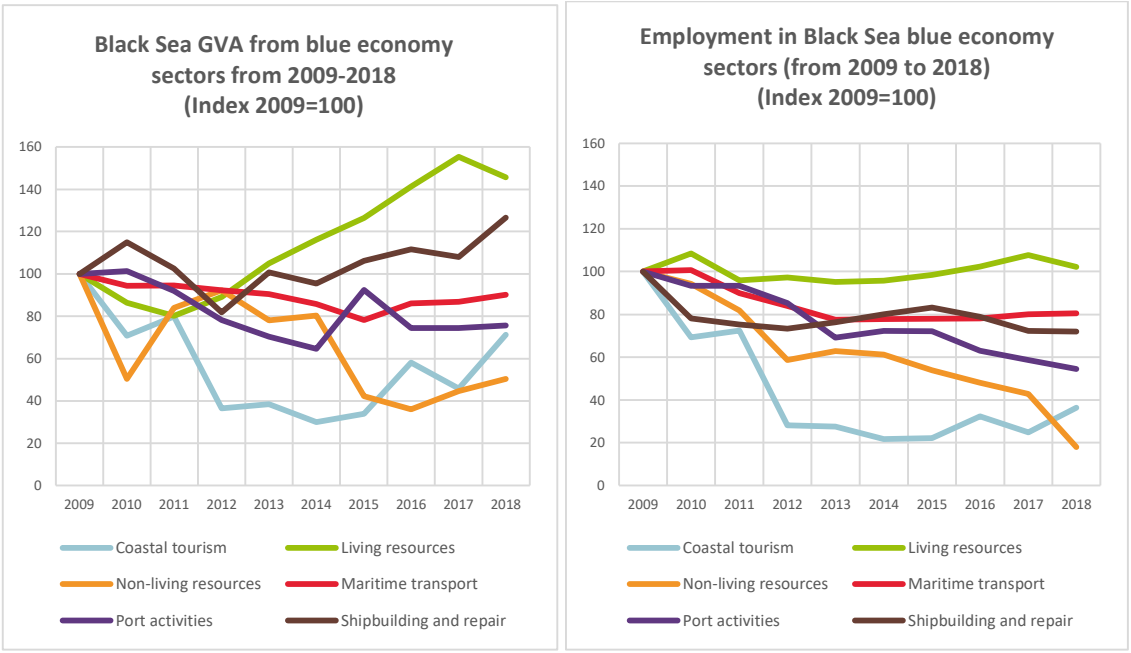


Figure 30: Black Sea GVA and employment in blue economy sectors (2009-2018). Source: own calculations based on data from DG MARE related to Blue Economy Report 2021

Blue Growth Clusters

There are no blue growth-related clusters to be found in the Black Sea Region according to the EU Clusters Collaboration Platform.

3.4.5 Financing Blue Growth Policy

The Common Maritime Agenda has recently launched its implementation phase. Through the Black Sea Assistance Mechanism, administrations and stakeholders in the region get support to identify common priorities for cooperation at the sea basin level.

In addition, the Black Sea Virtual Knowledge Centre, managed by the Black Sea Economic Cooperation (BSEC), provides a centralized platform for information on the blue economy in the Black Sea, supports synergies between stakeholders and blue economy-related projects in the region. Both initiatives are financed by the **European Maritime and Fisheries Fund (EMFF).**

Marine and maritime-related EU-funded projects in the Black Sea can be found across various policy areas and are financed by various EU funds. The Maritime Datahub created by EASME offers information on the ongoing projects in the Black Sea.

In addition to that, projects are funded by the **ENI CBC (European Neighbouring Instrument Cross-Border Cooperation) Black Sea Basin Programme**. The Programme aims to contribute to stronger and sustainable development of the area by financing projects in: promoting entrepreneurship, coordination and environmental protection and joint reduction of marine litter. The 2021-2027 Interreg programme is being developed, the policy areas recommended for inclusion are Policy Objective 1 (focusing on blue economy, entrepreneurship, support for small and medium enterprises);

BLUEAIR is implemented through the financial support of the ADRION programme

Policy Objective 2 (focusing on water availability, quality and pollution, climate change, natural risks, biodiversity, natural resources, air quality and circular economy); Interreg Specific Objective 1 (focusing on institutional capacity, civil society, people-to-people and regional and local stakeholder's cooperation.

3.5 The Mediterranean

The Mediterranean Sea is a semi-enclosed sea bordered by over 20 countries. Its coasts are home to more than 150 million inhabitants, a figure which doubles during the tourist season, as well as to more than 450 ports and terminals that together account for approximately 30% of global sea-borne trade (in volume). The Mediterranean faces a worrying combination of pollution from land sources and ships, litter, impacts on biodiversity, over-fishing and coastal degradation.

The semi-enclosed nature of the Mediterranean Sea and the transboundary impacts of maritime activities call for increased cooperation between EU and non-EU Mediterranean partners: it is an example of a maritime region where human activity could bring higher economic returns from the sea with far less impact on the ecosystem through the sustainable development of the blue economy. To promote this the European Commission is engaged in 3 different fora: Union for Mediterranean action on the blue economy, Western Mediterranean (WestMED) Initiative and EU Strategy for the Adriatic and Ionian Region (EUSAIR).

The overlapping nature of the Mediterranean Sea Basin asks for a specific organisation of the following chapters. Since one of the purposes of this study is to inspire EUSAIR with best practices in innovation policy from different sea basins, we are dividing the Mediterranean using the west-east approach of the Blue Economy Report:

- the western part of the basin cooperating within the **WestMED initiative** - West Mediterannean sub-basin
- and the eastern part working together within **EU Strategy for the Adriatic-Ionian Region (EUSAIR)** - Adriatic-Ionian sub-basin.

The chapters are therefore organised alongside the east-west division. However, the existing intense pan-Mediterranean cooperation is described in the following separate chapter as well as the corresponding Interreg programmes.

3.5.1 Transnational Cooperation in the Mediterranean

The **Union for the Mediterranean** (UfM), whose origin goes back to the launch of the Barcelona Process in 1995, was already the highest political platform for regional dialogue among the 42 member states and stakeholders and, since 2012 has been evolving toward a more action-driven organization. The **WestMED Initiative**, approved by the European Commission in 2017, has followed up on the UfM 2015 Ministerial Declaration on the Blue Economy that invited the participating countries to explore the added value and feasibility of appropriate maritime strategies at sub-regional level and build on the experience of the 5+5 Dialogue (five EU Member States and five Southern partner countries). As a

BLUEAIR is implemented through the financial support of the ADRION programme

further follow-up in the same field, in 2017 UfM member countries adopted the **BLUEMED Initiative**, which was launched as a bottom-up initiative in 2015 and jointly developed by nine Member States focusing on research and innovation for blue growth and jobs. In the meanwhile, in 2014 the European Commission adopted the **EU Strategy for the Adriatic and Ionian Region (EUSAIR)** as the third among the macro-regional strategies adopted so far (by incorporating the pre-existing Maritime Strategy for the Adriatic and Ionian Seas). EUSAIR Thematic Steering Groups met for the first time during spring 2015. In 2016, the **Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD)**, developed by the **Mediterranean Action Plan** (MAP) of the United Nations Environment Programme (UNEP) was also approved by Mediterranean countries as an integrative policy framework to adopt the 2030 Agenda for Sustainable Development in the Mediterranean.

The growing maturity of these frameworks, taking into account their different geographic and thematic scopes, reduces the pressure for cross-country (intergovernmental) coordination, while multilevel (vertical) coordination and/or alignment of cross-country strategies with territorial policies gains importance.[36]

Union for the Mediterranean

The Union for the Mediterranean (UfM) is an intergovernmental Euro-Mediterranean organisation that brings together all countries of the EU and 15 countries of the southern and eastern Mediterranean. In total there are 42 member states and stakeholders involved. The UfM ministerial meeting on blue economy held in Brussels in 2015, with the participation of 43 countries, recognized the potential of the blue economy to promote growth, jobs and investments, and reduce poverty, while stressing that healthy seas are drivers and enablers for national and regional economies. Since then, cooperation under UfM has been developed with the establishment of a dedicated Blue Economy Working Group, the launch of the Mediterranean Blue Economy Stakeholder Platform, the organization of regular stakeholder events and the implementation of many projects.

CPMR Intermediterranean Commission (CPMR IMC)

It was established in Andalusia in 1990 to express the shared interests of Mediterranean regions in important European negotiations. It covers the issues raised in all regions bordering the Mediterranean Sea. It has around 40 member regions from 9 different EU Member States and other countries (Albania, Cyprus, France, Greece, Italy, Malta, Morocco, Spain and Tunisia). It is open to all the different sub-national levels in all Mediterranean countries.

Its work, gathering regions between three continents (Europe, Africa and Asia), focuses on the development of the Euro-Mediterranean dialogue and territorial cooperation, concentrating its efforts on Transport and Integrated Maritime Policy, Economic and Social Cohesion, Water and Energy. Today, it is calling for a macro-regional strategy for the Mediterranean and fostering the emergence of Mediterranean citizenship – also on migration policies – mobilizing partners from the southern rims of the basin too.

[36] Better Governance for a Mediterranean Green Deal. Stocktaking of Panoramed and the way ahead. Interreg MED Programme. November 2020

BLUEAIR is implemented through the financial support of the ADRION programme

One of the initiatives coordinated by the CPMR is the **Adriatic Ionian Network of Universities, Regions, Chambers of Commerce and Cities Initiative (AI-NURREC)**. There is more detailed information concerning AI-NURREC under the description of the Adriatic Ionian Sea basin.

MAP and PAP/RAC centres

Priority Actions Programme/Regional Activity Centre (PAP/RAC), established in 1977, are a key component of the **Mediterranean Action Plan (MAP)**, itself part of the United Nations Environment Programme (UNEP). Twenty-one Mediterranean countries as well as the European Union make up the MAP, and their common objective is the creation of a healthier Mediterranean environment, resting on the principle of sustainable development. There are six Regional Activity Centres within the MAP, PAP/RAC. Their objective is to contribute to the sustainable development of coastal zones and sustainable use of their natural resources. In this respect, PAP/RAC's mission is to assist Mediterranean countries.[37]

IMP-MED

The Integrated Maritime Planning project brings together representatives of the EU and the Member States together with the non-EU Mediterranean States to promote and create synergies in the integrated approach for maritime management. The partners convene in regional meetings, technical regional workshops and provide technical assistance.

The 5+5 Dialogue

The Western Mediterranean Forum, commonly referred to as 5+5 Dialogue, comprises Algeria, France, Italy, Libya, Malta, Mauritania, Morocco, Portugal, Spain and Tunisia. As a Trans-Mediterranean initiative, the "raison d'être" of the Dialogue 5+5 is to ensure closer cooperation between the five EU Member States and the five Arab Maghreb countries through political dialogue and cooperation and by encouraging more effective resource management as a means of strengthening interdependence and regional development. The main objectives of the Western Mediterranean Forum are structured into specific activities that are divided into three main axes (Networking, Research and Innovation, Higher Education).

Other relevant Pan-Mediterranean transnational institutions

We need to mention also three other institutions: the Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE) that gathers 130 Mediterranean NGOs in 25 countries; the Mediterranean Network of Basin Organizations (MENBO) focusing on river basin and water management and the Agency for sustainable Mediterranean cities and territories (AViTeM) which focuses on the exchange of experience between local communities of the two shores of the Mediterranean.

Other relevant sectoral organizations have been inserted in the below table, classified by topic.

Fisheries and Aquaculture	Shipping and Ports	Tourism

[37] https://climate-adapt.eea.europa.eu/metadata/organisations/priority-actions-programme-regional-activity-centre-pap-rac

BLUEAIR is implemented through the financial support of the ADRION programme

General Fisheries Commission for the Mediterranean (GFCM)	CPMR Intermediterranean Commission – Working Group on Transport and Integrated Maritime Policy	Mediterranean Experience of Ecotourism (MEET) Network
Offshore Renewable Energy	**Nature protection**	**Scientific Research**
• Med.Association of National Agencies for Energy Conservation (MEDENER) • Association of Mediterranean Energy Regulators (MEDREG) • Renewable Energy Solutions for the Mediterranean (RES4MED) • Observatoire Mediterreneen de l'Energie (OMS)	Network of Marine Protected Area Managers in the Mediterranean (MedPAN) & International Union for Conservation of Nature (IUCN) Centre for Mediterranean Cooperation	BlueMed Initiative & Mediterranean Universities Union (UNIMED)

Table 2: Sectoral organisations in the Mediterranean

PANORAMED project – Governance Axis in the Interreg MED

All transnational Interreg programmes have a governance priority, but MED's approach is specific and unique - other programmes are much laxer in the organization of the implementation of this priority or tied to a specific macro-regional strategy. This is the reason why this is put forward in the case of Interreg Mediterranean.

The Interreg MED Programme approach to reinforcing territorial governance in the Mediterranean basin has been based on an overarching dialogue platform of national authorities, namely the PANORAMED project 2017-2022, and six strategic projects, two in each of the three selected priority areas, Coastal and Maritime Tourism, Maritime Surveillance and Innovation for the Blue Bioeconomy, with a double goal:

a) horizontal coordination among countries on issues related to common challenges that can be better tackled with joint action;
b) multilevel (vertical) coordination between transnational strategies, frameworks and initiatives in place or under discussion, and national and regional levels of government for better priorities alignment and embedding.

The work will continue within the new 2021-2027 Interreg MED Programme, with the new participation of an additional two countries: Bulgaria and Northern Macedonia.

3.5.2 Financing Blue Growth Policy

Home to some of the world's most ancient civilizations, a hub for trade and transport, unique hotspot for biodiversity, the Mediterranean faces a multitude of common challenges, including climate change, pollution, youth unemployment and social inequality. Due to its geographic dimension and differences in countries, it has many different governance structures and also many cooperation programmes.

From west to east, there are Interreg Sudoe, Interreg MED and Interreg BalkanMed covering the sea basin and these are programmes with wide participation of EU Member States. In order to also involve partners from the southern shore of the Mediterranean, the ENI CBC Mediterranean Sea Basin Programme has been established in 2007.

BLUEAIR is implemented through the financial support of the ADRION programme

The Interreg Sudoe Programme supports regional development in Southwestern Europe. Since the year 2000, the Programme promotes transnational cooperation to solve common problems in the covered territory, such as low investment in research and development, weak competitiveness of the small and medium-sized enterprises and exposure to climate change and environmental risks.

The Interreg MED Programme involves 13 countries. The transnational cooperation allowed them to tackle challenges beyond national borders, such as the rise of a low carbon economy, the protection of natural and cultural resources and the strengthening of innovation. The main objective of the Interreg MED Programme is to promote sustainable growth in the Mediterranean area by fostering innovative concepts and practices and reasonable use of resources as well as by supporting social integration through an integrated and territorially based cooperation approach.

The Interreg BalkanMed Programme is a relatively new cooperation Programme, existing since the year 2014, deriving from both the strong will of the "BalkanMed" participating countries to promote cooperation in the area and the split of the South-East Europe 2007-2013 Programme. The Programme brought together five countries: three EU Member States (Bulgaria, Cyprus and Greece) and two candidate countries (Albania and the Republic of North Macedonia). It was the first time that the European cooperation addresses the Balkan Peninsula and the Eastern Mediterranean Sea together, in a joint effort across maritime and terrestrial borders, to contribute to the EU 2020 strategy.

The Interreg Adrion Programme is important for the Adriatic Ionian cooperation and supporting the EU Strategy for Adriatic-Ionian Region. The Adrion Programme invests in regional innovation systems, cultural and natural heritage, environmental resilience, sustainable transport and mobility as well as capacity building. All the States involved in the macro-regional strategy were included in the 2014-2020 Adrion Programme except for Northern Macedonia that joined the Strategy at a later stage. The new Adrion Programme for the 2021-27 programming period is in preparation.

the ENI CBC Mediterranean Sea Basin Programme brings together the coastal territories of 14 countries and territories: Mediterranean shores of Portugal, Spain, France, Italy, Greece, Malta, Cyprus, Gibraltar and Jordan, Palestine, Lebanon, Egypt, Tunisia, Israel.

Some relevant projects according to CPMR The majority of projects were funded by the Interreg MED Programme: BlueBioMed, WinterMed, Destimed+, BlueGrowth Community, Biodiversity Protection Community, SmartMed, BestMed, Herit Data, Sherpa. In addition, there is a project focusing on water consumption in agriculture (SolaCqua). [38]

[38] https://cpmr-intermed.org/projects/

BLUEAIR is implemented through the financial support of the ADRION programme

3.6 The West Mediterranean Sub-basin

In the Western Mediterranean, there are coasts and regions belonging to Portugal, Spain, France and Malta, as well as those tributary to the Thyrrenian Sea in Italy. The area has a strategic position because of its proximity to the North African coast. The five countries on the southern shores are Algeria, Libya, Mauritania, Morocco and Tunisia. The main activities are related to Coastal tourism, especially in the EU Member States, fisheries and maritime transport are also very important for the economy. Human activities cause significant pressure on the environment: the most prominent is the overexploitation in the fisheries together with pressures on habitats and contamination.

Similarly as for other basins without a macro-regional strategy, we refer to the Blue Economy Report for the definition of the territory included in the presented Innovation Policy and Blue Economy Sectors Chapters. The Blue Economy Report considers coastal NUTS3 regions of EU Member States, however, since data presented in this study is mostly only available on NUTS2 level, we define as West Mediterranean territory coastal NUTS2 regions of relevant EU Member States. **That being said, a large proportion of the Western Mediterranean sub-basin is not included, since the data available for this study refer only to EU territories.**

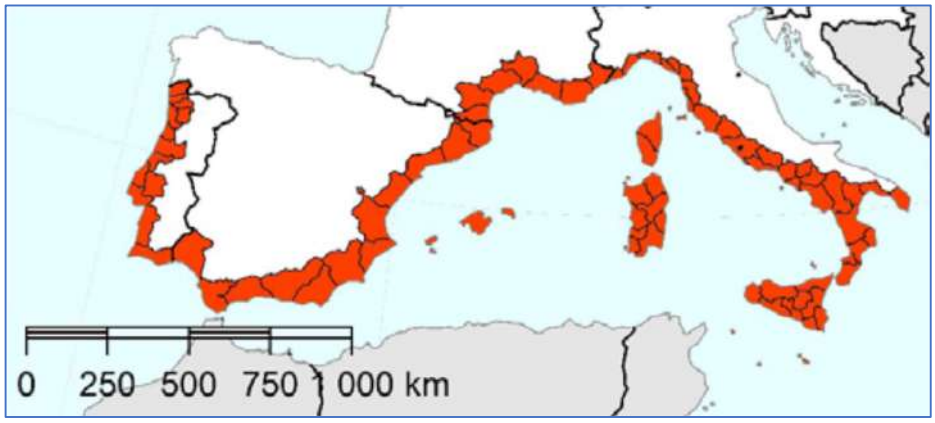


Figure 31: West Mediterranean sub-basin territory (NUTS3) Source: Blue Economy Report 2021

3.6.1 WestMED Initiative and Framework for Action

Launched in 2017, the **Initiative for the Sustainable Development of the Blue Economy in the Western Mediterranean**[39] (WestMED) involves 5 EU countries (France, Italy, Portugal, Spain and Malta) and 5 southern partner countries (Algeria, Libya, Mauritania, Morocco and Tunisia). It is a sea basin strategy with 3 main goals:

1. A safer and more secure maritime space
2. A smart and resilient blue economy
3. Better governance of the sea.

For each goal priorities, actions and targets are set. The initiative focuses on local and regional challenges, provides knowledge on the blue economy, shares opportunities in the region with the

[39] European Commission (2017). COM(2017) 183 final. Communication on Initiative for the Sustainable Development of the Blue Economy in the Western Mediterranean

BLUEAIR is implemented through the financial support of the ADRION programme

WestMED community, helps match stakeholders with the right partners, and supports them in developing successful projects.

The Framework for Action[40] was endorsed with the Initiative. It outlines the steps to achieve the Initiative's goals and priorities. The Framework for Action was drafted and endorsed following an extensive, bottom-up consultation process, involving a wide range of stakeholders from the region: international, national, regional and local authorities, the private sector, academia and civil society. Ten priorities and accompanying targeted actions have been set for each goal:

- Coastguard functions cooperation (training, capacity building, search and rescue)
- Maritime safety and response to marine pollution rescue
- Strategic research and innovation
- Maritime clusters development
- Skills development and circulation
- Sustainable consumption and production (maritime transport, ports, maritime and coastal tourism, marine aquaculture)
- Spatial Planning and coastal management
- Marine and maritime knowledge
- Biodiversity and marine habitat conservation
- Sustainable fisheries and coastal community development.

3.6.2 Transnational Governance of the WestMED Initiative

The WestMED Steering Committee (WMSC) provides high-level stewardship for the implementation of the Framework for Action. It ensures operational coordination, provides guidance and necessary support to ensure the initiative's expected results are achieved and monitors its implementation. The WMSC is supported by **Technical Working Groups**, which are comprised of representatives with technical expertise designated by the participating countries.

The WestMED Steering Committee includes **National Coordinators** from the relevant ministries from participating countries (except Libya), the European Commission and the Union for the Mediterranean Secretariat, as well as observers from International Organizations and financial institutions.

The WestMED assistance mechanism supports participating countries and provides tailored guidance on project development, funding opportunities and partner matchmaking. They work closely with the WMSC and its Technical Working Groups by offering operational, logistical and administrative support. Support also includes organising events, webinars and drafting of working documents and the revision of the Framework for Action, including definition and quantification of targets, indicators and baselines. The Assistance Mechanism also offers practical project support through their representatives – **National Hubs** – in 9 different countries.

[40] European Commission (2017). SWD(2017) 130 final. Commission Staff Working Document. Framework For Action. Accompanying the Communication on Initiative for the Sustainable Development of the Blue Economy in the Western Mediterranean

BLUEAIR is implemented through the financial support of the ADRION programme

3.6.3 Innovation Policy

WestMED Initiative and Framework for Action

The second goal of the WestMED Initiative is most related to blue growth: A smart and resilient blue economy. It is about boosting research and innovation, and developing skills, entrepreneurship and industrial cooperation, thus creating sustainable jobs and investment opportunities. This goal largely builds on existing initiatives such as BLUEMED[41] and its Strategic Research and Innovation Agenda, and encourages partner countries to be better involved. There are four priorities defined for this goal:

- Strategic research and innovation
- Maritime clusters development
- Skills development and circulation
- Sustainable consumption and production (maritime transport, ports, maritime and coastal tourism, marine aquaculture).

Under each of these priorities several actions are defined for their implementation.

Regional Innovation Scoreboard

Regional Innovation Scoreboard considers coastal NUTS2 regions and NUTS1 regions for France (2021 classification) of EU Member States, leaving out a large proportion of the WestMED territory. Regional Innovation Scoreboard for the year 2021 shows that, most (19/23) WestMED regions are Moderate Innovators or Emerging Innovators. Only the two continental French regions and Italian regions of Tuscany and Lazio are in the Strong Innovator group. The majority of regions are below EU average (14/23).

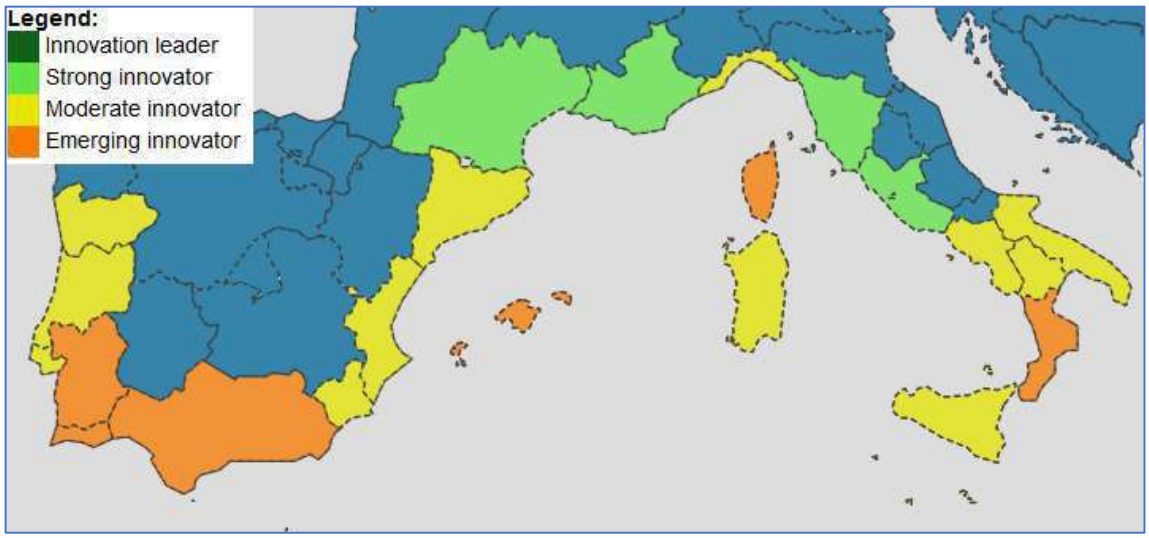


Figure 32: Regional Summary Innovation Index for the West Mediterranean basin NUTS 2 regions (France NUTS1) (NUTS 2021), Source: Regional Innovation Scoreboard, 2021

[41] http://www.bluemed-initiative.eu/

BLUEAIR is implemented through the financial support of the ADRION programme

Comparing the Summary Innovation Index from RIS 2014 (capture years 2012 and earlier) and 2021 (capture year 2018 and earlier) (Figure 33) it can be observed that except Corsica all WestMED regions have improved, on average by 21% (15,5% points). However, EU performance increased by 14.2%[42] points over these years and comparing regions' growth performance with the EU better highlights differences in growth performance across European regions. Even so, 13 WestMED regions have improved performance relative to the EU (on average by 12%), while the Summary Innovation Index decreased for the rest (on average by 10%) (Figure 34). French regions (Corsica, Occitanie and PACA) and one Portuguese (Algarve) had the largest decrease since 2014, actually the two best innovation performing regions are third and fourth on that scale.

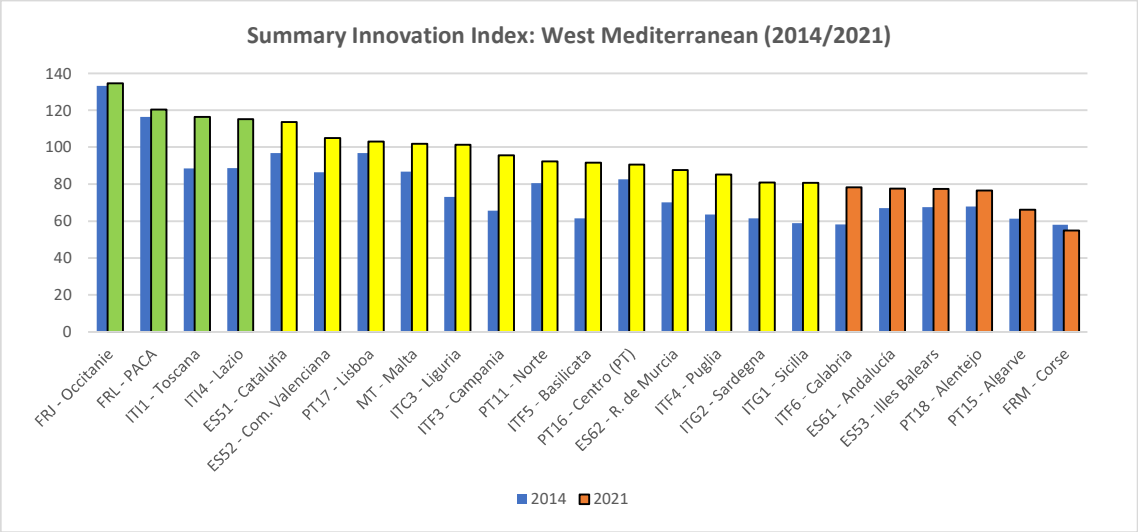


Figure 33:Regional Summary Innovation Index for West Mediterranean NUTS 2 regions (France NUTS1)(NUTS 2021), Source: own calculations based on data from Regional Innovation Scoreboard, 2021

The ratio between the number of regions with performance increase and decrease (relative to EU) is for the WestMED 57%:43%, while the EU ratio is 40%:60%[43]. So even though WestMED regions are not the best performing innovators, they are among the faster growing, especially the Italian regions of Basilicata and Campania, which rank among the 10 fastest growing regions in Europe.

[42] Holanders H. (2021). Regional Innovation Scoreboard Report 2021. Publications Office of the European Union. Luxemburg
[43] ibid

BLUEAIR is implemented through the financial support of the ADRION programme

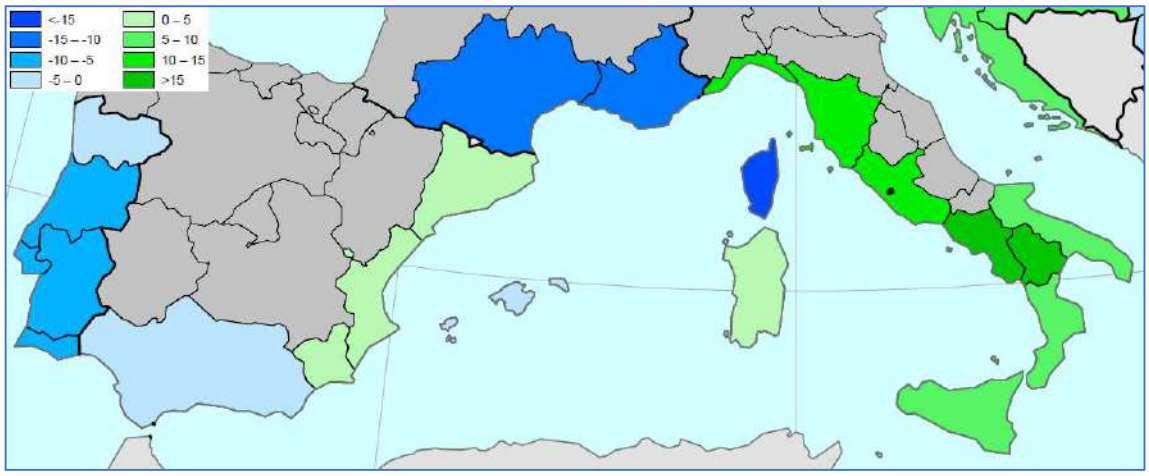


Figure 34: Innovation performance change 2014-2021 (relative to EU) in West Mediterranean Region (NUTS1 for France, NUTS2 for the rest, 2021). Source: Regional Innovation Scoreboard Report 2021

Blue Growth in Smart Specialisation Strategies

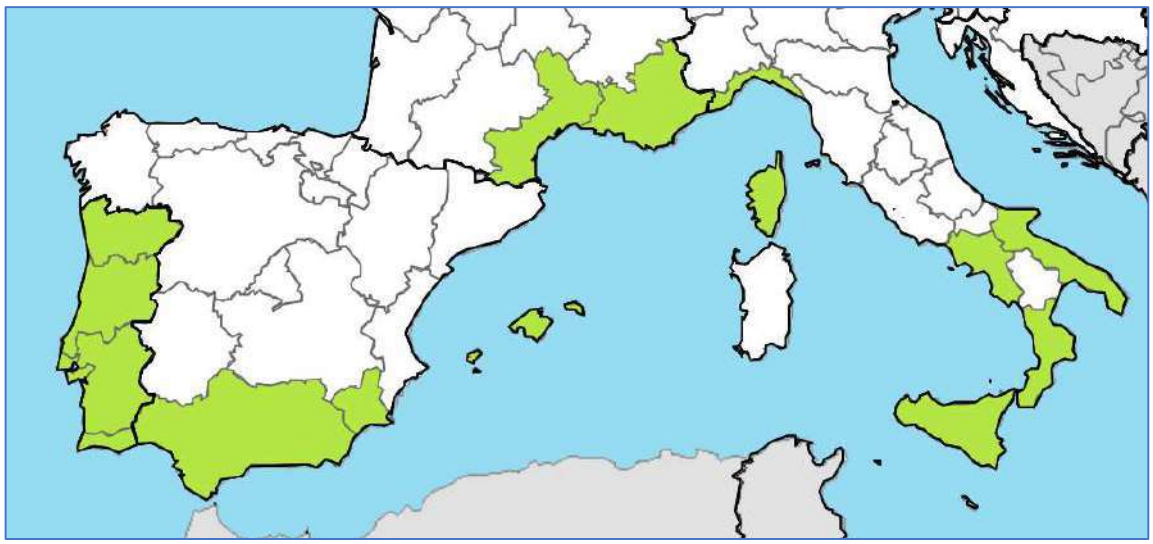


Figure 35: West Mediterranean S3 regions with blue growth in priorities, source: Eye@RIS3

The Eye@RIS3 tool shows 17 out of 23 S3 regions in the West Mediterranean sub-basin have blue growth policy objectives included in their priorities. Transport and Logistics (13) is the prevalent policy objective, followed by Marine biotechnology (10), Shipbuilding and repair (10), Fisheries (9), Aquaculture (8), Blue Renewable Energy (8) and Coastal tourism (8 regions).

BLUEAIR is implemented through the financial support of the ADRION programme

Cooperation in S3 Thematic Partnerships

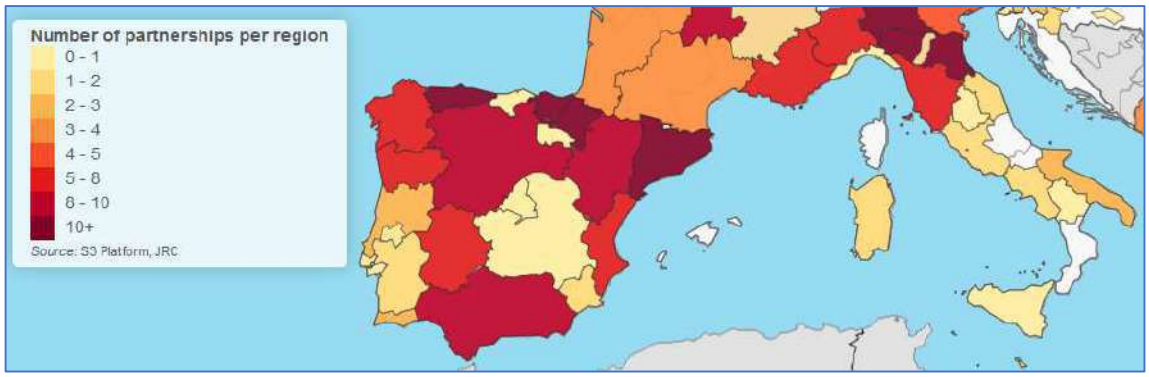


Figure 36: West Mediterranean regions in S3 thematic partnerships. Source: JRC Thematic Platforms Interactive Map, https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

Three Mediterranean Spanish regions are very active. The most active of the latter is Catalonia, with a strong involvement in Industrial Modernisation partnerships (14), Energy (1) and Agri-food (2) partnerships; Andalusia with Industrial Modernisation partnerships (5), Energy (3) and Agri-food (2) and the Comunidad Valenciana with Industrial Modernisation partnerships (5), Energy (2). Toscana is following with Industrial Modernisation partnerships (6), Energy (1) and Agri-food (1).

3.6.4 Blue Economy Sectors

The Western Mediterranean has considerable assets in terms of the blue economy, for instance, the dynamism of maritime transport, tourism, fishing and aquaculture; the development of renewable energies; the exploration of new natural resources; and the biotechnological development of existing resources. However, it remains affected by significant economic disparities and high rates of unemployment, especially among young people. The Western Mediterranean is also subject to numerous and growing pressures (e.g. strong urbanization of coastal areas, rapid demographic growth, coastal erosion, overexploitation of fish stocks, pollution, coastal hazards, etc.), aggravated by the effects of climate change[44].

Blue Economy Report

Knowing that Blue Economy Report only considers coastal NUTS3 regions of EU Member States, this section is again leaving out a large proportion of the sub-sea basin.

[44] Algiers Ministerial Declaration and Roadmap for the WestMED initiative (2018) available at: https://www.westmed-initiative.eu/westmed-initiative/

BLUEAIR is implemented through the financial support of the ADRION programme

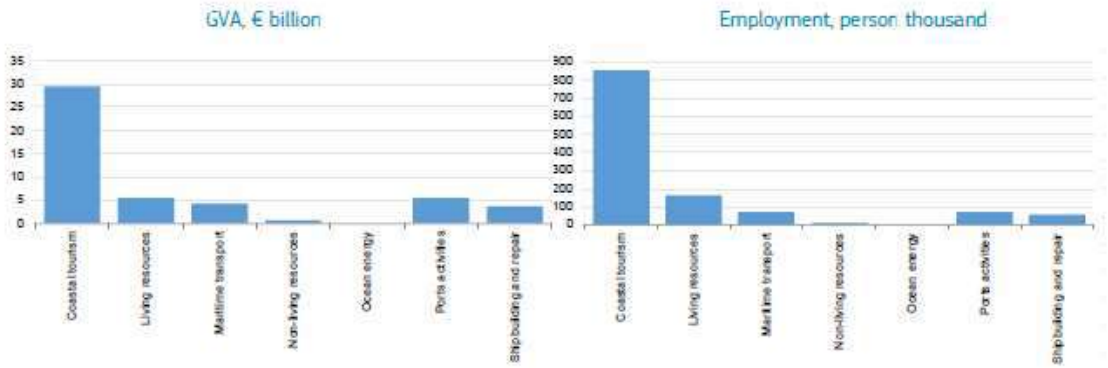


Figure 37: West Mediterranean blue economy sectors, 2018, Source: Blue Economy Report 2021

According to the 2021 Blue Economy Report, out of all 6 basins considered in this study, the highest share, slightly less than one third, of EU's GVA and employment in blue economy is attributed to the West Mediterranean. In year 2018 (as per 2021 Report) the West Mediterranean created €49 billion GVA (30,5% of EU blue economy) and employed 1,22 million people (32.7% of all blue economy jobs in the EU), most of which in the Coastal tourism sector. The West Mediterranean has been in this sense deeply affected by the COVID crisis. There was only a slight increase in GVA and employment from 2009; 2% in GVA and 1,3% in employment.

To present trends in GVA and employment in different sectors we are using time series data provided by DG MARE for 2021 Blue Economy Report with the latest catchment year 2018. Figure 38 shows how sectors had developed over the years. The graphs do not display values for Marine Renewable Energy since this sector had not generated any GVA or jobs throughout these years.

The 2008 crisis seems to had affected all blue economy sectors in the West Mediterranean sub-basin deeply. These sectors show lower crisis resilience, which is most heavily reflected in employment. Except for Maritime transport, none of the sectors had managed to reach the 2009 employment level by 2018. In terms of GVA, for most sectors recovery started in 2012. The Non-living resources had been in decline all over Europe during this time, more information on that is provided in the Benchmarking Chapter. In terms of employment up to 2018, all sectors had decreased below 2009 level, however some reached a turning point in 2013 (Maritime transport and Shipbuilding and repair), others in 2015 (Coastal tourism and Living resources). The sector of Port activities seems to had been stagnating or had experienced a decrease below 2009 level in both GVA and employment, nonetheless the recovery of the Maritime transport should have a positive effect on this sector as well (the connection is evident from Figure 38). Jobs in Coastal tourism had been the most affected, knowing the intense seasonality of the Mediterranean tourism sector and the fact it is by far the largest sector in the sub-basin this causes high development and social pressure on the coastal regions.

BLUEAIR is implemented through the financial support of the ADRION programme

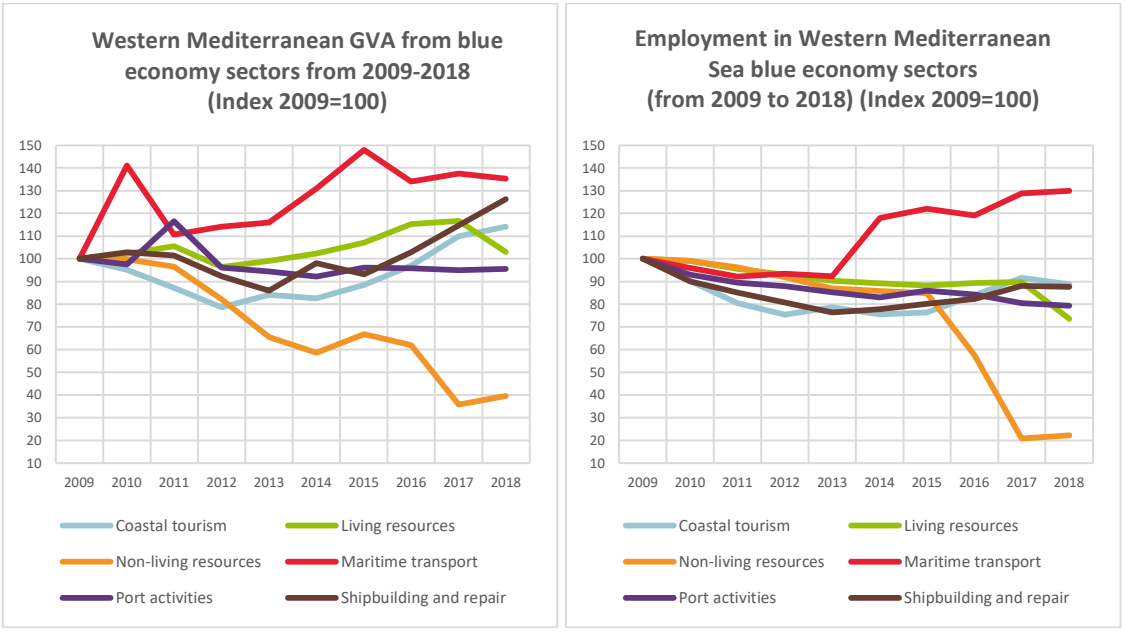


Figure 38: West Mediterranean GVA and employment in blue economy sectors (2009-2018). Source: own calculations based on DG MARE data referring to Blue Economy Report 2021

Blue Growth Clusters

According to the European Cluster Collaboration platform, there are 9 clusters in the West Mediterannean sub-basin active on the topics of blue growth (3 in Blue Renewable Energy, 2 in Shipbuilding and repair, 1 in Coastal tourism, 1 in Marine Biotechnology, and 2 in Aquaculture). They are located in all participating countries, except Malta.

Figure 39:Blue growth-related clusters in West Mediterranean sub-basin. Source: European Cluster Collaboration Platform, https://reporting.clustercollaboration.eu/all#

BLUEAIR is implemented through the financial support of the ADRION programme

These clusters are: SYSTEM FACTORY, France; ASOI Agri Sud-Ouest Innovation, France; secpho deep tech innovation cluster, Spain; Cluster de Energía de la Comunitat Valenciana – CECV, Spain; Chemical Industry Cluster of the Balearic Islands (CliQIB), Spain; Corporación Tecnológica de Andalucía / CTA Aerospace and Production Processes , Spain; Corporación Tecnológica de Andalucía / CTA Energy and Environment, Spain; Clúster Marítimo de Canarias, Spain and Fórum Oceano - Associação da Economia do Mar, Portugal.

3.7 Adriatic-Ionian sub-basin

Countries in this area share some common related issues and challenges as regards its common seas, such as: the need for environmental conservation and management actions, also considering that environmental quality is a winning asset for coastal tourism – a relevant economic activity for the Adriatic-Ionian sub-basin; sustainable management of fishery and fish stocks; the urgent need for cooperation in the sector of safety at sea, due to the present migratory crisis; the possible exploitation of submarine natural gas and oil resources and more.

Cooperation in this sub-basin is concentrated around **EU Strategy for the Adriatic and Ionian Region - EUSAIR** (for more information on the history of the cooperation in the Mediterranean please refer to chapter 3.5.1), therefore in continuation the territory considered corresponds to the EUSAIR territory. Since this study is prepared mainly for the use of the EUSAIR and in many cases data are available, all EUSAIR countries are included, regardless of their EU membership status.

3.7.1 The EU Strategy for the Adriatic and Ionian Region and Action Plan

A long experience of the intergovernmental Adriatic-Ionian Initiative created strong links between the participating countries and generated regional cooperation between cities, chambers of commerce, universities and national parliaments. In 2012 these efforts resulted in the adoption of The Maritime Strategy for the Adriatic and Ionian Seas[45], which addressed blue growth opportunities of the area. Only two years later the **EU Strategy for the Adriatic and Ionian Region (EUSAIR)[46]** was developed, replacing the Maritime Strategy. It contributes to further integration of the internal market, to the stability of the area, fosters cooperation between EU and non-EU countries and assists participating candidate and potential candidate countries on their path towards the EU. It was adopted in the year 2014 and it is the most recent among the four macro-regional strategies. Currently, it involves 9 countries: 4 EU Member States (Croatia, Greece, Italy, Slovenia) and 5 Western Balkan countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia). For Italy, only the regions tributary to the Adriatic Ionian Sea Basin are involved and not the entire country.

[45] European Commission (2012). COM(2012) 713 final. Communication on A Maritime Strategy for the Adriatic and Ionian Seas

[46] European Commission (2014). COM(2014) 357 final. Communication concerning the European Union Strategy for the Adriatic and Ionian Region

BLUEAIR is implemented through the financial support of the ADRION programme

Figure 40: EUSAIR map, Source: https://www.adriatic-ionian.eu/media-centre/media-toolkits/

EUSAIR is divided into 4 pillars, which represent key challenges in the region:

Pillar 1 – Blue Growth encourages innovative and maritime growth by promoting sustainable economic development and job creation as well as business opportunities. In doing so, three topics are targeted: Blue technologies, Fisheries and aquaculture and Maritime and marine governance and services.

Pillar 2 - Connecting the Region is meant to improve transport and energy connectivity: by strengthening maritime safety and security and developing a port system, creating reliable transport networks and intermodal connections with the hinterland, and establishing a well-interconnected and well-functioning internal energy market. To achieve these objectives, the pillar emphasizes: Maritime transport, Intermodal connections to the hinterland and Energy networks.

Pillar 3 - Environmental Quality is dedicated to ensuring the economic and social well-being of people of the Adriatic and Ionian Region. It addresses both the marine environment (especially Pollution of the sea) and Transnational terrestrial habitats and biodiversity.

Pillar 4 - Sustainable Tourism The focus of this Pillar is on developing the potential of the Adriatic and Ionian Region by offering innovative and quality tourism products and services. To achieve the objectives of this pillar, the focus is a diversified tourism offer and sustainable and responsible tourism management.

Moreover, **Strengthening R&D, Innovation and SMEs** and **Capacity building, including communication** are two cross-cutting aspects across each pillar.

BLUEAIR is implemented through the financial support of the ADRION programme

The Strategy helps to mobilize all relevant EU funding and policies, and coordinate the actions of the European Union, EU countries, regions, pan-Adriatic and Ionian organizations, financing institutions and non-governmental bodies to promote a more balanced development of the region. The Sea Basin has an extremely fragile environment due to its geography, especially the part of the Adriatic (being a closed sea) is endangered in case of potential hazards due to sea traffic and increasing tourism flows, all issues to be addressed by the macro-regional cooperation.

The Strategy was amended in 2020 due to the inclusion of North Macedonia[47].

EUSAIR Action Plan

The **Action Plan** is structured to reflect the four pillars as well as the topics selected. Accordingly, under each Pillar, the Action Plan incorporates the following features: **Topics** represent the main areas where the macro-regional strategy can contribute to improvements, **Actions** are interventions which countries and stakeholders carry out to address the different topics, **Projects** – the Action Plan outlines the scope as well as the topics on which cooperation should focus.

The first version[48] was adopted alongside the Strategy itself in 2014, followed by a 2020 revision[49]. The 2020 revision only includes changes related to North Macedonia joining the Strategy, other than that, the Action Plan remained unchanged. Nonetheless countries had agreed on introduction of flagships under each pillar to be embedded into the Instrument for Pre-accession Assistance (IPA)/ESIF programming documents for the new programming period.

EUSAIR Flagships

For the new programing period EUSAIR implementing bodies had agreed in May and June 2020 on flagships as solutions for the main challenges of macro-regional importance consistent with national needs as well as with the EU policy objectives for a greener, low-carbon and more connected Europe. Countries will meet concrete actions at the national level by embedding them in their IPA/ESIF programming documents to follow a common goal and propose solutions for the EUSAIR territories.[50]

More information is provided in the below table with the description of Flagships per Pillar.

[47] European Commission (2020). COM(2020) 132 final. Addendum concerning the European Union Strategy for the Adriatic and Ionian Region

[48] European Commission (2014). SWD(2014) 190 final. Commission Staff Working Document concerning Action Plan. Accompanying the European Union Strategy for the Adriatic and Ionian Region

[49] European Commission (2020). SWD(2020) 57 final. Commission Staff Working Document concerning Action Plan. Accompanying the European Union Strategy for the Adriatic and Ionian Region

[50] https://www.adriatic-ionian.eu/2020/06/12/eusair-flagships-all-summed-up/

BLUEAIR is implemented through the financial support of the ADRION programme

Pillar 1	Pillar 2	Pillar 3	Pillar 4
• Fostering quadruple helix ties in the fields of marine technologies and blue biotechnologies (…) • Promoting sustainability, diversification and competitiveness in the fisheries and aquaculture sectors (…) • Bolstering capacity building and efficient coordination of planning and local development activities for improving marine and maritime governance and blue growth services	• The Adriatic-Ionian multi-modal corridors • Power networks for a green Adriatic-Ionian Region • Integrated natural gas corridors and market for a green Adriatic-Ionian Region • Development and operation of logistics for direct LNG use as a clean fuel for the Adriatic-Ionian Region	• Development and implementation of Adriatic-Ionian sub-regional oil spill contingency plan • Protection and enhancement of natural terrestrial habitats and ecosystems • Promotion of sustainable growth for the Adriatic-Ionian Region by implementing ICZM and MSP (…)	• Development of the network of sustainable tourism businesses and clusters • R&D for improvement of SMEs' performance and growth-diversification • Training and skills in the field of tourism businesses • Expanding the tourism season all year long • Development and connecting of sustainable and thematic cultural routes in EUSAIR

Table 3: EUSAIR Flagships

3.7.2 Transnational Governance

EUSAIR Governance Structure

In addition to the **political level**, consisting of Ministers for EU Funds and/or Ministers of Foreign Affairs of nine participating countries taking strategic decisions at the EUSAIR Annual forums' ministerial meetings, the EUSAIR architecture involves two main levels: the coordinating level represented by a **Governing Board** and the implementation level represented by **Thematic Steering Groups**. Operational support to both levels is provided by the **EUSAIR Facility Point strategic project**.

The Governing Board (GB) coordinates the work of the Thematic Steering Groups in charge of implementation through strategic guidance concerning management and implementation of the EUSAIR and its Action Plan. To this end, representatives from the participating countries should be duly empowered by their respective Governments.

Thematic Steering Groups (TSG) Four Thematic Steering Groups (one per pillar) have been set up. Special arrangements are being set under Pillar 2, with two sub-groups for transport and energy, respectively. The TSGs are chaired by a tandem of countries, consisting of one EU Member State and one non-EU country, starting with those that acted as coordinators for the pillar of their choice during the consultation process, namely: Greece and Montenegro for Pillar 1, Italy and Serbia and from 2020 also North Macedonia for Pillar 2, Slovenia and Bosnia-Herzegovina for Pillar 3, and Croatia and Albania for Pillar 4.

EUSAIR Facility Point (FP) Strategic Project was established to provide operational support to the key EUSAIR governance actors and implementers in their respective roles. The EUSAIR Facility Point

BLUEAIR is implemented through the financial support of the ADRION programme

Strategic Project is a partnership of project partners from all of the eight EUSAIR participating countries (they are all governmental institutions, majority from national level, one is from regional and one from local level) led by the Slovenian administration, namely the Government Office of the Republic of Slovenia for Development and European Cohesion Policy. The FP Strategic project has been implemented and financed under priority axis 4 of the INTERREG VB ADRION – Adriatic-Ionian Transnational Cooperation Programme 2014-2020.

Some Other Transnational Initiatives

The Adriatic and Ionian Initiative (AII) was established at the Summit on Development and Security on the Adriatic and Ionian Seas, held in Ancona (Italy) in May 2000. It contributed to the process of definition of the EU Strategy for the Adriatic and Ionian Region (EUSAIR). Nowadays the AII has eight members: Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Montenegro, Serbia and Slovenia. The cooperation with AII has gradually assumed different forms, including the establishment of partnerships involving Adriatic Ionian networks and Fora such as the Forum of the Adriatic Ionian Chambers of Commerce, the Adriatic Ionian Forum of Cities and Towns and UniAdrion (the Adriatic Ionian Network of Universities). More information about each of these fora is presented below.

The Adriatic Ionian Euroregion (AIE) is an international association of regional and local authorities from Italy, Croatia, Greece, Bosnia Herzegovina, Montenegro and Albania. It was established in 2006, as Adriatic Euroregion and it aims to promote transnational and interregional cooperation in the area.

The Forum of the Adriatic and Ionian Chambers of Commerce is a transnational, non-profit association bringing together the chambers of commerce of countries from both Adriatic and Ionian coasts: Italy, Croatia, Bosnia and Herzegovina, Montenegro, Slovenia, Greece and Albania. The objective of the association, established in 2001, upon the initiative of the Chambers of Commerce of Ancona and Split, is to strengthen the synergies and opportunities for socio-economic development of the Adriatic and Ionian area. To allow better coordination, the Forum identified topics of common interest from which six Workgroups were created: Agriculture, Environment, Women's Entrepreneurship, Transports, Tourism and Fisheries/Aquaculture.

UniAdrion is an association gathering Adriatic Ionian universities. It was set up in the year 2013 and it is led by the Marche Polytechnic University. It gathers universities from Italy, Croatia, Bosnia and Herzegovina, Montenegro, Slovenia, Greece, Serbia and Albania.

Some of the above-mentioned actors of transnational cooperation (The Adriatic Ionian Network of Universities, Regions, Chambers of Commerce and Cities) have set up an Initiative called **AI-NURREC Initiative**. It is funded as a project by DG REGIO and coordinated by the CPMR. The initiative aims to contribute to the achievement of the EUSAIR. The first AI-NURREC Initiative ran 18 months starting in March 2018, the second one, AI-NURREC PLUS started in July 2021.

3.7.3 Innovation Policy

The Adriatic Ionian sub-basin comprises regions and States with very different economic growth. The data for the non-EU Member States is not always available at the same level of detail or for all the relevant sectors of the economy.

While some EU Member States are finalizing their Smart Specialisation Strategy sustainability update, the process of S3 development is at a different stage in different Western Balkan countries.

BLUEAIR is implemented through the financial support of the ADRION programme

Montenegro is implementing their S3 already, Serbia is very advanced in the process, Albania, North Macedonia and Kosovo are in the stage of initiated S3, whereas Bosnia and Herzegovina has not initiated the process yet. This makes cooperation with the non-EU Member States more difficult especially on topics like industrial transition, new and innovative industries, digitalization and climate-neutral industrial activities.

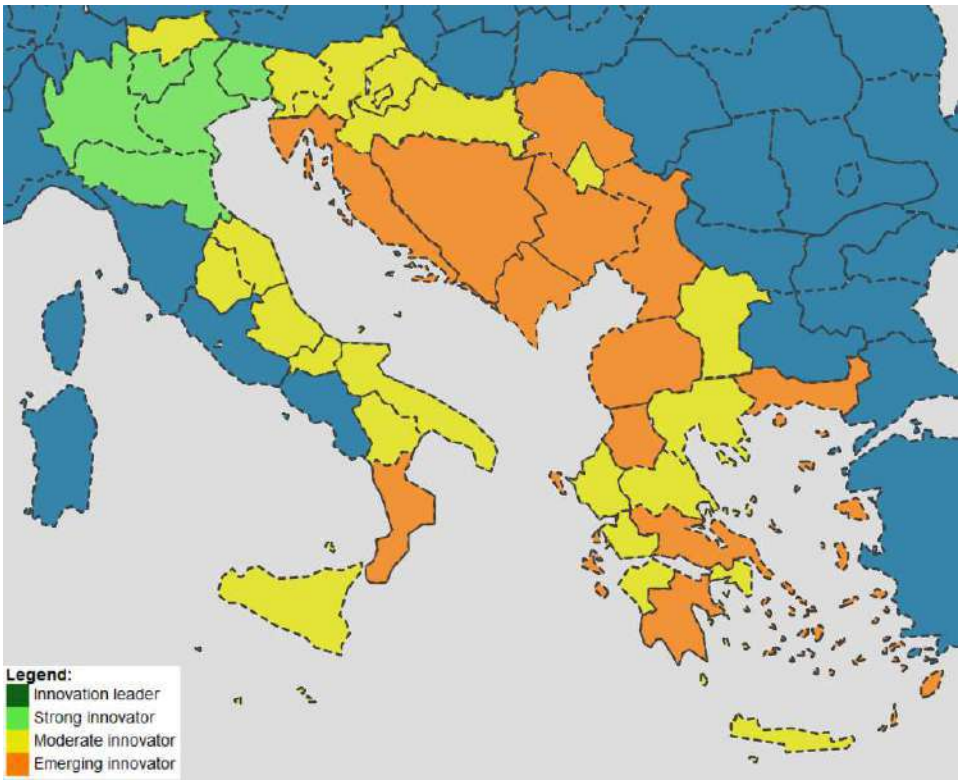
EUSAIR and Action Plan

All four pillars of the Strategy are relevant for blue growth innovation, since they are focusing on specific blue economy sectors. Innovation is considered a cross-cutting issue. Topics of the three pillars are directly addressing blue economy sectors in the Region:

- Pillar 1 Blue Growth: Blue technologies and Fisheries and aquaculture
- Pillar 2 Connecting the Region: Maritime transport; Intermodal connections to the hinterland and Energy networks
- Pillar 4 Sustainable Tourism: Diversified tourism offer (products and services); Sustainable and responsible tourism management (innovation and quality).

Regional Innovation Scoreboard

The analysis below is based on data provided by the Regional Innovation Scoreboard 2021. Even though Albania and Montenegro are part of the EUSAIR, their data is not included in the Regional Innovation Scoreboard, therefore they could not be part of our analysis.



BLUEAIR is implemented through the financial support of the ADRION programme

Figure 41: Regional Summary Innovation Index for Adriatic-Ionian Basin (NUTS 2 regions, 2021), Source: Regional Innovation Scoreboard, 2021

Half of the Adriatic-Ionian regions (NUTS2, 2021 classification) are Moderate Innovators (20/40). There are only 5 Strong Innovators, all are northern Italian regions (Emilia Romagna, Province of Trento, Friuli Venezia Giulia, Veneto and Lombardy). The rest 15 regions are Emerging Innovators. The majority of regions (77%) are below EU average. There is a wide disparity in the sea basin.

BLUEAIR is implemented through the financial support of the ADRION programme

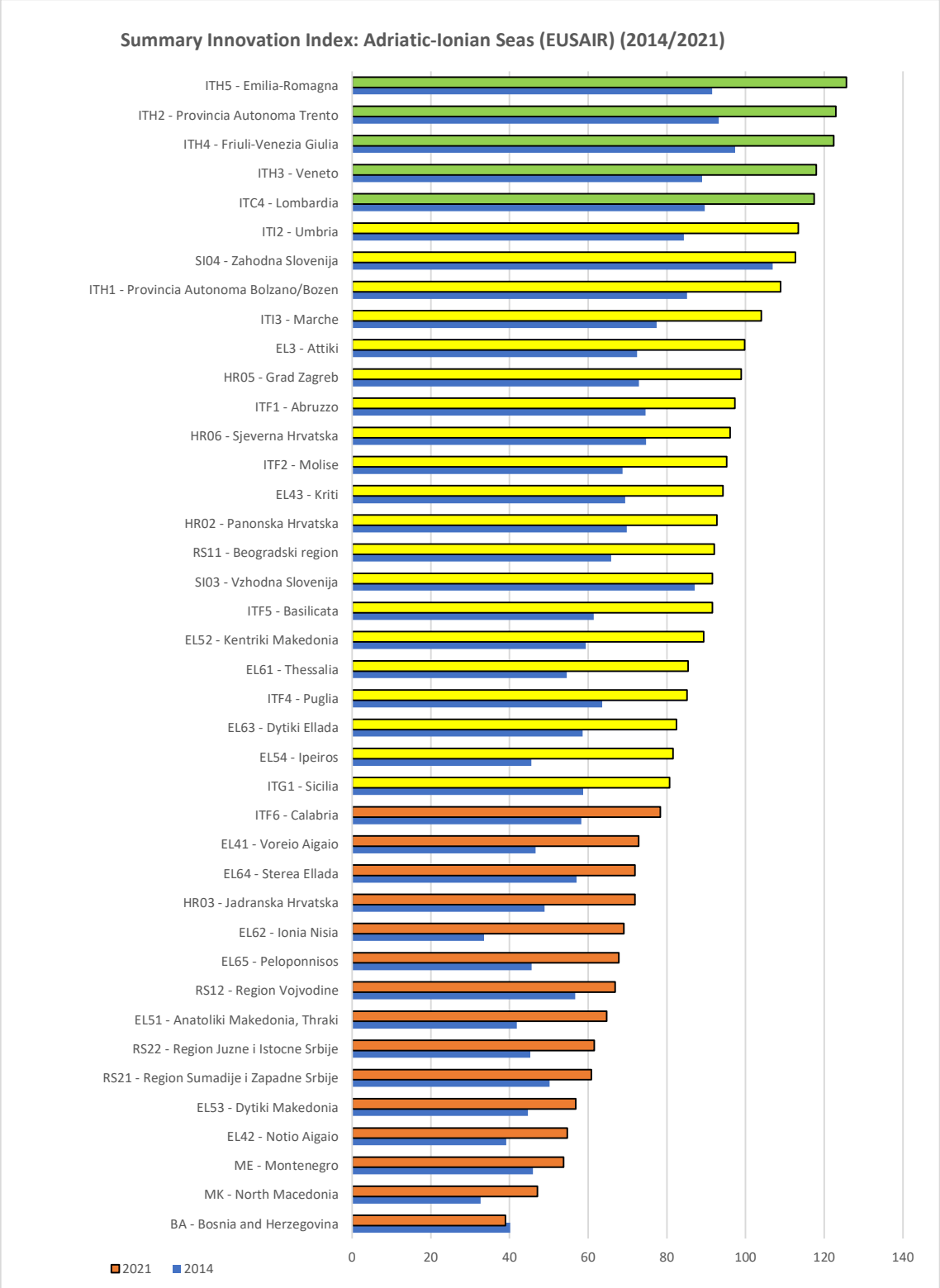


Figure 42:Regional Summary Innovation Index for Adriatic-Ionian Basin (EUSAIR) NUTS 2 regions (NUTS 2021), Source: own calculation based on data from Regional Innovation Scoreboard, 2021

Comparing the Summary Innovation Index from RIS 2014 (capture years 2012 and earlier) and 2021 (capture year 2018 and earlier) (Figure 42) it can be observed that except Bosnia and Herzegovina all

BLUEAIR is implemented through the financial support of the ADRION programme

Adriatic-Ionian regions have improved, on average by remarkable 37%[51]. Over these years, EU performance increased by 14.2%[52] points, and comparing regions' growth performance with the EU, better highlights differences in growth performance across European regions. Even in that regard, the vast majority, 32/40 Adriatic-Ionian regions have improved performance relative to EU for an exceptional 18%[53] on average, while the Summary Innovation Index decreased only for 8 regions (Figure 43). The Greek and Italian regions have improved the most, two of them (Italian Basilicata and Greek Thessalia) are among the top 10 and additional three among the top 4 (Iperios and Ionia Nisia in Greece and Emilia-Romagna in Italy) fastest growing regions in Europe. Emilia-Romagna is one of the two Strong Innovators[54] among the 10 fastest growing regions in terms of innovation performance in Europe, typically the fastest growing regions are Moderate and Emerging Innovators.

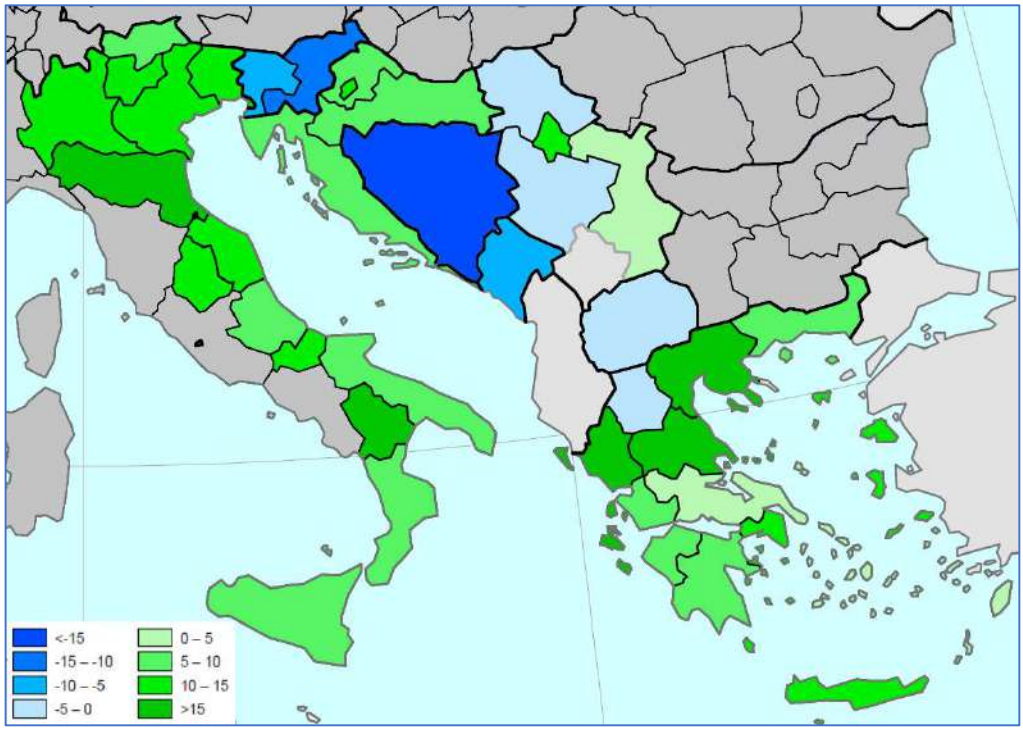


Figure 43:Innovation performance change 2014/2021 (relative to EU) in Adriatic-Ionian Region (NUTS2, 2021). Source: Regional Innovation Scoreboard Report 2021

The ratio between the number of regions with performance increase and decrease (relative to EU) is for Adriatic-Ionian Basin 80%:20%, while the EU ratio is 40%:60%[55]. So even though Adriatic-Ionian regions are not the best performing innovators, they are among the fastest-growing ones.

[51] This is the average of how much the Regional Innovation Index increased for all Adriatic-Ionian regions from 2014.
[52] Holanders H. (2021). Regional Innovation Scoreboard Report 2021. Publications Office of the European Union. Luxemburg
[53] Average calculated on the basis of 32 regions which have improved their Regional innovation Index relative to EU.
[54] The other one is Lithuanian region Sostines regionas.
[55] ibid

BLUEAIR is implemented through the financial support of the ADRION programme

In fact, Adriatic-Ionian regions are above EU average in 7/20 indicators and in 4/20 they reach less than 50% of EU average. Adriatic Ionian regions perform best in indicators such as SME innovators[56] and Linkages[57], while they are lagging behind average in indicators related to Intellectual assets[58], R&D expenditure in the business sector and Population involved in lifelong learning.

Blue Growth in Smart Specialisation Strategies

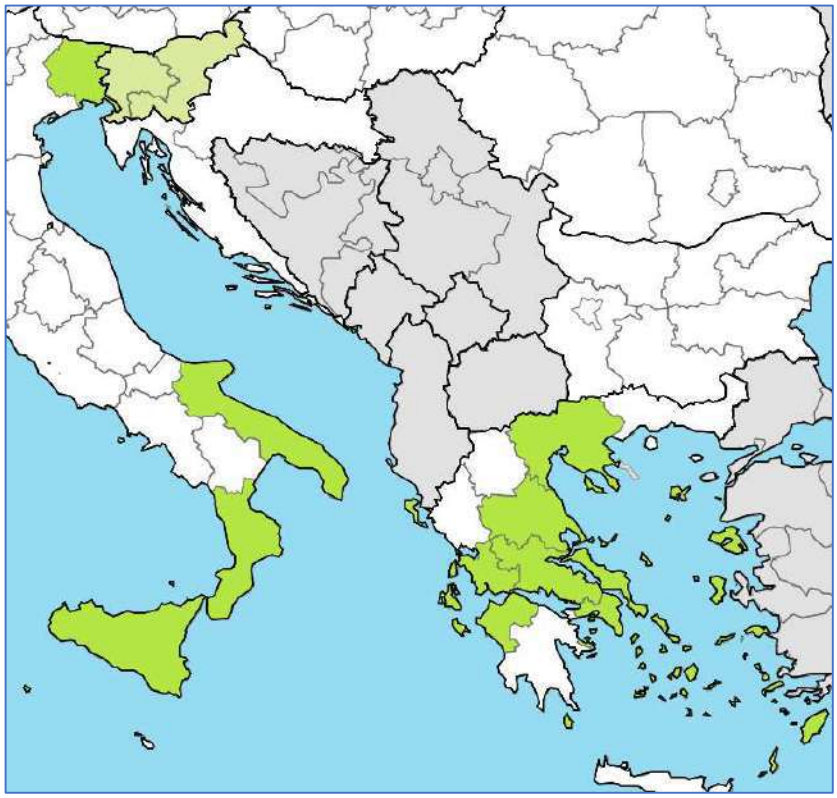


Figure 44:Adriatic Ionian S3 Regions with blue growth in priorities, source: Eye@RIS3

The Eye@RIS3 tool shows that 14 out of 36 S3 regions and countries have blue growth policy objectives included in their priorities. Aquaculture (9) is a prevalent policy objective, followed by Fisheries (7), Transport & Logistics (6), Coastal and Maritime tourism (4) and Shipbuilding and repair (4 regions).

[56] Indicators included are: SMEs introducing business process innovations, SMEs introducing product innovations
[57] Innovative SMEs collaborating with others
[58] PCT patent applications, Trademark applications and Design applications

BLUEAIR is implemented through the financial support of the ADRION programme

Cooperation in S3 Thematic Partnerships

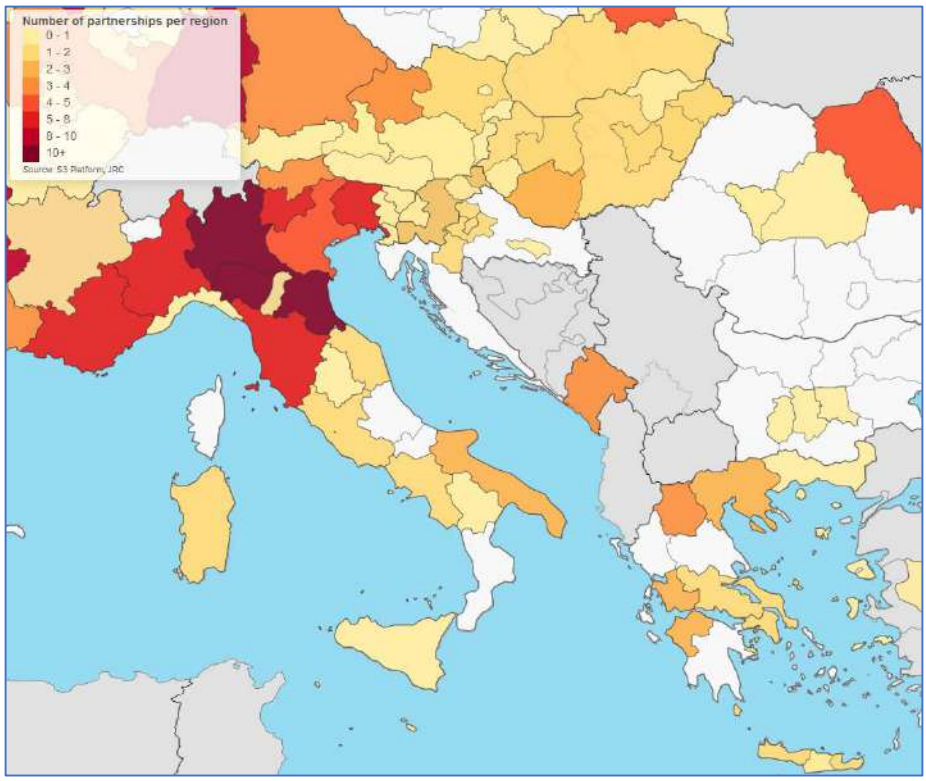


Figure 45: Adriatic Ionian regions in S3 thematic partnerships. Source: JRC Thematic Platforms Interactive Map, https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

The Adriatic-Ionian regions are not very active in S3 thematic partnerships, except for Emilia Romagna and Friuli Venezia Giulia. Both are involved in Industrial Modernisation, Energy and Agri-food partnerships. Montenegro is quite active, covering the same three topics and Puglia too, with the focus on Modernisation and Energy partnerships.

3.7.4 Blue Economy Sectors

Blue Economy Report

It is very important to highlight that Blue Economy Report, which is the main source of information for this section, includes only data of coastal NUTS3 regions of EU Member States, meaning that a large portion of the EUSAIR territory is not considered. The map below shows the area for which data is provided in the continuation of this section.

BLUEAIR is implemented through the financial support of the ADRION programme

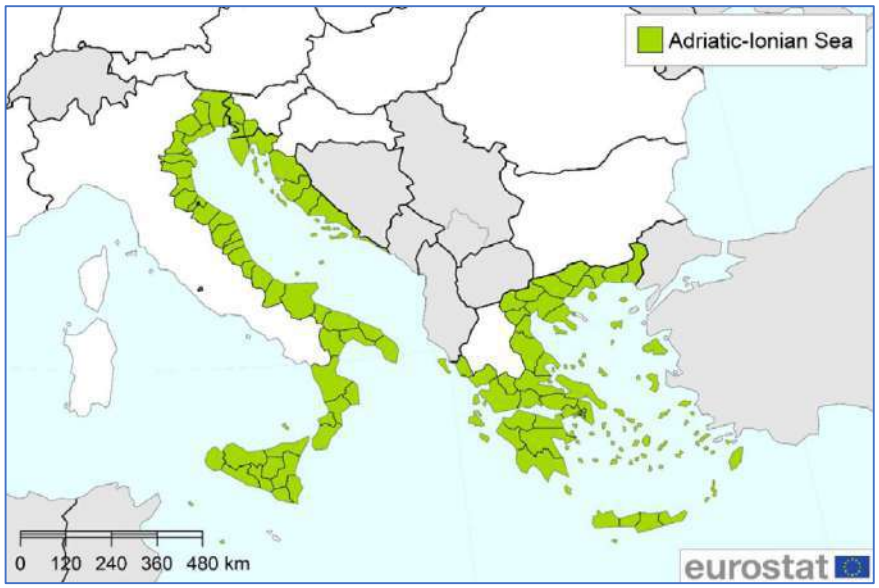


Figure 46: Adriatic-Ionian NUTS3 regions included in the Blue Economy Report, Source: Blue Economy Report 2021 Annexes

Even though according to the 2021 Blue Economy Report the Adriatic Ionian area generates 13,6% of EU's GVA from blue economy it represents 22,8% of all blue economy jobs in the EU. In year 2018 (as per 2021 Report) the Adriatic Ionian created €24,2 billion GVA and employed 1,02 million people. Adriatic-Ionian is one of the two sea basins considered in this study, which had experienced a decrease both in GVA and employment from 2009 till 2018; -4% in GVA and -1,6% in employment, however the negative trend caused by the 2008 crisis had turned already in 2013 and 2014 for employment and GVA, accordingly.

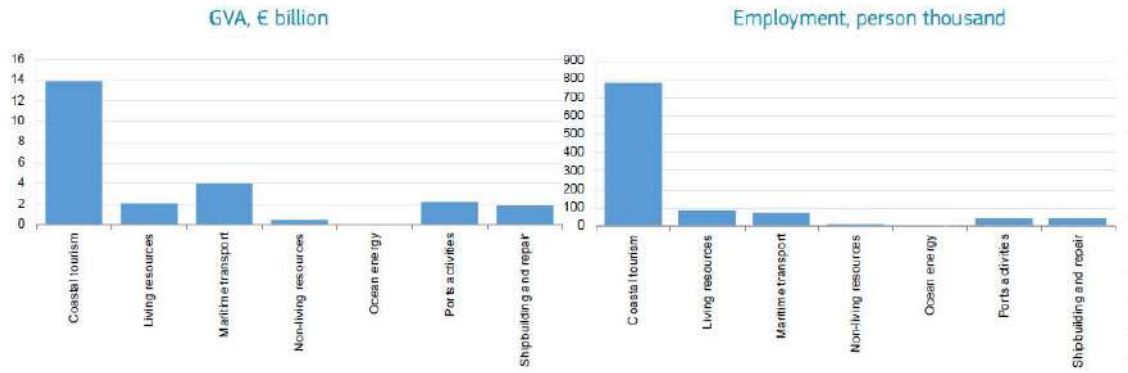


Figure 47:The Adriatic Ionian blue economy by sector, 2018, Source: Blue Economy Report 2021

In Adriatic-Ionian the majority of the GVA is generated by Coastal tourism (57%), followed by Maritime transport (16%), Living resources and Port activities (both 9%). As regards employment, the prevalence of the Coastal tourism sector is even more evident, it represents more than three quarters of jobs (77%) in the Region. Living resources account to 8% of jobs and Maritime transport 7%.

The below Figure shows how the sectors had developed over the last decade up until the year 2018. The 2008 crisis resulted in a steep GVA decrease from Coastal tourism, Shipbuilding and repair and Non-living resources. Coastal tourism was the most affected, by 2012 the GVA from this sector had halved compared to 2009. The decrease had been less severe in Port activities, Maritime transport and Living resources. Maritime transport, Port activities and Shipbuilding and repair are connected and had

BLUEAIR is implemented through the financial support of the ADRION programme

picked up after 2013, while Coastal tourism had stagnated for a few years after the decrease and turned the trend only in 2015. In terms of employment, all sectors decreased below 2009 level and except Maritime transport and Port activities had not reached that level by 2018. Coastal tourism as the most affected sector in terms of GVA and employment, had decreased for more than half until 2012 compared to 2009. The year 2014 seems to be the turning point in terms of employment for all sectors. The only sector not recovering from the crisis up to 2018 had been Non-living resources, which is consistent with the overall EU trend.

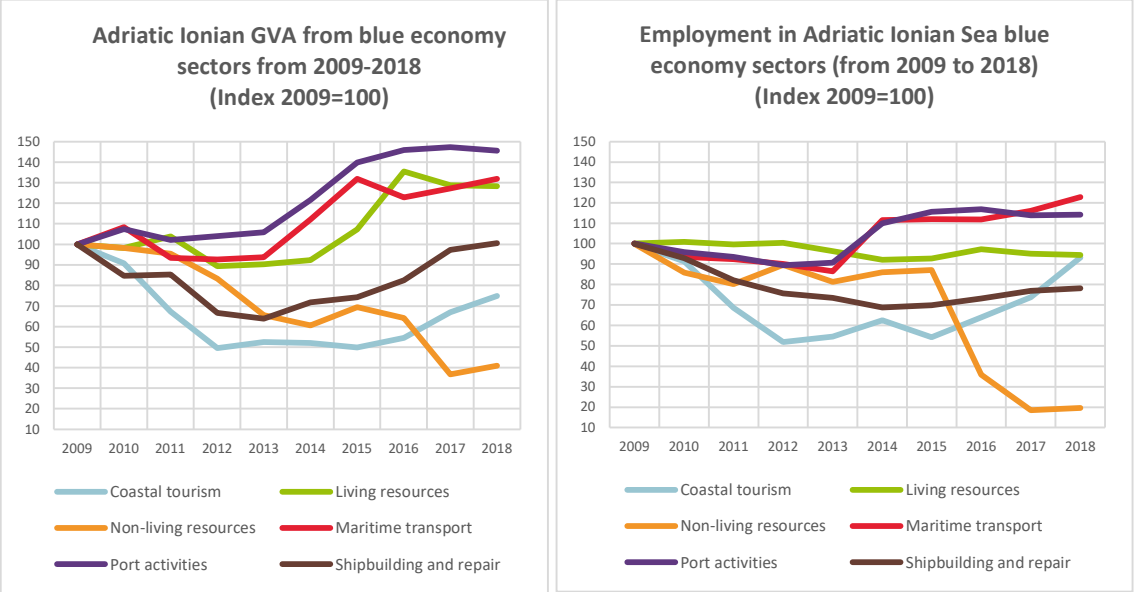


Figure 48:Adriatic-Ionian Region's GVA and employment from blue economy sectors (2009-18). Source: own calculation based on data from DG MARE for Blue Economy Report 2021

Blue Growth Clusters

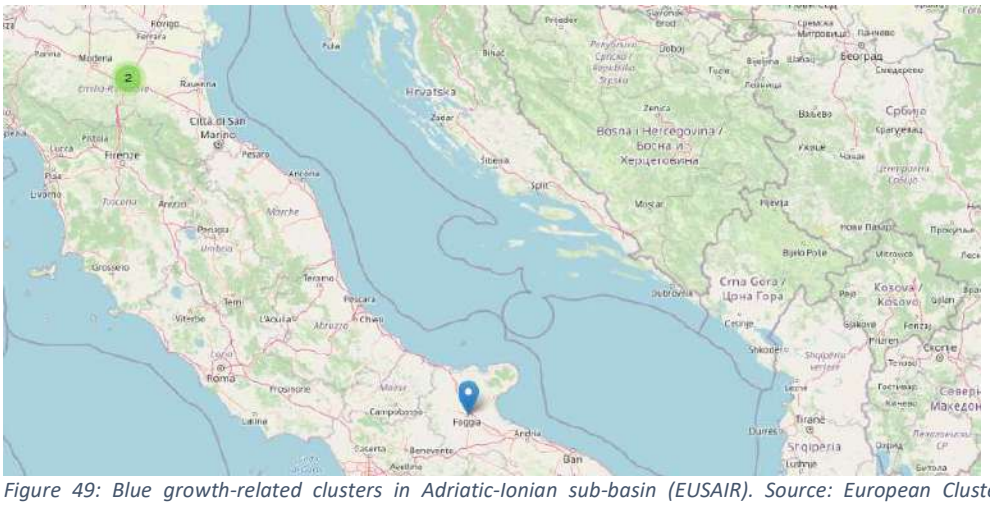


Figure 49: Blue growth-related clusters in Adriatic-Ionian sub-basin (EUSAIR). Source: European Cluster Collaboration Platform, https://reporting.clustercollaboration.eu/all#

BLUEAIR is implemented through the financial support of the ADRION programme

Only 3 clusters are cooperating on blue growth topics located in the Adriatic Ionian, and they are all based in Italy (2 in Emilia Romagna and 1 in Puglia). They focus on Blue Renewable Energy (Associazione Clust-ER Energia e Sviluppo sostenibile, Italy), Marine Biotechnology (Clust-ER Health - Emilia Romagna, Italy) and Aquaculture (Distretto Agroalimentare Regionale - D.A.Re. scrl, Italy).

3.8 The North Sea

There is no sea basin/macro-regional strategy adopted by the North Sea EU Member States. For the geographic area of the North Sea Region in this report, we are therefore following the definition of the Blue Economy Report 2021. However, since relevant EU tools (Regional Innovation Scoreboard and Eye@RIS3), as well as Eurostat statistics, provide data only on NUTS2 level, coastal NUTS2 regions instead of NUTS3 regions are considered in the relevant sections of this chapter.

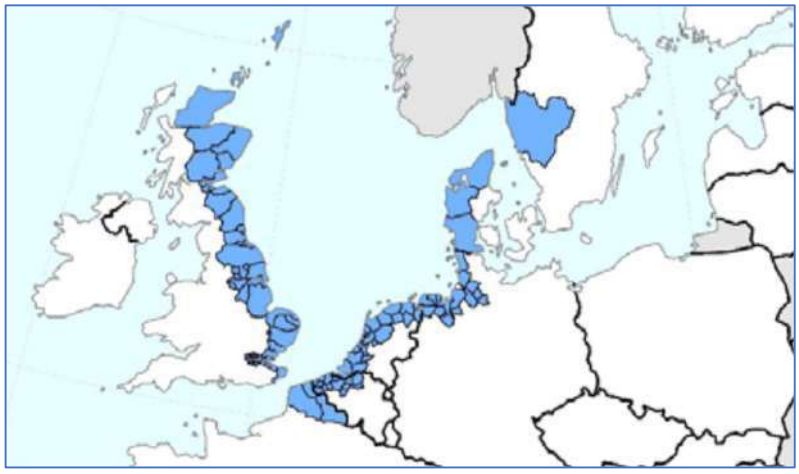


Figure 50: North Sea Basin, NUTS3, Source: Blue Economy Report 2021 Annexes

As regards the Member States, the North Sea area includes Swedish, Danish, German, Dutch, Belgian and French regions. In different geographic definitions the only French NUTS2 region of the North Sea, Nord-Pas-de-Calais, is often excluded. Similarly to the Atlantic Ocean, Brexit has influenced the area and its cooperation links strongly.

The North Sea is one of the most heavily used seas with extensive shipping, fishing, energy (hydrocarbon and offshore wind), aggregate extraction, defence, recreation and it also includes two of the world's largest ports (Rotterdam and Hamburg). The North Sea Region is a patchwork of varied territory extending from the remote islands and fjords at the northern edge of Europe through to the densely packed cities of Europe's core region with its concentrations of research and economic output. It includes some of Europe's most sparsely populated areas and some of its most heavily populated centres. It contains centres of national and regional importance, ranging from capital cities to regional administrative centres and centres of global economic importance.

BLUEAIR is implemented through the financial support of the ADRION programme

3.8.1 CPMR North Sea Strategy

As mentioned, currently there is no sea basin strategy adopted by the Member States existing in the North Sea, however, The **CPMR (Conference of Peripheral Maritime Regions) North Sea Commission** (NSC) developed a **North Sea Region 2020 Strategy**[59] between 2009 and 2011. As in other sea basins, the CPMR North Sea Commission is an association of most North Sea regional authorities, but not all. The Strategy was drafted through a bottom-up process involving member regions, regional authorities in the North Sea Region, NGOs, industries and academia. The Strategy was revised in 2016 and in 2020 a new **North Sea Region 2030 strategy**60 was adopted.

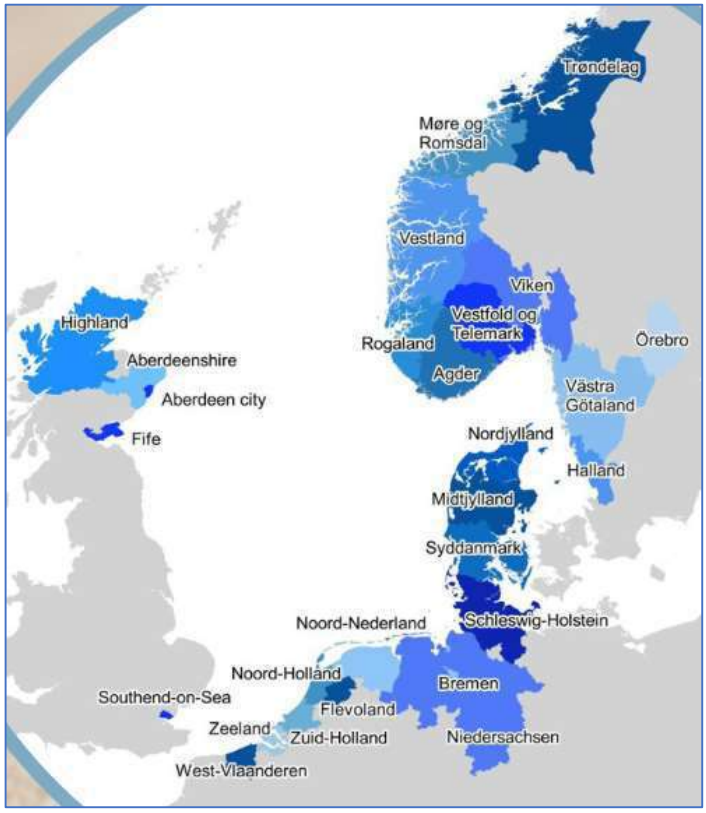


Figure 51: CPMR North Sea Commission perimeter, Source: North Sea Strategy 2030

In the Strategy, regional authorities across the North Sea have jointly defined the most pressing issues and topics where there is an added value in transnational cooperation and action. It is also a priority list, where the NSC believe that the North Sea Region, and the EU, can take the lead in the transition towards the green economy and deliver on the European Green Deal and the Paris Agreement, and contribute to the UN Sustainable Development Goals.

Four priority areas for cooperation with key topics for cooperation:

[59] CPMR North Sea Commission (2011). North Sea Region 2020 Strategy. Gothenburg. Available at: https://cpmr-northsea.org/download/north-sea-region-2020-strategy/?wpdmdl=820&ind=1481027135786

60 CPMR The North Sea Commission (2020). North Sea Region 2030 strategy. Gothenburg. Available at: https://cpmr-northsea.org/download/north-sea-region-strategy-2030/?wpdmdl=3029&ind=1604574928659

BLUEAIR is implemented through the financial support of the ADRION programme

1. A productive and sustainable North Sea: Healthy marine environment; Maritime Spatial Planning; Sustainable aquaculture and fisheries and Sustainable blue economy
2. Climate Neutral North Sea Region: Renewable Energy/Alternative Fuels; Energy Efficiency; Carbon Capture, Utilization and Storage and natural carbon sinks; Climate Adaptation
3. A connected North Sea Region: Transnational accessibility; Clean Shipping, climate-neutral and inclusive transport; Intelligent transport solutions
4. A smart North Sea Region: Smart Specialisation Strategies; Skills/competences and mobility of researchers, students and the workforce; Circular use of resources

The **North Sea Commission Action Plan 2020-2022**[61] is organised alongside the four priority areas. The Strategy is implemented through meetings, events, mapping, reports, policy positions and projects described in the Action Plan, however transnational cooperation remains on the level of agreement on common topics, knowledge and research pooling, lobbying for transfer of agreed policy positions into regional policies and some projects. Concrete targets and baselines are not set, neither is monitoring and evaluation. MA networks are not established.

3.8.2 Transnational Governance

(CPMR) North Sea Strategy Governance

The strategy is implemented by the **NSC Executive Committee** with the support of the **NSC Thematic Working Groups**. The role of the NSC is primarily to raise awareness and facilitate cooperation to mobilise the EU, the states, regional authorities, the business community, civil society and the population at large to move the societal development in the desired direction.

Annual Business Meeting adopts an Action Plan specifying concrete measures to deliver on the priority areas identified in the Strategy. The Action Plan is evaluated and reviewed biennially. It also helps to manage and enable synergies and interfaces between priority areas ensuring consistent and targeted actions, capitalising on the expertise of its members and thematic groups and of the CPMR.

Some Other Transnational Governance Networks

The Nordic Council of Ministers is the official body for inter-governmental cooperation in the Nordic Region. The Prime Ministers' vision is that the Nordic region will become the most sustainable and integrated region in the world by 2030. Denmark, Finland, Iceland, Norway and Sweden have been members of the Nordic Council of Ministers since 1971. Greenland, the Faroe Islands and Åland have established greater representation and stronger positions in the Nordic Council of Ministers and now enjoy practically the same status as the other members. The cooperation areas include among others: Digitalization and Innovation, Nordic Bioeconomy, Legislation, Energy, Education and Research, Sustainable Development.

The **OSPAR Commission** was founded to administer the Convention of the Protection of Marine Environment of the North-East Atlantic, the OSPAR Convention, which was initiated in 1992. The Commission develops policy and international agreements in the field. In 1998 and 1999 it adopted

[61] CPMR The North Sea Commission (2020). North Sea Commission Action Plan 2020-2022. Available at: https://cpmr-northsea.org/download/nsc-action-plan-2020-2022/?wpdmdl=3120&ind=1606983422304

BLUEAIR is implemented through the financial support of the ADRION programme

strategies to direct future work. Specifically, the Commission organises **The North Sea Conferences**, where relevant ministers have agreed on far-reaching politically based commitments. Many of these have been adopted in national regulations as well as within the framework of legally binding conventions.

KIMO International is a network of Danish, Dutch, Belgian, Norwegian, Swedish and UK local governments, working for healthy seas, clean beaches, and thriving coastal communities. KIMO stands for Kommunernes International Miljøorganisation (Local Authorities International Environmental Organisation) and was founded in Denmark in 1990.

3.8.3 Innovation Policy

The North Sea Region is a hub for economic growth in Europe, a centre of excellence for major industries and R&D, and a central node in major European transport networks. Areas within the North Sea Region already meet the Europe 2020 target of 3% of GDP to be invested in R&D, e.g. regions in Denmark and Sweden. Innovation Leaders regions have high levels of R&D expenditure in the business sector, SMEs innovating in-house, patent applications and product or process innovators.

(CPMR) North Sea Strategy and Action Plan

With the Smart North Sea Region Priority Area the region aims to remain a leading, competitive, attractive and socially sustainable region and a front-runner in circular and biobased economy, digital economy and innovation. The ambition is to be met by joining forces around joint smart specialisation areas.

Under the key topic **Smart Specialisation Strategies** NSC member regions can use their Smart Specialisation Strategies to increase competitiveness by connecting different branches and industries across the regions and to work in close cooperation with, and within, the European S3 Platform to address important issues like industrial transition, new and innovative industries, digitalisation of industries, climate-neutral industries, diversification of industries and development of travel and tourism.

Key topic **Skills/Competences and Mobility of Researchers, Students and the WorkForce** aims to maintain the North Sea Region's position as a key industrial innovator. There is a need to continually re-evaluate competences through a process of up-skilling or re-skilling to meet new skills demands, including digital skills. Constructive dialogues are needed between academia, industry and the public sector on how to remain an innovative hub with a highly skilled workforce with access to lifelong learning and labour markets across borders.

Through the key topic **Circular Use of Resources** the North Sea Region will cooperate to lead by example and implement the European Commission's Circular Economy Action Plan (long-life products, spare parts, valorisation of recycled products, waste management, renewable bio-based materials).

BLUEAIR is implemented through the financial support of the ADRION programme

Regional Innovation Scoreboard

Figure 52: Regional Summary Innovation Index for North Sea basin NUTS 2 regions (France NUTS1) (NUTS 2021), Source : Regional Innovation Scoreboard, 2021

As can be observed from the Regional Innovation Scoreboard for the year 2021 (reference year 2018 and earlier), most (12/18) North Sea regions (NUTS1 for France, NUTS2 for all other countries, 2021 classification) are Innovation Leaders or Strong Innovators, while only six qualify as Moderate Innovators and none as Emerging Innovator. Three North Sea regions are among the top 25 regional Innovation Leaders (Swedish region Västsverige, Danish region Midtjylland and Hamburg in Germany) according to the 2021 Report.

Only two regions are below EU average (the only French region and German region Weser-Ems) meaning, 89%(!) of North Sea regions are above EU average.

BLUEAIR is implemented through the financial support of the ADRION programme

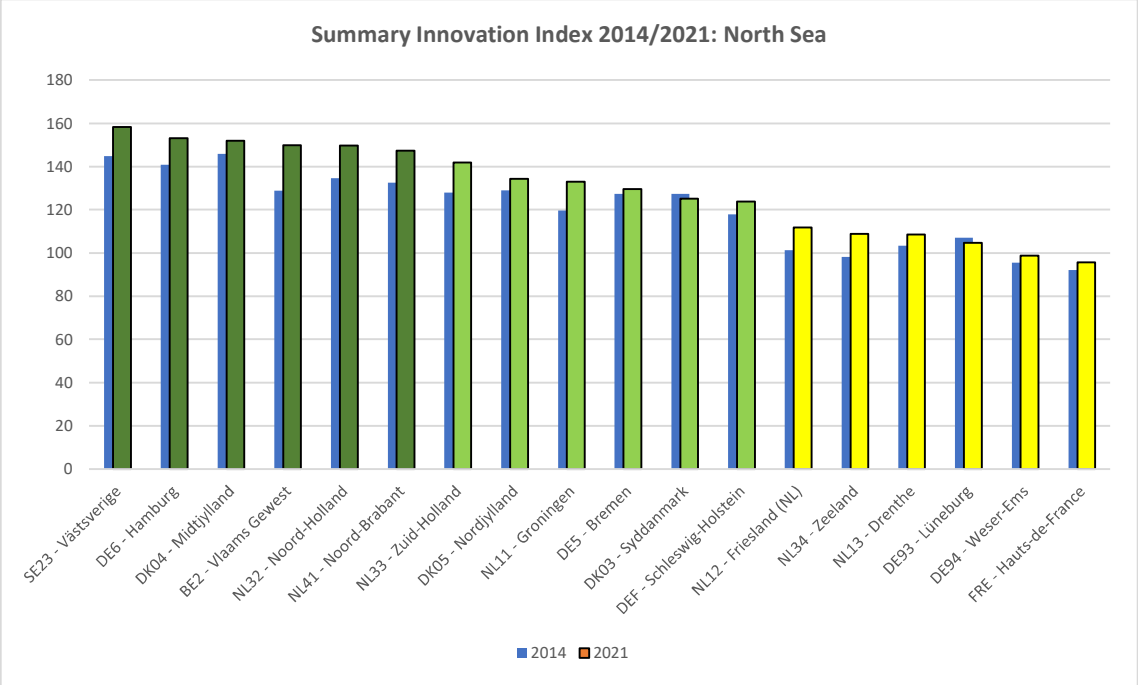


Figure 53: Regional Summary Innovation Index 2014/2021 for North Sea Region, Source: own calculations based on Regional Innovation Scoreboard data, https://interactivetool.eu/EIS

Comparing the Summary Innovation Index from RIS 2014 (capture years 2012 and earlier) and 2021 (capture year 2018 and earlier) (Figure 53) it can be observed that the vast majority (89%) of the North Sea regions have improved (in average by 8%[62]). However, EU performance increased by 14.2%[63] points over these years and comparing regions' growth performance with the EU better highlights differences in growth performance across European regions. Relative to EU, only 3 North Sea regions (BE2 - Vlaams Gewest, NL32 - Noord-Holland and NL41 - Noord-Brabant) have improved performance (in average for 2,8% points), while the Summary Innovation Index decreased for all others (in average for 7,4% points) (Figure 54).

[62] Average increase was calculated only for the 16 regions, which improved the Regional Innovation Index score.
[63] Holanders H. (2021). Regional Innovation Scoreboard Report 2021. Publications Office of the European Union. Luxemburg

BLUEAIR is implemented through the financial support of the ADRION programme

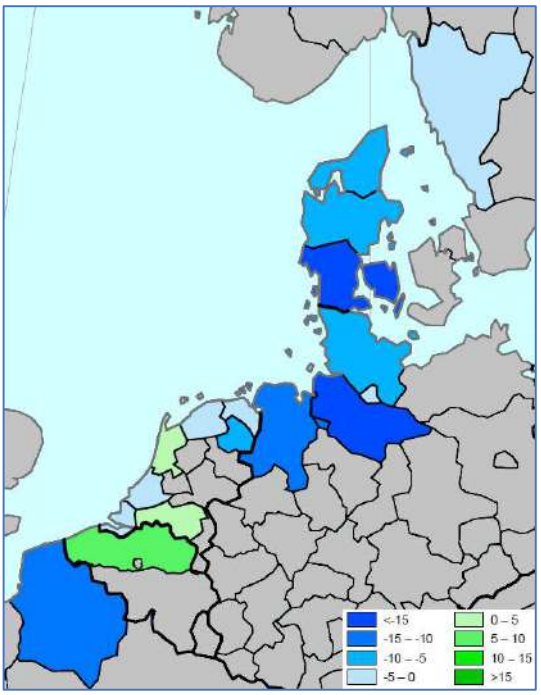


Figure 54: Innovation performance change 2014-2021 (relative to EU) in North Sea Region (NUTS2). Source: Regional Innovation Scoreboard Report 2021

The ratio between the number of regions with performance increase and decrease (relative to EU) is for North Sea 17%:83%, while the EU ratio is 40%:60%[64]. This is expected since the top-performing regions tend to grow slower. On the EU map, there are no Innovation Leaders among the 10 fastest growing regions (which are found in Greece, Italy, Lithuania and Poland)[65].

[64] ibid
[65] ibid

BLUEAIR is implemented through the financial support of the ADRION programme

Blue Growth in Smart Specialisation Strategies

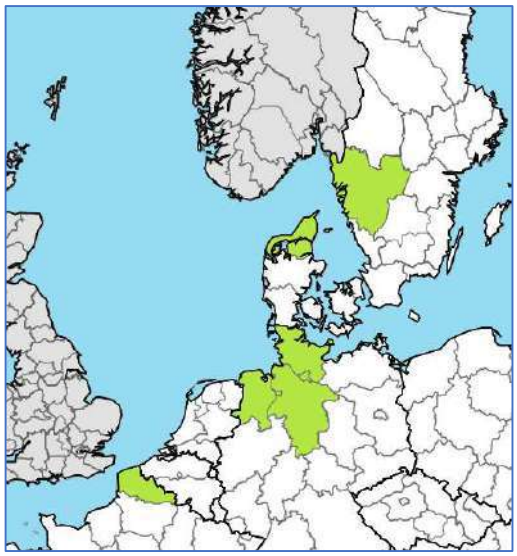


Figure 55: North Sea S3 regions with blue growth in priorities, source: Eye@RIS3

The Eye@RIS3 tool shows 8 out of 15 S3 regions in the North Sea area have blue growth policy objectives included in their priorities. Transport and Logistics (6) and Renewable Energy (6) are the prevalent policy objectives, followed by Aquaculture (4) Coastal & maritime tourism (4), Marine biotechnology (4) and Shipbuilding and repair (4 regions).

Cooperation in S3 Thematic Partnerships

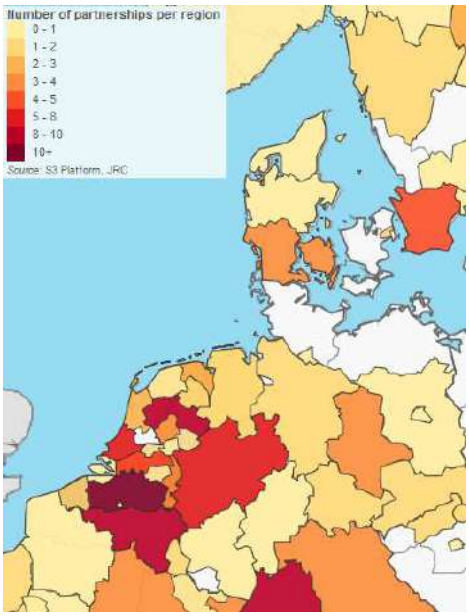


Figure 56: North Sea regions in S3 thematic partnerships. Source: JRC Thematic Platforms Interactive Map, https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

BLUEAIR is implemented through the financial support of the ADRION programme

Similarly, to BSR, also North Sea regions are not very active in S3 thematic partnerships, except for the Flanders in Belgium. Mostly they are involved in Industrial Modernisation partnerships. Similarly, as for the Atlantic region we can observe that even though 6 regions have Blue Renewable Energy objective in their S3 priorities, only 2 are part of the Marine Renewable Energy partnership.

3.8.4 Blue Economy Sectors

Marine and maritime sectors are vital parts of the North Sea Region's economies. North Sea fisheries provide high-quality fish and shellfish and sustain associated industries. Oil and gas are major industries in the region and the North Sea is a vital resource for renewable energy (offshore wind and wave). The North Sea has some of the busiest shipping lanes and largest ports and harbours in the world (Rotterdam and Hamburg), making it a global hub for maritime transport and trade.

Blue Economy Report

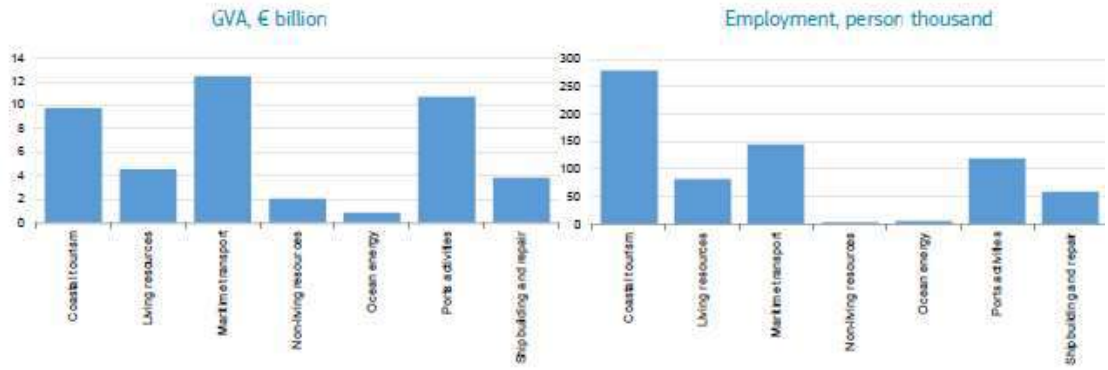


Figure 57: The North Sea blue economy sectors, 2018, Source: Blue Economy Report 2021

According to the 2021 Blue Economy Report, one-quarter of EU's GVA from blue economy is generated in the North Sea. In 2018 (the capture year of 2021 Report) the North Sea created €44.2 billion GVA and employed 0.72 million people (15,6% of all blue economy jobs in EU). More than half (52%) of the North Sea's GVA is generated by Maritime transport and Port activities (€12 and €11 billion respectively), followed by Coastal tourism (€10 billion, 23%). In terms of employment, in 2018 Coastal tourism (0.28 million people) represented 39% of the North Sea's jobs, followed by Marine Transport (0,15 million jobs, 21%) and Port activities (0,12 million jobs, 17%). There had been only a slight increase in employment from 2009 (slightly below 1,5%) and almost no increase in GVA (+0,2%).

To present trends in GVA and employment in different sectors we are using time series data provided by DG MARE for the 2021 Blue Economy Report with the latest catchment year 2018. Figure 57 shows how sectors had developed over the years. The graphs do not display values for Marine Renewable Energy since even though this sector represented less than 2% in total North Sea GVA in 2018, it had grown from 14,4 million in 2009 to 876 million in 2018 and had been the fastest-growing blue economy sector by far.

The 2008 crisis had only mildly affected blue economy sectors in North Sea Region. Except for Non-living resources, both in terms of GVA and employment the sectors had just stagnated or grown slower

BLUEAIR is implemented through the financial support of the ADRION programme

for a few years and flourished again after 2014 and 2015 in GVA, while positive trend in employment is noticeable only after 2017. There are some specificities. The only sector that had been stagnating since 2009 up to 2018 is Maritime transport. Port activities on the other hand had experienced a steady increase from 2009 both in terms of GVA and jobs. As in other basins, jobs in Coastal tourism seem to had been the most affected, even though compared to some other basins a 13% decrease is very mild. Non-living resources sector is decreasing also in North Sea Region, however after 2016 the decrease in GVA had stopped, while in employment the decrease is much milder, compared to other basins.

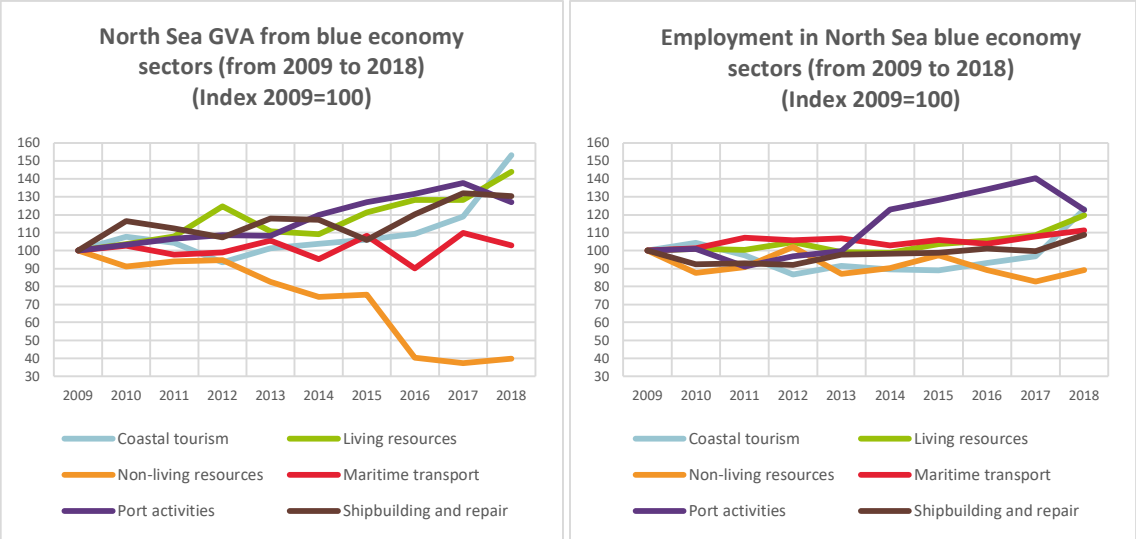


Figure 58: North Sea GVA and employment in blue economy sectors (2009-2018). Source: own calculations based on data from DG MARE for Blue Economy Report 2021

Blue Growth Clusters

Figure 59: Blue growth-related clusters in the North Sea. Source: European Cluster Collaboration Platform, https://reporting.clustercollaboration.eu/all#

There are 6 clusters cooperating on blue growth topics located in the North Sea, they focus on Blue Renewable Energy, Shipbuilding and repair, Transport and Logistics, Marine Biotechnology, Coastal

BLUEAIR is implemented through the financial support of the ADRION programme

tourism and Offshore mining. In each North Sea country, there is one cluster located, except in Belgium there are two.

These clusters are: Swedish Maritime Technology Forum; Energy Cluster Denmark; LIHH Logistics-Initiative Hamburg Managment GmbH, Germany; Stichting Water Alliance, Netherlands; De Blauwe Cluster vzw - Blue Cluster, Belgium and FLam3D Strategisch Initiatief Materialen, Belgium.

3.8.5 Financing Blue Growth Policy

North Sea Region has a long history in cooperation, established public-private consortia, networks of project partners all over Europe, many advanced technological companies, strong and efficient support for cooperation in their regions. Through a combination of private investments and public funds from mainstream programmes, ETC and regional operational programmes, they manage projects that generate innovation and drive innovation scale-up.

The **Interreg North Sea Region (NSR) Programme** is important for North Sea cooperation. The Programme was originally set up in the late 1990s as a communities' initiative after advocating from the CPMR North Sea Commission, as the NSC regional authorities saw the need for joint development initiatives around the North Sea. The close link with the programme has been kept strong. Not only with the organisation of the joint annual North Sea Conference, where common priorities are discussed and consortia formed, but also through active participation by NSC members in projects. The topics and projects highlighted by the CPMR North Sea Commission[66] at the end of the 2014-2020 and beginning of the new programming period are listed below.

One of the major challenges facing the North Sea Region is considered **climate change**, and the related adaptation and mitigation measures that this will require. Moving towards decarbonisation is considered as a top priority. Active sharing of research and best practices as well as promoting new technological innovations is deemed vital. To date, over 100 green business solutions have been piloted in the current NSR programme.

For instance, the **Scale-Up** project has contributed to moving towards decarbonisation by accelerating the uptake of new technology aimed at reducing CO2 levels. They have done so by organising "meet the buyers" events all around the North Sea Region. By the year 2019, 18 success cases had been implemented leading to an average of over 30% CO2 reduction. Overall, over 30 solutions had been demonstrated concerning climate change adaptation. In total, the project has triggered nearly €29 million in investments.

Regional authorities can also be drivers for "green" procurement to enable the transition into a circular economy. The **ProCirc** project was highlighted as a good example of how to streamline practices and make it easier to procure in relation to investing in the circular economy.

The need to balance different interests to promote sustainability was expressed to accomplish a **productive and sustainable North Sea**. Maritime spatial planning (MSP) is considered as a good tool to promote such dialogue. The **NorthSEE** project has created coherence and better conditions for MSP

[66] North Sea Commission (2019). NSC strongly supports a continuation of the NSR programme in the next funding period. Available at: https://cpmr-northsea.org/cohesion/nsc-strongly-supports-a-continuation-of-the-nsr-programme-in-the-next-funding-period/2516/

BLUEAIR is implemented through the financial support of the ADRION programme

coordination. In the view of the North Sea Commission, a comprehensive understanding of what MSP can deliver and how digital tools can make it more accessible is still needed.

Further on sustainable maritime business development is considered vital for the future of the North Sea Region, this includes the need to improve the access of SMEs to financing. This is also one of the conclusions from the **Periscope** project, aiming to enhance the capacity of actors in the blue economy.

Efficient and sustainable transport of passengers and goods is expressed as key for promoting a desirable development in the North Sea Region. The **HyTrEc2** project that promotes the hydrogen transport market in the North Sea Region, helping to develop and roll out alternative fuels and technology is deemed as a good example of a joint project. Similarly, **G-PaTRA** aims to reduce CO2 from personal transport in remote and rural areas by accelerating the use of zero-emission vehicles and vessels in public transport. The project will have demonstrated over 100,000 low carbon passenger kilometres resulting from their activities by the end of the implementation period.

To stay competitive, good connection to the TEN-T is highlighted. Projects, such as the **#IWTS 2.0**, looking at the use of inland waterways, aim to achieve just that. Overall in the current North Sea Region Programme, almost 100 green transport solutions have been introduced or processes improved.

The North Sea Region has **strong industrial and research clusters**, with high potential to capitalise on the transnational innovation capacity. The project Northern Connections addresses this by connecting regional clusters in the energy sector and breaking ”regional barriers” to competition.

Investments in skills and competences is also deemed crucial for continued social and economic development. Projects like **RIGHT skills for the right future** are needed for development of workforce competences (both upskilling and reskilling) to maintain a high innovation capacity.

The strong link between the priorities of the regional governments as expressed in the Strategy and the Cooperation Programme of the Interreg North Sea Region Programme secures regional ownership, which is key to making EU development efforts successful. It also fosters active participation of regional governments in the programme, directly or through the co-financing of projects. This leads to optimal use of investments and contributes to a higher impact of EU cohesion policy.

BLUEAIR is implemented through the financial support of the ADRION programme

4. Benchmarking

4.1 Benchmarking Methodology

There is no universally accepted definition of benchmarking, therefore in this study, we understand it as an improvement and learning method based on comparisons and application of the knowledge generated from them (Navarro, 2011[67], Huggins, 2010[68]). One of the prominent streams of benchmarking application is in the field of policy. The prominence of benchmarking as a policy tool derives from its power to go beyond quantitative performance appraisal and steer the attention towards possible learning points in the practice area. In this way, benchmarking acts as an aid to learning as it provides guidelines for improving. Benchmarking can facilitate the formulation of a strategy and mission insofar as benchmarking analyses can help to identify the strengths and weaknesses of the territory being analysed (OECD, 2005[69]).

The main objective of the BLUEAIR benchmarking is to compare six European sea basins regarding their transnational blue growth innovation policy and performance with the aim to identify gaps between Adriatic-Ionian and other sea basins and best practices that could inspire the advancement toward blue growth Smart Specialisation Strategy in the Adriatic-Ionian Region. We compared transnational blue growth innovation policy governance, framework, instruments, process and implementation using a self-assessment approach. Results of this exercise are accompanied by existing EU indicators, reports and tools illustrating blue growth innovation policy performance in the sea basins. Due to limited time, resources and methodological challenges, we left the investigation in how far the transnational policy framework contributes to the sea basin blue growth innovation performance to future studies.

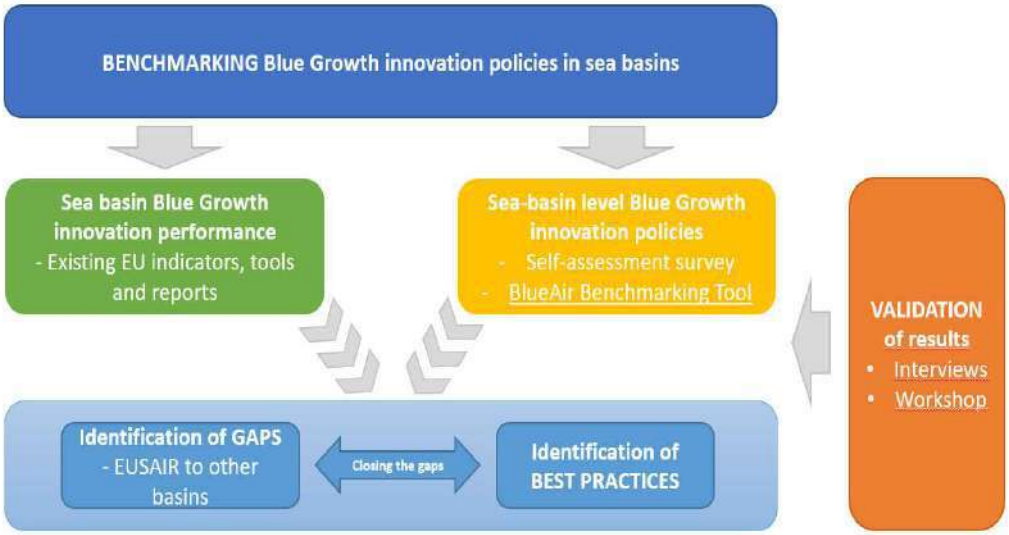


Figure 60: Blueair benchmarking model

[67] Navarro Arancegui M., Gibaja Martíns J.J., Franco Rodríguez S, Murciego Alonso A. (2011). Territorial benchmarking methodology: The need to identify reference regions
[68] Huggins, R. (2010). Regional Competitive Intelligence: Benchmarking and Policy-making. Regional Studies
[69] OECD (2005). Micro-policies for growth and productivity. Synthesis and benchmarking user guide. Paris: OECD

BLUEAIR is implemented through the financial support of the ADRION programme

At the end, a validation of results was carried out with participants to our survey and final revision of the present report was carried out.

Definitions concerning blue growth innovation policy and reasons how sea basins acting as benchmarking units were selected, are already provided in Chapter 3.1.

Benchmarking Blue Growth Innovation Policies in Sea Basins

As regards the indicators on innovation policies we relied on the concept of Innovation Policy Index (IPI) as introduced by Prof. Slavo Radosevic[70] in his paper on Benchmarking Innovation Policy in Catching up and Emerging Economies.

The IPI assessment is based on 4 policy pillars, subdivided into constituent dimensions which are composed of several qualitative indicators. Each of these indicators has six levels of performance. The four pillars of the innovation policy framework are: Innovation governance structure, Innovation policy instruments, Innovation policy process (policy cycle) and Institutional capacities for implementation of innovation policy. In line with the recommendation from Prof. Radosevic[71] all pillars, dimensions and indicators are equally weighted.

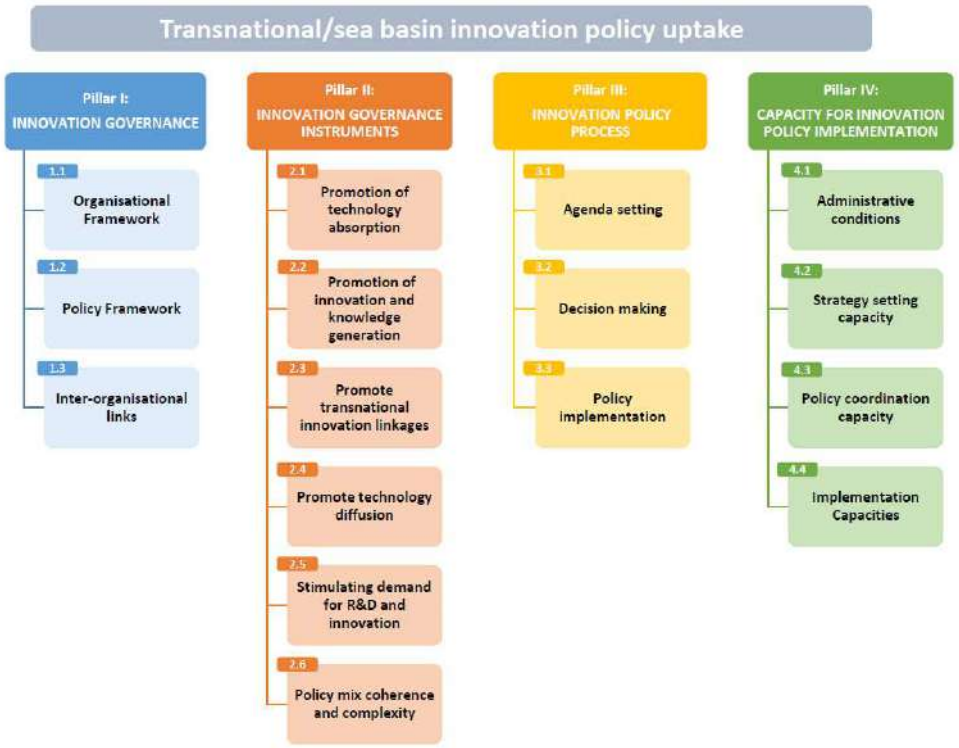


Figure 61:Innovation Policy Index (IPI) Pillars

[70] Radosevic, S. (2020). Benchmarking innovation policy in catching up and emerging economies: methodology for innovation policy index. Retrieved from: https://discovery.ucl.ac.uk/id/eprint/10098709/1/Benchmarking%20innovation%20policy%20in%20EM%20and%20CU%20economies_FrontPage1.pdf

[71] ibid

BLUEAIR is implemented through the financial support of the ADRION programme

The scale used for the levels of performance range from 1 for no specific policy measure or institution (poor) to 6 for a well-functioning institution or effective implementation of each policy measure (good practice). It is a qualitative ordinal scale.

Following the methodology used in IPI, we relied on self-assessment questionnaires with relevant experts, well familiar with the innovation policies at the sea-basin level. As a preliminary step a list of potential respondents was established, reviewing the different policy and decision-making institutions and the most relevant representatives were contacted via e-mail. During summer 2021 nearly 100 respondents from all six sea basins were asked to fill in an online questionnaire. We received 20 complete responses and 7 incomplete ones, which we included as well. Unfortunately, no responses were received from the North Sea Basin. The questionnaire used in the online survey is annexed to this report (Annexe 1).

The self-assessment could be rather subjective therefore the overall assessment was complemented with background information such as the use of existing indicators and studies/reports. From the point of view of the validation of results, it needs to be underlined that the methodology shows specificity in the usage in a macro-regional and Blueair project context. There is a certain complexity stemming from the multi-level and transnational governance in the macro-regions/sea basin strategies. It is hard to grasp differences between different sea basin regions (difference in development and regional innovation systems). Validation workshops, peer reviews and critical assessment of results can help in a more detailed analysis. This was done with the in-depth analysis, the interviews that took place in September and October 2021 and the validation workshop that was implemented in November 2021.

The results of the survey summarized in this document are available in an online **Blueair benchmarking tool**[72], developed by the University of Belgrade. The Methodological notes, the Technical notes and the User manual are annexed to this report (Annexes 2, 3 and 4 respectively). The Blueair benchmarking tool comprises a self-assessment and benchmarking analysis. This combination enables continuous evaluation of possibilities and results with the aim to pave the way towards continuous improvements.

Blue Growth Innovation Performance in Sea Basins

In this part, we concentrated on gathering data from existing EU policies, tools, databases, reports and studies in the field. We looked separately at innovation performance and performance in blue economy since very few data sources or indicators exist for both topics combined. Due to many differences in size and geography, history, socio-economic development, environmental characteristics, it is difficult to compare the basins, therefore in the quantitative sense, we focused more on the trends and in qualitative more on potentials for innovation in different sectors that could be exploited by the Adriatic-Ionian Sea Basin.

[72] http://Blueair.sf.bg.ac.rs/

BLUEAIR is implemented through the financial support of the ADRION programme

4.2 Results of the Blue Growth Innovation Policy in Sea Basins Self-Assessment Survey

The different Sea basins have many different characteristics, from their history and geography to their different approach to innovation, cooperation and governance. First of all, we have to say that it is difficult to benchmark such different entities. As we have shown in Chapter 3, the characteristics of transnational cooperation in innovation policies on sea basin level are profoundly diverse. Based on the results that we have received, we could assume that we underestimated those differences when we adapted the IPI questionnaire for a sea basin/macro-regional innovation policy. The answers show there is a discrepancy in answers from sea basins with sea-basin strategies and those with macro-regional strategies.

Survey results exposed some differences between the basins that could be attributed to the type of the strategy. In comparison to a macro-regional strategy framework, which on the side of the European Commission involves DG REGIO, a sea basin strategy involves DG MARE. Also in macro-regions, the regional level is more involved, while the sea basin strategies are kept in the domain of the national-level policymakers. In terms of cooperation in thematic areas, the sea basin strategies are more concerned with maritime topics, while macro-regional strategies have a broader thematic scope, including also more social and cultural topics. There are further differences concerning the financing of the strategy functioning and financing of actions. We are referring to these differences throughout the following chapters, summarising the results of the survey.

For example, looking at the first graph, where each basin is represented with average scores of all 4 IPI pillars as a share of the total score that could be achieved, we would expect the basins with the highest level of transnational policy organisation, political commitment, functioning governance structure and implementation instruments, which is that of a macro-regional strategy, to be among the best performing. As we can see, the results of the self-assessment do not support this thesis.

To avoid bias, the answers of respondents were checked per sea basin and per single topic of the self-assessment questionnaire and two respondents were excluded from the results[73], which made results more homogeneous. A check on single questions was performed as well but no bias was recorded there, hence there was no reason to exclude any specific question.

We concluded that results would be more conclusive if we had more respondents, for example for the Black Sea Basin, we only had two complete questionnaires. Simplifying the questionnaire might also help this exercise, not just in terms of making it more appealing which would lead to higher participation, but also in terms of making it more comprehensive and concise. Fewer questions could also be accompanied with more guidance and illustrative examples, which would help respondents to understand the questions in the way they were intended.

Some results were validated already in the phase of individual interviews that were proposed to DG MARE, DG REGIO, the Joint Research Centre of the European Commission, the Interact and the ESPON Programme. The replies in writing and the interviews contributed to validation of the methodology and gave interesting hints on best practice examples that could be inspiring in this time at the end of the old programming period and beginning of the new 2021-2027 one.

[73] The results were checked with the Z-score statistical method and they clearly indicated a bias for these two respondents and hence there was the need to exclude the answers in the final analysis.

BLUEAIR is implemented through the financial support of the ADRION programme

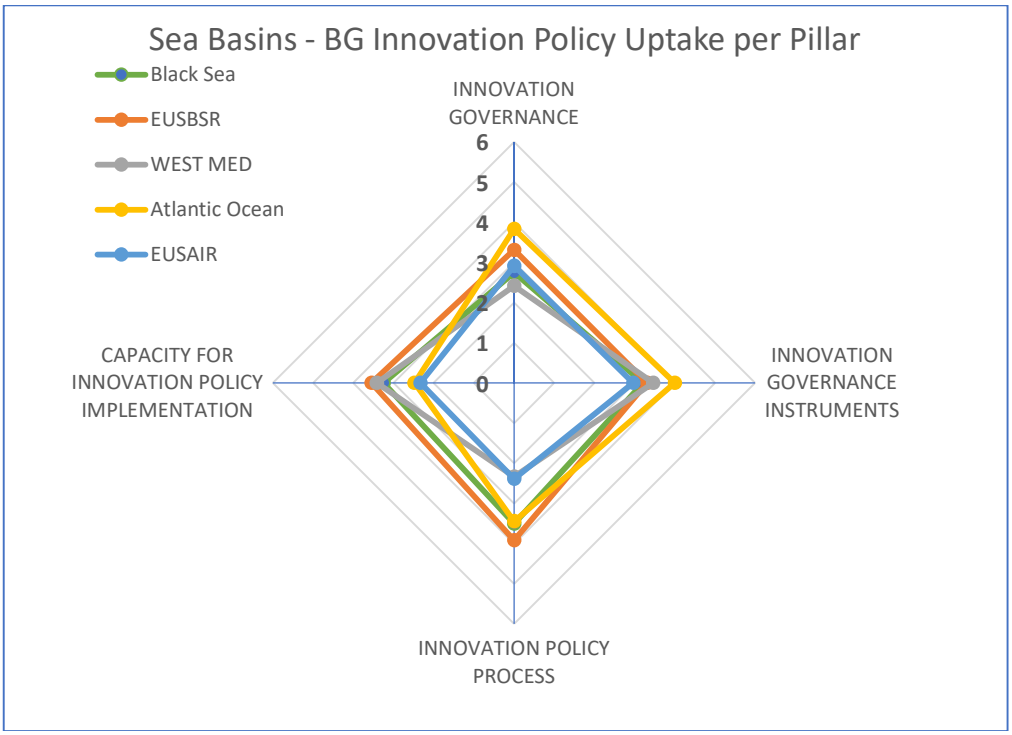


Figure 62:Sea Basins - BG Innovation Policy uptake per IPI Pillar

More detailed elaboration of performance by pillars is provided below.

4.2.1 Overall Innovation Policy Uptake

This graph (Figure 63) shows the share of the IPI value calculated as an average of individual respondents' scores achieved in all 4 pillars (all pillars, dimensions and indicators have the same weight) per sea basin against the maximum possible IPI value (achieving level 6 in all questions). This is therefore the overall score achieved by the basins in all 4 pillars.

BLUEAIR is implemented through the financial support of the ADRION programme

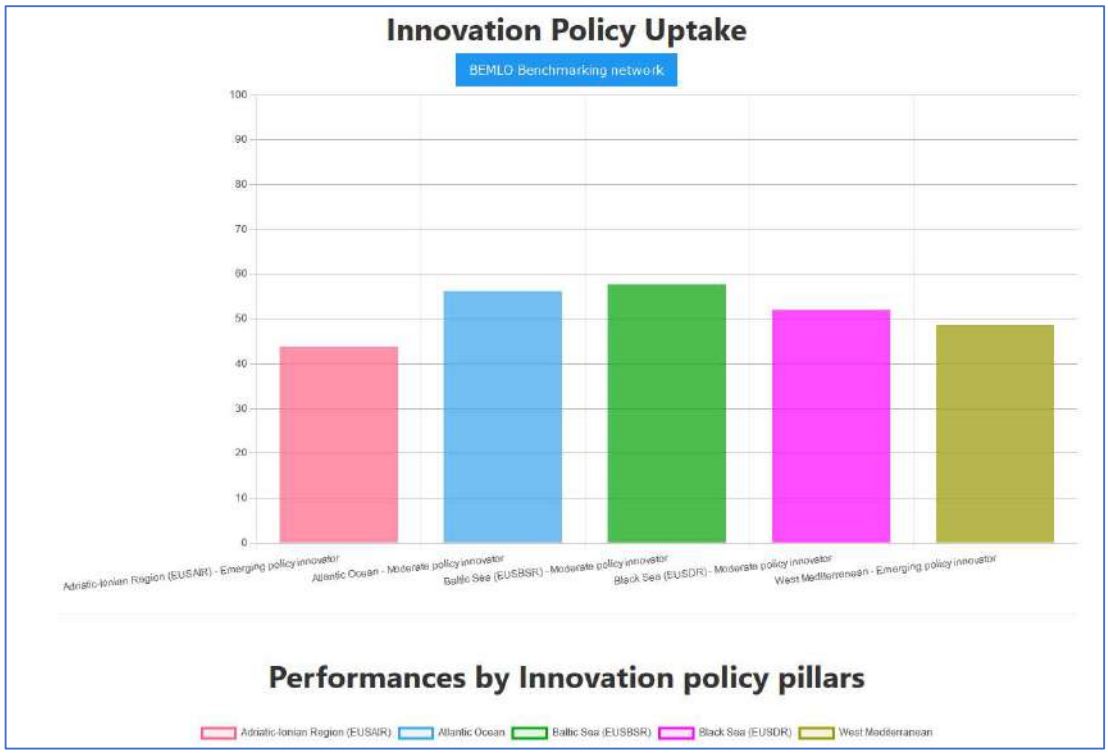


Figure 63: Sea Basins - BG Innovation Policy uptake, Source: Blueair Benchmarking Tool

The **Baltic Sea Basin** has reached the highest score (58%). They are cooperating in the EUSBSR macro-regional policy framework since 2009 with a special thematic area dedicated to Innovation (Policy Area Innovation) and years of cooperation on the topics of smart specialisation, cluster collaboration and value-chain development. EUSBSR builds also on numerous Baltic public and private cooperation initiatives and networks, that existed before the EUSBSR and continue to strengthen the EUSBSR community, however, the area is also challenged by the integration of newer EU Member States, catching up and by its links to non-EU neighbouring countries. During the validation workshop, it was mentioned that the legal limitations in the Baltic countries might be the reason for a slightly lower score than expected.

Only a slightly lower score (56%) was achieved by the **Atlantic Ocean**, with the second oldest sea-basin policy initiative. The Atlantic Maritime Strategy was adopted in 2011. The Atlantic Strategy builds on the history of cooperation on environmental issues and has broadened the cooperation towards the blue economy affairs. Even though the mid-term review study of the Action plan showed good progress, it also pointed out the need for stronger integration of the Strategy into national and regional policies. More focused actions and their better monitoring and evaluation became part of the 2020 Action Plan 2.0., which just started its implementation. The area is challenged also by its geography, stretching over a vast coast of the Atlantic Ocean rather than embracing a relatively enclosed sea, which makes the cooperation less of a necessity. Considering all this, the results of the self-assessment for the Atlantic Ocean Sea Basin might be overscored to some extent. This was commented also during the validation workshop, when the importance of the Atlantic geography was stressed. The scores show better performance in Innovation governance and Innovation governance instruments compared to Innovation policy process and Capacity for innovation policy implementation. This could be attributed to the complexity of implementation in such a vast, ocean area. The time issue was mentioned too, as it takes more time to implement activities in a wider area.

BLUEAIR is implemented through the financial support of the ADRION programme

The results of the **Black Sea Basin** stand out. Even though they have a long history of cooperation, the Common Maritime Agenda for the Black Sea as a transnational policy framework with a wider thematic scope was only adopted two years ago and since then initiated a stakeholder engagement process for identification and initiation of relevant projects. The sea-basin comprises only two EU Member States and is facing challenging relations between member countries, which might hinder deeper cooperation. In comparison with other basins, the Black Sea is overscored. During the validation workshop, the importance of differences between the countries involved was stressed: with two young EU Member States and five non-EU countries Black Sea Basin is a specific area, which is reflected also in the results of the survey.

On the bellow 50% scale are both Mediterranean sub-basins. The Initiative for the Sustainable Development of the Blue Economy in the **Western Mediterranean**, the WestMED Maritime Initiative was launched in 2017, however, basin-wide cooperation has a long and rich history in the Mediterranean basin, especially in its western part. The process of the Initiative formation was driven by DG MARE, which also gives the initiative more of a national approach as opposed to stronger regional involvement in the macro-regional strategies. Being a relatively young initiative, the thematic cooperation, as well as the governance structure, are in the process of consolidation and convergence, the orientation towards results and outcomes is still in development. Cooperation with five non-EU countries is also challenging in terms of the limited use of existing EU cooperation and funding initiatives, available to EU countries or EU candidate countries.

Even though the **Adriatic-Ionian Sea Basin** has its share of challenges, the score achieved (44%) in comparison with other sea basins is underestimated. The main drivers for the formation and adoption of a macro-regional framework was its capacity to contribute to further integration of the internal market, to the stability of the area, to foster cooperation between EU and non-EU countries, and while maintaining the EU feature of the Strategy to assist participating candidate and potential candidate countries on their path towards the EU[74]. These drivers also remain the ongoing challenges, which the macro-regional cooperation is addressing. The EU Strategy for the Adriatic and Ionian Region – EUSAIR and the accompanying Action Plan were adopted in 2014. Since then, the Strategy has built up its implementation structure and is moving towards the generation of outcomes and results. The challenge for the future is to successfully finance its flagships through the new financial framework in the 2021-2027 period.

In order to locate innovation policy capacity of Adriatic-Ionian Sea Basin in relation to other sea basins and to strengthen innovation benchmarking community, Blueair benchmarking tool[75] also includes a part which plots the outperforming relations among all basins. It is based on specific benchmarking procedure labelled BEMLO (further explained in Petrovic et al. 2012, 2014, 2018)[76]. Except for index-based performance ranking, with the BEMLO benchmarking network, pairwise relations between basins are plotted. Instead of simple ranking by index values a specific outranking procedure allows to organize basins into hierarchical levels according to their overall innovation policy performance or by specific pillars and dimensions. Arrows on the graph symbolically represent the interrelations, i.e.

74 Council of the European Union (2014). Council conclusions on the European Union Strategy for the Adriatic and Ionian Region (EUSAIR), General Affairs Council meeting, Brussels, 29 September 2014

75 http://Blueair.sf.bg.ac.rs/

76 Petrović, M., Bojković, N., Anić, I., & Petrović, D. (2012). Benchmarking the digital divide using a multi-level outranking framework: Evidence from EBRD countries of operation. *Government Information Quarterly*, *29*(4), 597-607; Petrović, M., Bojković, N., Anić, I., Stamenković, M., & Tarle, S. P. (2014). An ELECTRE-based decision aid tool for stepwise benchmarking: An application over EU Digital Agenda targets. *Decision Support Systems*, *59*, 230-241; Petrović, M., Bojković, N., Stamenković, M., & Anić, I. (2018). Supporting performance appraisal in ELECTRE based stepwise benchmarking model. *Omega*, *78*, 237-251.

BLUEAIR is implemented through the financial support of the ADRION programme

indicate the better performing basins. The obtained relations form a specific benchmarking network allowing benchmarking partners to track their own achievements in relation to better performing ones and to monitor future progress toward the top of the hierarchy (best performance benchmark).

As for the Innovation Policy Uptake, there are only two levels of performance (Figure 64). All three best-rated basins, the Baltic Sea, the Atlantic Ocean and the Black Sea outperform the remaining two – the Western Mediterranean and the Adriatic-Ionian (displayed by directed arrows in the graph). On the other hand, none of the better performers has a sufficiently superior performance over the other two which is why the differences in scores cannot be interpreted as significant.

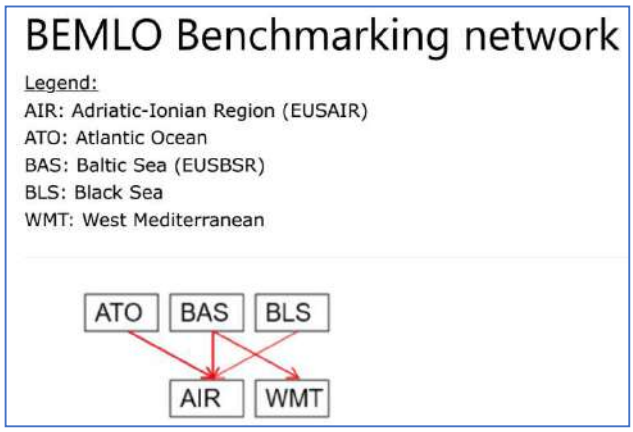


Figure 64:BEMLO – Benchmarking network Innovation Policy Uptake

In contrast to overall scores for Innovation Policy Uptake, the results for BEMLO benchmarking network by pillars show considerable differentiation among basins as shown in Figure 65.

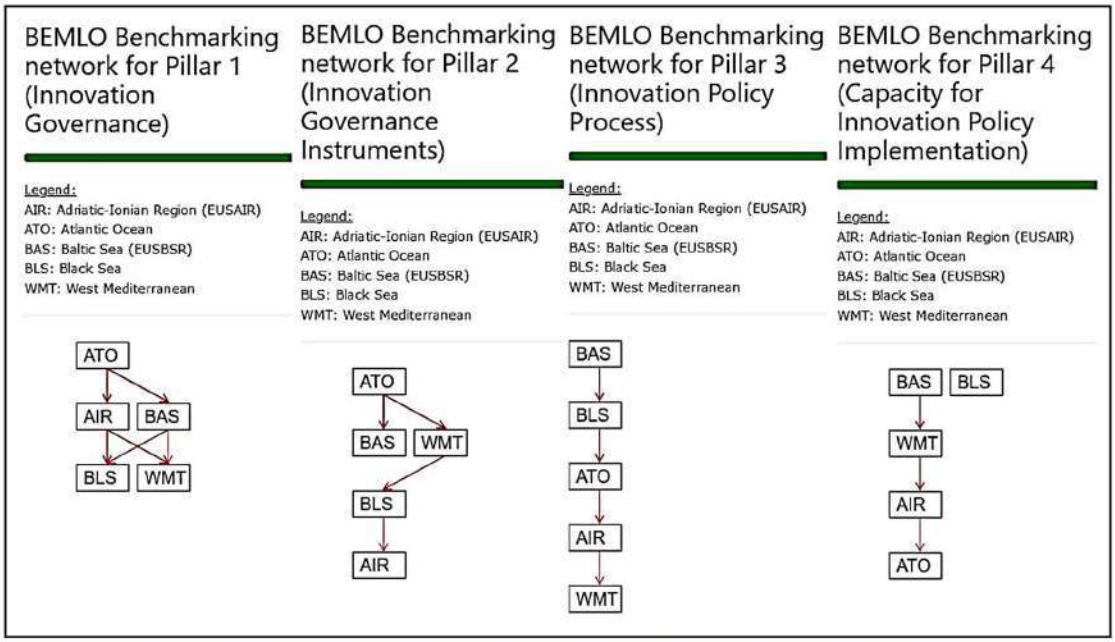


Figure 65:BEMLO – Benchmarking network for each Pillar

The potential for further development and use of the BEMLO Benchmarking network is its inclusion in the process of transnational learning but this should be further verified in the Blueair partnership. According to other feedbacks from the validation workshop, the tool gives

BLUEAIR is implemented through the financial support of the ADRION programme

the possibility to perform comparisons between sea basins and hence potentially draw attention to critical strengths and weaknesses and provide suggestions for innovation policy improvements.

4.2.2 Pillar 1: Innovation Governance

The Innovation Governance section includes:

- Organisational framework - distribution of responsibilities over numerous and coordinated governmental and non-governmental bodies facilitating a wide range of innovation activities.
- Policy framework – on sea basin level agreed innovation policies in implementation (from innovation policy reflected in the strategy to sea basin Smart Specialisation Strategy).
- Legal framework - efforts to align national legal frameworks to support the transnational innovation system.
- Interorganisational links - public-private cross-pillar or cross-policy area coordination of sea basin innovation policy.

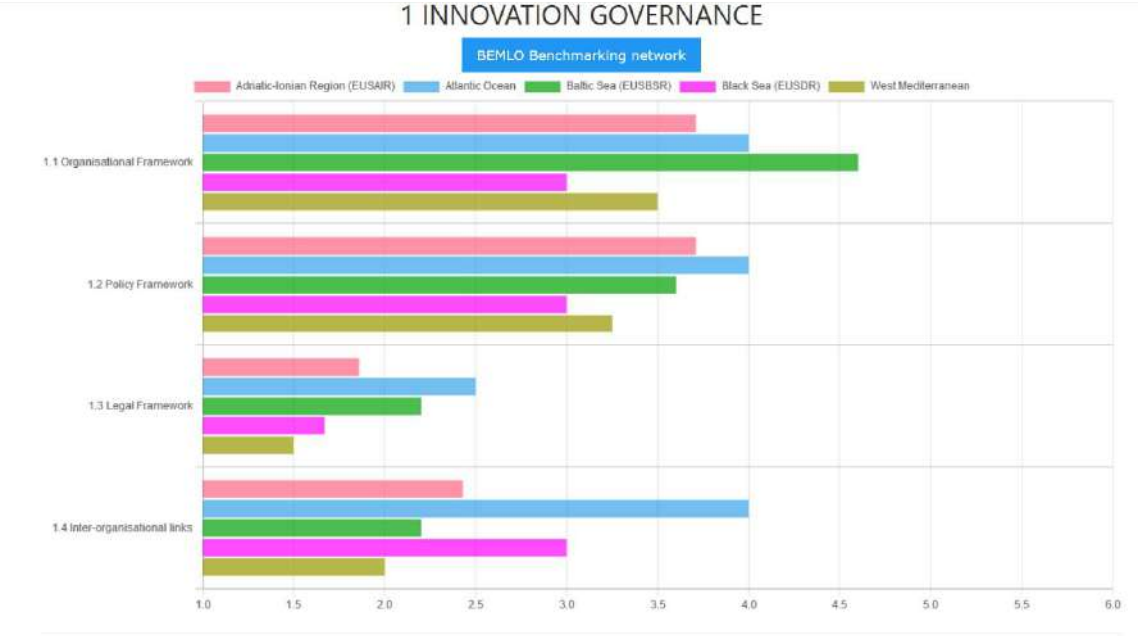


Figure 66: Pillar 1: Innovation Governance per Sea Basin, Source: Blueair Benchmarking Tool

The highest score was achieved by all basins in the **Organisational Framework** indicator, showing that there is either *a limited number of bodies facilitating innovation activities, only some of which have an impact* (Level 3 on the 1-6 scale) or *there are several bodies facilitating innovation activities, but with minimal impact* (Level 4 on the 1-6 scale). The highest (6) Level represents *numerous and coordinated governmental and non-governmental bodies that facilitate a wide range of innovation activities*.

Responses to the question of how developed is the innovation **Policy Framework,** also range around Levels 3 and 4. Respondents declared that either *there is a policy area/pillar in the strategy document*

BLUEAIR is implemented through the financial support of the ADRION programme

specifically dedicated to innovation (Level 3) or *additional to Level 3, innovation policy is part of an action plan that follows the strategic document* (Level 4). From the examined strategies and action plans we know all strategies and action plans or similar documents include an innovation aspect. Therefore it was surprising that even if the EUSBSR is the only strategy with a specific Policy Area dedicated to Innovation and it also has a dedicated Policy Aarea Innovation Strategic Action Plan, the respondents on average did not select Level 5: *in addition to Level 4, additional policy documents are developed specifically for innovation to strengthen innovation capacity in the sea basin*.

The lowest score was achieved in the **Legal Framework** indicator which makes sense since in this question we were asking about the efforts to align national legal frameworks to support the transnational innovation system.

Inter-organisational links The public-private cross-pillar or cross-policy area coordination of sea basin innovation policy also seems to have some potential for improvement, although the responses from the Atlantic Ocean and the Black Sea stand out. While in average respondents from both macro-regional strategies and the WestMED initiative opted for Level 2 - *There is cross-pillar or cross-policy area coordination of blue growth innovation policy issues*, respondents from the Black Sea and the Atlantic Ocean selected Level 3 - *in addition to Level 2, public-private collaboration on innovation activities is encouraged but is not present* and Level 4 - *public-private collaboration on innovation activities is present*, respectively. It might be relevant to notice that the highest score was achieved by those basins where governance structure does not include thematic working groups (In Common Maritime Agenda for the Black Sea they are foreseen as an option but are not yet operational). The inter-pillar coordination becomes more challenging where the structure is more complex, diversified and formalised, for instance in the governance of macro-regional strategies. There the thematic coordination is organised within thematic pillar or policy area groups comprising representatives from national and regional public authorities, while in sea-basin strategies the coordination is more centralised in a single coordination body comprising representatives from national ministries on one hand and the assistance mechanisms, which are building public-private networks around specific topics and funding opportunities on the other.

4.2.3 Pillar 2: Innovation Governance Instruments

This pillar evaluates the level of transnational (sea-basin) cooperation on different types of innovation policy instruments. As the highest level of cooperation are assumed functioning transnational instruments/mechanisms supported by public/private funding.

From the point of view of the available EU funds for the 2021-27 programming period, this involves practical solutions to implement Horizon Europe and relevant R&D-related programmes and policies in synergy, for example: InvestEU, Erasmus+, EU Cohesion Policy, Digital Europe, European Structural and Investment Funds, Connecting Europe Facility, and the Recovery and Resilience Facility, to promote faster dissemination at national and regional level, and uptake of research and innovation results in the sea basin.

The pillar is divided into 5 different dimensions, each representing one type of innovation policy instrument:

- **Promotion of technology absorption**
- **Promotion of innovation and knowledge generation**
- **Promotion of transnational innovation linkages**

BLUEAIR is implemented through the financial support of the ADRION programme

- **Promotion of technology diffusion**
- **Stimulating demand for R&D and innovation**

Each of these dimensions comprises two or more indicators. The final dimension is **Policy mix coherence and complexity**, which refers to the combination of policy instruments that interact with each other and which influence innovation, as opposed to the policy measures considered in isolation. In the assessment, the respondents were also asked to evaluate to what extent the instruments operate as a portfolio of related and complementary tools that apply to different stages in the innovation value chain.

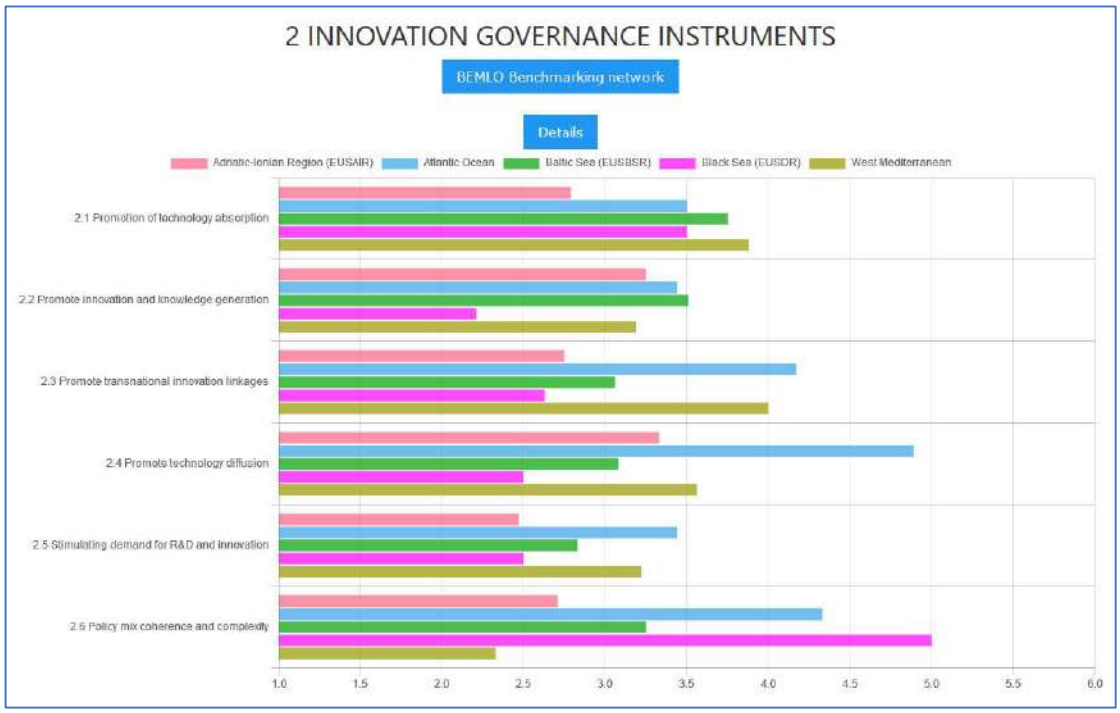


Figure 67: Pillar 2: Innovation Governance Instruments per Sea Basin, Source: Blueair Benchmarking Tool

The cumulative scores, encompassing all dimensions and indicators in this pillar are concentrated between Level 3 and Level 4, whereas Level 3 stands for *Transnational cooperation in this thematic area is agreed and adopted in the policy framework* and Level 4 stands for *Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area*. Level 5 means that *the policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds* to promote a certain type of innovation policy instruments.

As far as the funding of policy measures is concerned the implementation of maritime/macro-regional strategies is organised through the alignment of existing funds. The strategies strive to embed their measures into ESIF (mainstream programmes) and engage in financial dialogues at every level to ensure alignment of funding for implementation of their action plans. In all sea basins, the strategies are considered in the corresponding Interreg programmes, while the efforts to align ESI national/regional programmes with strategies, to acquire more comprehensive and substantial funding, is a continuous strive. The directly managed EU programmes (e.g. LIFE+, Erasmus+, Horizon 2020, Connecting Europe Facility - CEF) represent another potential funding source as these often promote transnational cooperation. However, the strengthening of synergies between strategies and

BLUEAIR is implemented through the financial support of the ADRION programme

directly managed EU programmes requires a case-by-case approach, as they cover the entirety of the EU-27 and are not geographically focused.

Support for the functioning of macro-regional strategies (travel costs, meetings, events, website, project cooperation platforms, monitoring and evaluation, communication) is organised through Interreg B programmes (transnational cooperation), while the functioning of sea-basin strategies is organised through Assistance Mechanisms funded by DG MARE. In terms of funding policy measures, the macro-regional strategies seem to benefit from the stronger involvement and influence of the regional level, which makes it easier to broaden the inward-oriented nature of the national and regional ESI programmes towards a more macro-regional scope. The MA networks established by the macro-regional strategies seem to be successful in terms of a higher number of these programmes considering macro-regional objectives and actions in the period 2021-2027 compared to 2014-2020[77].

The proposed cohesion policy regulations for the 2021-2027 period include provisions designed to facilitate support for macro-regional projects/activities, as cooperation between countries and regions should become common practice. However, including the jointly agreed macro-regional priorities in the 2021-2027 EU funding programmes requires effective and continuous cooperation between national and thematic coordinators and the national/regional authorities responsible for these programmes.

The role of assistance mechanisms is the identification and dissemination of information, as well as the provision of guidance, on funding opportunities for stakeholders willing to set up projects, create networks or exchange good practices relevant for the action plans.

Looking again at the scores from the self-assessment it is interesting that respondents from both macro-regional strategies did not opt for Level 5, since they have MA networks established. Further inquiry is needed to find out the reasons.

In terms of dimensions, considering the results from all basins, the lowest scores (on average 2,9) were achieved in Stimulating demand for R&D and innovation and the highest (3,7 on average) in Promotion of technology absorption.

4.2.4 Pillar 3: Innovation Policy Process

Capacity for the innovation policy process refers to the innovation policy agenda setting, decision making about innovation programmes and policies, innovation policy process planning and implementation. The objective, in case of strong cooperation, is to generate tangible impact ”on the territory”, by efforts of all types of actors gathered through the multi-level governance.

The innovation policy process pillar includes the following dimensions:

- Agenda setting – How far is innovation policy set among top transnational priorities as evidenced by a continuous stream of policy efforts. How far Is the policy agenda shaped by a

[77] European Commission (2020). COM(2020) 578 final. Report from the Commission on the implementation of EU macro-regional strategies

BLUEAIR is implemented through the financial support of the ADRION programme

broad range of stakeholders with innovation policy priorities derived in a combined and transparent manner?

- Decision making – How far are innovation policy measures designed through a broad consultation process at the transnational level. Are there policy impact assessment procedures employed in the selection of measures?
- Policy implementation – How well is the implementation of policy measures planned and coordinated at the transnational level.

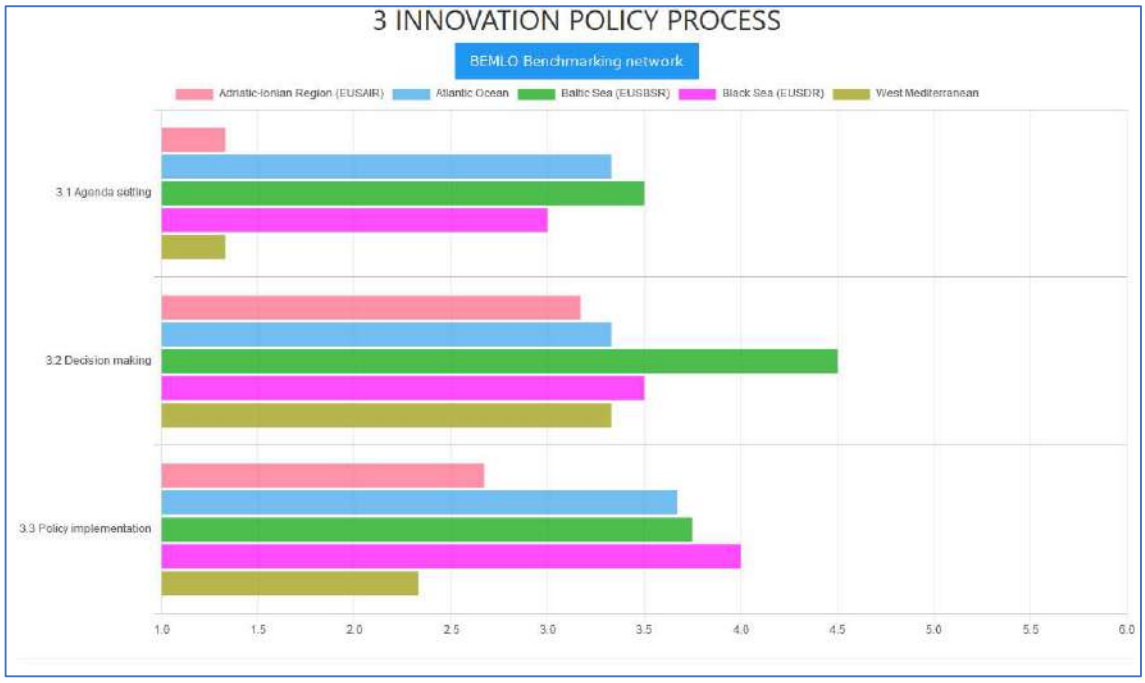


Figure 68: Pillar 3: Innovation Policy Process per Sea Basin, Source: Blueair Benchmarking Tool

The lowest scores were achieved for all basins in **Agenda-setting**. For two basins, WestMED and EUSAIR the average score achieved was near 1, meaning that *Innovation Policy does not exist as a standalone transnational policy*. The results of the other three were above Level 3 – *Innovation policy exists as a standalone transnational policy. It is focused but is defined by governmental bodies in consultation with the R&D sector* and below 4 – *Innovation policy exists as a standalone transnational policy. It is broadly defined and is derived in consultation with a broader range of stakeholders including the business community and NGOs. Priorities are derived through a broader consultation process.* The highest score was achieved by the Baltic Sea, which has a dedicated Policy Area Innovation and works closely with the stakeholders to shape and implement relevant actions.

Among the three dimensions, the highest average score taking into account all basins was achieved in the **Decision-making dimension**. The Baltic Sea reached the highest average score of 4.5, while the other basins attained scores between 3 - *Policy measures are designed through a limited consultation process confined on governmental bodies.* and 4 - *Policy measures are designed through a broader consultation process at the transnational level.* These results could imply there is room for improvement in this dimension for the five sea basins, which could learn from the practices of the Baltic Sea coordination and stakeholder engagement, which is described in the case of cooperation in smart specialisation (Chapter 5).

BLUEAIR is implemented through the financial support of the ADRION programme

In the **Policy implementation** dimension both Mediterranean basins achieved average scores between 2 - *Implementation of policy measures is not planned, changes are frequent but explained* and 3 - *Implementation of policy measures is planned, changes are transparent and explained*, while the average scores of the other three basins are in the range between 3.5 and 4 - *Implementation of policy measures is planned, not always harmonized at transnational level, changes are transparent and explained*.

4.2.5 Pillar 4: Capacity For Innovation Policy Implementation

Capacity for innovation policy implementation refers to policy implementation capacities of the sea basin strategy implementing bodies including administrative-, coordination-, policy-setting, monitoring & evaluation and political capacities.

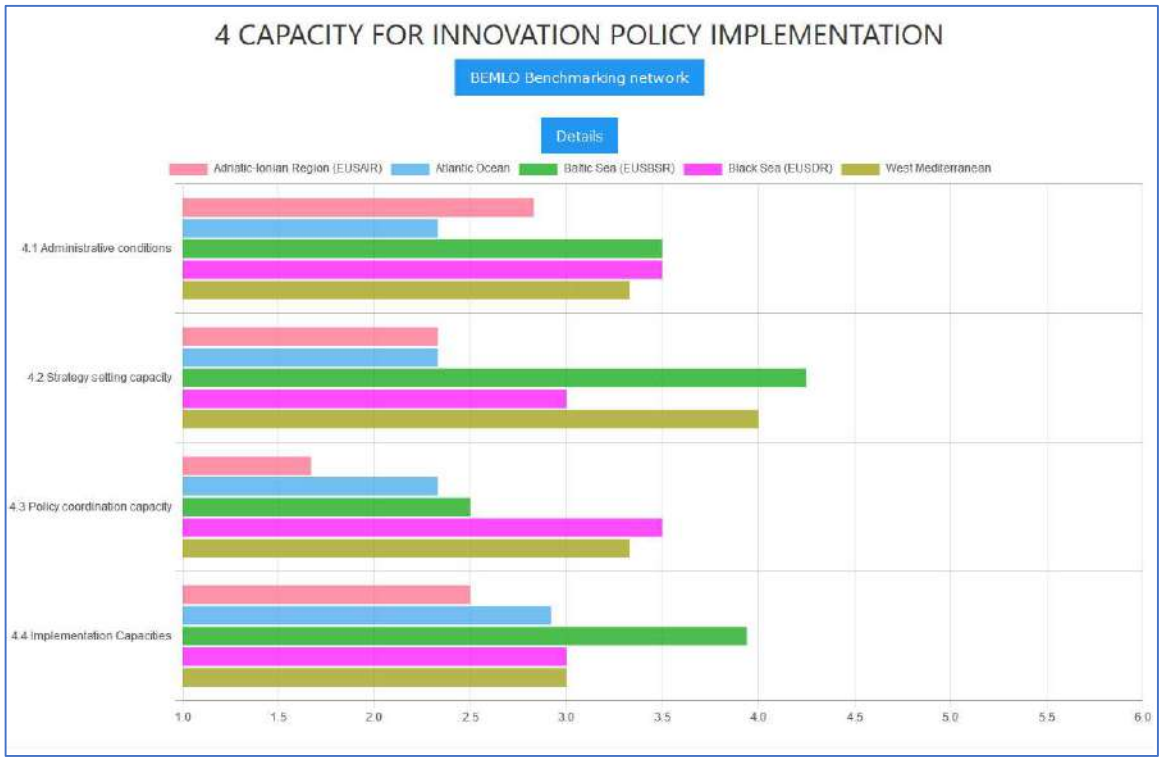


Figure 69: Pillar 4: Capacity for Innovation Policy Implementation per Sea Basin, Source: Blueair Benchmarking Tool

When averaging the scores of all 4 dimensions of the capacity for innovation policy implementation per sea basin, the highest score is achieved by the Baltic Sea. The Western Mediterranean and the Black Sea are not far behind, the Atlantic Ocean and the Adriatic-Ionian Basin are at the lower end. To pinpoint the reasons behind such results further inquiries would be needed.

In terms of dimensions, the Policy coordination capacity seems to be the most challenging, except for the Black Sea, where Strategy setting and Implementation capacities received the lowest score. The Implementation capacities are most challenging also for the Western Mediterranean Sea Basin. Since these two basins have the youngest sea-basin strategies, it seems logical that implementation capacities are missing the most there. For more mature sea-basin/macro-regional strategies

BLUEAIR is implemented through the financial support of the ADRION programme

coordination poses the highest challenge, which is consistent with the results of Pillar 1 Inter-organisational links dimension.

4.3 Blue Growth Innovation Performance in European Sea Basins

In this chapter, we are summarising information available at the EU level regarding blue growth Innovation performance in sea basins. We are using different EU tools and reports concerning innovation, blue growth and blue economy policies and performance for the presentation of developments in European sea basins.

The regions included in different sea basins are defined by the territory of macro-regional strategies for EUSAIR and EUSBSR or in line with the Blue Economy Report for all the other basins (using NUTS2 coastal regions instead of NUTS3). For basins without a macro-regional strategy, only EU regions are considered, due to lack of available data. For more information, please refer to Chapter 3.

4.3.1 Blue Growth Innovation Performance and Policies

We could not find indicators that would provide information on blue growth or blue economy related innovation performance on the level of NUTS2 regions, which is the minimum that we need to attribute data to the territories of concerned basins. Therefore, we are using the Regional Summary Innovation Index, which gives us a general overview of innovation performance in the coastal regions part of the sea basins.

The smart specialisation process is one of the cornerstones of EU innovation policy. We found two indicators that combine S3 and blue growth policy objectives and applied them to the sea basin territory.

BLUEAIR is implemented through the financial support
of the ADRION programme

Regional Innovation Scoreboard

From the bellow map, we can see that the northern regions and therefore northern sea basins outperform the southern ones. Similar can be observed also for the Atlantic Ocean which stretches over the same north-south axis.

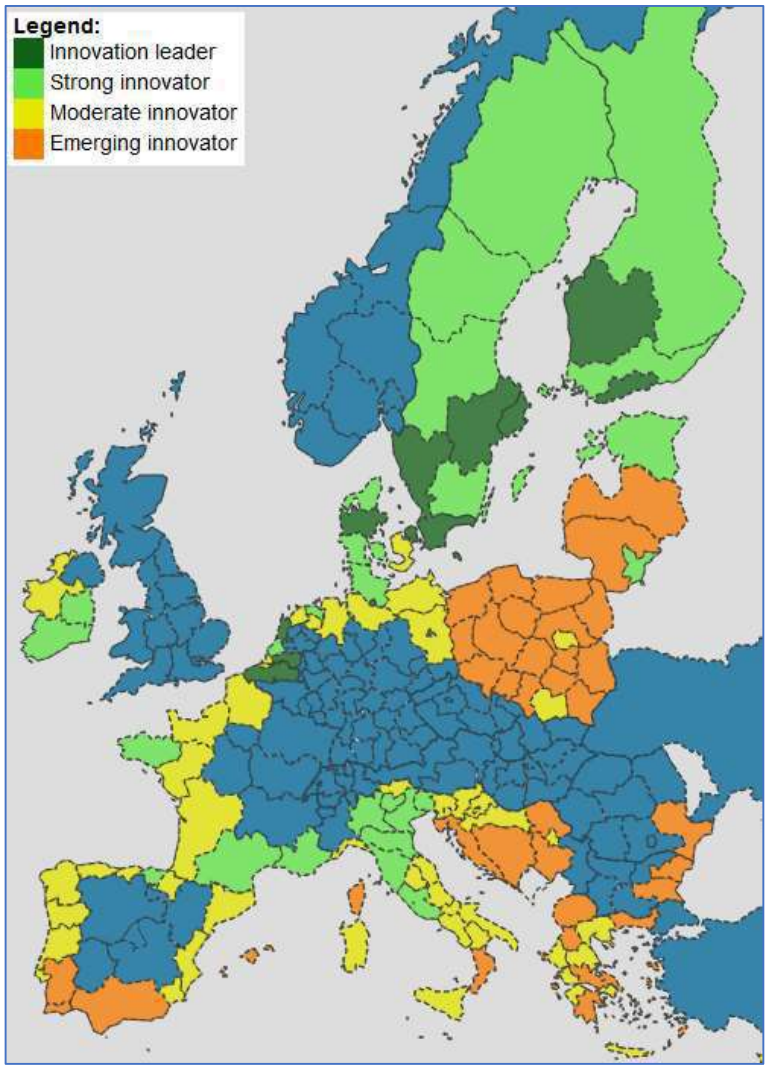


Figure 70:Regional Summary Innovation Index for coastal NUTS2 (NUTS1 for France) regions (NUTS 2021) part of EU Sea Basins, 2021, Source: Regional Innovation Scoreboard interactive tool

We calculated Summary Innovation Index for each Sea Basin by averaging the Regional Summary Innovation Index (RII) of the NUTS2 (for France NUTS1) coastal regions part of a certain sea basin. Then we applied the Regional Innovation Scoreboard classification to allocate basins to the corresponding performance group. For the Adriatic-Ionian basin, we presented results in two ways, including and excluding the non-EU regions. The reason behind this choice is the fact that non-EU regions/countries part of other basins are not included in the results.

BLUEAIR is implemented through the financial support of the ADRION programme

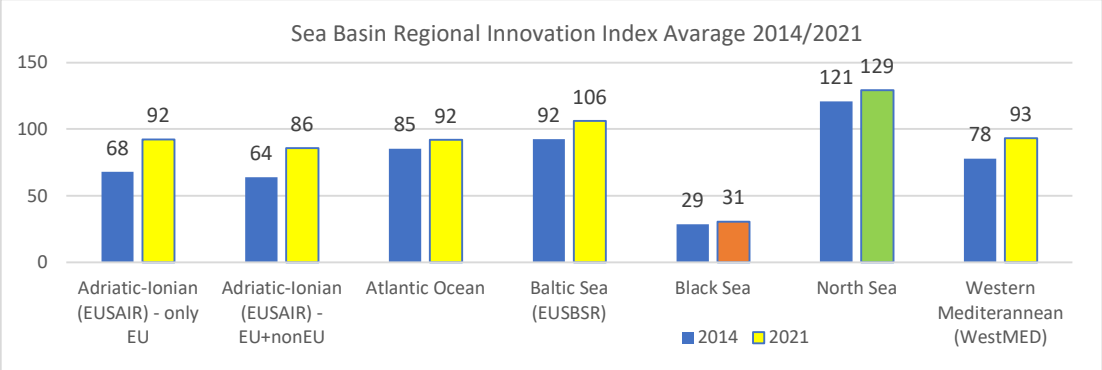


Figure 71: Sea Basin Regional Summary Innovation Index average for 2014 and 2021, Source; own graph on basis of Regional Innovation Scoreboard 2021 data

Most basins belong to the Moderate Innovator Group, except the Black Sea with the lowest RII average and the North Sea with the highest RII average. The results are expected and depend on the number of regions belonging to different innovation performance groups included in the basins. Most regions of East-European "new" EU Member States are lagging in innovation performance. The Baltic Sea Basin is the only one besides the North Sea which stretches above the EU average. Interestingly, the Atlantic Ocean, the Western Mediterranean and the Adriatic-Ionian basins reach more or less the same level of innovation performance, averaging around 92% points.

The results presented confirm the fact that the innovation performance of a basin does not depend on the existence of some kind of a formalised high-level transnational policy framework. Transnational policy frameworks are there to encourage cooperation on all levels, resulting in a more cohesive and prosperous sea basin region. Also, the non-existence of such a framework does not imply the intensity of transnational innovation cooperation in the sea basin region. For example, although the North Sea Region does not have a transnational strategic policy framework adopted nationally, the transnational cooperation among private and public bodies is very intense and it does not seem to need any additional transnational policy coordination.

Regarding the **progress in the sea basin RII average between 2014 and 2021**, we can observe that all sea basins have improved, however, we will examine the progress made relative to the EU. Over these years, EU performance increased by 14.2% points, and comparing regions' growth performance with the EU better highlights differences in growth performance across Europe. In that regard, the Adriatic-Ionian basin is by far the fastest-growing one. From 2014 the RII average increased by almost 10% points (non-EU countries excluded) or 8% points (non-EU countries included). The Western Mediterranean grew slightly for 1,2% points and the Baltic Sea Region more or less stagnated at -0,4% points. On the other side of this scale is the Black Sea with -12,9% points decrease followed by the Atlantic Ocean with -7,4% points and the North Sea with -5,7% points.

BLUEAIR is implemented through the financial support of the ADRION programme

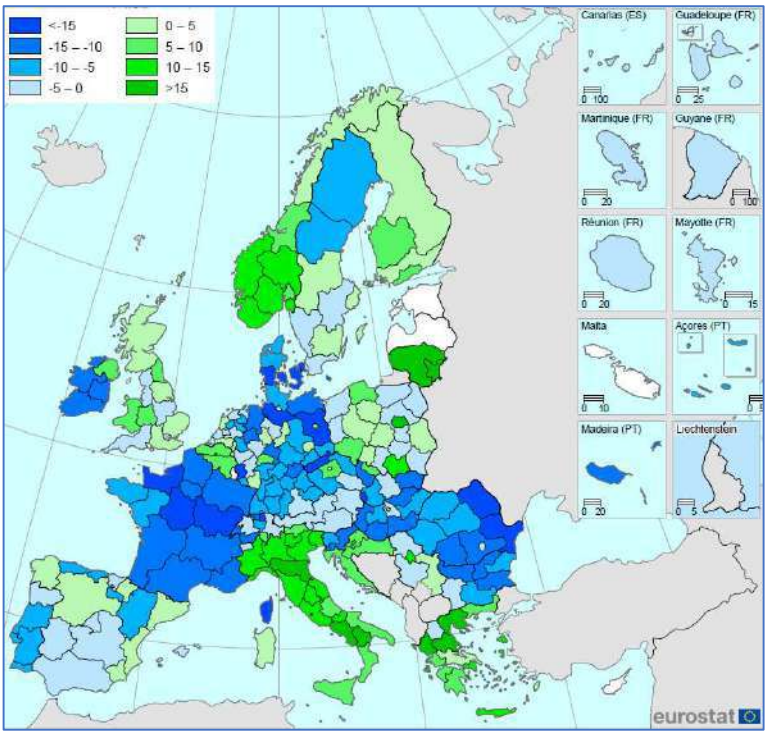


Figure 72: Innovation performance change 2014/2021, NUTS 2021, Source: Regional Innovation Scoreboard Report 2021

High performing regions tend to grow slower than the lower performing ones, with exceptions. Ratios between the number of regions with RII increase to the number of regions with RII decrease relative to EU in respective sea basins are presented in the below table.

Sea Basin	The ratio of regions with RII increase to decrease relative to EU
EU27[78]	**40%:60%**
Adriatic-Ionian Basin (EU)	91%:9%
Adriatic-Ionian Basin (EU+nonEU)	80%:20%
Atlantic Ocean	9%:91%
Baltic Sea	48%:52%
Black Sea	0%:100%
North Sea	17%:83%
Western Mediterranean Basin	57%:43%

Table 4: Ratio of RII increase to decrease in considered sea basins, Source: own calculation based on Regional Innovation Scoreboard 2021

Over time, **performance differences between regions in a basin** have decreased for Atlantic Ocean, Baltic Region and EU regions of the Adriatic-Ionian Basin, while differences increased between regions in the North Sea, the Black Sea, the Western Mediterranean and between EU and non-EU regions in the Adriatic Ionian Basin.

[78] Holanders H. (2021). Regional Innovation Scoreboard Report 2021. Publications Office of the European Union. Luxemburg

BLUEAIR is implemented through the financial support of the ADRION programme

Blue Growth in Smart Specialisation Strategies

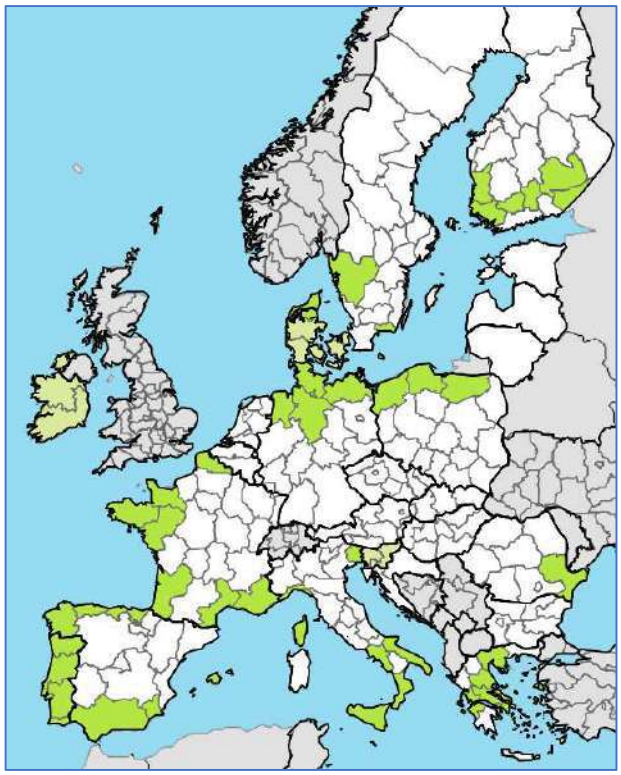


Figure 73: Regions/countries with blue growth objectives in S3 priorities, Source: Eye@RIS3: https://s3platform.jrc.ec.europa.eu/map

Eye@RIS3 Innovation Priorities in Europe Tool shows 45% of all regions and countries with S3 priorities encoded, which are part of European sea basins (including all regions/countries of EUSBSR and EUSAIR) have blue growth policy objectives included in their S3 priorities. The table below shows that the vast majority of Atlantic S3 regions/countries have blue growth objectives in their S3 priorities, while the Baltic Sea is the basin with the lowest proportion of S3 regions/countries with blue growth objectives encoded. Adriatic-Ionian basin is the basin with the second-lowest proportion of regions/countries with blue growth in their S3 priorities. All non-EU countries are considered by the tool, however, none of them opted for blue growth policy objectives. Out of Italian regions, only two and none of the Croatian regions have blue growth objectives in their S3 priorities. These results show many regions/countries do not recognise the innovation potential in blue economy.

Sea Basin	S3 regions and countries with BG priorities	Main Policy objective
Adriatic-Ionian Basin	36%	Aquaculture
Atlantic Ocean	85%	Blue Renewable Energy
Baltic Sea	24%	Transport
Black Sea	50%	/
North Sea	53%	Transport, Blue Renewable Energy
Western Mediterranean Basin	68%	Transport

Table 5: Percentage of S3 regions and countries with blue growth priorities in European sea basins, Source: own calculation based on Eye@RIS3 data

From all the blue growth objectives, Transport & Logistics is the one selected most often by the sea basin regions/countries, followed by Blue Renewable Energy, Aquaculture, Marine Biotechnology and

BLUEAIR is implemented through the financial support of the ADRION programme

Shipbuilding & Repair. Adriatic-Ionian regions/countries stand out in terms of including Aquaculture and Fisheries most often in their S3 priorities, which are not among the most innovation-driven sectors.

S3 Thematic Partnerships

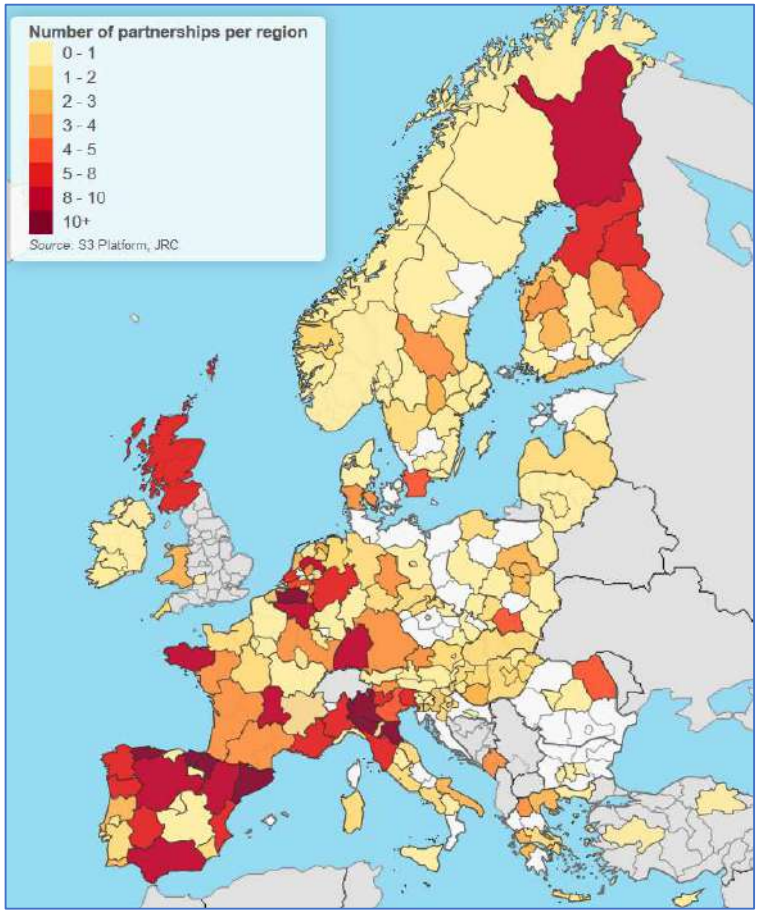


Figure 74: Regions involved in S3 Thematic Partnerships, Source: Thematic Platforms Interactive Map, https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

As shown on the map of S3 Thematic Partnerships, regions in the Western Mediterranean and the Atlantic Ocean are most active. Interestingly, except for Finnish regions, the Baltic Sea regions do not tend to cooperate in S3 Thematic Partnerships. The same is true also for Adriatic-Ionian regions, except for the regions in northern Italy. For sure this is a potential that could be further researched and exploited by the basin.

None of the Thematic Platforms stands out in terms of being predominant in cooperation of sea basin regions. Since Marine renewable energy is the only Thematic Partnership clearly linked to blue growth, we are providing a map of included regions below. Regions from all basins, except the Black Sea are involved, with Atlantic and Baltic regions being the most active.

BLUEAIR is implemented through the financial support of the ADRION programme

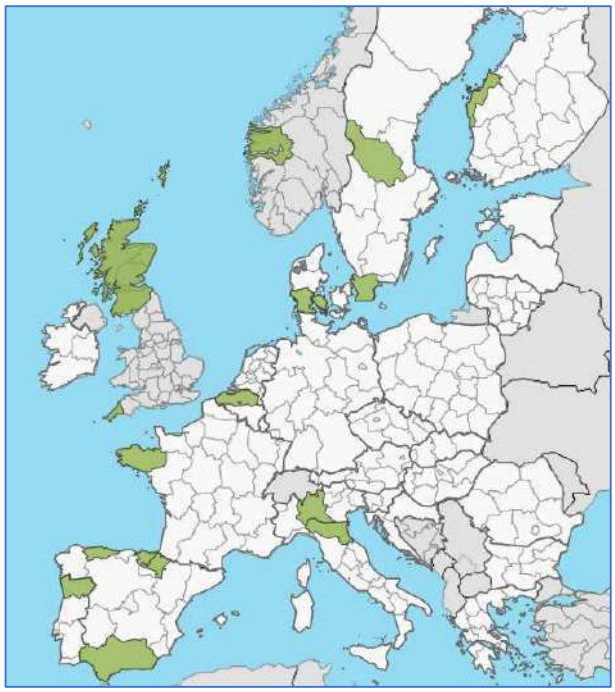


Figure 75: Regions involved in S3 Thematic Partnership Marine renewable energy, Source: Thematic Platforms Interactive Map, https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

4.3.2 Blue Economy in European Basins

This chapter provides an overview of how strongly basins are contributing to the EU's blue economy. Individual blue economy sectors in sea basins are described in the next chapter. Blue Economy Report is the main source of data for both overall and sectoral engagement of sea basins in Blue economy. The added value of this study is the sea basin approach, which is only briefly presented in the Blue Economy Report.

As mentioned already, only data for coastal NUTS3 regions are considered in the Blue Economy Report, which is especially significant for data regarding the macro-regional strategies (Baltic Sea Basin and Adriatic-Ionian Basin), since a large proportion of the territory included in both strategies is not covered. Moreover, due to data availability issues, Blue Economy Report excludes also non-EU countries, which is particularly inconvenient for the analysis of the Western Mediterranean, Black Sea and Adriatic-Ionian Sea Basins.

BLUEAIR is implemented through the financial support of the ADRION programme

The Blue Economy Report

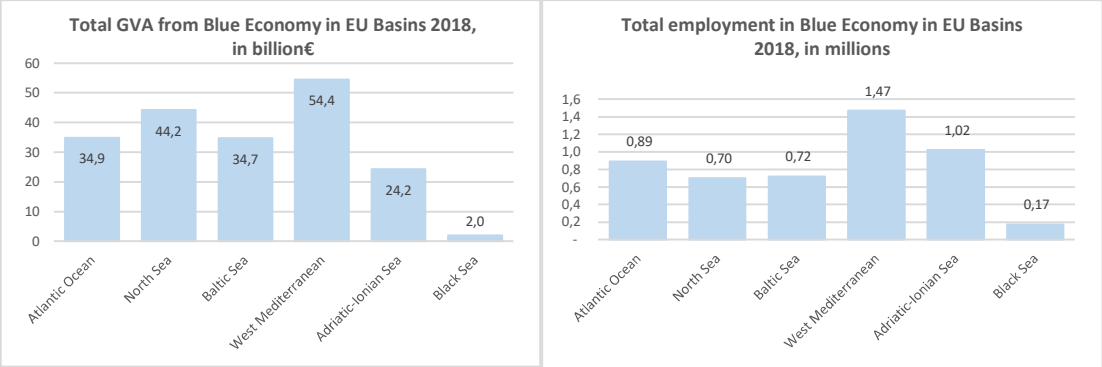


Figure 76:Total GVA and employment in Blue economy in sea basins in 2018, Source: own graphs on basis of Blue Economy Report 2021 data

In 2018 the largest sea basin in terms of GVA was the Western Mediterranean (30,5%), followed by the North Sea (24,8%), the Atlantic Ocean (19,6%) and the Baltic Sea (19,5%). The Adriatic Ionian Sea Basin is with 13,6% among the smallest basins. In terms of jobs, one-third of EU's blue economy jobs are located in the Western Mediterranean (32,7%), followed by the Adriatic-Ionian (22,8%), the Atlantic Ocean (19,9%), the Baltic Sea (16,10%) and the North Sea (15,6%). Apart from the Black Sea, the Adriatic Ionian basin has the lowest GVA per worker, 2,7 times lower than the North Sea and more than 2 times lower than the Baltic Sea.

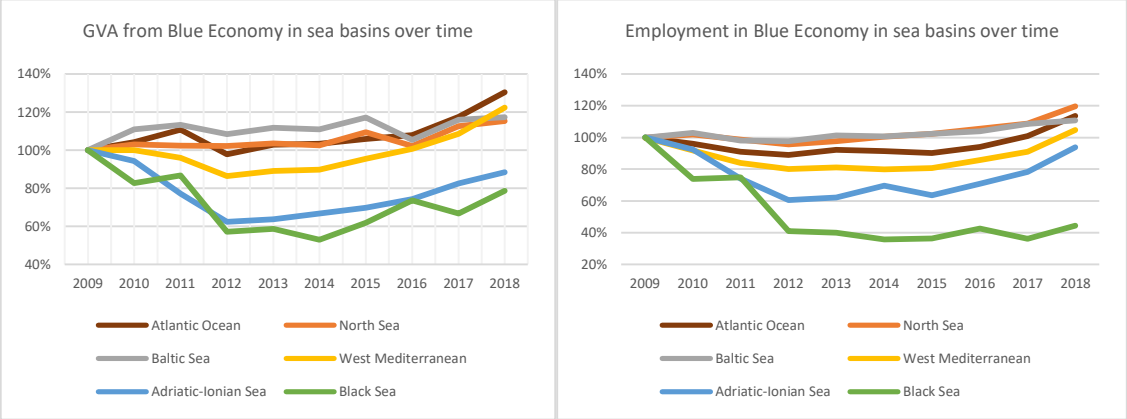


Figure 77: Blue economy GVA and employment in sea basins over time (2009-2018), Source: own calculation based on Blue Economy Report 2021 data

All sea basins experienced effects of the 2008 crisis, although some absorbed them better than others. The least crisis resilient were the Black Sea and the Adriatic Ionian Basins, which are the only ones that in 2018 remained under 2009 levels both in terms of GVA and employment. In relation to the current crisis, this could be a worrying reference.

BLUEAIR is implemented through the financial support of the ADRION programme

Blue Growth Clusters

Figure 78:Clusters cooperating on S3 blue growth priority area in Europe, Source: European Cluster Collaboration Platform

There are 33 clusters cooperating on S3 blue growth priority area in Europe (there are only 32 shown in Figure 78, there is an additional one in the Canary Islands) and 67 in blue growth industries, as we can see there are not many located in the Adriatic-Ionian basin. It would be interesting to see, how many cluster members are located in different basins, but that would require further research.

4.3.3 Blue Economy Sectors

This Chapter provides information on status and developments in sea basins as regards the blue economy sectors. Each established[79] blue economy sector is described in more detail, while for emerging sectors, which in terms of innovation policy could be even more interesting, we are providing less information, due to limited data availability on basin level. For sure it would be worth researching potentials in emerging sectors further as well.

We are here summarising briefly the proportions of each established sector in EU's blue economy from the Blue Economy Report 2021, to provide background on the relevance of each sector to keep in mind when reading the chapters dedicated to specific sectors.

The seven established sectors of the EU blue economy generated GVA of €176.1 billion in 2018; that is, a 15% increase compared to 2009. These established sectors directly employed almost 4.5 million people in 2018. Although this represents less than 1% increase from 2009, it does show that in 2018

[79] Blue Economy Repot classification

BLUEAIR is implemented through the financial support of the ADRION programme

the number of jobs in the EU's blue economy was higher than before the 2008 crisis and 12% greater than the previous year (2017).

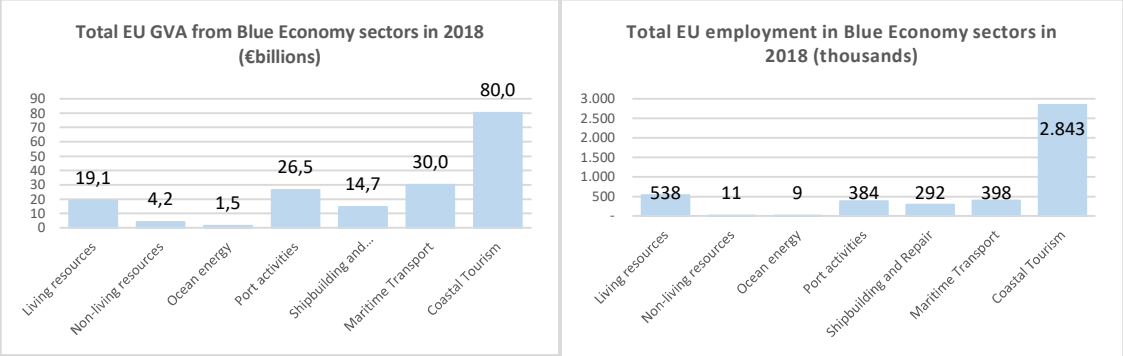


Figure 79: EU's GVA (in €billions) and employment (in thousands) in blue economy sectors in 2018, Source: own graphs derived from Blue Economy Report 2021 data

The sector contributing by far the most to EU's blue economy GVA and jobs is Coastal Tourism, followed by Maritime transport, Port Activities and Living resources.

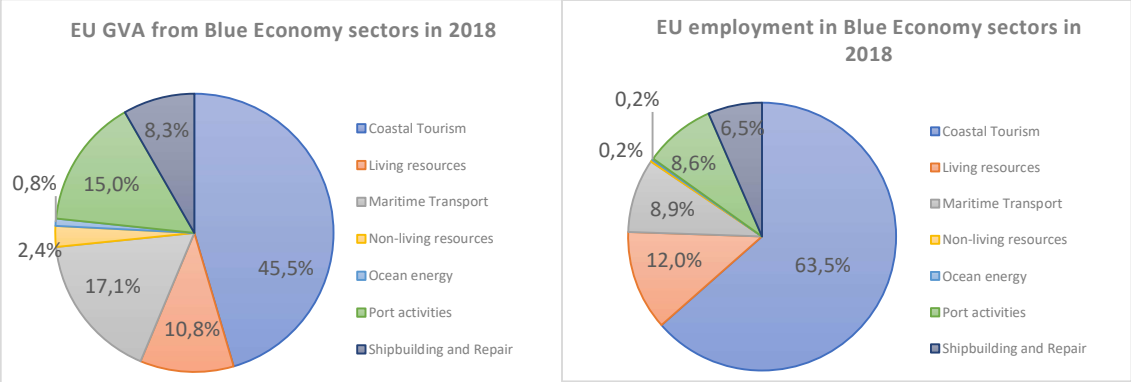


Figure 80: Proportions of blue economy sectors in EU's blue economy GVA and employment in 2018, Source: own calculations from Blue Economy Report 2021 data

The Blue Economy Report 2021 edition was used as the main data source for status in 2018 and data obtained directly from DG MARE for examining the trends over time (2009-2018). As mentioned previously, only data for coastal NUTS3 regions are considered in the Blue Economy Report, which is especially significant for data regarding the Baltic Sea Basin and the Adriatic-Ionian Basin, since a large proportion of the territory included in EUSBSR and EUSAIR is not covered. Moreover, due to data availability issues, the Blue Economy Report excludes also non-EU countries, which is particularly inconvenient for the analysis of the Western Mediterranean, Black Sea and Adriatic-Ionian Basins.

BLUEAIR is implemented through the financial support of the ADRION programme

Coastal Tourism

Within European tourism, coastal and maritime tourism makes up the largest sub-sector. It is also the largest maritime economic activity representing close to half (45,5%) EU's blue economy GVA and almost 64% of the EU's blue economy jobs. In 2018, 51,7 % of all EU tourist accommodation establishments were in coastal and maritime areas.

The main policy document regarding coastal and maritime tourism was the 2014 EC Communication on **A European Strategy for more Growth and Jobs in Coastal and Maritime Tourism**[80]. While in the second half of the previous decade the sector recovered from the effects of the 2008 crisis, it faced a new challenge in 2020. According to UN World Tourism Organization (UNWTO), the ongoing COVID crisis resulted in a 70 % fall in international tourism arrivals in 2020. As a response, European Parliament adopted a **Resolution on establishing an EU Strategy for Sustainable Tourism**[81]. The Strategy stresses four main pillars to encourage recovery of the sector: Rebuild with COVID-19 impact response plans, Refocus of the governance policy within the Union framework, Strengthen transition to sustainable, responsible and smart tourism and Rethink planning the future of the tourism industry.

The Resolution summarises some important factors influencing European tourism, which are relevant also for Coastal tourism sector. The tourism value chain is one of Europe's main industrial ecosystems identified by the Commission. It is complex and made up of the four closely linked, key vectors of transport, accommodation, experience and intermediation. The success of the industry lies in the degree of influence between these four vectors[82]. Tourism has an impact on climate change by contributing to 8 % of global CO2 emissions[83]. The tourism sector encompasses a great diversity of services and professions and is dominated mainly by SMEs, whose activities generate employment and wealth in the regions that depend upon it.

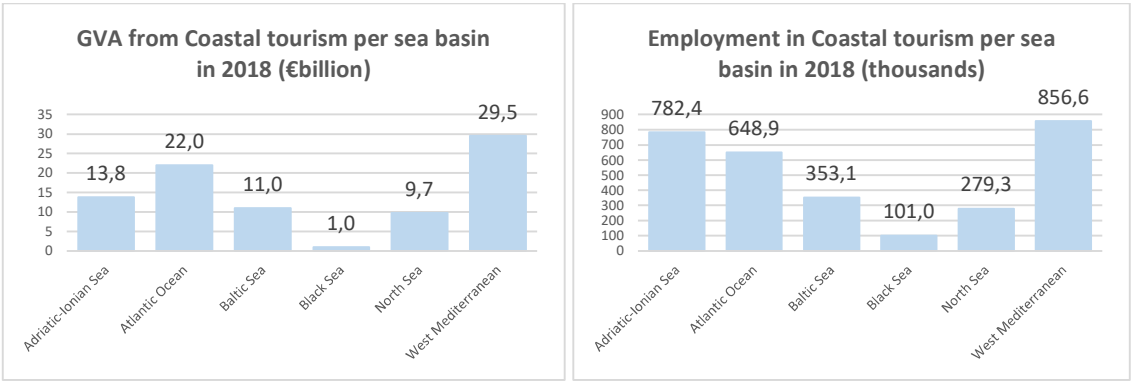


Figure 81: GVA and employment in Coastal tourism per sea basin in 2018, Source: own calculation using data obtained from DG MARE and prepared for Blue Economy Report 2021

The Western Mediterranean represents over one-third of the EU's Coastal tourism sector in GVA and 28% in employment. With 26% in employment and 25% in terms of GVA, the Atlantic is the second-

[80] European Commission (2014). COM (2014)86. A European Strategy for more Growth and Jobs in Coastal and Maritime Tourism

[81] European Parliament (2021). European Parliament resolution of 25 March 2021 on establishing an EU strategy for sustainable tourism (2020/2038 (INI))

[82] ibid

[83] Lenzen, M., Sun, YY., Faturay, F. et al. (2018). The carbon footprint of global tourism. Nature Clim Change 8, 522–528 (2018). https://doi.org/10.1038/s41558-018-0141-x

BLUEAIR is implemented through the financial support of the ADRION programme

largest basin in the EU's Coastal tourism sector, followed by the Adriatic-Ionian basin with 16% GVA and 26% of jobs.

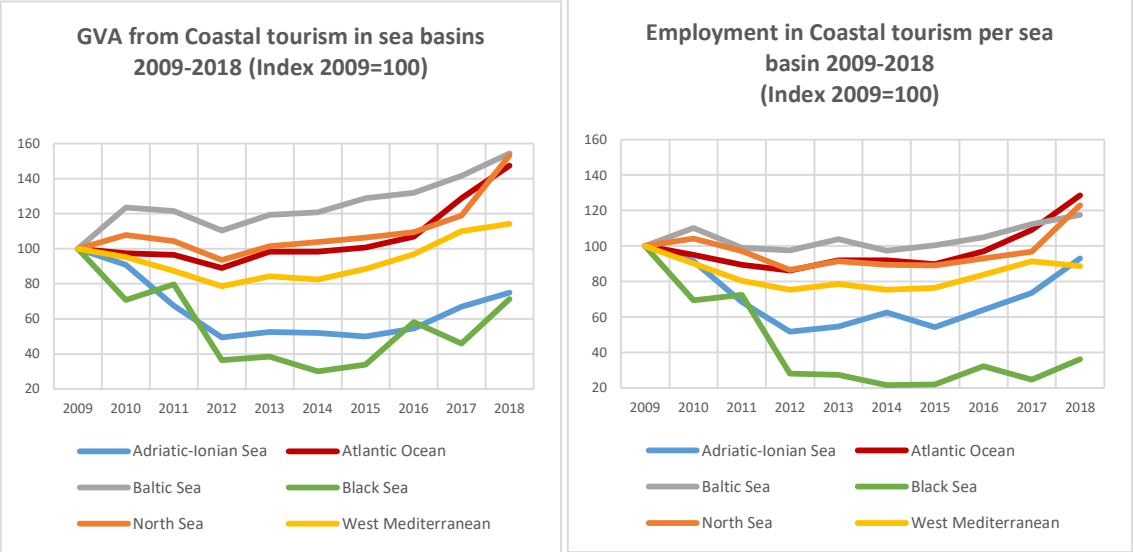


Figure 82: GVA and employment in Coastal tourism per sea basin over time (2009-2018), Source: own calculation based on data obtained from DG MARE and prepared for Blue Economy Report 2021

Even though European Coastal tourism was the most affected sector by the 2008 crisis, it had recovered and in 2018 rose 21% over the 2009 level. There are significant differences among sea basins in how much the sector was affected and how long did it take to recover. The southern basins experienced a higher decline and took longer to recover. Tourism has declined most in the Black Sea, which was impacted also by the Ukrainian-Russian conflict in 2014. After 2009 Adriatic-Ionian Coastal tourism declined more steeply than in other basins and stagnated for a few years before the trend finally turned in 2015, while in some other basins the trend turned earlier. The severity of the Greek financial crisis and the more recent migration crisis also had an effect. Also except for the Black Sea, the Adriatic-Ionian Basin was the only one in which GVA in 2018 was still lower than in 2009, the difference was -25%.

The seasonal character of the EU coastal tourism, peaking in the summer months is evidenced in the 2016 EASME Study[84]. It is a threat especially relevant for the central and eastern part of south coastal Europe. As shown in Figure 83 the seasonality is most expressed in Adriatic-Ionian and the Black Sea basins[85]. As noted by the EASME study seasonality of demand creates a strong reliance on part-time workers and high pressure on local infrastructure and resources during high season. It also implies facilities are underutilised in the low-season when employment demand decreases rapidly and services are often scaled-down. As a result, it exposes the sector to strong economic dependence upon a limited time period to gain economic profits and severe losses in case of lack of visits over such period. Knowing that in 2018 77% of all blue economy jobs in the Adriatic-Ionian Basin were linked to the

[84] Executive Agency for Small and Medium-sized Enterprises (2016). Study on specific challenges for a sustainable development of coastal and maritime tourism in Europe. Publications Office of the European Union. Luxembourg

[85] Batista e Silva, F., Herrera, M. A. M., Rosina, K., Barranco, R. R., Freire, S., & Schiavina, M. (2018). Analysing spatiotemporal patterns of tourism in Europe at high-resolution with conventional and big data sources. Tourism Management, 68

BLUEAIR is implemented through the financial support of the ADRION programme

Coastal tourism sector, creating 57% of the total blue economy GVA, highlights the intensity of seasonality effects on local communities in the basin.

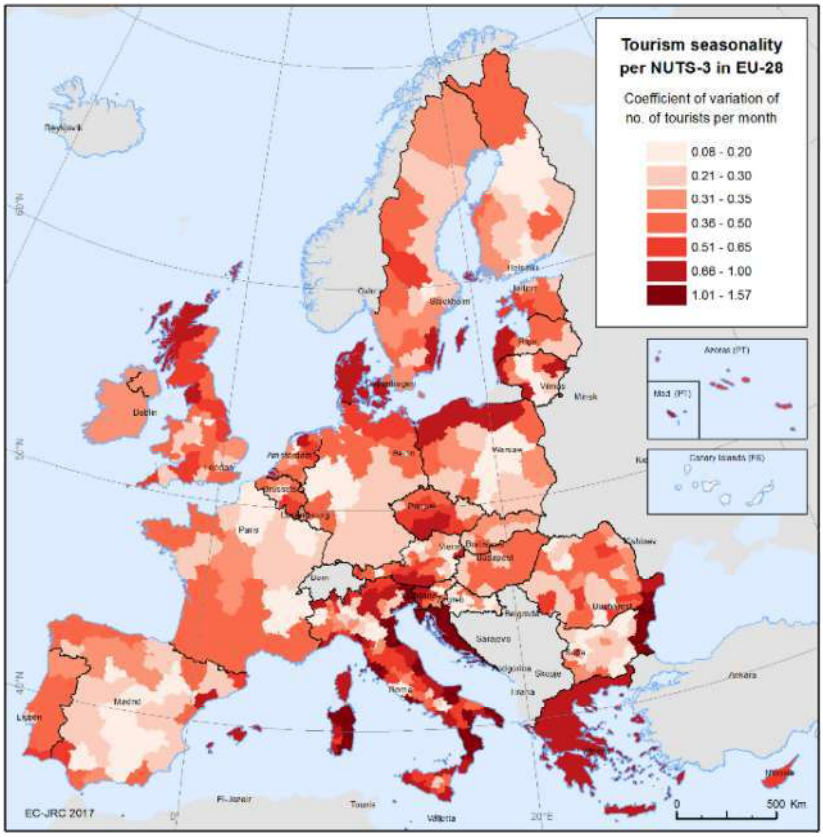


Figure 83: Tourism seasonality in Europe, Source: Batista e Silva, F., Herrera, M. A. M., Rosina, K., Barranco, R. R., Freire, S., & Schiavina, M. (2018)

Crisis resilience of the Coastal tourism sector in the Adriatic-Ionian is lower than in other basins, which due to the high share of tourism in blue economy and regional GDP causes high economic and social pressures.

The European Parliament Resolution on establishing an EU Strategy for Sustainable Tourism identifies many potentials for support and development of the tourism sector through innovative measures to be set and implemented by the Commission and its services as well as by the tourism sector itself, with an aim to develop more sustainable forms of tourism, reducing its climate and environmental footprint, diversifying the offer, boosting new initiatives for cooperation and developing new digital services. Tourism should fully commit to innovation and digitalisation, as the latter is crucial for modernising the entire sector and for developing new services and a broader, high-quality offer. Regional incubators and accelerators for tourism enterprises, harnessing research and innovation should help the many SMEs in the sector and enable them to fully benefit from the data economy and implement sustainable solutions. The Parliament recognises the enhanced role of collaborative economy platforms as intermediaries and their merits in terms of innovation and sustainability. They also call for cooperation between knowledge and innovation communities in the food and culture sectors as well as in transport and mobility to achieve higher sustainability. And these are just a few measures highlighted by the Parliament that indicate the direction of Europe's future tourism policies and funding.

BLUEAIR is implemented through the financial support
of the ADRION programme

If climate-friendly, sustainable travel experiences have been on the rise among travellers' expectations in recent years, the pandemic has further boosted the demand for "slow tourism" and outdoor, nature-based destinations. Sustainability is expected to become more prominent in tourism choices, with regional and local destinations driving the recovery. These ambitions and trends towards a more sustainable tourism ecosystem will guide the use of financial resources and investment at the European, national, regional and local levels[86].

Living Resources

According to the Blue Economy Report, the EU is the sixth-largest producer of fishery and aquaculture products (behind China, Indonesia, India, Vietnam and Peru), covering around 3% of global production. Overall production has been rather stable in the last decades. The EU has about 59.000 active vessels landing about 4.5 million tonnes of seafood worth €6.7 billion, while the aquaculture sector reached a production of 1.2 million tonnes worth €4.1 billion in 2018. The EU is also the largest importer of seafood in the world. Its self-sufficiency in meeting a growing demand for seafood products from its waters is around 30%.

Despite the mentioned general stagnation on the production side, the economic performance of the sector has been increasing over time. Overall, the contribution of marine Living resources to the EU blue economy in 2018 was 12% of the jobs, 11% of the GVA and 11% of the profits. Overall, the economic performance of the sector has improved from 2009.

The **Common Fisheries Policy**[87], the main EU policy in the field, was adopted in 2013, the Commission proposed in 2018 to **revise the fisheries control system**[88]. Aquaculture, unlike fisheries, is not an exclusive EU competence, therefore non-binding **Strategic Guidelines for the sustainable development of EU aquaculture**[89] were first adopted in 2013 and revised in 2021.

[86] European Commission (2021), COM(2021) 240 final. Communication on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future

[87] EU Regulation (2013). Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy. (2013) OJ L 354/22

[88] European Commission (2018). COM/2018/368 final. Proposal for a regulation of the European Parliament and of the Council amending Council Regulation (EC) No 1224/2009, and amending Council Regulations (EC) No 768/2005, (EC) No 1967/2006, (EC) No 1005/2008, and Regulation (EU) No 2016/1139 of the European Parliament and of the Council as regards fisheries control

[89] European Commission (2013). COM(2013) 229 final. Communication on Strategic Guidelines for the sustainable development of EU aquaculture

BLUEAIR is implemented through the financial support of the ADRION programme

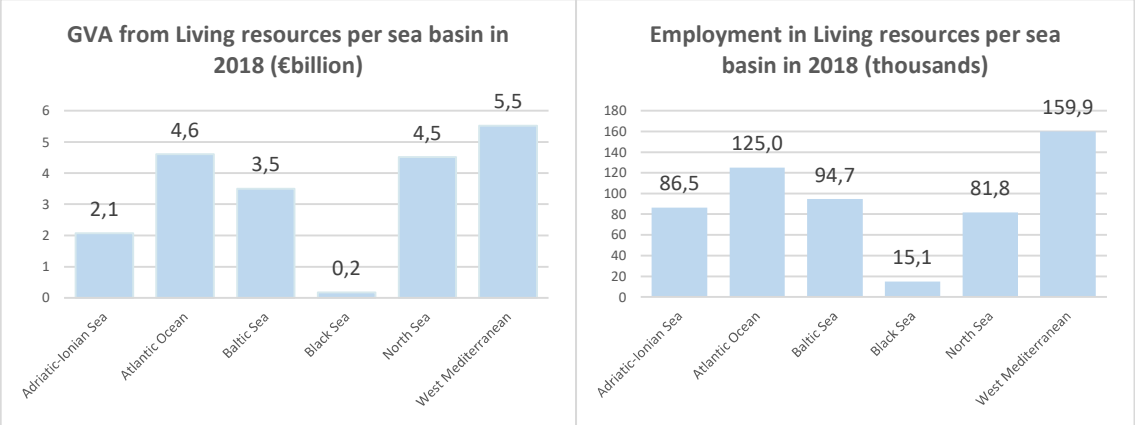


Figure 84: GVA and employment in Living resources per sea basin in 2018, Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

In terms of GVA, it was the Atlantic Ocean and in terms of jobs, it was the Western Mediterranean basin that contribute the largest proportion (27% GVA and 28% employment, respectively) to the total EU's Living resources GVA and jobs in 2018. The North Sea was the most efficient with 22% in EU's Living resources GVA and 15% in jobs. Baltic Sea contributed 17% both in GVA and employment, while Adriatic-Ionian generated 10% of EU's Living resources GVA and 15% of EU jobs in the sector.

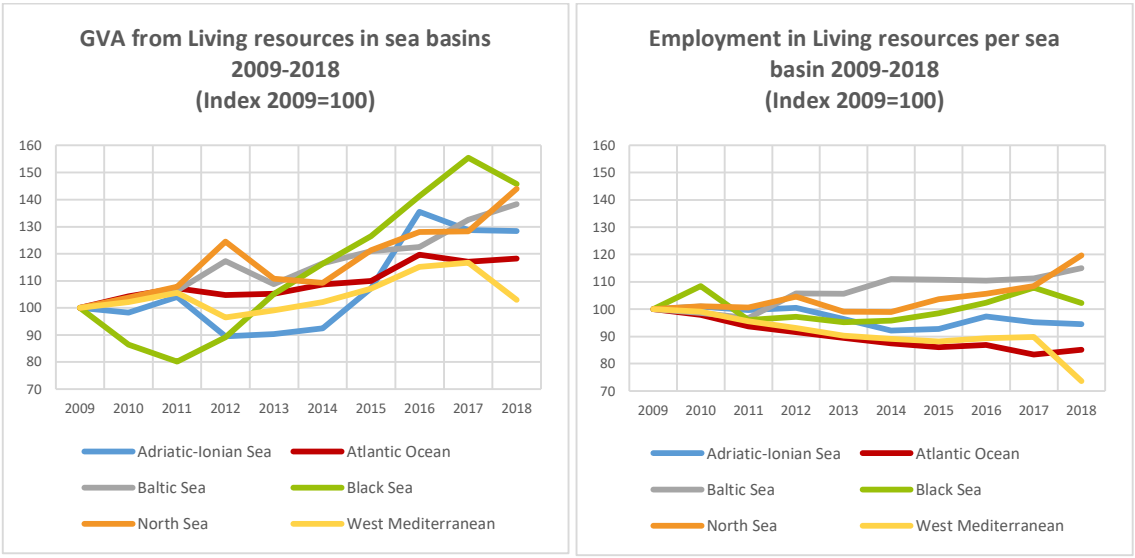


Figure 85:GVA and employment in Living resources per sea basin over time (2009-2018), Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

On the EU level, the Living resources sector was among the least affected by the 2008 crisis, in fact, in terms of GVA it never went below the 2009 level and since then had grown by almost 30% by 2018. Overall employment in the sector, however, had more or less stagnated from 2009 to 2018. On the sea basin level, the trend is consistent for all basins in terms of GVA, with the Black Sea and Adriatic-Ionian fluctuating around the 2009 level the most. Employment had decreased over time in the Western Mediterranean, the Atlantic Ocean and the Adriatic-Ionian, while it increased for the other three basins. Even though GVA from the sector had increased over the years in the Western Mediterranean and the Atlantic, employment decreased. After the initial decrease from 2012 to 2014 in the Adriatic-Ionian GVA and employment, the employment had grown slower than GVA and had not reached the 2009 level by 2018. The graphs display a turn in the trend in the year 2018 for southern

BLUEAIR is implemented through the financial support of the ADRION programme

basins (West Mediterranean, Adriatic-Ionian and Black Sea), which could be caused by stricter fishing quotas that even further decreased in the following years to address the overfishing.

On top of socio-economic challenges related to reduction of overfishing, the sector is facing uncertainty concerning the Brexit implications and effects of pandemics.

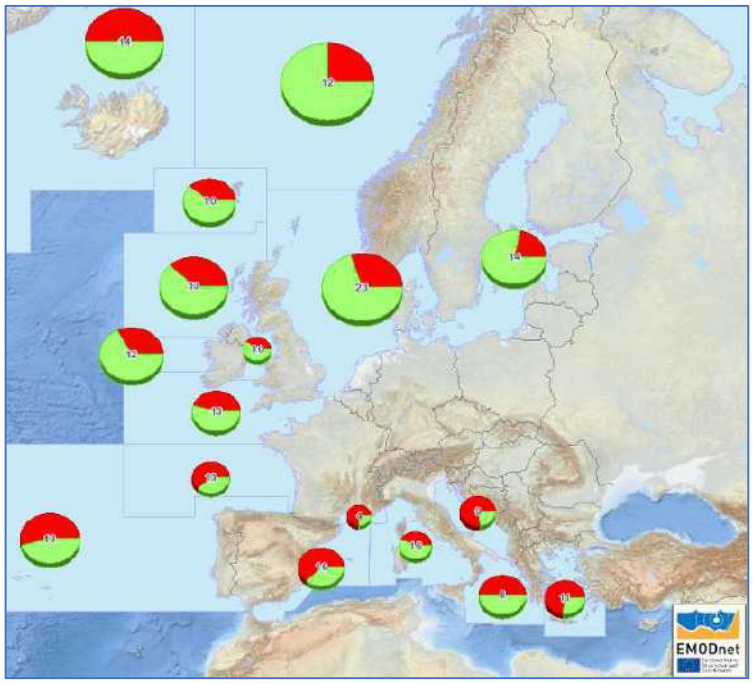


Figure 86:Status of fish stocks in different fishing regions, Source: European Atlas of the Seas

The map above shows the status of fish stocks in different fishing regions. The proportion of assessed fish stocks that are overfished is marked red and those within safe biological limits are marked green. The size of the circles relates to the size of the catch in that region. The map reveals high overfishing in the Mediterranean and Adriatic and Aegean Seas in particular. The main fishing areas in Adriatic are along the Italian coast. Data show increasing fishing along the Balkan Peninsula, but decreasing along the Italian coast (even if Italy still represents 79% of total catches)[90]. As experiences from other sea basins demonstrate, the economic performance of the primary fishery production increases as fish stocks recover[91] in that regard and with growing market prices, the Adriatic-Ionian basin has economic potential.

The recovery of fishes' resources is paramount and, as such, additionally to the total allowable catches based on scientific advice the EU issued new rules on the number of days at sea and the nets' mesh sizes. Fisheries Restricted Areas were also created: in these areas, fishing is limited or prohibited due to spawning or over-exploitation. The FAO 2020 report on The State of Mediterranean and Black Sea Fisheries[92] shows that while most fish stocks remain overexploited, the number of stocks subject to

[90] Gicala A., Salvador R. (2017). The EU Strategy for the Adriatic and the Ionian Region: from Marginalisation to Co-Development. XI CONGRESSO DA GEOGRAFIA PORTUGUESA

[91] European Commission (2021). The EU Blue Economy Report 2021. Publications Office of the European Union. Luxembourg

[92] FAO (2020). The State of Mediterranean and Black Sea Fisheries 2020. General Fisheries Commission for the Mediterranean. Rome. Available at: https://doi.org/10.4060/cb2429en

BLUEAIR is implemented through the financial support of the ADRION programme

overfishing has decreased for the first time in decades. The fishing quotas have further decreased in 2021 for West Mediterranean.

According to the Blue Economy Report EU aquaculture production (in volume) has stagnated over the last decades even if its value has increased. The production of mussels, which is the main species produced in the EU aquaculture in weight has decreased in recent years due to environmental factors. EU aquaculture production is mainly concentrated in four countries: Spain (27%), France (18%), Italy (12%), and Greece (11%), making up 69% of the sales weight. These four countries are furthermore covering 62% of the turnover in the EU-27. Low-impact aquaculture (such as low-trophic, multi-trophic and organic aquaculture), and environmental services from aquaculture can, if further developed, greatly contribute to the European Green Deal, Farm-to-Fork Strategy and Sustainable Blue Economy policies. Aquaculture production remains highly concentrated in terms of both EU Member States and species farmed, hence the high potential for diversification.

In addition to their potential to produce bio-based products and bio-fuels, algae can provide viable and sustainable alternative food and feed materials. Algae-based food can alleviate environmental pressures exerted by agriculture, aquaculture, and fisheries. The introduction of new algae- and sea-based food and feed products into the European Union market is a major opportunity for the development of a sustainable food sector.

The COVID-19 crisis impact on the fisheries and aquaculture is significant with a decrease in demand (by restaurants) and an increase in costs. In addition to COVID-19, the economic results for 2021 – and beyond - of the EU marine Living resources sector are going to be significantly affected by BREXIT. In particular for capture fisheries that catch a non-negligible part of their landings in UK waters.

Innovative solutions are needed to support the transition to sustainable and low-carbon fishing, protection of marine biodiversity and ecosystems, the development of sustainable and competitive aquaculture contributing to food security, the supply of quality and healthy seafood to European consumers.

For example, digitisation and advanced tools for fisheries (such as remote electronic monitoring systems, catch reporting using mobile applications, ecosystem modelling and artificial intelligence tools) can optimise fishing operations and at the same time enable data collection and analysis, improve control and monitoring, reduce administrative burden and ultimately support the sustainable management of marine biological resources without requiring physical presence. Such high-tech systems may well become standard features in the fishing industry. Promoting EU-based digital know-how for the fishing industry would create a new generation of jobs[93].

[93] European Commission (2021), COM(2021) 240 final. Communication on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future

BLUEAIR is implemented through the financial support of the ADRION programme

Maritime Transport

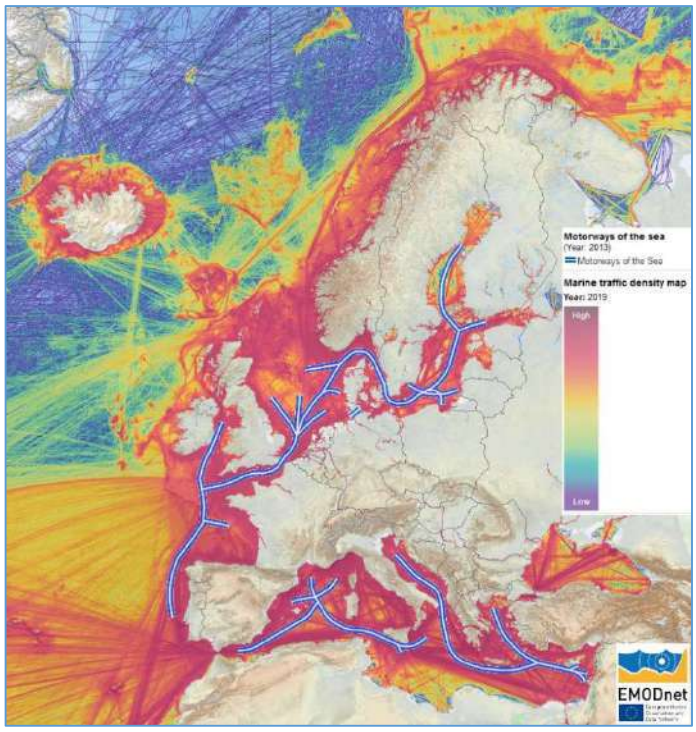


Figure 87: Marine traffic density map and Motorways of the sea, Source: Atlas of the Seas

EU economy and trade represent around 80% of worldwide goods transport. Generally speaking, 9% of the jobs, 17% of GVA and 21% of the profits in the EU blue economy are owed to Maritime transport sector (2018), recovering from a drop in 2016. This sector covers three sub-sectors: passengers transport, freight transport and transport services.

In 2018, the EU Maritime transport sector generated a GVA of €30 billion and a gross profit of €14.6 billion, with a profit margin of 9% and a turnover of €160 billion.

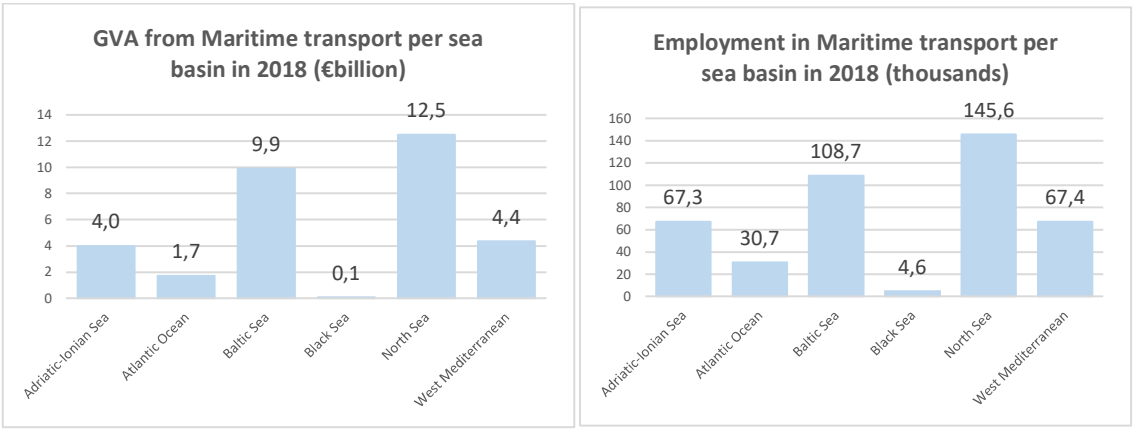


Figure 88: GVA and employment in Maritime transport per sea basin in 2018, Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

The sea basin contributions to the EU Maritime transport sector GVA were in 2018 led by the North Sea, representing 38%, following a slowly increasing trend since 2009. The Baltic Sea, representing 31% of the EU Maritime transport sector, is the second largest basin, followed by West Mediterranean

BLUEAIR is implemented through the financial support of the ADRION programme

(14%) and the Adriatic-Ionian (12%) Basins. At the lower end we find the Black Sea (0,3%) and the Atlantic Ocean (5%) (Figure 88).

In terms of employment, the North Sea and the Baltic Sea Basins combined had 60% contribution to the total EU employment levels in the sector, 34% and 26% respectively. The Western Mediterranean (16%) and the Adriatic-Ionian (16%) Basins had homogeneously lower contributions, followed by the Atlantic Ocean (7%) and Black Sea Basin (1%) with the lowest proportion (Figure 88).

Both in terms of GVA and employment, the Maritime transport sector had stable levels since 2009 with equal shares of employment in passenger transport, freight transport and services for transport. Looking at the trends since 2009 (Figure 89), after stagnation caused by 2008 crisis, peak appears, homogeneously across basins between 2013 and 2015 for both GVA and employment, except for the Black Sea (Ucranian-Russian conflict of 2014). After the 2016 drop, the sector had been improving up to 2018 in all basins both in terms of GVA and emplomen.

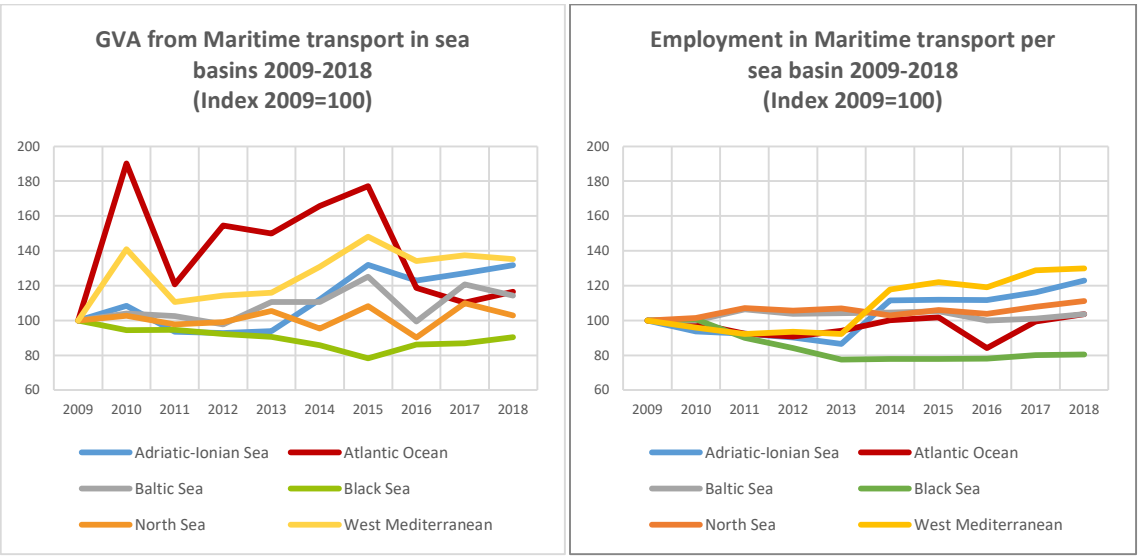


Figure 89: GVA and employment in Maritime transport per sea basin over time (2009-2017), Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

The sector had grown the most in the Western Mediterranean (35%) and in the Adriatic-Ionian Sea Basin (32%), followed by the Atlantic Ocean and Baltic Sea with 16% and 14% growth, respectively. Similarly, employment in the sector increased the most in both Mediterranean Basins (the Western Mediterranean by 30% and the Adriatic-Ionian by 23%), followed by North Sea with 11% increase. The growth of GVA in the Atlantic Ocean and Baltic Sea was not followed by employment, which in 2018 only increased by 4% compared to 2009. The sector is on the rise in all basins; however, the Adriatic-Ionian basin is among the fastest-growing.

The Maritime transport sector was particularly hit by the **COVID-19 crisis** and international trade disputes in 2020, yet positive signs emerge with the projections for 2021 of trade growth of 4.2%, following the dip of 3.6% in 2020. Consequently, the pandemic negatively affected employment in the sector, with seafarers, and the recreational boating sector being particularly hit.

In terms of **innovation potential**, greening the sector will be supported by both policies and funding in the following years. The European Green Deal calls for a 90% reduction in greenhouse gas emissions from all modes of transport, including the maritime transport. EU sea lanes are a key link to the global trading system. Though it generates comparatively fewer emissions than transport by road or air,

BLUEAIR is implemented through the financial support of the ADRION programme

maritime transport generates both carbon and other polluting emissions due to the great volumes and a heavy reliance on fossil fuels. Decarbonising maritime transport (and fishing operations) will abate not only greenhouse gas emissions but also air and water pollution and underwater noise while opening up new innovation and economic opportunities.

Shipbuilding and Repair

The EU is a major player in the global shipping industry, with a market share of 6% in global terms and 19% of value. This sector covers shipbuilding, as well as equipment and machinery. The EU shipbuilding industry is highly specialized, producing high-tech, advanced marine equipment and systems. This specialisation owes its success to the sector's continuous investment in research and innovation, on one hand and highly-skilled workforce on the other.

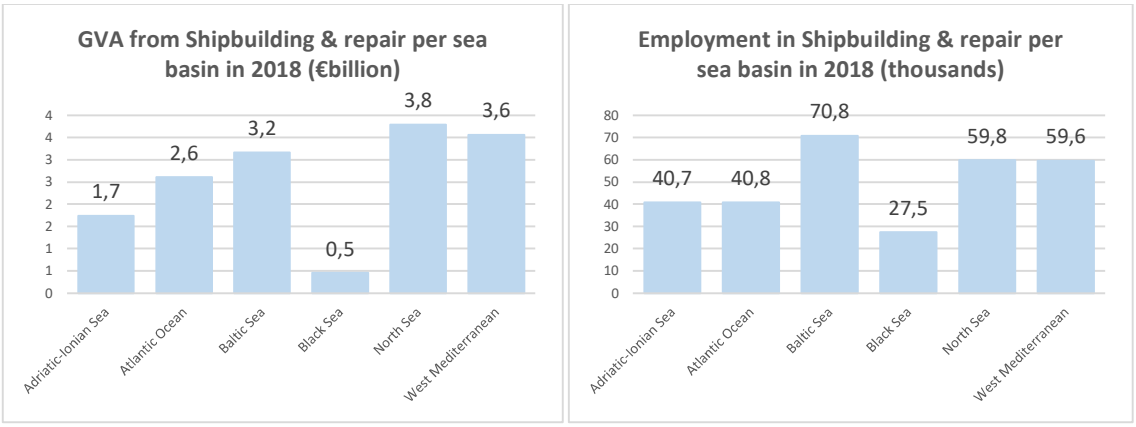


Figure 90: GVA and employment in Shipbuilding and repair per sea basin in 2018, Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

As a result of the 2008 crisis, the business model changed, shifting much of the workforce to external subcontractors and suppliers. Nevertheless, in 2018, Shipbuilding and repair accounted for 7% of the jobs, 8% of the GVA and 5% of the profits in the total EU blue economy. The North Sea (25%), West Mediterranean (23%) and Baltic Sea (21%) have contributed the most to the total EU Shipbuilding and repair sector in 2018. With 61% the Atlantic Ocean had been also the fastest-growing since 2009, followed by North Sea (30%), Black Sea (27%) and the West Mediterranean (26%). After the initial decrease, all basins followed a slowly increasing trend, however, the sector was most affected in the Adriatic-Ionian Basin in which the sector had only recovered to its 2009 level by 2018. In that year the basin had contributed 11% to GVA and 13% to jobs in the EU sector total.

BLUEAIR is implemented through the financial support of the ADRION programme

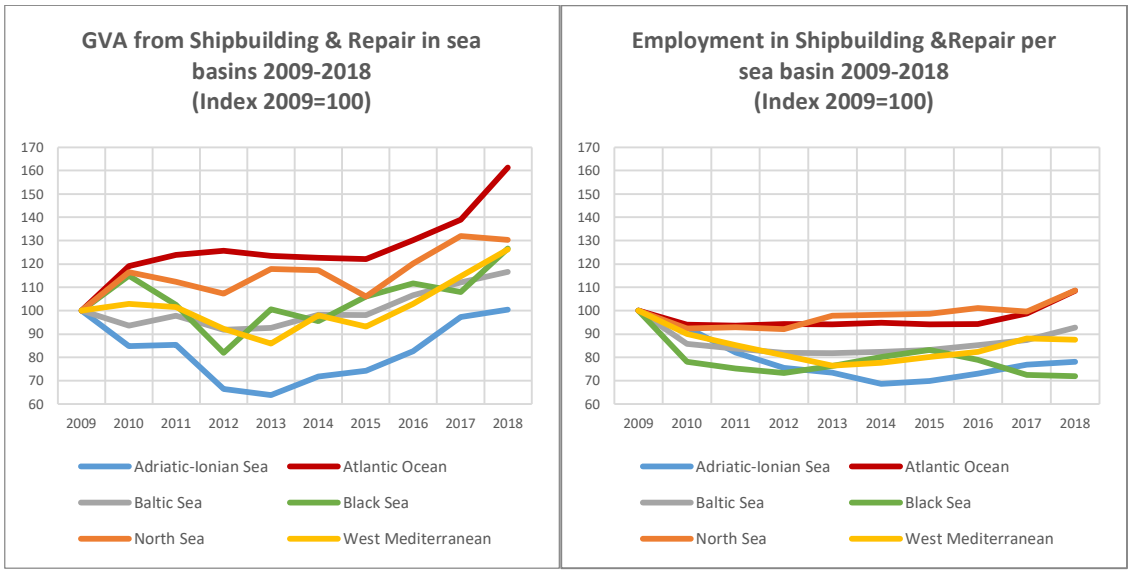


Figure 91: GVA and employment in Shipbuilding & Repair per sea basin over time (2009-2018), Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

Surprisingly, even though in terms of GVA the sector had increased by 26% in 2018 compared to 2009, the employment had not followed, it had shrunken by 9% in the same period. Only two basins had managed to exceed the 2009 employment levels in the sector by 2018, the Atlantic Ocean the North Sea (both by 9%). Employment in the sector had decreased the most in the Adriatic-Ionian Basin, by 31% until 2014, when the trend turned and until 2018, the sector reached 78% of the 2009 level (Figure 91). Knowing that the Maritime transport sector is fast-growing in the basin, the Shipbuilding and repair should follow.

The challenges faced by this sector surpass those of international competition and culminate in the COVID-19 crisis. The turnover was reduced in the second half of 2020, compared to the same period in 2019, with the Ferries and seafarer employment most affected. On the other hand, the tanker and dry bulk companies anticipated in their projections small employment changes. Shipbuilding yards have been hit by delays and reduced financing, resulting in reduced outputs and orders in EU shipyards. In fact, the EU has suffered significantly more than the rest of the world in terms of completions and new orders.

The innovation potential of greening the Maritime transport sector, mentioned in the previous chapter together with the fast growth of the sector, present opportunities also for Shipbuilding and repair.

In line with the Interreg Adrion Policy Paper on Blue Growth[94], the shipyards and maritime equipment manufacturers in the Adriatic-Ionian Sea Basin are of key importance for the Green Deal, for macro-region's blue economy and green sea mobility. The improvement of cooperation between green shipbuilding stakeholders is considered essential, as well as the adoption of green shipbuilding technologies (e.g. LNG fuel for propulsion, Advanced Propeller System, Sulphur Scrubber System, Fuel and Solar Cell Propulsion, etc.) in the current macro-regional shipping industry. The six most disruptive technologies to implement in the industry 4.0 revolution in the shipyard sector in the Adriatic-Ionian

[94] Nikitakos, N., Stefanakou A. (2021). Blue Growth and Related Smart Growth In The Adriatic-Ionian Macroregion. Policy Paper. Thematic Cluster (TC) 1 Blue Growth and related Smart Growth

BLUEAIR is implemented through the financial support of the ADRION programme

area: Additive manufacturing, Advanced Manufacturing Solutions, Big Data and Analytics, Augmented Reality, Cloud technologies and Cyber Security.

Port Activities

Port activities comprise cargo and warehousing, as well as port and water projects. Port activities have a major role in international trade, economic development and creation of jobs. In international trade, ports are important nodes for the import and export of goods, 82% of EU imports and 74% of the 2016 exports passed through ports. Ports are also the essential infrastructure for the development of blue economy emerging sectors.

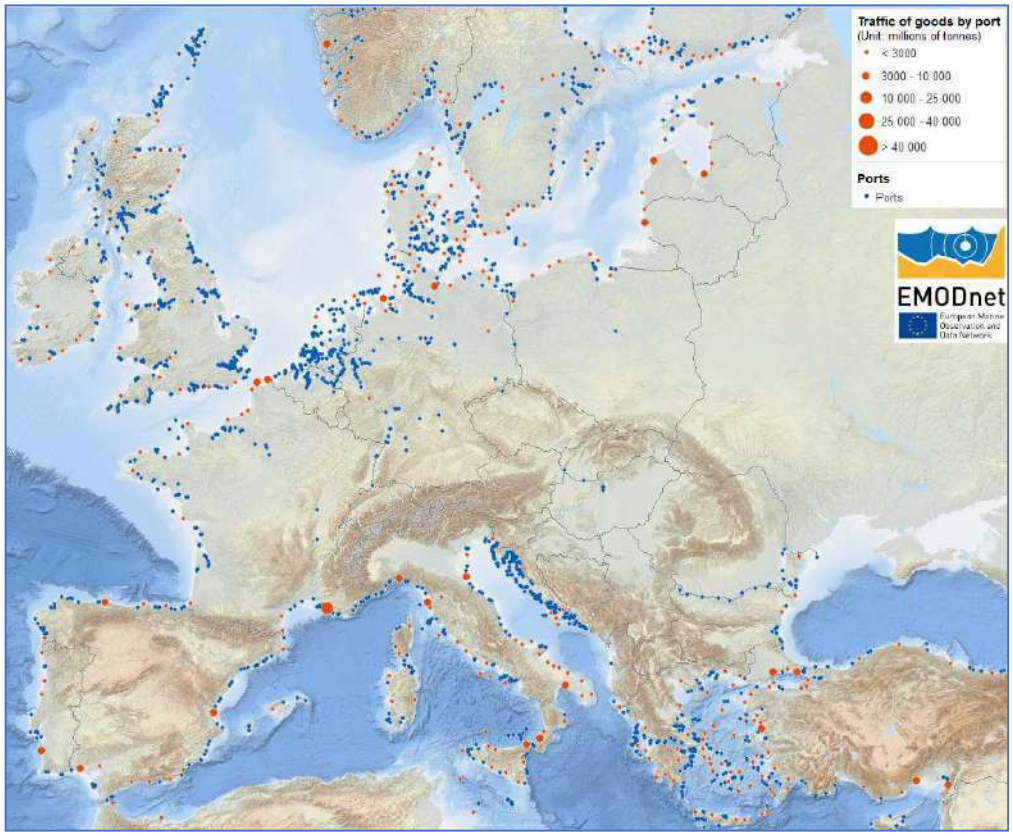


Figure 92: Ports and traffic of goods by port, Source: Atlas of the Seas

Ports, as multi-activity transport and logistic nodes, also play a crucial role in the development of established maritime sectors. Maritime transport into and out of the EU represented almost 50% of total trade value in 2016, in addition to 36% of intra-EU trade flows. Consequently, Port activities contributed in 2018 to 9% of jobs and 15% of profits in the EU blue economy. The North Sea contributed the most to the EU Port Activities sector in terms of GVA (39%) and employment (32%) in 2018. This is explained by the fact that the Basin is home to EU's busiest container ports: Rotterdam (NL), Antwerp (BE), Hamburg (DE) and Amsterdam (NL) (Figure 93). The largest basin in EU's Port activities was followed by the West Mediterranean (20% GVA and 18% jobs), the Baltic Sea (17% GVA and 23% jobs), the Atlantic Ocean (15% GVA and 12% employment), the Adriatic Ionian (8% GVA and 11% employment) and the Black Sea (1% GVA and 4% employment) Basins.

BLUEAIR is implemented through the financial support of the ADRION programme

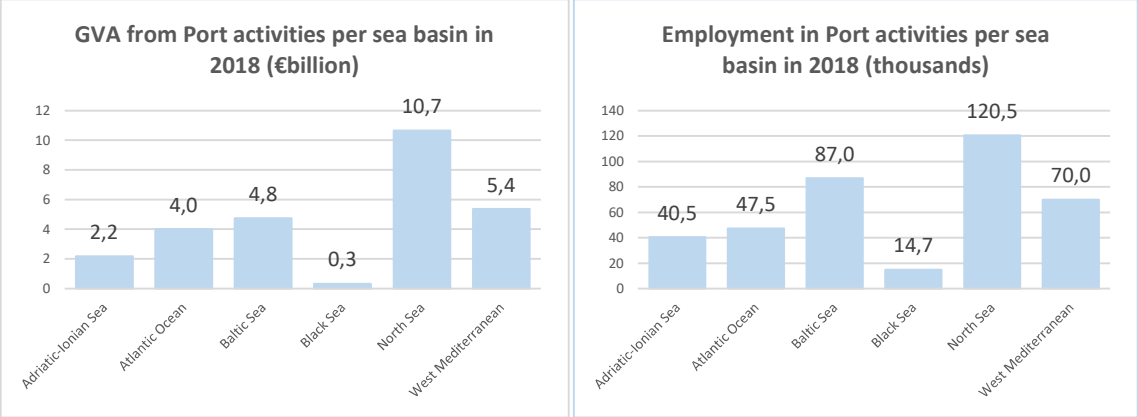


Figure 93: GVA and employment in Port activities per sea basin in 2018, Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

Ports facilitate the clustering of energy and industrial companies located in the port cities and surroundings; the cooperation of ports, shipping companies and other actors in logistics is necessary to ensure cargo flows. The leading European countries in this field are, as stems also from data mentioned in the previous paragraph, Germany, Spain, France, Italy and the Netherlands.

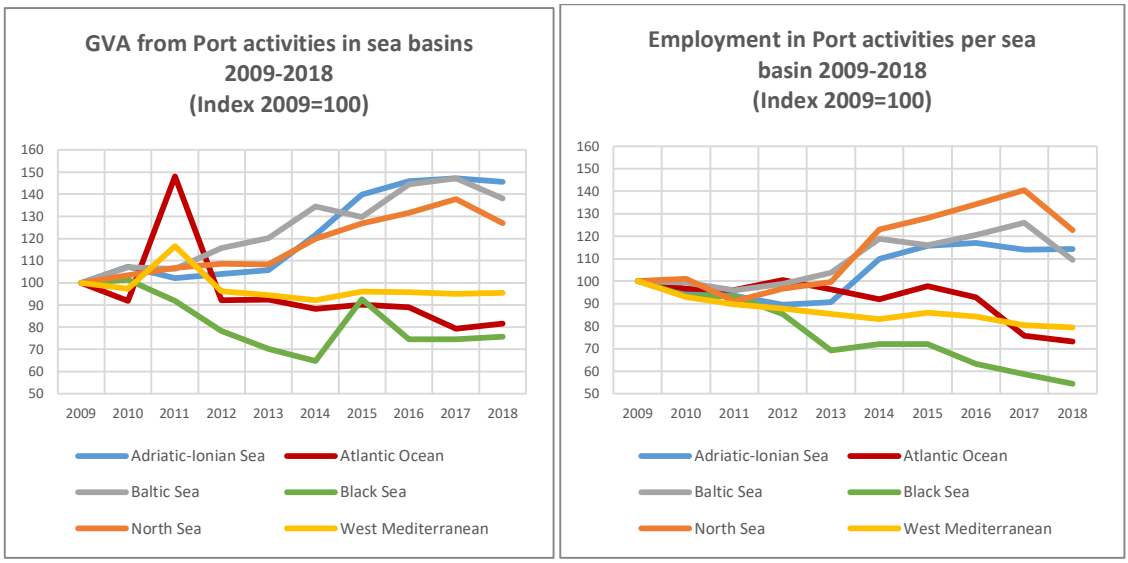


Figure 94:GVA and employment in Port activities per sea basin over time (2009-2018), Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

The Adriatic Ionian, the Baltic and the North Sea Basins had experienced increasing trend over the period 2009-2018 in terms of GVA and employment. This increase had sometimes reached nearly 50% in GVA and jobs, showing a promising sector until the COVID-19 crisis. Over the same period the Black Sea, the Atlantic Ocean and the West Mediterranean Basins followed a decreasing trend as regards GVA and employment. The 2018 data show slightly more positive direction at least in GVA.

Since close cooperation between ports, shipping lines and logistic chains are necessary to maintain the sector, the COVID-19 crisis affected it the most, albeit temporarily. In fact, once activities were restarted, restocking and stockpiling was observed resulting in a surge in container traffic volumes in the EU. Overall, recovery of the sector is expected to be fast, owing to the Recovery fund and EU initiatives to support the sector.

BLUEAIR is implemented through the financial support of the ADRION programme

Being the fastest-growing basin in terms of GVA up to 2018, similarly to Maritime transport, also Port activities sector has good prospects in the Adriatic Ionian Basin. Concerning the EUSAIR territory, the biggest ports (in tonnage) in the Adriatic are: Koper and Trieste, followed by Venice and Rijeka. On the side of passengers transport, the main ports are: Split (4.8 million passengers/year), Venice (1.8), Bari (1.7), Durrës (760,000) and Trieste (171,813). If we look at the Ionian side of the sea basin, the main ports (in tonnage) are Taranto, Catania and Messina. Comparing the two parts, if we consider the number of passengers, the Ionian ports are more important than those from the Adriatic: Messina (7.6 million passengers) and Reggio Calabria (6.2). A study on the Adriatic-Ionian ports (Bari, Brčko, Durres, Igoumenitsa, Ravenna and Rijeka) has shown that in the ports there is a need to decrease energy consumption, improve organization and logistics and introduce ICT.[95]

The Commission considers[96] that, beyond transhipment and logistics, the future of ports lies in developing their key role as energy hubs (for integrated electricity, hydrogen12 and other renewable and low-carbon fuels systems), for the circular economy (for collecting, transhipping and disposing of waste from ships and other port industries, and for decommissioning ships), for communication (for submarine cables), and industry (as industrial clusters). A further aspect that helps achieve decarbonisation and zero pollution is the use of smart digital solutions and autonomous systems, as these optimise traffic flows and cargo handling in and around ports. Taking up these new roles will improve the working conditions of operators and living conditions for surrounding communities. Specialised leisure ports and fishing ports should also green their operations.

[95] ibid

[96] European Commission (2021), COM(2021) 240 final. Communication on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future

BLUEAIR is implemented through the financial support of the ADRION programme

Marine Renewable Energy

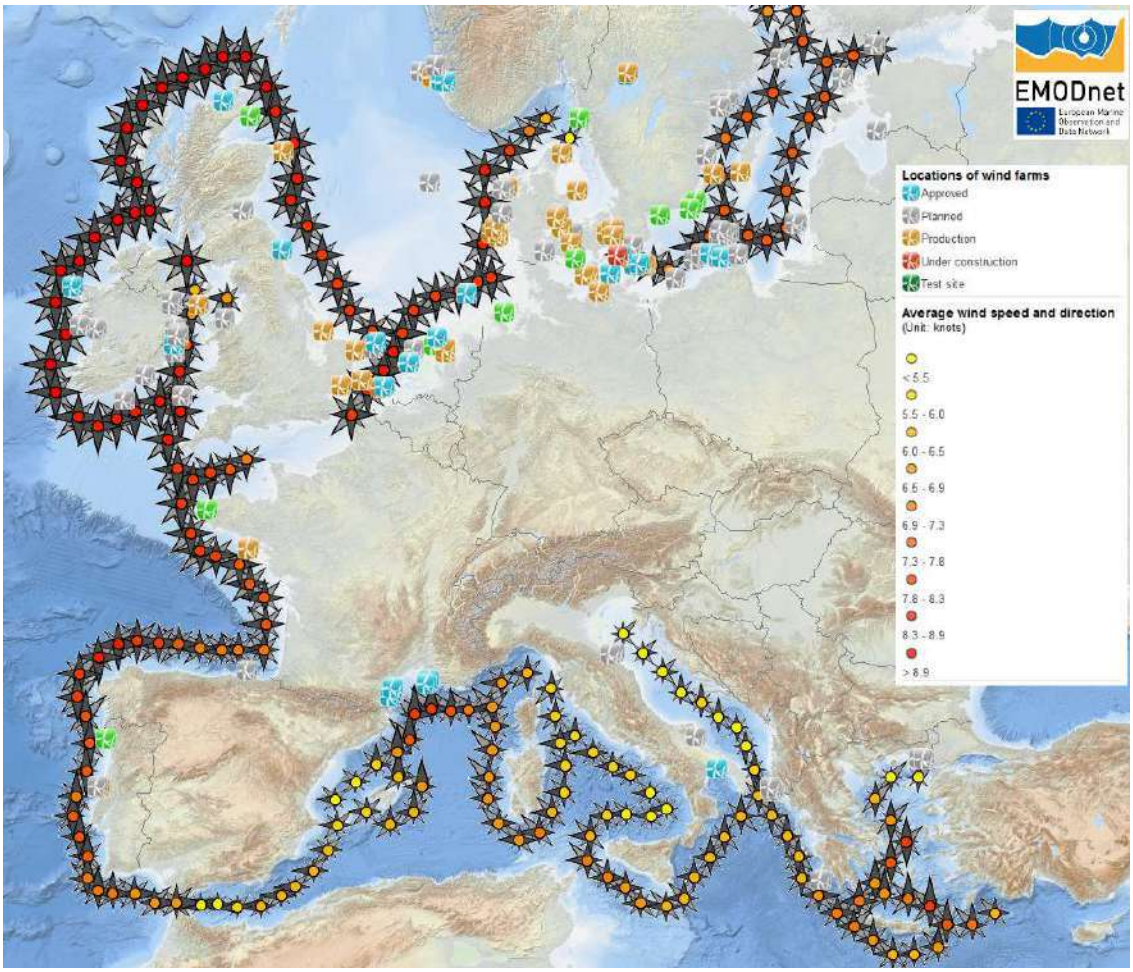


Figure 95: Locations of wind farms and Average wind speed, Source: Atlas of the Seas

This sector covers mainly offshore wind energy in addition to some ocean energy, both sources of green energy and potential to sustainably generate economic growth and jobs while boosting technological innovation.

During the last ten years, the offshore wind energy sector increased significantly. Most of the installed capacity is located in the North and Baltic Sea Basins. The leading European countries in this field are Germany, the Netherlands, Belgium and Denmark. The sector is recently growing also in Finland, Sweden, France, Spain, Ireland and Portugal. Concerning the EUSAIR, there are considerable potentials for the installation of floating offshore wind in Italy and Greece. In 2018 there were renewable energy installations only in North and Baltic Sea Basins (Figure 96).

BLUEAIR is implemented through the financial support of the ADRION programme

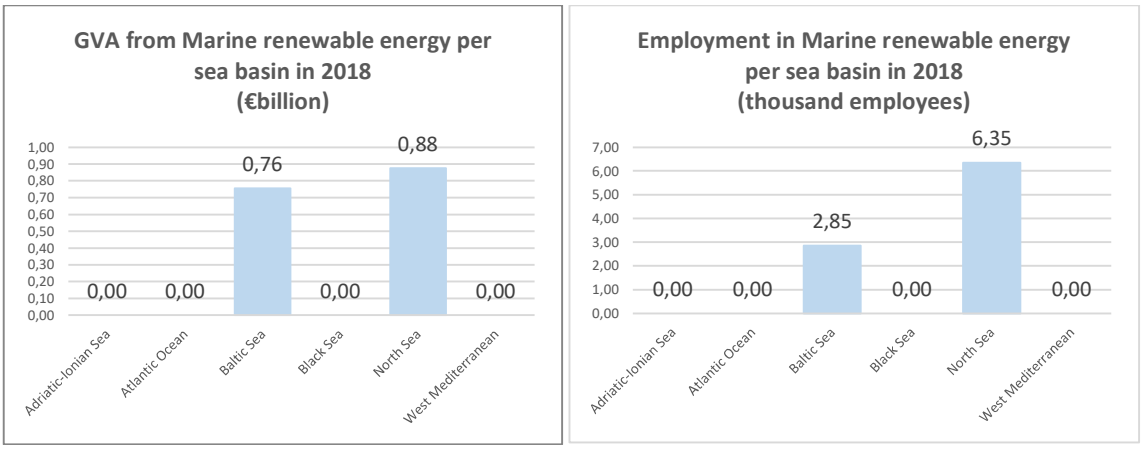


Figure 96: GVA and employment in Marine renewable energy per sea basin in 2018, Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

GVA generated by the production and transmission of offshore wind energy amounted in 2018 to €1,5 billion. Compared to 2009, both basins have had significant increases by 2018: GVA increased for more than 60-times in the North Sea and 20-times in the Baltic Sea and employment over 11-times in North Sea and 30-times in Baltic Sea (Figure 97). As mentioned already, in 2018 the sector however presented only 0,9% and 0,2% of total EU blue economy GVA and jobs, respectively. With Germany, Denmark, Netherlands and Belgium spearheading this sector in the EU, these Member states contribute equally in employment, gross profit, net investment in tangible goods and turnover.

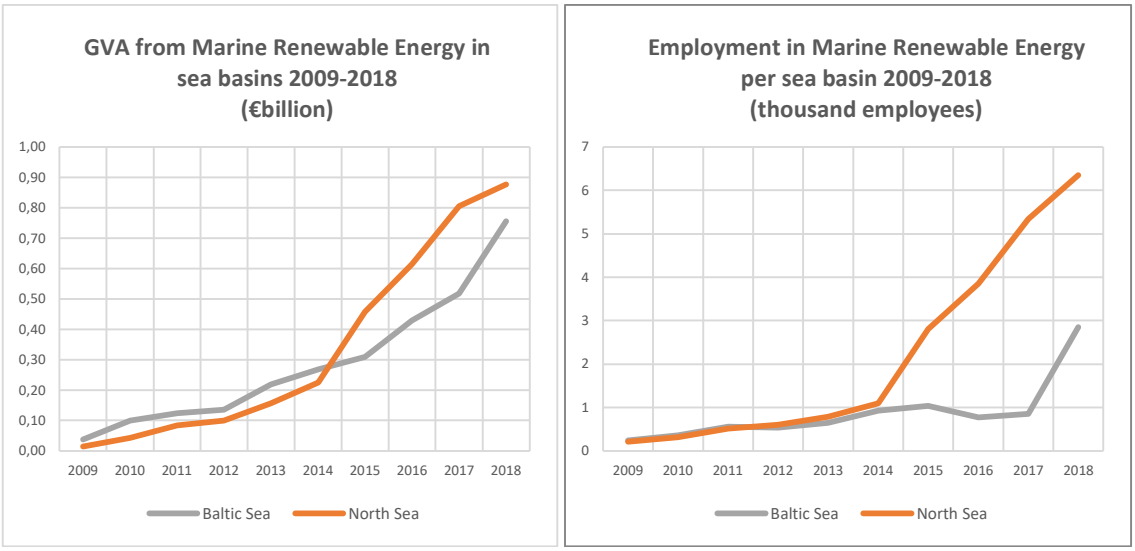


Figure 97:GVA and employment in Marine renewable energy per sea basin over time (2009-2018), Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

Ocean energy technologies are still in the testing phase. There are some promising technologies, like wave and tidal energy, salinity gradient energy and ocean thermal energy conversion.

BLUEAIR is implemented through the financial support of the ADRION programme

The **Offshore Renewable Energy Strategy**[97], communicated by Commission in November 2020, promises great potential for deploying more energy from offshore wind energy sources, with the ambition to provide 30% of EU future electricity by 2050. The drawback to this strategy includes the competition for access to space with marine Living resources, Coastal tourism and Maritime transport sectors, alongside environmental considerations (ecological impact).

Non-living Resources

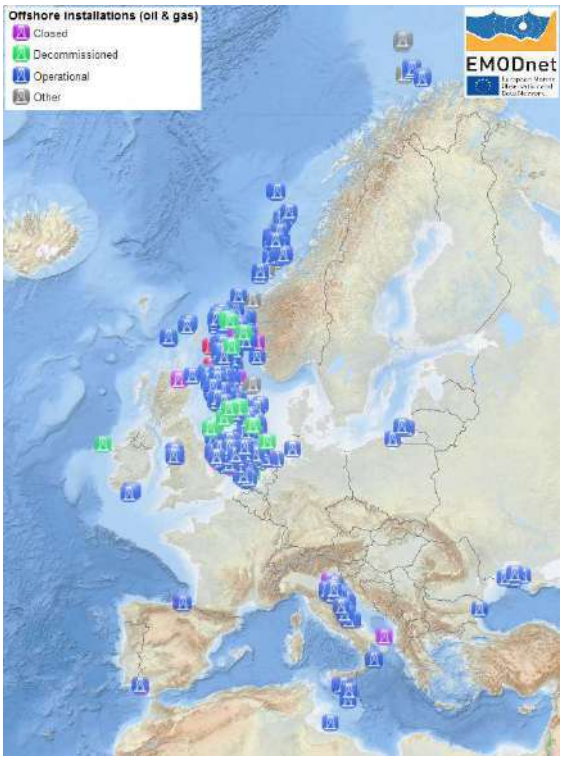


Figure 98: Oil and gas offshore installations, Source: Atlas of the Seas

The Marine non-living resources sector comprises two main subsectors: extraction of oil and gas and extraction of other materials (gravel and sand pits, mining of clays and kaolin, extraction of salt and others). Overall, the contribution of Marine non-living resources to the EU blue economy in 2018 was 0.2% to jobs, 2% to GVA and 5% to profits. The sector is in decline due mainly to the decreasing production in the offshore oil sub-sector. Most of the current European oil and gas production takes place mainly in the North Sea and to a lesser extent in the Mediterranean and Black Seas. Offshore production occurs in the Baltic, mainly along the Polish coast and in the Mediterranean, on the continental shelf in Greece, Spain and Croatia. Romania and Bulgaria are oil and gas producers in the Black Sea.

The mature offshore gas and oil sector is mostly in decline due to decreasing production and rising production costs, as well as a push towards clean energy in line with the European Green Deal. On the contrary, the other minerals are expected to be on the rise. Mining the seabed is identified in Europe's

[97] European Commission (2020). COM(2020) 741 final. Communication on An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future

BLUEAIR is implemented through the financial support of the ADRION programme

Blue Growth strategy as an important component of the future maritime economy, especially to meet the requirements of high-tech industries. The demand for resources such as sand and gravel, used for construction purposes and creating concrete, is also likely to increase.

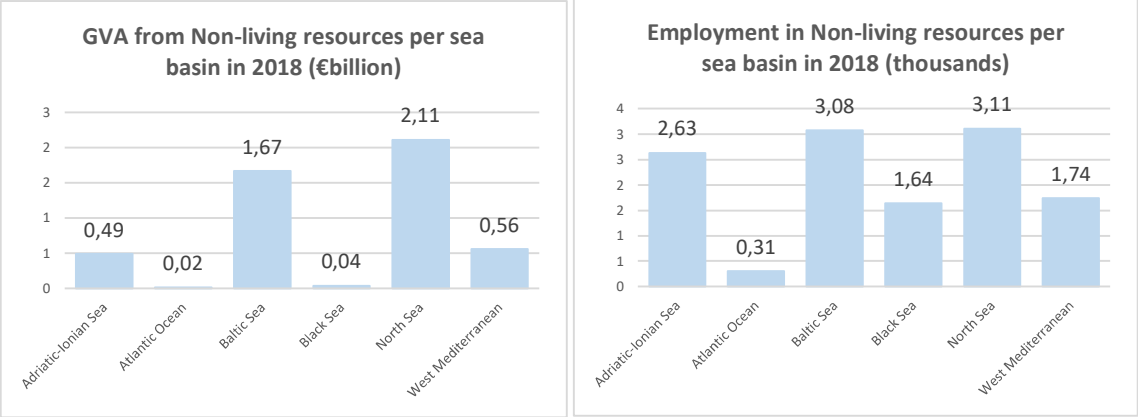


Figure 99: GVA and employment in Non-living resources per sea basin in 2018, Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

In 2018, the GVA generated by the sector amounted to almost €4.2 billion, a 62% decrease compared to 2009. Gross profits, at €3.4 billion, shrunk by 65% in 2009 (€9.7 billion). In 2018 the sector directly employed more than 11.110 persons, 68% less than in 2009. In 2018 the North Sea and Baltic Sea together presented 77% of the total EU Non-living resources sector GVA (43% and 34% respectively), followed by the West Mediterranean (12%) and the Adriatic-Ionian (10%) Sea Basins, while less than 1% share was obtained by the Black (0,8%) and Atlantic (0,3%) Sea Basins. In employment the differences between sea basins are not as evident. The North Sea and the Baltic Sea each presents 25% of total EU jobs in the sector, followed by Adriatic-Ionian Sea (21%), West Mediterranean (14%), Black Sea (13%) and Atlantic Ocean (2%).

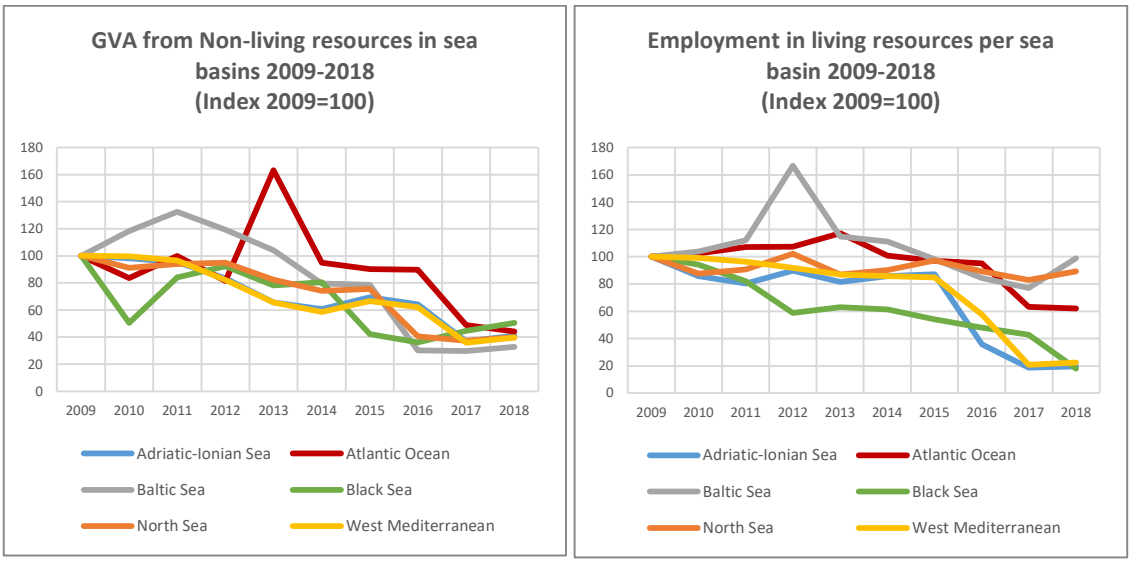


Figure 100:GVA and employment in Non-living resources per sea basin over time (2009-2018), Source: own calculation using data obtained from DG MARE prepared for Blue Economy Report 2021

The graphs show a steady decline of the sector in the period from 2009 to 2018, both in GVA and employment, however from 2016 or 2017 the sector had stabilised both in GVA and jobs in most basins.

BLUEAIR is implemented through the financial support of the ADRION programme

The sector has developed technologies, infrastructure and operational skills of significant value to the blue economy. With the depletion of many exploited fields and the start of decommissioning, these strengths could prove very useful for the development of new offshore activities, such as floating offshore windfarms or geothermal power and structures such as multi-use platforms. Against a backdrop of increased renewable energy production, offshore oil and, in particular, natural gas projects are expected to continue to be a major source of hydrocarbon resources in the coming decade.

Emerging sectors

The Blue Economy Report identified seven emerging sectors:

- Ocean energy
- Blue bioeconomy and biotechnology
- Desalinization
- Marine minerals
- Maritime defence, security and surveillance
- Research and education
- Infrastructure

For the purpose of this report, we will only focus on those that are innovation related. We are hereby only giving a short overview of the emerging sectors and only as a small complement to the benchmarking exercise. Furthermore, the established sectors that are described also in the Blue Economy Report are still a major contributor to the EU blue economy. We will hence only focus on the first three sectors listed above and the very last on the list because it covers important innovative subsectors, such as submarine cables and robotics.

The sectors will only be described qualitatively and with available data, it needs to be mentioned that there is a lack of common economic indicators (such as those used for established sectors, like GVA and profits).

BLUEAIR is implemented through the financial support of the ADRION programme

Ocean energy

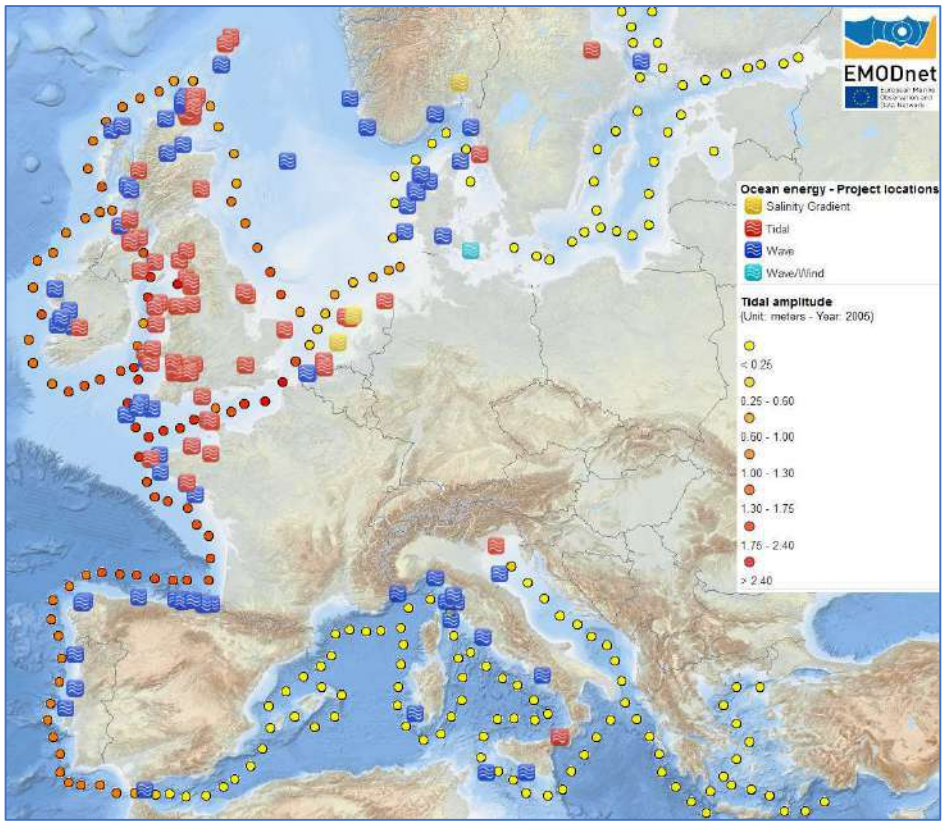


Figure 101: Ocean energy project locations, Tidal amplitude, Source: Atlas of the Seas

Bottom-fixed turbines are already in place and there are large-scale projects, mainly in Northern Europe. Other technologies are slowly catching up. These new technologies cover: floating offshore wind plants, wave and tidal energy collection and floating solar photovoltaic energy (FPV). In November 2020, the EC published the **Offshore Renewable Energy Strategy**[98] which will boost investments in the ocean energy sector. A revision of the policy in renewable energy is going to follow.

Concerning ocean energy, floating offshore wind plants give the possibility to harvest wind in many sites where installing bottom-fixed turbines would be far too expensive. This is a potential also for the Adriatic-Ionian Sea Basin. Wave and tidal energy collection also have a big potential to increase the decarbonisation in Europe, wave energy could be collected in all the sea basins whereas tidal energy could mainly be collected in France, Ireland and Spain.

Blue Bioeconomy and Bioenergy

This sector focuses on marine organisms and their biomass (algae, bacteria, fungi and invertebrates are used as feedstock). The marine microorganisms are used in food and food supplements, cosmetics, fertilizers and for innovative products (biomaterials, bioremediation and biofuels). This sector includes the most important sub-sector, algae production. Spain, France, Ireland and Norway are the biggest

[98] ibid

BLUEAIR is implemented through the financial support of the ADRION programme

algae producers in Europe. Related to this, there are new experimental applications like algae biorefineries, offshore aquaculture and integrated multi-trophic aquaculture systems.

These groups of organisms and compounds are linked with EU carbon neutrality, sustainable food systems and circular bioeconomy. The researchers discover many new marine compounds every year, confirming the potential for innovation in this sector.

Desalinization

This technology can provide drinkable water in case of freshwater shortages. Big coastal cities, islands and offshore plants face water scarcity and this might affect larger areas in Europe because of climate change. According to the Blue Economy Report 2021, severe water shortages might occur in Mediterranean coastal areas and some regions in France, Germany, Hungary, Italy, Romania and Bulgaria. The Mediterranean, as a favourite site for tourism, might be seasonally affected also because of heavy tourism flows.

Linearly, nowadays the majority of desalinization plants are located in the Mediterranean (75% of desalinization capacities) and some are located in the Northern sea basin. Water is mainly treated for desalinization to supply drinking water to municipalities (63%), industrial use (23%), irrigation (12%) and only a small portion is dedicated to tourist facilities (3%). The biggest plants were built to support the water supply in Spanish coastal cities like Barcelona and Alicante.

Infrastructure

This sector covers submarine cables and marine robotics. The **submarine cables** are nowadays extremely important as they have a key role in global communications, channelling 99% of international data transfers. According to the Blue Economy Report, 205 submarine cables are connecting the EU to global communication channels. **The maritime robotics market** covers applications such as underwater and marmite airborne drones. It is a sector in rapid expansion where profit is planned to double in the next years, creating big possibilities in the EU sea basins.

BLUEAIR is implemented through the financial support
of the ADRION programme

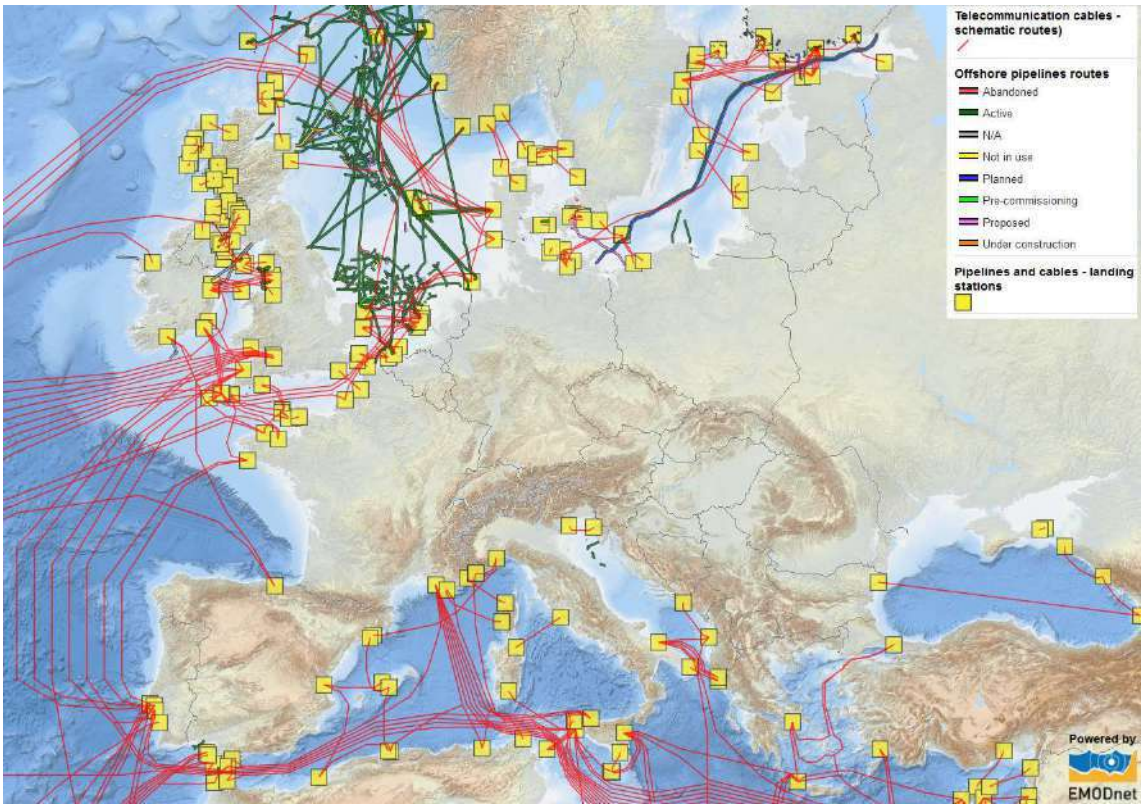


Figure 102: Telecommunication cables offshore pipelines routes and landing stations, Source: Atlas of the Seas

4.3.4 Financing Blue Growth Policies

Since the cooperation in the sea basins is mainly transnational or more widely international, in Chapter 3 of this report we mainly focused on the description of Interreg transnational and cross-border cooperation and IPA and ENI cross-border programmes dedicated to territorial cooperation. The ability and capacity of linking the macro-regional and sea basin activities with other ESIF operational programmes remained limited over the 2014-2020 programming period. We partly already mentioned some of the characteristics of financing in Chapters 3 and 4 of this report.

The leader in macro-regional/ESIF coordination is the Baltic Sea where Managing Authority networks have been created voluntarily for all funds (European Social Fund, European Regional Development Fund, European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund). This reflected the wish to improve macro-regional cooperation. As a first step, in the year 2016, an ERDF MA network was established and a list of pilot projects was put forward, focusing on innovation.

This kind of “embedding process” is taking place also in the EUSAIR. A dialogue between the MAs and the macro-regional strategy is established aiming to align the national, regional and cross-border Interreg and operational programmes with the EUSAIR flagship projects and to fund them via other than the related Interreg transnational programme (Interreg Adrion). Currently, the main funding sources in the EUSAIR are the Interreg Adrion Programme and other cross-border programmes and for more thematic oriented projects also H2020 and Erasmus+.

BLUEAIR is implemented through the financial support of the ADRION programme

The timing of the programming is important. For example, the Baltic Sea Region had an existing Strategy and Action Plan when the programming of ESIF took place for 2014-2020 period. The aligning was done already then. One of the reasons why there was a lack of funding for the implementation of sea-basin/macro-regional strategies in 2014-2020 period, is the fact that some of these strategies were under development when the ESIF funds were planned. The Atlantic Maritime Strategy also timely prepared its Action Plan in 2013, however it was not focused enough and the process of embedding into programmes was not yet established. Similarly, for the current period, EUSBSR and the Atlantic Strategy have updated their Action Plans precisely for the purpose of aligning, while EUSAIR missed the chance, but had at least agreed on the flagships for the current period.

Overall, apart from Interreg programmes, the EU Member States and their coastal regions can draw on:

- European Structural and Investment Funds (ESIF) in particular:
  - the European Maritime and Fisheries Fund (EMFF) and
  - the European Regional Development Fund (ERDF),

- the Horizon 2020 and Horizon Europe research programmes,
- the COSME programme for small and medium enterprises,
- the Connecting Europe Facility for infrastructure,
- the Erasmus+ programme for education, training, youth and sport,
- the LIFE+ programme for environment and climate,
- the Reform Support Programme, upon request for financial and technical support,
- the Union Civil Protection Mechanism for prevention and preparedness for cross-border risks, and marine pollution at sea and onshore.

In the 2021-2027 programming period possibilities for important innovation projects could potentially come from ERDF funding and Horizon Europe. In the new programming period, driven by the internationalisation of innovation and building on the experience with the interregional pilots, the Commission proposed the Interregional Innovation Investments instrument under the ERDF. In line with the priorities of the EU Green Deal, the instrument is focusing on: green and blue technologies, innovative industrial solutions, soft and green mobility. It will be possible to promote and implement also more sustainable and innovative projects related to blue economy. In addition, there will be, between 2021 and 2022, calls for proposals for innovative applicative projects under Horizon Ocean Mission, funds from the EU External Investment Plan and those from the European Investment Bank.

BLUEAIR is implemented through the financial support of the ADRION programme

5. EUSAIR Gap Analysis and Best Practices from Other Sea Basins

5.1 EUSAIR Gap Analysis

In the continuation of our report, we are summarising key points **regarding the gaps identified in Chapter 4, between Adriatic-Ionian and other European sea basins**. In Chapter 4 we compared sea basins using the self-assessment to examine blue growth innovation policies and some indicators to examine blue growth innovation performance. As mentioned there already, findings from these kinds of comparisons have to be approached with caution due to the intrinsic characteristics of the basins. The aim was to identify differences as regards blue growth innovation policy and performance that could serve as learning examples for Adriatic-Ionian Basin. The gaps are not to be understood only in terms of room for improvement, but also as potentials on which the area could build on and benefit from.

To summarise findings from Chapter 4, we used a very similar structure. Due to limited time and resources, we streamlined the findings to the scope of our study, whilst there was no intention to identify all relevant gaps in a certain topic.

Some inspiration on how to close the gaps is already provided in the previous chapter with innovation relevant thematic areas stemming from the newest EU policies and guidelines. In Chapter 5.2 we provide descriptions of some best practice examples from the sea basins which could also be further investigated and used as reference sources.

5.1.1 EUSAIR implementation

- After seven years of implementation, the EUSAIR has yielded significant results in terms of establishing stable and efficient governing structures, increased regional cooperation in its priority sectors, support in the enlargement process of Western Balkan countries and more. **Now, macro-regional strategy key implementers, stakeholders and the public expect meaningful progress in putting in place joint actions and projects** that aim to improve the attractiveness, competitiveness and connectivity of the region.
- The process of embedding EUSAIR priorities in the next generation (2021-2027) of ESI and IPA funding programmes has been central among the EUSAIR governance structures. Thematic Steering Groups (TSGs) have identified a **set of macro-regional priorities** that have been further reviewed and agreed upon by National Coordinators. The TSGs worked further on identifying **flagships/emblematic projects to be included in ESIF and IPA mainstream programmes**.

5.1.2 EUSAIR Governance

- In addition to the political level, consisting of Ministers for EU Funds and/or Ministers of Foreign Affairs of nine participating countries taking strategic decisions at the EUSAIR Annual forums' ministerial meetings, the EUSAIR architecture involves two main levels: the coordinating level represented by the Governing Board and the implementation level represented by the Thematic Steering Groups. Operational support to both levels is provided by the EUSAIR Facility Point strategic project. As such, it was defined as an **example of multi-level governance and the application of cross-sector practices.**

BLUEAIR is implemented through the financial support of the ADRION programme

- The non-paper on EU Macro-Regional Strategies[99] recognises good practice in governance emerging from EUSAIR. The region is characterised by disparities in the political commitment of the member countries, which present clear obstacles to the implementation of the Strategy. Aware of that, the EUSAIR seeks to actively confirm the political commitment by **adopting political documents** that guide their strategic actions.
- In line with the OECD study[100] the preparation of the EU legislative framework and programming cycle for the post-2020 period represents an important opportunity to reassess and address the challenges identified. **Simplifying and strengthening governance structures and coordination mechanisms** will be critical.
- Stemming from the Interreg Adrion Policy Paper on Blue Growth[101], there is a need for improvement of research collaboration among R&D players (Universities, innovative SMEs) in the Adriatic-Ionian area focused on the thematic priority areas identified in the Pilot Micro-regional S3 Analysis (i.e.: Agro-Bioeconomy – Healthy and functional food (Blue) with emphasis on seafood, Energy and environment, Transport and mobility, Tourism and culture, and Health and medicine).

5.1.3 Blue Growth Innovation Performance

- Even though the Adriatic-Ionian Basin is on a similar level as the Atlantic Ocean and the Western Mediterranean as regards the Regional Innovation Index average (92% of EU average with non-EU countries excluded and 86% of EU average with non-EU countries included), the **Adriatic-Ionian Basin is by far the fastest-growing among all 6 basins**. From 2014 the Regional Innovation Index average increased by almost 10% points (non-EU countries excluded) or 8% points (non-EU countries included).
- Over time, **innovation performance differences** (as measured by Regional innovation Index) **between regions in the Adriatic-Ionian Basin have decreased for EU regions, while differences increased between EU and non-EU regions of the basin**.
- **The Adriatic-Ionian Basin is the basin with the second-lowest proportion of regions/countries with blue growth in their S3 priorities.** All non-EU countries are considered by the Eye@RIS3, however, none of them opted for blue growth policy objectives. Out of Italian regions, only two and none of the Croatian regions have blue growth objectives in their S3 priorities.
- **The Adriatic-Ionian regions/countries stand out in terms of including Aquaculture and Fisheries most often in their S3 priorities**, which are not among the most innovation-driven sectors. Certainly, there is potential for improvement in terms of widening the range of the blue growth sectors included in S3, which could be addressed by the Blueair project.

[99] Bergström, A., Eggensberger, P., Jerina, A., Lütgenau, S-A., Singer, C. (2020). EU Macro-Regional Strategies. Laboratories for a New Europe. A Qualified Non-Paper By Key Stakeholders In The Four Macro-Regional Strategies. March 2020. Available at https://www.adriatic-ionian.eu/wp-content/uploads/2020/03/MRS-non-paper-EP-REGI-Chair-March-19.pdf

[100] OECD (2019). Synthesis Report: Multi-level Governance and Cross-Sector Practices Supporting the European Union Strategy for the Adriatic and Ionian Region (EUSAIR). OECD Centre for Entrepreneurship, SMEs, Regions and Cities

[101] Nikitakos, N., Stefanakou A. (2021). Blue Growth and Related Smart Growth In The Adriatic-Ionian Macroregion. Policy Paper. Thematic Cluster (TC) 1 Blue Growth and related Smart Growth. Available at: https://www.adrioninterreg.eu/wp-content/uploads/2021/02/TC1-Policy_Paper.pdf

BLUEAIR is implemented through the financial support of the ADRION programme

- **Except for northern Italian regions, the Adriatic-Ionian regions do not tend to cooperate in S3 Thematic Partnerships.** For sure this is a potential that could be further researched and exploited by the basin.

5.1.4 Blue Economy

- Adriatic Ionian Sea contributes 14% to the total EU blue economy GVA and is therefore among the smallest basins. In terms of jobs, however, Adriatic-Ionian Basin is the second largest, representing 23% of all EU blue economy jobs. The Black Sea excluded, the **Adriatic Ionian basin has the lowest GVA per worker, 2.7 times lower than in the North Sea and more than 2 times lower than in the Baltic Sea.**
- All sea basins experienced the effects of the 2008 crisis, although some absorbed them better than others. The **least crisis resilient were the Black Sea and the Adriatic Ionian basins, which are the only ones that in 2018 remained under 2009 levels both in terms of GVA and employment. In terms of the current crisis related to pandemics, this could be a worrying reference.**
- **There are 33 clusters cooperating on S3 blue growth priority area in Europe and 67 in blue growth Industries, however, there are not many located in the Adriatic-Ionian basin.** It would be interesting to investigate, how many cluster members are located in the basin, but that would require further detailed research.

5.1.5 Coastal Tourism

- The Adriatic-Ionian Basin represented 16% GVA and 26% of jobs in the EU's Coastal tourism sector in 2018. The COWI study[102] showed that among the **key competitive advantages of the EUSAIR macro-region is its relatively good position in tourism**, with the best performers being Croatia, Montenegro and Slovenia.
- Seasonality is most expressed in Adriatic-Ionian and the Black Sea basins. It exposes the sector to strong economic dependence upon a limited period of time to gain economic profits and severe losses in case of lack of visits over such time period. **Knowing that in 2018 77% of all blue economy jobs in the Adriatic-Ionian Basin were linked to the Coastal tourism sector, creating 57% of the total blue economy GVA, highlights the intensity of seasonality effects on local communities in the basin.**
- **Crisis resilience of Coastal tourism sector in Adriatic-Ionian is lower than in other basins**, which due to the high share of tourism in blue economy and regional GDP causes high economic and social pressures.
- **If climate-friendly, sustainable travel experiences have been on the rise among travellers' expectations in recent years, the COVID crisis has further boosted the demand for "slow tourism" and outdoor, nature-based destinations.**

[102] COWI (2017). Study on Macroregional Strategies and Their Links with Cohesion Policy. Final Report for the European Commission Directorate-General Regional And Urban Policy. COWI. Kongens Lyngby, Denmark

BLUEAIR is implemented through the financial support of the ADRION programme

5.1.6 Living Resources

- High overfishing is characteristic of the Mediterranean and for Adriatic and Aegean Seas in particular. The main fishing areas in Adriatic are along the Italian coast. Data show increasing fishing along the Balkan Peninsula, but decreasing along the Italian coast (even if Italy still represents 79% of total catches)[103]. **As experiences from other sea basins demonstrate, the economic performance of the primary fishery production increases as fish stocks recover[104] in that regard and with growing market prices, the Adriatic-Ionian basin has potential.**
- **Aquaculture production remains highly concentrated in terms of both EU Member States and species farmed, hence the high potential for diversification**.
- **Innovative solutions** are needed to support the transition to sustainable and low-carbon fishing, protection of marine biodiversity and ecosystems, the development of sustainable and competitive aquaculture contributing to food security, the supply of quality and healthy seafood to European consumers.

5.1.7 Maritime Transport

- The sector is on the rise in all basins; **however, the Adriatic-Ionian basin is among the fastest-growing.**
- According to the COWI study[105], **the completion of transport infrastructure for road and rail is at different levels in EUSAIR**, while **the completion of water infrastructure is at a quite good level.** Italy is the best EUSAIR performing country in logistics, while the other countries need to improve substantially. This is important for both ports and transport, as the development of the transport network determines the competitiveness of routes and ports.
- In terms of **innovation potential, greening the sector** will be supported by both policies and funding in the following years.
- **Decarbonising maritime transport (and fishing operations**) will abate not only greenhouse gas emissions, but also air and water pollution and underwater noise while opening **up new innovation and economic opportunities**.
- The COVID-crisis **negatively affected employment in the sector**. Negative effects were also felt on the recreational boating sector, which includes boat and equipment manufacturers, marinas, as well as boat rental and service providers. These effects should nevertheless be neutralized with the return to tourism and maritime transport flows, starting from the year 2022.

5.1.8 Shipbuilding and Repair

- Even though the Shipbuilding and repair sector experienced difficulties in the Adriatic-Ionian Basin in the past decade, **the fact that the Maritime transport sector is growing fast presents**

[103] Gicala A., Salvador R. (2017). The EU Strategy for the Adriatic and the Ionian Region: from Marginalisation to Co-Development. XI CONGRESSO DA GEOGRAFIA PORTUGUESA
[104] European Commission (2021). The EU Blue Economy Report 2021. Publications Office of the European Union. Luxembourg
[105] COWI (2017). Study on Macroregional Strategies and Their Links with Cohesion Policy. Final Report for the European Commission Directorate-General Regional And Urban Policy. COWI. Kongens Lyngby, Denmark

BLUEAIR is implemented through the financial support of the ADRION programme

an opportunity also for Shipbuilding and repair. This potential could be seized by keeping up with technology developments and innovations in the sector.

- The **improvement of cooperation between green shipbuilding stakeholders** is considered essential[106], as well as the **adoption of green shipbuilding technologies** (e.g. LNG fuel for propulsion, Advanced Propeller System, Sulphur Scrubber System, Fuel and Solar Cell Propulsion, etc.) in the current macro-regional shipping industry.
- The six **most disruptive technologies** to implement in the industry 4.0 revolution in the shipyard sector in the Adriatic-Ionian are: **Additive manufacturing, Advanced Manufacturing Solutions, Big Data and Analytics, Augmented Reality, Cloud technologies and Cyber Security.**
- **The European shipbuilding yards were strongly hit** by COVID-19 on both the production and demand sides. The construction delays, especially for big cruise ships, have remained and are getting slowly absorbed.

5.1.9 Port Activities

- Being the fastest-growing basin in terms of GVA in 2018, similarly to Maritime transport, also **the Port activities sector has a prospect in the Adriatic Ionian basin**.
- A study on the Adriatic-Ionian ports[107] (Bari, Brčko, Durres, Igoumenitsa, Ravenna and Rijeka) has shown that **in the ports there is a need to decrease energy consumption, improve organization and logistics and introduce ICT**.
- The Commission[108] considers that, beyond transhipment and logistics, **the future of ports lies in developing their key role as energy hubs** (for integrated electricity, hydrogen12 and other renewable and low-carbon fuels systems), **for the circular economy** (for collecting, transhipping and disposing of waste from ships and other port industries, and for decommissioning ships), **for communication** (for submarine cables), **and industry** (as industrial clusters).
- A further aspect that helps achieve decarbonisation and zero pollution is the use of **smart digital solutions and autonomous systems**, as these optimise traffic flows and cargo handling in and around ports.
- **Specialised leisure ports and fishing ports should also green their operations**.
- In terms of coping with the COVID crisis, European ports suffered significant losses since, for several months, most fishing, shipping and transport activities were halted. Once activities started and markets reopened, **a restocking/stockpiling was observed**, which has resulted in a surge of container flows thereafter, with numerous ports in Europe reporting record traffic volumes on the import side. For Europe, **the long delays** in ports activities experienced in 2020 and 2021 **should be eliminated shortly**.

[106] Nikitakos, N., Stefanakou A. (2021). Blue Growth and Related Smart Growth In The Adriatic-Ionian Macroregion. Policy Paper. Thematic Cluster (TC) 1 Blue Growth and related Smart Growth

[107] ibid

[108] European Commission (2021), COM(2021) 240 final. Communication on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future

BLUEAIR is implemented through the financial support of the ADRION programme

5.1.10 Marine Renewable Energy

- The COWI study[109] pointed out that the **performance on eco-innovation and energy efficiency** is for most of the countries of the EUSAIR **below the EU average**.
- Concerning the EUSAIR, there are considerable potentials for the installation of **floating offshore wind in Italy and Greece**.
- Additionally, as stated in the Interreg Adrion Policy Paper on Blue Growth[110], **heat pumps will play a key part in making Europe climate-neutral in the future**, even though **seawater heat pumps (SWHP)** technology is still not widely used except in the hotel sector or public buildings on the coast or some islands in the Adriatic-Ionian macro-region.
- Europe's offshore wind industry is leading globally, accounting for about 79 % of the worldwide offshore capacity deployed. Moreover, big European industrial companies from this sector accounted for about 58% of the global newly installed offshore capacities in the year 2019. The growing offshore wind market offers the opportunity for European manufacturers to expand their market and production capabilities also in the years to come.

5.1.11 Emerging Sectors

- Some of the emerging sectors **might conflict** (in terms of either terrestrial or maritime spatial planning) **with other activities**, especially in areas dedicated to coastal tourism.
- There are significant potentials for growth and jobs in the emerging sectors and there is funding available for both EU and non-EU countries. EU instruments like InvestEU, the Connecting Europe Facility (CEF) and the Innovation Fund could help in supporting the investments.
- In the emerging sectors, there is also an **open space for innovation and SMEs,** these start-up their activities with a **mix of grants, public funds, private equity and venture capital**. An increasing number of companies are also **resorting to crowdfunding** to build the initial capital for the deployment of new technology.
- Given the fact that Adriatic-Ionian regions/countries stand out in terms of including Aquaculture and Fisheries most often in their S3 priorities, the two following suggestions could be complementary: The **algae sector** might have a potential in the Adriatic-Ionian, perhaps coupled with the salt fields (saline) that are present in many landscapes in the coastal areas. The other emerging sector that might be interesting is **desalinization**, because of water shortages in summer and at peaks of the tourist season.
- The emerging sectors need not only be considered as a territorial issue (something that needs to be applied on the EUSAIR territory) but rather as **development and business opportunity for SMEs end companies in the EUSAIR area** that could develop technological solutions applied elsewhere, where these applications might be immediately usable (more in North-western Europe).

[109] COWI (2017). Study on Macroregional Strategies and Their Links with Cohesion Policy. Final Report for the European Commission Directorate-General Regional And Urban Policy. COWI. Kongens Lyngby, Denmark

[110] Nikitakos, N., Stefanakou A. (2021). Blue Growth and Related Smart Growth In The Adriatic-Ionian Macroregion. Policy Paper. Thematic Cluster (TC) 1 Blue Growth and related Smart Growth

BLUEAIR is implemented through the financial support of the ADRION programme

5.1.12 Financing Blue Growth Innovation

- One of the reasons why there was a lack of funding for the implementation of sea-basin/macro-regional strategies in 2014-2020 period, is the fact that some of these strategies were under development when the ESIF funds were planned. For the current period, EUSBSR and the Atlantic Strategy have updated their Action Plans precisely for the purpose of aligning, while EUSAIR missed the chance, but had agreed on the flagships to be embedded in ESI and IPA funds. **In EUSAIR, a dialogue between the MAs and the macro-regional strategy is established aiming to align the national, regional and cross-border Interreg and operational programmes with the EUSAIR flagship projects and to fund them via other than the related Interreg transnational programme (Interreg Adrion).**
- **Interregional collaboration is one of the 7 'enabling conditions' for smart specialisation strategy and thus will be central in the next programming period 2021-2027 for EU Cohesion Policy.** Indeed, S3 implies building on cross-regional cooperation to strengthen regional competitiveness while minimising duplication and fragmentation of publicly funded activities across the European Union (EU). As a result, regional policymakers must aim to find complementarities and synergies with other regions to integrate their regions in the (European) Value Chain while addressing missing links in their innovation value chain and maximising their regions' innovative potential.
- **The Interregional Innovation Investments (I3) instrument** is a new funding instrument under the European Regional Development Fund (ERDF) aimed to encourage the development of European value chains by mobilising innovation ecosystems to scale up and commercialise interregional innovation projects. Through the linkage to mainstream Cohesion policy operational programmes, the instrument will mobilise additional investments in the selected priority areas and enhance the cooperation with partners from different Member States and strengthen complementarities between different EU, national and regional funding instruments.
- Building international links and strengthening interregional collaboration between regional ecosystems can be particularly beneficial for lagging regions. Collaboration with more developed regions can improve and facilitate knowledge transfer, technological upgrading and entrepreneurship. **However, access to interregional/international networks can be a significant challenge for less-developed regions, and they tend to be under-represented in interregional collaboration activities.** Whilst they have relatively strong levels of participation in collaborative programmes such as Interreg, their level of participation in competitive programmes such as H2020 tends to be lower than that of more advanced territories.[111]
- To better seize the opportunities and contribute to growth and jobs, the projects and initiatives **should include the private sector, SMEs and start-ups**. Apart from building transnational Interreg projects, eligible partnerships should strive to focus on big Horizon Europe projects, both on calls like Horizon Ocean Mission and other Horizon Europe opportunities.
- In the North Sea Basin there are many cooperation networks between private sector companies, forming project consortia as needed, often setting up Horizon Europe projects together. This is more difficult in the Adriatic-Ionian Sea Basin since only four countries are EU Member States.
- As a starting point for these public-private R&D partnerships in the EUSAIR, there should be more focus on **networking in and with the private sector**, via Chambers of commerce or within

[111] Woolford, J., Amanatidou, E., Gerussi, E. and Boden, J.M. (2021). Interregional Cooperation and Smart Specialisation: a Lagging Regions Perspective. EUR 30691 EN. Publications Office of the European Union. Luxembourg.

BLUEAIR is implemented through the financial support of the ADRION programme

specific thematic platforms that could allow having partners also from the Adriatic Ionian Sea basin, working together on new technologies or applications with partners from the Western Mediterranean or Northern Europe.

5.2 Best Practices from other European Sea Basins

The choice of best practices from other European sea basins was made to give some examples of innovative approaches, either in terms of building durable cooperation networks, the expected activities and foreseen results. Both projects covering traditional and emerging sectors were considered. These cases could serve as an inspiration for Blueair and other projects and initiatives working on interregional S3 cooperation.

5.2.1 Governance

*Baltic Sea Region: **EUSBSR Flagships Format***

The non-paper on EU Macro-Regional Strategies[112] recognises the EUSBSR cooperation format of flagships as good practice, generating various positive effects in policy development and implementation. Flagships identified by EUSBSR are described also in the new 2020 Action Plan as key cooperation formats to achieve action objectives and targets.

In the EUSBSR, flagships are not mere projects – they emerge as the Strategy's response to a certain common challenge articulated in the Action Plan. Flagships are initiatives that go beyond good quality projects or projects on topics of strategic importance or "high level" partnerships. Flagships are driven by a vision of policy impact which is impossible to achieve through a project's lifespan or by a limited set of stakeholders. **Enacting the multi-level governance principle, flagships gather all possible stakeholders in a long-term process of co-creation of both policy and action.** Flagships become 'home' for projects and any other forms of action, such as thematic working groups, policy dialogues, policy-making workshops, public consultations and others. Flagships become areas for alignment of funding, too. Each flagship has a flagship leader (an active thematic institution) and can be structured as platform or membership-based network.

Undoubtedly, flagship-like formats produce results of much higher value-added than separate projects, as they produce on two levels at the same time – policy and action. And they certainly 'bring Europe close to the citizens' due to its broad engagement nature and open structure. In fact, they seem to be a more strategic format to deliver macro-regional value-added. Arguably, such formats can be seen as the unique contribution of macro-regional strategies demonstrating HOW the macro-regions can boost thematic progress in chosen focus areas. Strategic pursuit of the participation agenda –

[112] Bergström, A., Eggensberger, P., Jerina, A., Lütgenau, S-A., Singer, C. (2020). EU Macro-Regional Strategies. Laboratories for a New Europe. A Qualified Non-Paper By Key Stakeholders In The Four Macro-Regional Strategies. March 2020. Available at https://www.adriatic-ionian.eu/wp-content/uploads/2020/03/MRS-non-paper-EP-REGI-Chair-March-19.pdf

BLUEAIR is implemented through the financial support of the ADRION programme

manifested in such inclusive collaboration formats – is the source of legitimacy and sustainability of the macro-regional strategies.

Other macro-regional strategies, EUSAIR as well, have adopted the flagship format, however, **it takes time to build strong and durable thematic networks emerging from bottom-up and top-down processes, which are capable of producing relevant transnational projects with substantial impact on the territory**. The Baltic Sea Region case of S3 cooperation, described in continuation, is a good example of that.

Baltic Sea Region: Submariner Network for Blue Growth EEIG

The SUBMARINER Network for Blue Growth EEIG, a flagship umbrella project of the EU Strategy for the Baltic Sea Region, was established in 2013. Since then, it has developed into the **leading transnational hub in the Baltics for promoting sustainable and innovative uses of marine resources**. The Network brings together authorities, research and innovation actors, both public and private, across the Baltic Sea Region, integrating perspectives from local to transnational scale and different scientific and economic spheres.

With no statutory support, the Network has over the past years, succeeded in leveraging the membership funding by applying for project funding under the various Baltic Sea Region Interreg schemes, Horizon 2020, EMFF projects, EEA Norway Grants as well as national programmes. Until 2020, the SUBMARINER secretariat has initiated **25 transnational projects, of which 20 received funding with a total volume of more than €41 million,** of which almost €30 million are dedicated to activities in the Baltic Sea Region. The projects provided extra funding of €1,25 million to the SUBMARINER secretariat. The projects have also been a way to reach out and involve many more actors involved in the blue bioeconomy: apart from the 40+members, more than 150 other parties have participated in one or more of the SUBMARINER projects.

BLUEAIR is implemented through the financial support of the ADRION programme

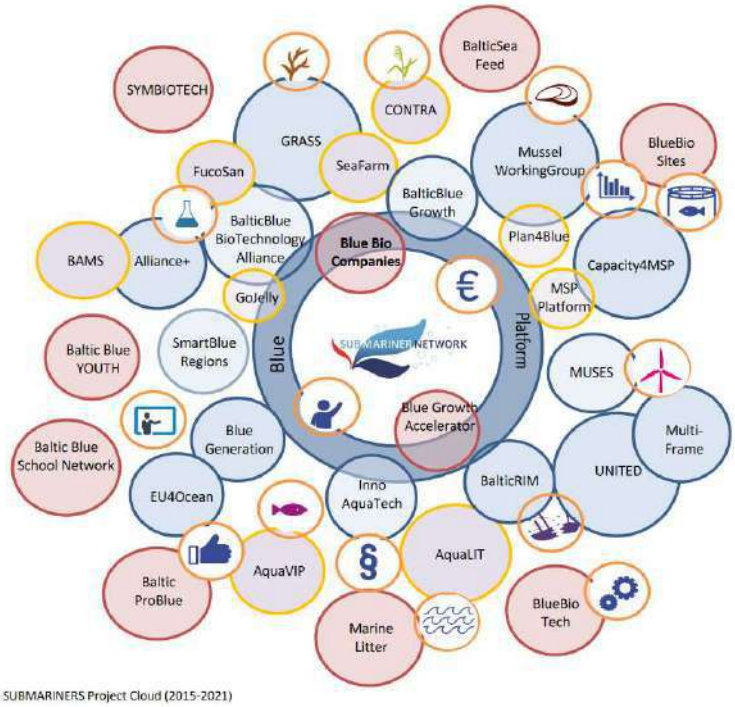


Figure 103: SUBMARINER Project Cloud, Source: Status Quo Report 2020[113]

Right from the outset, the SUBMARINER Network decided to install a **permanent, central secretariat based in Berlin**. The continuous identification, communication, coordination and match-making between actors as well as ongoing identification of funding opportunities and project development has proven to be the most important overarching service facilitated by the SUBMARINER network secretariat.

Most notably, **SUBMARINER actions** aim to address: Reduce Climate Change, Reduce Pollution, Increase Biodiversity, Increase Protection, Address Demographic Change, Foster Competitiveness of the Baltic Sea Region. By 2013, SUBMARINER topics were far from being commercially viable or politically established but had already been addressed by numerous studies and research projects. The SUBMARINER Compendium published in 2012 represented the very first systematic compilation of these possible sustainable uses of marine resources. The following SUBMARINER Roadmap provided a strategic and systematic approach towards rolling out the various actions needed, to promote them across the Baltic Sea Region. Seven years later, in 2020, a first ex-post evaluation of what has been achieved in the meantime; which kind of new developments have to be considered and the resulting priorities of SUBMARINER actions for the coming future were identified In SUBMARINER Status Quo Report 2020[114], from where we have summarised this description.

[113] Schultz-Zehden A. et al (2021). SUBMARINER Status Quo Report 2020. Five years of Interventions for the Blue Bioeconomy in the Baltic Sea Region. SUBMARINER Network Secretariat. Berlin, Germany.
[114] ibid

BLUEAIR is implemented through the financial support of the ADRION programme

5.2.2 Interregional Cooperation in Smart Specialisation

Baltic Sea Region: ***Interregional Cooperation in Smart Specialisation***

The **EUSBSR Policy Area Innovation** (PA INNO) promotes a globally competitive position within innovation for sustainable economic growth in the Baltic Sea Region (BSR). Earlier PA INNO experiences and results on transnational S3 are providing strong evidence and a good basis for the next wave of S3 in the next EU programming period. Therefore, the new PA INNO Action Plan underlines a challenge-driven approach to innovation and further development of interregional value chains in key BSR S3 fields, such as circular and bioeconomy, blue growth, digitalisation and health. The aim is to support the development of interregional value chains across the strongest S3 areas in the BSR through various financing instruments.

The Baltic Sea Region has a rich history of cooperation in **S3 Interreg projects**. The 2014-2020 ETC Programmes have supported S3 capacity building and implementation. In BSR altogether 65 Interreg Europe financed projects have resulted in regional action plans e.g. within similar or related S3 priority fields and identification of interregional cooperation opportunities based on shared priorities. Altogether 37 projects aimed to enhance S3 implementation in the BSR have been financed by the Interreg BSR Programme. S3 Interreg projects have mainly been about sharing, learning and exchanging on S3 practices with the aim of improving domestic practices and policies. In addition, a few projects have been able to build S3-related networks (RDI2Club and BIOREGIO), some have developed and piloted methods to strengthen regional S3 (LARS, EmpInno) and interregional S3 (GoSmart BSR), while others have focused on joint S3-related challenges and organised well-prepared study visits and interregional innovation camps to find new perspectives and solutions to those challenges (SmartUp BSR and BSR Stars S3). There have also been projects which have adopted a strong influence towards shaping future EU-level policies regarding interregional S3: ClusterFY promoting the role and interregional cooperation of clusters and business networks regarding S3 and S34Growth project which has influenced the direction of the proposed I3 instrument for the post-2020 period.

In this study we will examine three types of project/flagship actions interesting from the interregional S3 cooperation point of view that could be of value for EUSAIR:

1. Cooperation with regions with related S3 priorities
2. Methods related to identifying partners with mutual or complementary needs and interests
3. Building of BSR S3 ecosystem.

This distinction was made just to organise information, all these processes are interrelated and intertwined, as demonstrated also by various BSR projects/flagships, which have addressed all these three processes.

Even though this section describes projects or their actions, they should be understood within the flagship format (see one of the previous cases), therefore having both policy and practical impact. Partnerships of these projects are building on years of joint cooperation experiences as described above.

1. Cooperation with regions with related S3 priorities

BLUEAIR is implemented through the financial support of the ADRION programme

A study conducted on interregional S3 cooperation[115] has shown that S3 Interreg projects have been a good way to strengthen S3 capacities, share and learn from other regions to support RIS3 implementation. The value of the good-practice exchange appears largely dependent on the components and design of the project consortia and activities. The study also revealed that beyond the Thematic S3 Platform Partnerships, there is rather limited evidence of EU regions adopting interregional approaches to S3 outside of time-dependent Interreg-projects. For the BSR, there are only a few regions that are actively engaged in this type of collaboration.

EU Interreg programmes can provide a space for experimentation, learning and generation of good practices in S3 that can serve broader purposes. Going deeper with interregional S3 (with the support of the proposed I3 mechanism) is about going beyond learning and encouraging the set-up of specific innovation investment actions (e.g. jointly funding innovation equipment, infrastructures, training and learning and jointly investing in companies to spearhead the creation of new products and services). **This type of effort requires political commitment, long-term partnerships and trust-building beyond a single project lifetime**.

Furthermore, the findings of the study indicate that the basis for the development of strategic interregional S3 is built on a successful innovation stakeholder involvement process (so-called Entrepreneurial Discovery Process), good S3 governance, awareness of innovation ecosystems & value chains and sufficient flexibility to adapt to new developments at the regional level. This ability to renew is very critical, especially in the post-Covid recovery context as companies are forced to re-evaluate their connections to global supply chains.

2. Methods related to identifying partners with mutual or complementary needs and interests

BSR Stars S3 (2016-2019) project **explored methods and tools that support cooperation between innovation actors** (companies, researchers and the public sector) within bio- and circular economies. The final output report[116] is focusing on a selection of the BSR Stars S3 activities with possible scope to upscale and/or transfer learning and methods to other BSR geographies or economic sectors. These are: Matchmaking events, Transnational business coaching, Transnational Innovation Voucher pilot, S3 Accelerator Camp, Transnational research-to-business platform and Digital Innovation Ecosystem Management Tool.

To enhance the business cooperation GoSmart BSR project (2018-2020) has created a **Transnational Innovation Brokerage System -TIBS[117]** – a network of trained innovation brokers that provide personal and practical help for small and middle-sized enterprises (SMEs) to strengthen their international efforts and guide their cooperation offers.

The BSR S3 Ecosystem Platform (2019-2021) proposes **value chain analysis and mapping** as a useful tool in the development of inter-regional innovation cooperation. A pilot exercise of the first stage analysis of the BSR's circular bioeconomy value chain was undertaken as part of the Platform project.

[115] Leino, J. (2020). Smart Specialisation in the Baltic Sea Region – Learning towards Macro-regional Specialisation. Baltic Institute of Finland. Tampere, Finland. Available at: http://www.baltic.org/wp-content/uploads/2021/03/Smart-specialisation-in-the-BSR-2020_final.pdf

[116] Leino, J. et al. (2019). BSR Stars S3 – Learning and conclusions for the BSR S3 Ecosystem. Baltic Institute of Finland. Tempere, Finland. Available at: http://www.pa-innovation.eu/wp-content/uploads/2019/09/BSR-Stars-S3-learning-for-BSR-S3-ecosystem-004.pdf

[117] The tool is available here: https://gosmartbsr.eu/gosmartexcel-bsr/excel-tibscase-studies/

BLUEAIR is implemented through the financial support of the ADRION programme

Based on the pilot a **first-stage value chain mapping analysis of the Circular Bioeconomy**[118] across the BSR and an accompanying **value chain mapping manual**[119] have been produced describing a method for identifying relevant value chains across regions in a selected field.

3. Building BSR S3 ecosystem

Based on the GoSmart BSR method to identify the joint research and innovation priorities of various regions, a **transnational smart specialisation strategy** including joint priority fields for the Baltic Sea region was developed. Methodology for Transnational Smart Specialisation Strategy – Policy Paper[120]. is showing how transnational smart specialisations can be established and includes policy recommendations. The Trans-S3 methodology contains all necessary elements for replication by other future users.

The BSR S3 Ecosystem Platform project aims to raise awareness and understanding of politicians, decision-makers and innovation actors, especially at the regional level, of the opportunities and challenges related to S3. It contributes to realising a tailored policy framework, which supports the development of a macro-regional approach to S3, for use and further development beyond the project lifetime.

A key element of the BSR S3 Ecosystem Platform has been the set-up of a **BSR Directors' Network**. This Network comprises a voluntary group of BSR regions, represented by senior regional Directors who have a key responsibility for overseeing strategic direction for S3 in their regions. Still in its infancy, this Network aims to strengthen collective capacity to share S3 and innovation knowledge and experience and to consider options and actions for joint S3 working across the BSR. The Network remains open to other interested BSR regions and plays a key advisory and decision-making role in supporting the development of the BSR S3 Ecosystem Platform.

Key success factors and hurdles for interregional S3 cooperation

As identified by Johanna Leino in her best practice case article for JRC[121], the success of all these interregional initiatives depends on several factors:

- Strong and continuous political commitment is a key condition for sustainability of the projects' results and their mainstreaming into policies, at regional and macro-regional levels;
- A deliberately strategic use of Interreg programmes has been made to contribute to shared goals, rather than as mere funding sources for constellations of projects;
- Strategic coordination - the establishment of the BSR S3 Directors' Network has been instrumental in working towards strategic use of and synergies between projects.

[118] Griniece, E. et al. (2020). High level value chain mapping in the Baltic Sea Region. Pilot exercise on circular bioeconomy. European Future Innovation Centre. Brussels. Available at: http://www.baltic.org/wp-content/uploads/2021/03/High-level-value-chain-mapping-in-BSR_pilot_report_final.pdf

[119] Reid, A. et al. (2020). High level value chain mapping in the Baltic Sea Region: Guidance Manual. European Future Innovation Centre. Brussels. Available at: http://www.baltic.org/wp-content/uploads/2021/03/High-level-value-chain-mapping-in-BSR_Manual_Final.pdf

[120] Girejko, R. et al. (2019). GoSmart BSR Methodology for Transnational Smart Specialisation Strategy – Policy Paper. Bialystok University of Technology. Białystok, Poland. Available at: https://gosmartbsr.eu/?wpdmdl=1339

[121] Leino, J. (2020). Demonstrating the potential of shared Smart Specialisation approaches to promote green transition. Baltic Institute of Finland. Tempere, Finland. Available at: https://s3platform-legacy.jrc.ec.europa.eu/-/baltic-sea-region-interregional-cooperation-on-circular-bio-economy?inheritRedirect=true

BLUEAIR is implemented through the financial support of the ADRION programme

Some difficulties have been encountered when analytical or policy tools have been designed too rigidly. **The need to devote increased attention to adaptability to the variety of contexts across the BSR has been highlighted as a major lesson**.

Replicability and transfer of experience are at the heart of each of the BSR interregional initiative. Thanks to the continuity of cooperation beyond the individual projects, regions in the BSR have access to a permanent pool of experiences and partners in order to replicate good practices from one territory to another. One success factor for this continuity lies in the creation of **policy linkages at a strategic level**, which are nurtured by and survive beyond the different projects.

The below diagram illustrates the stages from early forms of cooperation (good practice sharing) through to strongly embedded ways of working – to underpin the development of interregional collaboration.

Figure 104: Stages of interregional collaboration. Source: Implementing Smart Specialisation Strategies: JRC Handbook, 2016[122]

5.2.3 Sustainable Coastal Tourism

West Mediterranean: MEET Network

The **MEET Network is a registered association of Mediterranean parks that supports protected area managers with ecotourism** through exchange, capacity building, advocacy, and tools for tourism product development and management. The project whose partner is the IUCN was initially funded by the ENPI CBC MED Programme to boost cooperation between the Western Mediterranean and the Southern Mediterranean national parks and protected areas.

The network has worked with nearly 40 protected areas in 12 countries on creating a model for ecotourism itinerary development for Mediterranean Protected Areas. The initial MEET project from ENPI CBC has been capitalized through four additional projects (Destimed funded by Interreg MED,

[122] Gianelle, C. et al. (2016). Implementing Smart Specialisation Strategies: A Handbook. EUR 28053. Publications Office of the European Union. Luxembourg

BLUEAIR is implemented through the financial support of the ADRION programme

MEET Intrepid funded by Maroccan national funds, MEET MAVA and the GEMWET project, both implemented with the support of the MAVA Foundation).

The MEET Network is attracting a lot of interest from the sustainable tourism industry, as well as creating new spin-off projects and attracting new donors and partners who are interested in the MEET Network model and tools. This is therefore a potentially replicable model also for the EUSAIR, as it gives a methodology that can bring together actors from the nature protection and tourism industry, to boost sustainable blue and green growth. The project has been also referenced in the MSP platform by DG MARE, as a best practice example for the Western Mediterranean Sea basin[123]. The fact that climate-friendly, sustainable travel experiences have been on the rise among travellers' expectations in recent years (as already mentioned previously in this report), this kind of initiative could be, in post-pandemic times even more interesting for replication by a mix of public and private actors.

5.2.4 Sustainable Blue Economy

*Mediterranean Basin: **BlueMed Initiative***

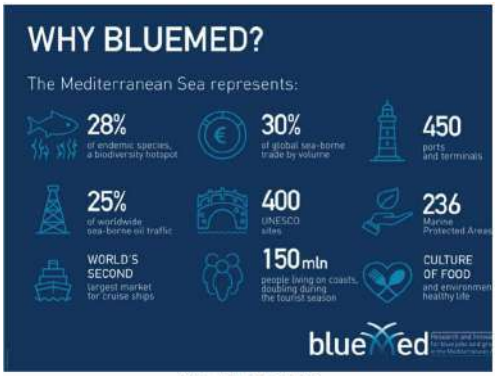
The BlueMed Initiative was set up in May 2014 in the framework of the European Strategy on Blue Growth. **It is a political initiative aiming at developing a shared vision for a more healthy, productive and resilient Mediterranean**. This Initiative has been reapproved for the third time in the year 2016, the project will run until the end of 2021 under the leadership of the Centro Nazionale Ricerche (CNR) from Italy. The partnership is spread over the Western and Eastern Mediterranean involving 9 EU Member States partners: Portugal, Spain, France, Italy, Greece, Malta, Cyprus, Slovenia and Croatia and 6 non-EU countries: Marocco, Algeria, Tunisia, Egypt, Israel and Turkey.

The project allowed the creation of **four BLUEMED Platforms on: Knowledge, Economy, Technology, and Policy** joined by officially appointed experts named National Pivots for updating the SRIA and contributing to the Implementation Plan. The platforms are transnational thematic groups where national representatives meet and exchange on blue growth issues in the Mediterranean. In addition to that also the organization of two research funders' workshops to build the BLUEMED Operational Network of Research Funders and Key Players for the implementation of the actions as well as national consultations on the strategic actions for joint implementation.

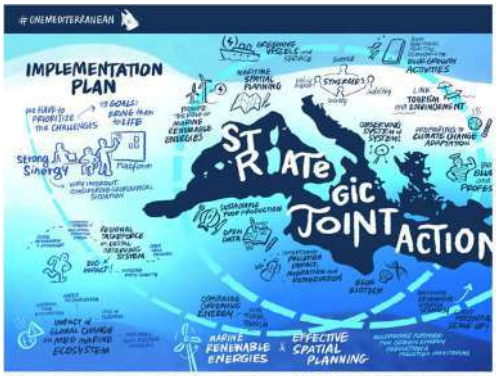
This Horizon Initiative has been chosen because of its foresight, there is a focus on both traditional as on emerging sectors. The work performed has been dedicated to the exploitation of the mechanisms guaranteeing the support to the BLUEMED Initiative, with particular reference to the delivery of the Implementation Plan and the activities related to the Pilot Action on Healthy Plastic-free Mediterranean Sea.

[123] https://www.msp-platform.eu/sea-basins/west-mediterranean

BLUEAIR is implemented through the financial support of the ADRION programme



Why BLUEMED



BLUEMED Final Conference Strategic Actions Graphic

Figure 105: BlueMed infographics, Source: http://www.bluemed-initiative.eu/

The results from the initiative could be a good base for new projects in emerging sectors, in ocean energy and marine renewable energies and blue biotech. For the first one, a promotional action included setting up a competence and training centre for marine renewable energies, as well as organizing a Mediterranean Conference on Marine Renewable Energies. For the second one, the blue biotech, the promotional actions included creating a training course on Blue Biotechnologies and Blue Bioeconomy aiming at the creation of blue careers and carrying out a thematic conference on Mediterranean Blue BioTech. These are examples that could be capitalized in the EUSAIR area. The project has been also referenced in the MSP platform by DG MARE, as a best practice example for the Western Mediterranean Sea basin.[124]

*Mediterranean Basin: **Strategic Innovation projects***

Interreg MED approved two strategic projects on innovation in July 2020. The call for proposals aimed to **provide new evidence and methodologies for better governance of innovation policies, especially through the exploration of missions and new value chains in the blue bioeconomy**. Below, there is a description of each of them.

It needs to be mentioned that the Interreg MED strategic projects, due to the specific architecture of the projects in the 2014-20 programming period, had to cover all the modules (studying, testing and capitalizing phase) and involve all the actors in the policy cycle, from R&D to practitioners and policymakers. This is the reason for choosing these projects from this particular programme and not strategic projects from other programmes.

The first one, **BLUE BIO MED** (Mediterranean Innovation Alliance for sustainable blue economy), intends to promote the transformation of the Mediterranean blue bioeconomy sector toward sustainable development goals through innovation. It supports better governance of innovation policies bringing together relevant actors in the Mediterranean area (i.e. UfM, UNEP-MAP, EUSAIR, WestMED, Bluemed Initiative, etc.) with the territorial – regional and national – policy-making, assuming the Agenda 2030 Sustainable Development Goals (SDGs). Research and Innovation Strategies for Smart Specialization (RIS3) will be taken as the key entry point to understand and orient the innovation trends and priorities across MED regions and to connect transnational cooperation with

[124] ibid

BLUEAIR is implemented through the financial support of the ADRION programme

investments for growth and jobs of the Cohesion Policy instruments.

The second one, **B-BLUE** (Building the blue biotechnology community in the Mediterranean), creates a network of the MED Blue Biotechnology (BBt) sector organizations, built on the quintuple-helix approach.

The two projects will create synergies to promote the blue bioeconomy and streamline multiple efforts in this emerging sector in the Mediterranean. They can be an important building block to create other capitalization projects in the EUSAIR.

ESPON: Tranregecon

In terms of foresight, also the ESPON Programme Transregecon project might be a useful example, primarily because of its double focus on **Technological Transformation and Transitioning of Regional Economies.**

The project tackled the differing capacities, socio-economic conditions, levels of knowledge and potential uptake of technological transformation in EU regions and cities. Diversity places an important role in regional policies. There is a growing recognition that unified policies cannot address effectively the challenges faced in different geographies and territories. The importance of this project was also underlined during the interview that took place with the representatives of the ESPON Programme. The policy recommendations of the project, contained in the final Synthesis Report[125], could be useful guidance when planning new initiatives and policy-oriented projects in the EUSAIR.

Validation Workshop: Further Best Practice Examples

There were also several other examples presented during the validation workshop, they are listed below and organised by sea basin.

Sea basin	Best practice examples
Adriatic-Ionian	Blue_Boost, Blue Bio Med (blue growth projects in Adrion)
Baltic	BeUBio – success stories in bioeconomy in the Baltic Sea
Western Mediterranean	BioVac (sustainable consumption), Sicomar (biodiversity, habitat conservation), Starfish (sustainable fisheries, aquaculture), BlueSkills and Leancubator (skills development)
Atlantic	Blue Schools – blue literacy in schools, AspBAN – Atlantic ports as blue economy hubs
Black Sea	Promote innovation in different fields: Timmod, Daciat, BSB Eco Monitoring, Iason

[125] Capello, R. et al. (2020). T4–Territorial Trends in Technological Transformations. Synthesis Report. Politecnico di Milano (POLIMI). Milano. Available at: https://www.espon.eu/sites/default/files/attachments/Synthesis%20Report_0.pdf

BLUEAIR is implemented through the financial support of the ADRION programme

6. References

References in alphabetical order:

Algiers Ministerial Declaration and Roadmap for the WestMED initiative (2018) available at: https://www.westmed-initiative.eu/westmed-initiative/

Batista e Silva, F., Herrera, M. A. M., Rosina, K., Barranco, R. R., Freire, S., Schiavina, M. (2018). Analysing spatiotemporal patterns of tourism in Europe at high-resolution with conventional and big data sources. Tourism Management, 68

Bergström, A., Eggensberger, P., Jerina, A., Lütgenau, S-A., Singer, C. (2020). EU Macro-Regional Strategies. Laboratories for a New Europe. A Qualified Non-Paper By Key Stakeholders In The Four Macro-Regional Strategies. March 2020. Available at https://www.adriatic-ionian.eu/wp-content/uploads/2020/03/MRS-non-paper-EP-REGI-Chair-March-19.pdf

Better Governance for a Mediterranean Green Deal. Stocktaking of Panoramed and the way ahead. Interreg MED Programme. November 2020. accessible at https://medblueconomyplatform.org/wp-content/uploads/2020/11/file-library-069ca479de89aec64b66.pdf

Capello, R. et al. (2020): T4–Territorial Trends in Technological Transformations, Synthesis Report, Politecnico di Milano (POLIMI), available at: https://www.espon.eu/sites/default/files/attachments/Synthesis%20Report_0.pdf

Council of the European Union (2014). Council conclusions on the European Union Strategy for the Adriatic and Ionian Region (EUSAIR), General Affairs Council meeting, Brussels, 29 September 2014

COWI (2017). Study on Macroregional Strategies and Their Links with Cohesion Policy. Final Report for the European Commission Directorate-General Regional And Urban Policy. COWI. Kongens Lyngby, Denmark

CPMR North Sea Commission (2011). North Sea Region 2020 Strategy. Gothenburg. Available at: https://cpmr-northsea.org/download/north-sea-region-2020-strategy/?wpdmdl=820&ind=1481027135786

CPMR The North Sea Commission (2020). North Sea Commission Action Plan 2020-2022. Available at: https://cpmr-northsea.org/download/nsc-action-plan-2020-2022/?wpdmdl=3120&ind=1606983422304

CPMR The North Sea Commission (2020). North Sea Region 2030 strategy. Gothenburg. Available at: https://cpmr-northsea.org/download/north-sea-region-strategy-2030/?wpdmdl=3029&ind=1604574928659

Edquist C. (2004). "Systems of Innovation: Perspectives and Challenges" in Fagerberg, J., Mowery, D. and Nelson, R. (eds.). Oxford Handbook of Innovation. Oxford: Oxford University Press. p. 181-208

Edquist C. (2011). Design of innovation policy through diagnostic analysis. Identification of systemic problems (or failures). Industrial and Corporate Change. 20: 1–29

EU Regulation (2013). Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy. (2013) OJ L 354/22

BLUEAIR is implemented through the financial support of the ADRION programme

European Commission (2009). COM(2009) 248 final. Communication concerning the European Union Strategy for the Baltic Sea Region

European Commission (2009). SEC(2009) 712. Commission staff working document, European Union Strategy for the Baltic Sea Region Action Plan

European Commission (2011). COM(2011) 782 final. Communication on Developing a Maritime Strategy for the Atlantic Ocean Area

European Commission (2012). COM (2012) 494 final: Communication on Blue Growth opportunities for marine and maritime sustainable growth

European Commission (2012). COM(2012) 713 final. Communication on A Maritime Strategy for the Adriatic and Ionian Seas

European Commission (2013). COM(2013) 229 final. Communication on Strategic Guidelines for the sustainable development of EU aquaculture

European Commission (2013. COM(2013) 279 final. Communication on Action Plan for a Maritime Strategy in the Atlantic area Delivering smart, sustainable and inclusive growth

European Commission (2014). COM (2014) 86. A European Strategy for more Growth and Jobs in Coastal and Maritime Tourism

European Commission (2014). COM(2014) 357 final. Communication concerning the European Union Strategy for the Adriatic and Ionian Region

European Commission (2017). COM(2017) 183 final. Communication on Initiative for the sustainable development of the blue economy in the western Mediterranean

European Commission (2017). SWD(2017) 130 final. Commission Staff Working Document Framework For Action. Accompanying the Communication on Initiative for the Sustainable Development of the Blue Economy in the Western Mediterranean

European Commission (2018). COM(2018) 368 final. Proposal for a regulation of the European Parliament and of the Council amending Council Regulation (EC) No 1224/2009, and amending Council Regulations (EC) No 768/2005, (EC) No 1967/2006, (EC) No 1005/2008, and Regulation (EU) No 2016/1139 of the European Parliament and of the Council as regards fisheries control

European Commission (2018). SWD(2018) 49 final. Commission staff working document on the mid-term review of the Atlantic action plan

European Commission (2020). COM(2020) 132 final. Addendum concerning the European Union Strategy for the Adriatic and Ionian Region

European Commission (2020). COM(2020) 329 final. Communication on A new approach to the Atlantic maritime strategy – Atlantic action plan 2.0 An updated action plan for a sustainable, resilient and competitive blue economy in the European Union Atlantic area

European Commission (2020). COM(2020) 578 final. Report from the Commission on the implementation of EU macro-regional strategies

European Commission (2020). COM(2020) 741 final. Communication on An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future

BLUEAIR is implemented through the financial support of the ADRION programme

European Commission (2020). SWD(2020) 57 final. Commission Staff Working Document concerning Action Plan. Accompanying the European Union Strategy for the Adriatic and Ionian Region

European Commission (2021). COM(2021) 240 final. Communication on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future

European Commission (2021). SWD(2021) 24 final. Commission Staff Working Document. EU Strategy for the Baltic Sea Region Action Plan

European Commission (2021). The EU Blue Economy Report 2021. Publications Office of the European Union. Luxembourg

European Parliament (2021). European Parliament resolution of 25 March 2021 on establishing an EU strategy for sustainable tourism (2020/2038(INI))

Executive Agency for Small and Medium-sized Enterprises (2016). Study on specific challenges for a sustainable development of coastal and maritime tourism in Europe. Publications Office of the European Union. Luxembourg

Gianelle, C. et al. (2016). Implementing Smart Specialisation Strategies: A Handbook. EUR 28053. Publications Office of the European Union. Luxembourg

Gicala, A., Salvador, R. (2017).The EU Strategy for the Adriatic and the Ionian Region: from Marginalisation to Co-Development. XI CONGRESSO DA GEOGRAFIA PORTUGUESA

Girejko, R. et al. (2019). GoSmart BSR Methodology for Transnational Smart Specialisation Strategy – Policy Paper. Bialystok University of Technology. Białystok, Poland. Available at: https://gosmartbsr.eu/?wpdmdl=1339

Griniece, E. et al. (2020). High level value chain mapping in the Baltic Sea Region. Pilot exercise on circular bioeconomy. European Future Innovation Centre. Brussels. Available at: http://www.baltic.org/wp-content/uploads/2021/03/High-level-value-chain-mapping-in-BSR_pilot_report_final.pdf

Holanders H. (2021). Regional Innovation Scoreboard Report 2021. Publications Office of the European Union. Luxemburg

Huggins, Robert. (2010). Regional Competitive Intelligence: Benchmarking and Policy-making. Regional Studies.

Leino, J. (2020). Demonstrating the potential of shared Smart Specialisation approaches to promote green transition. Baltic Institute of Finland. Tempere, Finland. Available at: https://s3platform-legacy.jrc.ec.europa.eu/-/baltic-sea-region-interregional-cooperation-on-circular-bio-economy?inheritRedirect=true

Leino, J. (2020). Smart Specialisation in the Baltic Sea Region – Learning towards Macro-regional Specialisation. Baltic Institute of Finland. Tampere, Finland. Available at: http://www.baltic.org/wp-content/uploads/2021/03/Smart-specialisation-in-the-BSR-2020_final.pdf

Leino, J. et al. (2019). BSR Stars S3 – Learning and conclusions for the BSR S3 Ecosystem. Baltic Institute of Finland. Tempere, Finland. Available at: http://www.pa-innovation.eu/wp-content/uploads/2019/09/BSR-Stars-S3-learning-for-BSR-S3-ecosystem-004.pdf

BLUEAIR is implemented through the financial support of the ADRION programme

Lenzen, M., Sun, YY., Faturay, F. et al. (2018). The carbon footprint of global tourism. Nature Clim Change 8, 522–528 (2018). https://doi.org/10.1038/s41558-018-0141-x

Navarro Arancegui M., Gibaja Martíns J.J., Franco Rodríguez S, Murciego Alonso A. (2011). Territorial benchmarking methodology: The need to identify reference regions

Nikitakos, N., Stefanakou A. (2021). Blue Growth and Related Smart Growth In The Adriatic-Ionian Macroregion. Policy Paper. Thematic Cluster (TC) 1 Blue Growth and related Smart Growth. Available at: https://www.adrioninterreg.eu/wp-content/uploads/2021/02/TC1-Policy_Paper.pdf

Nordic Council of Ministers (2016). Policy Area Innovation Strategy Guide 2016 – 2020 – Putting the action Plan into Practice. accessible at http://norden.diva-portal.org/smash/get/diva2:957324/FULLTEXT01.pdf

North Sea Commission (2019). NSC strongly supports a continuation of the NSR programme in the next funding period. Available at: https://cpmr-northsea.org/cohesion/nsc-strongly-supports-a-continuation-of-the-nsr-programme-in-the-next-funding-period/2516/

OECD (2005). Micro-policies for growth and productivity. Synthesis and benchmarking user guide. OECD. Paris

OECD (2019). Synthesis Report: Multi-level Governance and Cross-Sector Practices Supporting the European Union Strategy for the Adriatic and Ionian Region (EUSAIR). OECD Centre for Entrepreneurship, SMEs, Regions and Cities

Petrović, M., Bojković, N., Anić, I., & Petrović, D. (2012). Benchmarking the digital divide using a multi-level outranking framework: Evidence from EBRD countries of operation. Government Information Quarterly, 29(4), 597-607

Petrović, M., Bojković, N., Anić, I., Stamenković, M., & Tarle, S. P. (2014). An ELECTRE-based decision aid tool for stepwise benchmarking: An application over EU Digital Agenda targets. Decision Support Systems, 59, 230-241

Petrović, M., Bojković, N., Stamenković, M., & Anić, I. (2018). Supporting performance appraisal in ELECTRE based stepwise benchmarking model. Omega, 78, 237-251

Radosevic, S. (2020). Benchmarking innovation policy in catching up and emerging economies: methodology for innovation policy index. Retrieved from: https://discovery.ucl.ac.uk/id/eprint/10098709/1/Benchmarking%20innovation%20policy%20in%20EM%20and%20CU%20economies_FrontPage1.pdf

REGULATION (EU) No 1303/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL laying down common provisions on the European Regional Development Fund. the European Social Fund. the Cohesion Fund. the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund. the European Social Fund. the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006

Reid, A. et al. (2020). High level value chain mapping in the Baltic Sea Region: Guidance Manual. European Future Innovation Centre. Brussels. Available at: http://www.baltic.org/wp-content/uploads/2021/03/High-level-value-chain-mapping-in-BSR_Manual_Final.pdf

BLUEAIR is implemented through the financial support of the ADRION programme

Reillon V. (2016). EU policies and instruments supporting innovation. In-depth Analysis. European Parliamentary Research Service

Schultz-Zehden A. et al (2021). SUBMARINER Status Quo Report 2020. Five years of Interventions for the Blue Bioeconomy in the Baltic Sea Region. SUBMARINER Network Secretariat. Berlin, Germany.

Woolford, J., Amanatidou, E., Gerussi, E. and Boden, J.M. (2021). Interregional Cooperation and Smart Specialisation: a Lagging Regions Perspective. EUR 30691 EN. Publications Office of the European Union. Luxembourg.

Web pages, in order of appearance

https://www.ospar.org/convention

https://s3platform.jrc.ec.europa.eu/thematic-platforms-map

https://reporting.clustercollaboration.eu/all#

https://www.submariner-network.eu/

https://scanbalt.org/

https://www.science-link.eu/

https://mkm.ee/en/objectives-activities/information-society/information-society-services#bsr-digi-co-lab2

http://www.baltic.org/project/baltic-sea-region-smart-specialisation-ecosystem/

https://interactivetool.eu/EIS

https://ec.europa.eu/info/sites/default/files/research_and_innovation/research_by_area/documents/blackseasria_factsheet_final_corrected.pdf

https://climate-adapt.eea.europa.eu/metadata/organisations/priority-actions-programme-regional-activity-centre-pap-rac

https://cpmr-intermed.org/projects/

http://www.bluemed-initiative.eu/

https://www.adriatic-ionian.eu/media-centre/media-toolkits/

https://www.adriatic-ionian.eu/2020/06/12/eusair-flagships-all-summed-up/

http://Blueair.sf.bg.ac.rs/

https://gosmartbsr.eu/gosmartexcel-bsr/excel-tibscase-studies/

https://www.msp-platform.eu/sea-basins/west-mediterranean

BLUEAIR is implemented through the financial support of the ADRION programme

7. Annexes

Annexe 1 – Blue Growth Innovation Policies in Sea Basins: Self-assessment Questionnaire

BlueAir Online Survey

Blue Growth (Sustainable Blue Economy) innovation policies in European sea basins

The BLUEAIR strategic project aims to improve the institutional capacity of the Adrion territories in defining a common S3 policy on Blue Growth/Sustainable Blue Economy. It was initiated by the EU Strategy for the Adriatic-Ionian Region based on its strategic relevance to both EUSAIR and the ADRION Programme.

One of the project main activities is the benchmarking of innovation policies related to the sustainable blue economy and the identification of best practices in innovation cooperation in EU macro-regions/sea basins.

This survey aims to collect information on the coordination framework, tools, processes and capacities for innovation policies related to the sustainable blue economy at the level of sea basins/macro-regions.

The survey is divided into five sections (innovation governance, innovation governance instruments, innovation policy process, capacity for innovation policy implementation, cross-cutting issues).

The survey will take you 45 minutes to complete. Open and closed questions are used in the survey. Closed questions are mandatory. We encourage you to answer the open questions as well - this will contribute a lot to the study. Kindly describe (reference a web page with) any concrete best practice examples that contributed to innovative approaches and solutions.

You can save the draft and continue editing it at any time.

For more information please contact Peter Medica at Technology Park Ljubljana, peter.medica@tp-lj.si, +386 1 6203474.

GDPR compliance statement

Responses to surveys will be treated according to the Privacy Policy of the University of Belgrade - Faculty of Transport and Traffic Engineering.

I have read Privacy Policy

- ○ Yes, confirm and get started with the survey
- ○ No, quit immediately

BLUEAIR is implemented through the financial support of the ADRION programme

/IF ANSWER IS "Yes, confirm and get started with the survey" THEN:/

GENERAL INFORMATION

This survey is addressed to relevant policymakers directly involved in the design and implementation of innovation policy, particularly about a sustainable blue economy at a sea basin/macroregional level. As the target audience of respondents is rather limited, we ask for your permission to publish your name and work position as a survey respondent for your area. If you do not consent, only general data about your organization will be published (name of organization, your role, sea basin).

Name

Position (related to sea basin/ macroregional strategy)

Institution

Country

Consent

- ☐ I consent to the use of my name in the final report.

Project activities info

- ☐ I would like to receive the conclusions of this activity and further information about the BlueAir project

Receiving conclusions of this activity.

- Email:

1. SEA BASIN

The study considers European sea basins with some form of framework for cooperation between the European Union, the Member States and their regions and, where appropriate, third countries sharing a sea basin. Such policy frameworks seek to address common marine and maritime challenges, find joint solutions, and maximise common assets for the entire region. So far, sea-basin strategies have been developed for three sea basins: the Atlantic Ocean, the Baltic Sea and the Adriatic and Ionian Seas, whereas EU macro-regional strategies have been adopted for the latter two sea basins. As cooperation in the Mediterranean, the Black Sea and the North Sea is also progressing in development of some form of sea-basin strategies, these sea basins will also be considered.

Please select the sea basin for which you are answering:

- ○ Adriatic-Ionian Region (EUSAIR)
- ○ Atlantic Ocean
- ○ Baltic Sea (EUSBSR)
- ○ Black Sea (EUSDR)
- ○ North Sea
- ○ West Mediterranean

2. INNOVATION GOVERNANCE

The Innovation Governance section includes organisations involved in the innovation process (organisational framework), the innovation related policies (policy framework), rules and regulations (legal framework), and the linkages between organisations (interorganizational linkages) on the level of your sea-basin/macro-region.

2.1. Organisational Framework

The innovation policy organizational structure refers to the distribution of decision-making responsibilities and the control over resources, among the various organizations engaged in supporting innovation activities. Please assess the range of transnational governmental and non-governmental bodies explicitly responsible for stimulating or regulating the innovation process in general and in blue growth (BG) specifically in your sea basin.

- ○ Level 1: Minimal number of governmental and non-governmental bodies primarily focusing on R&D.
- ○ Level 2: A limited number of governmental and nongovernmental bodies but with a broader scope of responsibilities.
- ○ Level 3: A limited number of bodies facilitating innovation activities, only some of which have an impact.
- ○ Level 4: Several bodies facilitating innovation activities, but with minimal impact.
- ○ Level 5: Numerous bodies facilitating innovation activities, but with uneven impact.
- ○ Level 6: Numerous and coordinated governmental and non-governmental bodies that facilitate a wide range of innovation activities.

Please describe the innovation policy organisational structure in your sea basin:

2.2. Policy Framework

Please evaluate the scope and comprehensiveness of the policy framework for enhancing BG innovation capacity in your sea basin. In assessing this governance dimension, it is important to think about the actual impact and implementation effects of these policies, not just the existence of a formal document.

- ○ Level 1: There is no strategic document adopted at the sea basin level that includes innovation policy.
- ○ Level 2: The innovation policy is part of an adopted strategic policy document at the level of the entire sea basin.

- ○ Level 3: There is a policy area/pillar in the strategy document specifically dedicated to innovation.
- ○ Level 4: In addition to level 3, innovation policy is part of an action plan that follows the strategic document.
- ○ Level 5: In addition to level 4, additional policy documents are developed specifically for innovation to promote innovation capacity in the sea basin.
- ○ Level 6: In addition to level 5, S3 Smart Specialization Strategies is harmonized for the sea basin area.

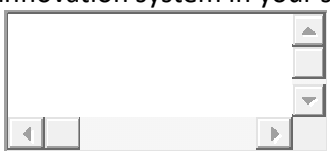
Please list and describe the implementation status of the policy framework documents.

2.3. Legal Framework

At the national level, the legal framework supports the innovation process. At the international level, beyond the EU, the approach is rather different. Are you aware of any efforts to align national legal frameworks to support the transnational innovation system in general and in particular in blue growth in your sea basin/macro-region?

- ○ Level 1: No such efforts exist.
- ○ Level 2: Efforts to adjust national/regional legal frameworks to support international innovation system were initiated.
- ○ Level 3: Some countries cooperate to adjust their legal frameworks to support international innovation system – in progress.
- ○ Level 4: Some countries cooperate to adjust their legal frameworks to support international innovation system – implemented.
- ○ Level 5: All countries of the area are involved in adjusting their legal frameworks – in progress.
- ○ Level 6: All countries of the area are involved in adjusting their legal frameworks – implemented.

Please describe (or refer to a website that describes) best practices in transnational cooperation to adjust the national regulatory frameworks to support the transnational innovation system in your sea basin.



2.4. Inter-organisational links

Effective innovation policy requires well-developed policy capabilities and a vibrant network of public-private interactions; the presence of only one of these is not sufficient.

Please assess the range of consultative blue growth innovation policy bodies, i.e. whether they are transnational (entire sea basin), sectoral or regional. Also, assess whether innovation policy consultative bodies are of an informative (consultative) or dialogue type or are jointly designed.

- ○ Level 1: Very weak cross-pillar or cross-policy area coordination of BG innovation policy issues.
- ○ Level 2: There is cross-pillar or cross-policy area coordination of BG innovation policy issues.
- ○ Level 3: In addition to level 2, public-private collaboration on innovation activities is encouraged, but is not present.
- ○ Level 4: In addition to level 3, public-private collaboration on innovation activities is present.
- ○ Level 5: In addition to level 4, there are public-private cooperation bodies engaged in BG innovation policy issues.
- ○ Level 6: Established and functioning public-private consultative bodies engaged in BG innovation policy activities.

Please describe the inter-pillar/policy area coordination best practices in the field of BG innovation policy activities in your sea basin.

3. INNOVATION GOVERNANCE INSTRUMENTS

This involves a wide spectrum of measures to support lower R&I performing countries, to build up excellence centres, to improve their capacity and facilitate collaborative links across the sea basin area. More specifically this involves fostering synergies with Horizon and/or using the territorial flexibility to facilitate the creation of enlarged networks between local actors and the biggest innovation players in the EU.
Many cooperation projects covering ICT, digitalization, creative industries and entrepreneurship have been supported in the previous programming periods but there is still space for an upgrade that will consider the priorities set by the EC for innovation for the programming period 2021-27 and linking them with the opportunities offered by the Green Deal objectives. There is the need to foster the transition to a circular and green economy and the creation of regional value chains supporting clusters and industrial/research districts. From the point of view of the available EU funds for the 2021-27 programming period, this involves practical solutions to implement Horizon Europe and relevant R&D-related programmes and policies in synergy, for example: InvestEU, Erasmus+, EU Cohesion Policy, Digital Europe, European Structural and Investment Funds, Connecting Europe Facility, and the Recovery and Resilience Facility, to promote faster dissemination at national and regional level, and uptake of research and innovation results in the sea basin.

Some additional notes to respondents:

- The following section evaluates the level of transnational (sea-basin) cooperation on different topics/areas of innovation policy. The highest level of cooperation in transnational sphere are functioning instruments/mechanisms supported by public funding.
- Please note that one or the other initiative or measure can support several different innovation policy areas and can be listed in answering several questions under this section of the questionnaire.
- The following innovation policy areas should serve as a reminder about the scope of the policy tools that potentially could influence innovation activities. It should not be seen as a 'tick box' exercise to indicate the presence or absence of policy instruments. Ideally, the instruments would meet good practice innovation policy criteria.
- Further, please consider that in the provided answers policy framework is regarded in a broader sense: one or the other instrument does not have to be literally mentioned in the strategic policy documents, it is enough that the overarching innovation policy theme is included there.

3.1. Promotion of technology absorption

Absorptive capacity is the ability to absorb new knowledge and adapt imported technologies. Instruments are any means of coordinated transnational support aimed to encourage technology absorption in the sea basin area. How is technology absorption encouraged in the sea basin area through support for transnational exchange in training programmes, promotion of standards introduction to improve transnational interoperability, transnational

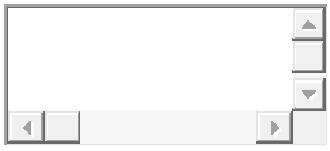
cooperation in provision of technical and business services for enterprises to encourage technology absorption, adoption of specific types of technologies, productivity improvement techniques etc.?

3.1.1. Cooperation in vocational training schemes

This dimension assesses the extent and quality of support for training programmes at the level of a sea basin. Are there such programmes specific to your sea basin/macro-region? Are there specific cooperation/exchanges at the sea basin level in terms of vocational training and student exchange? Are there efforts to promote the use of existing EU programmes at macro-regional/sea-basin level to support vocational training or student exchange?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for cooperation in this thematic area exists but is not yet reflected in the policy framework. Opportunities provided by Erasmus+ or other EU programmes are not frequently used.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework. Opportunities given by Erasmus + or other EU Programmes are frequently used.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional training and student exchange schemes.
- ○ Level 5: Policy framework foresees the use of existing national/ regional/ EU funding programmes (Erasmus, Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to support cooperation and exchange in training and student exchange.
- ○ Level 6: Functioning transnational instruments/ mechanisms for cooperation/ exchange in training and student exchange supported by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments/ mechanisms for cooperation/ exchange in training and student exchange as technology absorption support initiative in your sea basin area.
2) Can you mention specific examples/ any best practices for the blue growth/sustainable blue economy topic?



3.1.2. Cooperation in productivity-enhancing activities

This dimension assesses the extent to which policy promotes transnational cooperation on productivity improvements including quality improvements (quality standards introduction), improvements to managerial practice (productivity improvement techniques) and adoption of certain types of technologies (e.g. digitalisation)?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area
- ○ Level 2: Transnational interest for cooperation in this thematic area is expressed, but is not yet reflected in the policy framework
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional productivity-enhancing activities.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstreaming funds to support cooperation and exchange in productivity-enhancing activities
- ○ Level 6: Functioning transnational instruments/ mechanisms supporting productivity-enhancing activities financed with public funds (EU programmes /national /regional/ESI regional mainstream funds)

1) Please list and describe transnational instruments/ mechanisms supporting productivity-enhancing activities to promote technology absorption in your Sea basin area.
2) Can you mention specific examples for the blue growth/sustainable blue economy sectors?

3.2. Promote innovation and knowledge generation

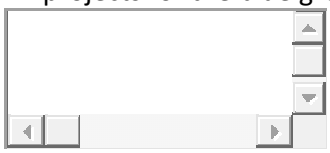
3.2.1. Collaborative R&D projects

R&D collaborative projects between enterprises, industry, universities and research institutions (quadruple helix approach) in order to stimulate knowledge sharing, open innovation strategies, etc. are supported by existing EU level programmes, here we are asking about any initiatives to organise such support on the sea-basin level.

- ○ Level 1: There are plans to include support for collaborative sea-basin level R&D projects in the policy framework.
- ○ Level 2: Support for collaborative R&D sea-basin level projects is foreseen in the policy framework. Working in the quadruple helix is a possibility but is not often pursued.

- ○ Level 3: The use of existing EU level programmes (Horizon, LIFE, Erasmus…) is encouraged to finance sea-basin level collaborative R&D projects.Working in the quadruple helix is often pursued.
- ○ Level 4: In addition to Level 3, national/regional ESI mainstream funds are used to fund collaborative R&D projects at sea basin level.
- ○ Level 5: In addition to Level 4 there are plans for specific transnational instruments/ mechanisms supporting collaborative sea-basin level R&D projects financed by public funds (EU programmes/ national / regional/ ESI regional mainstream funds).
- ○ Level 6: Functioning transnational instruments/ mechanisms supporting collaborative sea-basin level R&D projects financed by public funds.

1) Please list and describe transnational instruments/ mechanisms supporting sea-basin-level collaborative R&D projects in your sea basin.
2) Can you mention specific examples/ any best practices related to the collaborative R&D projects for the blue growth/sustainable blue economy sectors?



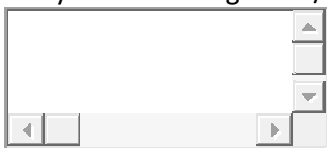
3.2.2. Supporting mobility in the R&D system

Is there any cooperation to support mobility in R&D systems in your sea basin (e.g. R&D-specific employment policies, incentives for hiring R&D personnel, R&D mobility schemes…)?

- ○ Level 1: There is no transnational interest for cooperation in the mobility in the R&D systems.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation has so far been limited to harmonisation and/or exchange of good practices in national/ regional mobility in R&D systems.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to support cooperation and exchange in mobility in the R&D systems.
- ○ Level 6: Functioning transnational instruments/ mechanisms supporting mobility in the R&D systems financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational R&D-specific employment policies/ incentives for hiring R&D personnel/ R&D mobility schemes in your sea basin.

2) Can you mention specific examples/ any best practices related to the mobility in the R&D system in blue growth/sustainable blue economy sectors?

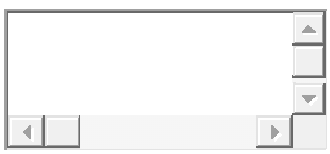


3.2.3. R&D-specific Education Policies

Is there collaboration to support S&T and engineering/postgraduate/postdoctoral education in your sea basin? Are there efforts to encourage the use of existing EU programmes at sea basin level to support S&T and engineering post-docs and post-graduates?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework. The opportunities provided by multilateral agreements and/or EU Programmes (Marie Curie Actions etc.) are not often used.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework. Opportunities given by multilateral agreements and/or other EU Programmes (Marie Curie Actions etc.) are frequently used.
- ○ Level 4: Transnational cooperation has so far been limited to harmonisation and/or exchange of good practices in national/regional R&D specific education policies.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Erasmus, Horizon, Marie Curie, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to support cooperation and exchange in R&D-specific Education Policies.
- ○ Level 6: Functioning transnational instruments/ mechanisms for R&D-specific Education Policies supported by public funds (EU programmes like Marie Curie/national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments supporting cooperation and networking in S&T and engineering education/ post-graduate/ post-doc education in your sea basin.
2) Can you mention specific examples/ any best practices related to instruments supporting the S&T and engineering education and post-graduate and post-doc education for the blue growth/sustainable blue economy sectors?

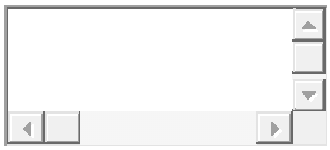


3.2.4. Support for R&D infrastructures

How developed is transnational cooperation regarding support for R&D infrastructures (centres of excellence, competence centres, technology incubators, science parks, accelerators) in your sea-basin. Is there any support foreseen for R&D infrastructure networks or transnational R&D infrastructure? Is support for R&D infrastructure networks or transnational R&D infrastructures foreseen?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional R&D infrastructures.
- ○ Level 5: Policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to support transnational R&D infrastructure and/or networking.
- ○ Level 6: Functioning transnational instruments/ mechanisms supporting transnational R&D infrastructure and/or networking financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments supporting cooperation and networking in R&D infrastructures in your sea basin.
2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?



3.3. Promote transnational innovation linkages

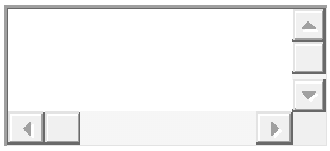
Innovation is a systemic activity, and linkages are essential for increasing the innovative capacity of the economy. In this section, we assess the frequency and intensity of linkages within the transnational innovation system.

3.3.1. Linkages among R&D sectors

Is there transnational cooperation to encourage linkages between R&D sectors, such as industry research networks, harmonization of smart specialization strategies, university-industry links, joint technology platforms, co-creation?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to support linkages among R&D sectors.
- ○ Level 6: Functioning transnational instruments/ mechanisms supporting transnational linkages among R&D sectors financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments supporting linkages among R&D sectors in your sea basin.
2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?



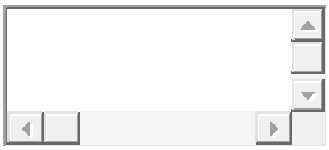
3.3.2. Promotion of clusters and business networks

How extensive is transnational promotion of clusters and business networks in your sea basin? This involves to bring the most promising ideas from research labs to real world application and support the most innovative SMEs, including start-ups, to scale up their ideas. It covers supporting the creation of networks among SMEs and University/ research to foster innovation processes through joint pilot actions.

- ○ Level 1: It is planned to include this thematic area in the policy framework.
- ○ Level 2: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 3: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.

- ○ Level 4: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to support transnational clusters and business networking.
- ○ Level 5: Functioning transnational instruments/ mechanisms supporting transnational clusters and business networking financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).
- ○ Level 6: Functioning sea-basin based clusters and business networks initiated/supported by public funds.

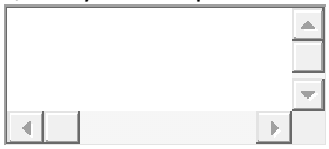
1) Please list and describe transnational instruments supporting transnational clusters and business networks in your sea basin.
2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?



3.3.3. Investment promotion schemes

Does any transnational cooperation exist to encourage investment advancement schemes like promotion of venture and equity investments or matchmaking services…

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to promote transnational investment advancement schemes.
- ○ Level 6: Functioning transnational investment promoting schemes financed by public funds (EU programmes /national /regional/ ESI regional mainstream funds).

1) Please list and describe transnational instruments supporting investment promotion schemes in your sea basin.
2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors? 

3.3.4. Promoting inclusion in value chains

The EU regulations for the 2021-27 programming period focus on "building partnerships among clusters / business networks, innovation poles and other actors to improve their positioning (and that of the companies involved) in existing or new global value chains".

Do any instruments to promote inclusion in international supply chains exist in your sea basin, e.g. match-making services or support to meet the requirements of global value chains?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to promote inclusion in value chains.
- ○ Level 6: Functioning transnational instruments/ mechanisms promoting inclusion in value chains financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments promoting inclusion in value chains in your sea basin.
2) Can you mention specific examples/ any best practices related to the sustainable blue economy sectors?

3.4. Promote technology diffusion

Diffusion is crucial to reap the economic benefits of investment in R&D and to increase absorptive capacity. This section assesses the frequency and significance of instruments to support technology adoption and diffusion.

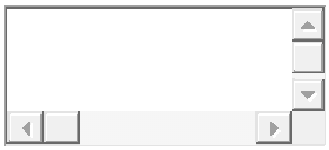
3.4.1. Enhancing data and standards interoperability

Is there any transnational cooperation in the field of data interoperability and harmonisation of standards in your sea basin?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.

- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to promote data and standards interoperability.
- ○ Level 6: Functioning transnational instruments/ mechanisms promoting data and standards interoperability financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments promoting data and standards interoperability in your sea basin.
2) 2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?

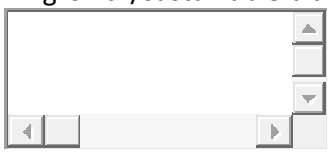


3.4.2. Promoting restructuring towards greener economy and climate neutrality

Are there efforts to support transnational instruments to promote technology diffusion towards greener economy and climate neutrality?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to promote greener economy and climate neutrality.
- ○ Level 6: Functioning transnational instruments/ mechanisms to promote greener economy and climate neutrality financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments promoting greener economy and climate neutrality in your sea basin.
2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?

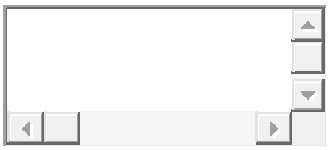


3.4.3. Schemes for technology and innovation diffusion in enterprises

Are there any efforts for cooperation at sea-basin-level to promote transnational technology and innovation diffusion in enterprises?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to promote technology and innovation diffusion.
- ○ Level 6: Functioning transnational instruments/ mechanisms promoting technology and innovation diffusion financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments promoting technology and innovation diffusion in your sea basin.
2) 2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?



3.5. Stimulating demand for R&D and innovation

Demand for R&D and innovation is an essential mechanism that initiates the wealth generation process in R&D, absorption and diffusion activities. Demand for R&D and

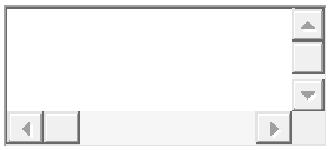
innovation differs from market demand for existing products and services; it refers to demand for future products and services whose usefulness, price and performance may be uncertain.

3.5.1. Public procurement for innovation

Does any cooperation exist at sea-basin-level to promote public procurement for innovation?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to promote public procurement for innovation.
- ○ Level 6: Functioning transnational instruments/ mechanisms promoting public procurement for innovation financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments promoting public procurement for innovation in your sea basin.
2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?



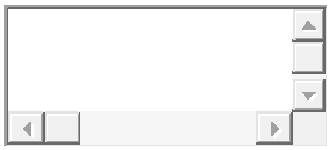
3.5.2. Competition for innovative technology (Innovation prizes)

Are there any international competitions for innovative technology supported in your sea-basin?

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.

- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: The policy framework foresees the use of existing national/ regional/ EU funding programmes (Horizon, Interreg, ENI-CBC…) or/and the use of ESI regional mainstream funds to support international competitions for innovative technology.
- ○ Level 6: Functioning transnational instruments/ mechanisms supporting international competitions for innovative technology financed by public funds (EU programmes /national /regional/ESI regional mainstream funds).

1) Please list and describe transnational instruments supporting international competitions for innovative technology in your sea basin.
2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?

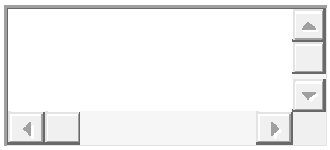


3.5.3. Stimulating demand for new technologies

Is there any interest to cooperate transnationally in the field of tax incentives for investments in new technology, high research and development costs, investments in green technologies, digitalisation…

- ○ Level 1: There is no transnational interest for cooperation in this thematic area.
- ○ Level 2: Transnational interest for the cooperation in this thematic area is expressed, but it is not yet reflected in the policy framework.
- ○ Level 3: Transnational cooperation in this thematic area is agreed and adopted in the policy framework.
- ○ Level 4: Transnational cooperation is so far limited to harmonisation and/or exchange of good practices in national/ regional policies in this thematic area.
- ○ Level 5: As a result of transnational cooperation some countries have introduced (new) incentives for investments in new technology.
- ○ Level 6: As a result of transnational cooperation most countries have operating incentives for investments in new technology.

1) Please list some examples of how transnational cooperation led to introduction of incentives for investments in new technology in your sea basin.
2) Can you mention specific examples/ any best practices related to the blue growth/sustainable blue economy sectors?



3.6. Policy mix coherence and complexity

The simple accumulation of unrelated policy instruments does not constitute an appropriate innovation policy; it needs to include a portfolio of mutually complementary and reinforcing instruments. Individual instruments might have contradictory or non-synergistic effects. To ensure appropriate innovation policy requires an assessment of policy coherence, that is, evaluation of the portfolio of policy instruments assessed individually in sections 3.1-3.5. The policy mix refers to the combination of policy instruments that interact with each other and which influence innovation, as opposed to the policy instruments considered in isolation.

3.6. Policy mix coherence and complexity

While assessing this aspect, please consider the following questions: Do the instruments operate as a portfolio of related and complementary tools that apply to different stages in the innovation value chain (idea generation, idea development/conversion and idea dissemination)? Are some policy measures contradictory? Do instruments require close public-private collaboration? Is the implementation of the instruments demanding in terms of transnational coordination and management?

- ○ Level 1: Policy mix has emerged as an outcome of unrelated initiatives with different objectives.
- ○ Level 2: Policy mix is a portfolio of emerging instruments that primarily capture R&D parts of the innovation value chain.
- ○ Level 3: Policy mix is a portfolio of emerging instruments balanced across the stages of the innovation value chain.
- ○ Level 4: Policy mix represents a coherent set of emerging policy measures which covers all stages of innovation value chain, but the measures are limited to transnational cooperation and exchange of good practices.
- ○ Level 5: Policy mix represents a coherent set of emerging policy measures which covers all stages of innovation value chain, but the measures are limited to channelling of existing national/ regional/ EU funding programmes towards transnational activities.
- ○ Level 6: Policy mix represents a coherent set of policy measures which are appropriate to the innovation capacity of the economy. Measures cover all stages of innovation value chain. They are complementary and with appropriate administrative and collaborative arrangements.

4. INNOVATION POLICY PROCESS

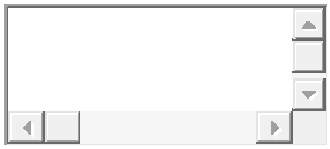
Capacity for the innovation policy process refers to the innovation policy agenda setting, decision making about innovation programmes and policies, innovation policy process planning and implementation. The objective, in case of strong cooperation, is to generate tangible impact ”on the territory”, by efforts of all types of actors gathered through the multi-level governance (MLG).

4.1. Agenda setting

How is the innovation policy agenda set? Have specific coordination mechanisms been established at the sea basin level? Are the priorities of the agendas decided at EU level harmonized at sea basin level?

- ○ Level 1: Innovation Policy (IP) does not exist as standalone transnational policy.
- ○ Level 2: Agenda setting is narrowly focused on commercialization of R&D results from R&D system. It is defined only by governmental bodies.
- ○ Level 3: IP exists as a standalone transnational policy. It is focused but is defined by governmental bodies in consultation with the R&D sector.
- ○ Level 4: IP exists as a standalone transnational policy. It is broadly defined and is derived in consultation with a broader range of stakeholders including the business community and NGOs. Priorities are derived through a broader consultation process.
- ○ Level 5: IP exists as a standalone transnational policy. It is broadly defined. Priorities are defined with active involvement of the business community. Foresight is used as a tool in assisting decision making on priorities.
- ○ Level 6: IP is among top transnational priorities as evidenced by a continuous stream of policy efforts. The policy agenda is shaped by a broad range of stakeholders. IP is broadly defined. Priorities are derived in a combined and transparent manner.

Can you mention specific transnational examples/ best practices related to decision making about innovation programmes and policies in general and for the blue growth/sustainable blue economy sectors specifically?



4.2. Decision making

How is decision-making about innovation programmes and policies coordinated? To what extent is there policy coordination and consultation among actors within the sea basin?

- ○ Level 1: Policy measures are designed in an ad hoc manner.
- ○ Level 2: Policy measures are introduced based on policy documents.
- ○ Level 3: Policy measures are designed through a limited consultation process confined on governmental bodies.
- ○ Level 4: Policy measures are designed through a broader consultation process at transnational level.
- ○ Level 5: Policy measures are designed through a broader consultation process at transnational level. Rules and conditions for implementation of measures are publicly available and transparent. Selection decisions are based on evaluations by external and independent peer reviewers.
- ○ Level 6: Policy measures are designed through a broader consultation process at transnational level. Policy impact assessment procedures are employed in the selection of measures. Rules and conditions for implementation of measures are publicly available and transparent. Selection decisions are based on evaluations by external and independent peer reviewers. Policy measures have clear rules and procedures in the case of complaints and conflicts of interest. Public support funds are given based on performance requirements.

Can you mention specific transnational examples/ best practices related to decision making about innovation programmes and policies in general and for the blue growth/sustainable blue economy sectors specifically?

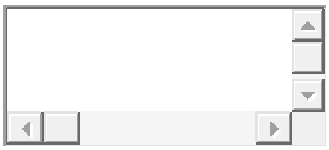
4.3. Policy implementation

How is the innovation policy process planned and implemented?

- ○ Level 1: Implementation of policy measures suffers from frequent corrections and unforeseen circumstances.
- ○ Level 2: Implementation of policy measures is not planned, changes are frequent but explained.
- ○ Level 3: Implementation of policy measures is planned, changes are transparent and explained.
- ○ Level 4: Implementation of policy measures is planned, not always harmonized at transnational level, changes are transparent and explained.

- ○ Level 5: Implementation of policy measures is well planned and coordinated at transnational level. Planed allocations are usually fulfilled. Subsequent adaptations are introduced based on evaluations but without consideration of their impact.
- ○ Level 6: Implementation of policy measures is well planned and coordinated at transnational level. Planned allocations are usually fulfilled. Subsequent adaptations are introduced based on evaluations and analysis based on an assessment of their effectiveness and impact.

Can you mention specific transnational examples/ best practices related to common innovation policy planning and implementation in general and for the blue growth/sustainable blue economy sectors specifically?



5. CAPACITY FOR INNOVATION POLICY IMPLEMENTATION

Capacity for innovation policy implementation refers to administrative conditions, policy strategy setting, implementation capacity, and monitoring and evaluation capacity.

5.1. Administrative conditions

How would you describe the existing administrative conditions for innovation policy of the sea basin?

- ○ Level 1: Thematic areas of cooperation and innovation policy as one of them are yet to be established.
- ○ Level 2: Innovation policy exists as one of the thematic areas of cooperation. No outer performance is visible.
- ○ Level 3: Innovation policy exists as one of the thematic areas of cooperation. The implementing bodies are defined. There are no implementation formats agreed.
- ○ Level 4: Innovation policy exists as one of the thematic areas of cooperation. The implementing bodies are defined and operational. Implementation formats are agreed. The Strategy implementers shift attention to producing results and outcomes and for that seek high-leverage formats, synergies and alignment of policy and thematic action in every format they choose.
- ○ Level 5: In addition to level 4 embedding the strategy in ESIF (mainstream programmes) becomes an imperative. Financial dialogues are established at every level to ensure alignment of funding for implementing the policy.

- ○ Level 6: In addition to level 5 the ESIF potential of aligning is fully explored – not only thematically/ strategically but also operationally/ tactically.

5.2. Strategy setting capacity

How would you describe the innovation policy strategy setting capabilities in your sea basin? Was there any coordination prior to or in parallel to planning of EU programmes for the new programming period 2021-27?

- ○ Level 1: There is still a need to improve analytical capacities of innovation policy implementing bodies.
- ○ Level 2: There is a lack of analytical capacities for innovation policy in implementing bodies, but these capacities are ad hoc involved from external parties.
- ○ Level 3: There is a lack of analytical capacities for innovation policy in implementing bodies, they are outsourced regularly from external organizations. Strategic policies reflect a variety of different interests in an unsystematic manner. Changes in strategic policies are frequent.
- ○ Level 4: Some analytical capacities for innovation policy at sea basin level exist within implementing bodies, and some are regularly outsourced from external organizations. Strategic policies are derived through an organized consultation process involving a variety of stakeholders. Changes in strategic policies are infrequent.
- ○ Level 5: There is transnational coordination. There is sufficient dedicated staff within implementing bodies involved in formulating and implementing innovation policy. Strategic policies are derived through an organized consultation process involving a variety of stakeholders. Changes in strategic policies are infrequent.
- ○ Level 6: There is solid transnational (TN) coordination. Analytical capacities for innovation policy exist within implementing bodies and are appropriately organized. They are regularly used in producing background analysis and in the design of innovation policy. Strategic policies are not determined by partial interests of either scientific or business community. Changes in strategic policies on TN level are infrequent.

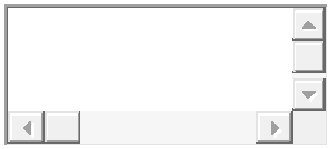
Can you mention specific transnational examples/ best practices related to innovation policy strategy setting in general and for the blue growth/sustainable blue economy sectors specifically?

5.3. Policy coordination capacity

How would you describe the innovation policy coordination capabilities in your sea basin? Is there any coordination in parallel with the implementation of innovation policy (e.g. coordination of managing authorities - MA, responsible for funding instruments, other measures)?

- ○ Level 1: There are no implementing bodies at transnational level to implement the innovation policy.
- ○ Level 2: Transnational policy implementing bodies are defined. Innovation policy measures are implemented by public organizations with some experience but with limited staff resources (staff is not dedicated specifically for the implementation of TN policies – this is just one of the tasks they perform within their organisation).
- ○ Level 3: Transnational policy implementing bodies are defined. All innovation policy measures are implemented by dedicated staff in public organizations.
- ○ Level 4: Innovation policy measures are implemented by TN implementing bodies with satisfactory administrative capacities.
- ○ Level 5: Innovation policy measures are implemented by TN implementing bodies which operate with appropriate professional standards with satisfactory administrative capacities.
- ○ Level 6: All innovation policy measures are implemented by TN implementing bodies which operate with high professional standards, efficiency and results.

Can you mention specific transnational examples/ best practices related to innovation policy coordination capabilities in general and for the blue growth/sustainable blue economy sectors specifically?



5.4. Implementation Capacities

5.4.1. Technical capacities

How would you describe the technical capabilities for innovation in your sea basin?

- ○ Level 1: TN policy implementing bodies do not exist yet.
- ○ Level 2: TN policy implementing bodies with some technical capabilities exist to implement innovation policy instruments.
- ○ Level 3: There are some technical capabilities within TN implementing bodies to implement innovation policy. Some policy measures have been designed or/ and implemented by external organizations.
- ○ Level 4: There are some technical capabilities within TN implementing bodies to implement innovation policy. Often policy measures have been designed or/ and implemented by external organizations.
- ○ Level 5: Technical capabilities required to implement innovation policy exist within TN implementing bodies. Often policy measures have been designed or/ and implemented by external organizations.
- ○ Level 6: There are sufficient technical capabilities required to implement innovation policy by transnational implementing bodies.

5.4.2. Operational capacities

How would you describe the operational capabilities for innovation in your sea basin?

- ○ Level 1: TN policy implementing bodies do not exist yet.
- ○ Level 2: TN policy implementing bodies exist. They are public organizations at national/ regional level with no experience and minimal staffing.
- ○ Level 3: TN policy implementing bodies exist They are public organizations on national/ regional level with some experience but with limited staff resources. Capacity building is organized on TN level.
- ○ Level 4: TN policy implementing bodies exist specifically for innovation policy. They have satisfactory administrative capacities on national and transnational levels.
- ○ Level 5: Innovation policy measures are implemented by TN policy implementing bodies which operate with appropriate professional standards.
- ○ Level 6: There are sufficient operational capabilities required to implement innovation policy by TN policy implementing bodies.

5.4.3. Political capacities

How would you describe the political capabilities for innovation in your sea basin?

- ○ Level 1: There is no political interest and support for TN policy coordination at the sea-basin-level.
- ○ Level 2: There is political commitment for TN policy coordination, but has not yet resulted in a dedicated TN policy framework.
- ○ Level 3: Political interest and support has resulted in adopted strategic policy agreements including the thematic area of innovation, however the political support for implementation is lagging behind.
- ○ Level 4: Innovation policy is part of adopted policy framework, however, political support for implementation is fluctuating – depending on the current national and subnational political situation.
- ○ Level 5: Innovation policy is part of adopted policy framework with strong political support for implementation.
- ○ Level 6: In addition to level 5 there is a strong sense of ownership for the adopted TN policies and their implementation. National coordination units play an active role in aggregating the information about thematic policy alignment across the sea basin and bring it to attention of national politicians and political-level civil servants.

5.4.4. Monitoring and evaluation capacities

How would you describe the innovation policy monitoring and evaluation (M&E) capacities of the sea basin? Is there any M&E mechanism put in place at sea basin level?

- ○ Level 1: M&E activities do not exist as formalized activity.
- ○ Level 2: M&E activities do not exist as formalized activity. Exceptionally and funded by foreign sources, there are evaluation studies that are used in innovation policy.
- ○ Level 3: M&E activities do not exist as formalized activity. However, external evaluations are often used.
- ○ Level 4: M&E activities are the responsibility of TN implementing bodies, but without staff dedicated to this activity. External evaluations are regularly used.
- ○ Level 5: There is dedicated M&E unit within implementing bodies with capacities to be engaged partially or fully in M&E of innovation policies and instruments.
- ○ Level 6: There is dedicated M&E unit within implementing bodies with capacities to be engaged partially or fully in M&E of innovation policies and instruments. Results of M&E are taken into consideration in future planning and implementation.

Can you provide specific transnational examples/best practices related to monitoring and evaluation of innovation policies in general and for the blue growth/sustainable blue economy sectors specifically?

6. CROSS-CUTTING THEMES

6.1. COVID 19 recovery

This question is related to the recovery after the COVID crisis. How would you describe the support for recovery, green and digital transition, and tackling global challenges in your sea basin?

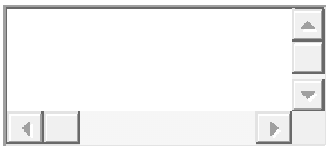
- **How would you describe the support to recovery, green and digital transitions, and tackling global challenges in your sea basin?**
- **Can you mention specific transnational examples/ best practices related to support to recovery, green and digital transition for the blue growth/sustainable blue economy sectors?**
- **Can you mention specific transnational examples/ best practices on post-Covid recovery for the blue growth/sustainable blue economy sectors.**

6.2. Digitalisation

Digitalisation is a cross-cutting issue and is considered important by authorities and stakeholders in the cross-border area. Digital connectivity and usage are a particularly important factor for socio-economic development. It is based on the availability of high-capacity broadband internet connections. In addition, digitalization has been shown to increase productivity and serve as a basis for new high-tech services.

ICT is a fundamental factor in digitisation, both as an enabling technology and as a field in its own right. Across Europe, ICT is a horizontal enabler of growth in other sectors, and in many regions, it is an important sector in its own right.

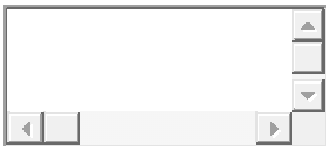
- **How is advancement of digitalisation embedded in the transnational policy in your sea basin?**
- **Can you mention specific transnational examples/ best practices related to digitalisation in your sea basin related to blue growth/sustainable blue economy sectors.**



6.3. Internationalisation of SMEs

More and more companies today are becoming "born global", and a large number of companies are taking on global competition at an early stage. In many cases, geography no longer plays a role in the marketplace as business is conducted on the Internet. However, there is a need to further support SMEs to foster their interest in and capacity for international innovative collaboration. All businesses need to look at markets and competition from an international perspective and all policy needs to start from this starting point.

- **How is internationalisation embedded in the transnational policy in your sea basin?**
- **Can you provide specific transnational examples/best practices related to internationalisation in your sea basin that relate to blue growth/sustainable blue economy sectors?**



7. SUSTAINABLE BLUE ECONOMY SECTORS

7.1. What are the 5 most represented sectors of the blue economy in your sea basin (based on overall economy)?

- ☐ Marine living resources
- ☐ Marine non-living resources
- ☐ Marine renewable energy (Offshore wind)
- ☐ Port activities
- ☐ Shipbuilding and repair
- ☐ Maritime transport
- ☐ Coastal tourism
- ☐ Ocean energy
- ☐ The blue economy & biotechnology
- ☐ Desalination
- ☐ Marine minerals
- ☐ Maritime defence, security and surveillance
- ☐ Research and education
- ☐ Infrastructure (submarine cables, robotics)

7.2. Which are the 3 that bring the most socio-economic impact?

- ☐ Marine living resources
- ☐ Marine non-living resources
- ☐ Marine renewable energy (Offshore wind)
- ☐ Port activities
- ☐ Shipbuilding and repair
- ☐ Maritime transport
- ☐ Coastal tourism
- ☐ Ocean energy
- ☐ The blue economy & biotechnology
- ☐ Desalination
- ☐ Marine minerals
- ☐ Maritime defence, security and surveillance
- ☐ Research and education
- ☐ Infrastructure (submarine cables, robotics)

Why?

7.3. Which 5 emerging sectors of the blue economy have the greatest potential for development in the next 10 years?

- ☐ Marine living resources
- ☐ Marine non-living resources
- ☐ Marine renewable energy (Offshore wind)
- ☐ Port activities
- ☐ Shipbuilding and repair
- ☐ Maritime transport
- ☐ Coastal tourism
- ☐ Ocean energy
- ☐ The blue economy & biotechnology
- ☐ Desalination
- ☐ Marine minerals
- ☐ Maritime defence, security and surveillance
- ☐ Research and education
- ☐ Infrastructure (submarine cables, robotics)

Why?

7.4. What is the plan for funding the most promising sector(s) of the blue economy? What EU funds and/or other public funds and private funds will be used?

BLUEAIR is implemented through the financial support
of the ADRION programme

Annexe 2 - Methodological Notes

The benchmarking tool consists of two modules: one for collecting data - self-assessment (SA) module, and the other for performing benchmarking analysis (BA) module.

The SA module is built upon a tailored made questionnaire (Annex 1), which is set online and used to collect data. The embedded scoring component simultaneously performs background calculations - scores at the level of an indicator, dimension and pillar (Figure A2.1). At the level of overall Innovation Policy Uptake linguistic appraisal is included. It indicates the level of innovation policy (using labels: 'Strong innovator', 'Moderate innovator' and 'Emerging innovator'). If there is up to 50% fulfilment of the theoretical maximum (level 6) performance within the dimension, the development status is "Emerging innovator", while for fulfilment between 50% and 75% the development status is "Moderate innovator", and if the fulfilment is higher than 75%, then the development status is "Strong innovator".

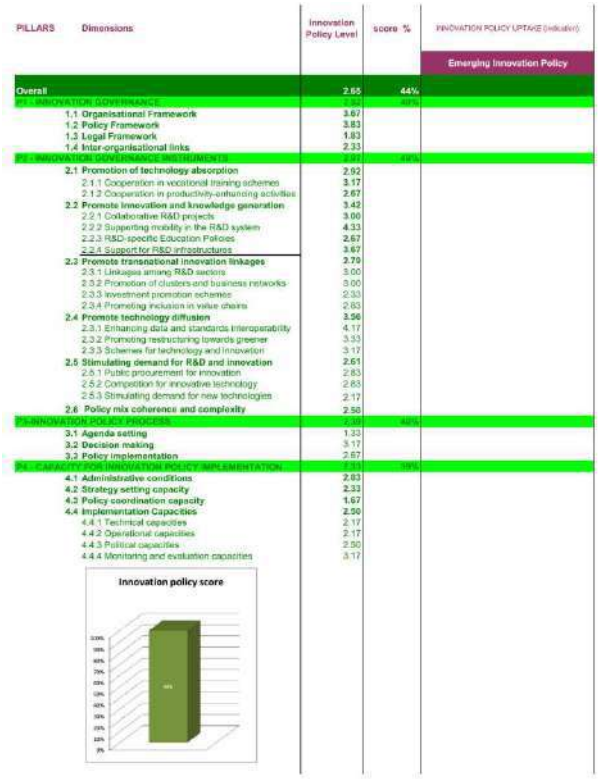


Figure A2.1 *Screenshot of SA module (example for All basins)*

An excel export is used to analyse SA data at the Basin level. After verification for all Sea basins, the BA component allows operating with data to benchmark performance. The obtained scores by four innovation pillars are connected along the axis to form a radar chart. The performance scores are plotted simultaneously for selected basins and colour-coded for visual interpretation. At the same time, the comparison with the theoretical benchmark (level 6) is displayed along all axes.

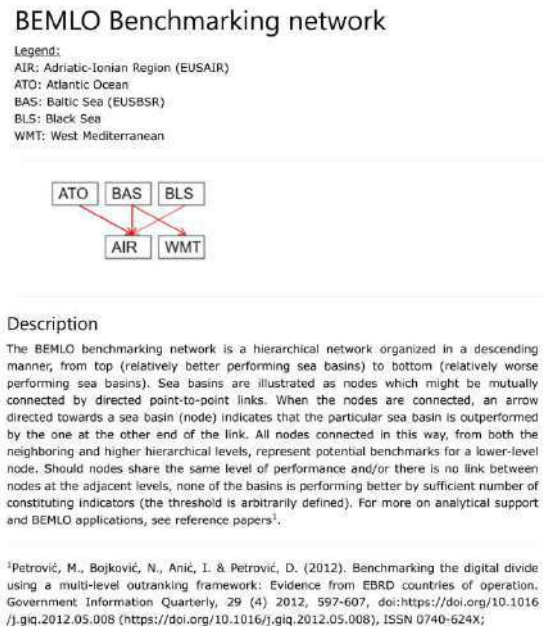
In the next step, the BA component will explain where performance gaps are rooted and indicate avenues of improvement. The BA module will enable the innovation pillars to be

unfolded for a detailed analysis of underlying dimensions and associated indicators. Bar graphs will be used to effectively communicate which innovation policy segments are doing better than the rest, which are critical, and what are the opportunities for improvement. (as presented in the Results section of the Report). In parallel with disaggregation and profiling, the performance by indicators, complementary quantitative and qualitative data will be provided. These include activities and strategies at macro-regional and at the levels of belonging countries, and other statistical and survey data sources

BA module includes an Add-in labelled BEMLO Benchmarking network. In order to locate innovation policy capacity of Sea basins relative to each other outperforming relations among all basins are plotted. It is based on specific benchmarking procedure labelled BEMLO (further explained in Petrovic et al. 2012, 2014, 2018)[126]. With this add-in, the pairwise comparisons between Sea basins can be performed along all indicators and provide an additional insight into performance differences. Instead of simple ranking by index values a specific outranking procedure will allow to organize basins into hierarchical levels according to their overall innovation policy performance or by specific pillars and dimensions. Arrows on the graph symbolically represent the interrelations, i.e. indicate the better performing basins. The obtained relations form a specific benchmarking network allow benchmarking partners to track their own achievements in relation to better performing ones and to monitor future progress toward the top of the hierarchy (best performance benchmark).

The description is provided with each ploted network (Figure A2.2)

[126] Petrović, M., Bojković, N., Anić, I., & Petrović, D. (2012). Benchmarking the digital divide using a multi-level outranking framework: Evidence from EBRD countries of operation. *Government Information Quarterly*, *29*(4), 597-607; Petrović, M., Bojković, N., Anić, I., Stamenković, M., & Tarle, S. P. (2014). An ELECTRE-based decision aid tool for stepwise benchmarking: An application over EU Digital Agenda targets. *Decision Support Systems*, *59*, 230-241; Petrović, M., Bojković, N., Stamenković, M., & Anić, I. (2018). Supporting performance appraisal in ELECTRE based stepwise benchmarking model. *Omega*, *78*, 237-251.



BEMLO Benchmarking network

Legend:
AIR: Adriatic-Ionian Region (EUSAIR)
ATO: Atlantic Ocean
BAS: Baltic Sea (EUSBSR)
BLS: Black Sea
WMT: West Mediterranean

Description

The BEMLO benchmarking network is a hierarchical network organized in a descending manner, from top (relatively better performing sea basins) to bottom (relatively worse performing sea basins). Sea basins are illustrated as nodes which might be mutually connected by directed point-to-point links. When the nodes are connected, an arrow directed towards a sea basin (node) indicates that the particular sea basin is outperformed by the one at the other end of the link. All nodes connected in this way, from both the neighboring and higher hierarchical levels, represent potential benchmarks for a lower-level node. Should nodes share the same level of performance and/or there is no link between nodes at the adjacent levels, none of the basins is performing better by sufficient number of constituting indicators (the threshold is arbitrarily defined). For more on analytical support and BEMLO applications, see reference papers[1].

[1]Petrović, M., Bojković, N., Anić, I. & Petrović, D. (2012). Benchmarking the digital divide using a multi-level outranking framework: Evidence from EBRD countries of operation. Government Information Quarterly, 29 (4) 2012, 597-607, doi:https://doi.org/10.1016/j.giq.2012.05.008 (https://doi.org/10.1016/j.giq.2012.05.008), ISSN 0740-624X;

Figure A2.2 *An example of BEMLO Add-in output*

Annexe 3 - Technical Notes

BlueAir Benchmarking Tool - Technical Notes

BlueAir Benchmarking Tool (BM tool) is an online web service that is consisted of LimeSurvey based questionnaire, BM Tool database, BM tool frontend and BEMLO web engine & frontend. All BM tool components are hosted by University of Belgrade – Faculty of Transport and Traffic Engineering Computer Centre (FTTE CC). All FTTE CC servers are stored in physically secured area and all hosted services are protected with network firewall system, as well.

The BM tool data flow scheme is shown in Figure A3.1.

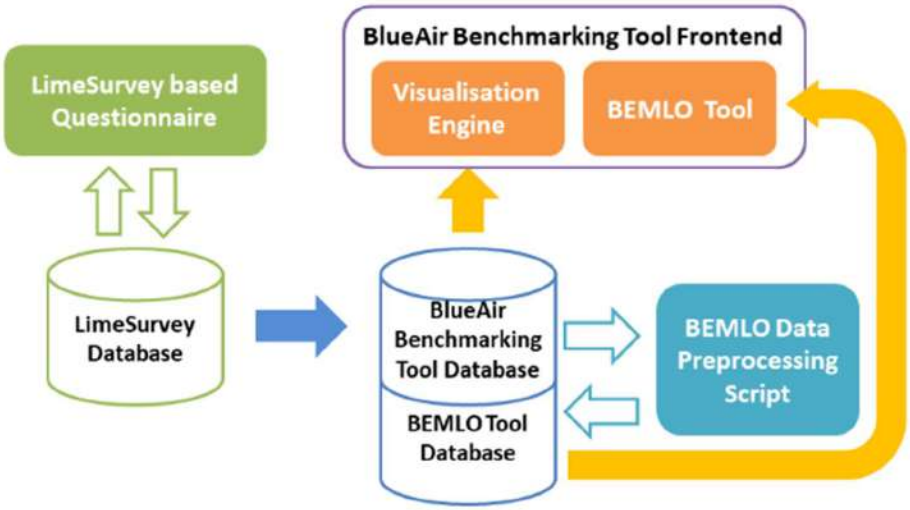


Figure A3.1 *The BM tool data flow scheme*

1. Data Flow process

LimeSurvey based Questionnaire is implemented with the aim to collect responses from members of sea basin-/macro-regional strategy innovation policy implementing bodies and their external experts. The Questionnaire is designed in the LimeSurvey (LS), a free open source online survey application written in PHP and distributed under the *GNU General Public License 2*[127]. The LS software enables users to create and publish online surveys, collect responses, create statistics, and export the results to other applications[128]. All collected data is stored in MySQL-based environment.

[127] https://www.gnu.org/licenses/

[128] https://manual.limesurvey.org/Quick_start_guide_-_LimeSurvey_3.0%2B#Introduction_-_What_is_LimeSurvey.3F.2Fen

In order to be used and presented by BM Tool Frontend, all collected data is placed under quality control check and migrated afterwards to the BM tool Database. Further, it is processed by Visualisation Engine in the purpose of chart generation. Visualisation PHP Engine loads data (in accordance to sea basins selection) and generates graphs using Chart.js API. The same data is used by BEMLO Tool, as well. However, the loaded data must be pre-processed by the script first and stored to separate database part, called BEMLO Tool database (Fig. 1). Using their tables, BEMLO tool reads sea basins' choice, loads corresponding data and activates MCDM processing module (originally developed by UB). Then, the MCDM processing module generates output data, which is visualized by Javascript –based processing module.

2. Programming Technology

BM Tool database, BM tool frontend, BEMLO web engine & frontend, and BEMLO Data preprocessing script are fully developed using several programming languages: HTML[129] with CSS[130], PHP[131] and JavaScript[132]. All databases were developed in MySQL (using compatibility with MariaDB). BM Visualisation Engine is developed using Chart.js, a JavaScript library for creating animated, interactive graphs for inclusion on web pages[133]. BEMLO tool and BEMLO Data pre-processing script are developed using PHP, Javascript and MySQL scripting.

3. Hosting info

All BlueAir Benchmarking Tool components are hosted on *Linux* based server platforms with installed Apache web server, PHP 7.4 and MariaDB[134] database platform.

[129] HTML is the standard markup language for Web pages.
[130] CSS is a style sheet language used for describing the presentation of a document written in a markup language such as HTML (cited "CSS developer guide". Mozilla Developer Network)
[131] PHP is a server scripting language and a powerful tool for making dynamic and interactive Web pages. (cited https://www.codecademy.com/catalog/language/php)
[132] JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. It is complementary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.
(cited https://www.tutorialspoint.com/javascript/index.htm)
[133] https://stackoverflow.com/questions/tagged/chart.js?tab=Newest
[134] https://mariadb.org/

Annexe 4 - User Manual

BLUEAIR Benchmarking Tool User Manual

This manual provides the assistance on how to use the benchmarking tool devised and set online within BlueAir Interreg Adrion project.

1. The Homepage

The homepage of the BlueAir benchmarking tool provides links to relevant resources and explanations.

The first link is positioned at the BlueAir Homepage at the underlined phrase "*Benchmarking metrics*" (Figure 1, gray rectangle). The Benchmarking metrics are structured around four innovation policy pillars subdivided into constituent dimensions which are composed of several qualitative indicators (apprised by relevant experts using six levels of performance in a form of a ladder of development, during June and July 2021).

In order to find out more about Self-Assessment approach and Innovation Policy Index adapted from Prof. Slavo Radosevic, please click on the underlined link "*Benchmarking Innovation Policy in Catching up and Emerging Economies*" (Fig. 1, blue rectangle). If you are involved in innovation policymaking at a level of a sea basin or macro-region, you are invited to complete the questionnaire (Fig. 1, purple rectangle). To find out more about performance of each basin, please click at desired basin name with corresponding link (Fig. 1, green rectangle). To proceed with benchmarking, please click on the underlined phrase "*select sea basins (benchmarking partners)"* (Fig. 1, orange rectangle) and make use of many ways in which to get the benchmarking related information.

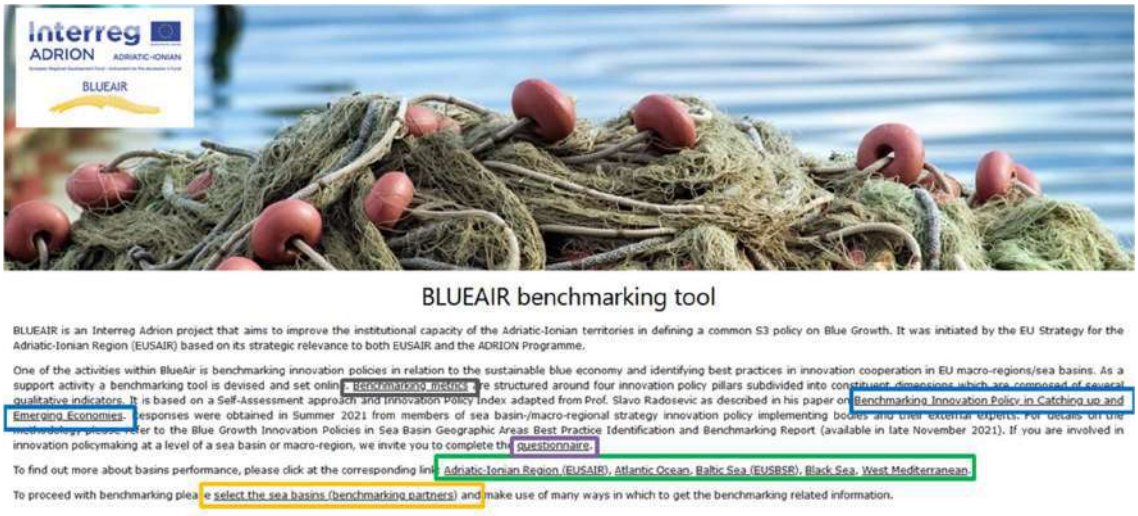


Figure 1 *The Homepage*

2. Performance overview section

As mentioned above, a performance overview page of the desired basin will be opened by clicking at its name (Fig.A4.1, green rectangle).

In this manual, the example of the Atlantic Ocean Performance Overview will be shown, as follows.

The top of the page shows the Innovation Policy Uptake (Fig. A4.2 - left), followed by Performances by Innovation policy pillars spider graph (Fig. A4.3).

To get detailed description about Pillars (Fig. 2 - right), please click on the orange button (Fig. A4.2 - left) "*Please click here for Pillar descriptions*". Then, Pillar descriptions will be opened in pop-up window, as shown in example (Fig. A4.2 – right)

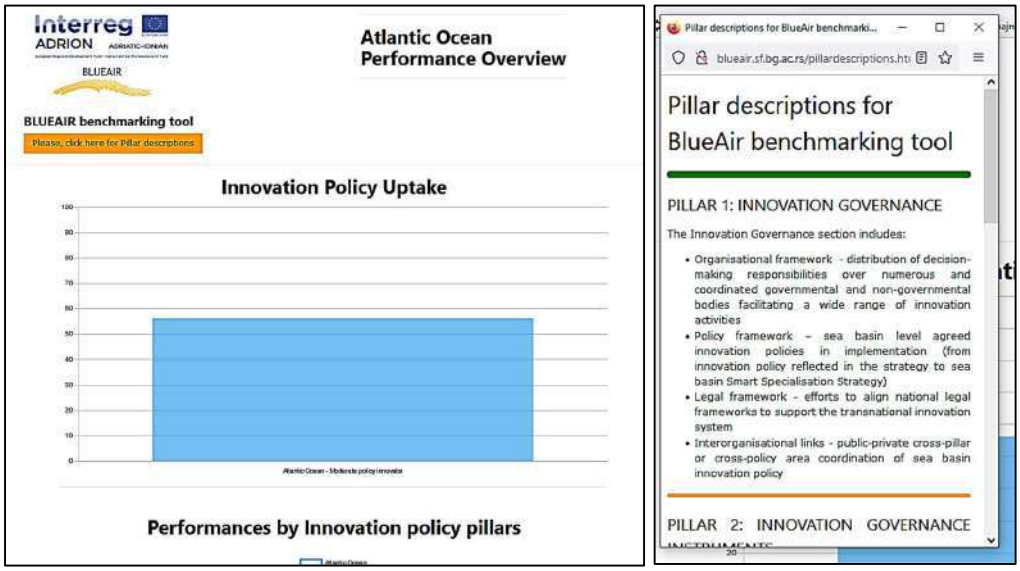


Figure A4.2 *Performance Overview - Innovation Policy Uptake (left) and Pillar descriptions (right)*

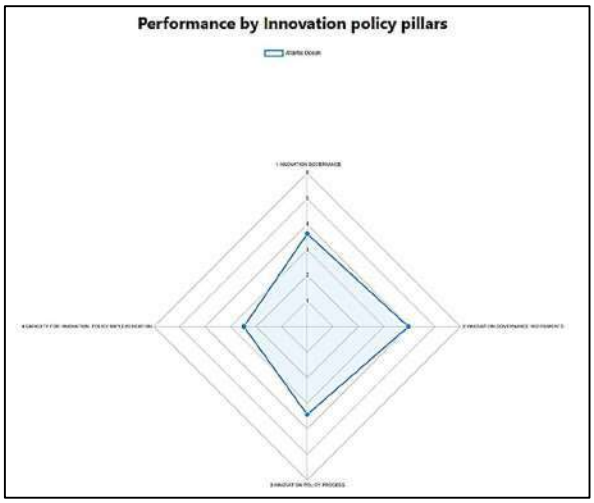
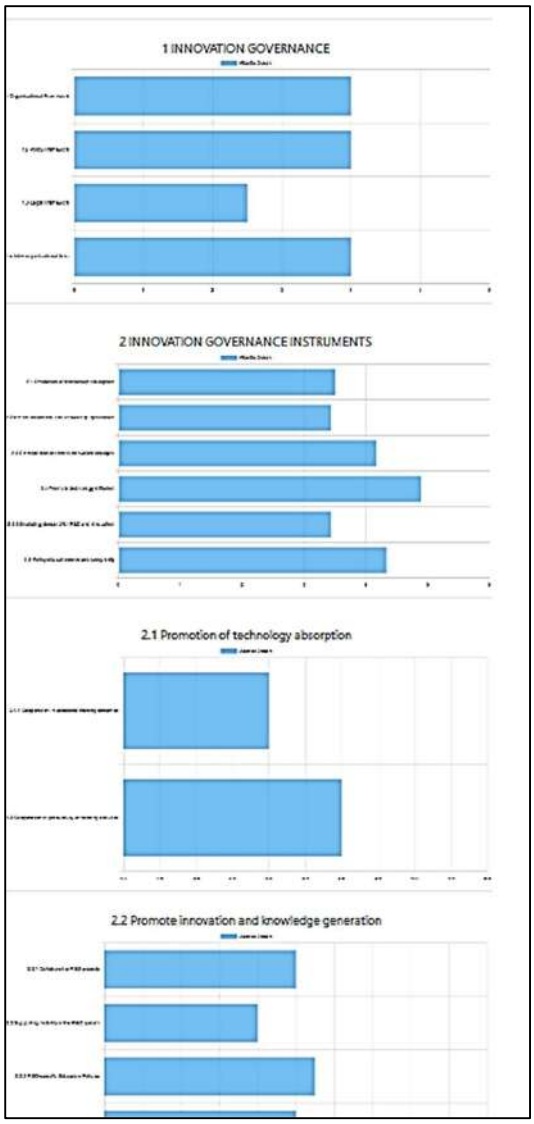
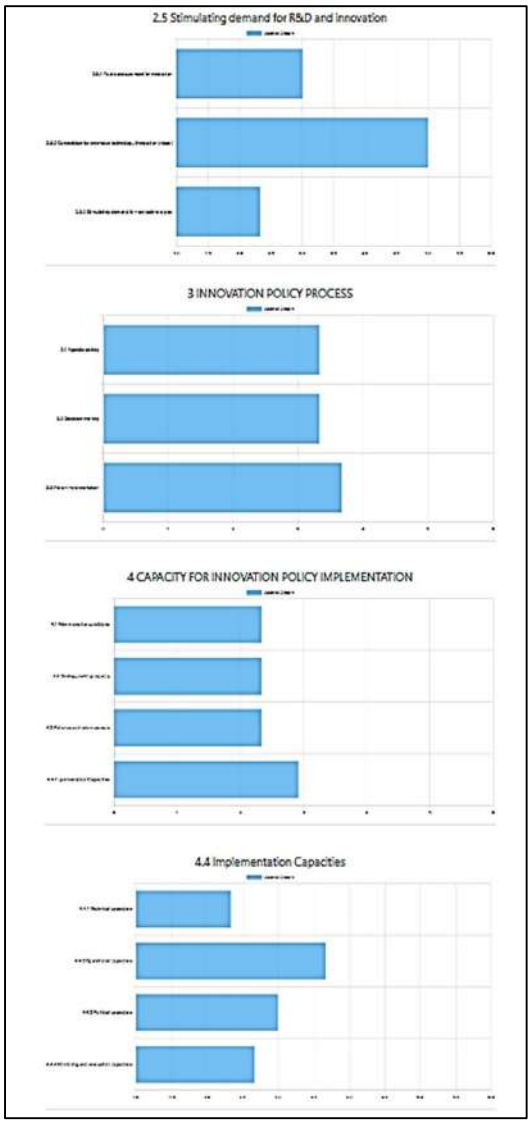


Figure A4.3 *Performance Overview - Performance by Innovation policy pillars*

Below the spider graph, all pillars and their constituent dimensions with related qualitative indicators are presented (Fig. A4.4). Note: placing pointer on Pillar name will result with its description Callout popping up (Fig A4.5).



Performance overview part – top



Performance overview part - bottom

Figure A4*.4 Performance Overview - Pillars and their constituent dimensions with related qualitative indicators*

Figure A4.5 *Callout with Pillar description pops up when pointer hovers above Pillar name (the example of the Pillar 2)*

3. Benchmarking tool section

The Benchmarking tool page will be opened by clicking at the underlined phrase "*select the sea basins* (*benchmarking partners*)" (Fig. A4.1, orange rectangle) at the Homepage. In the opened window, the first step is to check-up desired basins in order to compare their performances. Note: a basin with no data will be disabled and the comment "(*currently no data available*)" will be added at the end of its name (Fig A4.6). To get detailed description about presented Pillars (Fig. A4.2 - right), please click on the orange button (Fig. A4.2 - left) "*Please click here for Pillar descriptions*". Then, Pillar descriptions will be opened in pop-up window, as shown in example (Fig. A4.2 – right).

***Figure** A4.**6**. Benchmarking tool page – Sea basins selection and Innovation Policy Uptake*

Selection of Sea basins will invoke corresponding graphs: Innovation Policy Uptake, followed by Performances by Innovation policy pillars and Pillars and their constituent dimensions, as well. Each graph positioned below Innovation Policy Uptake could be further customized in terms of switching certain sea basin on and off. This could be done by click on the corresponding sea basin name at the graph legend (Fig A4.7). Also, placing pointer on Pillar name will result with its description Callout popping up (Fig A4.5).

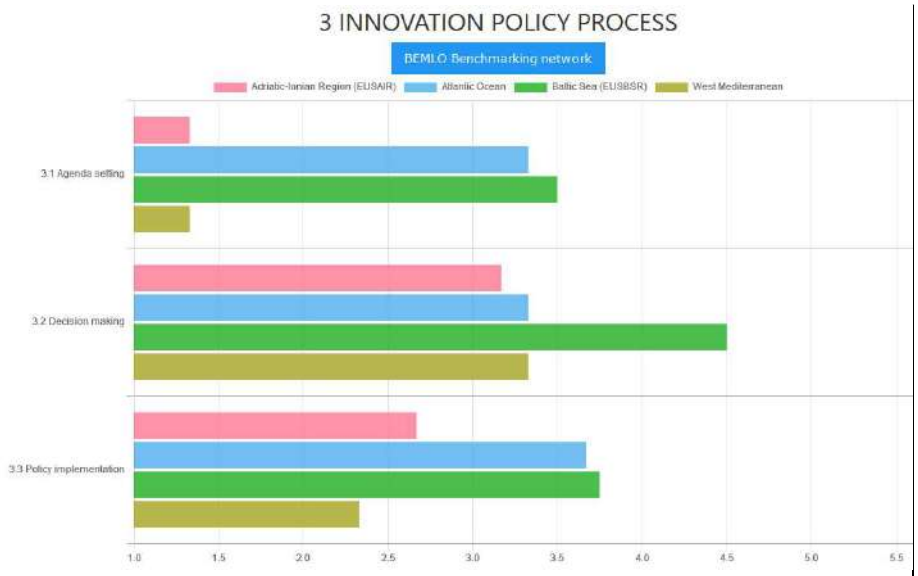
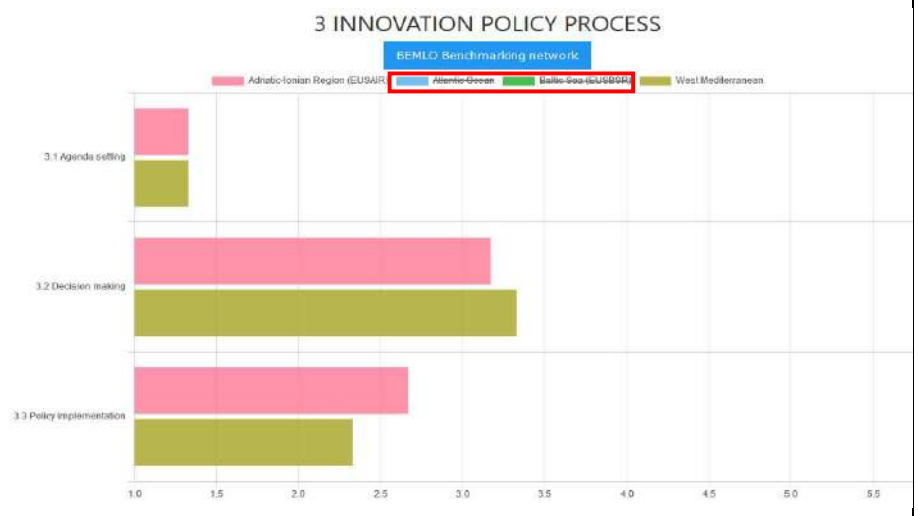
(a) All basins switched on	
(b) Two basins switched off (marked with red rectangle)	

***Figure** A4.**7**. The example of graph customization by switching certain sea basins on (a) and off (b)*

The Benchmarking tool base page does not include graphs of qualitative indicators related to certain dimensions of Pillar 2 and Pillar 4. However, they could be shown by click on *Details* buttons, placed below corresponding pillar names (Fig A4.8.)

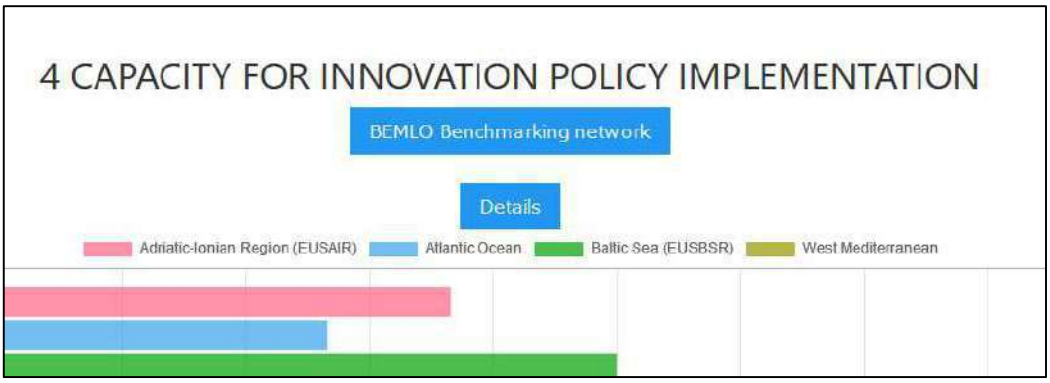


***Figure** A4.**8**. The position of Details button below the Pillar 4 name*

This detail could be turned off by click on the *Close Details* button placed below corresponding qualitative indicators' graphs.

In order to find out the results of BEMLO Benchmarking network, please click on one of the presented buttons. All buttons are placed below corresponding Pillar name (Fig. A4.9). The first BEMLO Benchmarking network button is related with the Innovation Policy Uptake, while other BEMLO Benchmarking network buttons are related with corresponding Pillars.

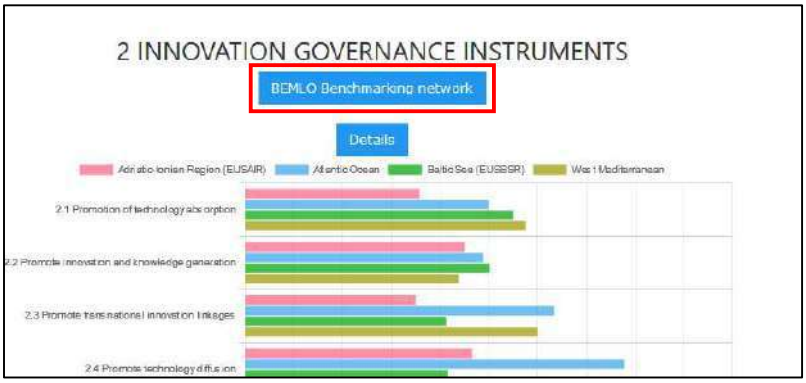


***Figure** A4.**9**. The BEMLO Benchmarking network button (the example of the Pillar 2)*

After clicking on the abovementioned button, a popup window with corresponding BEMLO Benchmarking network and its theoretical description will be displayed (Fig. A4.10). Note: BEMLO Benchmarking network will be calculated for those Sea basins, which were checked up at the main Benchmarking tool page, only.

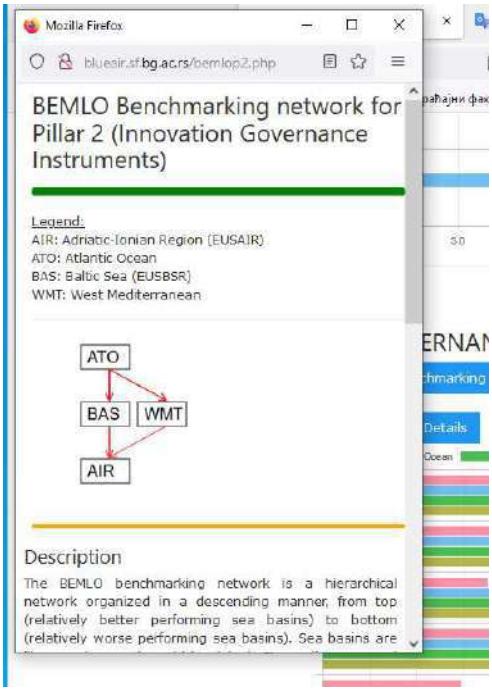


***Figure** A4.**10**. The BEMLO Benchmarking network popup window (the example of the Pillar 2)*