

Blue smart economy- A current approach towards growth

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Abstract

Smart growth means improving the performance in education, research and innovation and in digital society, using information and communication technologies. This paper attempts to critically analyse blue smart growth, as the long term strategy to support sustainable growth, both in marine and maritime related sectors, in order to define its contribution to achieve the goals of the Europe 2020 strategy for smart, sustainable and inclusive growth. There is little doubt that in order to face current economic crisis, Europe needs the contribution of all sectors of its economy. In this context, the marine and maritime sectors – the 'blue economy' – have an important role to play in the overall road to Europe's economic recovery and could make a major contribution to the objectives of the Europe 2020 strategy for smart, sustainable and inclusive growth. The initiative focuses on:

- identifying a number of weaknesses to tackle barriers to innovation: under-investment in knowledge, poor access to finance, the high cost of intellectual property rights, slow progress towards interoperable standards, ineffective use of public procurement and duplications in research.
- tackling gaps in knowledge and data about the state of our oceans, seabed resources, marine life and risks to habitats and ecosystems;
- supporting the implementation of maritime spatial planning and knowledge-based support to management and decision-making towards the sustainable growth of the EU Mediterranean maritime economy in response to the societal and environmental challenges;

Keywords: blue growth, smart growth, sustainability.

The conceptual framework of blue growth

Driven by a growing global population and the need for new sources of growth, the ocean is becoming more and more an economic frontier, a dynamic three-dimensional environment where resources are rich and varied and shift from depths to surface or migrate over long distances (Patil et al., 2016). On the other hand, within the current economic and financial crisis, issues like global warming and climate change, expected to continue unabated and radical changes in production and consumption, poverty and mobility, along with international migration, increasing scarcity of natural resources and vulnerability of the planet, as well as new geopolitics of energy, urbanisation and concentration in coastal regions and current demographic change, in general and in

coastal areas in particular, within the current globalisation and competitiveness developments.

Within this framework, blue growth is the long term strategy to support sustainable growth in the marine and maritime sectors as a whole, recognizing seas and oceans as drivers for the European economy with great potential for innovation and growth. Maritime economy consists of all the economic activities related to the oceans, seas and coasts. This includes the closest direct and indirect supporting activities necessary for the functioning of these economic sectors, which can be located anywhere, including in landlocked countries. With the simultaneous growth of (a) the ocean economy and (b) the current rate of change to the ocean's ecological systems, the concept emerging worldwide over the last decade for a green economy and green growth has become a more widely used lens for viewing the risks and opportunities in the ocean, namely blue growth (UNEP 2011; Bowen and Hepburn 2014; Smulders et al. 2014).

In the blue economy, ecological systems such as fish stocks, coral reefs, beaches, and mangrove forests are recognized as underlying and sometimes invisible assets which help support the more visible produced capital, machinery and structures, and intangible capital, skills and expertise (Patil et al., 2016).

Blue economy conceptual framework aims to illustrate the inputs received by the ocean economy from the underlying natural capital (as a factor of production, providing a nonmarket flow to the ocean economy (OECD 2016)), and at the same time the outputs from that economy that affect the levels of this natural capital and the flows of benefits that they can sustainably provide. If properly managed, many of these natural capital assets are renewable and capable of yielding a sustained flow of benefits (OECD 2016).

More specifically, blue economy concept considers the ecological systems that provide so many of the services linked to the ocean economy as underlying and sometimes invisible natural capital assets, which help support the more visible produced capital (machinery and structures) and intangible capital, e.g. skills and expertise (World Bank 2012).

Blue economy concept recognizes that some activities in the ocean economy depend on the status of the underlying ecological systems, while all have the potential to degrade them, and thereby put jobs and economic growth in this segment of the global economy at risk. Increasingly, policy frameworks and industries are emerging that can simultaneously enhance or expand the natural and produced capital of the ocean economy, that is, grow the blue economy. Essentially, the blue economy concept aims to provide a lens by which to measure, identify, and encourage these types of opportunities, for a net benefit to the aggregate ocean economy and environment, consistent with principles of social equity and with a priority on poverty reduction. Of course, like many of the concepts and techniques used in the ocean space, the blue economy concept is borrowed from work on land—the green economy, where important differences such as clearer ownership of resources have implications for management of human activities (OECD 2016).

Innovation across all sectors of the blue economy is therefore crucial to realise the growth and jobs potential and can also bring environmental benefits, towards a blue economy within various sectors of the ocean economy that may be instructive, for example:

- Sustainable fishing practices can in some instances be rewarded with an eco-label that brings a price premium;
- Shellfish aquaculture can both enhance coastal water quality and produce valuable seafood that supports employment and contributes to GDP;
- Offshore wind and other marine renewable energy technologies could generate new jobs and significant additional energy according to some estimates; and
- Green infrastructure along the coast can both create jobs and protect coastal development.

Essentially, this provides a framework for considering if the economic returns from the transition to a blue economy justify the initial investment costs in a given context, in comparison to business-as-usual to grow the ocean economy.

1. Blue growth in European Union

The above mentioned long-term challenges are recognised broadly by the European Union: the Europe 2020 strategy opts for smart, sustainable and inclusive growth as a response. However, the economic and financial crises have eroded our response capacity and our financial means. Hence, there is now a need to approach the Europe 2020 goals from unconventional, integrated and innovative perspectives (European Commission, 2012).



Fig. 1. Europe 2020 Blue growth
 Source : Siemers, 2008

Within this framework, the ‘Blue Growth’ initiative aims to elaborate the maritime dimension of the Europe 2020 strategy (European Commission, 2012). Blue Growth is hence defined as "smart, sustainable and inclusive economic and employment growth from the oceans, seas and coasts". In order to take advantage of their future potential,

maritime economic activities need to be combined – smart combinations taking advantage of synergies and building critical mass. Above all, maritime economic activities need to be sustainable – an integrated approach with a long-term focus and responding to the world’s resource, climate and environmental challenges. On the other hand, maritime economic activities need to be inclusive-providing employment opportunities and promoting full participation-especially from local and coastal populations.

The main aim of the Blue Growth project is to provide policy-makers with a comprehensive, robust and consistent analysis of possible future policy options to support such smart, sustainable and inclusive growth from the oceans, seas and coasts, in order to: provide insight into the state of the art within maritime sectors; present knowledge of innovation and technological developments that influence these sectors; create an understanding of key external drivers that influence their potential; identify key economic areas for the future sustainable growth of oceans, seas and coasts; and; assess the impacts of policy interventions that may contribute to reaping the existing potential.

Note: t=time, t+x indicates

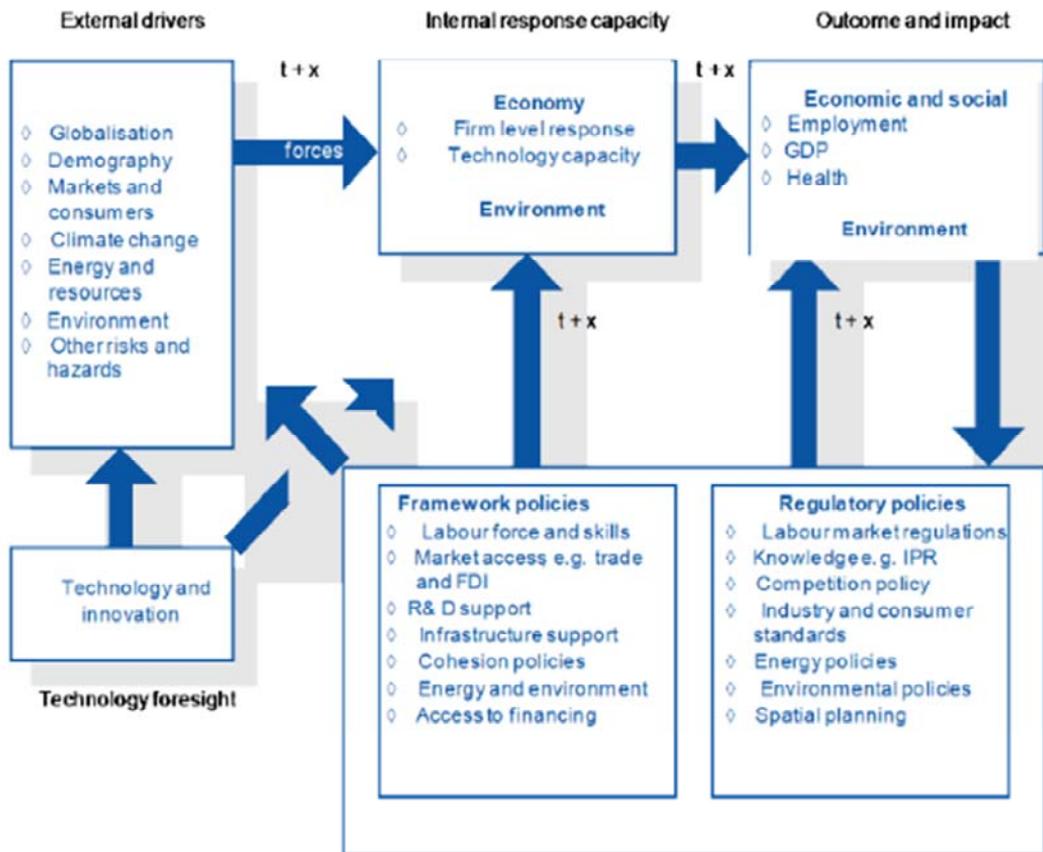
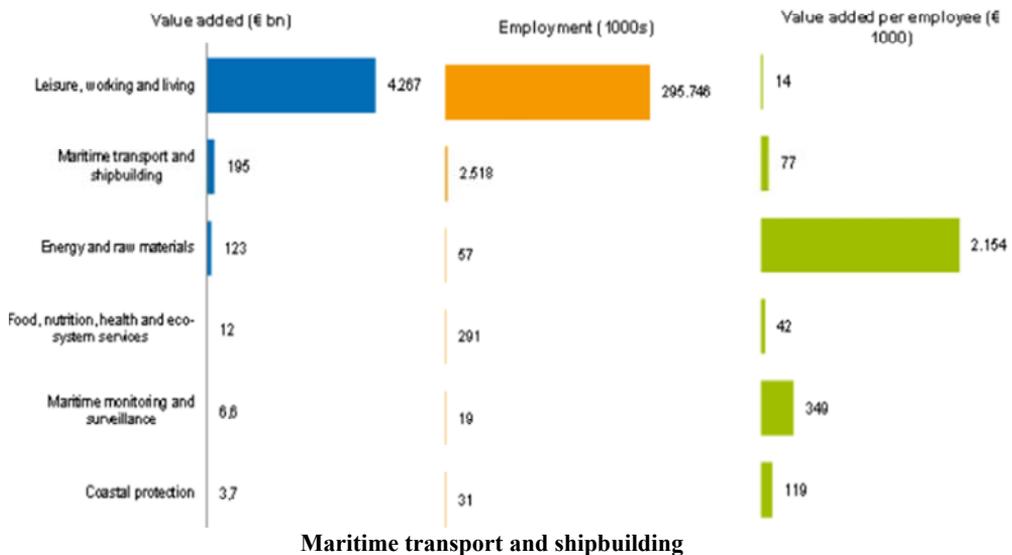
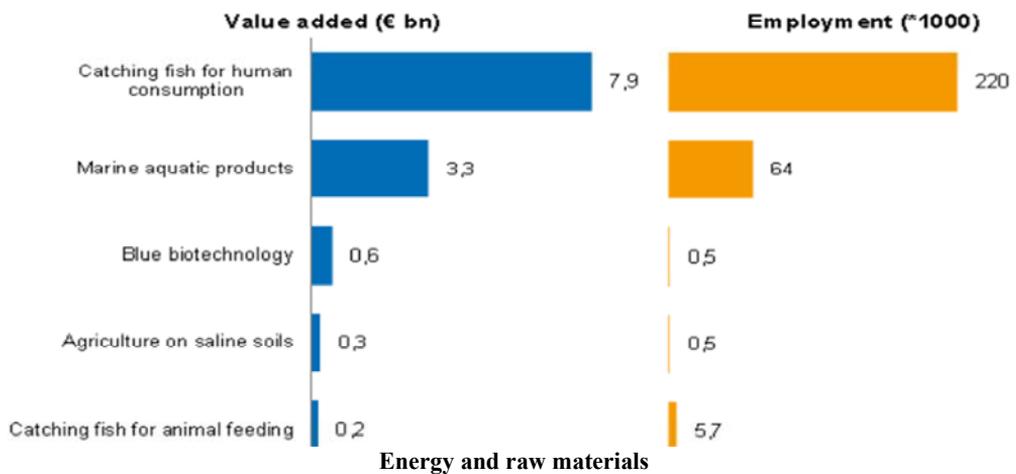
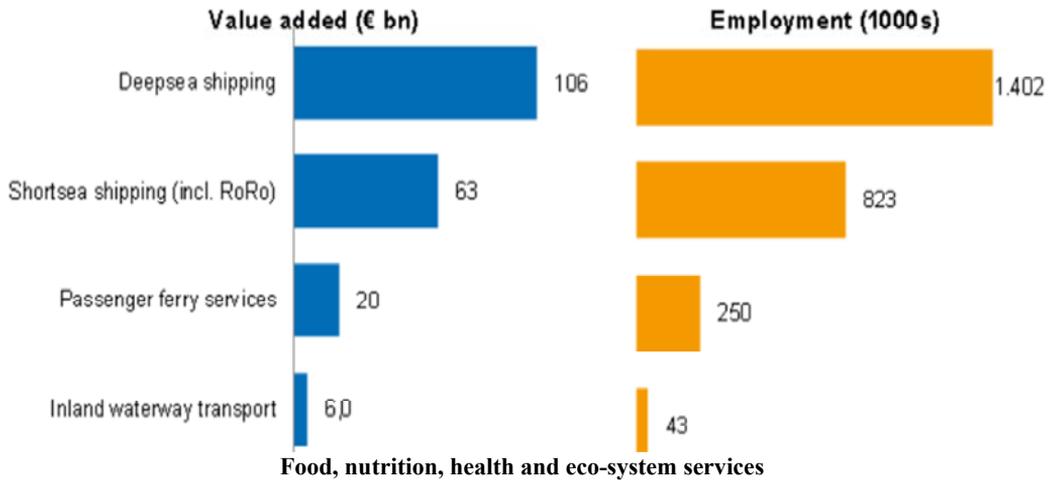


Fig.2: Blue growth analytical framework
Source: European Commission, 2012

In 2011 the Commission adopted a Communication on Blue Growth showing how Europe's coasts, seas and oceans have the potential to be a major source of new jobs and growth that can contribute to the Europe 2020 strategy and improve the way we harvest the planet's resources. The Communication singled out particular emerging industries for special attention. It outlined its approach to realising the potential of ocean energy in January 2014 and subsequently launched the Ocean Energy Forum to identify bottlenecks to growth and suggest ways to unblock them. Innovation across all sectors of the blue economy is crucial for realizing its growth and jobs potential. Innovation can also bring about significant environmental benefits. In order to develop the potential of the blue economy in Europe, Member States need to put in place policies and local solutions that effectively address these barriers. The Commission will therefore examine how action at EU level can tackle the following issues that are specific to the blue economy (European Commission, 2014):

- gaps in knowledge and data about the state of our oceans, seabed resources, marine life and risks to habitats and ecosystems;
- diffuse research efforts in marine and maritime science that hinders inter-disciplinary learning and slows the progress of technological breakthroughs in key technologies and innovative business sectors;
- lack of scientists, engineers and skilled workers able to apply new technologies in the marine environment.





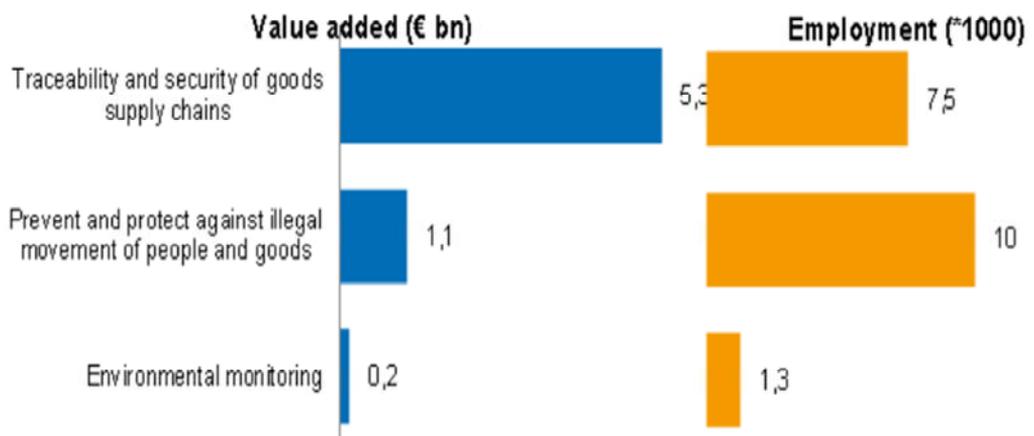
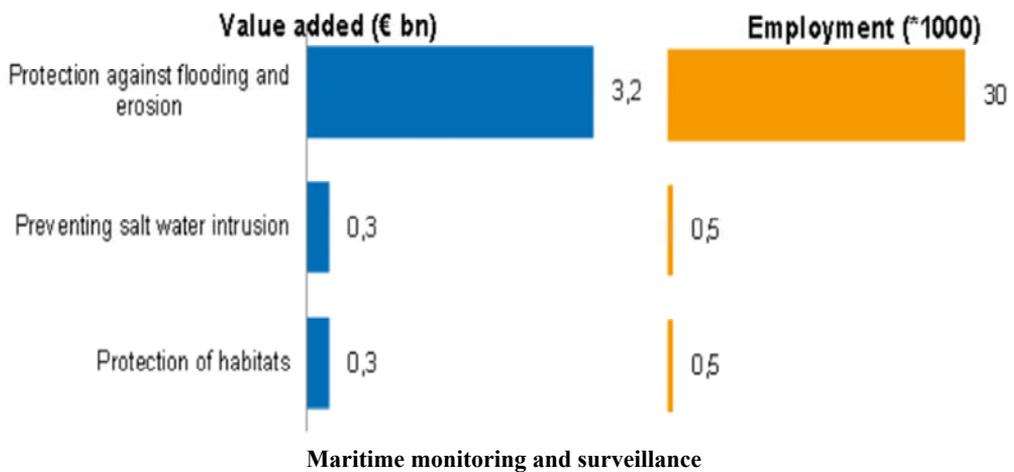
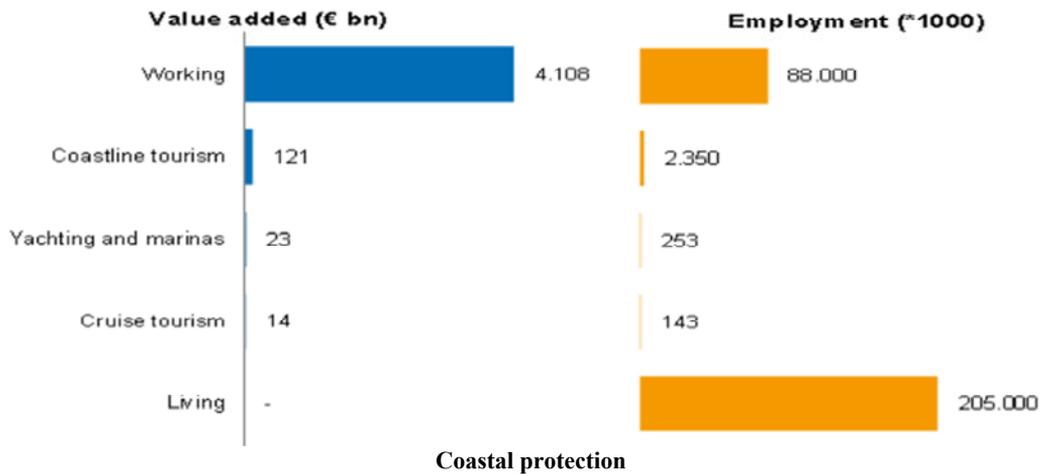


Fig.3. Current size of maritime economic activities in the EU
 Source: European Commission, 2017

The maritime economy is important in Europe, since blue economy is already vast with over 5 million people employed in blue sectors such as coastal and maritime tourism, shipbuilding and fisheries, and it could grow further and employ 7 million by 2020 (UNEP 2011; OECD 2011; Jouvet and de Perthuis 2013).

The European Commission strategy towards the “EU's Blue Growth Strategy” aims at creating sustainable economic growth and employment in the marine and maritime economy to help Europe's economic recovery (European Council, 2017). The Council also recognises that developing the maritime economy requires financial support and encourages Member States to support innovation, growth and employment in Europe's maritime activities through the European Structural and Investments Funds in the context of the Multiannual Financial Framework 2014-2020, showing that delivering the potential of the Blue Economy in terms of growth, jobs and competitiveness is a European commitment. Blue growth is a long term political strategy and the support for its first steps is very encouraging.

Under Horizon 2020, research will focus on how new technologies can put marine resources to productive use and create sustainable growth and jobs, while at the same ensuring that these resources can be enjoyed by future generations. The cross-cutting approach is being continued through a blue growth "focus area" in Horizon 2020 with a €145 million budget for 2014-2015, of which €8 million is earmarked for SMEs. There are further opportunities for marine research all across the Horizon 2020 programme – in areas such as food security, energy, transport, materials, and information technology and research infrastructure. To ensure complementarity between the strategic research and innovation agenda of Member States and Horizon 2020, the Commission will work closely with the Joint Programming Initiative ‘Healthy and Productive Seas and Oceans’ which has been set up to allow Member States to align their national marine research programmes. This will also improve the knowledge and evidence base for environment policy, a priority objective of the 7th Environment Action Programme (European Commission, 2014). The private sector also has an important role in helping the Commission to formulate research needs under Horizon 2020 through existing sector-specific initiatives such as LeaderShip 2020, the Waterborne Platform, the Aquaculture Platform and the European Sustainable Shipping Forum. In order to examine further cross-fertilisation of ideas and research results between industrial sectors, NGOs and other stakeholders with a common interest in the blue economy. In order to make new research opportunities widely accessible and increase synergies between nationally funded research activities and Horizon 2020, the Commission will build on and complement existing information systems to establish an information platform on marine research across the whole Horizon 2020 programme and work with Member States to include information on nationally funded marine research projects (European Commission, 2014).

3. Concluding remarks - Policy implications

There is little doubt that in order to face current economic crisis, Europe needs the contribution of all sectors of its economy. In this context, the marine and maritime sectors – the 'blue economy' – have an important role to play in the overall road to Europe's

economic recovery and could make a major contribution to the objectives of the Europe 2020 strategy for smart, sustainable and inclusive growth. Common policy recommendations for this type of growth focus on better efficiency, new technologies, new markets, and the boosting of investor confidence. The initiative focuses on:

- identifying a number of weaknesses to tackle barriers to innovation: under-investment in knowledge, poor access to finance, the high cost of intellectual property rights, slow progress towards interoperable standards, ineffective use of public procurement and duplications in research.
- tackling gaps in knowledge and data about the state of our oceans, seabed resources, marine life and risks to habitats and ecosystems;
- supporting the implementation of maritime spatial planning and knowledge-based support to management and decision-making towards the sustainable growth of the EU Mediterranean maritime economy in response to the societal and environmental challenges;
- tackling research efforts in marine and maritime science that hinders inter-disciplinary learning and slows the progress of technological breakthroughs in key technologies and innovative business sectors;
- promoting innovative multi-disciplinary research that will generate the knowledge needed to increase ecosystems resilience; provide new tools to mitigate the impacts from global climate change and the multiple environmental stressors in the Mediterranean Sea, and to protect and/or restore vulnerable marine ecosystems;
- developing new marine based technologies to boost safe and sustainable economic growth of the European maritime sectors, the conservation and valorisation of marine cultural heritage;
- creating an interoperable, fully integrated observing and forecasting capability. This will be based on open data structures⁴ and also foster easy access to them;
- promoting EU citizens' awareness and literacy on the importance of a sustainable prosperous Mediterranean Sea for the surrounding countries and for Europe as a whole

Within this framework, the most important conditions for the sustainable development of emerging maritime activities are: research, development and innovation and access to finance. Innovation can help develop the blue economy in a way that not only fuels EU growth and job creation but also maintains public support for the commercial use of marine resources while ensuring the protection of the marine environment, being rather important to take concrete steps to develop understanding of the seas and advance technology so that we can develop their economic potential in a sustainable manner (European Commission, 2014). Under this assumption, policy recommendations include:

- Plan and work with key public and private players and decision makers to define Mediterranean Sea relevant research and innovation actions that will tackle local social and economic challenges and boost the creation of new jobs;
- Create awareness amongst EU citizens of the importance of a sustainable prosperous Mediterranean for the surrounding countries and for Europe as a whole;
- Consider education, training and public engagement as fundamental activities to improve and develop new skills, to spread the ocean literacy and to develop education and training schemes oriented towards Blue Growth careers including exchanges of

researchers, technicians and the further development of skills to support sea based activities;

- Continue using the building block approach towards progressively opening the participation to other countries (including non-EU Member states).

Such synergies and complementarities between sectors and countries will provide added value to regional, national and EU investment, avoid duplication and reduce fragmentation. This initiative aims to advance a shared vision for a healthier, more productive, and resilient, better known and valued Mediterranean Sea. This will be achieved through creating new knowledge, technologies and services, as well as fostering human capacity and infrastructures capacity building, related to the Mediterranean marine and maritime sectors.

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