

The Evolution of the Blue Economy Concept within the European Union: **Turning Blue into Green** Guided by Susana López Solé

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‘Save the ocean, feed the world:
restoring the ocean could feed one billion people a healthy food every day’.

- *OCEANA Inc., Washington D.C. (USA)*

Research projects require guidance, skills, knowledge, and support.

This research project has been possible thanks to the guidance provided by my tutor Susana López Solé, the solid skills acquired throughout the 15 years of unique open-minded education received at my school BetàniaPatmos, the invaluable knowledge shared by the experts interviewed, and last but not least, the continuous encouragement of my beloved family and friends.

My most profound gratitude to all of them for making this paper possible.

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0. Introduction

It is well known that the path towards a sustainable future requires maintaining a healthy ocean,¹ as well as establishing a controlled and conscious use of marine resources. This is because the ocean makes up about 70 per cent of the surface of our planet, nurturing an unimaginable amount of biodiversity. The marine environment provides valuable resources which, if correctly and thoughtfully exploited, can contribute to a greener and more **sustainable economic development**.

When talking about sustainable exploitation and the preservation of marine resources for economic growth, social inclusiveness, and cultural benefits, the concept of the **Blue Economy**² arises. As a teenage girl who is interested in economic matters, sustainability, and marine life, this is an interesting topic which encompasses all these subjects.

How did I encounter across the concept of Blue Economy? It was about a year ago that I started to learn more about several pharmaceutical and cosmeceutical companies that use **marine biotechnology** as a new method to produce goods in a more environmentally friendly manner. While learning more about this cutting-edge technology, I discovered that it is an emerging sector of the broader concept of the Blue Economy, which rapidly caught my attention as a topic for this research project. Establishing when this concept first arose, how it has been implemented in the European Union since then, and what prospects it has for the future, were the basic ideas that I thought exciting to explore.

Today's capitalism-led world, threatened by **ocean degradation**, must act and show willingness to change. It is a matter of self and common responsibility. Governments and politicians must take firm decisions and implement legislation to definitively ensure that **economic prosperity** and **sustainable development** go hand in hand. Raising awareness through education among young generations about the reality of the threats to which the ocean is exposed and that the world cannot continue to ignore, is a key point in this process.

I trust this research project will humbly contribute to that goal.

¹ For the purposes of this paper, Rémi Parmentier's approach that there is only one ocean on this planet, the 'global ocean', has been followed. Therefore, references are made to 'ocean' instead of 'oceans'.

² Given the importance of this term for this paper, 'Blue Economy' is hereinafter capitalised.

1. Objectives

The main purpose of this research project is to study the concept of the Blue Economy and critically analyse the evolution of its implementation within the European Union since it was first discussed. This project will firstly dive into the basic features of the Blue Economy to explore its uses and objectives. Secondly, this being the centre of this research, the project will review and evaluate the numerous initiatives published by the European Commission.

The above, together with the opinion of five experts in the field, will lead to a conclusion on how effective the measures taken by the European Union are, what the current situation is, and the potential that the Blue Economy holds for the future.

Moreover, as a secondary purpose, this project examines the actions proposed and carried out by Barcelona City Hall. This provides a local insight on the implementation of Blue Economy policies integrated within the strategies of the European Commission.

2. Theoretical framework

2.1 Introduction to the importance of the ocean

The ocean covers more than two-thirds of the Earth's surface and is our planet's largest life support ecosystem and main climate regulator – and is therefore an **essential** part of the **world's economy**. However, it has been clearly evidenced that a mistreated and over-exploited ocean is unable to support long-term economic growth.

The ocean has been facing significant existential **threats** for decades, and continues to be exposed. This is mainly due to **human actions** which have worsened its health over the years, and also negatively affected the social and economic expectations of those countries that are profoundly dependent on the ocean, particularly Small Island Developing States (SIDSs)³ and coastal Least Developed Countries (LDCs).⁴ According to Dr Marjo Vierros, director of Coastal Policy and Humanities Research,⁵ the range of menaces is broad. These include over-exploitation, unreported fishing, pollution from land-based and marine activities, mining and extraction of oil and gas, habitat destruction from coastal development and extractive industries, poor governance, declining biodiversity, and climate change.

³ SIDSs are small developing island countries which share similar sustainable development challenges, firstly recognised as a distinct group at the United Nations Conference on Environment and Development in June 1992.

⁴ LDCs, a term that originated in the late 1960s, are developing countries present the lowest indicators of socioeconomic development according to the United Nations.

⁵ The Coastal Policy and Humanities Research is a consulting firm undertaking innovative cross-disciplinary research on environmental problems facing coasts and the ocean.

For many scientists and economists, ‘**sustainability**’, understood as the ability of something to be maintained at a certain rate or level, is defined through the interconnection of environment, economy, and society. In this respect, a resilient and consciously treated ocean is vital because it provides a wide range of benefits for human well-being and prosperity, and can contribute to successful sustainable economic development.

There is an urgent need to establish a more responsible relationship with the ocean so that we can better manage and protect coastal and marine ecosystems and resources. The clear solution to this issue is the empowerment of the **Blue Economy**.

2.2 Introduction to the Blue Economy concept

The ocean’s importance for sustainable development is a topic that has been widely recognized by the international community, especially over the last decade. The **2012 Rio+20 United Nations Conference on Sustainable Development** was one of the first meetings that raised international awareness on the ocean’s potential as a key driver for sustainable economic growth.



Figure 1: Sustainable Development Goals (SDGs).
Source: <https://www.un.org/>

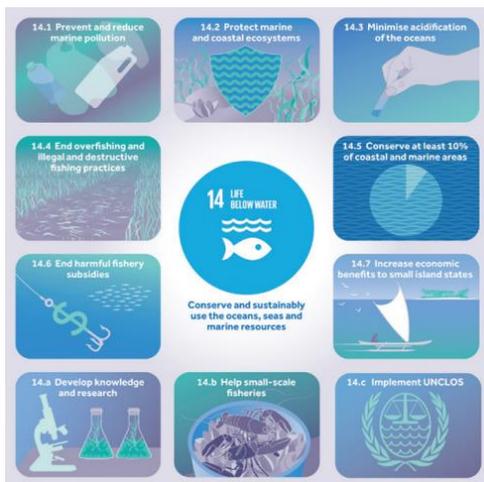


Figure 2: SDG number 14-Life Below Water. Source: <https://www.un.org/>

To analyse the concept of Blue Economy the **Sustainable Development Goals (SDGs)**⁶ adopted by the UN General Assembly in 2015, are relevant. Although SDG 14 (‘Life under water’) is specifically dedicated to ‘conserve and sustainably use the oceans, seas, and marine resources’, the reality is that an effective Blue Economy may contribute to meet other SDGs.

Although there is no universally agreed definition of the Blue Economy, there is a common understanding of what this concept implies.

This concept recognizes the need to maximize the enormous economic potential presented by the ocean while preserving it. It is viewed as an **alternative economic model** for **sustainable development** that is guided by **environmental principles**, and that encourages better stewardship of marine resources. In other words, it is a mechanism for realizing sustainable growth centred on an ocean-based economy.

⁶ SDGs are a group of 17 interconnected global goals designed to attain a better and more sustainable future for the world by 2030.

Therefore, the Blue Economy goes beyond market opportunities and considers economic development and the protection of the ocean as compatible propositions. It **challenges the ‘business as usual’**⁷ idea where oceans have only been viewed as a mechanism for economic growth and as an unlimited sink for the disposal of waste, in which overexploitation of marine resources and massive pollution were matters of no concern. In a Blue Economy, the environmental hazards and ecological damage from economic activity are mitigated or significantly reduced.

The Blue Economy perceived as a long-term strategy for supporting sustainable economic growth, through ocean-related activities and the responsible preservation of the environment, and it also seeks to promote social inclusion by generating jobs, improving social equity, and promoting sustainable livelihoods.

Implementation of a Blue Economy may bring countries to move away from their current paths of over-consumption towards more resource-efficient societies that rely on renewable marine resources to satisfy the needs of their consumers and the demand of their industries – and to confront climate change.

3. Methodology

3.1 Literature review

3.1.1 European Commission official documents

The **European Commission**, one of the EU’s main institutions as its executive branch, contributes to the shaping of the EU’s tactics and **policies**. Hence, it makes proposals for legislation and guidelines, and carries a substantial role in supporting international development.

In the European Commission’s website there is a section called **‘Sustainable Blue Economy’**, which contains **official documents** regarding the initiatives taken for the implementation of the Blue Economy within the European Union. All of these, which are thoroughly detailed, provide valuable information and are the **central axis** for developing the analysis in this paper, together with infographics, and an official timeline of the actions taken.

The official documents are the following:

3.1.1.1 Strategic Objectives 2005-2009; Europe 2010: A Partnership for European Renewal - Prosperity, Solidarity and Security

This legal instrument, dated 26 January 2005, is a communication from the President of the European Commission in agreement with the Vice-President, which outlines the **strategic objectives** of the European Union for the period 2005-2009 with the purpose of reaching a new

⁷ ‘Traditional business model’

agreement among Member States based on the principles of prosperity, solidarity, and security by 2010.

3.1.1.2 An integrated maritime policy for the European Union

This legal instrument, dated 10 October 2007, is a communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions. In general terms, it proposes the establishment of an **Integrated Maritime Policy** in the European Union.

3.1.1.3 Blue Growth Strategy

This legal instrument, dated 13 September 2012, is a communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions. It is considered the **long-term strategy for sustainable growth** in the marine and maritime sectors.

3.1.1.4 Innovation in the Blue Economy: realising the potential of our seas and oceans for jobs and growth

This legal instrument, dated 13 May 2014, is a communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions. It suggests promoting and developing **innovation** in everything the Blue Economy encompasses.

3.1.1.5 A new approach for a sustainable economy in the EU: Transforming the EU's Blue Economy for a sustainable future

This legal instrument, dated 17 May 2021, is a communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions. It represents a **new approach** to the Blue Economy, making a **transition** from 'Blue Growth' to a 'Sustainable Blue Economy' in the EU for all the industries and sectors related to oceans, seas, and coasts.

This communication is a key document for the development of the conclusions of this research project because it reflects the current perspective of the European Union towards the Blue Economy and suggests a future action plan.

3.1.1.6 Blue Economy Report 2021

The EU Blue Economy Report 2021 (hereinafter, the '**BE Report 2021**') is the fourth edition of the report that the European Commission Directorate General for Maritime Affairs and Fisheries and the Joint Research Centre publish annually to analyse the **scope and size** of the Blue Economy in the European Union, using the latest available data, acting as a **support tool for policy making** and as a **source of inspiration** to all stakeholders.

According to the Publications Office of the European Union, the Blue Economy reports have become a reference to understand past developments, trends, and future opportunities in the Blue Economy and all the individual activities related to our seas and the ocean in the EU and its Member States.

3.1.2 Barcelona City Hall official documents

The location and the economic importance of the city of Barcelona given its long-standing and international (and Mediterranean) vocation to achieve an environmentally friendly marine economy.

In recent years, growing interest in the opportunities and benefits of the Blue Economy has led the Catalan region in general, and the city of Barcelona in particular, to participate in many events and be part of several agreements and strategies for this sector.

3.1.2.1 Government Measure: *Driving the Blue Economy in Barcelona*

On 15 October **2021** Barcelona City Hall issued its **Government Measure** for supporting the Blue Economy in Barcelona (*Mesura de Govern – Impuls de l'Economía Blava a Barcelona*) (hereinafter, the '**Government Measure**'), which was presented by the City Hall on 17 November 2021 within the Smart City Expo World Congress held in Barcelona.

3.2 Interviews

Carrying out interviews with experts in the field of the Blue Economy is an essential part of the development of this research project so that a rigorous and critical conclusion can be reached. Therefore, contrasting opinions on this topic from different points of view are a great source of information. In this case, five experts were interviewed.

The first expert is the French environmental activist **Rémi Parmentier**, who defines himself as an ‘ocean advocate’. He is one of the founding members of **Greenpeace International**⁸ and supported the activism of this non-governmental organisation as a crew member and campaign leader aboard their legendary environmental vessel, the *Rainbow Warrior*. He is currently involved in negotiations with the World Trade Organization, coordinates the initiative *Because the Ocean*, and directs The Varda Group (a consulting firm specialised in the environmental and social field). He was also an executive deputy secretary of the Global Ocean Commission.⁹

Throughout his professional career, he has worked with leaders, government ministers, scientists, and activists, and has gathered a deep knowledge of the Blue Economy. Therefore, his thoughts and opinions provide an insight touching sustainability matters and aspects of ocean preservation.

The second expert is **Gunter Pauli**, a Belgian entrepreneur, who defines himself as a ‘free bird’. He is considered the founder of the Blue Economy concept. He worked as an advisor to The Club of Rome.¹⁰ He opened his own business selling natural soaps and other products, but after discovering that the extraction of some natural resources endangered certain animal species, he began the ‘**Zero Emissions Research and Initiatives**’¹¹ project in Tokyo, supported by the Japanese government and the University of the United Nations. He introduced the Blue Economy philosophy in 1994. Almost two decades later in 2010, he published *The Blue Economy*. Interviewing him provides the point of view of an independent freelance economist and entrepreneur.

The third expert is **Iglika Yakova**, Deputy Head of Unit of Unit A3 at the European Commission, with responsibility for sea-basin strategies, maritime regional cooperation, and maritime security at **Directorate-General for Maritime Affairs and Fisheries (DG MARE)**.¹² Unit A3 focuses on the regional dimension of the Blue Economy by creating links among partners in different sea basins in order to create partnerships to work together in issues related to maritime economy, maritime tourism, maritime transport and blue skills. His thoughts and opinions provide this research project with an institutional point of view.

Finally, for further information about the implementation of the Blue Economy in Barcelona as part of the subobjective of this research project, **Anna Majó**, the Business Innovation Director at *Barcelona Activa*¹³ and currently responsible for the Blue Economy Strategy in Barcelona, as well as a member of her team, **Lali Costa**, were interviewed.

⁸ Greenpeace is an independent global campaigning network, one of the most visible environmental organisations in the world.

⁹ International initiative launched in 2013 by the Pew Charitable Trust in partnership with Somerville College at the University of Oxford, to raise awareness and promote action to address the degradation of the ocean and help restore it to full health and productivity. It delivered its final report in 2016.

¹⁰ The Club of Rome is a platform of diverse leaders who identify holistic solutions to complex global issues and promote policy initiatives and action to enable humanity to emerge from multiple planetary emergencies.

¹¹ Zero Emissions Research and Initiatives (ZERI) is a global network of creative minds seeking solutions to the ever-increasing problems of the world.

¹² DG MARE is a European Commission department responsible for EU policies on maritime affairs and fisheries.

¹³ *Barcelona Activa* is an economic development agency.

3.3 Others

3.3.1 Online program: One planet, one ocean

‘One planet, one ocean’ is a six-week online programme organised by the free online learning platform edX in partnership with the SDG Academy, the flagship educational online platform of the Sustainable Development Solutions Network (a global initiative for the United Nations). It offers online courses and educational materials regarding sustainable development and the sustainable development goals (SDGs).

This specific course provides a holistic view of how the ocean functions, how human interactions with the ocean can be understood, and what solutions are available to support both sustainable use and stewardship of our blue planet.

This course has been of a great importance for this research project as it offers a general overview of the importance of the ocean and marine ecosystems. The programme is divided into six modules: introduction; coasts, marine ecosystems; fisheries and aquaculture; marine life and minerals; and ocean and climate.

3.3.2 Business congress: Smart City Expo World Congress 2021

The Smart City Expo World Congress (SCEWC) is a leading international event that has become the leading professional and social meeting point for public and private institutions supporting the innovative development of cities. Held in Barcelona since 2011, it is considered a key global event for sharing ideas, business models, and projects.

Barcelona City Hall has been participating for more than five years in the SCEWC to give visibility to the city’s intelligent and sustainable projects and initiatives. During the latest SCEWC, held in Fira de Barcelona on 15-17 November 2021, Anna Majó presented the Government Measure.

Attending this congress, personally invited by the Barcelona City Hall, was very useful to supplement the information provided during the interview held with Ana Majó and Lali Costa Estrada.

4. Results

4.1 Literature review

4.1.1 European Commission official documents

The following timeline synthesizes the communications published by the European Commission along with certain important milestones related to the Blue Economy.

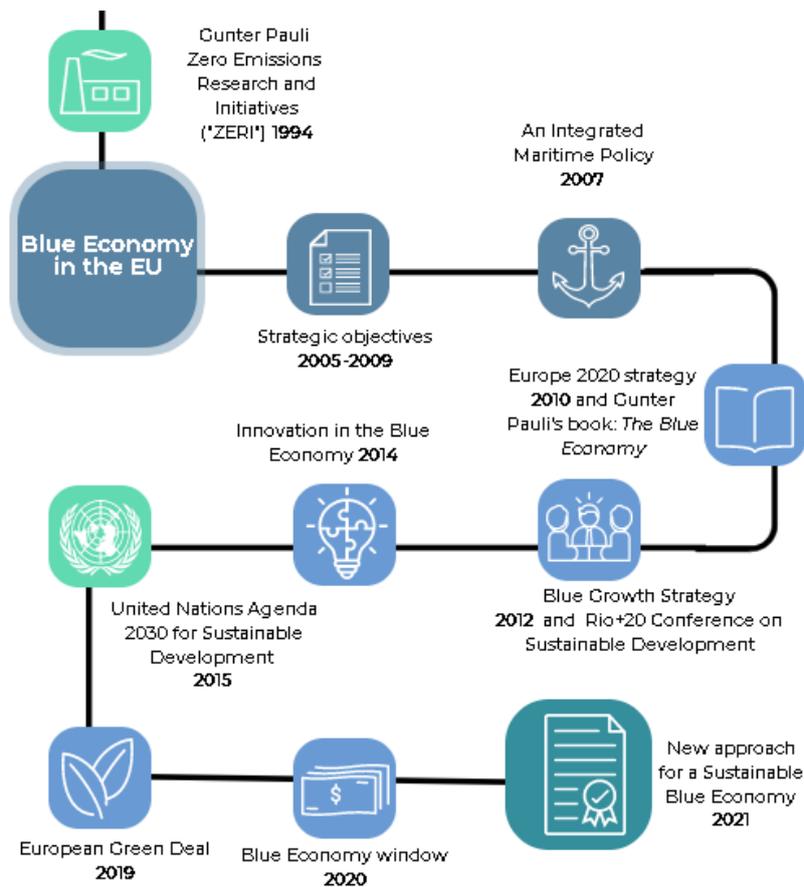


Figure 3: Blue Economy timeline. Source: Compiled by author

4.1.1.1 Strategic Objectives 2005-2009; Europe 2010: A Partnership for European Renewal-Prosperity, Solidarity and Security

a. Contents

This communication recognises the various advances made by the European Union since its creation – including the consolidation of a financial stability zone by introducing the Euro and consolidating the single market and the progress towards a common area of justice and security across Europe.

However, due to a anxieties shown by certain sectors of the European Union and a lack of trust in its organisations, the main aim of this communication is to properly consolidate and reaffirm the objectives and purposes of the Union. The communication focuses on three main principles: prosperity, solidarity, and security.

Regarding long-term **prosperity**, this communication acknowledges the lack of growth and job creation and sets this as a top priority for the next five years (2005-2009).

As to **solidarity**, the communication focuses on the importance of sustainable management and protection of the environment, the natural resources, and the safeguarding of long-term energy supply. It also mentions the importance of economic and social cohesion.

In view of the environmental and economic value of oceans and seas, it urges the creation of an **all-embracing maritime policy** aimed at developing a thriving maritime economy and the full potential of sea-based activity in an environmentally sustainable manner. In the words of the communication: *'such policy should be supported by excellence in marine scientific research, technology and innovation'*.

Lastly, the communication remarks the need to address the risks that European citizens face in their daily life and the values of **security** and freedom.

b. Critical analysis

To summarise, this communication approaches a series of general principles and measures to improve the relationship between Member States.

The importance of this communication for this research project is that for the first time it references to the need to create an integrated maritime policy to develop a maritime economy and sea-based activity in an environmentally sustainable manner. As explained below, such an integrated maritime policy was created in 2007.

In **2005**, the sustainability concept linked to the ocean was tackled by the EU for the first time in this document.

4.1.1.2 An integrated maritime policy for the European Union

a. Contents

This communication recognizes Europe's maritime spaces and coasts as key drivers for its well-being and wealth, being Europe's trade routes, climate regulators, and sources of food, energy, and resources.

In a context of growing globalization and climate change, the communication raises awareness of the fact that conflicts of use and non-regulated practices are leading to the deterioration of the marine environment. Therefore, it proposes the establishment of an integrated maritime policy (hereinafter, '**IMP**') in the European Union *'based on the clear recognition that all matters relating to Europe's oceans and seas are interlinked, and that sea-related policies must develop in a joined-up way if we are to reap the desired results'*.

The communication aims to improve the **coordination of policies** affecting the oceans, seas, islands, coastal regions, and maritime sector – and to develop cross-cutting tools to deploy a more coherent policy framework.

Since the publication of this communication, progress reports were presented by the European Commission in October 2009 and September 2012 to describe and evaluate the main achievements of the IMP. According to these, the IMP was created to reaffirm the maritime dimension of the European Union – but from this vision it grew into a tool to deliver concrete benefits for maritime growth and sustainability in the European Union.

a. Critical analysis

The IMP can be considered as the impulse for the creation of the Europe 2020 strategy (2010) and the Blue Growth Strategy (2012), commented further below. Blue Growth drove a second phase of the IMP to achieve a healthy maritime economy that delivered innovation, growth, and sustainability for European citizens.

In **2007**, the sustainability concept linked to the ocean was used again in this document although still not conceived as the key driver of the emerging Blue Economy.

4.1.1.3 Blue Growth strategy

a. Contents

This communication has a clear focus on achieving the goals of the Europe 2020 strategy published in 2010, which sets a series of priorities for the recovery of the European Union from the financial crisis: **smart growth** (developing an economy based on knowledge and innovation); **sustainable growth** (promoting more resource efficient, greener, and more competitive economy); and **inclusive growth** (fostering a high-employment economy delivering economic, social, and territorial cohesion).

This communication is therefore an initiative to harness the untapped potential of Europe's ocean, seas, and coasts for jobs and growth to help steer the EU out of the then existing (2008-2012) financial crisis. In its own words, a Blue Growth strategy could *'contribute to the EU's international competitiveness, resource efficiency, job creation, and new sources of growth whilst safeguarding biodiversity and protecting the marine environment, thus preserving the services that healthy and resilient marine and coastal ecosystems provide'*.

The Blue Growth strategy gave special attention to **five Blue Economy sectors**, both established and emerging, as focus areas that held high potential and possibilities for future job creation and innovation and development. These include blue energy (ocean renewable energy); aquaculture; maritime and coastal tourism; marine mineral resources; and blue biotechnology.

b. Critical analysis

This communication of **2012** represents the first instrument in which the European Commission refers to the Blue Economy and the different sectors and industries it involves, as part of an economic growth strategy and financial crisis recovery plan.

The strategy in this communication was mainly driven by the urgent need to recover from the financial crisis by creating jobs to make the economy grow back, but not defining clear and specific sustainability objectives. In this respect, the publication of the European Green Deal in 2019, explained further below, changed the perspective of this Blue Growth strategy and made the European Union modify its action plan into a more sustainable project.

4.1.1.4 Innovation in the Blue Economy: realising the potential of our seas and oceans for jobs and growth

a. Contents

This communication acknowledges several weaknesses in the context of the Blue Growth strategy such as under-investment in knowledge, poor access to finance, the high cost of intellectual property rights, the ineffective use of public procurement, and duplications in research, and stresses the need for policies and local solutions that effectively address these barriers.

Therefore, it proposes several actions on innovation to help develop the Blue Economy in a way that fuels EU growth and job creation and maintains public support for the commercial use of marine resources while ensuring the protection of the marine environment.

b. Critical analysis

In **2014**, with this communication, the European Union took another step forward in the development of the Blue Economy – but without representing a major transformation of its essence. At that time, sustainability was still not presented as the core of the EU's strategy for the Blue Economy.

4.1.1.5 A new approach for a sustainable economy in the EU: Transforming the EU's Blue Economy for a sustainable future

a. Contents

This communication represents a change of perspective in the Blue Economy concept, a transition from 'Blue Growth' to a 'Sustainable Blue Economy', carried out due to the necessary **alignment** with the **European Green Deal** objectives.

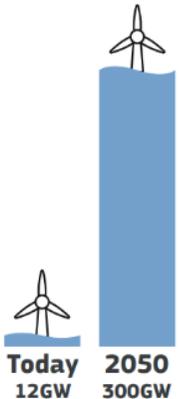
The European Green Deal (hereinafter, '**EGD**'), in the words of the communication published in 11 February 2019, by the European Commission, '*is a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use*'. The EGD resets the Commission's commitment to tackling climate and environmental-related challenges. It represents an integral part of the European Commission's strategy to implement the UN 2030 Agenda for SDGs.

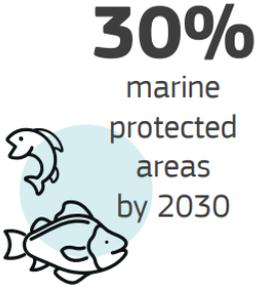
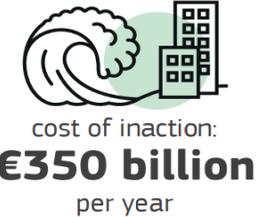
The EGD requires that all EU actions and policies contribute to meeting the EGD objectives. Therefore, a **true 'stand-alone' sustainable point of view** of the Blue Economy was needed, as it represents an essential role for achieving the EGD goals. These ideas can be supported by the

words of Frans Timmermans, Executive Vice-President for the EGD: *'Healthy oceans are a precondition for a thriving Blue Economy. Pollution, overfishing, and habitat destruction, coupled with the effects of the climate crisis, all threaten the rich marine biodiversity that the Blue Economy depends on. We must change and develop a sustainable Blue Economy where environmental protection and economic activities go hand in hand'*.

It should also be noted that this 'Sustainable Blue Economy' also aims to ensure a **green and inclusive recovery** from the covid-19 pandemic, as Virginijus Sinkevičius, Commissioner for the Environment, Fisheries and Maritime Affairs stated: *'The pandemic has hit the marine economy sectors in different, but profound ways. We have an opportunity to start afresh, and we want to make sure that the recovery shifts the focus from mere exploitation to sustainability and resilience. Thus, to be truly green, we must also think blue'*.

All Blue Economy sectors, including maritime transport, port activities, shipbuilding, aquaculture, fisheries, and coastal tourism must reduce their environmental and climate impact. This communication proposes an action plan to **transform** in five ways the current Blue Economy **value chains**. The following table outlines and synthesizes the detailed instruments and measures of the proposed action plan.

ACTION PLAN		INSTRUMENTS		MEASURES	
1	Decarbonization: climate neutrality and zero pollution  <p>Today 12GW 2050 300GW</p>	Develop offshore renewable energy	EU Strategy to harness the potential of offshore renewable energy for a climate neutral future COM(2020)741	Create a Blue Forum for users of the sea	Promote the use of the new Maritime, Aquaculture and Fisheries Fund
		Decarbonise maritime transport	Sustainable and smart mobility Strategy COM(2020)789		Promote the use of EU funds to green maritime transport
		Greening ports	Hydrogen strategy for a climate-neutral Europe COM(2020)301		Pursue the objective of zero-emission ports and support Member States
2	Circular economy 27,000 tonnes of plastics in European seas each year 	Prevent litter in the sea	EU action plan on zero pollution COM(2021) 400	Take action to: <ul style="list-style-type: none"> - Prevent plastic litter at sea, nutrient loss into the sea, and the use and risk from chemical pesticides by 2030 - Restrict intentionally added micro-plastics - Ensure that fishing gear made from plastic is collected and recycled after its use 	
		Develop circular and models solutions	EU circular economy action plan COM(2020)98 EU ship recycling regulation (EU) No 1257/2013		Propose revising ship recycling regulation and the EU requirements for decommissioning offshore platforms

3	Biodiversity 	Expand protection to 30% of the EU's seas and create ecological corridors Boost the use of blue biotechnologies	EU biodiversity strategy for 2030 - Bringing nature back into our lives COM(2020) 380	<ul style="list-style-type: none"> - Table a proposal for legally binding EU targets to restore degraded ecosystems - Propose a new action plan to conserve fishery resources and protect marine ecosystems by the end of 2021 - Work with Member States, regions, and the European Environmental Agency to identify and designate additional marine protected areas by the end of 2021 - Promote and support local participatory initiatives
4	Coastal resilience 	Develop green infrastructure in coastal areas Protect coastlines from the risk of erosion and flooding	Forging a climate-resilient Europe – the new EU strategy on adaptation to climate change COM(2021) 82	<ul style="list-style-type: none"> - Work to close knowledge gaps - Stimulate cooperation between coastal regions and islands - Assist Member States on long-term planning to phase in investments with support from EU funds
5	Sustainable food 	Responsible fishing to bring stocks to sustainable levels Sustainable aquaculture New sources of food and feed (e.g., algae production)	Common fisheries policy Regulation (EU) No 1380/2013 EU's farm to fork strategy COM(2020) 381 Strategic guidelines for a more sustainable EU aquaculture COM(2021)236 Novel food regulation (EU)2015/2283	<ul style="list-style-type: none"> - Put forward in 2022 a legislative proposal for modern sustainable marketing standards for seafood - Adopt a dedicated initiative on algae in 2022 - Support the digital transition of fisheries control - Strengthen fishery management in the Mediterranean and the Black Sea

The communication then mentions the following four essential approaches for supporting the development of a sustainable Blue Economy:

	Concept	Long -term benefits	Instruments
Ocean knowledge	Reliable, high-quality, and harmonised data	Capacity for public authorities and civil society of making informed decisions	Ocean Observation initiative by 2022
	Better knowledge of the ocean and its ecosystems		Blue Economy Observatory by 2021
Research and innovation	Marine and maritime research through innovative technologies (such as big data, artificial intelligence)	Protect and restore marine ecosystems	Pan-European innovation ecosystem
Investment	Scale up public and private investment	Sustainable investments	Cooperation with European Investment Bank and
			Cooperation with European Investment Fund
Blue Skills and Jobs	Qualified workforce	Huge employment potential and	European skills agenda
	Knowledge enhancement and skills	Opportunities for marine and 'blue' maritime careers	Blue careers program

Lastly, the communication sets up a series of conditions for **sustainable governance**. It suggests the implementation of broadly accepted rules that include: space planning, citizen engagement, regional cooperation, maritime security, and international policy.

b. Critical analysis

To summarize, this new approach aligns the Blue Economy concept with the EGD objectives and emphasises the importance of a recovery from the covid-19 health crisis. Therefore, it represents the shift from 'Blue Growth' to 'Sustainable Blue Economy' in order to transition to a strong sustainable, resilient, and climate-neutral Blue Economy.

This new way of perceiving the Blue Economy proves that the term of 'sustainability' is just starting to gain force now in **2021** in comparison to a decade ago. The European Union has now

clearly identified the need to **prioritise** environmentally friendly practices over economic growth. It also shows the new interest in spreading **ocean knowledge** and raising awareness among citizens about the need for a closer relationship with the marine environment.

4.1.1.6 Blue Economy Report 2021

a. Contents

The BE Report 2021 is **structured** in a foreword, an executive summary, eight chapters, and three annexes.

The report provides **analysis for the period 2009-2018** for the 27 EU Member States (EU-27) as a whole and by sector and industry for each Member State, and begins with a foreword from Mrs Mariya Gabriel, EU Commissioner for Innovation, Research, Culture, Education and Youth, and Mr Virginijus Sinkevicius, EU Commissioner for Environment, Oceans and Fisheries, where they both remark on the **major role that the Blue Economy will play in reaching the European Green Deal objectives**.

For the purposes of the BE Report 2021, the **Blue Economy includes** all those activities that are **marine-based** (activities undertaken in the ocean, sea, and coastal areas) or **marine-related** (activities which use products and/or produce products and services from the ocean or marine-based activities) and it examines the following **established** and **emerging / innovative** sectors (and subsectors of the first ones):

Established			Emerging / innovative	
Sector	Subsectors	Type	Sector	Type
Marine living resources	Primary production	Marine-based	Blue bioeconomy	Marine-based
	Processing of fish products	Marine-related		
	Distribution of fish products	Marine-related		
Marine non-living resources	Oil and gas	Marine-based	Ocean energy	Marine-based
	Other minerals	Marine-based		
Marine renewable energy	Offshore wind energy	Marine-based	Desalination	Marine-related
Port activities	Cargo and warehousing	Marine-related	Maritime defence	Marine-related
	Port and water projects	Marine-related		
Shipbuilding and repair	Shipbuilding	Marine-related	Submarine cables	Marine-based
	Equipment and machinery	Marine-related		
Maritime transport	Passenger transport	Marine-based	Research and Education	Marine-related
	Freight transport	Marine-based		
	Services for transport	Marine-based		
Coastal tourism	Accommodation	Marine-related	Marine observation	Marine-related
	Transport	Marine-related		
	Other expenditure	Marine-related		

As background information, the BE Report 2021 indicates that the **contribution of the Blue Economy established sectors** to the EU-27 economy in 2018 was **1.5% in terms of gross value added** (contribution to overall economy) and **2.3% in terms of employment**. This represents a decrease of the relative size of the EU Blue Economy after the financial crisis of 2008 – although since then, its size has grown back again, especially in terms of employment.



Figure 4: Contribution of the Blue Economy to the Overall EU Economy. Source: Blue Economy Report 2021.

The report also notes that the **impact of the covid-19 pandemic** on the EU Blue Economy has been **more severe** than in the overall EU economy, although it is expected that the EU Blue Economy **will grow faster** when the economy recovers, since it will offer important investment opportunities. Impact and recovery have and will differ by activities within the Blue Economy.

A **key element** for the Blue Economy development and transformation is **financing**. In this respect, the BE Report 2021 remarks that the EU has made important efforts to build a financial system that supports **sustainable finance for economic growth** by considering environmental (climate change mitigation, pollution prevention), social (inequality, labour relations), and governance (transparency) factors when deciding on investment decisions. Such financing is channelled basically through **three arms**: the European Investment Fund (EIF); the European Investment Bank (EIB); and the European Bank for Reconstruction and Development (EBRD).

An **important tool also** to achieve the UN 2030 Agenda for Sustainable Development, especially Sustainable Development Goal 14 (SDG 14) 'Life Below Water' and sustainable development of Blue Economy activities is **Maritime Spatial Planning (MSP)**, which is a process of allocating areas for human activities, ensuring that social, economic, and environmental objectives are achieved in an efficient, safe, and sustainable manner.

The BE Report 2021 outlines the **main economic indicators** of the established sectors which may be summarised as follows:

Blue Economy main economic indicators				
		2009	2018	Variation
Size	Gross added value (GVA)	€153.2 billion	€176.1 billion	+15%
	Gross operating surplus (GOS)	€59.7 billion	€68.1 billion	+14%
Employment	Persons employed	4.46 million	4.50 million	+1%
	Average pay	€21,036	€24,020	+14.2%
Investment in tangible goods	Gross	€29.8 billion	€25.5 billion	- 14.2%
	Net	€7.7 billion	€6.4 billion	-16.9%

The BE Report 2021 outlines the **main features** of the established sectors which may be summarised as follows:

Blue Economy main features	
Sector	Main features
Marine living resources (capture, processing, and distribution of renewable marine biological resources)	<ul style="list-style-type: none"> - <i>Capture fisheries</i> production has increased and may increase in the future due to the increasing fishing opportunities, the higher average market prices, and the reduced operating costs. - <i>Processing of fish products</i> depend on global fish markets since EU production only covers about 30% of total raw material requirements. - <i>Distribution of fish products</i> is increasingly concentrated in the hands of few players.
Marine non-living resources (exploitation of seas and oceans for non-living resources)	<ul style="list-style-type: none"> - An increase over the past ten years will continue to grow, except for the offshore oil and gas sector which has been declining for some years due to moratorium on exploitation permits and sharp increase in fees for upstream concessions to prioritise renewable energy developments and move towards decarbonization. - Market concerns and the covid-19 pandemic made oil prices collapse in 2020.
Marine renewable energy	<ul style="list-style-type: none"> - This sector is growing, although is still encountering challenges. <ul style="list-style-type: none"> - Land-based wind farms develop faster than maritime-based ones (lower installation and maintenance costs). - Production of wind energy continues to be cheaper on land than off-shore. - The lack of electrical connections also represents a barrier for wind farm development.
Port activities	<ul style="list-style-type: none"> - These continue to be crucial in trade, economic development, and job creation. - Seaports are transport and logistic nodes which are key in the development of maritime sectors. - Environmental impact to port cities and coastal areas is being reduced in many EU ports while these enable green shipping fleets. - Ports are developing into clean energy hubs for integrated electricity systems, low-carbon fuel and testing areas for waste reuse, and circular economy.
Shipbuilding and repair	<ul style="list-style-type: none"> - This is an innovative, dynamic, and competitive sector. - The 300 shipyards in the EU make it a major player in the global shipbuilding industry, although it continues to face intense international competition from countries like South Korea and China.
Maritime transport	<ul style="list-style-type: none"> - This sector accounts for almost 80% of the worldwide goods transportation, and keeps many economies afloat, so it plays a key role in the EU economy and trade and in the global supply chain. - However, the covid-19 crisis severely impacted the shipping industry, since passenger and cargo sea transport dropped in volumes and demand, and ferry services and cruises shipping were strongly hit by border closings and national lockdowns.
Coastal tourism	<ul style="list-style-type: none"> - This sector also plays an important role in many EU Member States economies. - In 2018 around half of EU tourist accommodation establishments were located in coastal areas. - The covid-19 pandemic has also put this sector under huge pressure due to travel restrictions and the closure of businesses imposed by Member States.

The BE Report 2021 also outlines the Blue Economy established sectors across Member States where we can deduce the following changes in Spanish share percentages and contribution to EU Blue Economy:

Spanish share percentages and contribution to EU Blue Economy			
		2009-2018 Variation	Ranking in 2018
Relative size of the Blue Economy	Share of Blue jobs to national employment	+3.5%	7 th
	Share of Blue GVA to the national economy	+12.5%	8 th
National contribution to the EU Blue Economy	In terms of employment	-7%	2 nd
	In terms of GVA	+5%	1 st

The BE Report 2021 also covers the analysis of the various **emerging and innovative sectors** of the Blue Economy, such as marine renewable energy, blue bioeconomy, and biotechnology, desalination, marine minerals, maritime defence, security and surveillance, research and development, submarine cables, and marine observation (robotics).

b. Critical analysis

The BE Report 2021 contains a thorough analysis of the Blue Economy from an economic/business point of view. While useful as a source of information, it should be noted that for future Blue Economy reports to be more helpful supporting tools for making future policies, they should also include an analysis of the positive results in terms of sustainability, and not only in economic/business terms as generated by Blue Economy policies and projects implemented.

4.1.2 Barcelona City Hall official documents

A timeline that synthesizes the different events regarding Barcelona's involvement in the Blue Economy along with certain important milestones related to an international dimension of the Blue Economy, can be found in Annex II.

4.1.2.1 Government Measure: Support for the Blue Economy in Barcelona

a. Contents

Barcelona City Hall has created its own definition of the Blue Economy, adapted to the local circumstances and accepted by stakeholders (public administrations, private sector, research centres, and the public). It considers the Blue Economy as 'the group of economic activities linked to the water spaces, which are carried out in a manner compatible with the environmental preservation of ecosystems and favour a sustainable social and economic development'.

Barcelona City Hall considers that the Blue Economy is **tightly linked to reaching the UN Sustainable Development Goals**, in particular goals number 5 (gender equality), 6 (clean water and sanitation), 7 (affordable and clean energy), 8 (decent work and economic growth), 9 (industry, innovation, and infrastructure), 11 (sustainable cities and communities), and 14 (life below water), and respecting the guidelines set forth in goal 17 (partnership for the goals).

The Blue Economy policies and actions of Barcelona City Hall are undertaken **within the new framework of the European Union** strategies and communications (from 'Blue Growth' to 'Sustainable Blue Economy') and financing instruments.

Following the BE Report 2021 of the European Union, Barcelona City Hall has identified **eight established sectors** (port activities, maritime transport and logistics, shipbuilding and maintenance, fishing and bioeconomy, water treatment, sailing, water sports, and tourism), and **two emergent sectors** (blue biotechnology and marine renewable energies), along with **two cross-cutting sectors** (education, training and research and culture), within the Blue Economy of major importance for the city.

The Blue Economy represents **4.3% of Barcelona's GDP** and **1.4% of the city's employment**.

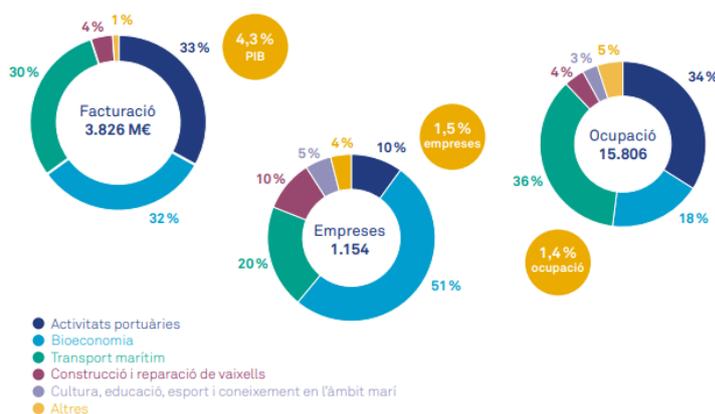


Figure 5: Blue economy in Barcelona in economic indicators. Source: Government Measure

The Government Measure identifies the following **assets and ecosystems** of the Blue Economy in Barcelona: the port and logistic infrastructures (1,200 players, €3.8 billion of turnover, and 15,806 jobs); economic entities and events (such as Mercabarna, Marina Barcelona 92, the fishing brotherhood); marine research centres (such as the Sea Sciences Institute, and University of Barcelona); entrepreneurial, innovative and digital city (first Smart City in Spain and fourth in Europe); and maritime, sport and blue leisure culture (such as Maritime Museum and Barcelona Natural Sciences Museum).

The City Hall believes that supporting the Blue Economy will allow the city of Barcelona **to meet**:

- The **Barcelona Green Deal** by contributing to economic sustainability and creating quality jobs through innovation and technology transfer;
- The **Barcelona 2030 Agenda**, which adapts the objectives and goals of the UN sustainable development objectives to the context and needs of the city.

According to the Government Measure, the **mission** and **objectives** of the strategy to boost the Blue Economy are:

- To develop the potential of the Blue Economy in Barcelona, especially the activities that have as an innovative axis, sustainability, and technology, for these to become vectors to create jobs, to develop the city economically and socially, and to vertebrate the coast.
- To position Barcelona, within a term of ten years, as a key city in economic activity and talent around the Blue Economy, bringing the city's economy closer to meeting the Green Deal and the sustainable development objectives of the 2030 Agenda.

In particular, the Government Measure identifies **2 tractor projects, 13 prominent projects, and 43 measures** around the following **8 axes of action**:

1. Blue Economy Hub: new economic activity pole
2. Blue occupation and training
3. Innovation and transfer on Blue Economy
4. Development of the Blue Economy sectors
5. Linking the Blue Economy with the city and its citizens
6. Conservation and regeneration of marine ecosystem
7. Local and international promotion, story, and positioning
8. Public-private governance

With respect to investments, Barcelona City Hall foresees an estimated investment of around **€40,500,000** between 2020 and 2025 to carry out the remodelling of the new Olympic Port (€40,000,000) and boost projects linked to the Blue Economy strategy (€500,000); and expects to receive **€4,500,000** from EU NextGeneration funds.

b. Critical analysis

The Government Measure outlines certain projects and measures to be developed around several axis of action but, similarly to the BE Report 2021, it would have been useful to include **specific positive results** in terms of sustainability that the City Hall expects to achieve from these projects and measures identified to check, at a later point, whether such results have been achieved.

4.2 Interviews

The transcription of the four interviews can be found in **Annex 1**. It is highly recommended to read them before going through the results below to gain a deeper understanding of the topic and better understand the analysis made.

Each interview was individualised for each Blue Economy expert, depending on their profession and specialty. The first three interviews were divided into two main parts. In the first part, introductory general questions related to the Blue Economy were asked, such as: *'How would you define the so-called Blue Economy? What are the main pillars of the Blue Economy? What do governments have to do to promote a Blue Economy? How can the Blue Economy help achieve the European Green Deal's objectives and the sustainable development goals?'*

Some questions were common for every interviewee, but additional questions were also asked. The second part of the interview was dedicated to specific questions directly related to the

objective of this research. Therefore, questions about the implementation and the progress of the Blue Economy in the EU were asked, as well as for Barcelona.

4.3.1 Interview with Rémi Parmentier

Rémi Parmentier's interview provided this research project with an **activist** and **environmental** point of view. Parmentier mentioned several concepts such as 'sustainability', 'ocean advocacy', 'the ocean as a whole', 'speculative economy', 'government's tendencies' or 'climate and atmospheric pollution impact'.

For the first two questions, excluding the brief explanation of his professional experience, he gave short and concise answers. He focused on the importance of having a healthy resilient ocean and the need to provide resources without harming the environment. He insisted that a Blue Economy must be **sustainable**. He mentioned the three pillars of sustainability (economic, social, and environmental) and the interconnection between them. He then argued why the **environmental pillar** should always go **first**. He mentioned the contrast of the following terms: Blue Economy and dark economy.

To answer the question related to the European Green Deal, he quoted Virginius Sinkevicius, the EU Commissioner for Environment, Ocean, and Fisheries: '**Green without blue is yellow**'. He agreed with him that **a green economy cannot exist without a Blue Economy** because the ocean conditions many things, including the climate and economic activities such as: fisheries, maritime transport, and aquaculture.

To answer the question related to the sustainable development goals, he mentioned the **non-fulfilment** of SDG 14 **target number 5** (conserve at least 10% of coastal and marine areas). A feeling of unhappiness and deception was perceived in the way he answered.

During the second half of the interview, for the specific questions he gave longer and more precise answers, accompanied by several examples. Regarding the question about the evolution of the Blue Economy in the EU and the effectiveness of the measures taken, he concluded that although some improvements have been made, there is still a long way to go. He mentioned a report of his entitled 'Blue Food for Thought' in which he criticizes some implemented actions and proposes, among other things, an alternative approach to marine protected areas.

He preferred not to answer the question about leading countries in sustainability and Blue Economy and stated the following: '*Certain countries are ahead in certain areas and others in others. This is not the Olympic Games; **we should all be on top of the podium***'.

When talking about **Spain**, he suggested the **creation** of a **specific administration** for the Blue Economy that would **look at the ocean as a whole** and explained that it would be beneficial, as it would represent a shift on how the current Ministry of Agriculture, Fisheries, and Food looks at fish. Therefore, he proposed to unlink ocean management from the Ministry of Ecologic Transition to avoid internal tensions among ministries and to '*look at the ocean in a holistic manner*'. He gave some specific examples about Pedro Sánchez and Teresa Rivera.

It should also be noted that, throughout the interview, he pointed out his close relationship with the city of **Barcelona**. He contributed to the drafting of a very important report from Barcelona City Hall and Barcelona Activa, which is one of the documents analysed above.

4.3.2 Interview with Gunter Pauli

Gunter Pauli's interview provided this research project with a mixture of **social** and **entrepreneurial** point of view. Pauli mentioned several concepts such as 'respond to people's needs', 'ethical appreciation', 'cohesiveness', 'cultural benefits', 'social inclusiveness', 'resilience', 'Europe's bureaucracy', 'the futility of green deals', and 'government's ignorance'.

For the first three questions, he gave brief but firm answers. When defining the Blue Economy, he insisted on the fact that the main difference with other economic approaches, such as green economy or red economy, is that the Blue Economy focuses on **generating** and **giving value** to what we have – as opposed to **the traditional business model**. Moreover, he stated that its main value is to respond to people's needs and that it is **systemic**, meaning that the Blue Economy **connects** things: *'To connect everything and see how it works as a system. Because only when you see the system, will you be able to identify more opportunities for generating value'*.

Regarding the concept map, he pointed out that the Blue Economy not only has economic benefits, but also **social, cultural, and ecological benefits**.

He stated that **governments** are very **ignorant** because they tend to focus on short-term benefits. He suggested that governments should make a **portfolio of opportunities** to identify future prospects. Secondly, he talked about how the **liberalization** of **education** would much better prepare young generations to think outside the box. For him, current education is prescriptive.

To answer the eighth question, he defined the European Green Deal as a big **bureaucratic statement**. According to Pauli, *'we don't need green deals. Instead, we need thousands of little initiatives and the empowerment of young entrepreneurs'*. He supported his responses with his 40 years of experience in politics and stated that: *'these big declarations, they come and they go. What does stay is young people taking initiatives and building up new business which are for the common of good and not just for the pocket of a few'*.

During the second part of the interview, for the more specific questions he gave longer and more precise answers, accompanied by several examples. He mentioned that the true origin of the Blue Economy concept was in 1994, when he started the Zero Emissions Research Initiatives as a preparation for the Kyoto Protocol. He collected his ideas in *The Blue Economy* book, which he published in 2010.

He then mentioned how the European Union has **failed to make progress** regarding sustainable development goals, and said that *'For the first time the middle class will become smaller'*, which evokes **social concern**.

Therefore, throughout the interview he kept arguing how dropping Europe's democracy would accelerate the implementation of the Blue Economy. He mentioned Estonia, Italy, Slovenia, and the Canary Islands as leading territories that have had a solid performance in Blue Economy implementation.

It can be concluded that his approach towards the Blue Economy is a very personal, considering it, as stated in his book *The Blue Economy*, as a 'marriage of science, innovation and entrepreneurship that creates a new business model that transforms society'. Therefore, when explaining the Blue Economy industries looking at the concept map, he disagreed with considering certain sectors, such as maritime mining, as emerging – and stated that *'This has*

nothing to do with the Blue Economy that I am standing for'. Finally, he remarked that the Blue Economy in the EU is at its very beginning and called for vision and ambition.

4.3.3 Interview with Iglia Yakova

Iglia Yakova's interview provided this research project with an '**institutional**' point of view. Throughout the interview, she mentioned concepts such as 'blue policy strategies' 'recovery funds', 'regulatory framework', 'contribution to the EGD', 'innovation agenda' and 'pushing Member States'.

In this interview she generally summarised the main ideas found in the European Commission's communication on a New Approach for Sustainable Economy in the EU. Therefore, she supported her position with three main ideas: the **transition** from 'Blue Growth' to 'Sustainable Blue Economy'; the alignment with the **EGD** objectives and the importance of recovery from the current sanitary crisis; and the adoption of a circular economy.

Moreover, she stressed the future importance of **financing** through both public and private sources, the interaction and cooperation between stakeholders, and the initiatives taken by the European Union regarding its partnerships with European schools to **raise awareness** among the young generation about the ocean's value.

It should also be noted that, very much in line with what Gunter Pauli said, Iglia Yakova considered that it is a relatively **new idea to talk about Blue Economy** within the European Union, and she sees it as being in its first stage of implementation. She also considered mining as a hazardous industry that threatens the health of the ocean.

To sum up, she based her arguments mainly on environmental principles, social wellbeing of coastal communities, and citizen engagement.

4.3.4 Interview with Anna Majó and Lali Costa

The interview with Anna Majó Crespo and Lali Costa provided this research project with a **local insight** to the implementation of the Blue Economy in Barcelona, a Mediterranean coastal city.

The format of the interview was, in this case, different, in the sense that no questions were posed as with the other three experts, and the interviewees simply made a presentation on the scope and contents of the **Government Measure** and offered the opportunity to attend the Smart World Expo City Congress.

4.3 Others

4.3.1 Online programme: One planet, one ocean

Going through the contents of this on-line programme was very helpful for properly understanding the functions of the ocean, the interconnection between the ocean and marine ecosystems, the impact of human activities, and how to administer the Earth in a sustainable manner.

4.3.2 Business congress: Smart City Expo World Congress 2021

Attending the Smart City Expo World Congress enabled me to meet and thank Ana Majó and to see how attractive this international summit is for many public and private organisations interested in urban reality and technological revolution.

5. Conclusions

What can we conclude regarding the **evolution** of the **Blue Economy** concept within the European Union? After a thorough analysis, I fully concur with the three first interviewed experts, in that although some improvements have been made, unfortunately we must recognize that the European Union is now at the very **beginning** or at the first stage of implementation of the Blue Economy concept (understood as an alignment of growth marine-based and marine-related activities, whether established or innovative, with sustainability principles).

Effectively, by reading the five European Union official documents, it is clear that the concept of sustainability linked to the ocean was used for the first time by the European Union in 2005 and later again in 2007, but without really conceiving it as a key driver of the emerging Blue Economy concept. Later, in 2012, when the European Union expressly referred, for the first time in one of its legal instruments, to the Blue Economy and its various sectors and industries, it did so within its 'Blue Growth' strategy, that is, as part of an economy growth and financial crisis recovery plan aiming to create jobs and make the economy grow again after the severe financial crisis suffered since 2008. Specific sustainability objectives remained undefined. Thus, the use of the Blue Economy concept was then more **apparent** or **rhetorical** than real, since the urgency to recover from the crisis was set above any environmental worries or concerns. **Bureaucracy** probably played a role then, but it could not be the excuse, since bureaucracy is inherent to politics, especially in large institutions like the European Union.

It was not until the publication of the European Green Deal in 2019 that the European Union made a **shift** in its Blue Economy strategy to make it strong, sustainable, resilient, and climate-neutral, and to align it with the European Green Deal objectives which, in turn, are intended to implement the United Nation's 2030 Agenda for the sustainable development goals. Therefore, we must accept that it is only now, in 2021, that a '**real sustainability**' is starting to gain force within the European Union with the true purpose of prioritizing environmentally friendly practices over just economic growth. A greater consciousness worldwide about the irrefutable scientific evidence that climate change is truly endangering our planet, has probably brought the European Union to finally understand that time is of the essence, and there is an urgent need to act and ensure that growth and sustainable development go hand in hand.

What can we expect for the future? Will there be a change, or should we expect the new approach of the European Union to be, again, to just seek new **business opportunities** without true involvement in environmental protection? **I personally do not think so.** As mentioned above, the European Green Deal is an integral part of the Commission's strategy to implement the United Nation's 2030 Agenda and the sustainability development goals. Although we are behind schedule, we may trust that the new strategy will put the European Union back on track to implement truly transformative policies which will bring social inclusion, improve equity, generate jobs, and promote sustainable livelihoods. In this respect, certain emerging sectors

focused on scientific research, technology and innovation will become the drivers of this new strategy. Including in future Blue Economy reports an analysis of the positive results in terms of sustainability, and not only in business terms, as generated by the Blue Economy policies and projects, would be desirable.

But meeting environmental objectives will only be possible if we **raise awareness** through proper education among young generations about the threats the ocean is exposed to, bring the ocean closer to the citizens and foster firm citizen engagement, as Iglia Yakova stressed in her interview. In this respect, certain EU initiatives to partner with education institutions sound very promising.

Finally, local initiatives such as those put together in the Government Measure of the Barcelona City Hall are clear evidence that the new approach of the European Union is taken as the 'lighthouse' for ensuring that prosperity and sustainability go together. Let's trust that that will be the case.

6. Projects for further development

The Blue Economy includes a large variety of established and emerging marine-based and marine-related industries and presents a huge potential for the future. There are many interesting features of the Blue Economy sectors to explore, some of which could be analysed in the three projects for further development proposed below.

The first research project could be to carry out an analysis of the application of **marine biotechnology**¹⁴ in the **cosmeceuticals industry** to explore purposes and environmental benefits. A good way to make such analysis would be by examining the production process of a cosmetics firm and developing an overall study of the brand's ethics, sustainability concerns, marketing strategies, business opportunities, and challenges. **One Ocean Beauty**, a beauty brand created in the United States, which uses blue biotechnology, would be a good example.

Secondly, with respect to the secondary purpose of this research paper regarding Barcelona's Blue Economy initiatives, another project could be an in-depth analysis of the **effectiveness** of the **Port Olympic's renovation works** foreseen in the Government Measure, with a particular emphasis on sustainability goals achieved with the investment made.

Finally, a third research project could be to make a critical analysis of the European Union's commitment towards achieving **Sustainable Development Goal number 14** ('Life below water') and all its specific targets since it was presented by the UN General Assembly in 2015. Making predictions on how the situation will be by 2030 would also be interesting.

¹⁴ According to One Ocean Beauty, marine biotechnology applied to cosmetic products is considered a cutting-edge technology that uses molecules obtained from living marine microorganisms and reproduces them in a lab environment through bio-fermentation. Through this process, clinically proven, age defying marine actives are produced without negatively impacting the marine environment and its biodiversity.

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8. Annex

8.1 Annex I

The following interview transcripts are in their original language. No translation efforts have been made to avoid changes in the meanings of words and thus in the opinion of the interviewees.

8.1.1 Transcription of the interview with Rémi Parmentier

1. Before we start, could you briefly introduce yourself and tell me a little bit about your professional career and what do you do at the moment.

*My name is **Rémi Parmentier** and I have been an ocean advocate pretty much for my entire life. I started around 1974 and I have had various responsibilities in different organizations since then. It's well known that I was a founding member of **Greenpeace** International in the old days and I ran as well as some of the legendary campaigns of the Rainbow Warrior and of Greenpeace. Later, almost 20 years ago, I formed my own consultancy, **The Varda Group**, together with another colleague, to provide strategic advice and strategic programmes to all sort of entities, governments, international organizations, foundations, NGOs, and others. I was an Executive Deputy Secretary of the Global Ocean Commission a few years ago during the existence of the commission also so I have relatively good knowledge of what now we call the Blue Economy and I always add the adjective **sustainable** (Blue Economy).*

*Let me correct you, at the beginning of the interview you mentioned the oceans, in plural. There is **only one ocean** on this planet. This is the global ocean and it is important to underline that there is only one ocean and to emphasize that it is the engine room of life on this planet and, in particular, of the climate system. Look at the map, from the Antarctic convergent and you will see that there is only one ocean that meets in the Southern Ocean.*

2. In a recent article published by the online newspaper 'El Confidencial', explains how for you there is a huge necessity in maintaining a healthy relationship with the ocean if we want to ensure a sustainable future. It quoted you saying the following: 'Sin un mar vivo, no hay planeta vivo', so could you explain the reason why the ocean's health is a matter of great importance?

*Well, what I've just told you. There would be no life on Earth if it was not for the ocean. What distinguishes planet Earth from all the other planets in the solar system is the existence of the ocean, which provides life. **No ocean, no life**. No living ocean, no life. It's not only that the ocean presents a 70% of the surface of our planet as you know, it's just that it has provided the **oxygen** that we breathe, provides **food, livelihood** for millions of billions of people (three billion people). It's what life comes from and it's what sustains life and the reason why we are here and not on Mars or on the moon. It's because we have the ocean that we live and we exist. It's just as simple as that. It is a very basic fact that, strangely, people tend to ignore.*

3. In a few words, how would you define the so-called Blue Economy?

*The Blue Economy **must be sustainable**. It cannot be a repetition of the linear exploitation of resources like we have had on planet Earth or the one we continue to have on the ocean as well. So, what does sustainable mean? It means that it has to provide resources **without endangering** the access to those resources to future generations. I think that is a very simple definition that everybody should be able to understand. If you over exploit resources, like fish, or if you damage ecosystems that are important to marine life, like coral reefs for example, or seamounts and so on, you are condemning future generations to not have access to those resources. Therefore, it is not sustainable. There are **three pillars of sustainability**, there is the **economic pillar**, the **social pillar**, and the **environmental pillar**. But it is so important to put the **environmental pillar first** because if you do not put it first you will undermine the social pillar. **No resources, no jobs**. But also, you will undermine the economic pillar as well. **No resources, no trade, no money, no continuity**.*

4. What do governments have to do to promote a sustainable Blue Economy?

*First, they have to **open their eyes** and use **common sense**. Then they must **listen** to the people who are in the field and the community that is most closely dependent on the sustainability of the ocean. I am thinking for example of the **coastal communities**, small scale artisanal fishers, and of course **science**. They have to listen to science; we have a whole body of science. **Governments too often have a tendency to listen to short term vested interests of the speculative economy rather than listening to those who have the knowledge to secure a sustainable Blue Economy**. And we see it all the time. Here in Spain, you have a very good example at the moment that the media is talking a lot about, the **Mar Menor**. Let's talk about this one because we see it every day on the internet. I am not a specialist, I have never been in the Mar Menor, so I don't pretend to be an expert. But it is a very good case of a **regional government that has been supporting the interests of intensive agriculture which entails the discharge of substances that pose eutrophication and basically creates a dead zone and is killing an entire ecosystem**. And on the other side you have scientists from the Instituto Español de Oceanografía and others, who were sounding the alarm for many years. That's how the regional government show they listen to the ignorant people instead of those who have the knowledge. And here we are. If nothing is done immediately, it has all the ingredients to become a dead zone.*

*And so the **opposite of the Blue Economy** is the **dark economy**. I don't know if you paint as a hobby or if you have artists in your family or in your surroundings but, you know when you paint you define colours by contrast to other colours. You can relate this to how to define the Blue Economy. Blue economy is the opposite of the dark economy, of the brown economy in the ocean. By the same way what is the green economy? You define it by opposition to the brown economy. By contrast, it is much easier to define.*

5. In your opinion, can the Blue Economy help achieve the European Green Deal's Objectives? How? In what sense?

To answer this question, I'll quote with **Virginijus Sinkevičius**, the EU Commissioner for Environment, Ocean and Fisheries. He said a few months ago **'Green without blue is yellow'**. I quote it often because it has a good talking point. It's the same idea that I was giving you, you define a colour by contrast to the other. **So, you can't have a green economy without a Blue Economy because the ocean conditions a lot of things: the climate, many economic activities such as fisheries, aquaculture, maritime transport, trade, and so on.** Therefore, these activities have to be sustainable. Otherwise, the green economy is not possible.

6. And what about the Sustainable Development Goal number 14 (life below water)

I was very involved in the discussion that leads to the adaption of SDG 14. I was in New York in a meeting with all governments in a big working room. After the **Rio +20 Conference on Sustainable Development**, it was decided that it was a good idea to have these Sustainable Development Goals. The initial idea came originally from Colombia and Guatemala. It was the SIDS (Small Island Developing States) that proposed a specific goal dedicated to the oceans. At that time, I was a secretary for the Global Ocean Commission, so I actively supported this goal number 14 you are asking me about. This Goal number 14 has a series of targets, some to be accomplished by 2030 but others, because there was a sense of urgency, were proposed to be fulfilled by 2020. But what is annoying is that these 2020 targets have not been fulfilled yet, and we are in 2021. For example, target 5 said that 10% of the ocean should be protected by 2020. We are still waiting for that. We are below that target. If the Commission on Conservation of Antarctic leading marine resources can endorse the proposal to create new marine protected areas in the Southern Ocean, then we will meet that target. We had hopes that the meeting of the commission would take place last year. But because of the pandemic it was only a virtual meeting, and you cannot negotiate properly in a virtual meeting. They are going to meet in theory in October. What we do have is a special meeting in Madrid very soon for the thirtieth anniversary of the Madrid protocol, the protocol that protected the Antarctic continent. So, Teresa Ribera, the minister of the Ecological Transition is organizing this meeting. So, maybe something will be improved.

7. My research project is specially focused in the evolution and future potential of the Blue Economy within the European union, so now I am going to ask you few questions related to how the EU has been doing on this side.

After some research, I found out that the Blue Economy concept originated in the Rio+20 2012 United Nations Conference on Sustainable Development and this topic has been debated since then. Afterwards, the European Union presented its Blue Growth Strategy and annual Blue Economy reports since 2018.

What improvements would you highlight that have happened during this decade? Is the European Union walking towards the right direction, in this matter?

Let me think, you are asking me **a big question**. What shall I say? I'll say that one progress is that the many European Union governments are not looking at the ocean as just a reservoir of fish that we need to catch. It was very much that, before. Virginijus Sinkevičius is called Commissioner for the Ocean but a few years ago the EU commissioner was called, Commissioner for fisheries, that's all. Like Maria Damanaki, who was very good, but she was fisheries Commissioner. She was told to manage fisheries, not the ocean. But **now governments hopefully are increasingly aware of the fact that we should manage the ocean as a whole and pay particular attention to cumulative effects of different human activities that can affect the ocean**. So, for example; you cannot consider how to manage fisheries if you do not consider pollution or the impact of climate change; you cannot consider how to protect marine mammals if you don't take into account impacts from ocean noise, underwater noise, underwater pollution, noise pollution.

With increasing maritime traffic, with ships going faster because international trade continues to increase, there are **impacts on whales** when the ship strikes. Ships do not even notice because they are so huge but they hit whales and kill them accidentally, well relatively accidentally because if we were taking measures such as creating safe corridors for shipping or limiting the speed, limiting the noise of the engines, we would mitigate these impacts.

The same goes with climate and atmospheric pollution impact coming from shipping. If ships were going slower there would be less CO₂ emissions, let alone the need to develop alternative modern fuels and propulsion systems. So, for example wind engines, which were invented in the 1930's in Germany, now are modern versions of the wind engines that are not the same. It's a turbine, these modern versions are being developed now by companies. Also, a friend of mine has been developing the modern wind engine and he's currently building the ship that will carry the Arian space rockets from Europe to French Riviera. So, they are going to carry them from Europe to France with a wind propeller.

To make a long story short, the wind engine is not just the dream of some hippies but it's a very serious business, just like wind energy on land or offshore. Thirty years ago, people were saying this would never work, and now it is the fastest growing cleaner alternative and it's surpassing conventional fuels for electricity generations. Now, nobody is surprised to see a wind generator. 20 years ago, people would be surprised. Now you don't even pay attention or look at it anymore. Now there are other alternatives like **green hydrogen**, which is part of the Blue Economy of course because it helps to develop alternative and truly clean fuels for shipping.

A few months ago, I was facilitating in Barcelona a session in a conference called **Barcelona ReAct**, the first meeting after the pandemic and they asked me to facilitate the session of the Blue Economy. Maybe you saw it. The president of the harbour of Barcelona said: 'oh yeah, yeah, we are developing and facilitating liquid natural gas for vessels'. That is obviously better than heavy fuels but that is also a greenhouse gas that contributes to climate change so my response was: 'this is nice but this is not the answer. At best it's the transition, but you have to get ready to host facilities that include for example green hydrogen and also maintenance of wind engines, because that's where the competition will soon be'. Technologies will evolve and some ports will

be ahead of the curve and some will stay behind and be depressed. So, this is for an environmental, economic, and social reason, because at the end of the day, we measure it in employment. You had better be ahead of the green blue curve rather than being behind. Got it?

8. Which do you think are the countries that are doing the best regarding sustainable blue growth/development?

*I am very careful with this, because certain countries are ahead in certain areas and others are in others. It's not the Olympic games. **We should all be on top of the podium.** So, it is very important that certain issues take place at a European level with a common playing field.*

9. You have given examples about actions taken in Spain and Barcelona; do you think that the central, regional, local governments are really concerned about developing a Blue Economy? Are they taking the appropriate decisions? Do you see interest?

I think that in Spain you have several attitudes – as always in a large entity. Of course, the leadership of Teresa Ribera is well known, for example, and I expect that Pedro Sánchez is listening, but then there can be pressures from certain vested interests. Do you remember Pedro Sánchez talking about the 'chuletón' this summer? That was a bit unfortunate.

*I think **a good move would be to have an administration for the Blue Economy that would look at the ocean as a whole and not the narrow prism of fisheries within the Ministry of Agriculture and Food.** Basically, the management of fish is in an administration called agriculture and food so they look at fish as food. Of course, fish are food, but they are more than food. Fish maintain marine ecosystems and have a whole function beyond being just food.*

*Some aspects of ocean management are in the Ministry of Ecological Transition, like marine protected areas to some extent, but there is a lot of tension between these administrations. And I am sure that with others as well (e.g., Ministry of Economy). So, why not **have a Ministry of the Blue Economy? That would look after the ocean in a holistic manner.***

*I have talked about Spain. Let's look at **Barcelona**. I've been asked to work on a project with the **Blue Economy** as one **of the pillars** of its **recovery plan**. I did a big report for Barcelona but it belongs to them. I think there are eight recommendations in that report. I think they have shortlisted 3 or 4 of them that they are further pursuing, but it belongs to them, so I am afraid I cannot say much more. I did a piece of work for them as a consultant, and there are some strategic ideas that I am sure they don't want Malaga, Marseille, Montpellier, Tangier, Tel Aviv, Rome, Naples to steal, right? Because they paid for them. You have to understand it is a pity because I think that, as a 'Catalana', you could be excited with some of these ideas but they belong to **'Barcelona Activa, la Empresa Pública de Desarrollo Económico de Barcelona'**. I did a major big piece of good of work for them; and I know they are happy with it. There are political decisions that they have to make – it's about maybe 60 pages long and it's a real report.*

*They asked me to come next 8 October to an event. I'll do it virtually because I have a lot of work. It is called **BNEW, Barcelona New Economy Week, Zona Franca**. I will send you the link. It's about*

*different things, but there will be a **session about the Blue Economy** in which I will participate virtually. So, you can register and go personally or follow online.*

10. I have a final question for you. Generally speaking, at which point is the European Union at the moment? What predictions can you make for the future? Will we reach a point where finally environmental protection and economic activities go hand in hand?

*Looking at the big picture, the international picture, **the EU is a champion in many areas** (e.g., climate change). But **not everything is perfect** in the climate transitions. If we didn't have the European Union we would be much more behind and we are already quite behind, so it would be bad. As I told you, things evolve in other areas. For example, the EU tries to be a champion in the designation of marine protective areas. There is this movement called 30 by 30 but you have seen **my criticism** of it in the 'Blue Food for Thought'. I think it is always important to be ahead of the curve. That's why I wrote 'Blue Food for Thought' because I think that, inevitably, some of the ideas that I have put forward will be picked up, maybe sooner than later, especially the idea on **marine protected areas**. Maybe also the idea on the management of large fish, you might have read that. There are discussions on the international treaty on plastic pollution. There also I have some novel ideas.*

*In Catalonia there is a **magazine** called '**Idees**' and they are going to publish at the end of this month some ideas I have written regarding my '**Blue Food for Thought**' report. I think I focused on the ideas of marine exploited areas. It's coming out I think in English, Spanish, and Catalan. Also, **Barcelona Metropolitan** interviewed me and it was very good.*

8.1.2 Transcription of the interview with Gunter Pauli

1. Before we start, could you briefly introduce yourself and tell me a little bit about your professional career.

*I have a unique professional career because I have never worked for anyone. I've only worked for myself which is a unique gift in life because I never had to respond to bosses or follow their strategies. I've always been able to **pursue my own dreams** and I've been able to focus on what I think is important in life. Of course, that makes me a free bird and makes me free to think and act as I wish and that has characterized all my activities.*

2. In your own words, how would you describe the so-called 'Blue Economy'?

*For me the Blue Economy is very different from the red economy or the green economy. The Blue Economy is when you use what you have and your focus is on **generating**. You are not trying to be the cheapest. You are not trying to produce by exploiting workers, by cutting short the environment, or by obtaining taxes. You basically focus on getting the best out of what you have. And what you have has to be **sustainable and renewable**, but you focus on generating value to respond to the needs of the people. That's the **philosophy of the Blue Economy**.*

*Thus, the Blue Economy is a very **simple logic**. It is using what you have. It is giving value to what you have. It is appreciating everything. You are not trying to be the cheapest. You are just trying*

to really give the best of all that you have. That's in very simple words what the Blue Economy is about.

3. What are the main pillars, principles, and values of the Blue Economy?

The **value** is that **you respond to people's needs**. This is most important. You are not doing it because you want to get rich or you want to be powerful, you just do it because you want to respond to the needs. That is number one. So, it's a very **ethical appreciation**.

Second, you will use everything that is around you, meaning that even when it's considered waste or even when it's considered 'una maleza', something that really is not appreciated, you are going to use **science** to find out what it is good for. This is a very important feature of the Blue Economy. **Science is the basis**. You will have solid scientific insights to substantiate.

But the third very important **principle** is that you are **systemic**. You will **connect things**. In traditional business you focus on one thing. When you look at the ocean, you cannot just look at the fish. It doesn't make any sense. There is no fish without any feed for the fish. And where does this feed for the fish come from? It may come from the shells or seaweeds or from the bottom of the sea. So, another very important principle is that we need **to connect everything and see how it works as a system**. **Because only when you see the system, will you be able to identify more opportunities for generating value**.

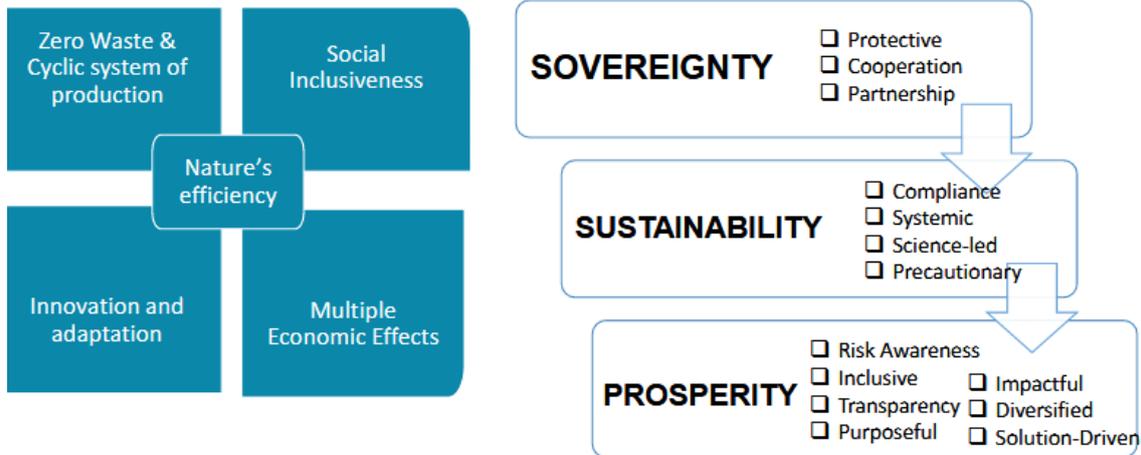
4. What are the main benefits of establishing a Blue Economy?

The most important observation you can make is that, since we are inspired by nature, in nature, no one is unemployed, everyone has a job. This is fantastic. Everyone contributes to the best of their abilities. That's a **unique feature**. That is what we are really focusing on: how are we succeeding, not just in eliminating the concept of waste, because nature doesn't know waste, but how are we succeeding and having everyone contribute to the best of their abilities. A young tree contributes as much, according to its abilities, as an old tree. And there is no separation of old and young, everyone is doing their very best.

So, to me the benefit in the first place is that **everyone feels that they have their space**. The second major benefit is that we have **resilience**. Resilience means that if there is a crisis, you know how to suffer. You know how to withstand and get through difficult times. And I always say that whoever has not gone through a crisis yet, will find a crisis soon. We all have to go through a crisis. But the capacity to go through crisis is called resilience. And the Blue Economy provides resilience.

5. Doing some research, I have found this concept map that defines the concept of the Blue Economy according to you that I've found very interesting. Could you briefly explain it?

Blue Economy Concept according to Gunter Pauli



The first point of all is that **in nature everything is always used and everything always has value**. And that means that there is never waste and that everything is always reused. But **reused** in a different way so that means is very critical.

Second, **nature** is always looking for **improvements**. Nature is never happy with what it has. Nothing of today is the same tomorrow. Everything will always go through **adaptations** and changes and as I mentioned before there is no unemployment, everyone contributes. Even new-borns are already contributing. And this is very powerful because if you have everyone contributing then you really create a **cohesiveness community**.

I would just make a little adjustment there. It says: multiple economic benefits and effects. That's right, but I would not only look at multiple economic benefits. It has **multiple social benefits**, **cultural** benefits, and **ecological** benefits. So, everything is a multiple of what we think. This is the effect of the Blue Economy. So, we have multiple benefits and one of the benefits is of course economic, but the other benefit is that we are supplying food, much more than we thought was ever available. Since we have more food, we have less poverty. Since we have less poverty, we have more **social inclusiveness**. The key is that you have **multiple effects and not only economic effects**.

6. What do governments have to do to promote a Blue Economy?

I think governments in general are very **ignorant** and we cannot blame them for being ignorant because they are focusing on the **short term**. But what I think is the most important are two points.

One is that governments should see the opportunities. I always say that governments have to make a **portfolio of opportunities**. This is very important. Governments have stopped describing the problems. They have stopped focusing on all the opportunities that have been generated with these initiatives.

The second thing governments have to do is to really **liberalize** the education because education is very descriptive. Education tells you what you should learn. I mean, you perhaps know my favourite example: every child has to know and learn the law of gravity, how the apple drops

from the tree. So, you can figure that out. But what I think is more important is to let children figure out how did the apple fall out of the tree before it falls and this is what I call **the freedom of education**. I am not saying that we don't have to have schools anymore, I am saying that we have to **stop being so prescriptive**. If governments offer this liberty to students to be able to imagine how the apple goes up versus how the apple falls down, I think we will have a **much better prepared young generation** that is **challenging**, not because it is against something, but because they are in favour of something much better. If I know how the apple goes up and there are seven laws of physics that permit an apple to go against the laws of gravity, I can guarantee you, Alejandra, you will know a lot of renewable energies, you will have a lot of great ideas about renewable energies, which goes way beyond the solar energies and wind energy we have today.

7. What is the difference between Blue Economy and green economy? In which way are they related?

The key difference is that in the green economy, you want to do good. You want to stop the waste. You want to stop pollution. You really want to do good. But in the green economy you **accept the existing business model**, which is producing more of the same but always **cheaper**. And in the **blue economy we do not accept that the business model** that describes being cheap as the way to compete in the world is the way to go forward. We reject that because we think it has proven to be incapable of eradicating poverty from the world.

8. How can the implementation of the Blue Economy help achieve the European Green Deal's objectives?

I am not worried about a green deal. I think a green deal is a big **bureaucratic statement** with a lot of **good intentions**, but we don't need big new deals. We need thousands of **little initiatives**. We need the **empowerment** of millions of **young entrepreneurs**. That's what we need. We don't need a deal. We don't need to say that hydrogen is going to be the future. We don't need to say that agriculture is going to be chemistry. That is not the most important. Politically, this may seem aligned, but I have been in politics for more than 40 years and I know that these big declarations come and go. What does stay is young people taking **initiatives** and **building up new businesses**, businesses which are for the **common of good** and not just businesses that are for the pockets of a few.

9. And what about the Sustainable Development Goal number 14: Life below water?

I am very pragmatic and my **pragmatism** tells me that that in 2020-2021 **we have failed making progress on the SDGs**. So, this doesn't mean the SDGs are bad. It means that we need to go back to the basics, the basics on what is happening on the ground. Too much of the SDGs is about money and how much money countries are spending on trying to transform the business situation of poverty and hunger. But the hard reality is that for **the first time in history**, in 2021 **the middle class will become smaller**. That means our SDGs aren't working. It is very laudable to have SDGs and to propose them, but it is something else that makes it happen. What I feel is that today it has been **too much political talk** about how to agree on SDGs and there is not enough about how do we implement them on the ground with young people who really feel that they have got the liberty to move forward.

'My research project is specially focused on the evolution and future potential of the Blue Economy within the European union, so now I am going to ask you few questions related to how the EU has been doing on this side.

After some research, I found out that the Blue Economy concept originated in the Rio+20 2012 United Nations Conference on Sustainable Development and this topic has been debated since then. The European Union has presented its Blue Growth Strategy and annual Blue Economy reports since 2018.

10. What improvements would you highlight that have happened during this decade? Is the European Union going the right direction in this matter?'

*The origins of the Blue Economy were the preparations for the **Kyoto protocol**, that was where ideas of the Blue Economy really emerged. We are going back to **1994**, that's when the **Blue Economy's first concepts** were proposed. In **2009** I presented my **book on the Blue Economy in Amsterdam for the cause of growth** and that is, again, **three years before the Blue Growth Report**.*

*The question is: are we accelerating the **implementation** of the Blue Economy? Yes, or no? And the acceleration of the implementation is happening **more outside Europe** than in Europe. Europe is pretty slow. Europe has to find a common pathway for 27 countries and that takes a lot of time. There are, on the other hand, a couple of extraordinary examples like El Hierro, a little island in the **Canary Islands**. That is a very good example, which everyone appreciates. And, by the way, from November 20 to 24 we will be spending four days on the island to really discuss how have we succeeded in the past 24 years and how are we learning to spend the next 20 years. We have a few **world-leading examples** such as the island of **Sardinia** and the bioplastics example of **Italy**. But the large majority of our initiatives are outside of Europe. Europe is too bureaucratic. **Europe needs to drop its bureaucracy**.*

11. Searching for information related to the Blue Economy, I found this interesting timeline in the European's Commission website. Could you give your thoughts on it?



*This is the **European's political timeline**, and I am sure it is correct from their political point of view, **many other things happened**. It was in **1994** when the United Nations University and the*

Office for the Cop3, the **Kyoto Protocol**, when they agreed that they should have **another way of approaching the economy. I was in charge of that think tank. So that's when it started and that's 11 years before they called the strategic objectives. But it is good, they look at the strategic objectives and they were inspired by some of the work we have done and that's very positive for us.**

11. Within the European Union, which are the leading countries? Which countries are doing a good job in this field, regarding sustainability and Blue Economy implementation?

*Some surprising countries like **Estonia** are very forward looking. Of course, also **Italians** are proactive and doing good. And also, some regions of Spain, not Spain as a country. Like the **Canary Islands**. They definitely have a very **solid performance**.*

*Estonia has a very clear strategy for its major islands in the Baltic Sea and I have spent time in **Hiiumaa Island** and **Saaremaa Island**, islands you probably have never heard of in your life. There we created a colony basically using a lot of the traditional agriculture that the local renewable sources they have available from agriculture and fisheries. So, I think the island policies are very forward looking. Also, Estonia is a country that wants to be organic for the whole country, at least 50% by 2030. They have 50% of their land as forest. That's unique. **Slovenia** is also a country that has beautiful beaches and the beautiful Adriatic Sea. But Slovenia also has a very good policy of full integration of forestry, and a very small amount of tourism. It is more of what the local people require and need.*

These are some good examples, although I would like them to be a lot more ambitious that what they are.

12. Generally speaking, which sectors/industries of the Blue Economy are the most developed and better prepared to meet the goals of the Blue Economy? Which would you say is an emerging sector that has a lot of potential for the future? I have found the following map that shows the established and the emerging industries.



So, this is **a very traditional look of the Blue Economy**, focusing really just on the sea. I think **we need to go beyond it**. One of the major ones missing is the production of **hydrogen** from sea water and I don't know why no one wants to look at it, but **I operated the largest boat on the world** that has come three times around the world. We only use sea water to generate hydrogen. That is a very important **emergent industry**.

Another one that I think is very important is, what is called **high tech marine** but we are really into fishing without any nets and just air bubbles. We think that would be a massive breakthrough.

The third one that I would like to comment, looking at this concept map, is the capacity **to correct the errors of the past**. We have so many **microplastics** and **nanoplastics** in the sea. I think a very important emerging Blue Economy industry is going to be the cleaning up of the mess of the past. You know, **remediation** has been very important on land but we have never remediated the sea. We have to remediate the sea. Remediation of the sea means that we are going to be capable of taking all the **nanoplastics** and all the **microplastics** out, but energy from marine environment is not going to be offshore wind. **That's the past industry**. I disagree that this is considered an emerging industry. I think it is a past industry and I think **marine aquaculture** is too. I mean who wants to eat salmon that has been genetically modified to be able to digest soy. I don't get it. **It has nothing to see with the Blue Economy that I am standing for**.

Have a look at the **blue cluster** of the Flemish government in **Belgium**. Look at it. You will find many other good ideas.

13. So, generally speaking, at which point is the EU at the moment? What predictions can you make about the future? Will we reach a point where environmental protection and economic activities go hand in hand?

I think the Blue Economy in the European Union is at its very beginning. I think if I look at this Figure 1 here of established industries and emerging industries then I realize they really are **missing a lot of vision and a lot of ambition**. So, people like you will really have the mission to become more ambitious and have much more vision because dredging is an old industry, maritime transport is another old industry, offshore oil and gas is on the way out, marine construction as well. We have destroyed the sea so much. So, I don't want to see just what we know today, we need a **vision** and **ambition** and these two I feel are missing.

Thank you very much for your kind assistance with this matter. It has been a real pleasure meeting you.

8.1.3 Transcription of the interview with Iglia Yakova

When you go to the website to learn about how the EU sees the Blue Economy you can refer to **our new communication** about a new approach which we published on the 17 May. Before that, the previous policy of the European Union was called **Blue Growth** and this has evolved throughout the years because we think that we can't talk about Blue Growth anymore. The sea and the **ocean** is our common resource, our **most precious resource** that we have to **protect**, and therefore we felt the need for a new approach that takes into account the sustainability on equal

footing as an economic activity. That was one of the points I wanted to highlight, to notice the shift that we made from Blue Growth to Sustainable Blue Economy.

The other issue is that when we talk about sustainable Blue Economy, we also think that it's a **horizontal approach** across all the sectors of the economy related to the sea so that would encompass many different things and I think that is the novelty for the EU but it is also similar in other countries in other international initiatives on the Blue Economy. The **challenge** is **how to define sustainable Blue Economy**. First of all, it is a huge sector that has a lot of potential for growth, for economic activities, **social integration**, for the **wellbeing** of the **coastal communities**. And this goes from fisheries, aquaculture, transport, shipyards, off-shore energies, a lot of different economic sectors.

The other things that are important to us is that with this new strategy we thought a lot about the **pandemic** and **how to recover** from the current **crisis**. This should not be done at the expense of our climate and our ocean but on the contrary, these objectives go hand in hand with **economic recovery and sustainability**. What we see right now with **climate pressure**, **environmental degradation**, with the push for more **biodiversity**, for us, it is an opportunity to develop in a more sustainable way. I would say even that we don't have any other options. That's the only way possible. We cannot continue doing it the old way. And that obviously means that it would require a lot of effort and a lot of investment and it has to be backed by support measures. So, on the one hand we have this Blue Economy strategy and on the other hand we have the money that goes with it, the support from the European Union sources, also from other private initiatives that we are trying to put together. All with the **blue component in mind** because when it comes to investments it is very important that we target specific **blue initiatives**. When I say blue that is everything related to the ocean, the sea, and coastal economies.

I said many things: the **shift from Blue Growth to Sustainable Blue Economy**, the **alignment** with the **European Green Deal objectives** of sustainability, zero emissions, sustainable aquaculture, all those matters. And then the **importance of recovery and sustainability** that go hand in hand and the **financing** and the **support** through **private and public sources**. And finally, the role of all actors. It is not easy to connect such diverse economic sectors, so the only way to do that is with **interactions** with all different **stakeholders**. I mean the European Union, but also Member States and most of all the regions and then coastal regions and coastal local communities because that's where it happens. Very often there are a lot of initiatives that we are not aware of but they need to be interconnected, supplicated, replicated to best practices and examples.

I would recommend reading the **Blue Economy report 2021**, it is a very good source of information. Also, the new approach. And you could also check the new initiatives that we are preparing. You probably know about the **Blue Guidelines for Sustainable Aquaculture** that we have done. We also preparing another initiative on **marketing standards** for sustainably produced fishing products. This is an initiative informing consumers on what is a sustainable fishing product and because we want to focus on developing the sustainable fishing practices. You probably know about emerging sectors called **Blue Biotechnology** or Marine Biotechnology, and we are also have started an analysis on **algae**.

I could also mention off-shore energy in which EU is a leading force but I think this is less relevant.

1. Before we start with the questions, could briefly introduce yourself and tell me a little bit about your professional career.

*I am a **deputy head of unit** in Unit A 3. The name of the unit is **Sea-based Strategies, Maritime Cooperation and Maritime Security**. What we do within this unit is focus on the regional dimension of the Blue Economy by creating links among partners in different sea basins. So, for instance this is one initiative, it is an intergovernmental initiative among mainly Mediterranean countries so not only EU but also Southern neighbouring countries in the Mediterranean. We also have an Atlantic strategy where we work with all the Atlantic Member States, those from the EU. We also have the Common Black Sea agenda which is an initiative gathering all States around the Black Sea basin. So, what is important here it's not only about fisheries and how we manage fish stock. It's about creating partnerships to work together on issues related to the maritime economy; maritime tourism, transport, and blue skills.*

In addition to that, there are very important environmental problems that need to be tackled in a concerted way, because for instance for the Mediterranean when we talk about plastic pollution and these problems they go beyond the nation state and so must be addressed together. So that's why such initiatives are very useful because they bring us together.

*We also work a lot on the **maritime security areas**. We share with the External Action Service and we have a specific maritime security action plan that we have developed with the External Action Service and Member States to tackle and to coordinate maritime security activities within the European waters.*

2. You have already defined the Blue Economy, but what are its main pillars and benefits?

*What can I tell you about the main pillars? At this stage I would say that the sustainable Blue Economy is a **contributor to the European Green Deal** so if I say in a **policy level** the main contribution would be contribute to the EGD objectives of the EU; **sustainable recovery and circularity**. Then if we talk about **contributions to society**, it's about the **wellbeing of coastal communities** and ensuring a future for younger generations.*

*If I have to tell you about the pillars I would go through the main document and you would see the different sections. It is a document that has collected efforts from all the different services of the Commission and it has a very broad agenda so it's difficult to say what are the main pillars because obviously we have **maritime security, citizen engagement, and ocean literacy**. But I think it is very important to **bring the ocean closer to the citizens**, to the people, and not only those who live there but to everyone and to pay attention to the importance of the ocean. And now watching what's happening at **COP26**, I can see that there is a lot of slogans: 'ocean changes climate change or impact on the ocean is impact on climate'. There is a clear **link between what's happening with the ocean and what's happening with the climate**, and you know the ocean is one of the major values which we have to take care of because it's a climate regulator. Everything else is as well. So, I think is very important for everyone to **understand the value of ocean**.*

*Here I am talking a lot about Blue Economy and that it has to be sustainable, it brings growth. However, we should not forget that both go hand in hand. **Protecting the ocean and the economic prosperity go hand in hand**. And that also brings me again to the issue of the citizens and ocean literacy. We have a lot of activities involving networks of **European schools, teaching about the ocean, explaining how important the ocean is**. That's a very important pillar. Next year is the European commission's year for youth. Youth will be celebrated and a lot of our activities*

*will focus on youth engagement. It was announced by the President of the Commission last month in October, and so that means that youth will be an important policy priority for us. It's part of our sustainable Blue Economy because when you look around you have communities, coastal communities that are very vulnerable and at the front of the climate change because of sea level rises and the climate related crisis. So, there is a risk that populations are put in danger. Also, because sometimes in certain coastal communities there are not enough jobs because tourism is often the first industry that could be very much impacted by economic crisis and so young people leave the cities and go to big centres to work. It is important in my view to keep young people in coastal areas, **build skills**, and improve the digitalization and the access to jobs so that people stay in coastal areas and **create a rich social structure**.*

*It is a **relatively new idea to talk about Blue Economy. This has not been the case before** and when we started crafting the concept of **Blue Growth** our idea was to develop those innovative economic sectors that relate to the ocean and then **we realized that there are also many dangers and threats and challenges with overdeveloping certain sea activities**. I'm thinking here about **seabed mining**, for instance, which we are very critical about. We believe we need more research and more analysis and a better understanding of the impact before deciding on what are the next steps. **Growth is good – but it has to be sustainable and also measurable and attentive to the people**.*

*Therefore, in this sense, **the fact that we have streamlined the Blue Economy into our sustainability objectives** as I said at the beginning is not only important, it is **indispensable**. We can't do differently if we want to succeed.*

3. Within the European Union, which are the leading countries? Which countries are doing a good job in this field?

*It is very difficult because I don't think my role is to highlight who is the best and who is less. There are **certain countries** that have **developed very interesting blue policy strategies** where they push for those objectives and I would invite you to see the **Portuguese Blue Economy Strategy** in which they have organized their whole economic coastal sector around the blue objectives and not only blue objectives but their main ambition is to contribute to a healthy ocean, to work towards bringing the ocean back, creating a healthy community, healthy environment. **They have put the regulatory framework and the financial incentives that go together**. I would really invite you to check this visionary approach.*

4. What can you say about Spain, and in particular, about Barcelona? In your opinion, are the central, regional, and local governments really concerned with developing a Blue Economy and have they taken appropriate decisions to properly develop it?

*I can tell you a very interesting example, **Vigo**. It has a great port. Very **innovative green port initiative**. You can check that.*

5. So, generally speaking, where is the EU at the moment? What predictions can you make about the future? Will we reach a point where environmental protection and economic activities go hand in hand? Tell me about these new initiatives you talked about before.

We adopted a **new communication in May** and we are in the process of implementing it. We have a lot of communication activity where we inform and we invite Member States to follow such **sustainability principles** and to organize activities around those **economic priorities**.

We have also designed our policy instruments, financing instruments, we have a **fisheries and aquaculture fund** which helps with the financing. We also have the **recovery funds** that have been launched by the Commission. They also help in this sense. We try to push Member States to adopt sustainable Blue Economy priorities in their action plans. So that's one important area. We will also have an **innovation agenda** that will boost further the research and innovation capacities in the Blue Economy sectors. So, it is in a very important **first stage of implementation**.

8.1.4 Transcription of the interview with Anna Majó and Lali Costa

LALI: Em dic **Lali Costa** i treballo a **l'equip de l'Anna Majó**. Nosaltres estem al **Departament d'Innovació d'Empreses de Barcelona Activa** que fem des de formació, programes, serveis per a que les empreses de Barcelona innovin més, i a més a més l'Anna està liderant **l'estratègia de l'economia blava** de la ciutat. El dia **15 d'octubre** es va presentar la **Mesura de Govern**.

Jo si vols t'explico això. Nosaltres el dia 15 vam presentar la Mesura de Govern. Al final, la Mesura de Govern és una **estratègia** que vol seguir la ciutat de Barcelona d'aquí a **tres anys**. Al final, l'economia blava que s'està liderant des de Barcelona Activa des de l'Ajuntament de Barcelona va molt lligada amb el **Barcelona Green Deal** i els objectius europeus. Al final és una estratègia que vol sobretot basar-se en la **sostenibilitat** i en la **innovació** i la **transferència tecnològica** de la ciutat. El fet de que haguem fet aquesta estratègia és per que al final Barcelona és una ciutat on hi ha molta **ocupació**, on des de l'Ajuntament es vol crear encara més ocupació i que aquesta ocupació sigui de **qualitat**. Clar, nosaltres vivim en una ciutat amb mar, rius, i evidentment hi ha molts sectors que es dediquen de manera directa o indirecta a activitats sostenibles: turisme, activitat naval, esports, la cultura, l'educació. És a dir, el **sector blau** toca a molts **subsectors**. Té molt impacte directe a la ciutat. Llavors s'ha fet una mesura, que jo ara et passaré el link, i el vídeo resum. S'han fet, em sembla, tres projectes destacats. Ho veuràs molt ben explicat al document de la Mesura de Govern.

El tema de **l'acord amb el Port**, si que t'ho explicarà millor l'Anna però jo si vols t'ensenyo i t'explico.

Aquí tens la **roda de premsa** que es va fer el dia 15 d'octubre i veuràs que aquí hi ha tot el resum del desenvolupament dels sectors blaus de Barcelona, i al final Barcelona aposta per l'economia blava i vol convertir l'economia blava en el sector blau, un sector que al final és un gran motor econòmic de la ciutat. El titular, al final és que es **destinaran 4,5 milions d'euros i s'implementaran 52.000 metres quadrats** per promoure **l'emprenedoria, l'educació i la formació**. Això si vols t'ho llegeixes millor després amb calma però lo important d'aquí és que al final de tot en aquest enllaç tens la Mesura de Govern. Veuràs que són 74 pàgines. A l'índex tens els antecedents, el perquè de la Mesura i de l'economia blava com a motor econòmic de Barcelona. Sobretot s'agafen moltes **referències a nivell d'Europa**. A partir de la pàgina 16, tens què és l'economia blava, la definició, tots els sectors que conformen per nosaltres l'economia blava, l'economia blava també en xifres, tindràs números i gràfics. Després tens la justificació de la mesura, com a finestra d'oportunitats a Barcelona perquè hi ha moltes empreses que es

*dediquen en aquest sector perquè al final el que vol és impulsar i crear llocs d'ocupació de qualitat. Després a l'apartat 4 ja tens tota l'explicació de estratègia. A partir del 4.2 tens tots els **eixos d'actuació**. Per exemple, el eix 1 és la creació d'un hub d'economia blava a la zona del port olímpic. L'eix 2 és l'ocupació i la formació blava. L'eix 3 és la innovació i transferència en economia blava. L'eix 4 és el desenvolupament dels sectors de l'economia blava. L'eix 5 és el lligam de l'Economia Blava amb la ciutat i la ciutadania. L'eix 6 és la conservació i regeneració de l'ecosistema marí. L'eix 7 és la promoció local i internacional, relat i posicionament. L'eix 8 és la governança publico-privada. Dins de tots aquests eixos tens totes les actuacions que s'estan fent o que es volen fer de manera més detallada.*

*ANNA- El dimecres vinent dia 17 a les onze presentem la mesura de govern en el **Smart City Expo** i et podríem aconseguir una entrada d'expositor. Podries venir a escoltar l'explicació.*

LALI- Tal i com ha dit l'Anna, lo millor serà que jo t'envii el vídeo de la Mesura, el vídeo d'explicació de la mesura als medis de comunicació i el vídeo de Barcelona ReAct. També et passaré el link de la Mesura de Govern i a partir d'aquí tu t'ho mires i idealment si poguessis venir el dia 17. Jo et demanaria l'entrada i te l'envio.

*En relació al que m'has explicat del teu treball, jo et comento que aquesta Mesura de Govern s'ha fet molt **en base al que ja hi ha a Europa, però adaptat a la nostra ciutat**. Però si que és veritat que veuràs moltes coses que tenen molta relació amb el **Summary Report de Blue Economy d'Europa**. Vull dir que va molt lligat. Ens hem adaptat evidentment a Europa. Hi ha molts conceptes que els hem extret d'allà.*

8.2 Annex II

8.2.1 Blue Economy's timeline

