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## Malta's Marine Sector 2020

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### Purpose

With Europe's move towards adopting a common integrated maritime policy, a strong need was felt in 2002 for Malta to explore ways of re-assessing its maritime sector in terms of enhancing the competitiveness of its maritime industry and exploiting the marine RTD base in niche areas that could offer strategic opportunities for growth. The Marine Foresight Pilot Exercise implemented in 2003, used specific tools and adapted foresight approaches to address these concerns taking into account the particular socio-political and economic contexts of the Maltese Islands. The foresight process and its outcomes (a vision for 2020) triggered a strategic national dialogue on the importance of the marine sector, which was instrumental in positioning the marine sector among the priority areas targeted for public research investments in the National Strategic Plan for Research and Innovation 2007-2010.

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### Exploring Windows of Opportunity for the Marine Sector

Located in the Central Mediterranean, Malta is traditionally a maritime nation with key activities centered around **marine-related services** - namely transportation, shipbuilding and repair, tourism and leisure, and **resource-extraction** including fisheries, aquaculture and potable water extraction. The maritime sector operates through targeted investments in these specific sub-sectors with limited competitiveness and potential for overall growth.

Research efforts focus on monitoring the quality of the coastal and marine environments, with little R&D investment in industrial applications. Moreover, a limited capacity, both in infrastructure and human capital, allows for growth in a restricted number of research areas.

Within this backdrop, foresight was seen as a useful tool to explore new ideas and opportunities for unleashing the economic potential of Malta's maritime sector and enhancing its competitiveness. The Marine Pilot Exercise built on previous experience and skills gained through using foresight in strategic planning for the future. It was one in a series of three pilot exercises implemented by the Malta Council for Science & Technology within the e-FORESEE project.

Foresight provided a systematic way of engaging established experts in the key maritime sectors and new players in emerging areas, in order to address the existing fragmentation of resources, and the necessary measures to put in place an integrated marine RTDI Strategy in support of policy formulation and provision of enhanced marine services. The strategic discussions that emerged amongst the experts and stakeholders served to inform policy makers on how best to cope with the new challenges and obligations arising from EU membership.



## A Snapshot of the Marine Environment in Malta: Trends and Opportunities

The overall aim of the pilot exercise was that of projecting trends for the marine sector to become a prime contributor of the local economy in 2020 by exploring future opportunities and proposing feasible management and development strategies to underpin them.

**Objectives** - The Pilot Exercise adapted foresight approaches and methodologies in order to:

- Quantify the relevance of marine-related industries and services to the economy and look at emerging trends, socio-economic patterns and drivers influencing the marine sector.
- Take stock of marine research and development in Malta to obtain information on the nature and extent of R&D initiatives conducted within marine-related entities.

- Assess through the scenario method, how the various key marine areas could be redressed to meet future needs whilst ensuring sustainable exploitation of marine resources and identify niche areas that could sustain existing marine industries and stimulate their growth and competitiveness.
- Spark ideas for new public-private partnership collaborations and industry-academia links.

The above would serve to make a case with policy-makers for investments in a dedicated marine research and innovation strategy and implementing programme that would provide the necessary R&D and knowledge base to sustain growth of the sector. The exercise was techno-economic in nature, as it focused on industrial and R&D applications, though it did take into account the social and recreational value of the coast and sea.

## Quantifying the Marine Sector's Contribution to the Local Economy

A launch seminar on "*Trends and related developments in the Marine Sector*" served to map the stakeholders in public and private marine-related entities and academia and to identify experts within the relevant ministries, local authorities, marine industry etc. with expertise in key sectors of the marine environment and who would form part of an Expert Panel. Through the workings of this Expert Panel, the pilot exercise was implemented in a number of stages:

- Snapshot assessment on R&D initiatives in the main marine-related sectors and available information sources (studies, previous assessments etc).
- Semi-quantitative econometric assay, using mainstream economic indicators, on the contribution of marine-related activities to the economy.
- Horizon scanning exercise to identify emerging trends.
- Drivers influencing the marine sector.
- Normative scenario development (optimistic, intermediate and pessimistic).
- Dialogue and Dissemination: web-based forums amongst panel members and consultation with an extended pool of stakeholders e.g. from NGOs and the general public.

Although the foresight pilot sought primarily to engage expert opinion, participation of non-experts and the public occurred mainly through a virtual dialogue and dedicated events.

## Strategic Viewpoints for the Future of the Marine Sector 2020

The econometric exercise carried out in the first phase revealed that the marine sector is already an important contributor to the economy with a share of 14% of the total GDP.

The Vision for the Marine Sector that emerged from the foresight exercise identified opportunities for new and diversified research ventures, with investments channelled towards innovative marine technologies and knowledge management systems for the provision of enhanced services. In this sense, the holistic as opposed to sectoral approach to development of the marine sector, could be used as a model for other areas of economic activity in Malta.

The Vision describes Malta as taking the lead in technological development and commercial applications in select niche areas of marine-related activities in:

- **Fisheries:** improved surveillance of fishing activities through Vessel Monitoring systems, promoting the Maltese catch as an "eco-labeled" niche market and promoting artisan methods for catching fish.
- **Aquaculture:** new and diversified cultured species e.g. non-fish marine organisms including seaweed; offshore farming; poly-culture ; closed re-circulation systems.
- **Marine Biotechnology:** exploitation of new biomaterials from indigenous species; targeting value added and modified fish food.
- **Marine observations, monitoring and forecasting:** improved marine observing and forecasting systems to describe the physical and ecological status of the sea as a precursor to control the health of the sea as well as to provide added-value products and services relying on routine marine data; accurate sea state nowcast/forecasts, sea traffic control systems to provide an integrated data network for policy-makers.
- **Marine Energy and Resources:** exploiting available technologies for alternative energies e.g. offshore wind farming; exploring the potential for national RTDI contributions in environmental technology developments aimed at harnessing resources, including technology applications for cost-effective resource extraction, reduction of environmental impacts etc.

- **Marine Transportation:** making better use of marine space such as for short seas route transportation across the islands and development of high technology cargo transfer systems and related services.

The pilot identified the main challenges ahead for achieving this vision. These relate to creating an enabling environment in which to develop and commercialise these technological applications, including making available an adequately skilled human resource base and infrastructural capacity, putting in place incentive schemes to attract local and foreign investments in start-up R&D companies and providing the adequate policy framework to support this. Stronger public-private partnerships and industry-academia links must be set up in order to secure strategic marine R&D competencies.

One of the key recommendations emerging from the foresight process was that of establishing a dedicated Marine RTDI strategy and implementing programme in order to achieve the Vision and meet the above challenges. Due to its limited resources, Malta cannot aspire to develop a fully comprehensive indigenous marine research capacity; on the other hand it can be seen to play a vital role in disseminating European research excellence in the region and exploiting a brokerage role with other Mediterranean countries for regional initiatives in marine research, capacity building and environmental management.

### **Breaking Down Sectoral Barriers through Stakeholder Engagement**

The Pilot exercise was effective in engaging stakeholders from different expert domains including different scientific disciplines, public decision-making bodies - the Maritime

Authority, the Environment Authority, the Fisheries Control Division etc. and the private sector. The interdisciplinary Expert Panel that was set up thus tackled the marine environment from all its aspects other than taking a sectoral approach as often happens in this sense it provided a balance between the drive for economic and industrial development of the marine sector and conservation and preservation of environmental quality.

The exercise was successful in bringing on board actors from new areas of economic activity that would otherwise not have been involved in a dialogue on the marine environment such as Malta Enterprise, a government agency responsible for supporting enterprise. This resulted in the setting up of an extended network of actors that spurred the necessary momentum for new links to be latched between industry and academia and the public sector and the fledgling marine enterprise.

The main motivation for participation in the exercise stemmed from the opportunity for the stakeholders to be brought closer to the policy-making process and influence policy outcomes. The exercise generated informal learning *by experts to* other domain experts on state-of-affairs in the various marine sectors and on trends and opportunities.

The exercise drew on MCST's experience in running two other pilot exercises in adapting an appropriate mix of foresight tools and approaches for the objectives of the exercise. Whilst the snapshot assessment and econometric study provided better data on maritime industrial and research activities, scenario analysis and vision building triggered a process of exploration of the future and stimulated new thinking and ideas.

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## **Setting up a Strategic National Dialogue for the Marine Sector**

The marine foresight exercise was the first of its kind to provide a dedicated space and appropriate, flexible tools to address in a holistic manner the future of the Marine Sector. Although it was implemented over a short time frame, the exercise served to establish an on-going national dialogue among experts in the marine domain and policy-makers that extended beyond the lifetime of the pilot.

The knowledge generated through the foresight dialogue served to inform other on-going strategic conversations and policy processes in the making. MCST together with the Marine Pilot Champion co-organized a consultation with the Science & Technology Community to analyse how scientific research and innovation could be geared towards Malta's Sustainable Development Strategy 2006-2016. The consultation brought on board many of the experts who were

active in the marine foresight pilot and who provided their strategic input into the national discourse.

More recently in 2005, the MCST organized a series of thematic stakeholder consultation sessions, including one on the environment, as part of a priority setting exercise for channeling public funds for research. This exercise provided input for the drafting of the newly revised National Strategic Plan for Research & Innovation 2007-2010, which will be launched for public consultation later in 2006. The Strategy has seen the incorporation of the Marine Environment and Technological Applications together with ICTs, Energy and Health-Biotech as a priority sector for investing national funds.

Other related initiatives emerged drawing on the outputs of the pilot and the networking generated:

- The findings of the pilot provided an important input for participation in an FP6 ERA-NET Project entitled MarinERA aimed at coordinating the marine research

programmes of the partner countries and analysing the possibility for joint calls for proposals in the Priority Areas.

- Government, through the Malta Council for Science & Technology and in collaboration with international partners is leading an initiative (2006) to set-up a Euro-Mediterranean Institute for Training and Innovation (EuroMedITI) that will develop and commercialise technologies that have special relevance to the Mediterranean, including water and environmental technologies.

- Drawing from the Marine Pilot recommendation to include technology in Marine Sciences Education, the University of Malta revised the curriculum of the undergraduate science degree course to include biotechnology studies and applications (including in the marine sphere) with a view to better prepare graduates to permeate into the industrial world.

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## Sources and References

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**About the EFMN:** Policy Professionals dealing with RTD, Innovation and Economic Development increasingly recognize a need to base decisions on broadly based participative processes of deliberation and consultation with stakeholders. One of the most important tools they apply is FORESIGHT. The EFMN or European Foresight Monitoring Network supports policy professionals by monitoring and analyzing Foresight activities in the European Union, its neighbours and the world. The EFMN helps those involved in policy development to stay up to date on current practice in Foresight. It helps them to tap into a network of know-how and experience on issues related to the day to day design, management and execution of Foresight and Foresight related processes.