Knowledge transfer: the key to creating societal and economic benefits from marine observations

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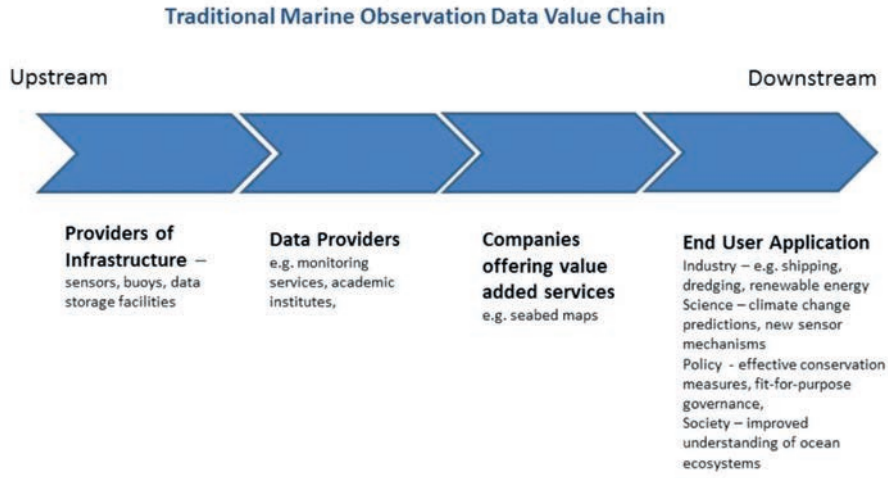

Fig. 1 - The marine observation data value chain.

An effective marine observation and data-sharing system, delivering societal and economic benefits requires the coordination of efforts between multiple sectors in the value chain. These include the scientific community, oceanographic data centres, federated data infrastructures, national and regional agencies and authorities with competency for marine environment and maritime economy, actors from civil society and the private sector.

Key to this change is effective knowledge transfer at all stages of the marine observations to user application value chain, from the development and deployment of innovative new sensing technologies to the application of marine data and products by stakeholders from the public and private sectors and by civil society.

Capturing the Data: Innovative Marine Sensing Technologies

There is a need for a concerted effort to create a supportive environment to stimulate progress along the maritime sensing technology value chain from identification of requirements, research and development up to full market uptake and application by end-users from public sector, research, business and society as whole. This is important because there are significant opportunities for

Europe to develop a dynamic and thriving market for maritime sensing technologies. Advances in sensor technology will allow us to do more and do it more cheaply. This will strengthen our research capacity, increase the confidence in scientific outputs and improve our understanding of marine environmental processes and the impacts of climate change. Robust, low cost, long-life ocean sensing and observing technologies will also improve our capacity to sustainably manage maritime activities. This is crucial for delivering important EU policy objectives such as progress towards Good Environmental Status under the Marine Strategy Framework Directive.

Marine data sharing and utilisation

The mere collection, safeguarding and sharing of marine observation and monitoring data provides huge societal benefits. Data and information on the state and variability of the marine environment is crucial for understanding changes that may result from human activity, including the effects of human-induced climate change and ocean acidification. Long-term time series are particularly valuable to support both scientific research to elucidate the causes, drivers and impacts of environmental change and, in turn, evidence based policy making. Moreover, they are invaluable for establishing the baselines for accurate resource assessment, essential for spawning private initiative in sectors such as marine renewable energy or aquaculture. Marine data also feed into the provision of ocean forecasts and reanalysis such as those delivered in the Copernicus Marine Service (CMEMS). Access to accurate and adequate data underpins the implementation of the Marine Strategy Framework Directive and supports the implementation of the Maritime Spatial Planning Directive.

However coastal and ocean observatories and public data-sharing initiatives face common challenges in their efforts to unlock the full societal and economic potential of the wealth of European marine data and observations at European, national, regional or local level and demonstrating their use and positive contribution to sustainable blue growth.

Changing the status quo: Challenges, solutions and ways forward

This poster will highlight some of the key challenges along the entire value chain, from the development and operational use of novel marine sensing technologies to the application of marine data and products by diverse stakeholders and propose some mitigating solutions to these, drawing from the experience of EMODnet as well as work carried out in the framework of the H2020 AtlantOS and COLUMBUS projects. These include: more effective and targeted stakeholder engagement to move beyond the traditional players in the marine observations landscape; mapping potential users and ensuring that products meet their needs by involving them in product development; understanding the policy landscape and ensuring that product development is fit-for-purpose in this context and ensuring that marketing and brokerage is considered as an important aspect of bringing products to market.

For this potential to be realized, it is important to ensure that the significant investment (both at EU and national level) in sensor technology development, monitoring programmes and data-sharing initiatives is targeted at the right areas, is focused on addressing real-life marine monitoring challenges and opportunities, and that new intellectual property (IP) generated is taken up to drive towards competitive and marketable sensor technologies and state-of-the art data-sharing initiatives to realise Europe’s full potential as global leader in marine observations and data sharing.