Agenda Item	Preparatory document for Session Technology strategy (Part 2) on 12 March 2025
Purpose	This cover document introduces the above referred session of the EMSO strategic workshop with a summary of the EMSO achievements so far, the strategic options the EMSO community shall think about and the questions asked to the EMSO community.
Reference documents if any, (can be in annex, URL or else)	EMSO Metadata Specifications to ensure uniformity across all RFs. https://zenodo.org/records/10669879 Metadata Harmonizer, contains the tools to connect to an ERDDAP service and assess if the metadata is compliant with the EMSO Metadata Specifications. https://github.com/emso-eric/metadata-harmonizer ERDDAP Playground, contains all files required to set up a simple ERDDAP service https://github.com/emso-eric/erddap-playground
Expected outcomes	The expected outcome of this session is to gather feedback from attendees on EMSO ERIC's key data management questions. This includes identifying priority areas, understanding service needs, and clarifying the balance between scientific focus and data management innovation. Additionally, insights on funding strategies will provide perspectives on the appropriate mix of internal and project-based funding. The input collected will directly inform future strategic decisions, funding approaches, and service developments, ensuring that EMSO's data management activities align with stakeholder needs and long-term objectives.
Version date and lead person.	V0 - 03/03/2025 Aljaz Maslo

Background Considerations

The Data Management Service Group (DMSG) is composed of representatives from EMSO Regional Facilities (RFs). It ensures wide and free access to EMSO ERIC data by harmonizing workflows across RFs and integrating with European and global data networks. The group standardizes data collection, storage, and dissemination while ensuring compliance with FAIR principles. Through monthly meetings, DMSG addresses data policy, interoperability, and IT

infrastructure needs. By fostering collaboration, it enhances EMSO's role as a key provider of high-quality, multidisciplinary oceanographic data.

Summary of key achievements

The DMSG has made significant progress in advancing EMSO ERIC's data infrastructure, with a strong focus on metadata harmonization and ERDDAP federation across RFs.

1. Metadata Harmonization & Standardization

https://zenodo.org/records/10669879

- Developed EMSO Metadata Specifications to ensure uniformity across all RFs.
- Implemented a Metadata Toolbox, including a NetCDF generator**,** harmonization checker, and ERDDAP auto-configuration tool.
- Achieved high compliance with FAIR principles, with up to 90% metadata compatibility across facilities.

2. ERDDAP Federation & Data Integration

- Successfully federated ERDDAP servers across 12 of 13 RFs, ensuring harmonized data access through a single point of entry**.**
- Developed the ERDDAP Playground tool, reducing setup time for new ERDDAP servers to under 30 minutes**.**

  https://github.com/emso-eric/erddap-playground
- Advanced data integration efforts by making EMSO data available to external aggregators (EMODnet) and improving interoperability with other research infrastructures.

These advancements have strengthened EMSO ERIC's role as a provider of harmonized, FAIR-compliant oceanographic data, ensuring seamless data access and integration across its distributed research infrastructure.

Points of attentions and asked questions to the attendees

As EMSO ERIC continues to develop its data management infrastructure and services, the following key points require input from attendees:

1. Priority List and Service Needs
   - What are the most urgent priorities for EMSO's data management activities based on the services presented today? *(Mentimeter poll)*

Here is the list of services: GoAccess Usage Statistics, Infrastructure Health Monitoring, Data Portal, Connection with data aggregators, Service for Big Data management, Quality Control / Quality Assurance, Data Repository Connector, Automated citation report for data usage, EMSO Virtual Research Environment (VRE), Data analysis (including AI), and Inclusion of Calibration/Uncertainties in metadata.

2. What new internal or external services should EMSO consider offering to enhance data access, interoperability, or user engagement? *(Mentimeter poll)*

3. Strategic Direction for Data Management

- Should EMSO's data management efforts focus primarily on addressing key scientific questions, or should it also prioritize advancements in data management science and innovation? *(Mentimeter poll)*

By gathering input on these topics, EMSO ERIC aims to refine its data management strategy, optimize service offerings, and identify sustainable funding approaches for the future.