THE EMODNET AND THE SEADATANET INFRASTRUCTURE: A CHALLENGE TOWARDS AN EUROPEAN MULTIDISCIPLINARY INTEROPERABILITY

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What and Where:

EMODnet is a pilot component for a final operational **European Marine Observation and Data Network**, launched by the Directorate-General for Maritime Affairs and Fisheries (DGMARE).
It aims to **assemble fragmented and inaccessible marine data** into interoperable, continuous and publicly available data streams for complete maritime basins.
A series of service contracts were launched for creating pilot components of the European Marine Observation and Data Network (EMODnet):
- Lot 1 – Hydrographic data
- Lot 2 – Marine geological data
- **Lot 3 – Chemical data**
- Lot 4 – Biological data
- Sea-bed habitats
- Physical Parameters

The Chemical pilot, based on **SeaDataNet network of NODC's**, is focused on the marine **groups of chemicals required for monitoring the Marine Strategy Directive**:
- synthetic compounds (i.e. pesticides, antifoulants, pharmaceuticals);
- heavy metals;
- radionuclides;
- fertilisers and other nitrogen- and phosphorus-rich substances;
- organic matter (e.g. from sewers or mariculture);
- hydrocarbons including oil pollution.

Websites:
- http://www.emodnet-chemistry.eu/
- http://www.seadatanet.org/
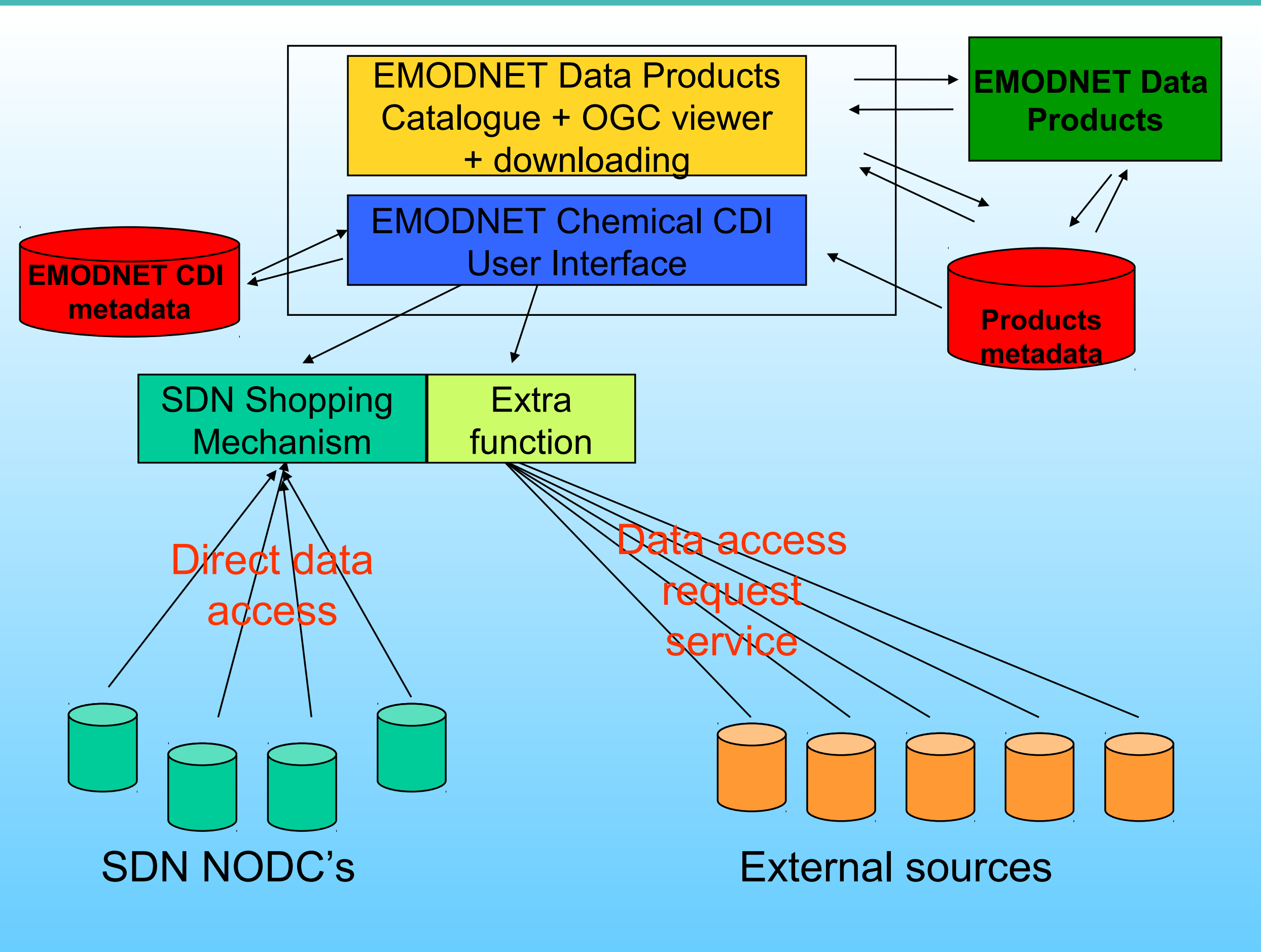
Focus areas of the Chemical Pilot :

Aknowledgements:
- **EU-DGMARE**
- **SeaDataNet**

SeaDataNet INFRASTRUCTURE: EMODnet Chemical pilot Adopting and Adapting this efficient and distributed Marine Data Management system for large and diverse sets of data

General Schema showing the distributed data management and the data access chances :

Adopted:
- **SeaDataNet Standards for Metadata, Data and Products:**
  - **CDI (xml ISO 19115)** for metadata;
  - **ODV** data format for **background data**;
  - **Standard Vocabularies (P021,P011,P061...)** for **common terms**.

- **SeaDataNet INFRASTRUCTURE with:**
  - **CDI** discovery services with **Data Policy management**;
  - **Data Delivery services (RSM, DM)**;
  - **Security services**;
  - **Products viewing services**.

- **SeaDataNet Softwares**

Adapted:
- **Extension of SDN Vocabularies,** specifically for**:
  - **Parameter Discovery P021** for CDI generation extended to Chemistry**;
  - **P061** for data storage units**;
  - **Parameter Usage P011** for ODV generation extended to Chemistry**.
- **ODV/DIVA** softwares upgrade to produce **maps, plots and related metadata**;
- **OceanBrowser Products Viewing Service** for interpolated maps and time series plots.

Multidisciplinary Interoperability

The **SeaDataNet** consortium has developed an homogeneous work platform linking 45 NODCs and Marine Data Centres from 35 countries and providing an integrated and harmonized overview and access to Marine information. This was realized by using a distributed approach based on:
- Common **Metadata**, **Data and Products models**;
- Standard **Vocabularies** for common terms;
- Common **Infrastructure** for contents handling.

The **SeaDataNet infrasctructure** is developed to be compliant to **INSPIRE directives,** this is a key element to give a European dimension to this de-facto standard.

The **interoperability** and cohesion between **EMODnet thematic portals** is achieved and guaranteed by using common **OGC** standards for the viewing services and **SeaDataNet** standards for data discovery, access and semantic interoperability.
The EMODnet Lots by adopting SeaDataNet infrastructure, are pushing its evolution to a **multidisciplinary dimension**.

Discovery and Viewing sevices

CDI: the **Common Data Index** is the central data **discovery service** that let users to have a detailed insight of the availability and geographical extent of the data archived at the connected data centres. It gives the description on (what, where, when, how, who etc.) of individual data sets and measurements. It is based upon SeaDataNet CDI metadataformat and tools. The data can be downloaded and accessed following SeaDataNet **Data policy** and **User licence**.

Ocean Browser: the need to have a common **viewing service** to show gridded climatologies of different ocean proprieties and other products brought to the development of an **OGC** compliant (Web Map Service and Web Feature Service) viewer.

These services let to **describe and query** data and related products. The protocols defined by OGC standards let to **load layers from any other Web Mapping Server**.