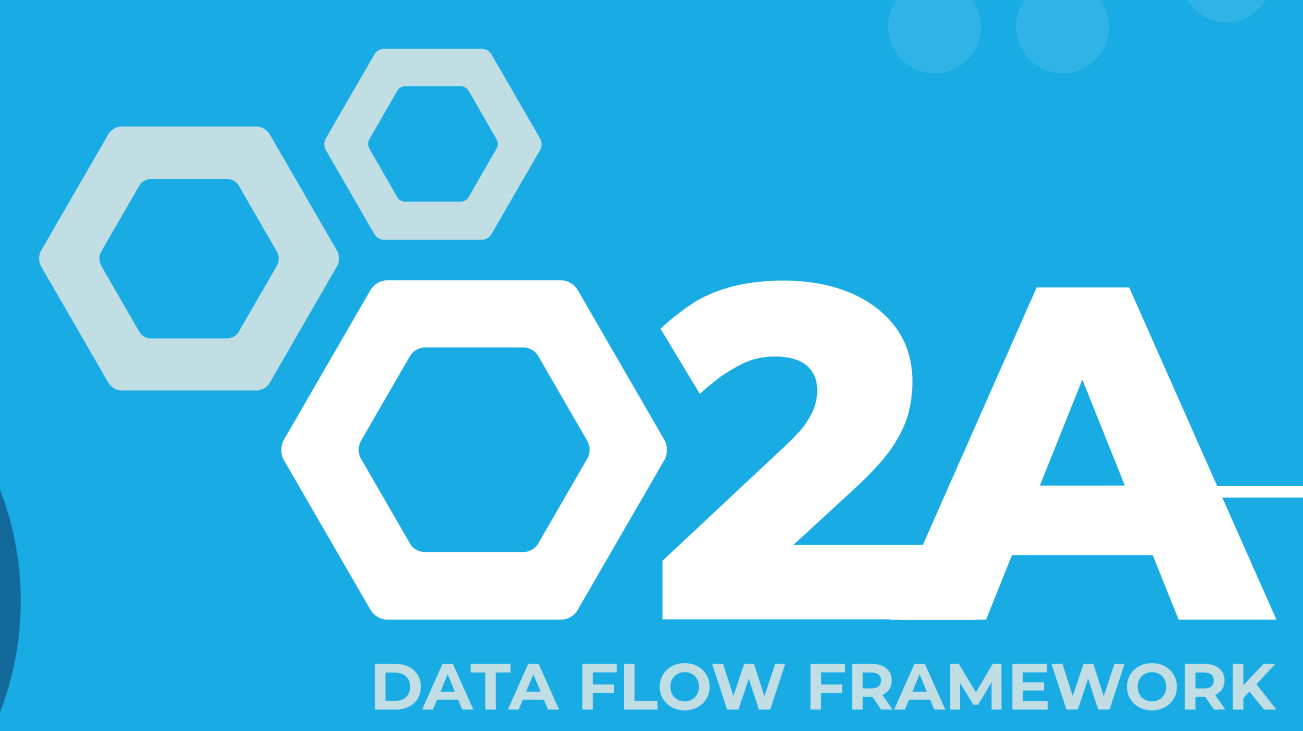
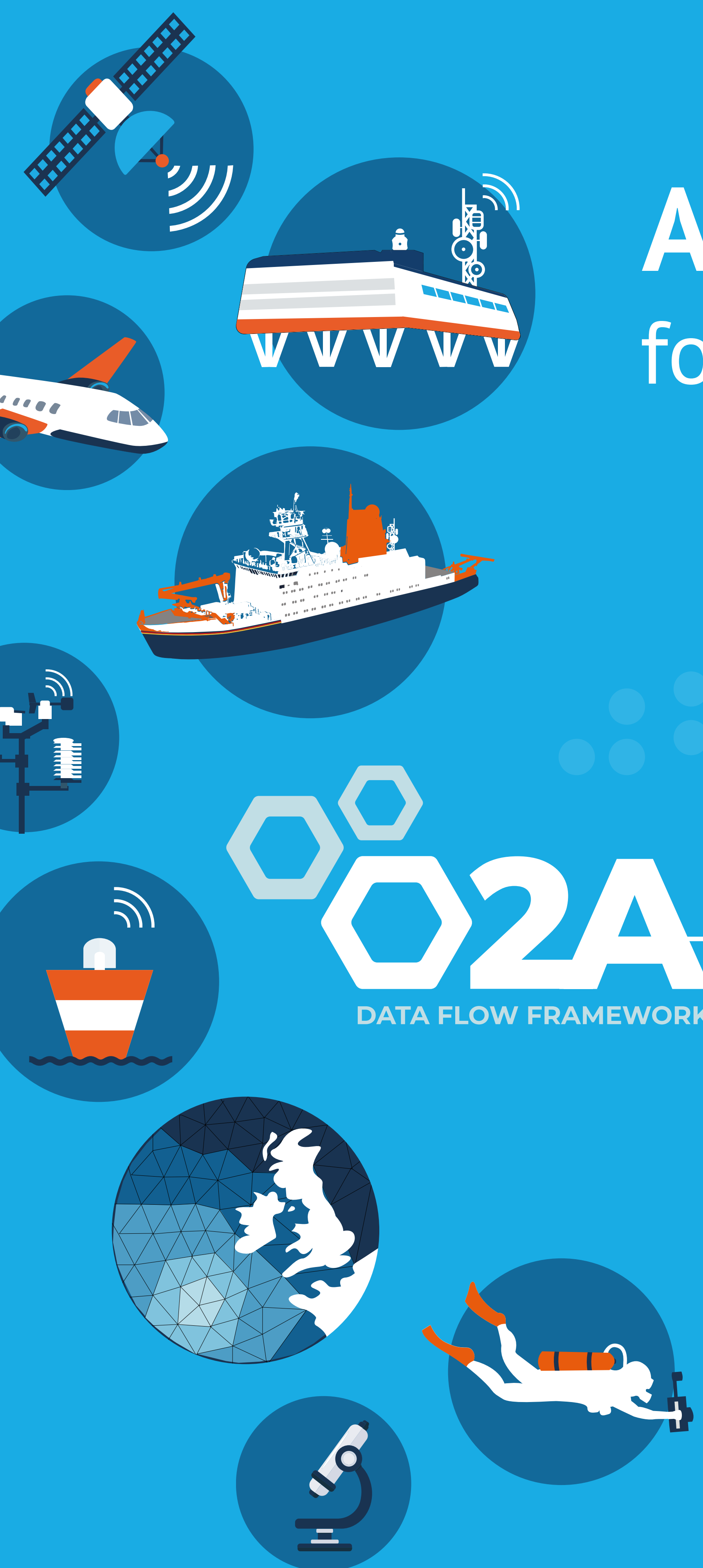
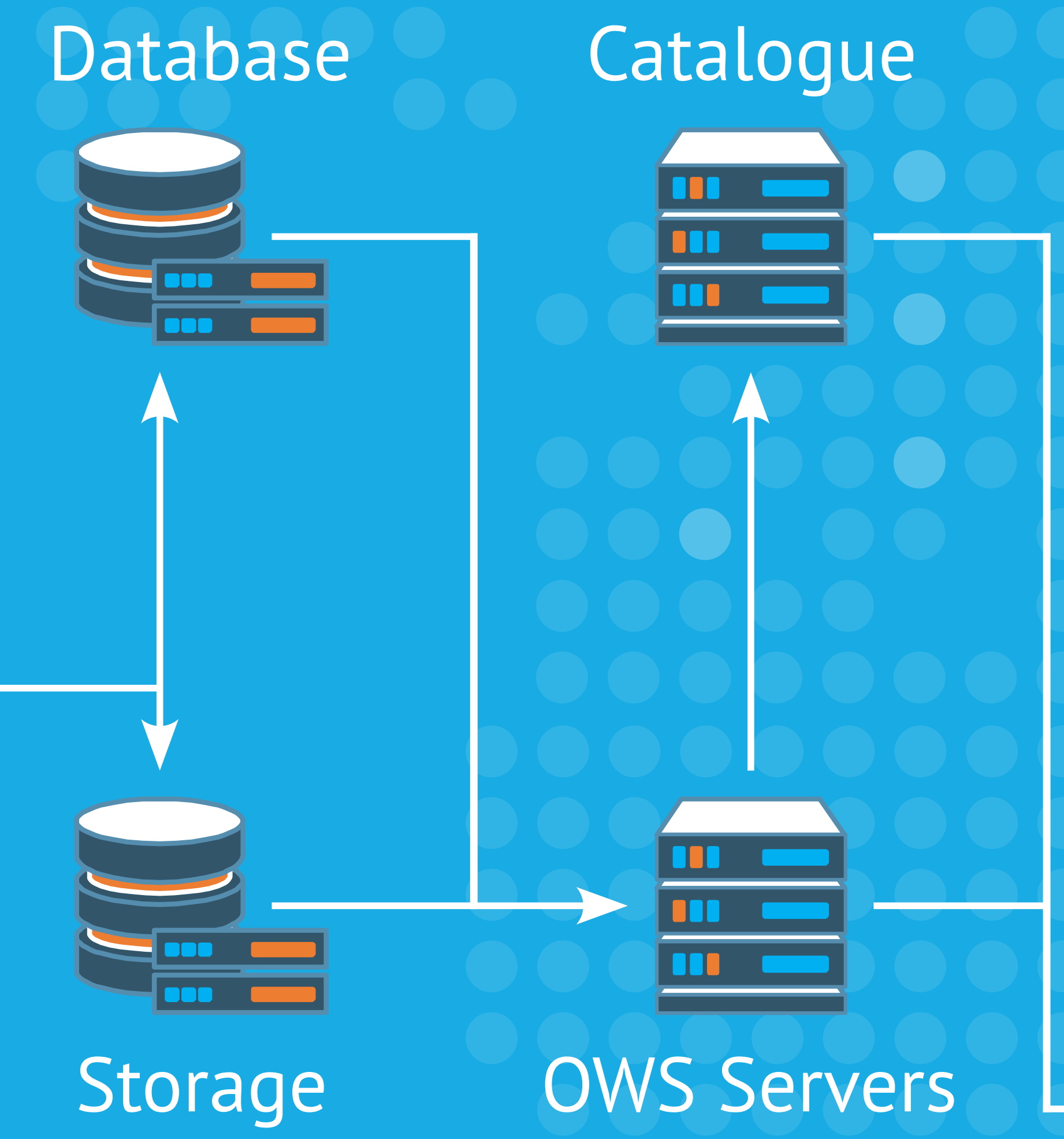


# A Flexible yet Sustainable Spatial Data Infrastructure for the Integration of Distributed Research Data



**C. DATABASE + STORAGE**  
 This SDI relies on network storage and a virtualised **PostGIS** instance. Using other DBMS is possible but might require enhancing the *O2A Spatial* library.



**D. OWS SERVERS + CATALOGUE**  
 A redundant, container-based **GeoServer** cluster is serving a multitude of OGC web services to the public. For special use cases, this cluster is augmented by *ArcGIS Server* and *rasdaman* instances.  
 Last but not least, a catalogue service is operated to provide service metadata. This includes information from spatial data infrastructures hosted by *German Marine Research Alliance* and *Helmholtz Earth and Environment* partner institutions.  
 The next step is to meet the CSW standard.

**A. OVERVIEW**  
 The presented SDI is part of the **O2A data flow framework** [1] and supplies curated map viewers [2], data portals [3, 4, related PICO] as well as GIS clients with standard-compliant web services.

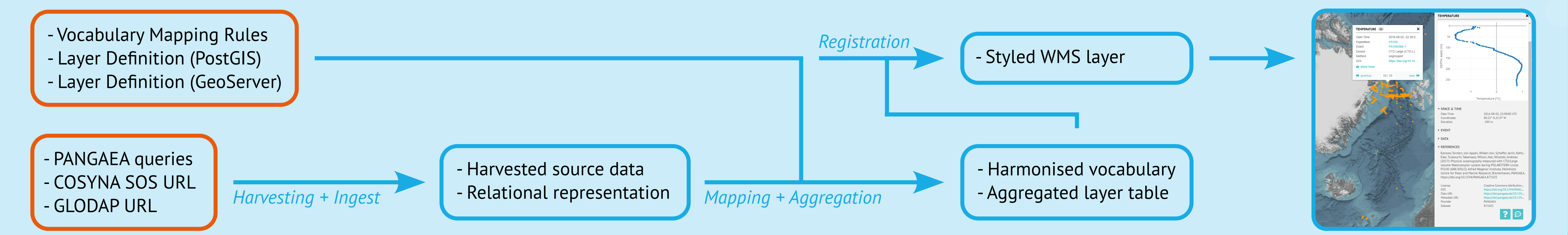
Combining the modular automation library *O2A Spatial*, virtualisation, well-established open-source components and standards, long-term maintainability and sustainability are ensured.

While benefitting from regular feedback loops and undergoing constant improvement – both in terms of content and technology – the next milestone is bundling the whole ecosystem as a single multi-container application.

**B. AUTOMATION + STANDARD OPERATING PROCEDURES**

Powered by **O2A Spatial**, the deployment of SDI components, the creation of data products and corresponding data and metadata harvesting workflows are highly automated. *O2A Spatial* is an AWI-developed Python library which uses **configuration files** to create or recreate these elements from scratch. Being modular, it can be extended to support additional types of data sources, data formats or SDI components.

Standard Operating Procedures and data exchange specifications facilitate the definition of data products. Multi-sourced and auto updating data products are supported. This is a showcase layer containing harmonised data from three different sources: the PANGAEA repository [5], the COSYNA SOS [6] and the GLODAP project [7]:



**ABSTRACT** **REL. PICO**




**LINKS** **ABBREVIATIONS**

[1] o2a-data.de	CSW	Web Catalogue Service
[2] maps.awi.de	DBMS	Database Management System
[3] marine-data.org	GIS	Geographic Information System
[4] earth-data.org	O2A	Observations to Analysis and Archives
[5] pangaea.de	OWS	OGC Web Service
[6] sos.hereon.de	SDI	Spatial Data Infrastructure
[7] glodap.info	SOP	Standard Operating Procedure
	SOS	Sensor Observation Service

external SDIs →  
 external data →

→ web mapping applications [2, 3, 4]  
 → GIS clients

peter.konopatzky@awi.de, robin.hess@awi.de  
 roland.koppe@awi.de, andreas.walter@awi.de

