

# **SeaDataNet II – WP8**

**Specification and governance of standard metadata, data and data product formats, qc methods, common vocabularies**

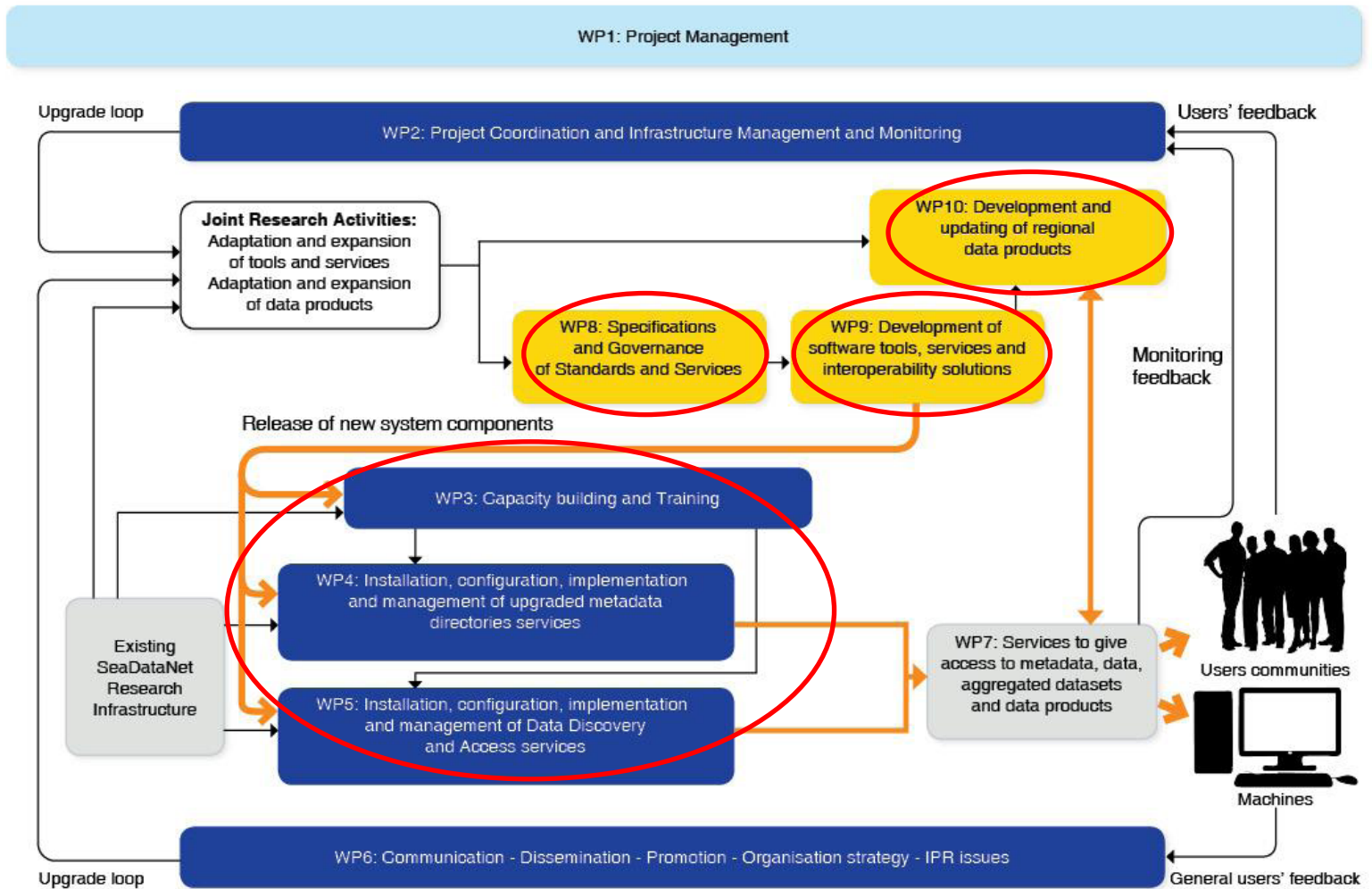
## WP8 – Objectives

- Extending and fine-tuning the SeaDataNet standards for handling all types of marine and ocean data, in real-time and delayed mode, achieving interoperability and exchange with other relevant data management systems in Europe, and tuning with international standards
- Achieving INSPIRE compliance and contributing to the INSPIRE process for developing implementing rules for oceanography

## SeaDataNet II infrastructure development

- **Formats and services** = making SeaDataNet INSPIRE compliant
- **Metadata exchange services** = improving the exchange and updating of metadata between the data centres and the central directory services via OGC CS-W harvesting
- **Viewing services** = adding previews (quick looks) and visualisation of data
- **Machine to Machine interface services** = Providing interoperability and automatic exchanges with other systems for metadata and data
- **Delivery services** = adding requesting and downloading of aggregated data sets
- **Delivery services** = adding access to real-time oceanography data
- **Data management services** = extending handling capacity for other types of data, such as marine biological and operational oceanographic data
- **Duplicates tracking** = establishing an operational method for identifying possible duplicates in the data circulation
- **Analytical services** = extending the capabilities and functionalities of the ODV and DIVA analysis software packages

- The developments for upgrading standards, tools and services in SeaDataNet II take place in WP8 and WP9.
- Both WP8 and WP9 will be coordinated by the Technical Task Group, because there is a major interaction and tuning required between the activities.
- WP8 has a focus on definitions and specifications, while WP9 deals with development, thoroughly testing, documenting and making new components ready for operational introduction and launching.



SeaDataNet II Flow Chart

- Upgrading has implications for existing SeaDataNet standards, tools and services: many are components in operational chains
- SeaDataNet II must continue to operate without interruption, while the infrastructure upgraded.
- Upgrading in 2 innovation cycles.
  1. Focuses on more effective transfer of updated /new metadata entries: OGC CS-W harvesting, ISO 19139, INSPIRE compliant [M18]
  2. Focuses on extending capabilities for handling a wide range of data types in a standardised way, adopting the OGC Sensor Web Enablement (SWE) standards, adding visualisation services, machine to machine interfaces [M42]



## UPGRADING & IMPROVING

## OPERATIONAL

Implementation

Training & Transfer

Developments & Testing

Specifications

Error diagnosis

Exploration standards

Exploration user requirements

Operation

Maintenance

Support

Service

Monitoring

Promotion

Exploitation



## WP8 – Deliverables

### D8.1 ISO 19139 Schema based XML formats (M6)

Upgrades to:

- Metadata services (EDMED, EDMERP, CSR, and EDIOS)
- CDI data discovery services
- Applying the OGC CS-W harvesting mechanism
- CS-W requires XML files to parse to ISO 19139 Schema
- Technical transport format for ISO 19115 content model
- Adopted for INSPIRE
- Adapt metadata formats XML to parse to ISO 19139
- Safeguard references to SDN Common Vocab, EDMO, EDMERP
- Analysis taken place for the CDI: This will be used as basis for defining other XML formats



## WP8 – Deliverables

### D8.2 SensorML profiles for specific marine observations (M24)

- CDI data discovery/access works for individual users
- Not so good for:
  - Real-time access to data;
  - Aggregation of data sets to prepare comprehensive sets;
  - "On the fly" data processing
  - Reprocessing of data by other users
- OGC family of standards: 'Sensor Web Enablement' including:
  - Sensor Model Language (SensorML)
  - general models/XML for sensor Observations & Measurements (O&M)
  - Protocol for standard access – Sensor Observation Service (SOS)

## WP8 – Deliverables

**D8.3 O&M data models adapted to specific marine observation data (M24)**

(as required by user communities)

**D8.4 Analysis report with required adaptations for marine biological data (M26)**

(for CDI format, data formats, and exchange protocol)

## WP8 – Deliverables

### D8.5 SeaDataNet NetCDF (CF) data format and possible extra formats (M24)

#### **INSPIRE:**

- SDN defined specific data transport formats
- INSPIRE team moving towards formulating INSPIRE implementing rules for data formats under Annex III
- SeaDataNet II will have a dialogue with the related INSPIRE WGs

#### **NetCDF (CF)**

- SeaDataNet has adopted NetCDF (CF)
- Upgrading NetCDF (CF) standard is planned in cooperation with UNIDATA (USA) to make it better suited for SeaDataNet and MyOcean
- Integration of SDN Common Vocab, CDI reference in the metadata header

#### **Possible extra formats**

- SeaDataNet supports a range of specific data transport formats for harmonised delivery of data
- May need to extend this range with extra formats, e.g. for marine biology data.

## WP8 – Deliverables

### D8.6 SeaDataNet Common Vocabularies (M48)

Update of vocabularies is a continuous process; lists of vocabularies are available from the project web-site

- There are close to 100 vocabularies deemed of interest to SeaDataNet and Geo-Seas. Used for:
  - Populating metadata fields in EDMED, CSR, EDIOS and CDI documents
  - Tagging parameters in data files
  - Demonstration of future capabilities
- Adding content to these is a full-time job

# Vocabularies

- **Content governance**
  - SeaVox – TTG plus international experts
  - Platform group, led by ICES
  - OGS ‘Colla’ group within GeoSeas
  - Technical governance
- **NERC Vocabulary Server technology**
  - Clearly defined master copy of all vocabularies
  - Formally versioned with updates published daily
  - Every vocabulary and every term represented by a URI that resolves to a SKOS XML document delivering labels, definitions and mappings



## WP8 – Deliverables

### **D8.7 New viewing and access services (M16)**

Analysis of SeaDataNet architecture; specifications for integrating new services for viewing, access to aggregated data sets, machine to machine interactions, interoperability

### **D8.8 Duplicate management (M16)**

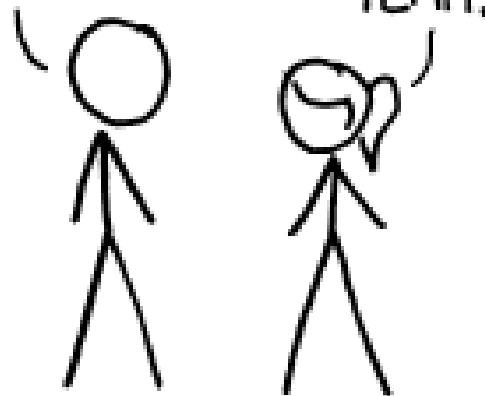
Analysis and method for duplicate management using ODV

## WP8 – Deliverables

HOW STANDARDS PROLIFERATE:  
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC)

SITUATION:  
THERE ARE  
14 COMPETING  
STANDARDS.

14?! RIDICULOUS!  
WE NEED TO DEVELOP  
ONE UNIVERSAL STANDARD  
THAT COVERS EVERYONE'S  
USE CASES.



SOON:

SITUATION:  
THERE ARE  
15 COMPETING  
STANDARDS.



# **NERC Vocabulary Server Version 2.0**

## Recent Developments

### New Vocabulary server:

- **Version 1.X will remain in operation**
- **Version 2.0 will run alongside version 1.X**
- **Version 1.X will only be withdrawn when it no longer receives ANY traffic**

## Recent Developments

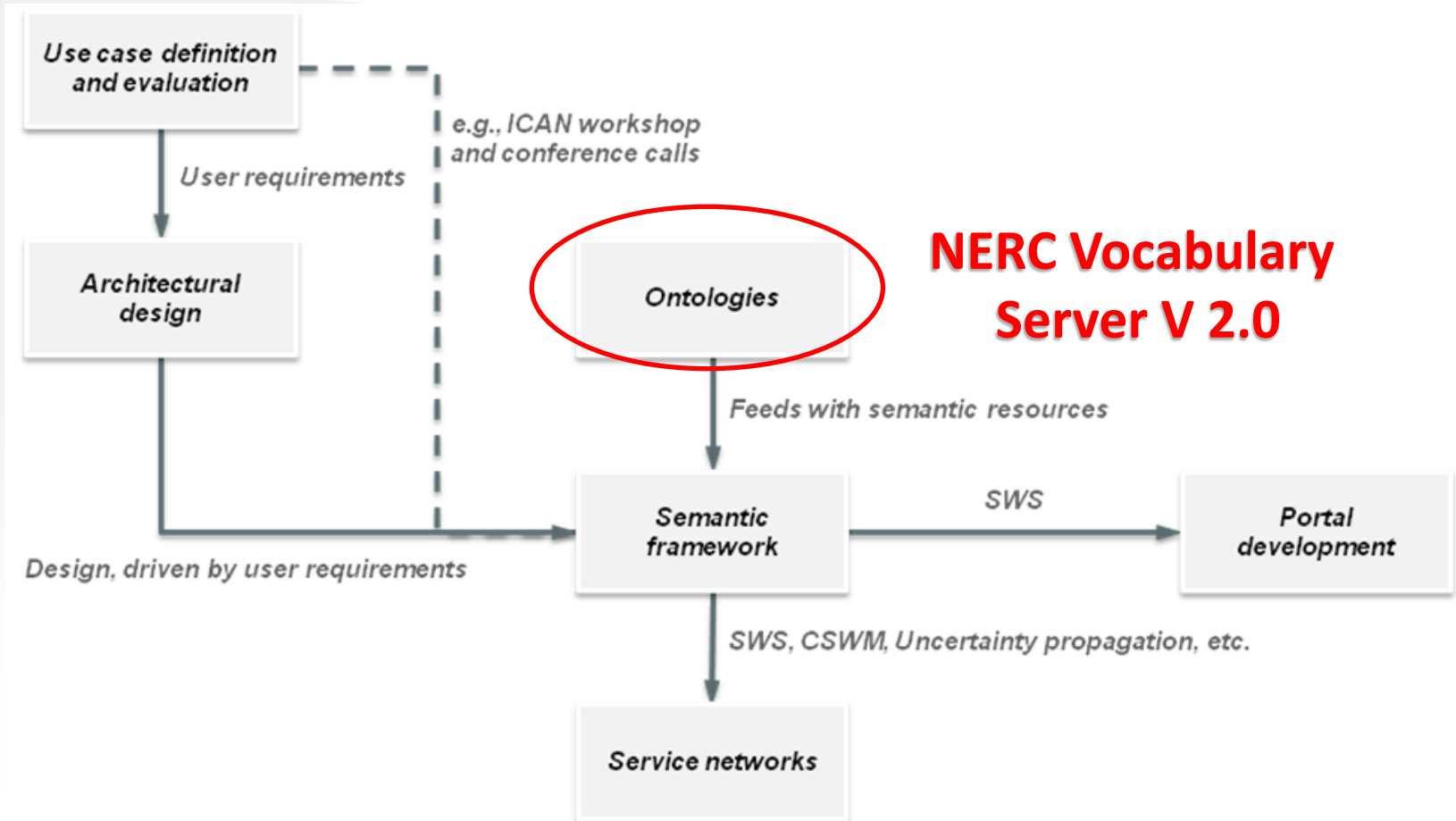
- **Design and construction of NVS V2.0**
- **Move from original version of SKOS to latest**
- **Payload includes governance & provenance information**
- **Ability to deliver true thesauri as concept schemes**
- **Provision for multilingual (human!) support**



## Recent Developments

- **NVS V2.0 also upgrades the API**
- **RESTful and SOAP interfaces**
- **Nine methods available in API**
- **Concept deprecation now an option**
- **Visualisation, search and edit tools**

# EU FP7 NETMAR project



**NERC Vocabulary Server V 2.0**

## The future?

- **More content!**
- **Ontology extension**
  - **GEMET, MMI Ontology Registry and Repository**
- **Multilingual concept titles, definitions**
- **More API methods?**
- **Continue investigating SPARQL endpoint?**