**Business requirements**

**B01 - RODEO WP6 OPERA to be a flexible pathway to exposing weather radar data observations**

“As a EUMETNET Member, I want RODEO to be flexible and be a pathway to exposing radar data from a single point of contact. So, I can deliver a consistent solution and reduce development activity.”

*Priority:*

* secondary

*Clarifications:*

* Documentation and education for members and other user groups are required to provide such pathway

*Acceptance criteria:*

*Consequences and decisions:*

* Documentation and education for members and other user groups are required to provide such pathway.

**B02 - adoption of a "build and share" approach to software development**

“As a EUMETNET Member, I want the adoption of a "build and share" approach to software development. So, Members can efficiently and consistently develop their national capabilit related to FEMDI and beyond.”

*Priority:*

* primary

*Clarifications:*

* The project description says that all software should be free and open source.
* OPERA is committed to share OPERA software under the GPL3.0 license with decision of EUMETNET PFAC.

*Acceptance criteria:*

* Software in RODEO is licensed with a free and open source license

*Consequences and decisions:*

* We will use Apache 2.0 as default?

**B03 - homogeneous data interoperability between EUMETNET Members and the wider community**

“As a EUMETNET Member, I want the exchange of data, and data interoperability between EUMETNET Members and the wider community to be as homogenous as possible. So, I can meet part of my “Observations and Prediction Data” and “Science Technology and Infrastructure” Vision within the European NMHSs 2021-25 Strategy?.”

*Priority:*

* primary

*Clarifications:* This is from E-SOH:

* It needs to be clarified what kinds of observations there will be in E-SOH, do we need separate means of exchange for 3rd party data etc. (i.e., data from stations not registered in WIGOS)?
* From the reqs (U03, U05, U06, ), it is clear that E-SOH should support distribution of non-WIGOS observations, and it should try to "normalize" those data so they can be consumed in a similar way as the WIGOS observations (e.g., by requiring transformations before sending to e-soh, or by doing the transformation in e-soh). We need to figure out in the design process how to do that, and which types of "other" observations we should support.
* We need to define use and discovery metadata that supports interoperability. Some station metadata (following a controlled vocabulary) should be required but we cannot require a WIGOS ID.
* Ignore restricted data in the beginning (i.e., data without a standard open license or release statement)

*Acceptance criteria:*

*Consequences and decisions*

**B04 - sustainable service**

“As a EUMETNET Member, I want the FEMDI radar data supply to be a sustainable service that considers the whole lifecycle of a system from design, development, and operations to retirement. So, I understand the total cost of ownership of the FEMDI service.”

*Priority:*

* primary

*Clarifications:*

* It is understood that estimating the full operational costs, at the tender stage, is extremely difficult. Therefore, as well as an initial estimate during the tender phase, there is a requirement for a more accurate estimate to be produced during the initial operational phase. The fully costed estimate of the operational costs should include, for example, system life-cycling cost and reacting to emerging user needs.
* Is this just sustainable in the meaning of operating cost, not in the meaning of green computing etc?
* There is a general requirement for all EUMETNET Programmes to "ensure that the environmental footprint of the Programme is minimised where possible." So, this should be considered also in the meaning of green computing.

*Acceptance criteria:*

*Consequences and decisions:*

**B05 - continuity of service**

“As a EUMETNET Member, I want continuity of service in the event of the Service Provider changing. So, I have a sustainable service delivering my obligations.”

*Priority:*

* primary

*Clarifications:*

* There is an expectation that the tender will outline how the RODEO service will be maintained in the event of a Service Provider not wishing to extend a support contract period or wishes to terminate the operational support contract after an agreed notice period.

*Acceptance criteria:*

*Consequences and decisions:*

**B06 - existing Members’ capability considered for incorporation within RODEO/OPERA?**

“As a EUMETNET Member, I want, wherever possible, existing Members’ (including ECMWF, EUMETSAT) capability (e.g., EWC) considered for incorporation within RODEO. So, previous investment is exploited to its full potential.”

*Priority:*

* secondary

*Clarifications:*

*Acceptance criteria:*

*Consequences and decisions:*

**B07 - make observations available**

“As a data owner of public sector information, I want to make my observations available. So, I can meet my legal requirements, e.g., European Union Open Data Directive (HVD) obligations.”

*Priority:*

* primary

*Clarifications:*

If members are pushing their data to OPERA, they will be fulfilling the HVD requirements for single site volume data. For the composite data, there should be national solutions in place for the HVD requirement

*Acceptance criteria:Consequences and decisions:*

EU HVD Implementing Act requires, that radar data should be made available in HDF5 or BUFR(!)

**B08 - FAIR principles**

“As a data owner, I want my data exposed following FAIR principles. So, I can meet my legal and user requirements.”

*Priority:*

* primary

*Clarifications:*

* Which of the FAIR principles we actually can fulfil in WP radar data - e.g. DOI for OPERA composite. For national data, the DOI or PID should be applied by the NMSs?
* Findability
  + F1. (meta)data are assigned a globally unique and persistent identifier
  + F2. data are described with rich metadata
  + F3. metadata clearly and explicitly include the identifier of the data it describes
  + F4. (meta)data are registered or indexed in a searchable resource
* Accessibility
  + A1. (meta)data are retrievable by their identifier using a standardized communications protocol
  + A1.1 the protocol is open, free, and universally implementable
  + A1.2 the protocol allows for an authentication and authorization procedure, where necessary
  + A2. metadata are accessible, even when the data are no longer available
* Interoperability
  + I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
  + I2. (meta)data use vocabularies that follow FAIR principles
  + I3. (meta)data include qualified references to other (meta)data
* Reusability
  + R1. meta(data) are richly described with a plurality of accurate and relevant attributes
  + R1.1. (meta)data are released with a clear and accessible data usage license
  + R1.2. (meta)data are associated with detailed provenance?
  + R1.3. (meta)data meet domain-relevant community standards
* Can FAIR, HVD and WIS2 requirements be contradictory?
* The requirements are not contradictory, but strict follow-up of the FAIR principles requires at least unique persistent id's on the dataset level (see definition elsewhere). Keeping metadata for indefinite time may be too challenging, since observation datasets are small and only live in E-SOH for 24 hours.

*Acceptance criteria:*

*Consequences and decisions:*

**B09 - data exposed in a way that is consistent with data exchange initiatives within EUMETNET, WMO and the wider data community**

“As a data owner, I want my data exposed in a way which is consistent with data exchange initiatives within EUMETNET, WMO and the wider data community. For example, WIS 2.0, EU INSPIRE directive and EU HVD Implementing Act. So, I can meet my international commitments and obligations within the Meteorological and wider user community.”

*Priority:*

* primary

*Clarifications:*

*Acceptance criteria:*

*Consequences and decisions:*

**B10 - secure mechanism to share data according to data policy**

“As a data owner, I want a secure mechanism to share data according to my data policy. So, I can use RODEO to expose my data.”

*Priority:*

* primary

*Clarifications:*

* Radar data belongs to the data providor, e.g. UKMO does not need to follow the HVD Implementing Act, and most likely is not willing to share the volume data through FEMDI. Hence, somewhere, either in the OPERA side or in FEMDI, there needs to be block preventing data to be shared.
* Discussions on sharing all the OPERA data inside the composite must be agreed

*Acceptance criteria:*

*Consequences and decisions:*

**B11 - observation station metadata**

“As a data owner, I want observations station metadata to be efficiently held and maintained within RODEO; synchronised with national and international metadata stores (e.g., WMO OSCAR); respecting the metadata agreed Single Source of Truth. So, I am assured my data are represented correctly to E-SOH users and costs of metadata maintenance are minimised. Correct this for OPERA data - OPERA radar database, WMO WRD radar database, various WSI shared. ”

*Priority:*

* primary

*Clarifications:*

*Acceptance criteria:*

*Consequences and decisions:*

**B12 - minimise the required changes in production systems**

“As a data producer, I want to minimise the required changes in my systems prior to making data available to RODEO/OPERA. So, the value of RODEO, over developing bespoke capability, is realised.”

*Priority:*

* secondary

*Clarifications:*

*Acceptance criteria:*

*Consequences and decisions:*

* We need to establish principles for when RODEO requirements on, e.g., input data formats or interfaces can be changed to meet producer needs.

**B13 - unified approach to the supply of supplementary observations**

“As a data producer, I want a unified approach to the supply of supplementary observations developed and supported. So, I can remove the need to develop bespoke solutions and the need to establish multiple bilateral agreements.”

*Priority:*

* secondary

*Clarifications:*

*Acceptance criteria:*

*Consequences and decisions:*

**B14 - radar observations delivered in the same format and exchange protocols as used today**

“As a current data consumer of radar data, I want near radar observations delivered in the same format and exchange protocols as used today (i.e., HDF5 ODIM). So, I can minimise development of my systems downstream of FEMDI.”

*Priority:*

* secondary

*Clarifications:*

*Acceptance criteria:*

*Consequences and decisions:*

**B15 - RODEO to handle transmission on WIS2.0**

“As a data producer, I want to rely on FEMDI to handle the transmission of new, late or subsequently corrected observations on WIS2, so I can replace my old systems for message generation. Applicable for radar data?”

*Priority:*

* secondary

*Clarifications:*

* The shared infrastructure of WIS2.0 will most likely be able to support this

*Acceptance criteria:*

*Consequences and decisions:*