



Royal Netherlands Navy  
Hydrographic Service



# National report to MSDIWG11

Ellen Vos  
Netherlands Hydrographic Service

MSDIWG11  
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How? Describing the sea with different types of data:

- Observations & Measurements
- Sensors (IoT)
- Modelling
- Rights, Restrictions and Responsibilities
- Charts (composed products)
- ...



Trying to meet the needs for:

- Research
- Sustainable Use (Marine Strategy Framework Directive)
- MSP
- Safe Navigation
- ...



# RESEARCH



But fragmented and incomplete knowledge.

So we have knowledge gaps...

One example on offshore wind

# Impact of 'pinnacles'



# on primary production?



What is needed to answer this question?

- Data
- Information
- Expertise

How to organize that?

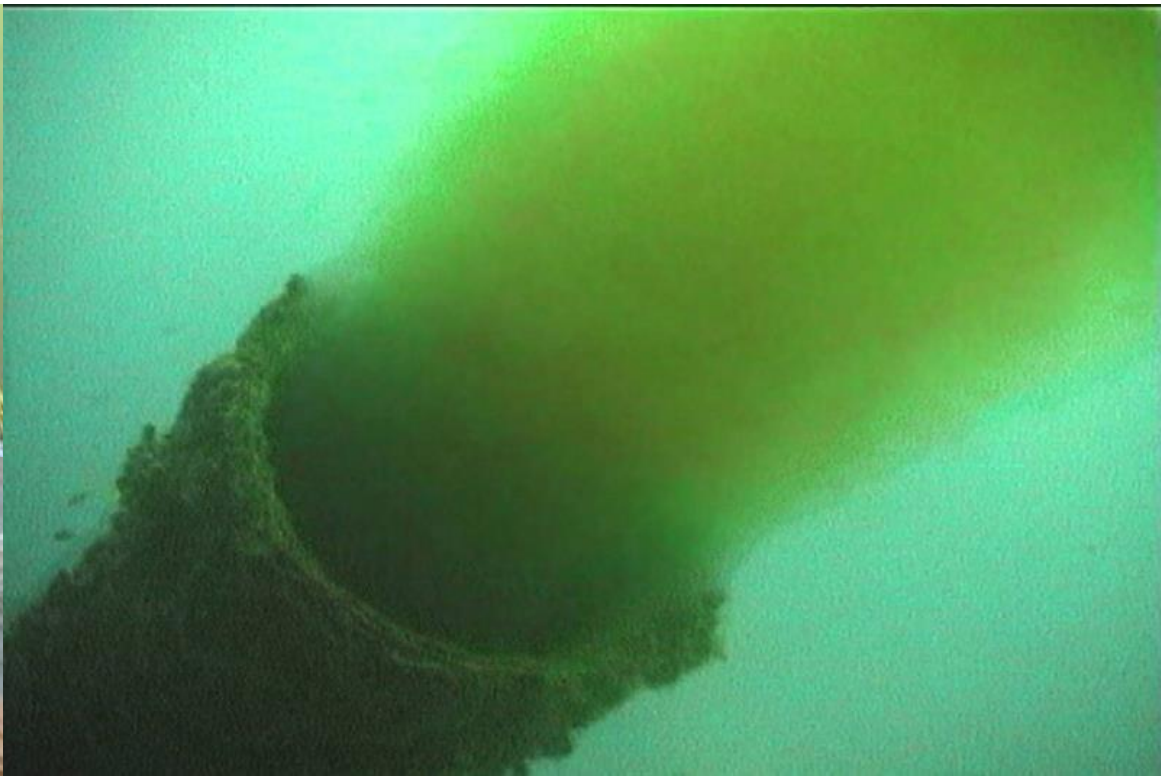
- Responsibility
- Multi-domain
- Complexity
- Semantical interop
- Technical interop



Sustainable Use: 'Good Environmental Status'

# **MSFD (MARINE STRATEGY FRAMEWORK DIRECTIVE) EXAMPLE**

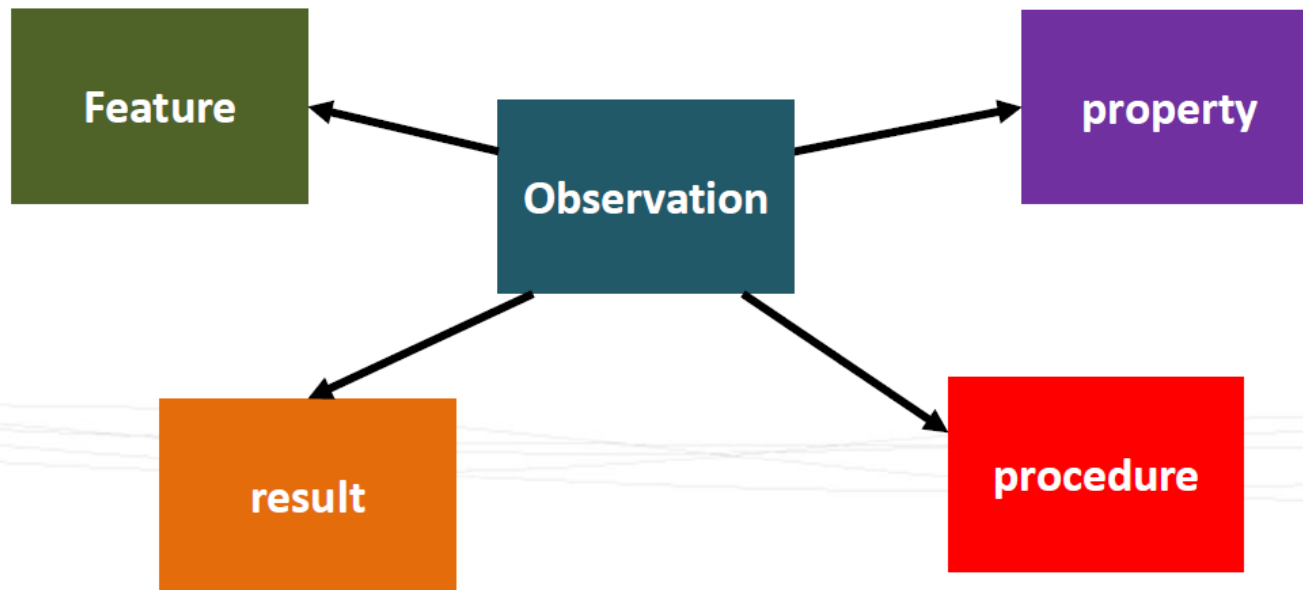
# Why? What societal problem? Marine eutrophication





# Monitoring by observations and measurements

An *observation* is an action whose *result* is an estimate of the value of some *property* of the *feature-of-interest* obtained using a specified *procedure*

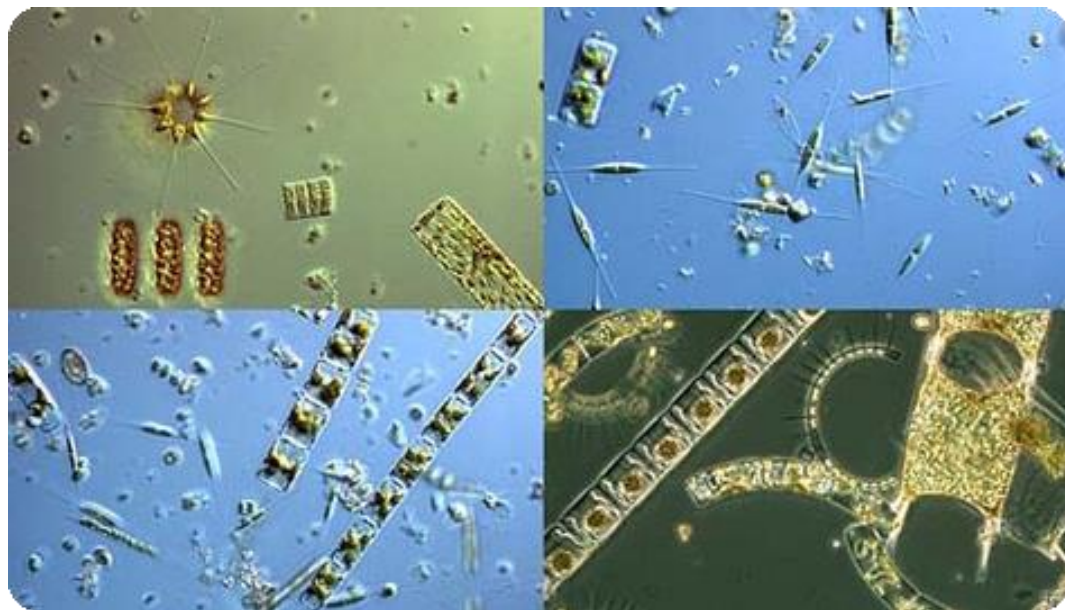
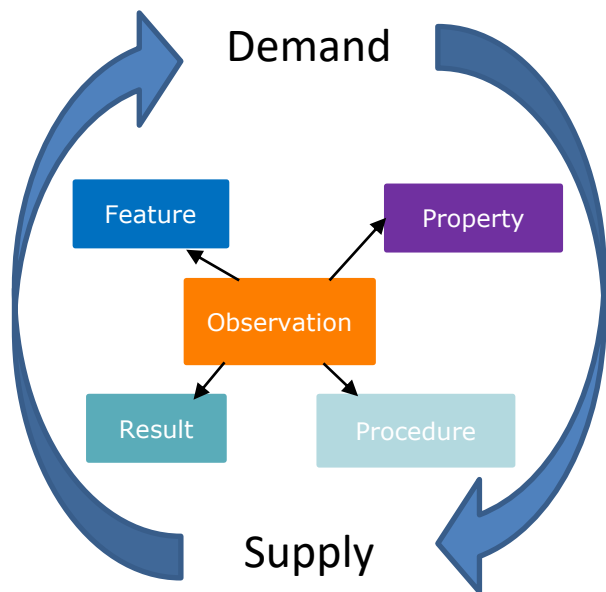


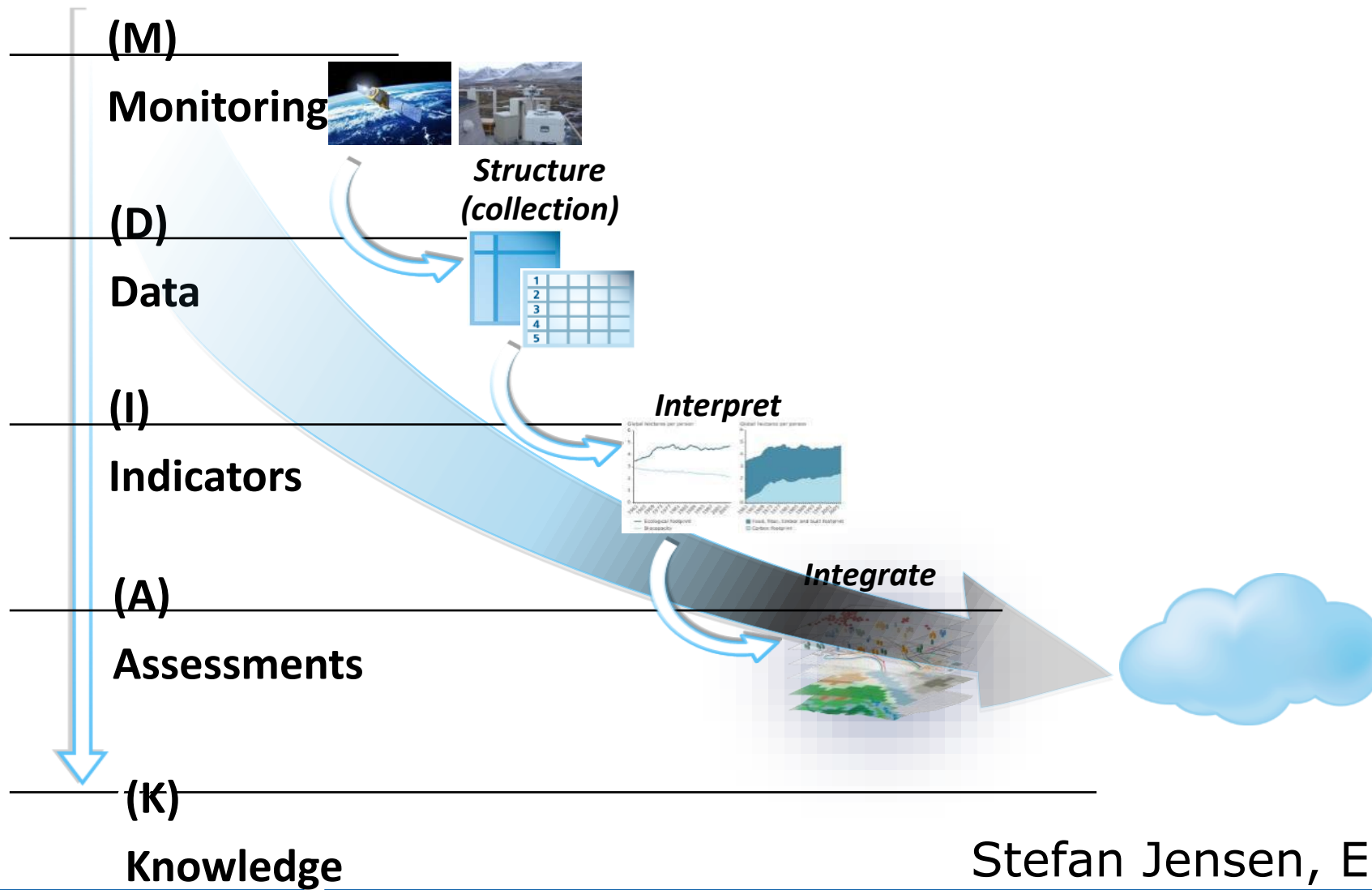


Policy on  
Good Environmental  
Status



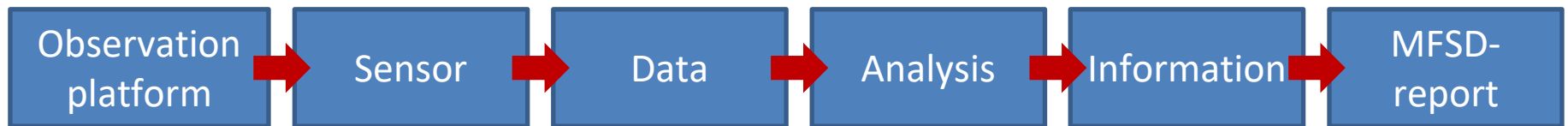
Value for society







## Processing chain for MSFD (EU Marine Strategy Framework Directive) From observation to eReporting to the EU

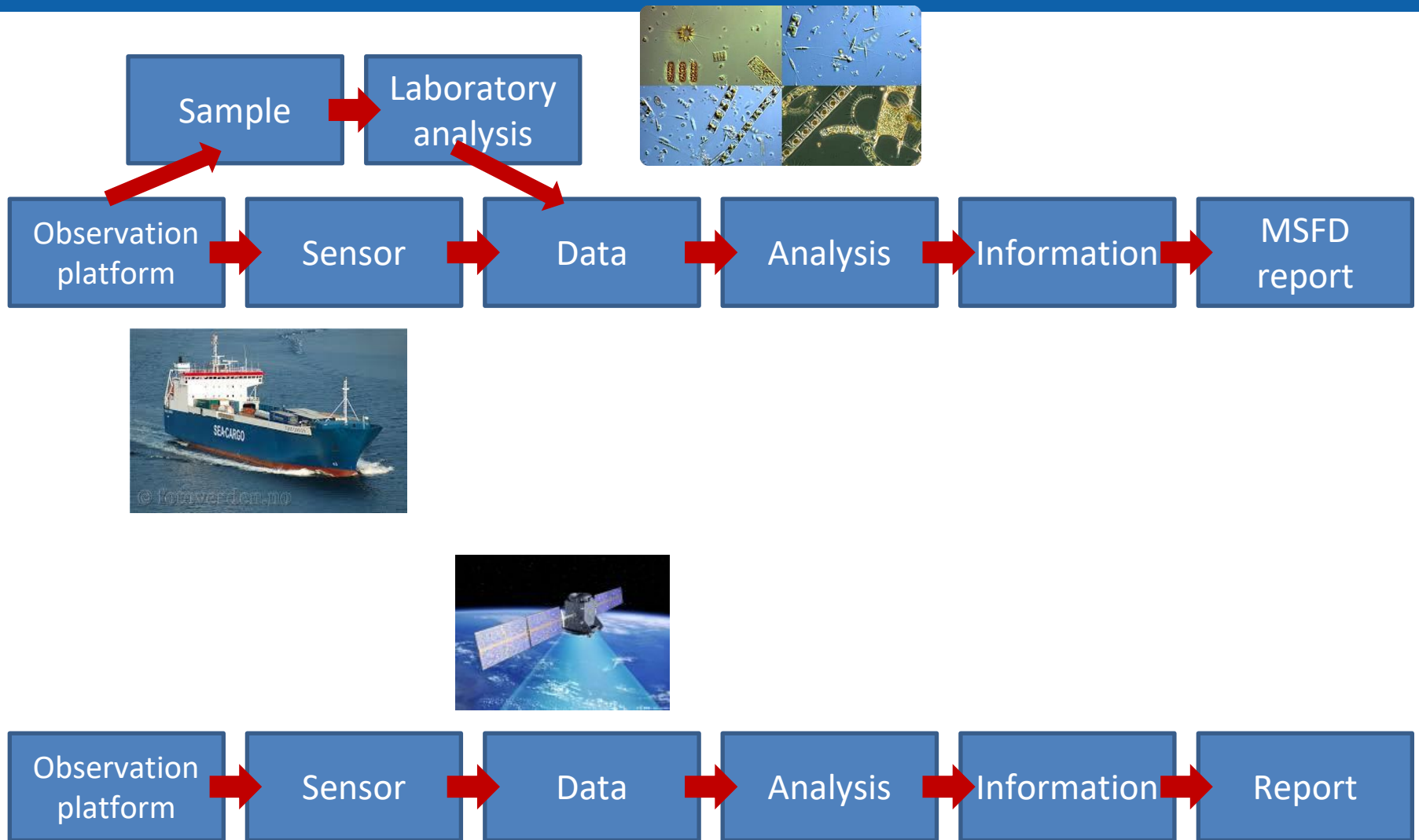


After Steven Ramage, Group on Earth Observation (GEO)

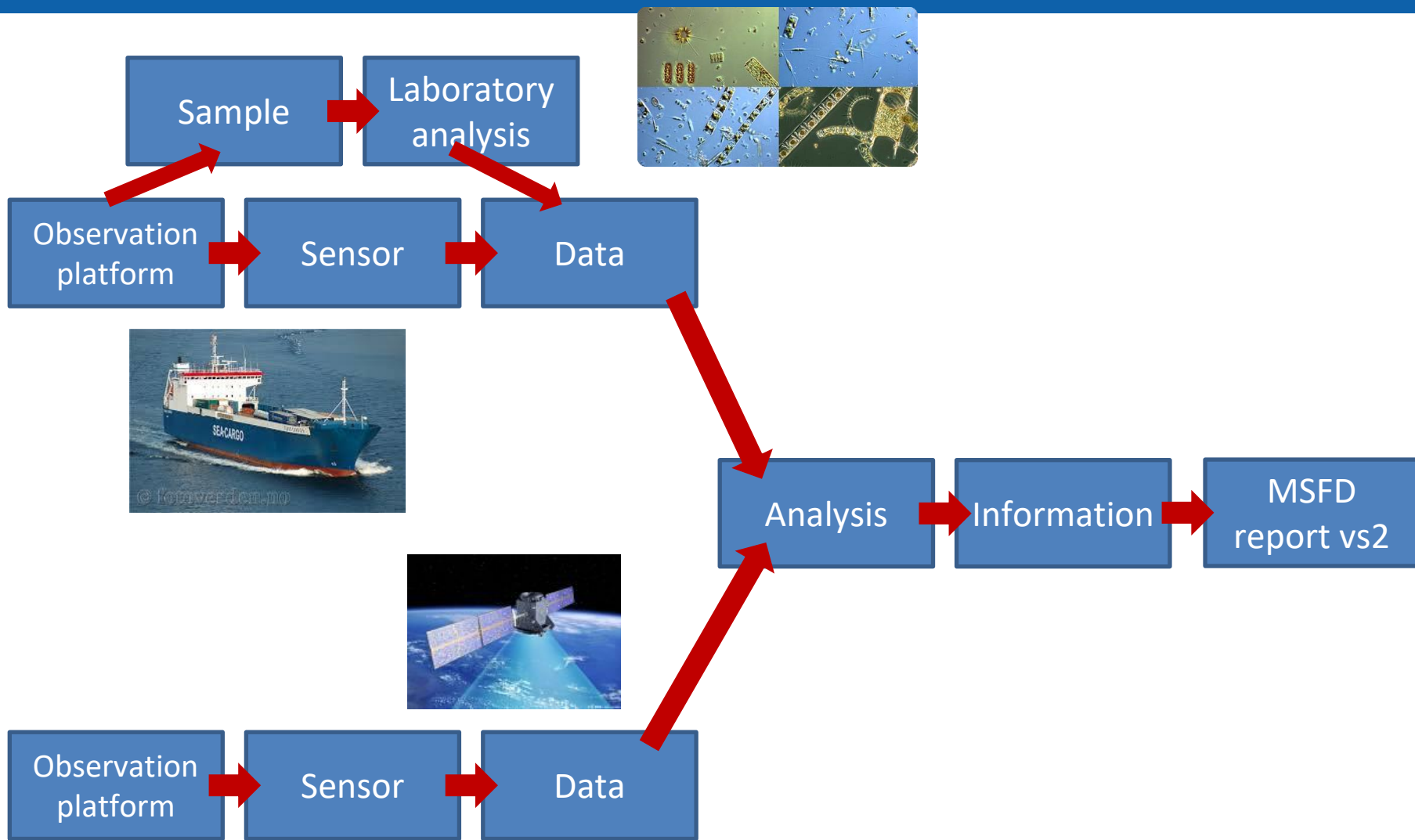
# Current MSFD report next to innovative JMP Eunosat

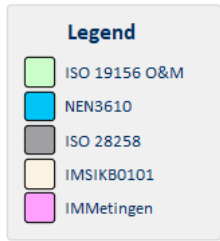


(Copernicus based)

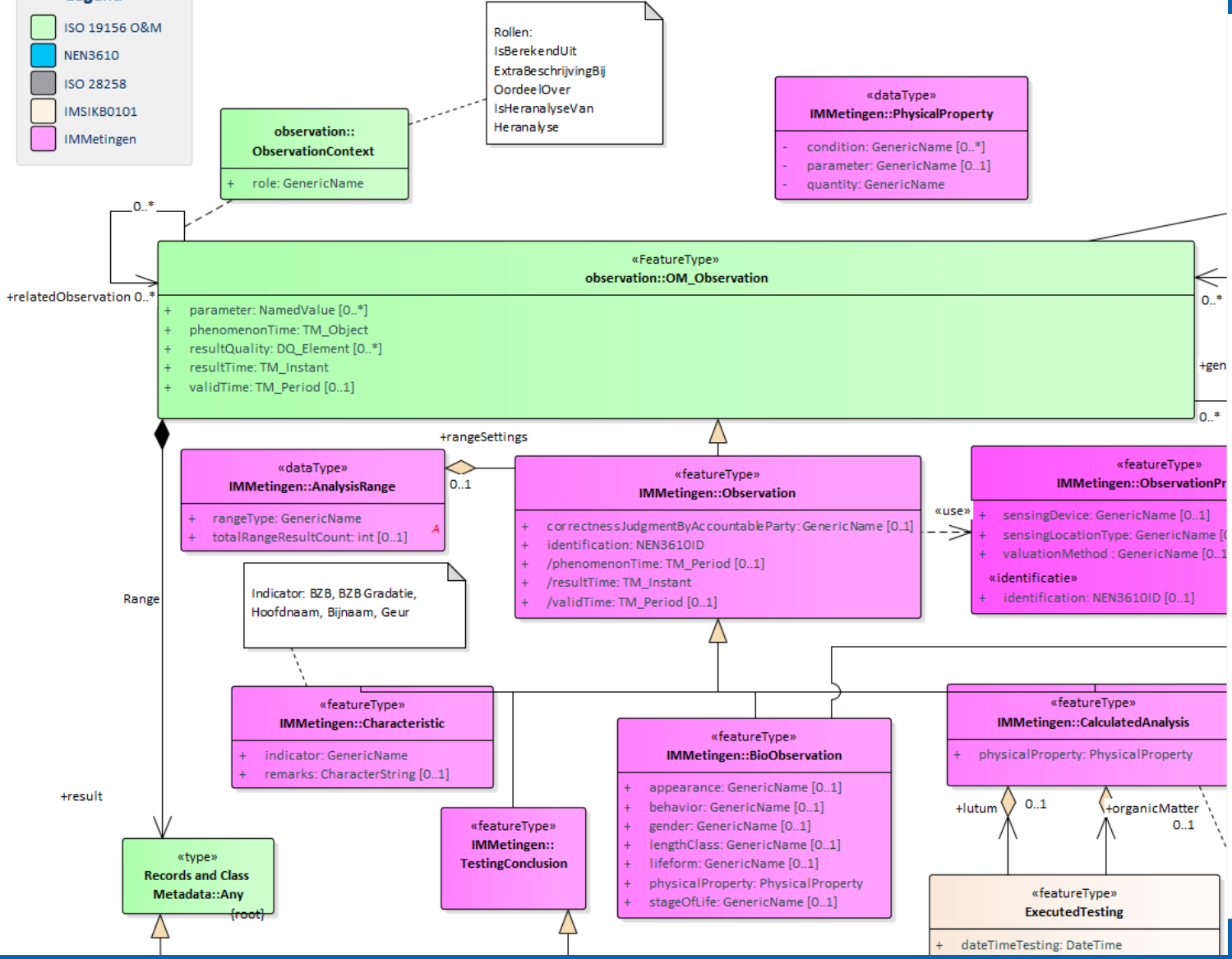
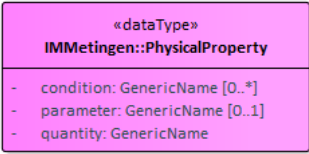


# Future MFSD report?





Rollen:  
IsBerekendUit  
ExtraBeschrijvingBij  
OordeelOver  
IsHeranalyseVan  
Heranalyse

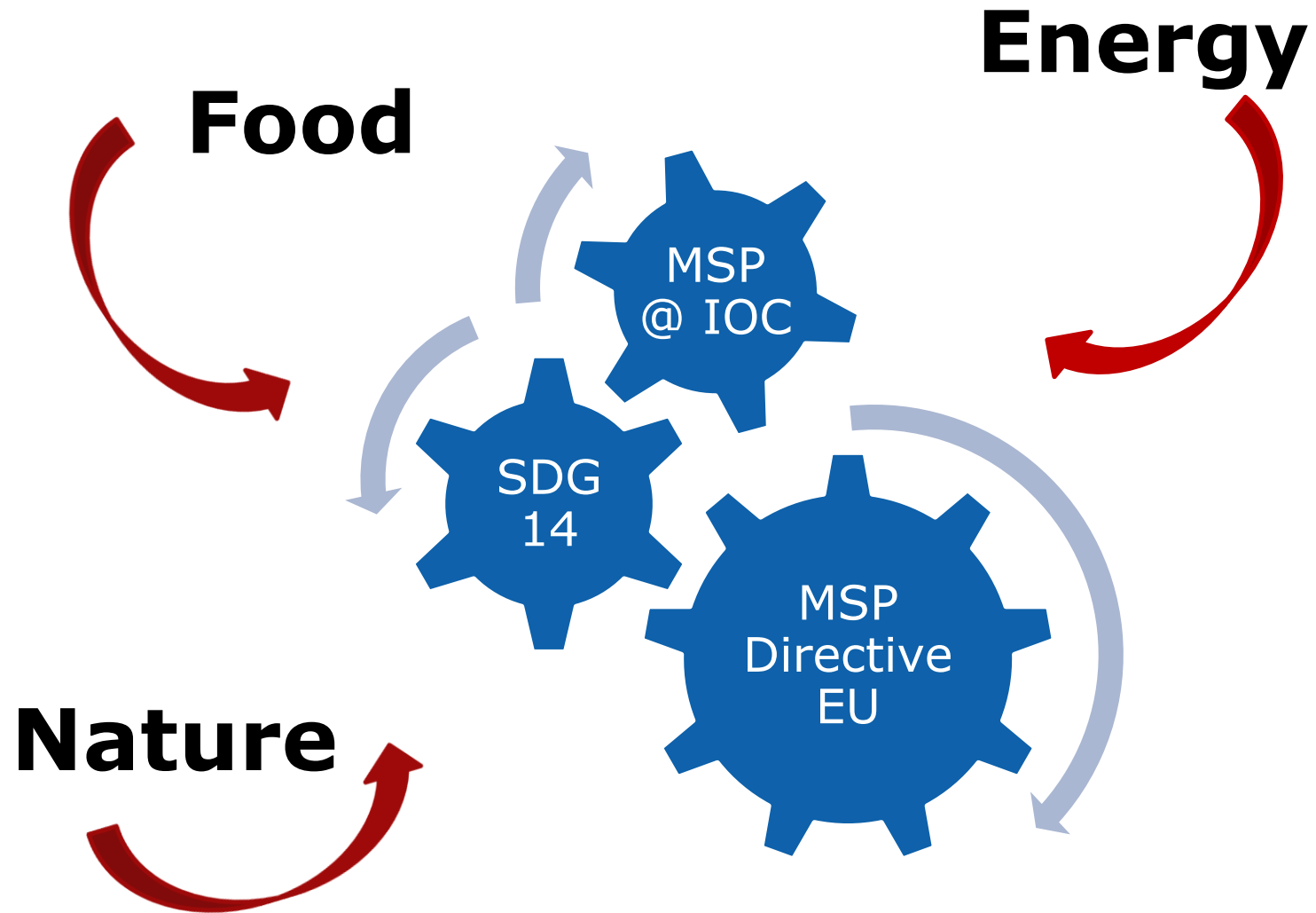




Goal: Participative and Informed Decision Making in a transparent way

# **MSP EXAMPLE**







MSP Stakeholder involvement during planning process at different levels of government (Europe, national, regional, local)

North Sea Agreement in progress... (includes funding)

MSP game

Digishape – Digital Twin of the (Dutch part of the) Northsea

Noordzeedagen : Knowledge exchange and defining gaps – driving policy and research



So far

# CONCLUSION FROM EXAMPLES

# Overcoming fragmentation

- Aligning along processing chains (getting to know each other)
- Aligning along standards (patterns and semantic logic)
  - Observations and Measurements
  - Rights, Restriction and Responsibilities
  - ...



Under development:

# **SAFETY OF NAVIGATION**

# Future Bathymetry process?



Processing chain for bathymetry including Sat based imagery and Crowd Source Bathymetry?

