

FUTURE PERSPECTIVE

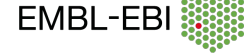
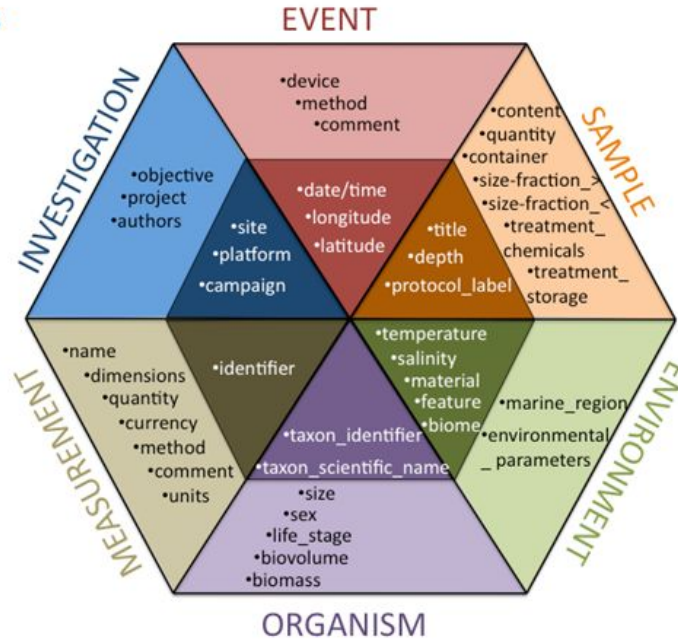
Enabling grass-root innovation like Tara Oceans via existing European data infrastructures & services

Needs for a Blue Cloud

Build on cross-disciplinary Standards

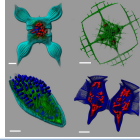


Registries & ontologies

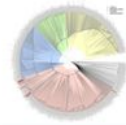


Ten Hoopen P., Pesant S., Kottmann R., Kopf A., Bicak M., Claus S., Deneudt K., Borremans C., Thijsse P., Dekeyzer S., Schaap D., **Bowler C.**, Glöckner F.O., **Cochrane G.** **Data standards for Marine Microbial Biodiversity, Bioinformatics and Biotechnology (M2B3) Standards in Genomic Sciences** 10:20 doi:10.1186/s40793-015-0001-5 (2015).
<http://www.standardsingenomics.com/content/10/1/20>

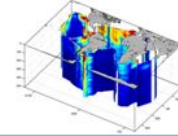
Build on existing Data Resources & Infrastructures



Imaging Data



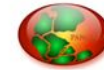
Genomics Data



Environmental Data

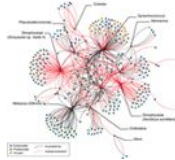
User-driven innovations

Tara Oceans
EuroMarine

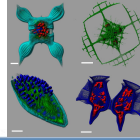


PANGAEA Data Publisher

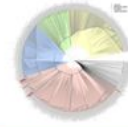
Innovative
modelling



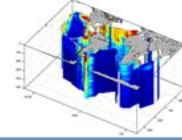
Build on existing Data Resources & Infrastructures



Imaging Data



Genomics Data



Environmental Data

User-driven innovations

Tara Oceans
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PANGAEA Data Publisher

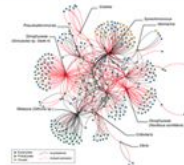
Migrate to EU
Infrastructures



1. Brokering &
2. Computing

- - - - - Blue Cloud - - - - -

Innovative
modelling



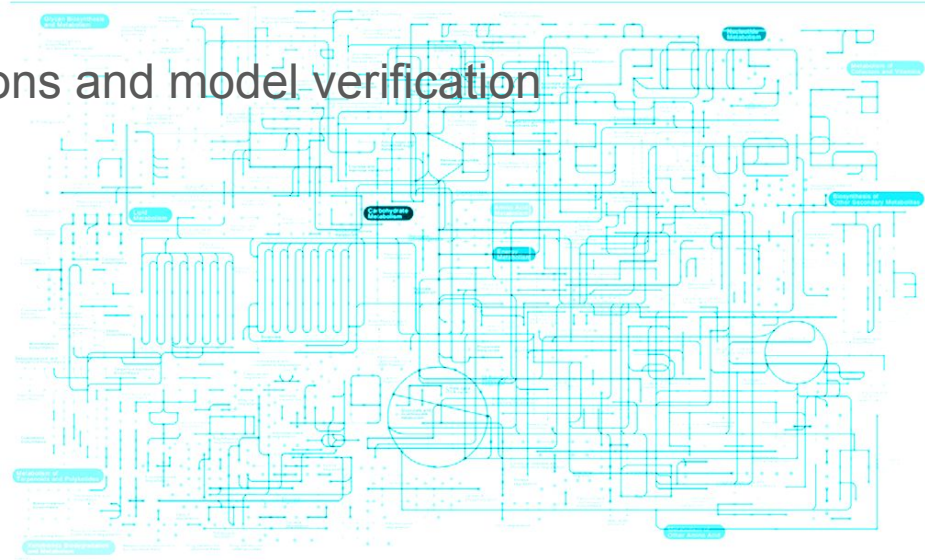
Blue Cloud - Need 1. Brokering

- **Interoperability with respect to**
 - Data provenance,
 - Methods
 - Parameters (quantities, units, currencies/entities, qualities/traits)
- **Seamless “online services” across data infrastructures**
 - Explore
 - Select
 - Access
- **Shared space to assemble data**
 - imaging
 - genomic
 - environmental data
 - Integrate the whole

Impactful Marine Sciences,
structured and rich metadata,
systematic collection,
integration with other data (i.e.,
sequence)

Blue Cloud - Need 2. Computing

- **Image** processing workflows and machine learning tools for identification and quantification
- **Omics & Meta-Omics** processing for phenotypic identification (*i.e.*, metabolic maps) and automatic holistic analysis (generalisation of network analysis)
- **Modelling Tools** for model simulations and model verification



Wording it in “call text language”

A Pilot Blue Cloud should

- enable data intensive research “from genes to ecosystems in a changing ocean”, building as much as possible on innovative science initiatives such as Tara Oceans, Ocean Sampling Day and Malaspina;
- train the next generation of data intensive scientists;
- use existing European and international research infrastructures such as EuroBioImaging, Elixir, Copernicus and ICSU’s World Data System.