

How can the access to RIs for industry be made easier.

A Total point of view.

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TOTAL

▶ **Research infrastructures are:**

- essential tools for an increasing variety of subjects,
- physics, astronomy, chemistry, humanities, life sciences, environmental sciences...

▶ **Research infrastructure provide opportunities for innovation :**

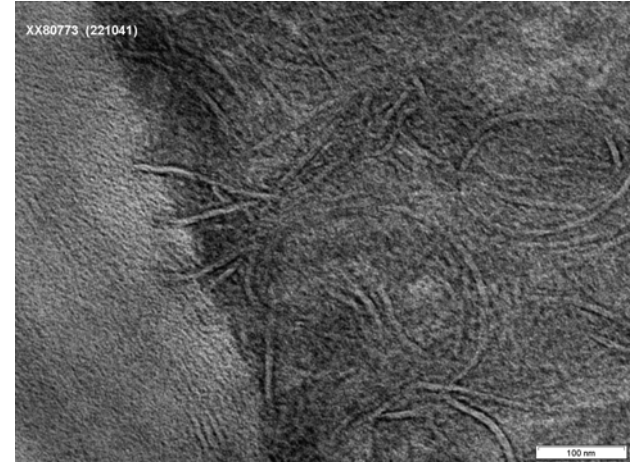
- because of own technology,
- because of measuring or computing capacities,
- as generic support infrastructures,
- as a source to “down stream” services.

▶ **Questions on how to accelerate innovation:**

- based on research infrastructures.

Measuring capacities of research infrastructures

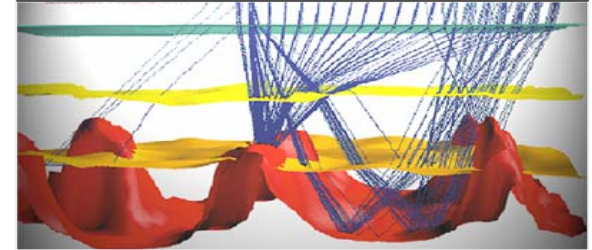
- ▶ **Example :** Access to synchrotron.
- ▶ **Need :** Measurement of volume and surface properties for R&D on complex materials.
- ▶ **Implies :** Access to a variety of synchrotron lines with their instrumentation.
- ▶ **Approach :** Contract with synchrotron facilities (ESRF, Soleil).
Buying machine **time and service**.



« **Good** » **adhesion**

Computer facilities

- ▶ **Need :** Complement internal (strategic) capacities with more powerful machines or more computer time for R&D. Test new architectures and develop codes appropriately.
- ▶ **Implies :** Access to small amounts of computer time in a variety of centers.
Partner with laboratories to develop algorithms, solvers, codes.
Partner with companies to benchmark new architectures.
- ▶ **Approach :** Long term partnership with laboratories.
Buying machine time and service.



High performance computing



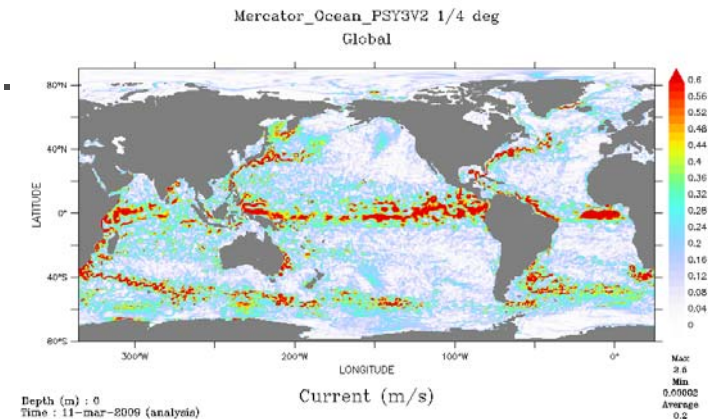
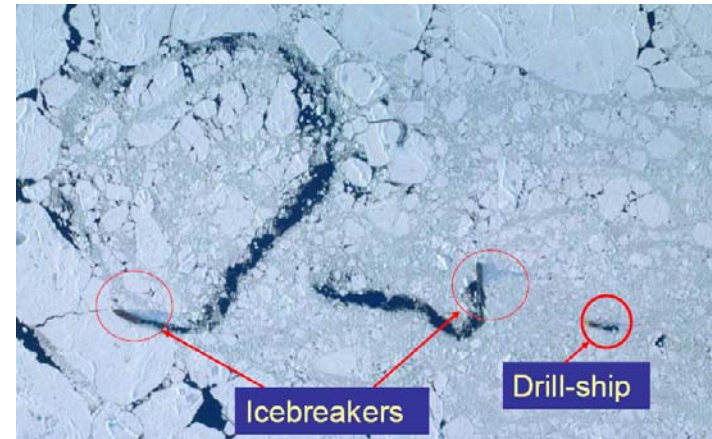
Using generic support research infrastructures

- ▶ **Example :** Accessing and using oceanographic vessels and tools.
- ▶ **Need :** Developing R&D on key subjects for offshore oil and gas exploitation.
Preparational survey in specific areas using advanced tools.
- ▶ **Approach :** Partnering with Research Institutes to develop joint oceanographic campaigns.
Buying ship time and service for more operational purposes.
Participating in the development of new ocean instruments for future needs.



Using down stream services of the Earth Observation System

- ▶ **Example :** Metocean data for the offshore industry.
- ▶ **Need :** Real time data and prediction for operation.
Climate data for design and long term anticipation.
- ▶ **Implies :** Access to service worldwide based on satellite and in situ observing systems and modeling for prediction (GMES).
- ▶ **Approach :** Explicit needs expressed toward GMES (core service).
Support development of new processing and tailored tools in laboratories.
Provide our own data to data centers.
Facilitate tailored innovation in down stream service providers.



Overall approach : anticipate the future

- ▶ Monitor investment and technology strategy in public research infrastructure (national, ESFRI, international roadmaps).
- ▶ Be identified as a source of specifications by project teams.
- ▶ Contract with infrastructure managing institutes for **access and services**
- ▶ Develop long term research partnerships with research laboratories for R&D of common interest or tailored developments.
- ▶ Facilitate innovation in down-stream service companies (SMEs) to maintain them competitiveness and obtain tailored services.