



TOWARDS A FRENCH e-SCIENCE ?

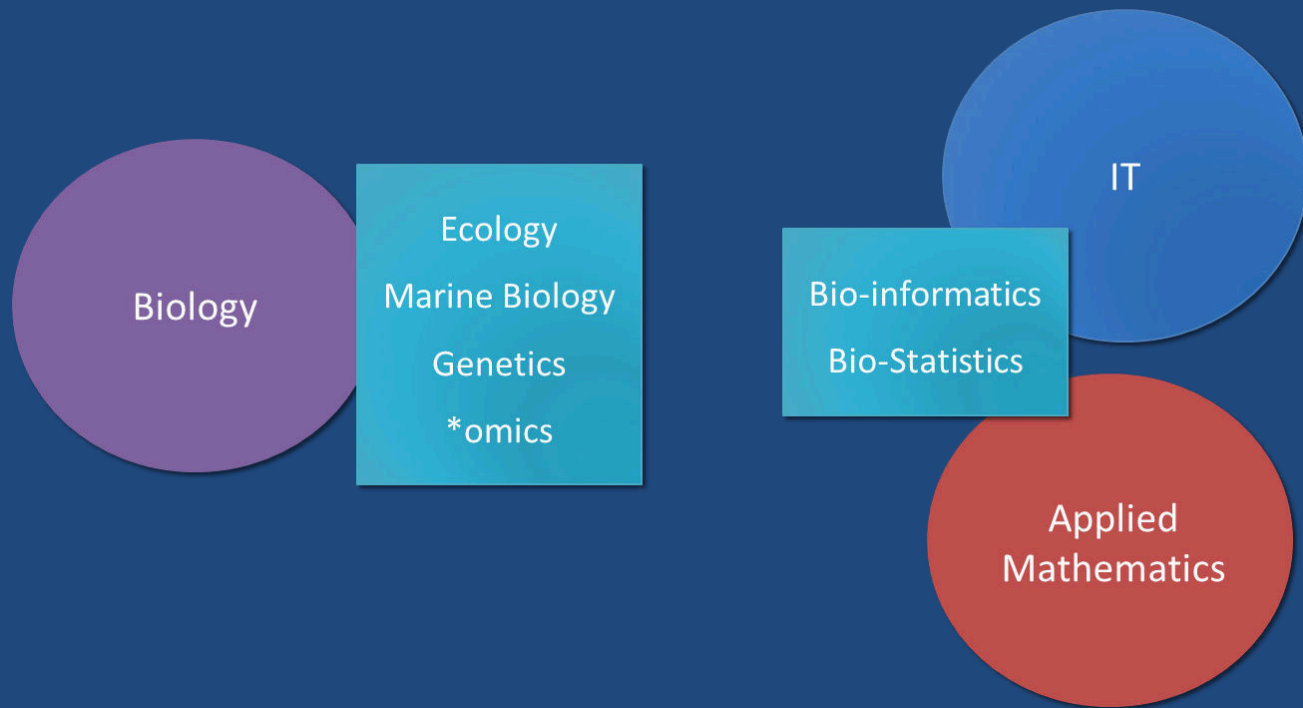
Results of the e-Biogenouest project (2012-2014)

- Coordination : Olivier Collin – Yvan Le Bras (IRISA)



-Test an e-Science approach in Life Sciences

-Propose an e-Science structuration in Western France

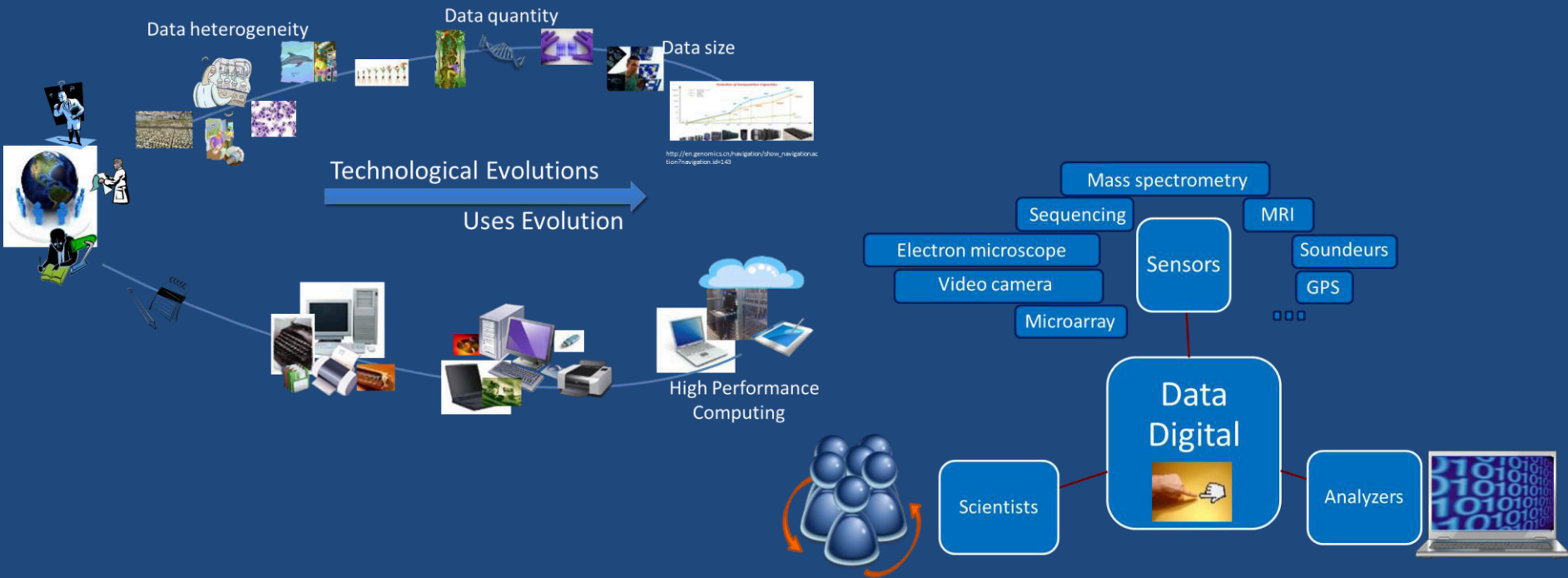


MY PROFILE

Translation

Integration

Systemic scale



BREAK SILOS

Challenge: -each domain is specific! but digital...

Solution: -have a digital point of view of the data!

Kahn. On the future of genomic data. Science (2011)
vol. 331 (6018) pp. 728-9

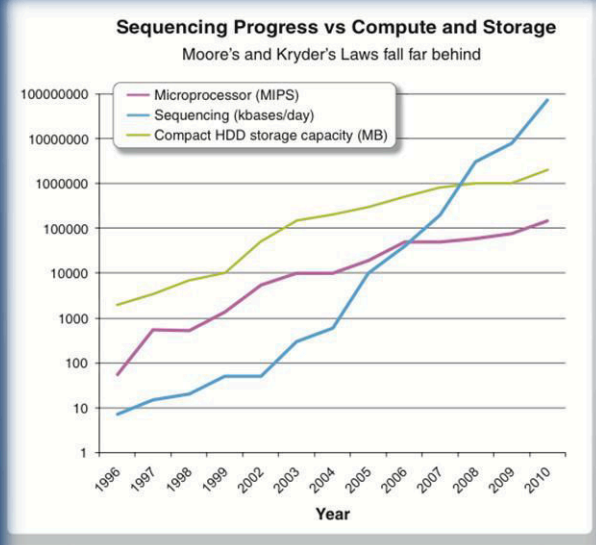
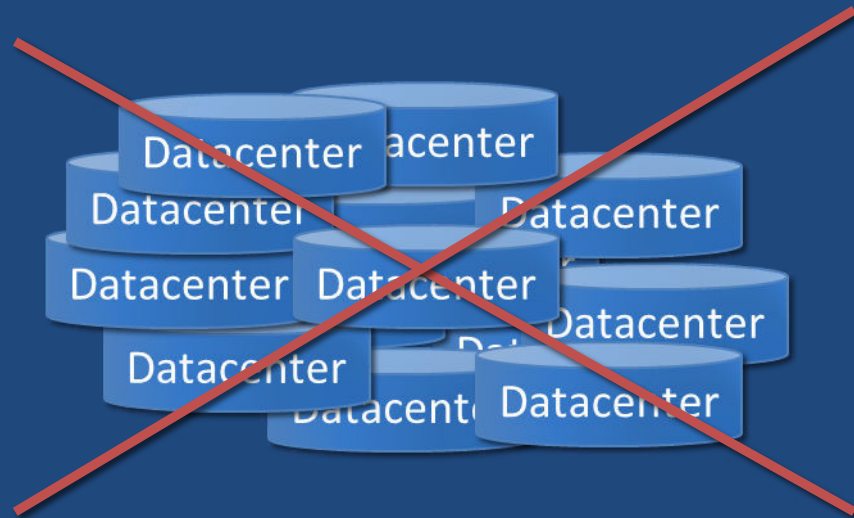


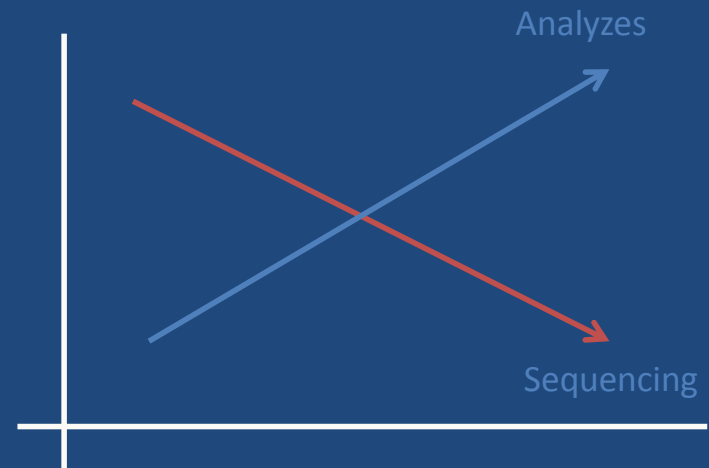
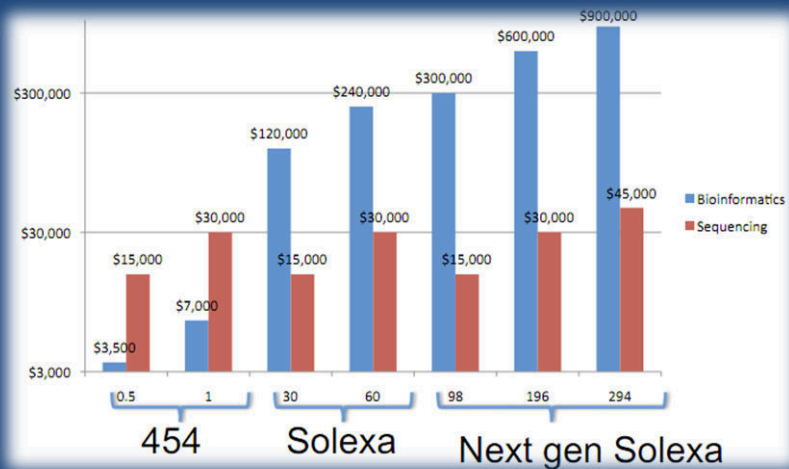
Fig. 1. A doubling of sequencing output every 9 months has outpaced and overtaken performance improvements within the disk storage and high-performance computation fields.



OPTIMIZE / STANDARDIZE

Challenge: -computing, storage, network optimisation

Solution: -focus on interoperability, use ontologies
-focus on code / algorithms enhancement



Cost switch

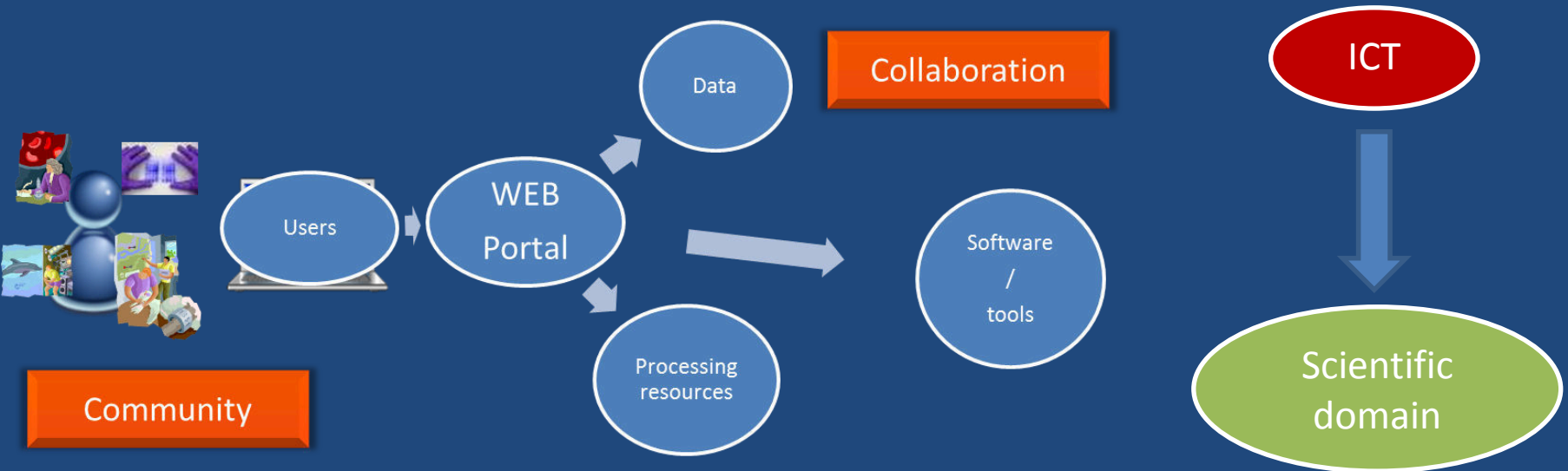
Using Clouds for Metagenomics: A Case Study Wilkening et al.
IEEE cluster 2009

PEOPLE PARADOX

More automation → More needs for human, for expertise

Challenge: -lacks human resources, change the uses

Solutions: -mutualization, collaboration
-citizen science approach



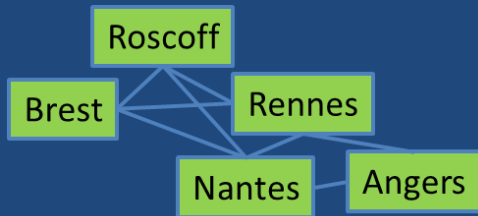
A SYSTEM OF SYSTEM

An e-Science « tool »: the Virtual Research Environment

Don't reinvent the wheel

Avoid silos

1. VRE on existing open source tools
2. Guided by Communities
3. Infrastructure & Human



Optimization, a goal!

Mutualisation

Western eScience centre for life sciences (CeSciGO) ?

French Bioinformatics Institute (IFB) ?



FROM REGIONAL TO NATIONAL

An oriented VRE e-Science approach

-a software connection

-an infrastructure connection

Thank you for your attention

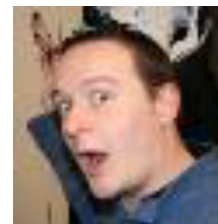
GenOuest Bioinformatics core facility



Symbiose IRISA/INRIA group
GenOuest-Dyliss-Genscale



Cyril Monjeaud



Oliver Collin



eBGO HUB (*collaboration*)

<http://www.e-biogenouest.org/>

EMME portal (*data management*) <http://emme.genouest.org/>

Galaxy instance (*data analysis*) <http://galaxy.genouest.org/>

Waste management?

Well done!

1. \$ for infrastructure
2. Human Resource
3. Tools / Virtual laboratories

New developments
lack optimization

Proprietary software
Silos

UK National eScience
Center

NSF office of cyberinfrastructure

Washington e-Science Institute

Australian National eResearch
Collaboration Tools & Resources (NeCTAR)

Netherlands eScience Center
(NLeSC)

Nordic eScience
Globalisation Initiative
(NeGI)
*Nordic e-Infrastructure
Collaboration (NeIC)*

Swedish Research Centre (SERC)

Denmark eScience Center

Finland, Iceland, Norway

e-SCIENCE OVER THE WORLD