



Building the ERA – A view from CNRS, a French Research Performing Organization

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Prague, April 18, 2009

What is CNRS



- **French public Research Performing Organization (RPO)**
 - Omnidisciplinary - covers all areas of knowledge
 - Frontier research - spans from novel concepts to forerunner applications
 - Independent - defines and conducts its own research strategy
 - Nationwide - has laboratories throughout France
 - Worldwide reach - supports collaboration, networking and labs throughout the world
- **It has**
 - 1100 labs throughout France (90% in partnership with universities)
 - Total staff in all 1100 labs: 77.000
 - of which 32.000 are on CNRS payroll (and 45.000 university employees)
 - of which 11.500 are full-time, tenured researchers
- **CNRS is participating in building the ERA
as part of its national mandate.**

Building the European Research Area



• Building the ERA

P. 03

- Is the cornerstone of the 2000 Lisbon Agenda to promote a knowledge-based economy and society in Europe
- Steered by national governments
- Given impetus by the Commission (FP7, Joint Programming...)
- To succeed, the building process has to follow the bottom-up mode of research, with
 - **Researchers** leading the way,
 - **Research Institutions** consolidating the collaborative initiatives,
 - and the **Governance** setting the regulatory framework

The players of the research landscape



The roles of the research players

P. 04

- **The researchers:** Center stage
 - Scout and initiate new areas
 - Link up with each other to advance their field
 - Contribute their ideas to society and the economy
- **The institutional players:** provide environment to support the creativity and productivity of researchers, aggregate researchers in communities and structure research into programs
 - Universities
ensure the quality of Education through Research – long-term vision
 - Research Funding Agencies (RFAs)
provide support for projects competitively – medium-term vision
 - Research Performing Organizations (RPOs)
carry out research on society's needs or multidisciplinary, by constituting research communities and running infrastructures – long-term vision
- **The stakeholders:** oversee research, set regulatory framework, provide orientation, stimulation, funding...
 - Governments/Commission
 - Public

The bottom-up mode of research



P. 05

- **The stakeholders** set the regulations and the framework, adjusting it to the needs of each stage, by providing incentives and guidelines.
- **Stage 1:**
Researchers, seeking complementarities to advance their research, **establish collaborations** spontaneously with their European colleagues. A dense network of spontaneous collaborations is the necessary substrate on which the ERA can be built.
- **Stage 2:**
Institutional players establish bilateral links to support the collaboration of their researchers, for their mutual benefit. Institutional links permit collaboration to develop in depth and become a long-term partnership.
- **Stage 3:**
Institutional players act in concert and collectively to structure their links and coordinate their actions at the European level. This will permit European research to meet global challenges, promote excellence, and realize the Lisbon Agenda.

Building the ERA Stage 1:

Collaboration among researchers



P. 06

Over the past 30 years, thanks to the impulse given by the Commission's Framework Programs, European researchers have gotten to know each other, and seek each other's complementary expertise to carry out their research together.

Example: CNRS

- Every year, among the 51.000 research trips abroad by CNRS researchers, **35.000 (70%) go to European countries.**
 - Every year, among the 27.000 publications from CNRS labs, **32% are co-authored with researchers from other European countries**
23% are the result of domestic collaborations
20% are the result of collaborations outside Europe
24% involve no external collaboration
- ⇒ European collaboration brings the complementary skills and know-how necessary for the success of a research project.
It is essential for the diversity, the originality and excellence of research at CNRS and at any other RPO or University.

Building the ERA: From Stage 1 to Stage 2



P. 07

- Over the past 30 years, researchers have massively taken the initiative to work together throughout Europe.
- Spontaneous collaboration is now strong in Europe.
- **Stage 1** is well under way and provides the substrate for **Stage 2: Establishing formal links among European institutions**, to support the spontaneous collaborations within the strategic priorities of the researchers' home institutions, thus **leading to long-term scientific partnerships.**

Building the ERA Stage 2:

Links between Institutions



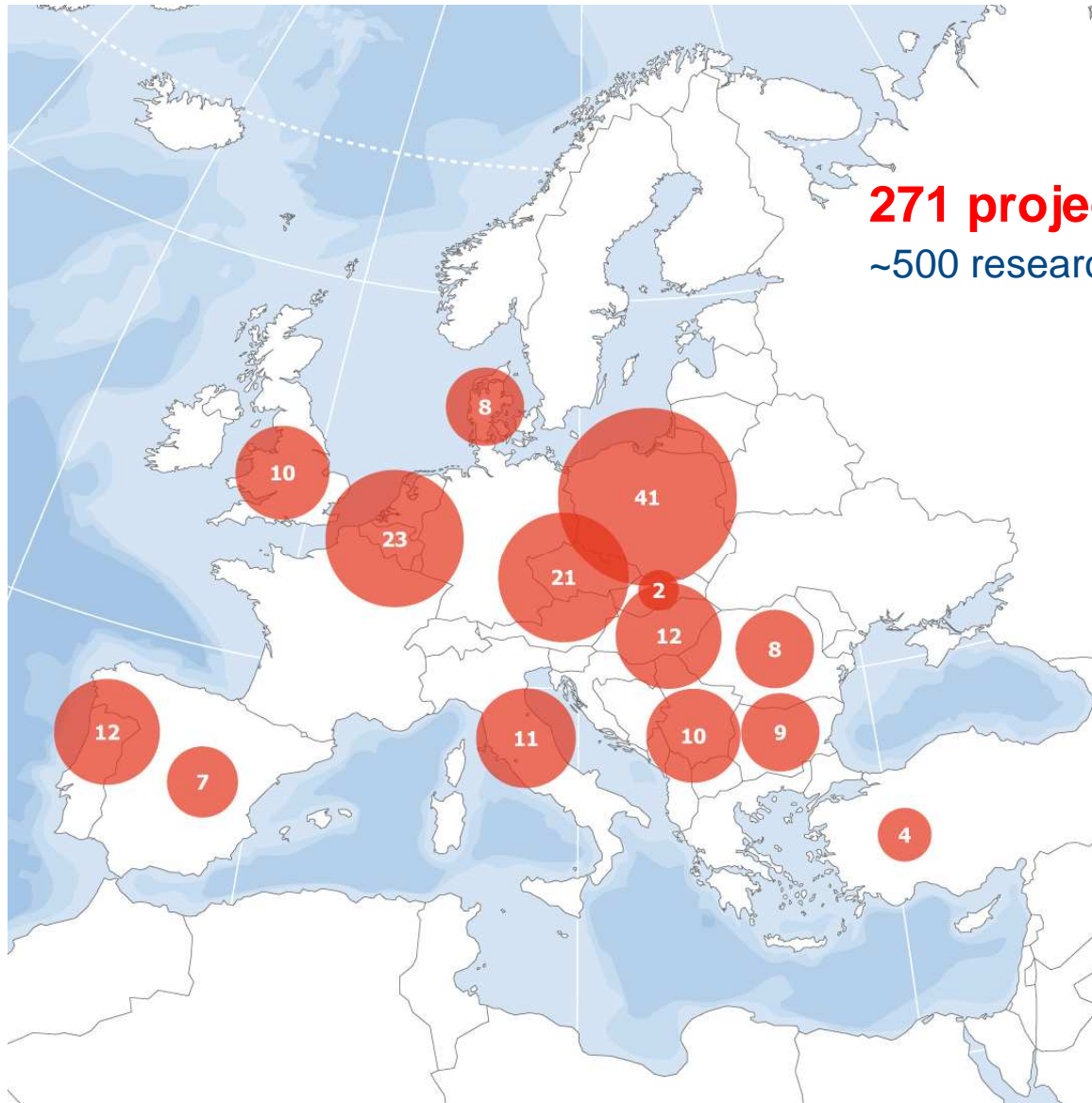
P. 08

To support and promote the work of their researchers CNRS and many RPOs have established strong links with other European research players.

Example: CNRS

- **Concluded agreements with 37 research organizations (RPOs and RFAs) in 27 European countries.**
- **Developed a spectrum of tools to support, structure and advance collaboration with Universities, RPOs and RFAs:**
 - **Exchange visits** to encourage contacts
 - **Cooperation Projects** to strengthen a nascent collaboration
 - **Coordination Networks** to organize thematic communities throughout Europe
 - **Laboratory Associations** to support an enduring collaboration
 - **Joint Research Units** to establish a strong partnership in a common area of excellence

Exchange projects at CNRS



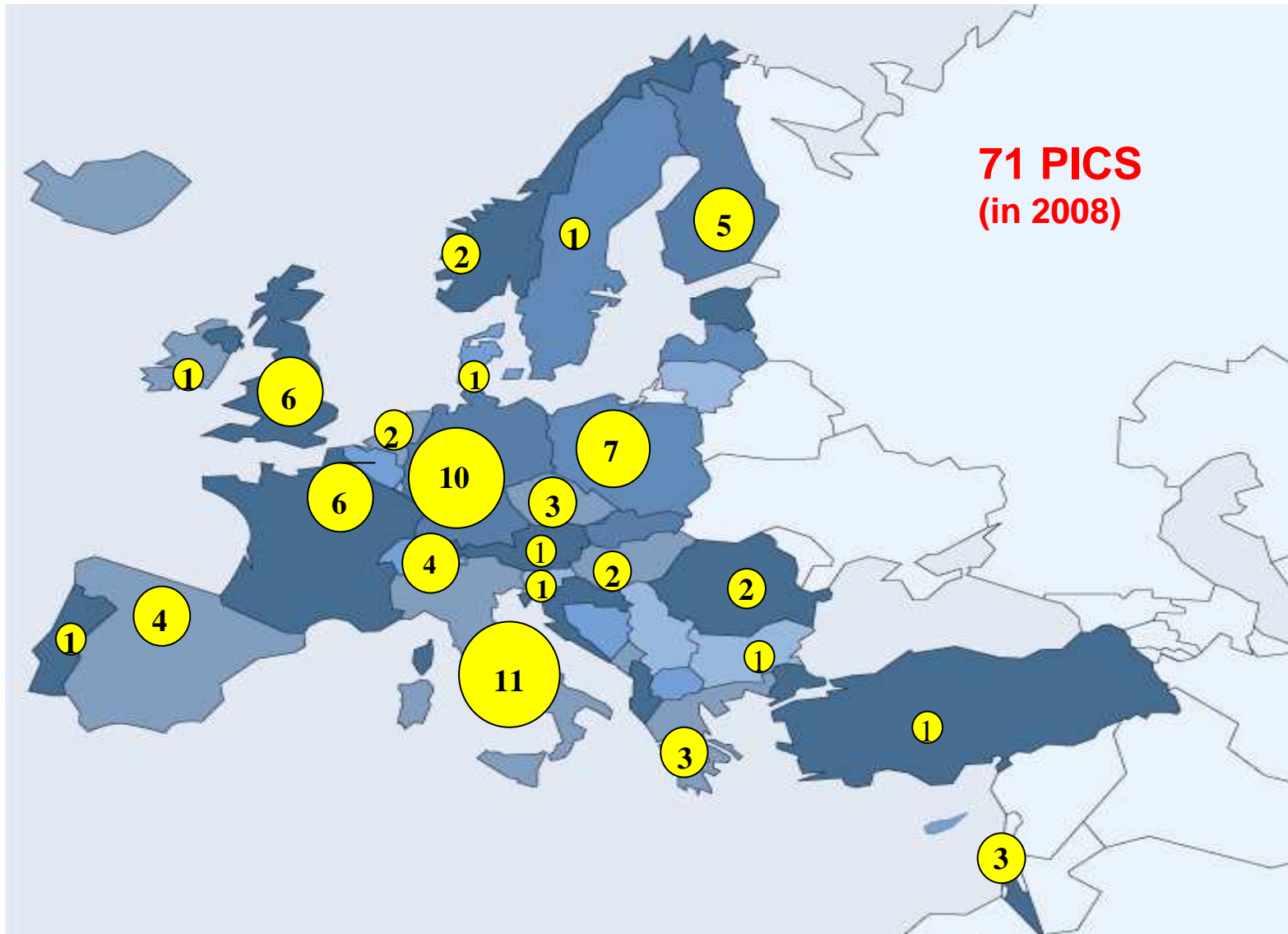
271 projects (in 2008)

~500 researchers/yr each way

CNRS Cooperation Projets in Europe



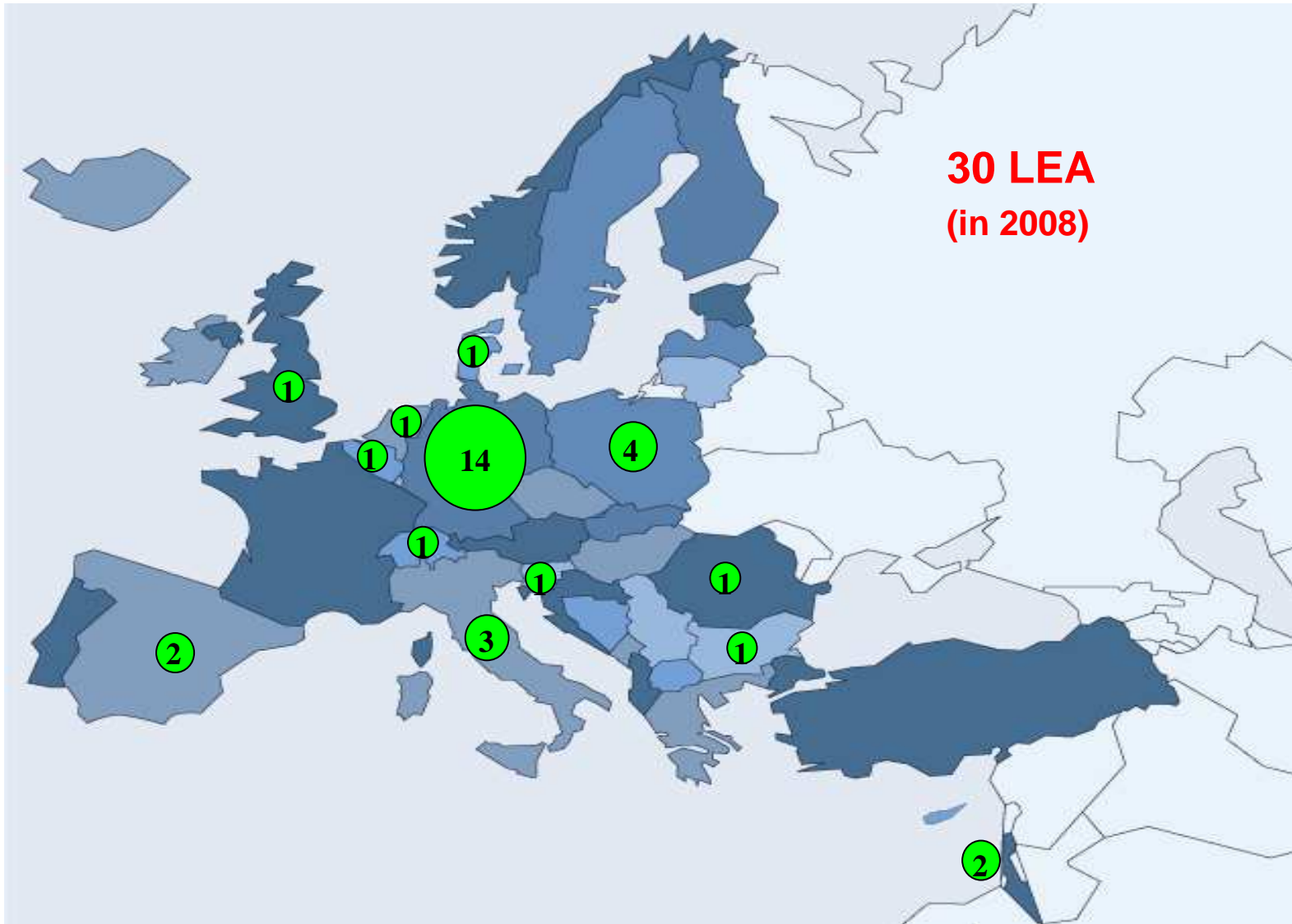
P. 010



European laboratories associated to CNRS



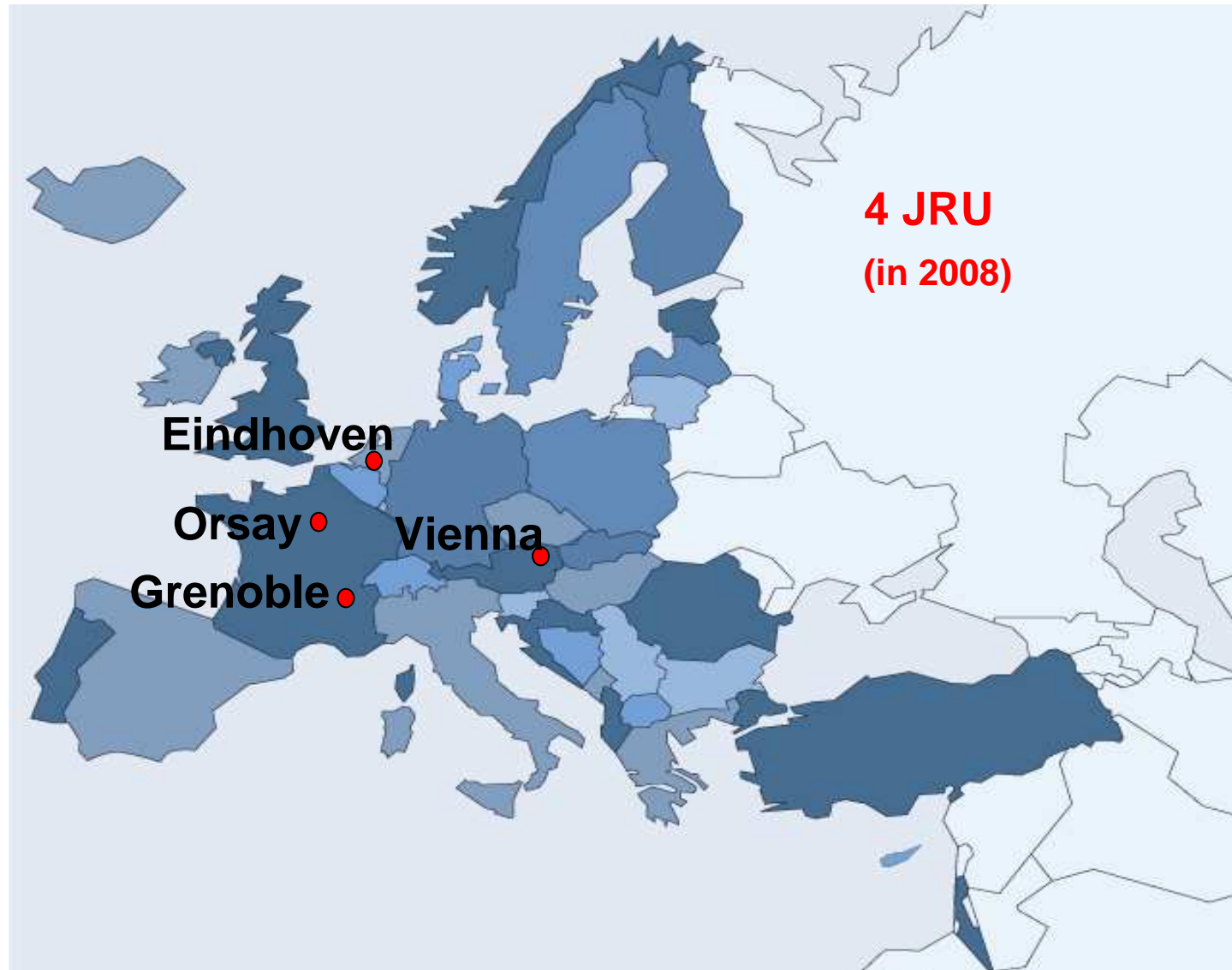
P. 011



CNRS Joint Research Units in Europe



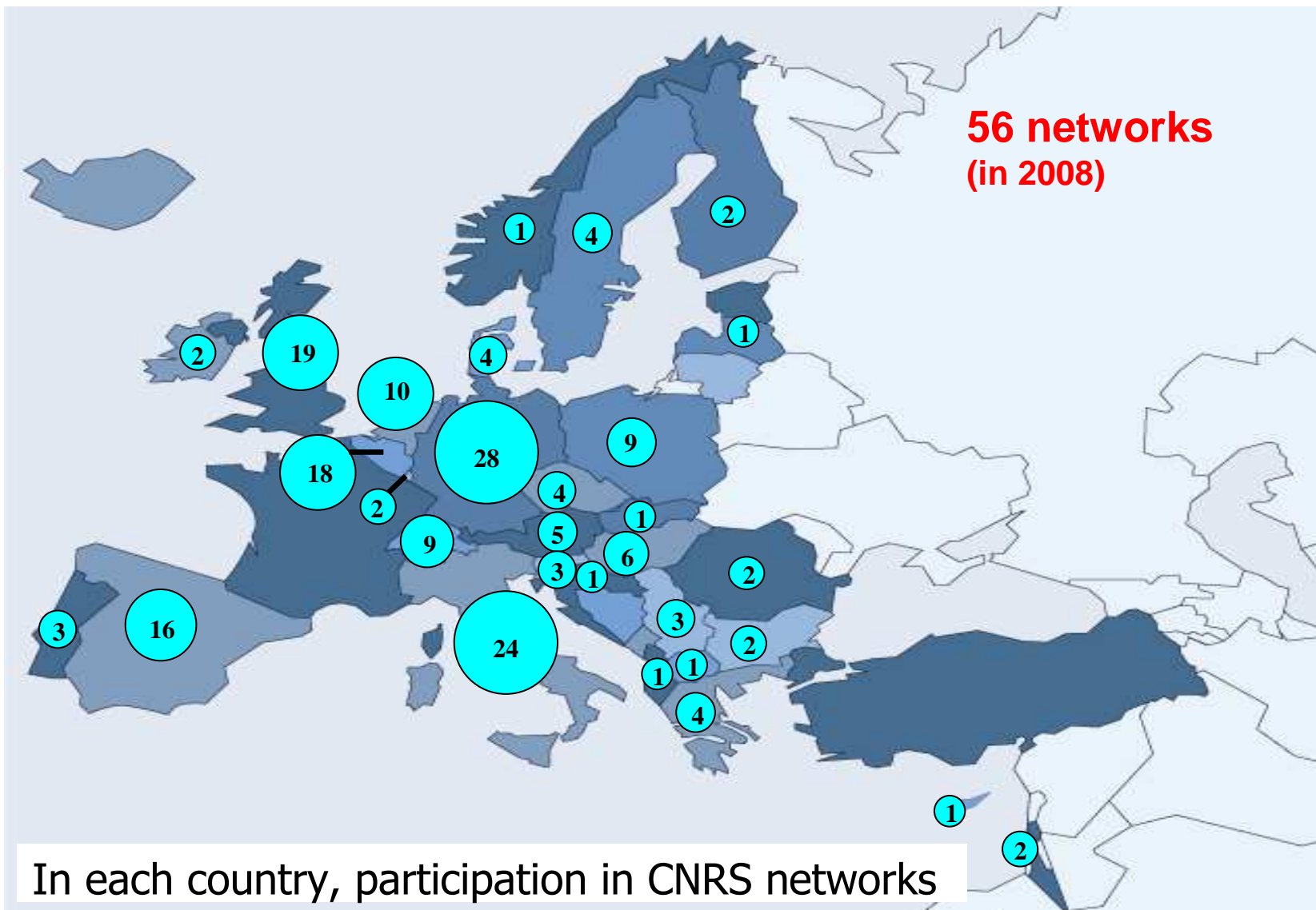
P. 012



CNRS coordination networks in Europe



P. 013



Building the ERA: From Stage 2 to Stage 3



P. 014

As the CNRS example shows, links among all three types of institutional research players, Universities, RFAs and RPOs, are numerous and growing.

Their overall volume is still modest (~5% of collaborations, as measured by co-publications) but is now **reaching the critical mass** necessary for triggering **Stage 3**: Institutional players, acting in concert and collectively, structure research at the European level.

The initiatives of the Commission provide an impulse for concerted action, but it is the long-term commitment of the institutional players, who structure research on the national level, that will help in structuring research also at the European level.

In this perspective, EUROHORCs and ESF, two European associations bringing together some 80 national RPOs and RFAs, have issued a **“Vision on a Globally Competitive ERA and a Roadmap for Actions to Help Build it”**.

Building the ERA Stage 3: Concerted action among Institutions



P. 015

- **The EUROHORCs/ESF Roadmap**
 - identifies the main challenges facing European research,
 - gives a vision of excellence in the ERA,
 - sets general objectives and
 - outlines possible pathways for concerted action

for all their Member Organizations, building on the bilateral initiatives that RFAs and RPOs undertake within their particular role in supporting research.

Example: CNRS and other RPOs propose to undertake concerted actions that involve a long-term perspective, along several action lines:

- Researchers,
- Research Environment,
- Coordinated Strategy,
- Relation with Society.

Action line 1: Researchers



P. 016

National governments and the Commission (cf. Green Paper) intend to create a single labor market for researchers, by implementing appropriate measures and regulations

CNRS and other RPOs are employers of researchers and intend to:

- Promote European research careers, by attracting and retaining researchers in Europe, and by facilitating mobility across Europe.
- Follow research careers through peer review of researchers, setting common benchmarks and sharing resources.

Few measures implemented until now

(e.g. EURYI awards, which evolved into ERC's "Starting Grants")

However, regulatory framework not yet in place.

Action line 2: Research Environment



P. 017

CNRS and other RPOs engage in providing an environment that promotes the creativity and productivity of their researchers at the European level by,

- Creating joint European research hubs in partnership with universities, to become central nodes in problem-oriented multidisciplinary networks (e.g. CNRS's Joint Research Units at present). In the future ERAConnect, Regional Clusters of Excellence, Joint Institutes...
- Building and running common research infrastructures both medium-size and large-scale facilities (e.g. CNRS-MPG infrastructure partnership at present).
In the future generalization of shared infrastructure scheme.
- Evaluating laboratories and programs against common benchmarks.

Action line 3: Coordinated Strategy



P. 018

Working together in Europe requires coordinating institutional strategies, taking advantage of complementarities to face common challenges.

CNRS and other RPOs are starting to coordinate their strategies through participation in EUROHORCs and ESF, by

- Developing a shared vision through common foresight exercises as a basis for joint strategies (e.g. presently ESF's « Forward Looks »)
- Projecting European research to the world (e.g. Proposal for “European Houses of Science”)
- Coordinating programs across Europe (e.g. within J Programming)
 - Strategic Energy Technologies Plan (a first instance of J Programming): coordinated through an « Alliance » of RPOs.
 - Ageing (an emerging theme for J Programming): Health-oriented RPOs proposed J Programming on neurodegenerative diseases (Alzheimer);
 - EUROHORCs created a task force to be able to respond rapidly to solicitations on Joint Programming.

Action line 4:

Embedding science in society



P. 019

- Knowledge-based society requires appropriation of the ERA by the citizens.
- The first point of the « ERA Vision 2020 » adopted by the Council of Ministers last December is:
 - ERA is firmly rooted in society.
 - ERA builds on mutual trust and continuous dialogue between Society and the Scientific and Technological Community.
- This requires from the citizens a greater awareness of science
- It requires from the researchers, the RPOs and the Universities
 - Responsiveness to society's needs
 - Outreach and dissemination activities towards society at large
 - Accountability to the stakeholders
 - Integrity and ethical approach in conducting research.
- EUROHORCs and ESF federate at the European level the efforts of RPOs and RFAs, which are already taking such steps on the national level to strengthen their relation of trust with the societal stakeholders.

Conclusion: Building the ERA bottom-up



P. 020

The European Research Area is being built according to the bottom-up mode of operation of Research:

- **Stage 1:** In pursuing their research work, Researchers establish spontaneous cross-border collaborations.
Stage 1 is well under way and has led to Stage 2.
- **Stage 2:** In providing support for their researchers, Research Institutions link-up across Europe.
Stage 2 is in the build-up phase and is reaching a critical mass permitting Stage 3 to start.
- **Stage 3:** Institutional players coordinate and structure their action across Europe. CNRS and RPOs are involved in 4 important areas:
 - Researchers
 - Research Environment
 - Coordinated Strategy
 - Relation with Society

This stage is now starting. Its full implementation will make the ERA a coherent whole, in support of a Knowledge-based Society.