



Integration of the European Research Landscape over the past 50 (+1) years

NuPECC Meeting, 12 June 2025, Strasbourg





1974





2-3 May 1974 /
Sweden
14 countries – 45
organisations (an
innovative and
avant-garde
project)

Towards a European Science Foundation (July 3 1974)



Hubert Curien DG CNRS (1963-1973), Chairman of ESF Foundation
Committee, first president of ESF, President CNES, President ESA, Council, French
Minister, President CERN (1999-1996)

Vers une Fondation Européenne

de la Science
Manuscrit de M. H. Curien
remis le 3 juillet 1974.

par Hubert CURIEN
Délégué Général à la Recherche Scientifique
Président du Comité fondateur de la Fondation Européenne de

Fondation's Aims

- Boosting basic research in Europe
- Promote exchanges between researchers
- Free flow of ideas and information
- Harmonise activities of each member organisation

ten scientifique internationale. Les ~~de~~ buts que se propose la Fondation ont été énoncés en conclusion de la réunion de Jij:

- donner une impulsion à la recherche fondamentale en Europe;
- promouvoir les échanges de chercheurs;
- ~~et~~ contribuer à la libre circulation des idées et des informations;
- réaliser une harmonisation des activités de chacun des ~~membres~~ de la ~~organismes~~ membres.

Ces buts pourront être atteints à l'aide d'activités particulières

Support from the City of Strasbourg



RG/SB
VILLE DE STRASBOURG

Strasbourg, le 1 FEV. 1974
M. Audé
SDG/ = 4 FEVR. 1974.

LE MAIRE

Important pour votre dossier de candidature.

Monsieur le Directeur

Comme su
 j'ai l'honneur de
 à m'entretenir av
 du Conseil Généra
 sujet de l'instal
 Européenne de la

Nous som
 Département du Ba
 teront l'installa
 notamment en vue
 tution.

Dans un
 démarrage que vou
 les deux collecti
 des frais resulta
 appropriés.

A cet égard, je vous confirme que M. ROTH, Sous-Directeur du Centre de Recherches sur le macromolécule à Strasbourg, est en contact étroit avec mes services.

Veillez agréer, Monsieur le Directeur Général, l'assurance de ma considération distinguée.

P. Pflimlin
 P. PFLIMLIN

Monsieur GREGORY
 Directeur Général
 du C.N.R.S.
 15, quai Anatole France
 75700 PARIS

ESF 70 6 février 1974





Founding Assembly in Strasbourg, November 1974

1975: State of the Art

- Highly fragmented and national laboratories dominated European research
- Universities remained largely inward-looking, with student mobility very low: only a few hundred students per year crossed borders for study.
- The European Atomic Energy Community (Euratom, 1957) funded nuclear R&D but did not yet coordinate broader scientific cooperation.



1975: State of the Art

- Cross-border projects existed only in a few fields (e.g. particle physics at CERN, founded in 1954, astronomy at ESO founded in 1962, ILL 1967) and via loose networks such as the European Science Foundation (COST, ESF)
- CERN and national “big science” centres (DESY ‘64, Daresbury ‘62) shepherded the largest teams—50–100 physicists per experiment.



1975-2025: Main Milestones

- 1974–77: ESF (1974), ESA (1975), EMBL (1977) launched as pan-European research bodies.
- 1984: First Framework Programme (FP1) for RTD (EUR 3.8 billion ECU, 1984–87).
- 1992: Maastricht Treaty formally creates “European Research Area” concept.

1975-2025: Main Milestones



- 2007: Creation of the European Research Council (ERC) to fund investigator-driven “frontier” research.
- 2014: Launch of Horizon 2020 (EUR 77 billion, 2014–20), first with explicit “societal challenges” pillars.
- 2021: Horizon Europe begins (EUR 95.5 billion, 2021–27), with strengthened missions, partnerships and new “European Innovation Council.”



1975-2025: (Selected) Flagship Successes

- **Human Genome Project (1990–2003):** coordinated by U.S. labs alongside European centres (EBI, Sanger Centre), first draft of the human genome.
- **ITER Fusion Project (launched 2006):** joint EU–China–India–Japan–Russia–S. Korea–U.S. partnership on the world’s largest tokamak.



1975-2025: (Selected) Flagship Successes



- **LHC @CERN (2008–):** 10,000 scientists from 100+ countries, discovery of the Higgs boson (2012)
- **European Space Programmes:** Copernicus Earth-observation (2014–) provides free satellite data for climate & security.
- **ESRF (1989), European XFEL (2017), ELI (2020)**



1975-2025: (Selected) Flagship Successes



FP FUNDING TO EU COUNTRIES

FP1 – Horizon 2020, 2025 e.c. (est.)



Between FP1 and Horizon Europe budget increased by 5.4

Germany	€30 bn
UK	€19 bn
France	€22 bn
Spain	€17 bn
Italy	€16 bn
Netherlands	€15 bn
Belgium	€9 bn



1975-2025: EC FP Successes

EU FPs have contributed to tech advancements relevant to general public:

- **GSM:** Early Framework Programmes (FP1 and FP2) were instrumental in the development and standardisation of GSM - foundation for Europe's mobile phone industry, notably Nokia and Ericsson.
- **MP3 Audio Compression:** developed in the early 1990s by Germany's Fraunhofer - partially funded by EU grants.



1975-2025: EC FP Successes

EU FPs have contributed to tech advancements:

- **mRNA Vaccine Technology:** German BioNTech received support from FP5-7 - maturation of mRNA technology.
- **Ebola Vaccine Development:** The Innovative Medicines Initiative (IMI), supported by Framework Programmes since FP6, contributed to the development of a two-dose Ebola vaccine.



1975-2025: Main Drivers

Cold-War Competition, Technological Race, 70s oil crisis

- *Worries of “Europe falling behind” motivated policymakers to think collectively and pool resources*

European Community Treaties & Policies

- *1986 Single European Act introduced science & technology as a Community competence*



1975-2025: Main Drivers

Lisbon & Barcelona Agendas (2000–02)

- *The 2000 Lisbon Strategy positioned R&D at the heart of economic growth targets*
- *Knowledge-based economy, 3% GDP R&D target*
- *Structuring effect of supranational policy decisions*

Global Challenges

- *Climate change, pandemics, energy security created incentives for pan-European consortia.*

1975-2025: Main Drivers

Interdisciplinarity

- *Complex problems demand chemists, physicists, biologists, data scientists working together.*

Digital Revolution

- *Fast broadband and data infrastructures (e.g. GÉANT) enabled virtual institutes and e-infrastructures.*

Research Infrastructures Ecosystem

- *From large intergovernmental organisations to ESFRI to ERIC and lighter networks*

1975-2025: Main Drivers

Scale & Cost

- *“Big science” requires budgets only possible through pooled funding.*

Open Science

- *Make scientific research, data, code and publication from all fields accessible to everyone*

Responsible Research and Innovation

- *Framework to facilitate the achievement of societal goals of R&I in an open and inclusive way*

Main Strengths of European Science in 2025



Integrated Funding Ecosystem: from basic (ERC) to applied (EIC) to infrastructure (EOSC, EuroHPC).

World-class Infrastructures: CERN, ESRF, EMBL, XFEL, ESO, European Space Agency.

Highly Mobile Workforce: 1 million researchers in ERA; >400,000 inter-country fellowships since 1997 - >12 million ERASMUS students studied abroad



Main Strengths of European Science in 2025



Strong Public-Private Linkages: EIT, Joint Technology Initiatives, PPPs in health, transport, clean energy.

High Openness & FAIR Data: >70% of EU-funded publications are open access; EOSC adoption rising.



