Joint Programming in Neurodegenerative Disease Research (JPND)

Prof. Thomas Gasser, MD
Chair, JPND Scientific Advisory Board

A major societal "Grand Challenges"
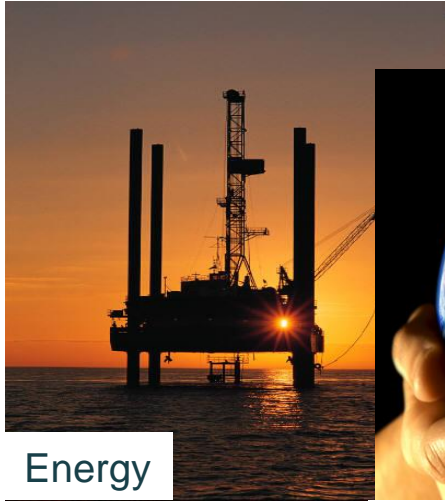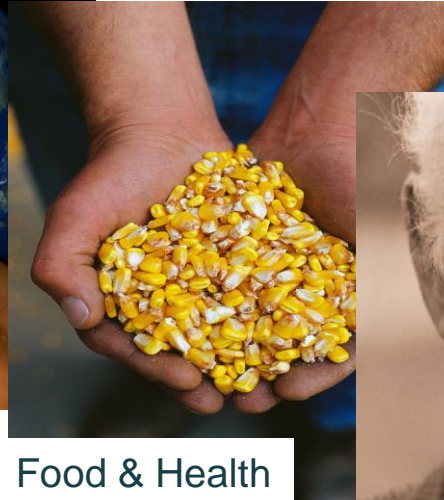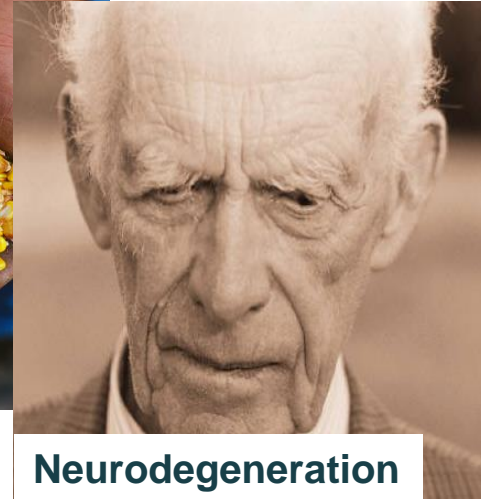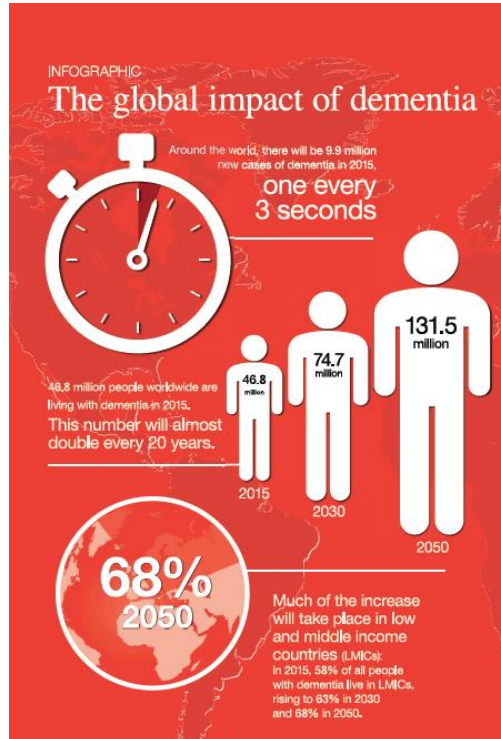

Energy

Climate Change

Food & Health

Neurodegeneration

JPND
research
EU Joint Programme – Neurodegenerative Disease Research

The global threat of neurodegeneration

World dementia report 2015
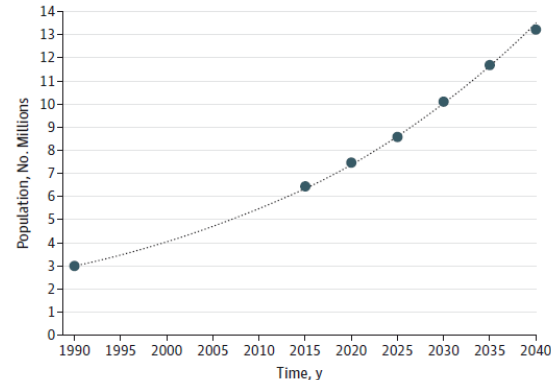
Overcoming barriers in Europe

- Fragmented Research

- Non-concerted National Funding

- Duplication

- < 5% of total EU countries research budget shared (mainly through the European Commission)

The Joint Programming Concept

Joint programming was originally created as a *Member States-led* initiative in Europe. It aims to address "grand challenges" to EU and global society by **coordinating national research programmes** to increase the impact and effectiveness of research efforts.

Current JPND strategy

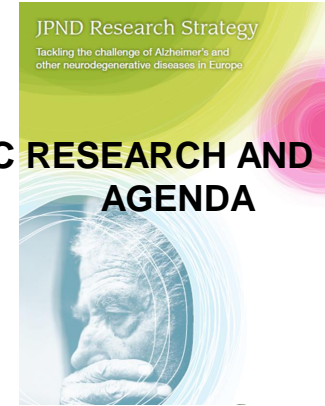- **Immediate JPND goals:**

  - To add value to national investments through coordinated action

  - To encourage the development of national research strategies in ND

  - To engage in partnership to reach the full potential of research in JPND-affiliated countries

Aligning to defragment: what JPND is all about

STRATEGIC RESEARCH AND INNOVATION AGENDA

ALIGNMENT OF COUNTRIES
ON COMMON RESEARCH GOALS

Scope of the JPND initiative

Focus on Three Domains

Scientific
- Animal models
- Biobanks
- Cohorts/registries
- Disease pathology

Medical
- Early diagnosis
- Prevention
- Clinical trials

Social
- Health care delivery
- Home automation
- Health economics
- Ethics

Disease areas

Alzheimer's disease and other dementias
Huntington's disease
Motor Neurone Diseases
Parkinson's disease and PD-related disorders
Prion disease
Spinal muscular atrophy (SMA)
Spinocerebellar ataxia (SCA)
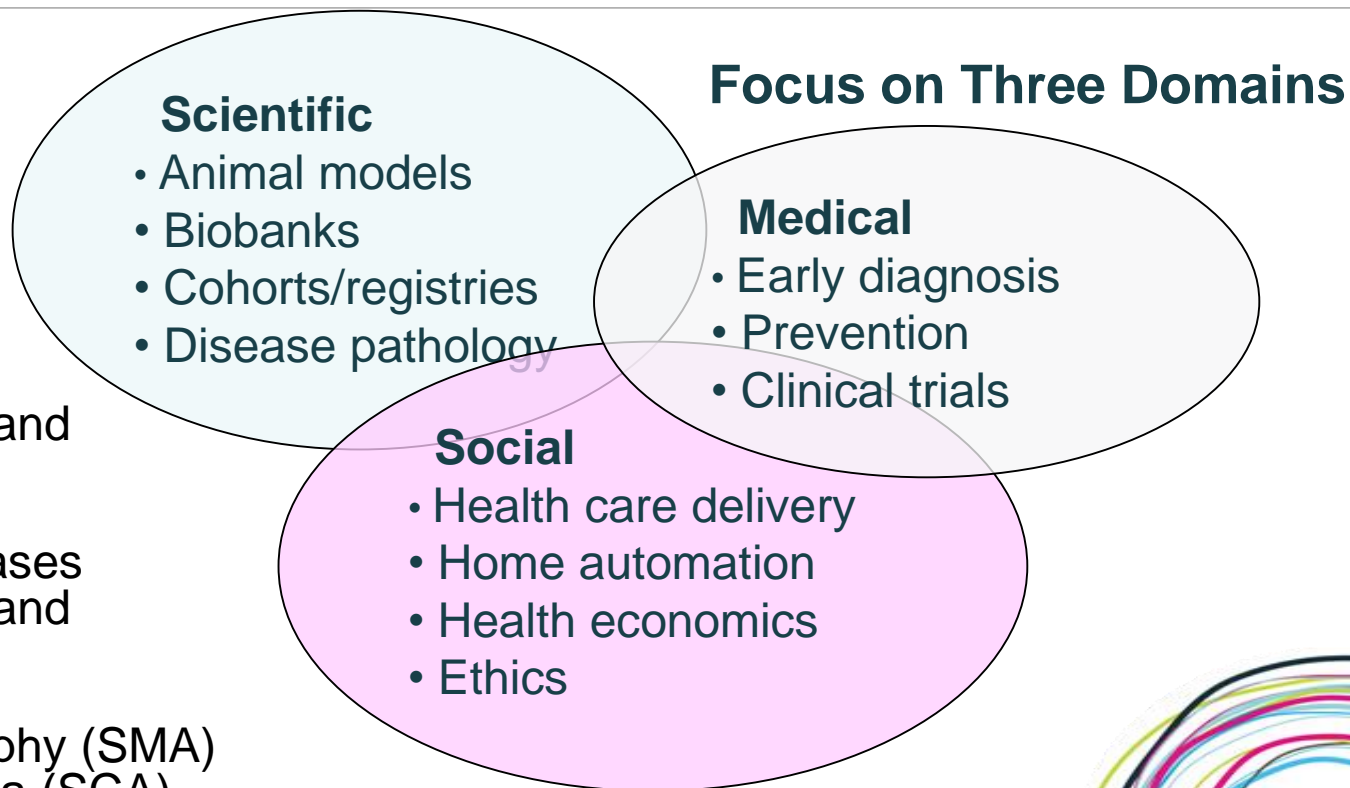
JPND brings together

- Researchers (Basic, Clinical, Healthcare/Social)

- National Funding Bodies

- National Research Strategies and Investments

- Industry

Internationalisation: Europe and beyond

JPND is the largest global ND research initiative led by EU countries, with 30 participating

- **23 EU member states**
- **5 Associated countries**
- **2 Partner countries**

Albania
Australia
Austria
Belgium
Bulgaria
Canada
Croatia
Czech Republic
Denmark
Finland
France
Germany
Greece
Hungary
Ireland
Israel
Italy
Luxembourg
Netherlands
Norway
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom

Forging new international links

- **New collaboration with USA NIH in 2018**

- **Exploring potential for future collaboration with**
  - **Brazil**
  - **China**
  - **India**
  - **Japan**
  - **Singapore**
  - **South Korea**

A common Strategic Research and Innovation Agenda

2012: The Strategic Research Agenda

- **A roadmap for research agreed by all Member States + Assoc. Countries + Partners Countries**

- **Thematic priorities for future research:**

  - The origins of neurodegenerative disease

  - Disease mechanisms and models

  - Disease definitions and diagnosis

  - Developing therapies, preventive strategies and interventions

  - Health and social care

JPND Research Strategy
Tackling the challenge of Alzheimer's and other neurodegenerative diseases in Europe

The Strategic Research Agenda – Enablers

Enabling activities

➢ Research funding capability (fully engaging JPND MOs)

➢ Supportive infrastructure / platforms (cohorts, models, imaging)

➢ Industry partnership

➢ Regulation

➢ Global partnership

➢ Building capacity in research (people)

➢ Education and practitioner training

➢ Connection to policy makers

➢ Communication and outreach to patients and public
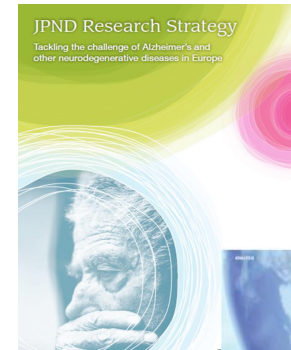
Joint calls: Funding process

1. JPND member countries decide on a topic
2. Countries that want to participate earmark a dedicated budget
3. Once enough funding has been collected, an MoU is signed
4. A joint program call is launched

Implementing transnational and additional joint calls

JPND research
EU Joint Programme – Neurodegenerative Disease Research

Total investment €200 M

Joint Transnational Calls:
- Between 20 and 189 proposals per call

- 125 projects supported including 24 projects in the Center of Excellence Network program

Year	Total fund	Research Area	No. of Projects
2011 (pilot)	€16M	Optimization of biomarkers + harmonization of their use	4
2012	€18M	Risk and Protective Factors	5
2012	€11M	Evaluation of Healthcare	6
2013	€12M	Cross-Disease Analysis	10
2013	€11M	Preventive Strategies	5
2014	€0.5M	Working Groups Cohort Studies	10
2015	€36M	Longitudinal Cohort Approaches; Advanced Experimental Models; Risk and Protective Factors.	21
2016	€0.6M	Working Groups on Harmonisation and Alignment in Brain Imaging Methods	10
2017	€14.4M	Cross-Disease pathways	10
2018	€18-19M	Health and Social Care	9/10
2019	#30M	Personalised medicine	In progress
2011	€6M	CoEN common resources and meth. approaches	8
2013	€8M	CoEN Phase II : "Pathfinder" projects	5
2016	€4,9M	CoEN Phase II : "Pathfinder" projects	11

Research Funding: By disease

- AD — 46.2%
- PD — 20.5%
- Prion — 4.8%
- MND — 6.5%
- HD — 1.4%
- SCA — 0.2%
- SMA — 0.2%
- ND general — 20.1%
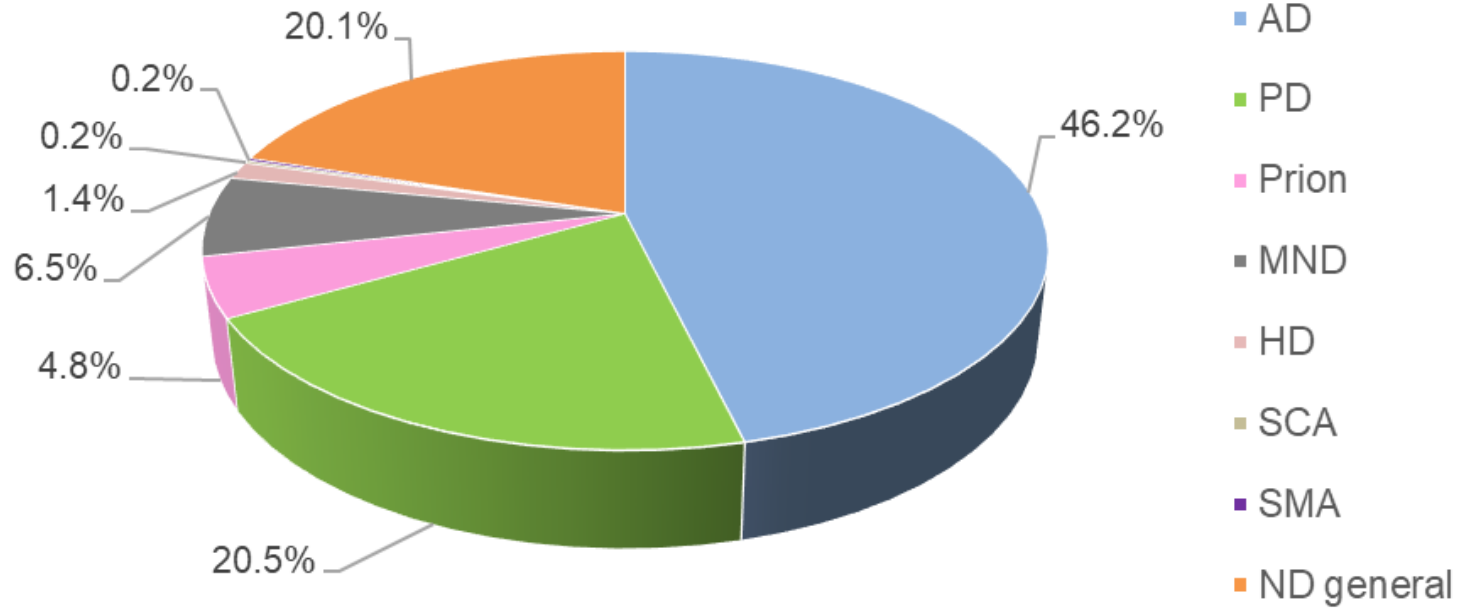
JPND Alignment Actions, working together

Alignment of National Strategies	Alignment of National Activities	Industry Partnership
Assisted Living Technologies	Longitudinal Cohorts	Animal and Cell Models
Palliative Care	Patient + Public Involvement	Optimisation of biomarkers

Mapping Database

JPND Global Cohort Portal
The first global database of cohorts for ND

Why cohorts? Linking and comparing longitudinal cohort studies could lead to important insights and statistically more powerful conclusions about ND. But researchers face hurdles:

- Information on cohort studies is often difficult to find
- Identifying and connecting with the right contacts from each cohort can be challenging
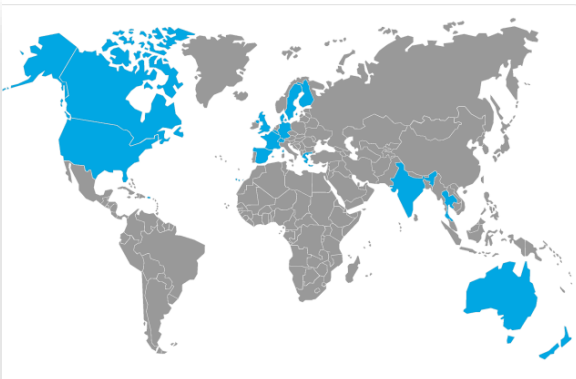
Main objective: to facilitate information exchange, greater use of cohorts and new collaborations to help promote:

- A larger volume of ND research
- Increased efficiency
- Greater scientific impact

More info:
cohorts@jpnd.eu
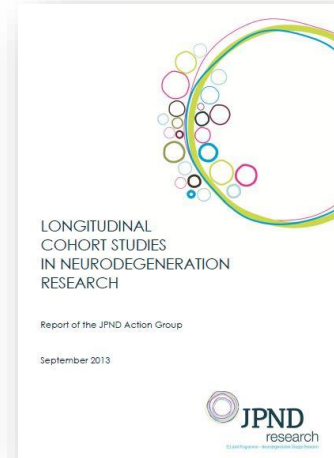
How does the JPND Global Cohort Portal work?

Search the database

Choose how your results display

Obtain high-level overview and cohort contacts

2018: From SRA to Scientific Research and Innovation agenda (SRIA)

JPND research
EU Joint Programme – Neurodegenerative Disease Research

2012

JPND Research Strategy
Tackling the challenge of Alzheimer's and other neurodegenerative diseases in Europe

2018

JPND Research and Innovation Strategy
Tackling the challenge of Alzheimer's and other neurodegenerative diseases in Europe and beyond

SRA

SAB review 2016

Key areas identified

Updates to SRA text

Expert workshops

Recommendations to SAB

Draft SRIA

SAB Meeting to discuss updates (29 Nov 2017, MS11)

NHP Consultation (Dec 2017-Jan 2018)

current status

Stakeholder Consultation   *September 2018 (3 wks)*

SAB/MB consulted

SRIA   *Provisional launch Q1 2019*

SAB = Scientific Advisory Board

2018: General updates

- Included techniques or developments in scientific understanding that have become important:
  - *New gene editing technologies*
  - *Organoids*
  - *Neuroinflammation and metabolism across diseases*
  - *Single cell analysis and systems analysis of brain tissue*
  - *Digital technologies / wearable devices*
  - *Computational modelling and analysis (ML / AI)*

- Modified some of the language to make it more lay friendly and bring out PPI aspects

2018: Example updates

- *Advance knowledge on the relationship between ND with vascular and metabolic systems and the role of infection and inflammation in the context of early and late-life comorbidity (SP1)*

- *Cohorts studies in susceptible groups including underrepresented populations (SP1)*

- *Examine ND mechanisms involving microglial and astroglial responses* (SP2, also links to biomarkers in SP3 and imaging in SP4).

- *Identify mechanism(s) that account for the effect of lifestyle factors on either promotion of resilience or neurodegeneration (SP2)*

- *Conduct studies to determine how to improve access to care and to reduce the unmet needs of individuals outside the formal care system and their carers.(SP5)*

2019: Pre-call Announcement

"Multinational research projects on Personalised Medicine for Neurodegenerative Diseases" (~ 30 Mio €)

Joint call (JPND and EC) will focus on Precision Medicine in the following research areas:

- Diagnosis e.g. biomarkers, imaging data, omics approaches, big data analyses
- Prevention e.g. biomarkers for studying novel treatments and interventions, co-morbidities, digital technologies, stratification within cohort studies and clinical trials
- Care e.g. improvement of social and health care systems, molecular profiling, imaging, lifestyle data

How to improve collaboration with academia and industry

- **Organizing events,** such as the workshop, in other venues and bigger partnership meetings (e.g. BioEurope and others).

- Organizing **focused meeting** on specific results of JPND scientists;

- Support **science exchange programs and sharing of infrastructures** (such as the Global Cohort and Experimental models portals)

- Involve scientists working in companies in the **board of reviewers** of Joint calls

- Reserve a **JPND call for scientists** who had developed promising products suitable for further development to enable them to interact with SMEs specialized in validations.
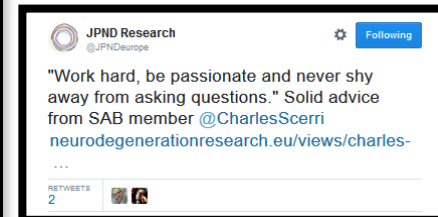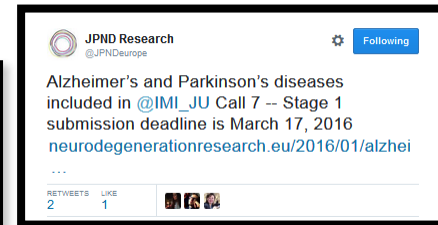
Active Social Media Conversation
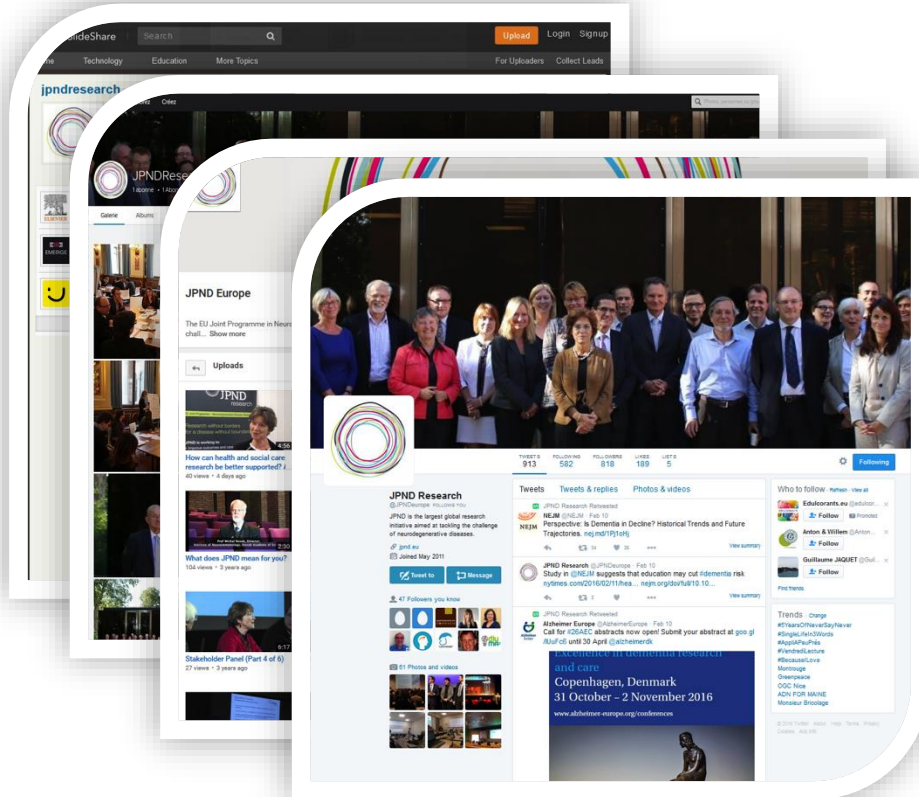
The JPND website reaches a wide range of stakeholders. In 2017:

- 96,279 users
- 126,452 sessions
- 250,993 pageviews

- Twitter
- YouTube
- Flickr
- SlideShare

Keep up to date

- Visit the JPND **website**:
  - http://www.jpnd.eu

- Sign up to the JPND **News Feeds**

- **E-mail us**: secretariat@jpnd.eu

@JPNDEurope

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JPND Newsletter
The JPND Newsletter is a bi-annual "look back" at JPND activities and highlights.

Creating a Global ERA for Neurodegenerative disease research

If you want to go fast, go alone. If you want to go far, go together.
African proverb

Map of scientific collaboration, Olivier H Beauchesne, 2014