

*BISS Bochum*

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# GeoInno: Political support for collaboration & networks

Tom Broekel

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# Course Outline

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- 🌐 Knowledge & externalities
- 🌐 Knowledge transfer
- 🌐 Proximities
- 🌐 Agglomeration & scaling
- 🌐 Spin-offs & life cycle
- 🌐 Evolutionary economics
- 🌐 Relatedness & knowledge space & complexity
- 🌐 Knowledge networks
- 🌐 Political support for innovation, collaboration, networks

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# Outline

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## Political support for innovation activities

-  Patents: Why and how

-  Public research capacities

-  Subsidisation of R&D

## Support for knowledge transfer and collaboration

-  Subsidies for joint projects by German Federal Ministry of Education and Research

-  Subsidies for joint projects by the EU - EU framework programs

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# Learning outcomes

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- Getting to know the basics of the subsidisation of joint R&D projects
- Knowledge about some organisations involved in joint R&D subsidisation and about the effects of subsidised joint projects
- Familiarisation with the EU-Framework programs and organisations participating in these programs as well as the programs' effects

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# Support for knowledge transfer: joint projects

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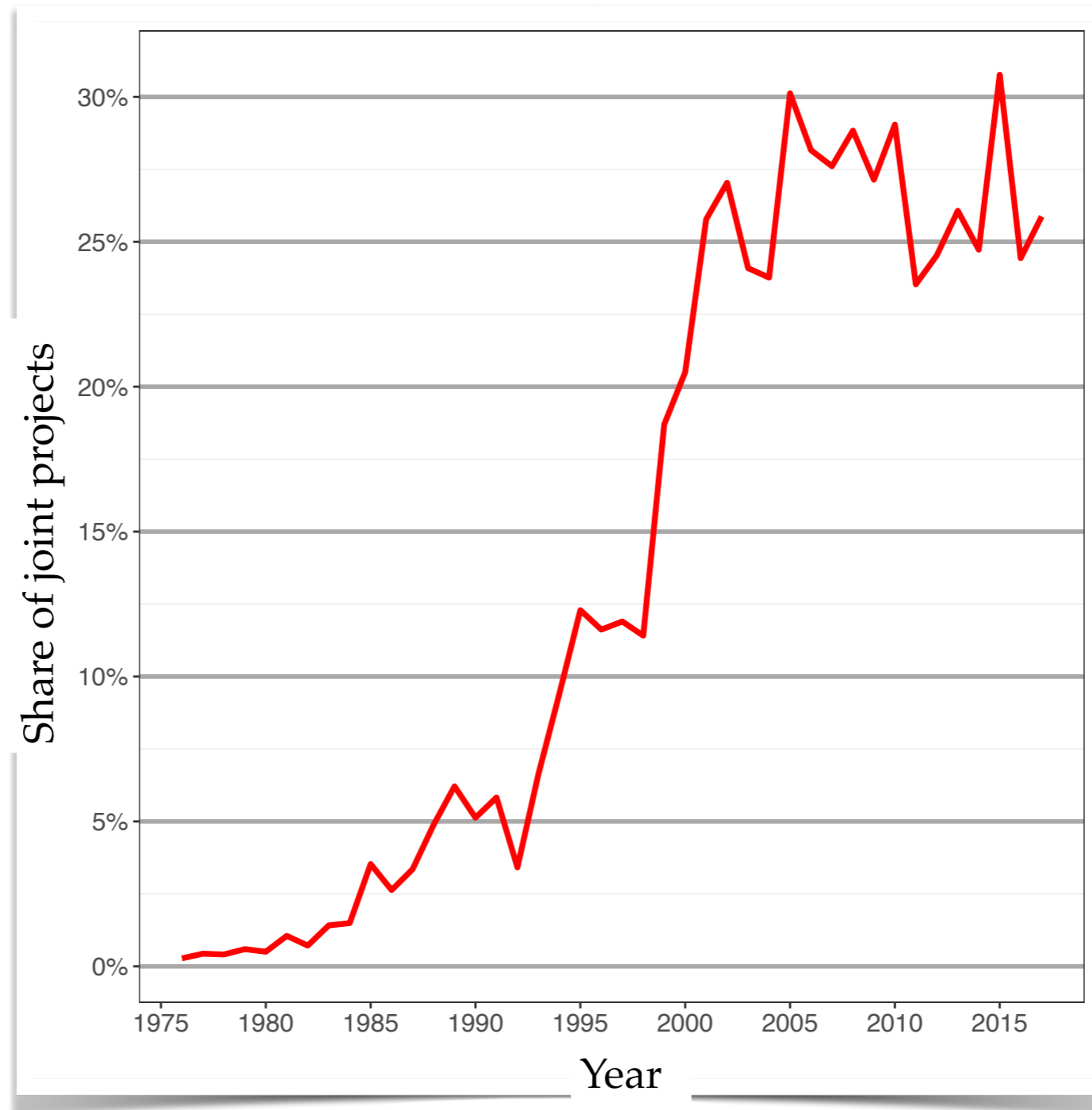
- Subsidisation of R&D projects by the Federal Ministry of Education and Research (Germany)
  - Majority of supported projects executed by individual organisations
  - **Since 1980s, increasing share of joint projects: multiple organisations apply and jointly work on the same projects**
    - Application, allocation, and general process identical to individual projects

# Support for knowledge transfer: joint projects

- Joint project: support for knowledge exchange and collaboration
  - “Die intensive Zusammenarbeit ist Grundbedingung dafür, dass Lösungen für die zu bearbeitenden Aufgaben gefunden werden“ (BMBF, 2008, p. 2).
  - Loosely translated: *The basic requirement for finding solutions to the assigned task is intensive joint work.*
  - “für Zwecke der Durchführung des Verbundprojektes an Know-how, urheberrechtlich geschützten Ergebnissen, an Erfindungen und erteilten Schutzrechten, die bei Beginn des Verbundprojektes vorhanden sind oder im Rahmen des Verbundprojektes entstehen, ein nicht ausschließliches unentgeltliches Nutzungsrecht ein[räumen]“ (BMBF, 2008, p. 2).
  - Loosely translated: *Partners grant each other an uncompensated right of usage of know-how, property rights, protected results, inventions, and of intellectual property rights that existed before the project started or that are created during the project [...] for the purpose of the joint project*

# Support for knowledge transfer: joint projects

Share of joint projects on all subsidised projects of the Federal Ministry of Education and Research (Germany), own estimation



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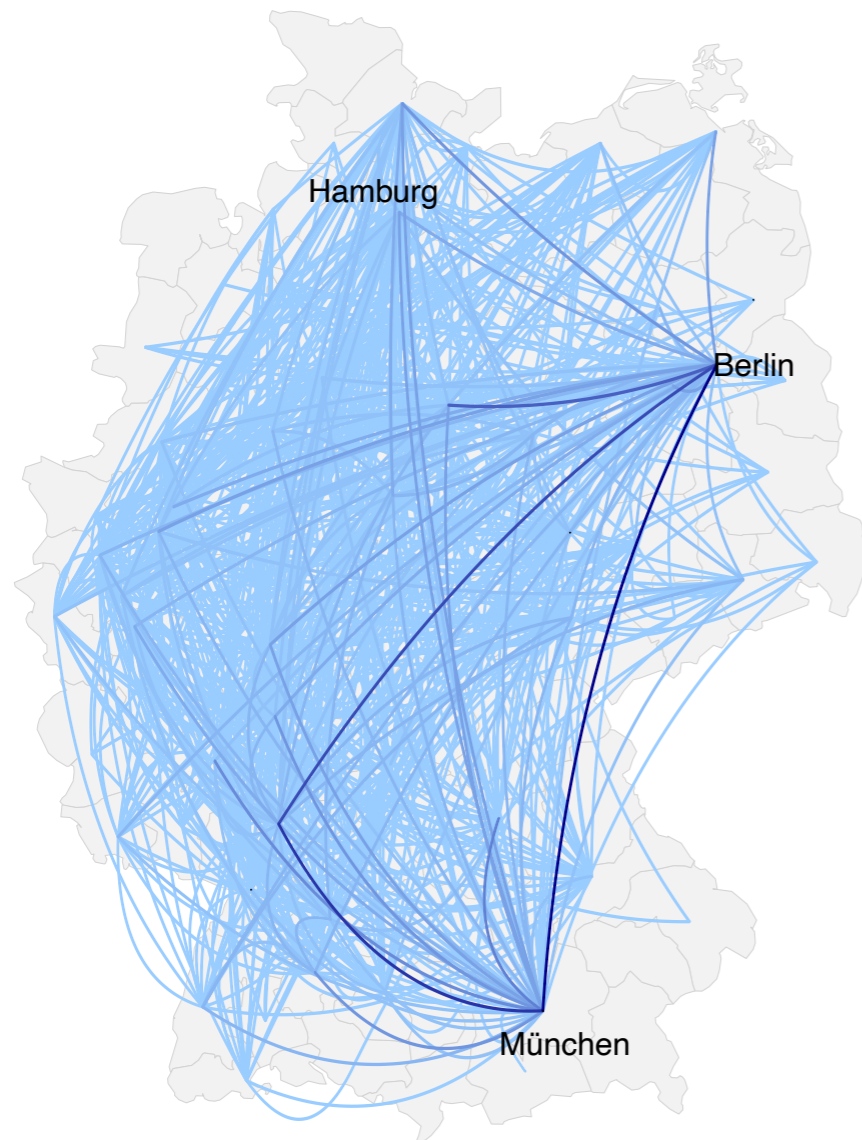
# Support for knowledge transfer: joint projects

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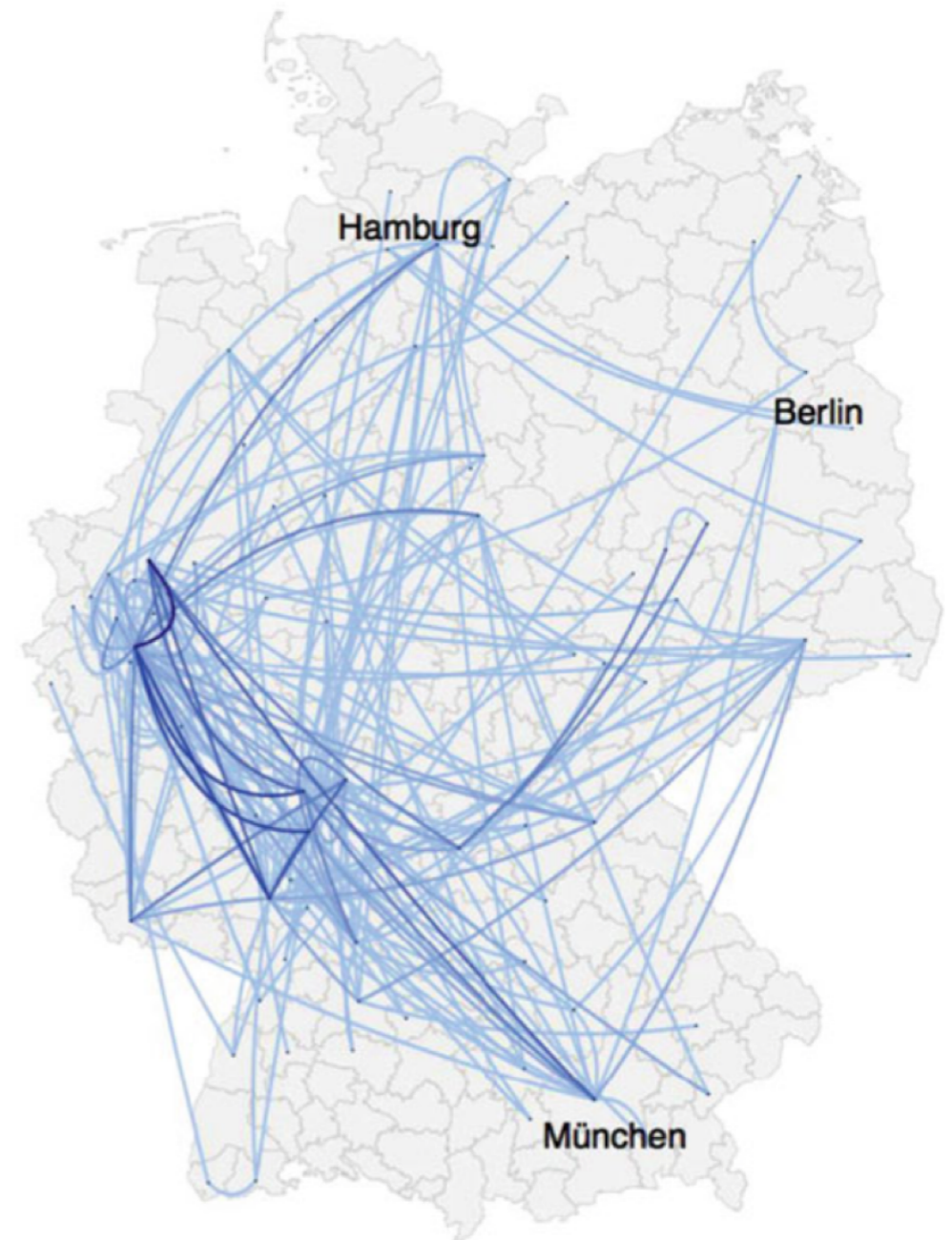
- Potential effects of subsidies for joint R&D projects
  - Increasing of monetary R&D resources
  - Utilisation of the advantages of collaboration
    - Risk sharing
    - Pooling of resources and competencies
  - Facilitation of inter-organisational knowledge diffusion
  - Creation or solidification of inter-organisational and inter-regional knowledge networks



# Support for knowledge transfer: joint projects



Subsidised knowledge network of the German biotech industry (2003-2005)



Subsidised knowledge network of the German chemical industry (2005-2010)

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# Support for knowledge transfer: joint projects

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- 🌐 Spatial effects of (subsidised) joint projects dependent on
  - 🌐 Spatial distribution of subsidies
  - 🌐 Choice and composition of project partners
  - 🌐 Embeddedness of supported organisations into regional context

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# Support for knowledge transfer: joint projects

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- Allocation and participation of subsidies for joint projects
  - Likelihood of support increases with (same as individual projects, e.g., Blanes & Busom 2004)
    - Experience with subsidised projects
    - Size of organisations
    - Intensity of research and human capital
  - Likelihood of partner choice increases with (Broekel & Hartog, 2013)
    - Proximities (geographical, cognitive, institutional, social, organisational)
    - Network structural effects
    - In general: similar factors at work as in non-subsidised knowledge networks

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# Support for knowledge transfer: joint projects

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## 🌐 Effects of subsidies for joint projects

### 🌐 Effects at firm-level (Fornahl et al. 2011)

- 🌐 Subsidies for joint projects stimulate innovation output
- 🌐 Positive effects conditional on complementarity / relatedness of partners (partners' knowledge not too similar and not too different)

### 🌐 Effects at regional level (Broekel 2015a, Broekel et al. 2015, Mewes & Broekel 2020)



- 🌐 General positive effects of subsidised inter-regional collaboration on regional innovation
- 🌐 Centrality in subsidised inter-regional knowledge networks with positive effects on regional innovation
- 🌐 Subsidies for joint R&D projects support regional technological diversification

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# Support for knowledge transfer: joint projects

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 However (Bednarz & Broekel 2019)

-  (So far) no indication of subsidies for joint projects initiating NEW inter-regional collaboration
-  (So far) no indication of subsidies for joint projects initiating or support knowledge diffusion (as indicated by patent citations)

# Support for knowledge transfer: joint projects

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- Information about subsidised projects of BMBF
  - Subsidies catalog database “Förderkatalog” - ca. 80% of all subsidised projects of this ministry since 1964
  - > 200,000 individual grants (grant id, name of recipient, location, magnitude of grant, sectoral classification, type of recipient, ...)
  - Collaboration = participation in joint project
  - <https://roesler.shinyapps.io/NORGnet3>

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  - 🌐 Patents: Why and how

  - 🌐 Public research capacities

  - 🌐 Subsidisation of R&D

- 🌐 Support for knowledge transfer and collaboration

  - 🌐 Subsidies for joint projects by German Federal Ministry of Education and Research






  - 🌐 Subsidies for joint projects by the EU - EU framework programs

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# Support for knowledge transfer: EU-framework programs

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## *European Research Area (ERA)*

-  Unconstrained transfer and mobility of scientists, knowledge, and technology between EU countries
-  Support of innovation activities of member countries
-  Relevance
  -  Reduction of knowledge transfer obstacles (geographical, cultural, institutional and technological)
  -  Coordination of national and regional innovation activities (see, e.g., smart specialisation strategies)



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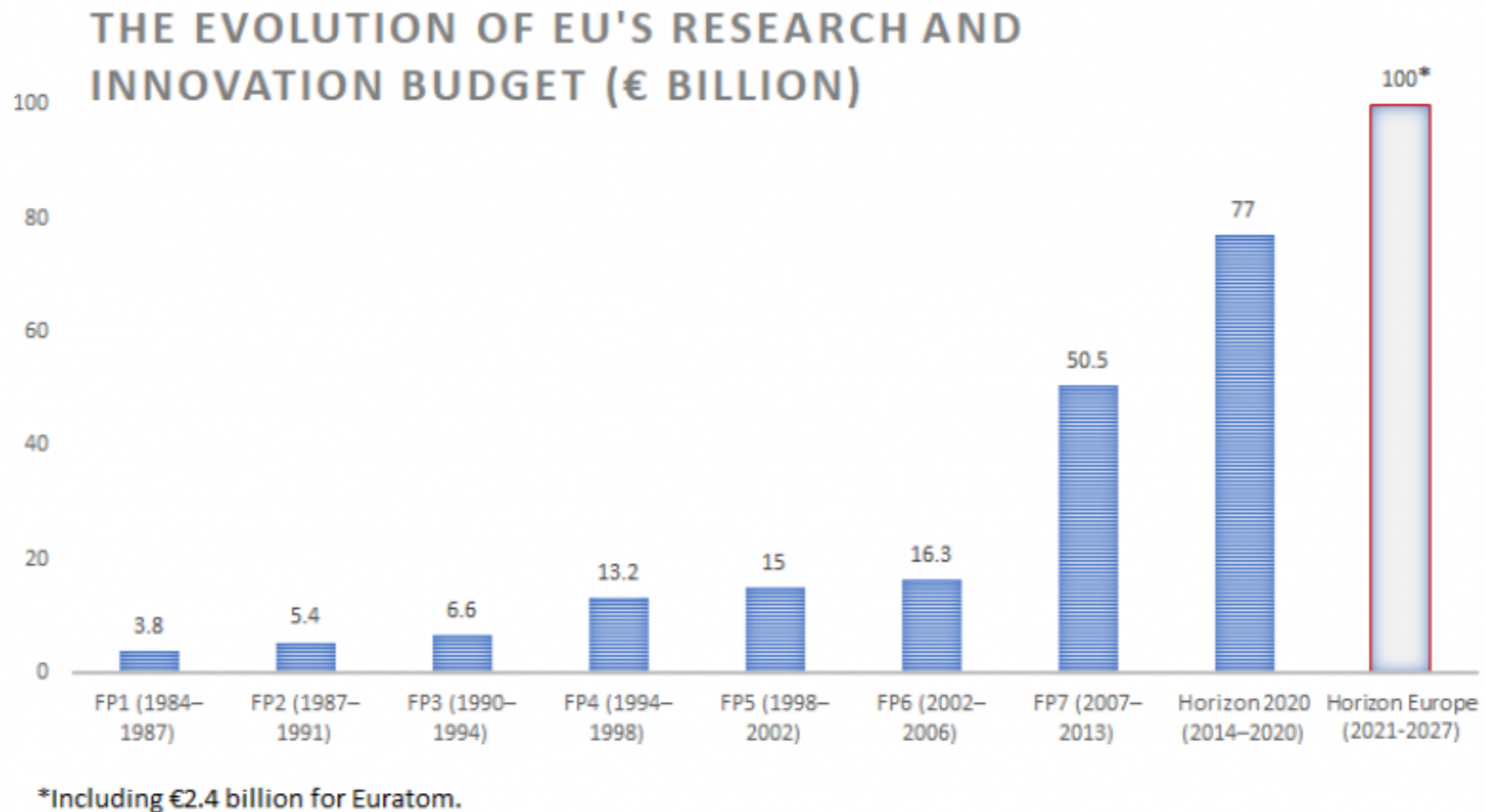
# Support for knowledge transfer: EU-framework programs

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- 🌐 EU-framework programs (EU-FRP)
  - 🌐 Most important instrument for the realisation of ERA
  - 🌐 1983-1984 “First research framework programs” (1984-1987): Consolidation of the majority of existing support measures of European countries
  - 🌐 Unified European Act (1986) established the FRP as core of EU R&D support
  - 🌐 So far, 8 programs (each 7 years) (currently Horizon Europe 2021)
  - 🌐 In the past, strongly focused on universities and extramural research organisations

# Support for knowledge transfer: EU-framework programs

## Development of budget of EU - framework programs






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# Support for knowledge transfer: EU-framework programs

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## Content

-  Exclusively support for collaborative joint projects
-  Focus on research excellence (no country quotas in allocation of funds!)
-  Allocation through calls for projects and evaluations of application




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# Support for knowledge transfer: EU-framework programs




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## Horizon 2020

 2014-2020

 ca. 80 Mrd. Euro

 3 blocks




-  Scientific excellence: research infrastructure, mobility of researcher, network building
-  Leading role of industry: industrial R&D projects in key technologies
-  Societal “grand” challenges: Projects with massive relevance for wider society (e.g., climate change)

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# Support for knowledge transfer: EU-framework programs

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## Potential effects of EU-FRP

-  Increases of monetary R&D resources
-  Facilitation of interorganisational knowledge diffusion
-  Creation of inter-organisational and inter-regional knowledge transfer relationships and -networks

# Support for knowledge transfer: EU-framework programs

Inter-regional knowledge network based on joint participation in of organisations in 5th EU-FRP



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# Support for knowledge transfer: EU-framework programs

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## Spatially differentiated effects

-  Spatial distribution of subsidies

-  Choice and composition of project partners

-  Embeddedness of supported organisations into regional context (even more so than for subsidies of joint projects)



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# Support for knowledge transfer: EU-framework programs

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## 🌐 Knowledge about effects of EU-FRP

### 🌐 Likelihood of subsidisation increases with

- 🌐 Presence on international markets (Blanes & Busom 2004)
- 🌐 Magnitude of absorptive capacity (Blanes & Busom 2004)
- 🌐 Location within an industrial cluster (Broekel et al. 2015)

### 🌐 Choice of project partners influenced by (Balland 2012)



- 🌐 Proximities (geographical, cognitive, institutional, social, organizational)
- 🌐 Network structural effects
- 🌐 Basically, similar factors as in non-subsidised knowledge relations and collaborations

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# Support for knowledge transfer: EU-framework programs

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## Effects at the regional level

-  *“These EU funded research networks may have not fully supported European competitiveness and innovative performance. [...] But the most relevant function of Framework Programmes lies in the creation of dynamic networks, bringing together researchers from laboratories scattered throughout European firms, universities and other research institutions, providing access to complementary skills and reducing the degree of excessive competition among researchers and the duplication of research efforts” (Maggioni et al., 2007, p. 490-491).*
-  Effects of EU-FRP in region of project coordinator (Maggioni et al., 2011)

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# Support for knowledge transfer: EU-framework programs

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- A short summary on subsidies for joint research
  - Collaboration and knowledge diffusion increasingly in policy's focus
  - Active support justified by “felt” market failure, i.e., collaboration and knowledge diffusion below social optimum (
    - However: no empirical evidence for market failure
    - BMBF = national collaboration between all types of economic actors
    - EU = international (European) collaboration, primarily between public research organisations and universities (however, this is changing)
- Still relatively little research on these subsidised knowledge networks

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