



EU health research in Horizon 2020

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Strategic objectives for health research



- *Shorten the innovation life cycle*
- *Foster integrated translational research*
- *Build expertise and leverage resources*
- *Promote research coordination*
- *Develop research capacities*
- *Provide evidence-based solutions for clinical challenges*



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How?



Are we doing it right?

EU funded health research in figures (2002-2010)

1,210

projects funded

4.9

billion euros invested in FP7

14,000

teams

114

countries

70,000

PubMed publications

50,000

high-skilled jobs

23.3%

listed on patent application(s)

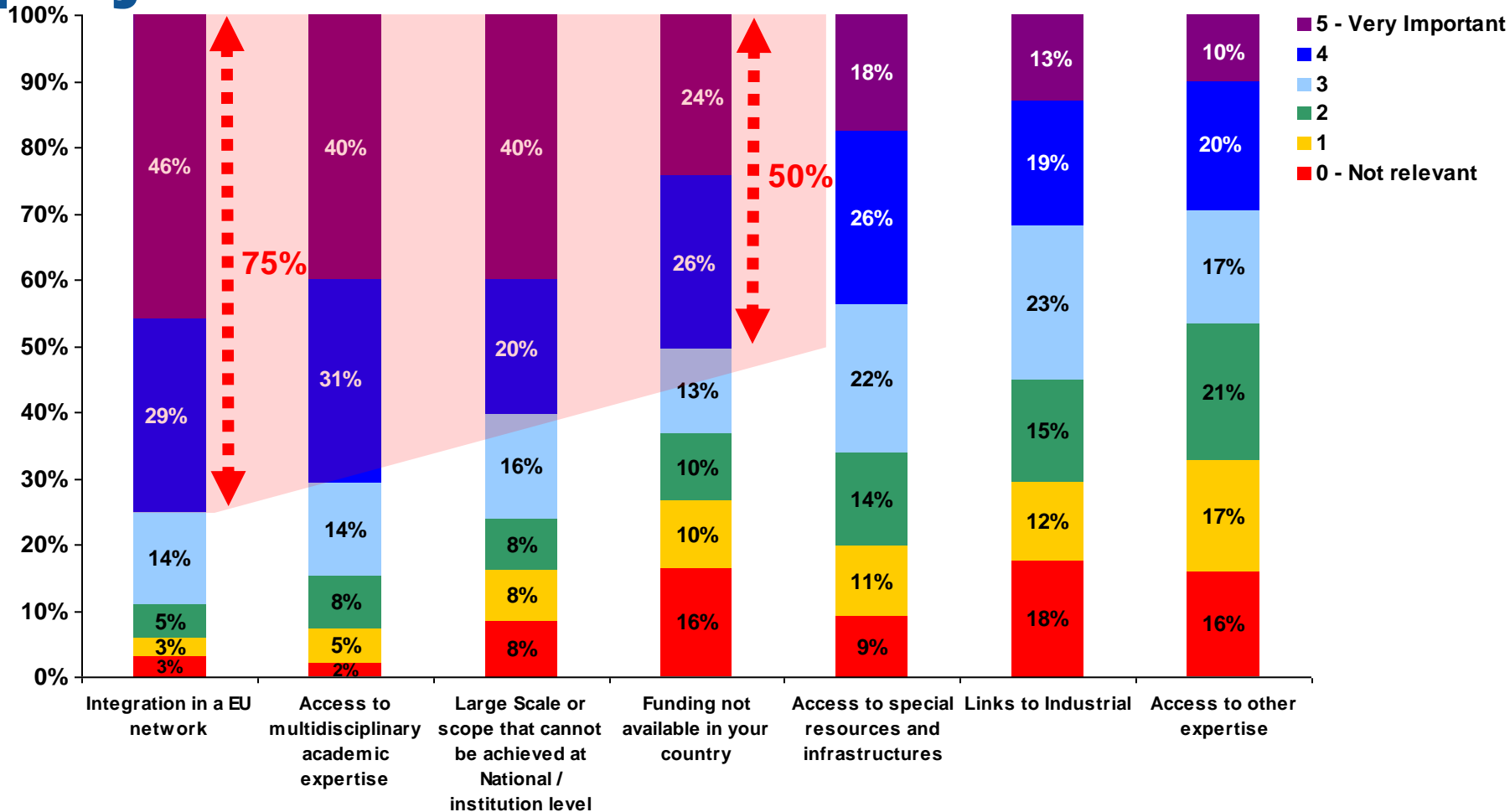
17%

envisage creating a SME

7.4%

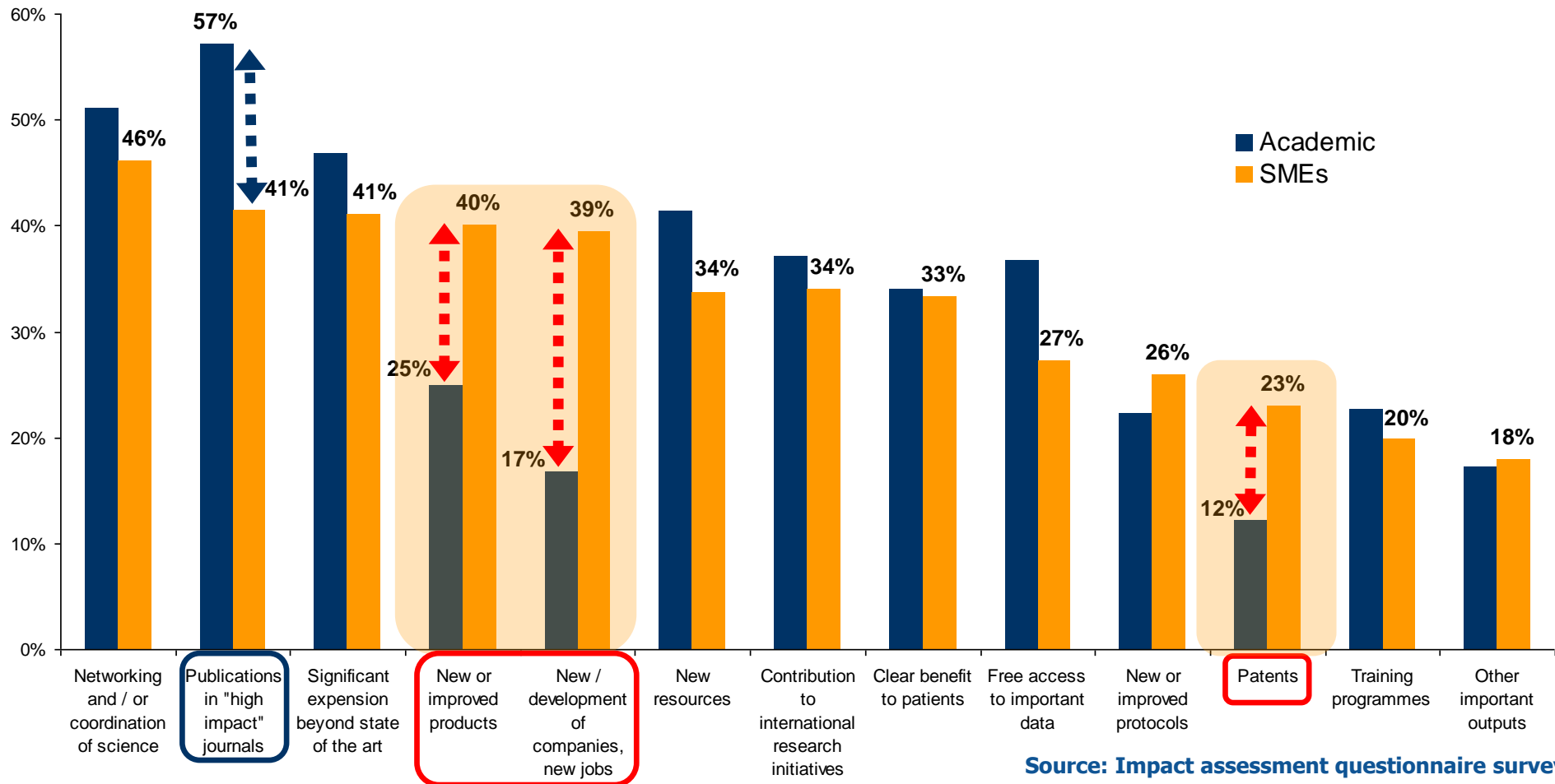
created one or more SMEs

Why do participants join EU health projects



Source: Impact assessment questionnaire survey (2011)

...and what do they get out of it* *5 choices possible



Source: Impact assessment questionnaire survey

Leveraging effect: the TRANSBIG example

Validate genetic signature as prognostic marker in breast cancer



€7 million

**FDA clearance as a prognostic tool
identifying patients at low risk of metastasis**

**Agendia, F Hoffmann-
La Roche, Novartis,
Sanofi-Aventis etc**

~€38 million

Learn how MammaPrint® can help
Personalize your breast cancer therapy.



MINDACT TRIAL: 6600 patients - 111 institutions

Overcoming clinical research fragmentation



- *Synergise the capacities and capabilities of national clinical research*
- *Facilitating clinical trials in EU*
- *Providing information, consultancy and services, for any category of clinical research*
- *ECRIN-IA launched in 2012*

Speeding up innovation

MAMMI PROJECT (2007)

Molecular Imaging and Radio Tracers against Breast Cancer



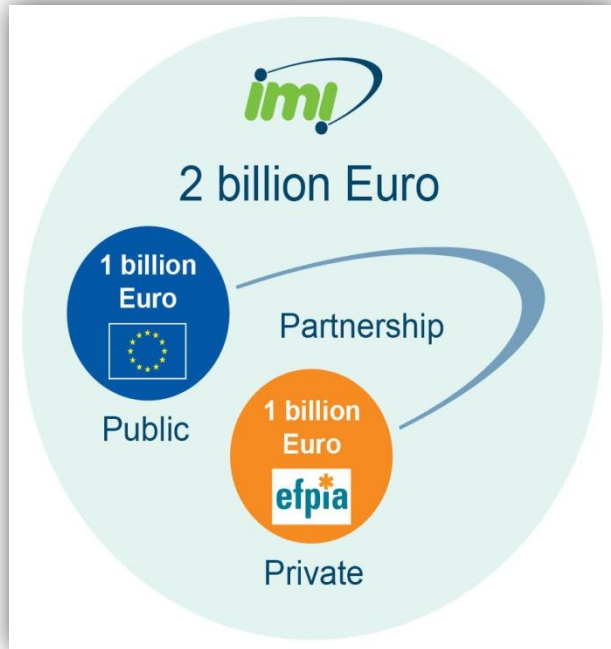
2011

EC
certificate



**Positron-emission
mammography is capable of
detecting smaller breast lesions
than standard whole-body PET**

Partnership – the Innovative Medicines Initiative

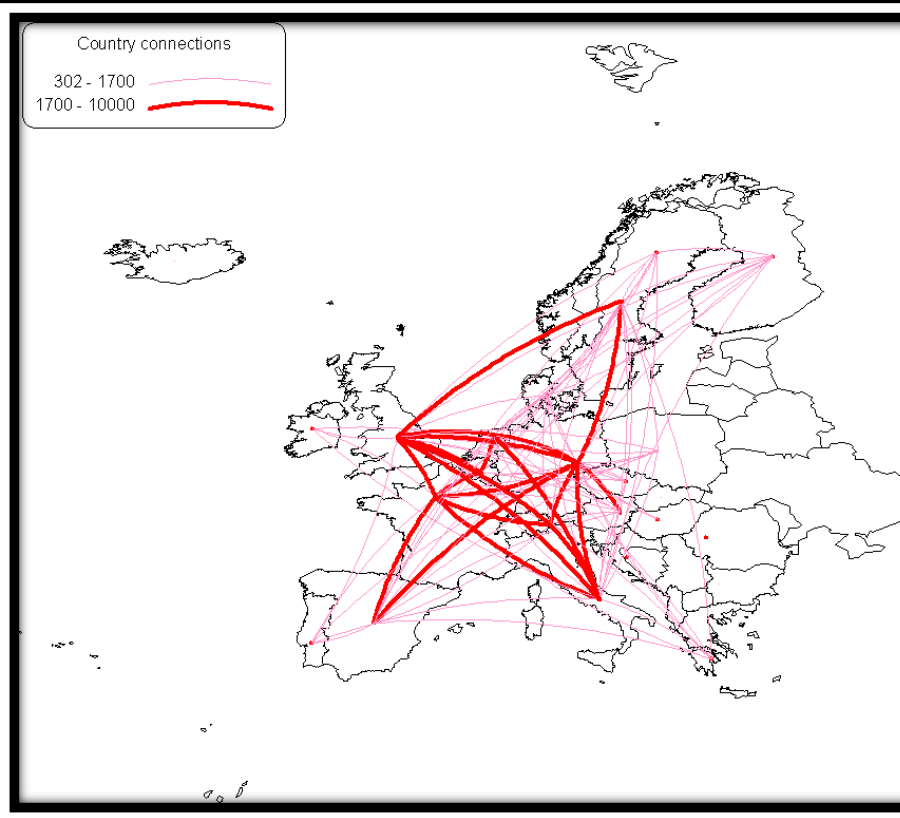


- **IMI projects - research and innovation**
- **Proof of concept for new public private collaborations in pharmaceuticals**
- **Open collaboration to define and address common challenges**
- **IMI works: tangible deliverables after less than 2 years – at pace that no other funding scheme allows**
- **IMI bridging the gap between science, health and growth**

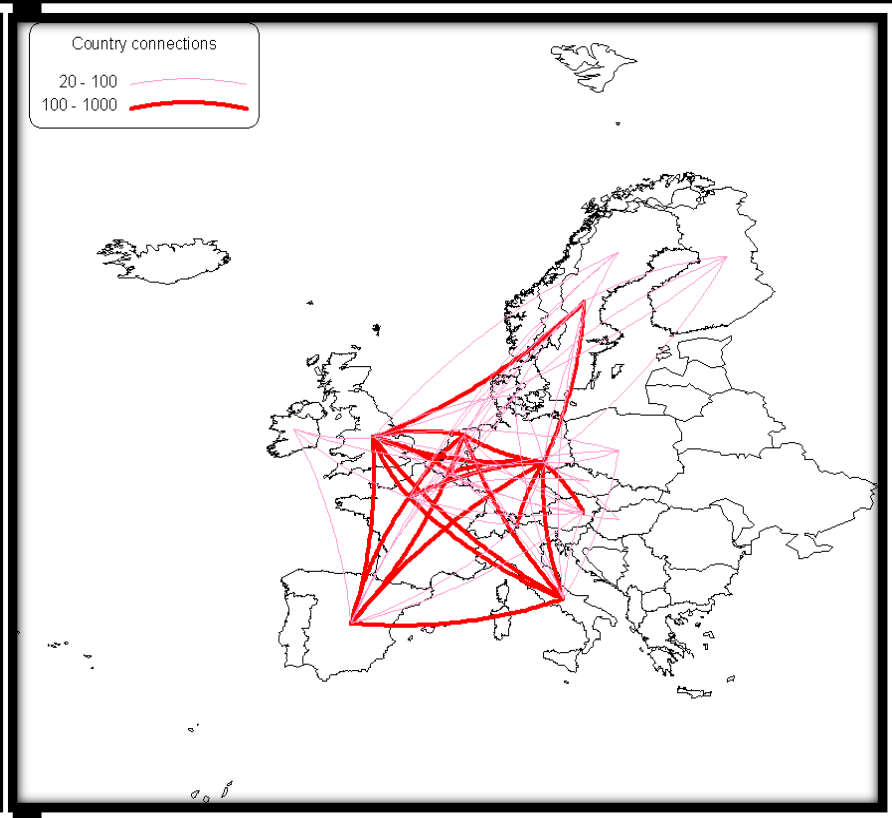


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Cancer Networking: Articles and EU projects



**Article connections in Cancer
Top 100 connections**



**EU network connections in Cancer
Top 100 connections**

France in FP7

Applications:

- 5th in number of participations and 4th in requested EC contribution

Success rates: FR applicant success rate is 25,4% (EU 27 average: 21,2%; FR 3rd). The FR EC financial contribution success rate is 26,0% (EU 27 average: 20,4%; FR 1st)

Participation in signed GA:

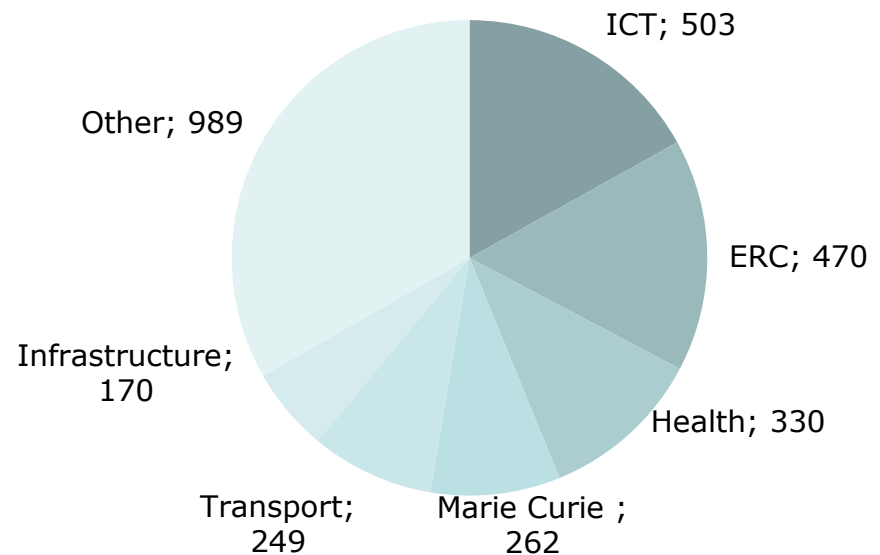
- 3rd in number of participations (4353 projects involving 7568 French participants)
- 3rd in budget share

Top 5 collaborative links with:

Germany (14.456), United Kingdom (10.574), Italy (9.260), Spain (6.801), Netherlands (5.079)

Top 4 French institutes: CNRS (475 ME), CEA (240 ME), INSERM (140 ME), INRIA (75 ME)

French funds received by Scheme (ME)



The 2013 Health work programme*

*** To be confirmed in official call documents to be
published in July 2012**

Key features for 2013 work programme

- *Three research priorities:*
 - **Brain research**
 - **Antimicrobial drug resistance**
 - **Comparative effectiveness research**
- *2 calls: INNOVATION-1 (34 topics), INNOVATION-2 (2 topic)*
- *Topics overview:*
 - **Many SME/industry targeted topics:** mini. 15% to 30% of EU contribution has to go to SMEs
 - **3 large projects:** EU contribution of €24 million or € 30 million
 - **2 pilot SME topics:** mini. 50% of EU contribution has to go to SMEs
 - **6 topics with clinical trials**

Key features for 2013 work programme

- *Indicative budget:*
 - **INNOVATION-1: €679 million**
 - **INNOVATION-2: €140 million**
- *Several projects funded for MOST topics*
- *Two-stage call for all topics, with short proposals (6 pages) at 1st stage*
- *Deadline for submission:*
 - **INNOVATION-1 (34 topics): 2 October 2012***
 - **INNOVATION-2 (2 pilot SME topic): 25 September 2012***

* To be confirmed in official call documents to be published in July 2012

Act. 1: Biotech, tools & technologies

Detection, diagnosis and monitoring

- Development of *imaging technologies* for therapeutic interventions in *rare diseases* (Two or more techniques, proof of principle)

30%
SME

Suitability, safety, efficacy of therapies

- Modelling toxic responses in case studies for predictive human safety assessment (*Alternative modelling, Organs, computational model*)
- Innovative approaches to *address adverse immune reactions* to biomedical devices, implants and transplant tissues (integration of Omics data)
- *Safety and efficacy* of therapeutic vaccines (*all vaccines not only infectious, e.g. respiratory, inflammation...*)
- Development of *alternative in vitro, analytical, immuno-chemical, and other test methods* for *quality control of vaccines* (Animal)

15%
Ind/SME

30%
Ind/SME

30%
Ind/SME

30%
Ind/SME

Innovative therapeutic approaches and interventions

- Controlling differentiation and proliferation in *human stem cells* intended for therapeutic use (pre or clinical)

15%
SME

Act. 2: Translating research for human health

Integrating biological data and processes: *Large-scale data gathering*

30%
SME

- *Functional validation in animal and cellular models of **genetic determinants of diseases** and ageing processes*
- *High impact research initiative on metagenomics for personalised medicine approaches* (Contribute to International Human Microbiome Consortium – IHMC)

30%
Ind/SME

€30m

Act. 2: Translating research for human health

Research on the brain and related diseases

- *Prospective longitudinal data collection and Comparative Effectiveness Research (CER) for **traumatic brain injury** (TBI)*
- *Development of effective **imaging tools** for diagnosis, monitoring and management of **mental disorders***
- *Paediatric **conduct** disorders characterised by aggressive traits and/or social impairment: from preclinical research to treatment*
- *Patho-physiology and therapy of **epilepsy** and epileptiform disorders*
- *Understanding and controlling **pain***

€30m

30%
Ind/SME

15%
SME

15%
SME

Act. 2: Translational research in major infectious diseases

Cross-cutting priorities

- *Innovation in vaccines* (Influenza or Prophylactic vaccines for any of the neglected infectious diseases)

30%
SME

Anti-microbial drug resistance

- *INNO-2 call: Drugs and vaccines for infections that have developed or are at the risk of developing significant anti-microbial resistance*
- *Stratified approaches to antibacterial and/or antifungal treatment*

50%
SME

Potentially new and re-emerging epidemics

- *Clinical management of patients in severe epidemics (ready to react)*

€24m

Neglected infectious diseases

- *Neglected infectious diseases of Central and Eastern Europe (viral, bacterial and/or helminthic human diseases)*
- *Drug development for neglected parasitic diseases*

15%
SME

Act. 2: Translational research in other major diseases

Cancer

- Investigator-driven treatment trials to combat or prevent *metastases* in patients with solid cancer (pre-CT or CT)
- Strengthening the cancer patient's *immune system* (eg cell- or antibody-based immunotherapy; therapeutic cancer vaccines; immune evasion)
- Investigator-driven supportive and *palliative care* clinical trials and observational studies (pre-CT or CT)

30%
Ind/SME



Act. 2: Translational research in other major diseases

Cardiovascular diseases

- *Discovery research to reveal **novel targets** for cardiovascular disease **treatment***
- *Comparative effectiveness research of existing technologies for prevention, diagnosis and treatment of cardiovascular diseases*
- *Optimising **lifestyle interactions** in the prevention and treatment of cardiovascular disease across the lifespan*

**30%
SME**



Act.3: Optimizing the delivery of healthcare

Translating the results of clinical research outcome into clinical practice

- *Comparative effectiveness research (CER) in health systems and health services interventions*

Health promotion and prevention

- *Social innovation for health promotion*

**15%
SME**

Act. 4: Other actions across the health theme

Coordination and support actions across the theme

- *Supporting industrial participation in EU-funded research in the Health sector*
- *Interactions between EU legislation and health research and/or innovation and the effects of its application and implementation on health research and/or innovation*
- *Support for Presidency events*
- *Preparing the future for health research and innovation*
- *Global initiative on gene-environment interactions in diabetes/obesity in specific populations*
- *Mapping chronic non-communicable diseases research activities*

Other actions across the health theme

Responding to EU policy needs

• *Investigator-driven clinical trials for off-patent medicines using innovative, age-appropriate formulations and/or delivery systems*

30%
Ind/SME

• *Adverse drug reaction research*

15%
SME

• *New methodologies for clinical trials for small population groups*



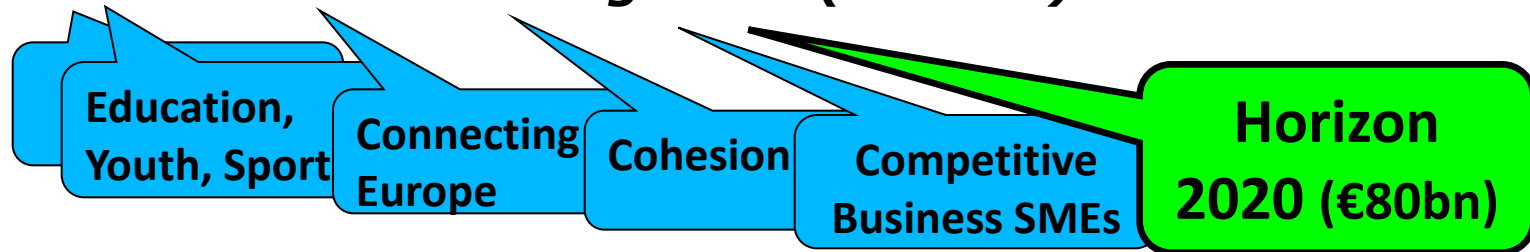
The Health challenge in H2020

The Multiannual Financial Framework 2014-2020:

EC proposals of 29 June 2011 (constant 2011 prices)

Key challenge: *stabilise the financial and economic system while taking measures to create economic opportunities*

1. Smart & inclusive growth (€491bn)



2. Sustainable growth, natural resources (€383bn)

3. Security and citizenship (€18.5bn)

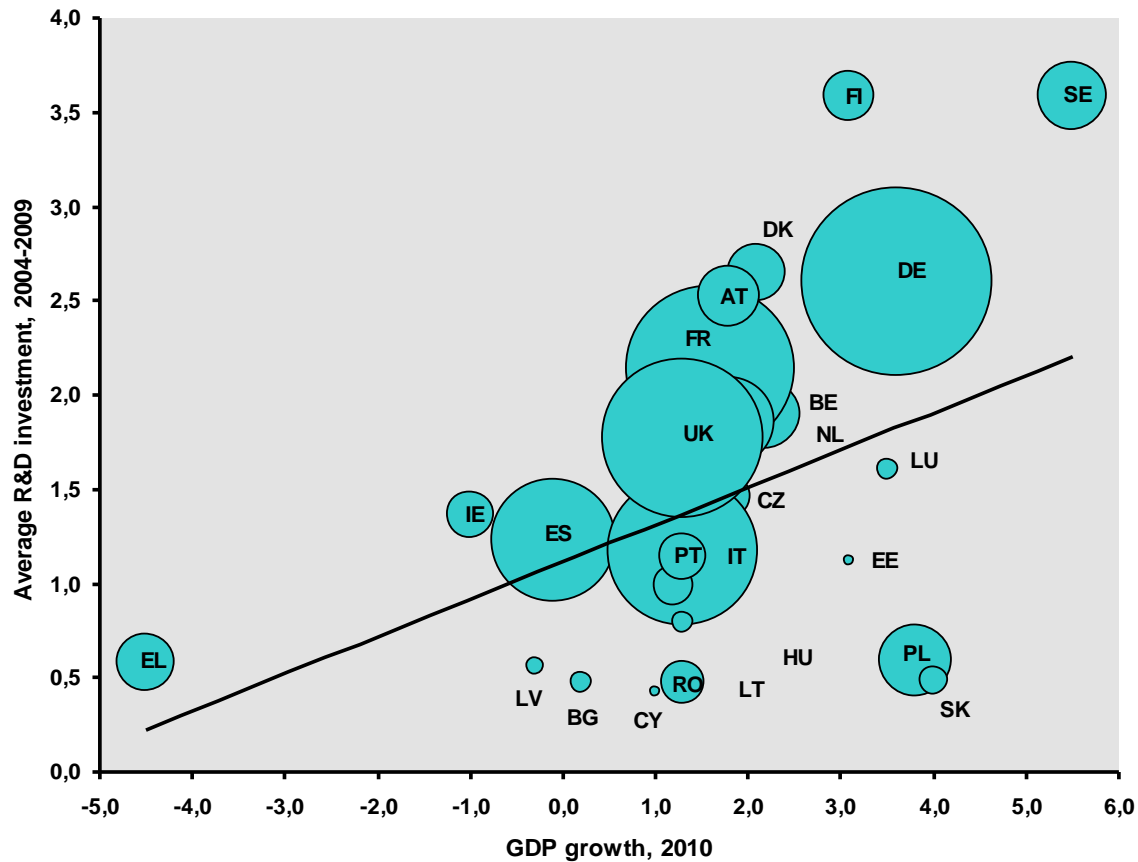
4. Global Europe (€70bn)

5. Administration (€62.6bn)

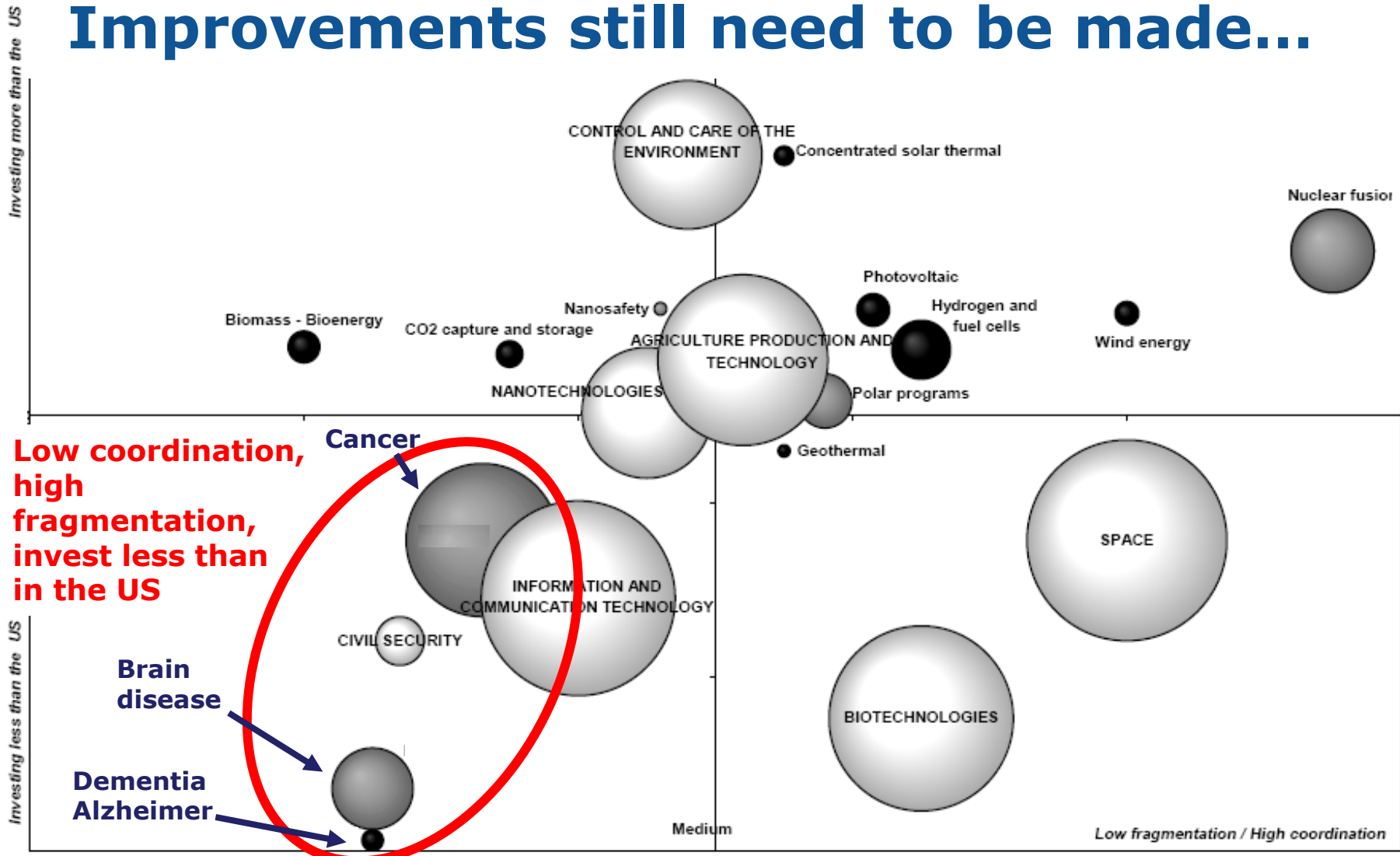


**Total:
€ 1,025bn**

Impact of R&D on economic recovery



Improvements still need to be made...



Horizon 2020: Health, Demographic Change and Wellbeing Challenge Proposal: ~ €8.5bn

Understanding the determinants of health (including environmental and climate related factors), improving health promotion and disease prevention;

Developing effective screening programmes and improving the assessment of disease susceptibility

Improving surveillance and preparedness

Understanding disease

Developing better preventive vaccines

Improving diagnosis

Using in-silico medicine for improving disease management and prediction

Treating disease

Transferring knowledge to clinical practice and scalable innovation actions

Better use of health data

Improving scientific tools and methods to support policy making and regulatory needs

Active ageing, independent and assisted living

Individual empowerment for self-management of health

Promoting integrated care

Optimising the efficiency and effectiveness of healthcare systems and reducing inequalities through evidence based decision making and dissemination of best practice, and innovative technologies and approaches.



To address significant challenges...

- Non-communicable diseases worldwide will cause an output loss of €35 trillion over the next two decades
- Increasing pressure on European healthcare systems
- The EU is not closing the persistent gap with global innovation leaders such as the US, Japan and South Korea
- Biomedical companies are finding drug development in Europe economically challenging and are moving their operations from the region, mainly to Asia

...and benefit from opportunities



- Stratified and subsequently personalised medicine can deliver cost savings and better outcomes for patients
- Recent studies suggest cost savings of 37% for breast cancer and 46% for CVD when a stratified approach is taken
- But the building blocks are many and linked, requiring clinical trials, a better understanding of the fundamentals of disease, and efforts to translate results to the clinic

Horizon 2020 and beyond

- Some activities **will be continued** in strategic partnership where the goals are clearly delineated:
IMI, EDCTP, IRDiRC, etc
- **Programme level** cooperation
- **New instruments** are foreseen in H2020

Conclusions

- Health in horizon 2020 provides for support to research to underpin and implement stratified and personalised medicine
- But strategic co-ordination throughout Europe is necessary
- The way in which we address these common challenges and opportunities is **yet to be defined**

Win € 2 million for a leap forward in vaccine technology

- Wanted: innovative solutions to overcome weaknesses in the cold-chain for vaccine transport and storage
- The best solution will win – no particular approach prescribed
- Competition open until 3 September 2013



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<http://ec.europa.eu/research/health>