

# *EU funding - present and future and HORIZON 2020*

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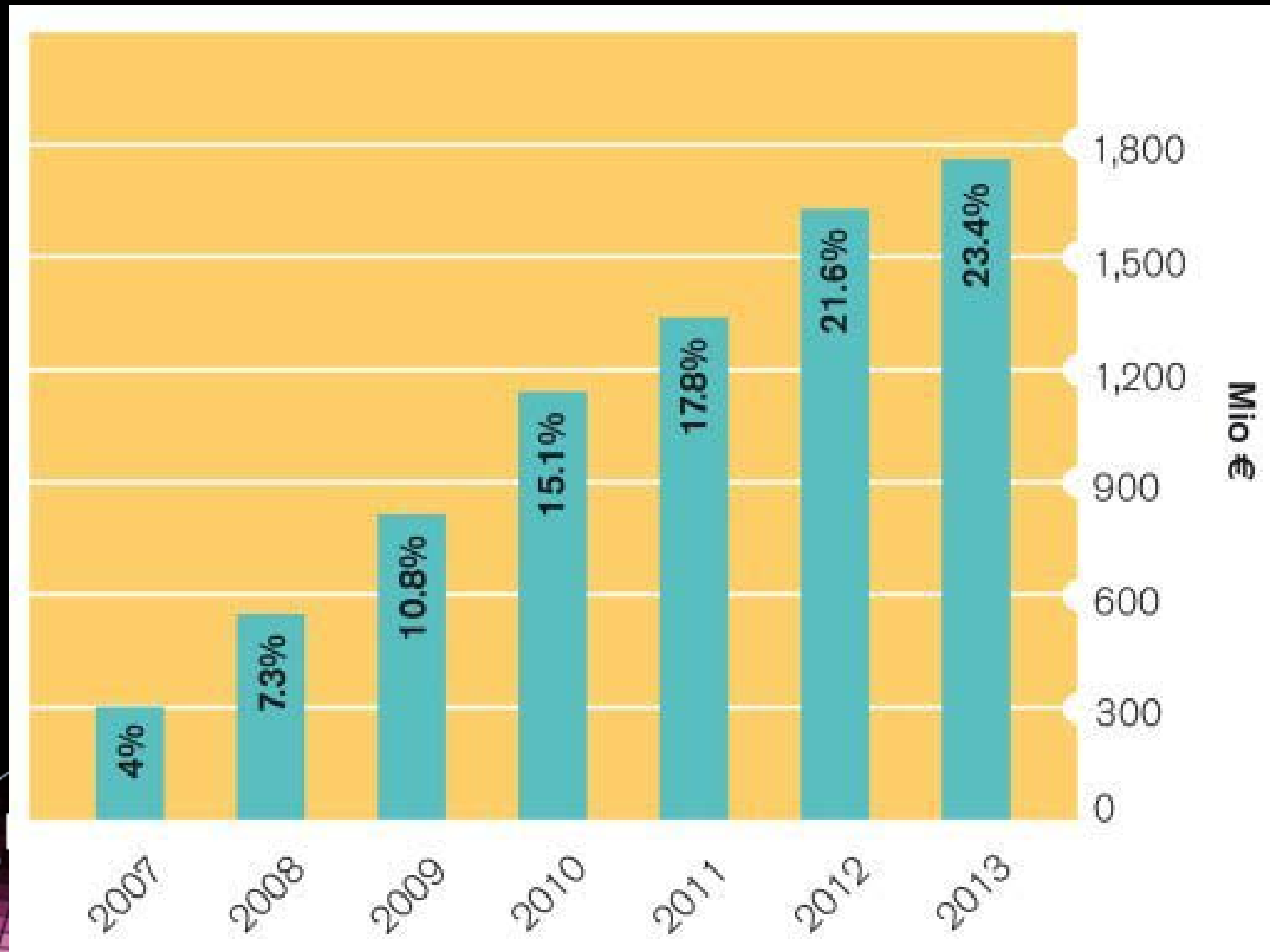
# *Why EU funding?*



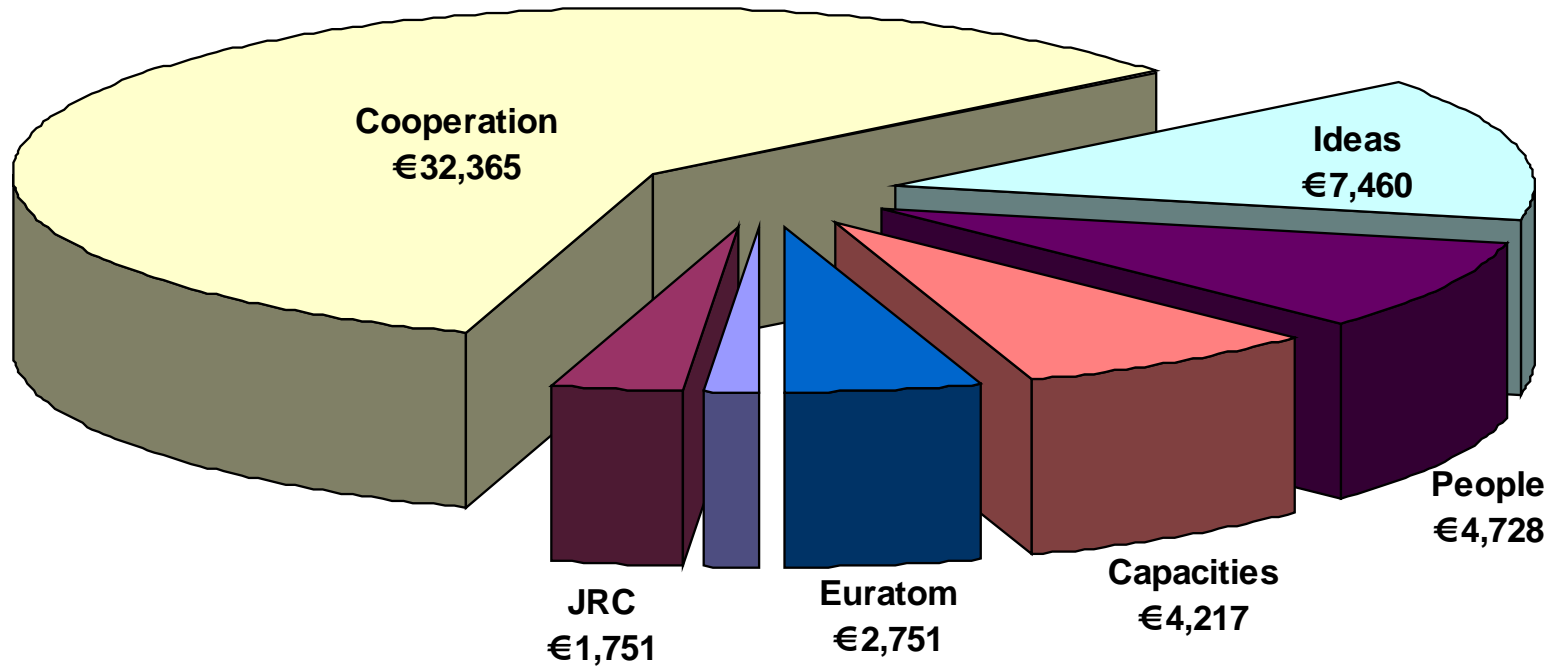
# *Brunel highlights*

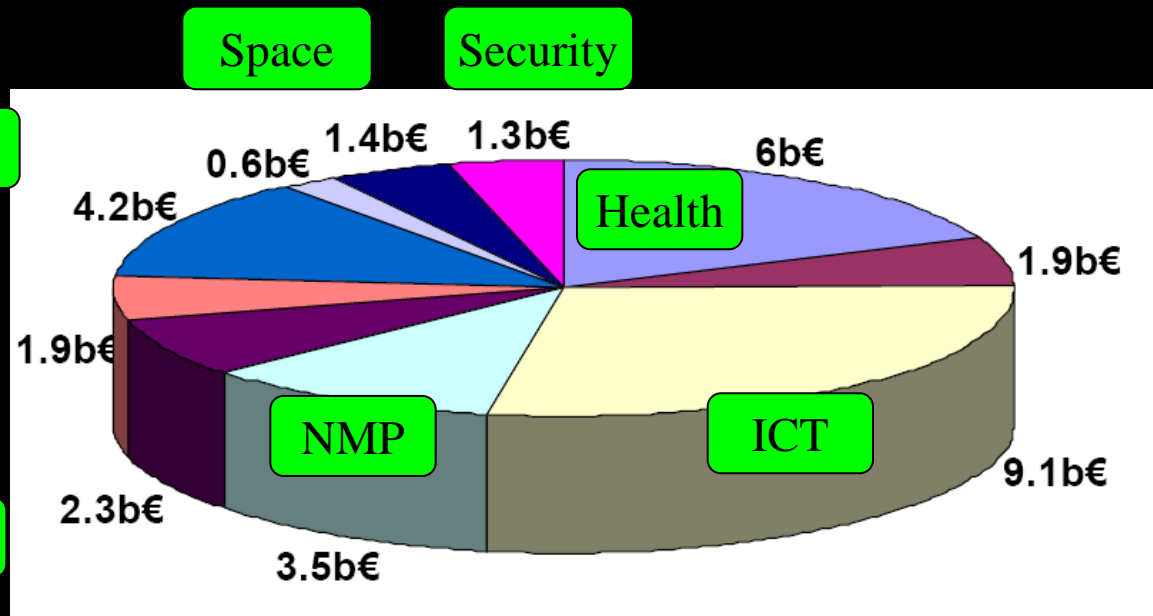
- Within last 3 financial years, Brunel has secured more than €17M in European funding.
- Last quarter amounted to 28% of total external income.
- Currently involved as coordinator or as a partners in 55 EU-funded projects

# FP7 budget



# FP7: Programmes & Budgets





Transport

Environment

Energy

Food  
Agriculture  
Biotech

Large Projects

Small Projects

Support Actions

Networks of Excellence

# *Marie Curie actions*



- Skills and competence development at all stages of researchers career
- Open to all research areas addressed under the Treaty plus possibility of targeted calls
- Strong participation from enterprises
- Reinforce international dimension
- Appropriate gender and work/life balance
- Good working environment, transparent recruitment and career development

# Marie Curie Actions

## Overview: Marie Curie Actions



### Host Actions

**Initial Training Networks (ITN)**  
*Including:*  
*Innovative Doctoral Programmes (new)*  
*European Industrial Doctorates (new)*

**Industry Academia  
Partnerships and Pathways  
(IAPP)**

**International Research Staff  
Exchange Scheme (IRSES)**

### Individual Actions

**Intra-European Fellowships**

**Incoming International Fellowships**

**Outgoing International Fellowships**

**Career Integration Grants**

+ Co-Fund, *Researchers Night*





# *Research for the Benefit of SMEs*

- Sub-programme of FP7 Capacities
- Bottom-up approach – consortium make a decision on the research area/aim
- General principle: SME participants are direct beneficiaries of the project:
  - SMEs invest in a RTD project and outsource most of the research to “RTD performers”
  - In return, they receive technological know-how to develop new or improve existing products.
  - SMEs and RTD performers have “customer-seller” relationship.

# *ERC schemes*

## What is the ERC?



### What is the European Research Council (ERC)?

- New pan-European funding organisation
- Supports the best in Europe - scientists, engineers and scholars
- Funding of €7.51 billion (2007-13)

### What are the aims of the ERC?

- Encourage highest quality research in Europe (excellence is only criteria)
- Competitive, flexible funding
- Retain, repatriate and recruit (career support)

### What are the ERC Grant Schemes?

- Starting Grants and Advanced Grants
  - Support for a PI and (if necessary) team members
  - Investigator-initiated frontier research across all fields of research, on the basis of scientific excellence
- Proof of Concept call (for existing ERC grant holders only)
- New 'Synergy Grant' scheme
- The ERC also has calls for tender for studies on the ERC itself



# ERC Grant Schemes



## Starting Independent Researcher Grants (Starting Grants)

- boost the independent careers of excellent researchers
- by providing **adequate support**
- at the critical stage where they are **starting or consolidating**
- their own **independent** research team or programme.

- Now 46% of Annual ERC Call Budget
- Annual calls: open late spring and close in autumn
- Grants of up to €2 million over 5 yrs (but normally €1.5 million)



# ERC Grant Schemes



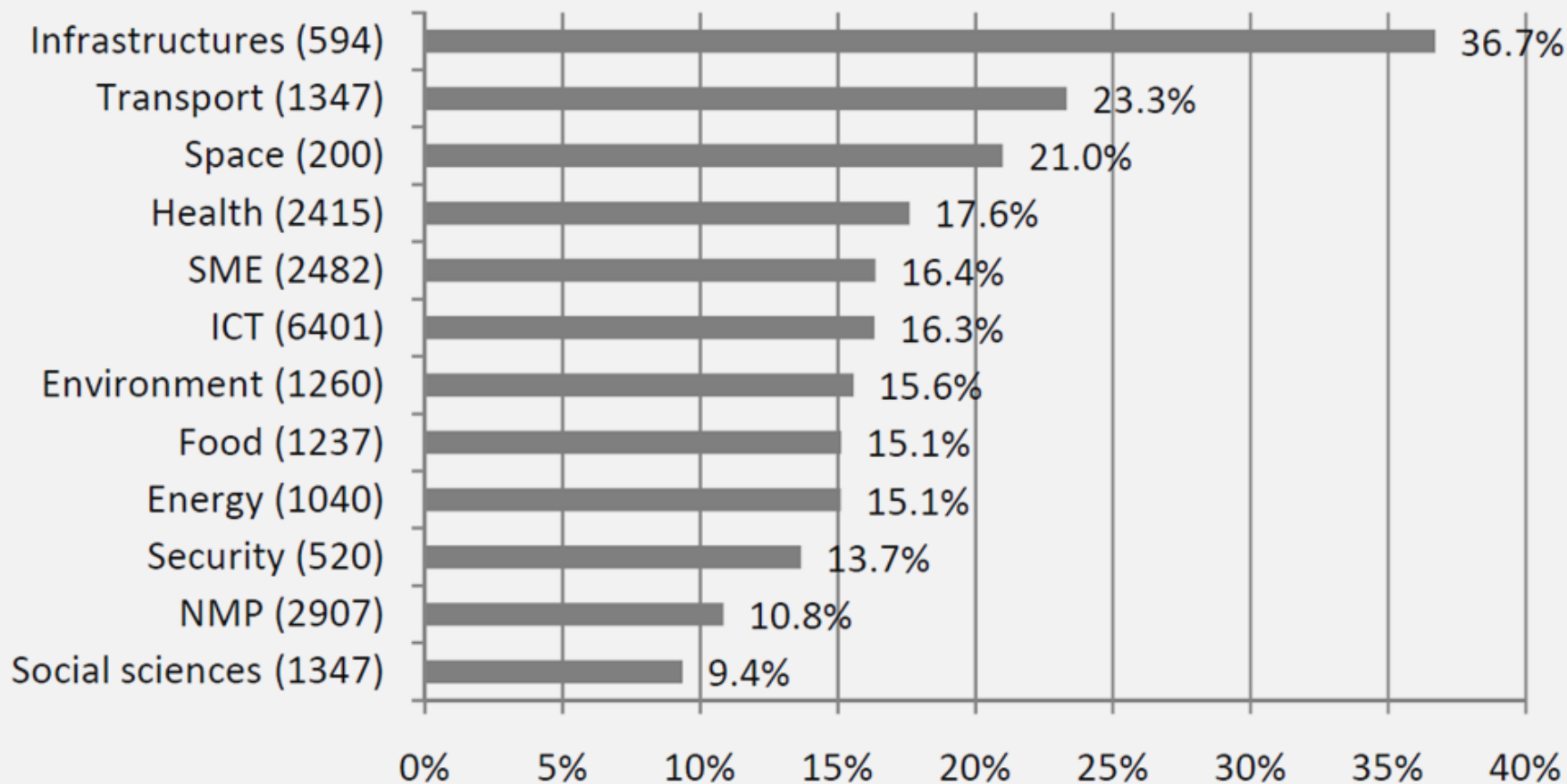
## Advanced Investigator Grants (Advanced Grants)

- encourage **substantial advances at the frontier of knowledge**
- by supporting excellent, **leading advanced investigators**
- to pursue **ground breaking, high-risk/high gain research**

- Now 43% of Annual ERC Call Budget
- Annual calls: open in autumn and close in spring
- Grants of up to €2.5 million over 5 yrs (€3.5 million in certain cases)
- New for 2012 Call: No longer an option to have a Co-I



# Success rates across FP7 up to date



# *What the future will bring?*

...beyond 2013, beyond FP7



# HORIZON 2020

- new vision for European research and innovation
- brings together all EU research and innovation funding under a single programme
- Key pillar for Innovation Union – flagship initiative to enhance Europe global competitiveness
- Runs from 2014 to 2020 (from 1<sup>st</sup> Jan 2014)



# Brief history

- The preparation of the proposal took full account of the responses to an extensive public consultation based on a Green Paper, "From challenges to opportunities: towards a common strategic framework for EU research and innovation funding"
- Lesson learnt from FP7, mid-term review, expert inputs
- Brunel participated in consultations

# HORIZON 2020

- full range of support across the whole research and innovation cycle
- brings together FP7, the innovation parts of the Competitiveness and Innovation Framework Programme and EIT
- Simplification and streamlining
- Closer synergies with national and regional programmes and with Cohesion Policy funds

# HORIZON 2020 objectives

- **Three key objectives**
  - Excellent Science
  - Industrial Leadership
  - Societal Challenges
- Integrating the knowledge triangle
- Provides scientific and technical support to the European policy

# Horizon 2020 – objectives & structure

## Europe 2020 priorities

International cooperation

European Research Area

*Shared objectives and principles*

Tackling Societal Challenges

Creating Industrial Leadership and Competitive Frameworks

Excellence in the Science Base

Simplified access

**Common rules,  
toolkit of funding schemes**

Coherent with other EU and MS actions

## Excellence in the Science Base

World class excellence; developing and attracting talent

- **The European Research Council**
- **Future and Emerging Technologies**
  - Including the full FET suite:
    - FET OPEN
    - FET Proactive
    - FET Flagships (2-6)
- **Marie Curie** actions on skills, training and career development
- European **research infrastructures** (including eInfrastructures)

# *European Research Council*

- **Scientific excellence is the sole criterion**
- operate on a “**bottom-up**” basis without predetermined priorities
- open to individual teams of researchers of **any age and from any country** in the world, working in Europe
- facilitates exploration of the **commercial and social innovation potential**

# *Future and Emerging Technologies*

- Whole spectrum: from bottom-up, small-scale early explorations of embryonic and fragile ideas to building new research and innovation communities around transformative emerging research areas and large and federated research initiatives

# ***Future and Emerging Technologies***

- FET-Open: bottom up
- FET proactive: several high-risk, high-potential innovative themes
- FET Flagships - tackling grand interdisciplinary S&T challenges



# *Marie Curie*

- **Strong involvement of businesses**
- **enhanced mobility** between countries and sectors
- mid-career mobility?
- short-term exchanges of research and innovation staff among a partnership of universities, research institutions, businesses, SMEs , and third countries

# *Research Infrastructures*

- New world-class research infrastructures
- Integrating and opening existing national research infrastructures of pan-European interest
- ICT-based e-infrastructures
- International cooperation – global research infrastructures

## Creating Industrial Leadership and Competitive Frameworks

- Business led R&I; raising private investment
- Leadership in enabling and industrial technologies of:
  - Information and Communication Technologies
  - Nanotechnologies, advanced materials, advanced manufacturing and processing
  - Biotechnology
  - Space.
- Innovation in SMEs
- Access to risk finance

# Industrial Leadership

- based on research and innovation agendas **defined by industry and business**, together with the research community and have a strong focus on **leveraging private sector investment**
- Major component are **Key Enabling Technologies and Space**
- applications under the societal challenges

# Key Enabling Technologies

- micro- and nanoelectronics,
- photonics
- nanotechnology
- biotechnology
- advanced materials
- advanced manufacturing systems

# Information and Communication Technologies

- **New generation of components and systems**
- **Next generation computing**
- **Future Internet**
- **Content technologies and information management**
- **Advanced interfaces and robots:**

# Nanotechnologies

- **Developing next generation nanomaterials, nanodevices and nanosystems**
- **Ensuring the safe development and application of nanotechnologies**
- **Developing the societal dimension of nanotechnology**
- **Efficient synthesis and manufacturing of nanomaterials, components and systems**
- **Developing capacity-enhancing techniques, measuring methods and equipment**

# Advanced materials

- **Cross-cutting and enabling materials technologies**
- **Materials development and transformation**
- **Management of materials components**
- **Materials for a sustainable industry**
- **Materials for creative industries**
- **Metrology, characterisation, standardisation and quality control**
- **Optimisation of the use of materials**



# Biotechnology

- **Boosting cutting-edge biotechnologies as future innovation drivers**
- **Biotechnology-based industrial processes**
- **Innovative and competitive platform technologies**

# Advanced Manufacturing and Processing

- **Technologies for Factories of the Future**
- **Technologies enabling Energy-efficient buildings**
- **Sustainable technologies in energy-intensive process industries**
- **New, sustainable business models**

## Tackling Societal Challenges

**Responding directly to EU objectives;  
whole cycle from research to market**

- Health, demographics changes and wellbeing
- Food security, sustainable agriculture and the bio-based economy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Climate action and, resource efficiency, including raw materials
- Inclusive, innovative and secure societies

# Health, demographic change and wellbeing

- *Understanding the determinants of health, improving*
- *Health promotion and disease prevention*
- *Developing effective screening programmes*
- *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*
- **Active ageing, independent and assisted living**

# **FOOD SECURITY, SUSTAINABLE AGRICULTURE AND THE BIO- ECONOMY**

- **Sustainable agriculture and forestry**
- **Safe and sustainable food and healthy diets**
- **Unlocking the potential of aquatic living resources**
- **Sustainable and competitive bio-based industries**

# SECURE, CLEAN AND EFFICIENT ENERGY

- Reducing energy consumption and carbon footprint by smart and sustainable use
- Low-cost, low-carbon electricity supply
- Alternative fuels and mobile energy sources
- A single, smart European electricity grid
- New knowledge and technologies
- Market uptake of energy innovations and robust decision making

# SMART, GREEN AND INTEGRATED TRANSPORT

- Resource efficient transport that respects the environment
- Better mobility, less congestion, more safety and security
- Global leadership for the European transport industry
- Socio-economic research and forward looking activities for policy making

# CLIMATE ACTION, RESOURCE EFFICIENCY AND RAW MATERIALS

- Fighting and adapting to climate change
- Sustainably managing natural resources and ecosystems
- Sustainable supply of non-energy and non-agricultural raw materials
- Transition towards a green economy through eco-innovation
- Sustainable supply of non-energy and non-agricultural raw materials



# Horizon 2020 – objectives & structure

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# THE EUROPEAN INSTITUTE OF INNOVATION AND TECHNOLOGY

- to overcome fragmentation in the European innovation landscape
- To promote structural changes
- The EIT is based on a pioneering concept of cross-border public-private-partnership hubs known as Knowledge and Innovation Communities (KICs) – there are 3 now, and further 6 will be funded in future

# Social sciences and humanities?

- shall be an integral part of the activities to address all the challenges.
- In addition, the development of shall be supported under the “Inclusive, innovative and secure societies” specific objective.
- Provision of strong evidence base for policy making at international, European Union, national and regional levels.

# Dissemination

- access to the necessary skills to optimize the communication and dissemination of results
- actions which bring together results from a range of projects
- initiatives to foster dialogue and debate on scientific, technological and innovation related issues with the public,

# International cooperation

- it is expected that the BRICS (Brazil, Russia, India, China, and South Africa) will not receive funding under Horizon 2020. BRICS are considered the EU competitors of the future, which is why their funding entitlements will be restricted.

# Examples of areas where such strategic international cooperation may be developed

- *European and Developing Countries Clinical Trials Partnership*
- *International consortium on rare diseases,*
- *EU-US Task Force on Biotechnology Research and the International Knowledge-Based Bio-Economy Forum*
- *Contribution to multilateral processes and initiatives, such as the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), and the Group on Earth Observations (GEO) ('Climate action, resource efficiency and raw materials')*
- *The Space Dialogues between the EU and the US and Russia*

<b>EU REGULATION (2014-2020)</b>		<b>EUR million</b>
<b>I</b>	<b>Excellent science, <i>of which:</i></b>	<b>24 598</b>
1.	The European Research Council	13 268
2.	Future and Emerging Technologies	3100
3.	Marie Curie actions on skills, training and career development	5732
4.	European research infrastructures (including eInfrastructures)	2478
<b>II</b>	<b>Industrial leadership, <i>of which:</i></b>	<b>17 938</b>
1.	Leadership in enabling and industrial technologies*	13 781 of which 436 for EIT
2.	Access to risk finance**	3538
3.	Innovation in SMEs	619
<b>III</b>	<b>Societal challenges, <i>of which</i></b>	<b>31 748</b>
1.	Health, demographic change and wellbeing;	8033 of which 234 for EIT
2.	Food security, sustainable agriculture, marine and maritime research and the bio- economy;	4152 of which 131 for EIT
3.	Secure, clean and efficient energy	5782 of which 183 for EIT
4.	Smart, green and integrated transport	6802 of which 215 for EIT
5.	Climate action, resource efficiency and raw materials	3160 of which 100 for EIT
6.	Inclusive, innovative and secure societies	3819 of which 121 for EIT
European Institute of Innovation and Technology (EIT)		1360 + 1440***
Non-nuclear direct actions of the Joint Research Centre		1962
<b>TOTAL EU REGULATION</b>		<b>77 606</b>
<b>EURATOM REGULATION (2014-2018)</b>		
<b>I</b>	<b>Indirect actions</b>	<b>1009</b>
This includes:		
- Fusion research and development		
- Nuclear fission, safety and radiation protection		
<b>II</b>	<b>Direct actions of the Joint Research Centre</b>	<b>656</b>
<b>TOTAL EURATOM REGULATION</b>		<b>1665</b>
<b>TOTAL HORIZON 2020</b>		<b>79 271****</b>

# Reimbursement rates

- single reimbursement rate will be applied for an entire project, rather than breaking the reimbursement rates down into individual activities as is the case under FP7.
- Horizon 2020 projects focussing predominantly on research activities will be funded at up to **100% of direct eligible costs** plus a flat rate to cover the indirect costs.
- indirect flat rate in the proposal is based on **20% of the direct eligible costs** (excluding subcontracting).



# Reimbursement rates (cont.)

- for projects that consist mainly of actions relating to prototyping, testing, experimental development, piloting and market replication the reimbursement rate will be up to 70% of direct eligible costs plus 20% for indirect costs (excluding subcontracting)

# Reimbursement rates (cont.)

- Marie Curie Actions will continue to be funded as a scale of unit flat rate
- no requirement keep timesheets for all staff working full time on Horizon 2020 projects, although staff working part-time on a project will continue to be required to record their time

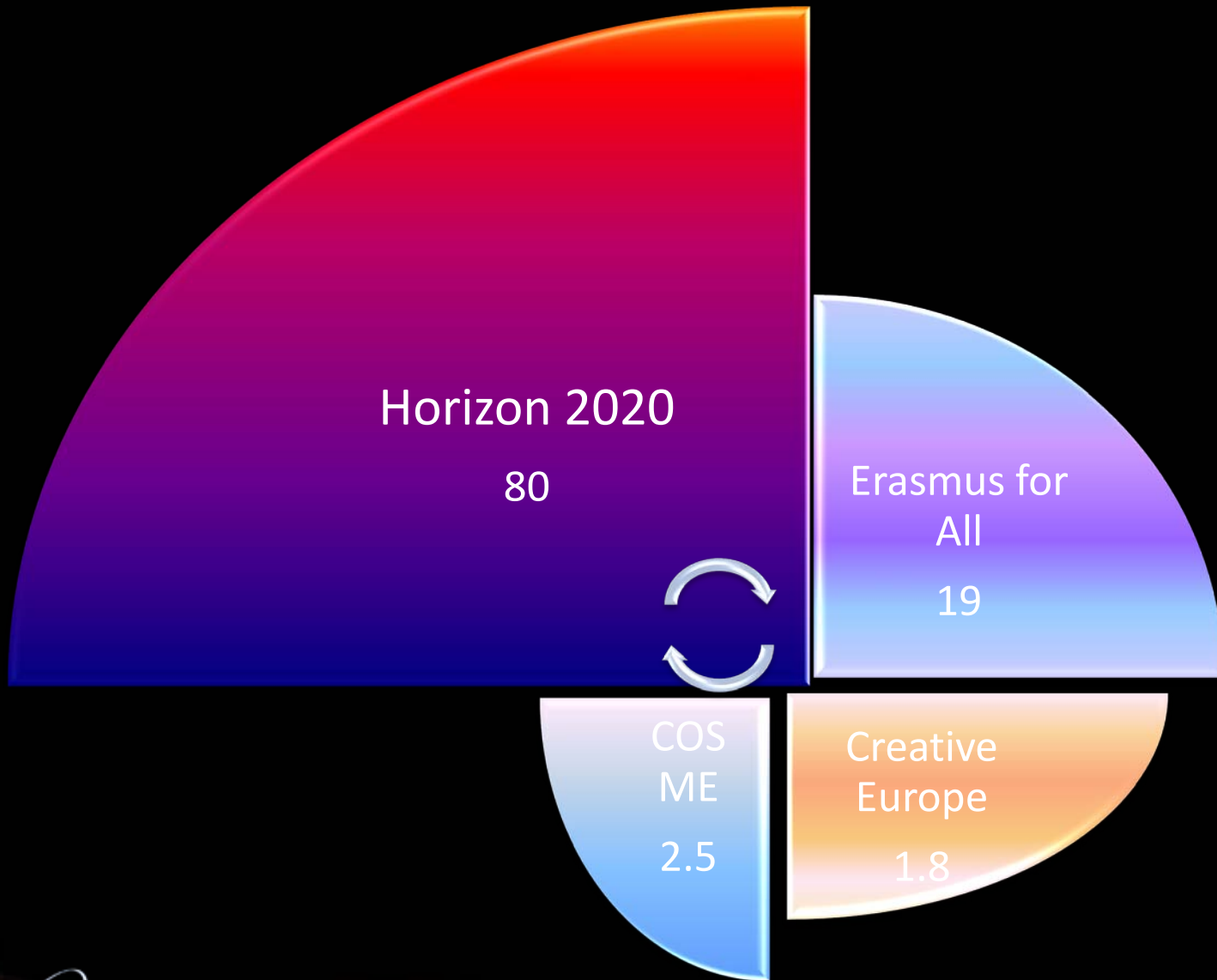
# Commission Proposal for Europe 2020 Project Bonds

- expected to be launched in 2012-2013
- EUR 230 million budget
- will support the Commission's 'Connecting Europe Facility' to improve Europe's transport, energy and digital networks
- risk-sharing financial instrument to add leverage to the EU budget through reviving the project bond market and attracting long-term private sector investment in individual infrastructure projects

# HORIZON 2020 website

[http://ec.europa.eu/research/horizon2020/index\\_en.cfm?pg=home](http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=home)





# Programme for the Competitiveness of Enterprises and SMEs (COSME)

- EUR 2.5 billion
- COSME has three main objectives
  - 1) Improve access to finance for SMEs
  - 2) Improve access to European and international markets.
  - 3) Promote entrepreneurship.

# New Lifelong Learning Programme - Erasmus for All

- brings together all the current EU and international schemes for education, training, youth and sport
- It is expected that two-thirds of the funding would be spent on mobility grants to enhance knowledge and skills.
- Erasmus for All has a proposed budget of EUR 19 billion, which is a 70% increase compared to the current programme

# Erasmus for All

## Three types of action

- learning opportunities for individuals, both within the EU and beyond;
- institutional cooperation between educational institutions, youth organisations, businesses, local and regional authorities and NGOs; and
- support for reforms in EU Member States to modernise education and training systems and promote innovation, entrepreneurship and employability.



# Creative Europe Programme

- expected to start on 1 January 2014 and run until the end of 2020
- will merge the existing Culture, MEDIA and MEDIA Mundus programmes within a single programme
- overall budget of EUR 1.8 billion for the seven year period
- **a new financial guarantee facility to enable small operators to access up to EUR 1 billion in bank loans**

# Creative Europe Programme

- – An Cross-sectoral Strand addressed to all cultural and creative sectors (15%);
- – A Culture Strand addressed to the cultural and creative sectors (30%);
- – A MEDIA Strand addressed to the audiovisual sector (55%) .

# Connecting Europe Facility (CEF)

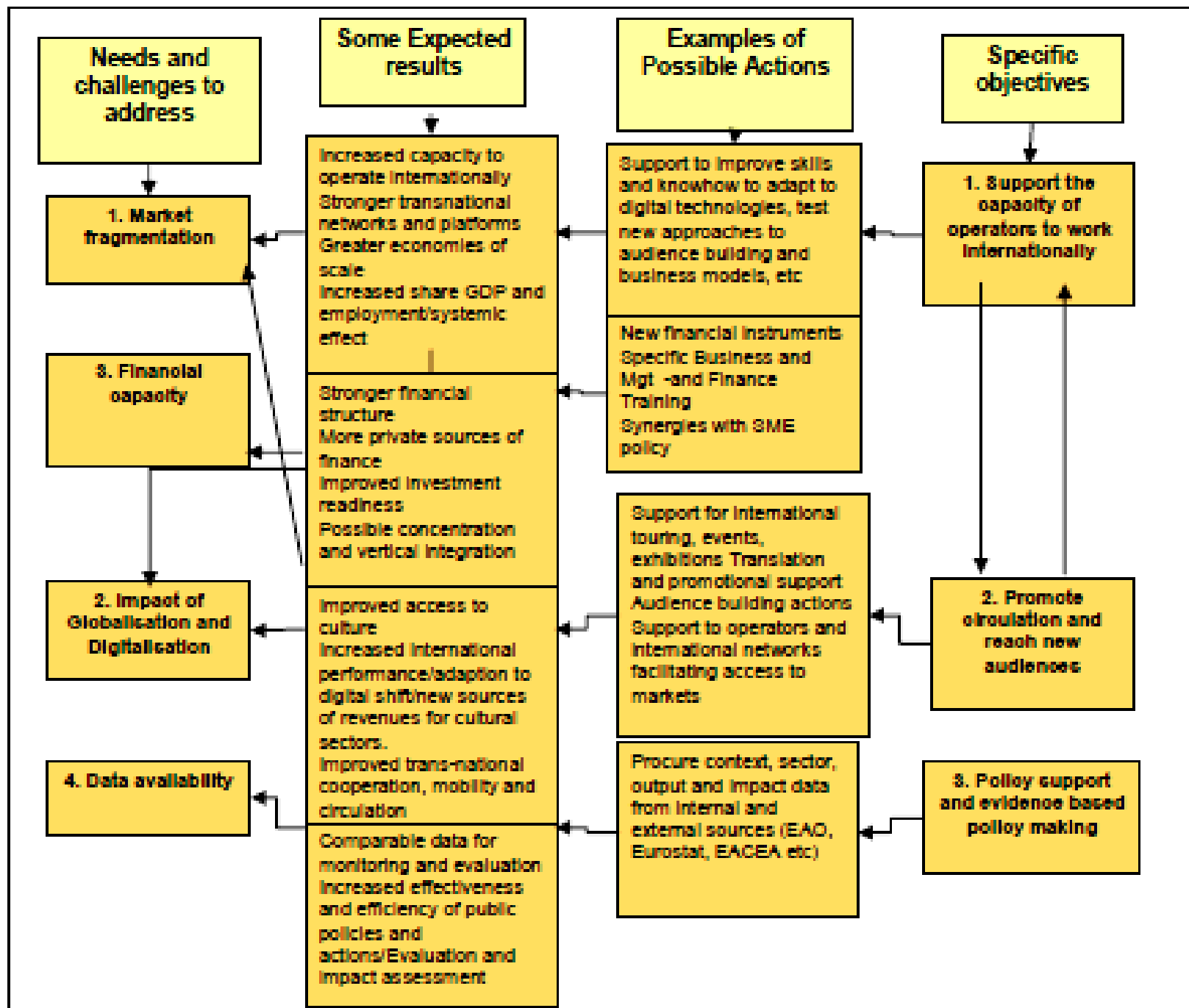
- growth package for integrated European infrastructures
- to facilitate the improvement of Europe's transport, energy and digital networks
- invest **EUR 50 billion** to fund pre-identified projects of EU-wide interest in order to fill the gaps
- will run from 2014 to 2020, and will be co-ordinated with Horizon 2020
- Three main areas: transport, energy, telecommunications and ICT

# European Innovation Partnership – Active & Healthy Ageing

- Steering Group was set up in May 2011, and is made up of over 30 stakeholders
- from the **entire innovation chain for health and ageing, including Member States**
- ...and regions, organisations representing older patients, nurses, carers and doctors,
- ...hospitals representatives, academics, industry and venture capitalists organisations.

# European Innovation Partnership

- The European Commission will work closely with national governments and a wide range of stakeholders to move the Strategic Implementation Plan forward. Next year, it will **launch calls for involvement of stakeholders** beyond those that participated in the Steering Group to implement together the priorities and actions identified in the Strategic Implementation Plan.



### Horizontal issues

- Regulatory and standardisation conditions
- Effective funding
- Evidence base, reference examples, repository for age-friendly innovation
- Marketplace to facilitate cooperation among various stakeholders

### Prevention, screening & early diagnosis

- A1: Health literacy, patient empowerment, ethics and adherence
- A2: Personal health management
- A3: Prevention, early diagnosis of functional and cognitive decline

### Care & Cure

- B1: Protocols, education and training programmes for health workforce (comprehensive case management, multimorbidity, polypharmacy, frailty and remote monitoring)
- B2: Multimorbidity and R&D
- B3: Capacity building and replicability of successful integrated care systems

### Active ageing & independent living

- C1: Assisted daily living for older people with cognitive impairment
- C2: Extending active and independent living through Open and Personalised solutions
- C3: Innovation improving social inclusion of older people

### Vision / Foundation

- New paradigm of ageing
- Innovation in service of the elderly people
- Focus on holistic and multidisciplinary approach
- Development of dynamic and sustainable care systems of tomorrow

# *Second wave of Joint Programming Initiatives*

- Neurodegenerative Diseases/Alzheimer's - [website](#)
- Agriculture, food security and climate change - [website](#)
- A healthy diet for a healthy life
- Cultural heritage & global change - [website](#)
- Urban Europe
- CliK'EU (Connecting Climate Knowledge)
- More years, better lives - [website](#)
- Antimicrobial resistance
- Water challenges
- Healthy & productive seas and oceans



# Conclusion- a few reasons why you should bother

Research  
Autonomy

Enjoyable- it's  
money for doing  
something that  
you love!

Work with  
the BEST

Networking- EVEN if  
not successful

Takes your research  
to a international  
level

Relatively good  
success rate



DO

# Management of change?





# PUBLIC HEALTH

EU Ministries of Health

**Pillar 2**

Research into Practice (comparative effectiveness & health technology)

Clinical

SANCO

Translational research  
(= from products to practice!)  
• Covers gap between pillars 1 & 2 and implementation  
• Policy support (SANCO, EMPL, DEV)  
• Broad remit – wide scope

EMPL

Health Systems (equitable access to quality health services)

Authorities

SANCO

International

Global health (MDGs, Council Conclusions)

DEV

Health promotion (healthy ageing, lifestyle)

Community

EMPL



# *Help available!*

- RSDO – help with EPSS system, legal documents, A forms, proposal check, partners search

- National Contact Points



- UKRO <http://www.ukro.ac.uk/>

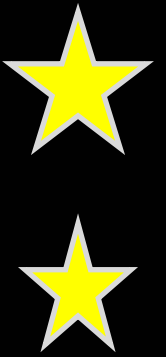
- Help with IPR, ethics and financial issues – CORDIS [http://cordis.europa.eu/fp7/get-support\\_en.html](http://cordis.europa.eu/fp7/get-support_en.html)



- Ask European Commission Officers – pre-proposal check service, advice on call contents

- Partners search [http://cordis.europa.eu/fp7/partners\\_en.html](http://cordis.europa.eu/fp7/partners_en.html)

# *Help available!*



- Collaborative agreement with PERA



- Collaborative agreement with TWI



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