



HORIZON 2020

**The New EU
Framework Programme for
Research and Innovation**

2014-2020



Paul Verhoef, Head of Unit
New and Renewable Energy Sources
DG Research and Innovation

The Multiannual Financial Framework 2014-2020: European Council conclusions, 8 February 2013

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

1. Smart & inclusive growth (€451 billion)



2. Sustainable growth, natural resources (€373 billion)

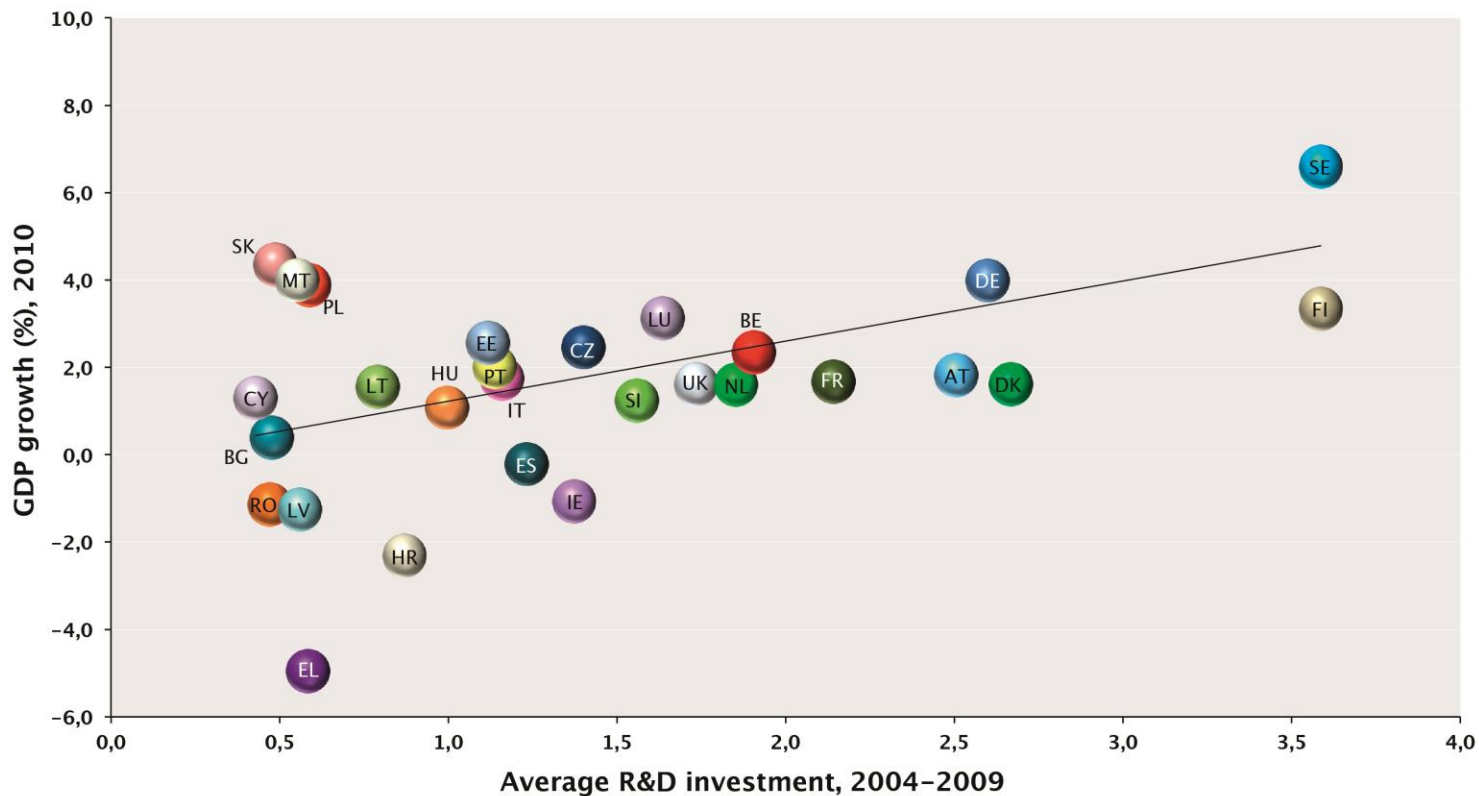
3. Security and citizenship (€16 billion)

4. Global Europe (€58 billion)

5. Administration (€61.6 billion)



Investment in R&D is part of the solution to exit from the economic crises



Source: DG Research and Innovation - Economic Analysis Unit
 Data: Eurostat

Notes. (1) Greece: average R&D intensity refers to 2004-2007.
 (2) Denmark, Portugal, Slovenia, Sweden: Break in series between 2004-2009.

What is Horizon 2020

- **Initial Commission proposal for a €80 billion research and innovation funding programme (2014-2020); now just over €70 billion**
- **A core part of Europe 2020, Innovation Union & European Research Area:**
 - Responding to the economic crisis to invest in future jobs and growth
 - Addressing people's concerns about their livelihoods, safety and environment
 - Strengthening the EU's global position in research, innovation and technology

Active involvement of stakeholders

- **EU Presidencies: Sweden** (societal challenges-based approach), **Spain** (integration of research and innovation), **Hungary** (FP7 interim evaluation), **Poland** (widening participation), **European Council conclusions** from 4.2.2011 (Common Framework to bring together all EU research and innovation funding)
- **European Parliament reports:** Merkies (Innovation Union), Audy (FP7 evaluation), Matias (Horizon 2020) and Carvalho (simplification)
- Overwhelming response to **the public consultation** on Horizon 2020 (more than 2000 contributions)
- **Survey on administrative costs for participants in FP7**
- **25 workshops on the content** of Horizon 2020

What's new

- **A single programme** bringing together three separate programmes/initiatives*
- **Coupling research to innovation** – from research to retail, all forms of innovation
- **Focus on societal challenges** facing EU society, e.g. health, clean energy and transport
- **Simplified access**, for all companies, universities, institutes in all EU countries and beyond

* The 7th Research Framework Programme (FP7), innovation aspects of Competitiveness and Innovation Framework Programme (CIP), EU contribution to the European Institute of Innovation and Technology (EIT)

Three priorities



Priority 1. Excellent science

Why:

- **World class science is the foundation of tomorrow's technologies, jobs and wellbeing**
- **Europe needs to develop, attract and retain research talent**
- **Researchers need access to the best infrastructures**

Proposed funding (€ million, 2014-2020)*

<i>European Research Council (ERC)</i> Frontier research by the best individual teams	13 095
<i>Future and Emerging Technologies</i> Collaborative research to open new fields of innovation	2 696
<i>Marie Skłodowska-Curie actions (MSCA)</i> Opportunities for training and career development	6 162
<i>Research infrastructures (including e-infrastructure)</i> Ensuring access to world-class facilities	2 488

* All funding figures in this presentation are subject to the pending Multiannual Financial Framework Regulation by the EP and the Council

Priority 2. Industrial leadership

Why:

- **Strategic investments in key technologies (e.g. advanced manufacturing, micro-electronics) underpin innovation across existing and emerging sectors**
- **Europe needs to attract more private investment in research and innovation**
- **Europe needs more innovative small and medium-sized enterprises (SMEs) to create growth and jobs**

Proposed funding (€ million, 2014-2020)

<i>Leadership in enabling and industrial technologies (LEITs)</i> (ICT, nanotechnologies, materials, biotechnology, manufacturing, space)	13 557
<i>Access to risk finance</i> Leveraging private finance and venture capital for research and innovation	2 842
<i>Innovation in SMEs</i> Fostering all forms of innovation in all types of SMEs	616 + complemented by expected 20% of budget of societal challenges + LEITs and 'Access to risk finance' with strong SME focus

Priority 3. Societal challenges

Why:

- **Concerns of citizens and society/EU policy objectives (climate, environment, energy, transport, etc) cannot be achieved without innovation**
- **Breakthrough solutions come from multi-disciplinary collaborations, including social sciences & humanities**
- **Promising solutions need to be tested, demonstrated and scaled up**

Proposed funding (€ million, 2014-2020)

Health, demographic change and wellbeing	7 472
Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the Bioeconomy	3 851
Secure, clean and efficient energy *	5 931
Smart, green and integrated transport	6 339
Climate action, environment, resource efficiency and raw materials	3 081
Inclusive, innovative and reflective societies	1 310
Secure societies	1 695
<i>Science with and for society</i>	462
<i>Spreading excellence and widening participation</i>	816

* Additional funding for nuclear safety and security from the Euratom Treaty activities (2014-2018)

Horizon 2020 and partnering

Public private partnerships:

- Through Joint Technology Initiatives or other formal structures (Art. 187)
- Through contractual agreements, which provide inputs for work programmes
- Only when criteria met, e.g. clear commitments from private partners

Public public partnerships:

- Through « ERA-Nets » for topping up individual calls/actions (replacing current ERA-Net, ERA-Net Plus, Inco-Net, Inno-net)
- Through participation in joint programmes between Member States (Art. 185)
- Supporting agendas of Joint Programming Initiatives when in line with Horizon 2020
- Only when criteria met, e.g. financial commitments of participating countries

European Innovation Partnerships:

- Not funding instruments, but for coordination with broader policies and programmes

Innovation Investment Package

€22 billion Innovation Investment Package

Joint Technology Initiatives (under Article 187)

- Innovative Medicines Initiative 2
- Clean Sky (Aeronautics) 2
- Fuel Cell and Hydrogen 2
- Bio-based Industries
- Electronic components and systems

Joint programmes (under Article 185)

- European and Developing Countries Clinical Trials Partnership (EDCTP) 2
- European Metrology Research Programme 2
- Eurostars (for SMEs) 2
- Active and Assisted Living 2

Benefits of Partnerships

Joint Technology Initiatives (with industry)

- Industry driven research agenda
- Fixed budget for 7 years to leverage more industry investment
- Sector structuring to achieve impact
- Coverage of longer value chains and interrelated sectors
- Higher level of SME participation (30%) than in FP7
- Links and synergies with Structural and Investment Funds

Joint programmes (with Member States)

- Link to national programmes
- Leverage effect
- Industry involvement
- Cross-border collaboration

Role of the EIT and JRC in Horizon 2020

	<i>Proposed funding (€ million, 2014-2020)</i>
<i>European Institute of Innovation & Technology (EIT)</i> Combining research, innovation & training in knowledge and Innovation Communities	2 711
<i>Joint Research Centre (JRC)*</i> Providing a robust, evidence base for EU policies	1 903

* Additional funding for the JRC for Euratom Treaty activities

Simplification: Rules for Participation

1. A single set of rules:

- ✓ Adapted for the whole research and innovation cycle
- ✓ Covering all research programmes and funding bodies
- ✓ Aligned to the Financial Regulation, coherent with other new EU Programmes

2. One project – one funding rate

- ✓ Maximum of 100% of the total eligible costs (except for innovation actions, where a 70% maximum will apply for profit making entities)
- ✓ Indirect eligible costs: a flat rate of 25% of direct eligible costs

3. Simple evaluation criteria

- ✓ Excellence – Impact – Implementation (Excellence only, for the ERC)

4. New forms of funding aimed at innovation

- ✓ pre-commercial procurement, inducement prizes, dedicated loan and equity instruments

5. International participation

- ✓ facilitated but better protecting EU interests

Simplification: Rules for Participation

6. Simpler rules for grants

- ✓ broader acceptance of participants accounting practices for direct costs, flat rate for indirect costs, no time-sheets for personnel working full time on a project, possibility of output-based grants

7. Fewer, better targeted controls and audits

- ✓ Lowest possible level of requirements for submission of audit certificates without undermining sound financial management
- ✓ Audit strategy focused on risk and fraud prevention

8. Improved rules on intellectual property

- ✓ Balance between legal security and flexibility
- ✓ Tailor-made IPR provisions for new forms of funding
- ✓ A new emphasis on open access to research publications

Beyond the Rules: further simplified provisions in the Grant Agreement and implementing procedures to facilitate access to Horizon 2020 (e.g. common IT platform).

EURATOM

Budget: €939 million to support indirect research actions in nuclear fission, radiation protection and fusion activities

Duration of the Programme - 5 years, in line with the Euratom Treaty

What is new?

- Euratom Programme complements Horizon 2020 and addresses the same key challenges;
- The same rules for participation apply to Horizon 2020 and Euratom Programme;
- A streamlined fusion research programme focusing on the implementation of the fusion roadmap;
- A single regulation instead of four separate decisions during FP7

Challenge 3

"Secure, Clean and Efficient Energy"

Thematic scope of the Energy Challenge (according to the Horizon 2020 Specific Programme)

- **Reducing energy consumption and carbon footprint by smart and sustainable use**

New concepts, non-technological solutions, technology components and systems for buildings, cities/districts, industry and individuals

- **Low-cost, low-carbon electricity supply**

innovative renewables, efficient and flexible fossile power plants (including natural gas?) and carbon capture and storage, or CO2 re-use technologies

- **Alternative fuels and mobile energy sources**

bio-energy; power and heat; surface, maritime and air transport; hydrogen and fuel cells; new options

Thematic scope of the Energy Challenge (according to the Horizon 2020 Specific Programme)

- **A single, smart European electricity grid**

smart energy grid technologies, including storage; systems and market designs to plan, monitor, control and safely operate interoperable networks; standardisation issues; emergency conditions

- **New knowledge and technologies**

multi-disciplinary research for energy technologies (including visionary actions)

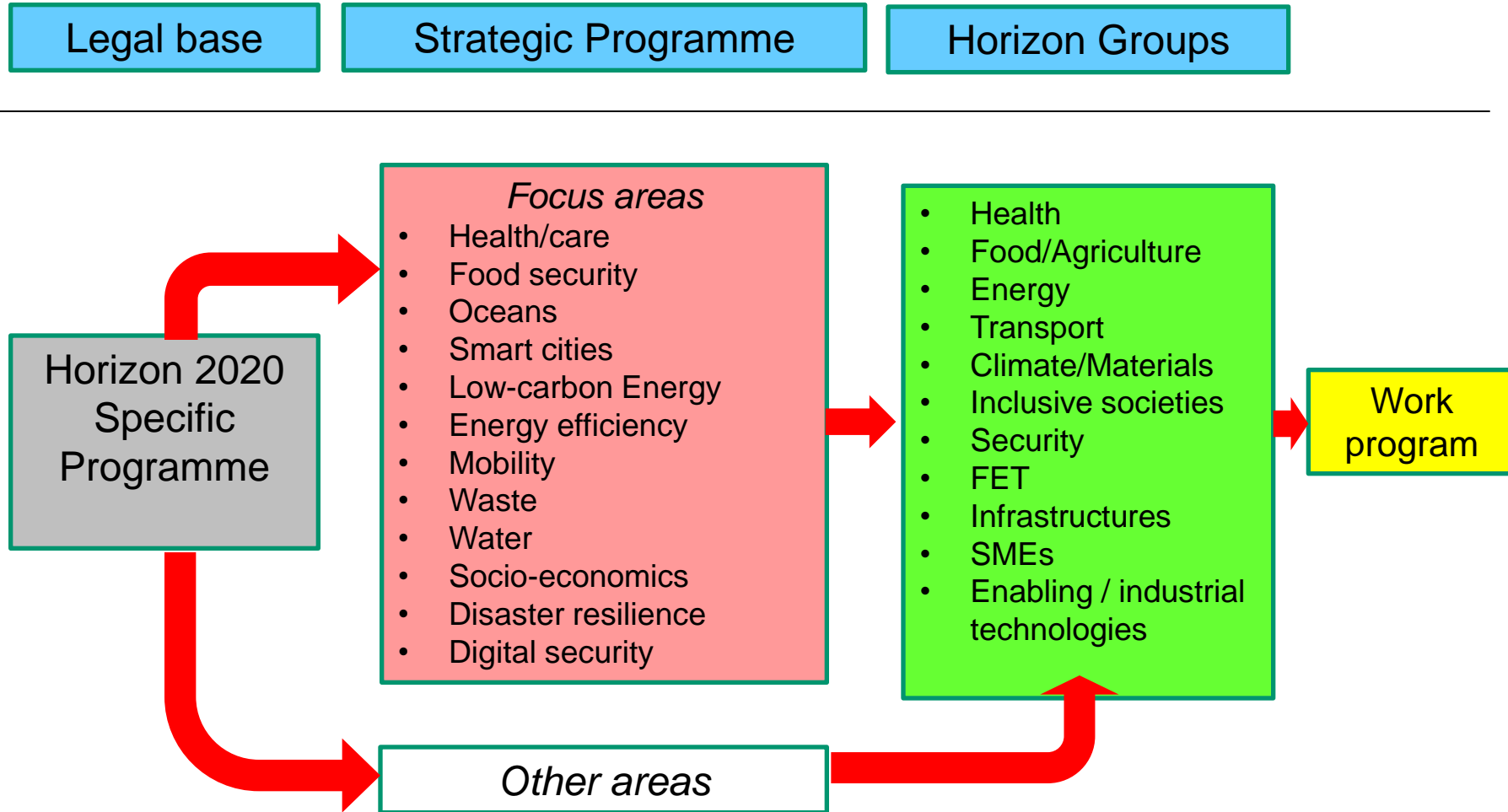
- **Robust decision making and public engagement**

tools, methods, models and perspective scenarios for a robust and transparent policy support

- **Market uptake of energy innovation**

applied innovation; promotion of standards; non-technological barriers; smart and sustainable use of existing technologies

Thematic context



Focus Area : Competitive low-carbon energy

- **Renewable energy (e.g. solar energy, marine energy, geothermal energy, RES heating and cooling, bio-electricity)**
- **Carbon Capture and Storage (including re-use of CO2)**
- **Alternative fuels and technologies**
- **Biofuels**
- **Fuel cells and hydrogen-based systems**
- **Smart European electricity grid**
- **Energy storage**

Next steps

- **Formal political decisions on Horizon 2020** *Autumn 2013*
- **Formal political decision on Multi-annual financial framework (2014-2020)** *Autumn 2013*
- **Adoption of work programme and publication of first calls for proposals** *11 December 2013*
- **Horizon 2020 national launch events** *October to January 2014*



European
Commission



HORIZON 2020

**Thank you
for your attention!**

Find out more:

www.ec.europa/research/horizon2020