HORIZON 2020

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MENFRI

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Europe 2020 is the EU's growth strategy for the coming decade.

Three mutually reinforcing priorities:

- **Smart growth**: developing an economy based on knowledge and innovation.
- **Sustainable growth**: promoting a more resource efficient, greener and more competitive economy.
- **Inclusive growth**: fostering a high-employment economy delivering social and territorial cohesion.

These three mutually reinforcing priorities should help the EU and the Member States deliver high levels of employment, productivity and social cohesion.
# EUROPE 2020 - A strategy for smart, sustainable and inclusive growth

<table>
<thead>
<tr>
<th>Category</th>
<th>Target/Goal</th>
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<tbody>
<tr>
<td><strong>EMPLOYMENT</strong></td>
<td>75% of the population aged 20-64 should be employed</td>
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<tr>
<td><strong>R &amp; I</strong></td>
<td>3% of GDP in EU invested in in R&amp;D</td>
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<td><strong>CLIMATE / ENERGY</strong></td>
<td>A reduction of CO2 emissions by 20%</td>
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<td>A share of renewable energies up to 20%</td>
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<td>An increase in energy efficiency by 20%</td>
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<td><strong>EDUCATION</strong></td>
<td>The share of early school leavers should be under 10%</td>
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<td>At least 40% of the younger generation should have a degree or diploma</td>
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<td><strong>POVERTY</strong></td>
<td>20 million fewer people should be at risk of poverty</td>
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Europe has identified new engines to boost growth and jobs.

These areas are addressed by seven flagship initiatives:

- Digital Agenda for Europe
- Innovation Union
- Youth on the move
- Resource Efficient Europe
- An industrial policy for the globalisation era
- An Agenda for new skills and jobs
- European platform against poverty
# EUROPE 2020 and Research

<table>
<thead>
<tr>
<th>Three Priorities</th>
<th>Five Goals</th>
<th>Seven Initiatives</th>
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</thead>
<tbody>
<tr>
<td>Smart growth</td>
<td>Employment</td>
<td>Innovation Union</td>
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<tr>
<td>Inclusive growth</td>
<td>R&amp;D/ innovation (3% of EU GDP invested in R&amp;D)</td>
<td>Youth on the move</td>
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<tr>
<td>Sustainable growth</td>
<td>Climate Change / Energy</td>
<td>A Digital Agenda for Europe</td>
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<td></td>
<td>Education</td>
<td>Resource Efficient Europe</td>
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<td></td>
<td>Poverty / Social Exclusion</td>
<td>An industrial policy for the globalisation era</td>
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<td>An Agenda for new skills and jobs</td>
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<td>European platform against poverty</td>
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EUROPA 2020: Strategy for a smart, sustainable and inclusive growth

INNOVATION UNION: Flagship initiative on research and innovation

HORIZON 2020: Common strategic framework on research and innovation (2014-2020)
Horizon 2020 - Political context

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
Investment in R&D is part of the solution to exit from the economic crisis.
Horizon 2020

The EU Framework Programme for Research and Innovation

2014-2020

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)

TOTAL €960 billion
H2020 Budget distribution

- **Industrial Leadership**: EUR 17.0 billion
- **Societal Challenges**: EUR 29.7 billion
- **Excellent Science**: EUR 24.4 billion
- **European Institute of Innovation and Technology**: EUR 2.7 billion
- **Euratom (2014-2018)**: EUR 1.6 billion
- **Other**: EUR 3.2 billion

Innovation Week - 4th March 2015 - Casablanca
Three Priorities:
1) Excellent Science
2) Industrial Leadership
3) Societal Challenges
## Horizon 2020 - Detailed Structure

### Excellence Science
- European Research Council
  - Frontier research by the best individual teams
- Marie Curie actions
  - Opportunities for training and career development
- Future and Emerging Technologies
  - Collaborative research to open new fields of innovation
- Research Infrastructure (including e-infrastructure)
  - Ensuring access to world-class facilities

### Industrial Leadership
- Leadership in enabling and industrial technologies
  - ICT, nanotechnologies, materials, biotechnology, manufacturing, space
- Access to Risk Finance
  - Leveraging private finance and venture capital for research and innovation
- Innovation in SMEs
  - Fostering all forms of innovation in all types of SMEs

### Societal Challenges
- Health, demographic change and wellbeing
- Food security, sustainable agriculture, marine and maritime research & the bioeconomy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Climate action, resource efficiency and raw materials
- Inclusive, innovative and secure societies

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**European Institute of Innovation and Technology (EIT)**
Combining research, innovation & training in Knowledge and Innovation Communities

**Joint Research Center (JRC)**
Providing a robust, evidence base for EU policies

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Innovation Week - 4th March 2015 - Casablanca
Priority 1. Excellent Science (values in meuro)

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

* 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 (values in meuro)

<table>
<thead>
<tr>
<th>Leadership in enabling and industrial technologies (LEITs) (ICT, nanotechnologies, materials, biotechnology, manufacturing, space)</th>
<th>13 557</th>
</tr>
</thead>
</table>
| **Access to risk finance**  
Leveraging private finance and venture capital for research and innovation | 2 842 |
| **Innovation in SMEs**  
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 |
2.1 LEIT’S - Information and Communication Technologies

- A new generation of components and systems: Engineering of advanced and smart embedded components and systems;
- Next generation computing: Advanced computing systems and technologies;
- Future Internet: Infrastructures, technologies and services;
- Content technologies and information management: ICT for digital content and creativity;
- Advanced interfaces and robots: Robotics and smart spaces;
- Micro- and nanoelectronics and photonics: Key enabling technologies related to micro- and nanoelectronics and to photonics.
2.2 LEIT’S: 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
2.3 LEIT’S: Advanced materials

- Cross-cutting and enabling materials technologies
- Materials development and transformation
- Management of materials components
- Materials for a sustainable and low-carbon industry
- Materials for creative industries
- Metrology, characterisation, standardisation and quality control
- Optimisation of the use of materials
2.4 LEIT’S: Biotechnology

- Boosting cutting-edge biotechnologies as a future innovation driver
- Biotechnology-based industrial processes
- Innovative and competitive platform technologies
2.5 LEIT’S: Advanced manufacturing and processing

- Technologies for Factories of the Future
- Technologies enabling Energy-efficient buildings
- Sustainable and low-carbon technologies in energy-intensive process industries
- New sustainable business models
2.6 LEIT’s: Space

- Enabling European competitiveness, non dependence and innovation of the European space sector
- Enabling advances in space technologies
- Enabling exploitation of space data
- Enabling European research in support of international space partnerships
### Priority 3. Societal Challenges

(values in meuro)

<table>
<thead>
<tr>
<th>Priority</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health, demographic change and wellbeing</td>
<td>7,472</td>
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<tr>
<td>Food security, sustainable agriculture, marine and maritime and inland water research &amp; the Bioeconomy</td>
<td>3,851</td>
</tr>
<tr>
<td>Secure, clean and efficient energy *</td>
<td>5,931</td>
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<tr>
<td>Smart, green and integrated transport</td>
<td>6,339</td>
</tr>
<tr>
<td>Climate action, resource efficiency and raw materials</td>
<td>3,081</td>
</tr>
<tr>
<td>Europe in a changing world-inclusive, innovative and reflective societies</td>
<td>1,309</td>
</tr>
<tr>
<td>Secure societies-protecting freedom and security of Europe and its citizens</td>
<td>1,695</td>
</tr>
<tr>
<td>Science with and for society</td>
<td>462</td>
</tr>
<tr>
<td>Spreading excellence and widening participation</td>
<td>816</td>
</tr>
</tbody>
</table>
3.1 HEALTH, DEMOGRAPHIC CHANGE AND WELLBEING

- improve our understanding of the causes and mechanisms underlying health, healthy ageing and disease;
- improve our ability to monitor health and to prevent, detect, treat and manage disease;
- support older persons to remain active and healthy;
- and test and demonstrate new models and tools for health and care delivery.
3.2 FOOD SECURITY, SUSTAINABLE AGRICULTURE, MARINE AND MARITIME RESEARCH AND THE BIO-ECONOMY

- Agriculture and forestry;
- Agri-food sector for a safe and healthy diet
- Aquatic living resources and marine research
- Bio-based industries
3.3 SECURE, CLEAN AND EFFICIENT ENERGY

- Reducing energy consumption and carbon footprint
- Low-cost, low-carbon electricity supply
- Alternative fuels and mobile energy sources
- A single, smart European electricity grid
- New knowledge and technologies
- Robust decision making and public engagement
- Market uptake of energy and ICT innovation.
3.4 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
3.5 CLIMATE ACTION, RESOURCE EFFICIENCY AND RAW MATERIALS

- to achieve a resource- and water-efficient and climate change resilient economy and society,

- the protection and sustainable management of natural resources and ecosystems, and

- a sustainable supply and use of raw materials, in order to meet the needs of a growing global population within the sustainable limits of the planet’s natural resources and eco-systems.
3.6 INCLUSIVE, INNOVATIVE AND REFLECTIVE SOCIETIES

- New ideas, strategies and governance structures for overcoming the crisis in Europe
- The young generation in an innovative, inclusive and sustainable EU
- Reflective societies: transmission of European cultural heritage, uses of the past, 3D modelling for accessing EU cultural assets.
- Europe as a global actor: focusing research and innovation cooperation with third countries, new geopolitical order in the Mediterranean, EU eastern partnership and other third countries.
- New forms of innovation in the public sector, open government, business model innovation, social innovation community, ICT for learning and inclusion.
- Europe as a global actor: focusing research and innovation cooperation with third countries, new geopolitical order in the Mediterranean, EU eastern partnership and other third countries.
- New forms of innovation in the public sector, open government, business model innovation, social innovation community, ICT for learning and inclusion.
3.7 SECURE SOCIETIES - PROTECTING FREEDOM AND SECURITY OF EUROPE AND ITS CITIZENS

- to enhance the resilience of our society against natural and man-made disasters

- to fight crime and terrorism ranging from new forensic tools to protection against explosives

- to improve border security

- and to provide enhanced cyber-security
# Role of the EIT and JRC in Horizon 2020

| **European Institute Technology (EIT)** | 1,360+  
| Combining research, innovation & training in knowledge and Innovation Communities | 1,440* |
| **Joint Research Centre (JRC)** | 1,962 |
| Providing a robust, evidence base for EU policies | |

*Second tranche pro rata from LEIT and Societal challenges (subject to review)*

**Additional €656m for the JRC to be funded from the Euratom Treaty activities**
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 Horizon2020
- 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
Widening participation

**Principle of excellence**: continue to allocate funding on the basis of competitive calls, selecting only the best projects

**Clear division of labour** between cohesion policy and Horizon 2020

a) **Cohesion policy**: support for regions in building up their research and innovation capacity

b) **Horizon 2020**: widen participation, better coordination between the two Union funding programmes, support policy learning reforms

**Accompanying measures in Horizon 2020** to ensure that excellence prevails wherever it exists, including: twinning, ERA chairs, support for access to international networks, development of smart specialisation strategies
International Cooperation

**International Cooperation is crucial** to address many Horizon 2020 objectives.

**Principle of general openness:** the programme will remain to be the most open funding program in the world.

Horizon 2020 shall be open to the **association of:** acceeding countries, candidate countries and potential candidates and selected third countries that fulfil the relevant criteria (capacity, track record, close economic and geographical links to the Union, etc.).

Targeted actions to be implemented taking a **strategic approach to international cooperation** (dedicated measures in the “Inclusive, innovative and secure societies” challenge).
Thank you!