EUROPEAN FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

Specific Programme Implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020)

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IPO, Porto

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➤ **Multipolar world in research and innovation**

➤ **Horizonte 2020 – the 3 pilars**

➤ **Horizontal issues**

  • **Simplification, Synergies with Structural Funds, widening participation, youth employment, other aspects relevantes**

➤ **Next steps**

➤ **Conclusions**

MULTIPOLAR WORLD IN RESEARCH AND INNOVATION

Multipolar world in research and innovation

➢ **Multipolar world in all sectors ans also in science**

➢ **80% of *researchers* work outside Europe**

➢ **69% of patent applications are made outside Europe**

➢ **75% of GERD is executed in other parts of the world (Gross Expenditure on Research and Development)**

➢ **EU's world share in GERD has diminished by 7.6% over the previous 6 years**

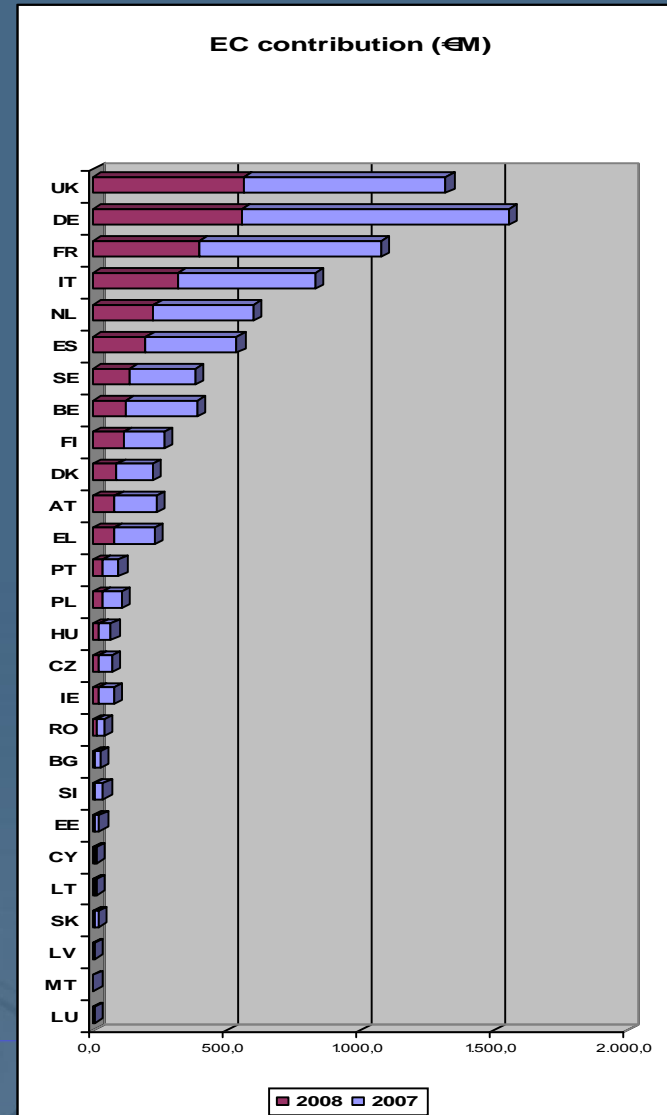➢ **EU's world share of patent application has declined 14.2% over the previous 6 years**
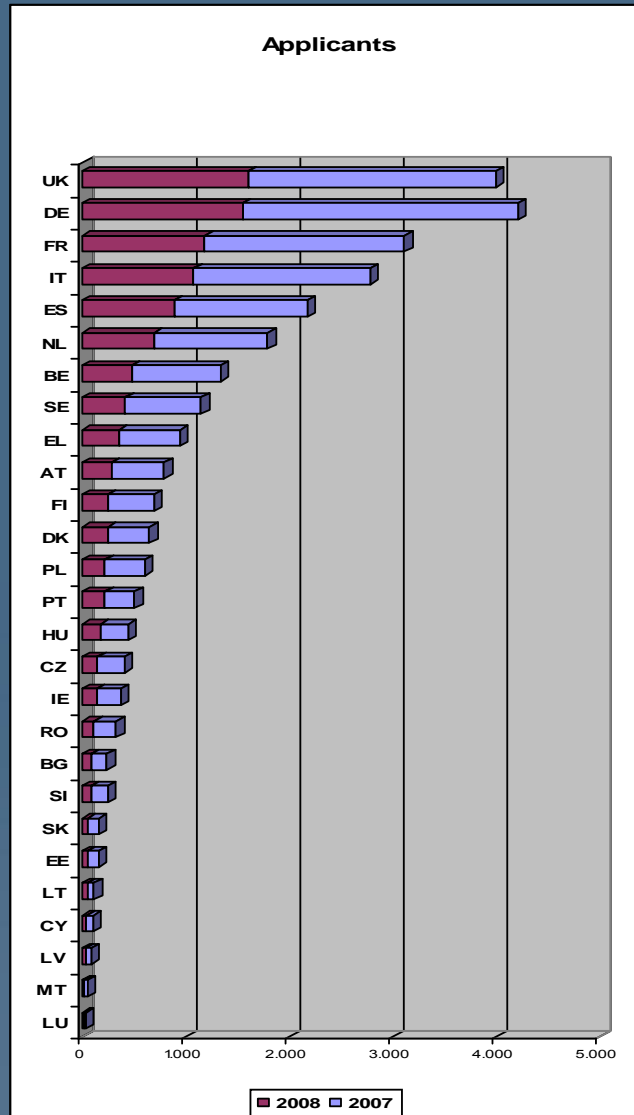
Multipolar world in research and innovation

➤ **EU-27 is the largest producer of scientific publications in the world (EU 37% US 31%).**

➤ **However the EU contributes less than the US to high impact publications (US 1.45% EU 0.97% - contribution to the 10% most cited publications)**

➤ **China's share of world scientific publications has more than doubled within six years and is now larger than that of the Japanese**

7th Framework-Programme

➢ *Framework Programme for Research, Technological Development and Demonstration*

➢ **Budget** *52.000 M€* **2007-2013**

➢ **Enormous strategic importance for the development of** *innovation*, *competitiveness* **and therefore** *employment* **of the European area**

MS Participation in the FP7

Motivation
Weaknesses

➢ **Under investment in science and research**

➢ **Unsatisfactory framework conditions**

➢ **Fragmentation and excessive bureaucracy and red tape**

➤ **Europe has world leading researchers, entrepreneurs and companies**

➤ **A set of deeply embedded values and traditions, a dynamic culture of creativity and diversity**

➤ **The largest internal market in the world**

➤ **A society actively engaged in emerging and developing countries across the globe**

HORIZON 2020

"8th Framework-Programme" *for Research, Technological Development, Demonstration and Innovation*
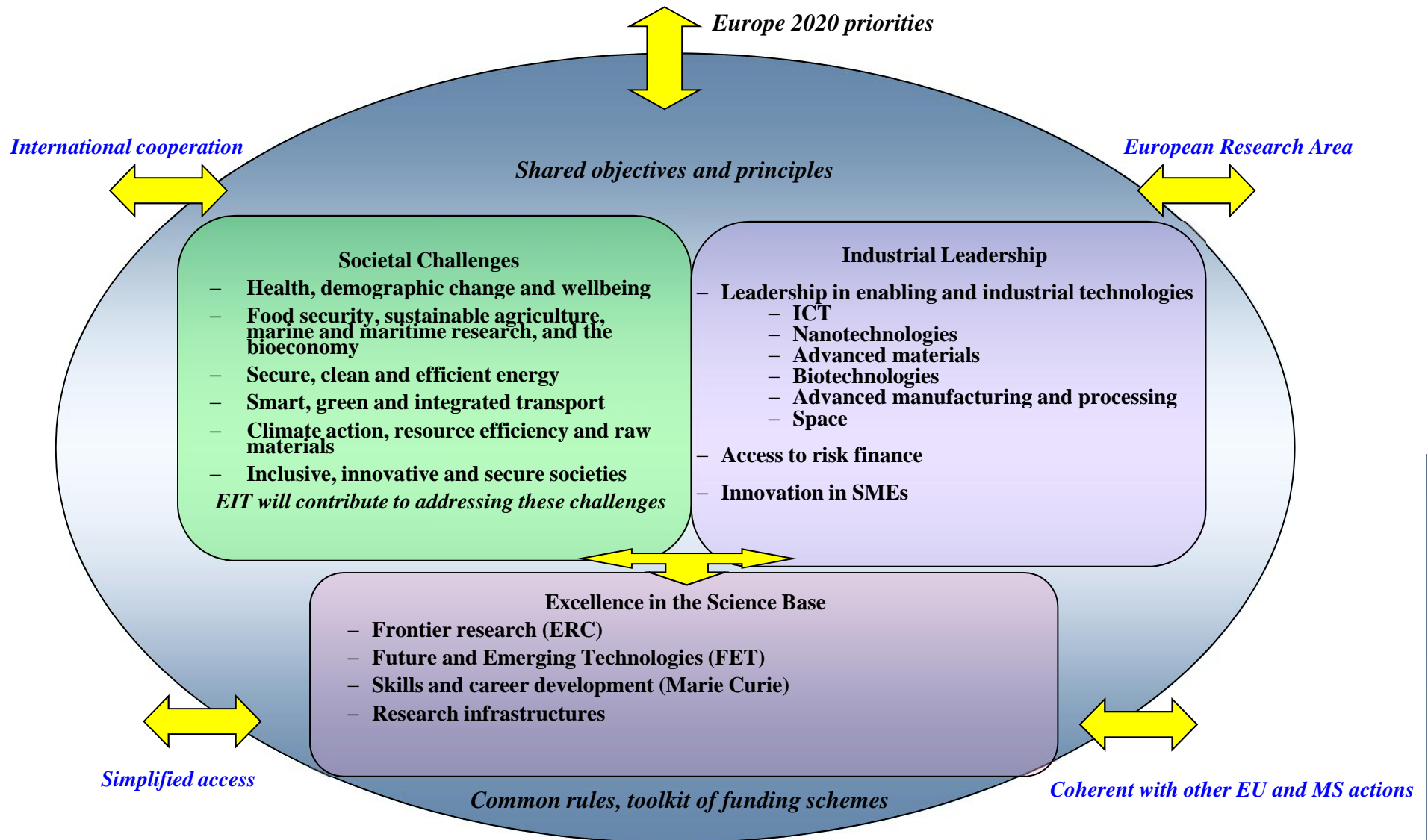
5 key principles:

1. A Trust based funding system

2. Excellence based criteria "*Stairway to Excellence*"

3. A chain from frontier research, to technological development, demonstration, valorisation of results and innovation

4. Synergies with Structural Funds for capacity building

5. Employment of young scientists

➤ **European Parliament proposed doubling of the budget (52.000M€ to 100.000M€)**

➤ **European Comission proposed 87.740M€**

➤ **Final budget 70.200M€**

- **outcome of the negotiations between Parliament, Council and Commission**

Horizonte 2020
Three Pilares

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Europe 2020 priorities

International cooperation

European Research Area

Shared objectives and principles

Societal Challenges

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

EIT will contribute to addressing these challenges

Industrial Leadership

– **Leadership in enabling and industrial technologies**
  – **ICT**
  – **Nanotechnologies**
  – **Advanced materials**
  – **Biotechnologies**
  – **Advanced manufacturing and processing**
  – **Space**
– **Access to risk finance**
– **Innovation in SMEs**

Excellence in the Science Base

– **Frontier research (ERC)**
– **Future and Emerging Technologies (FET)**
– **Skills and career development (Marie Curie)**
– **Research infrastructures**

Simplified access

Common rules, toolkit of funding schemes

Coherent with other EU and MS actions

> **Excellent science proposed funding (million euro, 2014-20)**

European Research Council	13.268
Future and Emerging Technologies	3.100
Marie Curie Actions	5.572
Research Infrastructures	2.478

Recommendations
Excellent science

➢ Deepening the concept of ERC "*return grants*"

➢ Increase the number of ERC "*synergy grants*"

➢ Further develop "*twinning*" actions

➢ Increase the funding of Marie Curie actions

➢ Widening the FET instrument

Industrial leadership proposed funding (million euro, 2014-20)

Leadership in enabling and industrial technologies (ICT, nanotechnologies, materials, biotechnology, manufacturing, space)	**13.781**
Access to risk finance	**3.538**
Innovation in SMEs	**619**

Recommendations Industrial leadership

➢ To improve definition of: *demonstration*, *pilot actions*, *technological deployment*, *flagship projects*

➢ To take into account the circumstances of different sectors when defining the target of 15% for SMEs

➢ To develop a mechanism that is at once simpler, faster and more efficient: "inovgation vouchers"

➢ To foster innovation by introducing "pre-comercial procurement"

➢ To ease access to loans, guarantees and other form of risk finance

➢ To build standardisation into technological development projects

Societal challenges proposed funding (million euro, 2014-20)

Health, demographic change and wellbeing	8.033
Food security, sustainable agriculture, marine and maritime research & the bioeconomy	4.152
Secure, clean and efficient energy	5.782
Smart, green and integrated transports	6.802
Climate action, resource efficiency and raw materials	3.160
Inclusive, innovative and secure societies	3.819

Horizon 2020
Societal Challenges

1. HEALTH, DEMOGRAPHIC CHANGE AND WELLBEING

1.1. Understanding the determinants of health, improving health promotion and disease prevention

1.2. Developing effective screening programmes and improving the assessment of disease susceptibility

1.3. Improving surveillance and preparedness

1.4. Understanding disease

1.5. Developing better preventive vaccines

1.6. Improving diagnosis

1.7. Using in-silico medicine for improving disease management and prediction

1.8. Treating disease

1. HEALTH, DEMOGRAPHIC CHANGE AND WELLBEING

1.9. Transferring knowledge to clinical practice and scalable innovation actions

1.10. Better use of health data

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

1.12. Active ageing, independent and assisted living

1.13. Individual empowerment for self-management of health

1.14. Promoting integrated care

1.15. 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

2. FOOD SECURITY, SUSTAINABLE AGRICULTURE, MARINE AND MARITIME RESEARCH AND THE BIO-ECONOMY

2.1. Sustainable agriculture and forestry

2.2. Sustainable and competitive agri-food sector for a safe and healthy diet

2.3. Unlocking the potential of aquatic living resources

2.4. Sustainable and competitive bio-based industries and supporting the development of a European bio-economy

2.5 Cross-cutting marine and maritime research

3. SECURE, CLEAN AND EFFICIENT ENERGY

3.1. Reducing energy consumption and carbon footprint through smart and sustainable usage

3.2. Low-cost, low-carbon electricity supply

3.3. Alternative fuels and mobile energy sources

3.4. A single, smart European electricity grid

3.5. New knowledge and technologies

3.6. Robust decision making and public engagement

3.7. Market uptake of energy innovation, empowering markets and consumers

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4. SMART, GREEN AND INTEGRATED TRANSPORT

4.1. Resource efficient transport that respects the environment

4.2. Better mobility, less congestion, more safety and security

4.3. Global leadership for the European transport industry

4.4. Socio-economic research and forward looking activities for policy making

5. CLIMATE ACTION, RESOURCE EFFICIENCY AND RAW MATERIALS

5.1. Fighting and adapting to climate change

5.2. Sustainably managing natural resources and ecosystems

5.3. Ensuring the sustainable supply of non-energy and non-agricultural raw

5.4. Enabling the transition towards a green economy through eco-innovation

5.5. Developing comprehensive and sustained global environmental observation and information systems

6. EUROPE IN A CHANGING WORLD - INCLUSIVE, INNOVATIVE AND REFLECTIVE SOCIETIES

6.1. Inclusive societies

6.2. Innovative societies

6.3. Reflective Societies- cultural heritage and European identity

7. SECURE SOCIETIES ´PROTECTING FREEDOM AND SECURITY OF EUROPE AND ITS CITIZENS

7.1 Fight crime, illegal trafficking and terrorism, including understanding and tackling terrorist ideas and beliefs;

7.2 Protect and improve the resilience of critical infrastructures, supply chains and transport modes;

7.3 Strengthen security through border management;

7.4 Improve cyber security;

7.5 Increase Europe's resilience to crises and disasters;

7. SECURE SOCIETIES ´PROTECTING FREEDOM AND SECURITY OF EUROPE AND ITS CITIZENS

7.6 Ensure privacy and freedom, including in the Internet and enhance the societal legal and ethical understanding of all areas of security, risk and management;

7.7 Enhance standardisation and interoperability of systems, including for emergency purposes;

7.8 Support the Union's external security policies, including conflict prevention and peace-building.

PART IIIa

SPREADING EXCELLENCE AND WIDENING PARTICIPATION

➢ *Teaming of excellent research institutions*

➢ *Twinning of research institutions*

➢ *Establishing 'ERA Chairs'*

➢ *A Policy Support Facility (PSF)*

➢ *Supporting access to international networks for excellent researchers and innovators*

➢ *Strengthening the administrative and operational capacity of transnational networks of National Contact Points*

PART IIIb
   SCIENCE WITH AND FOR SOCIETY

➢ *Making scientific and technological careers attractive to young students*

➢ *Promoting gender equality*

➢ *Integrating society in science and innovation issues, policies and activities*

➢ *Encouraging citizens to engage in science through formal and informal science education,*

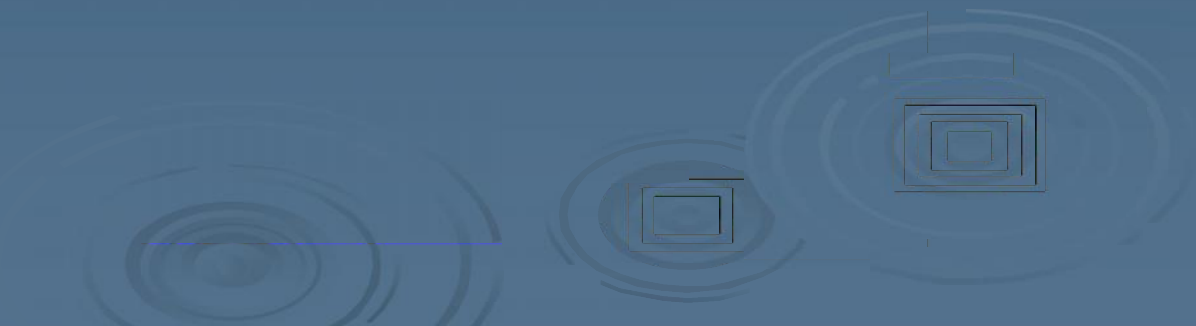➢ *Developing the accessibility and the use of the results of publicly-funded research.*
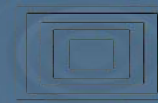
PART IIIb
   SCIENCE WITH AND FOR SOCIETY

➢ *Developing the governance for the advancement of responsible research and innovation by all stakeholders*

➢ *Taking due and proportional precautions in research and innovation activities*

➢ *Improving knowledge on science communication*

Recommendations Societal Challenges

➢ Pilot Platform for the promotion of best practices, sharing information and networking among researchers with projects in different inniciatives (eg. JTIs, PPPs, ERC and Industrial Leadership and Societal Challenges pilars)

➢ To split "inclusive, innovative and secure societies" into two challenges

Horizontal Issues

SIMPLIFICATION

Simplification
Rules for participation

➢ **It is necessary to simplify the mechanisms of European financing programmes of research and innovation**

➢ **2 approaches:**

1. **Simplification of financing and administrative aspects of project financing**

2. **Reinforcement of the technical and scientific evaluating process**

➢ **VAT considered an eligible cost for institutions that cannot recover it from their own state fiscal systems**

➢ **Direct costs will be reimbursed at a 100 percent**

➢ **New rules to facilitate the recruitment of young researchers to universities**

➢ **No time-sheets for personnel working full time on a project**

➢ **A single set of rules for all instruments of H2020**

Synergies between the FP and the SF

Horizon 2020

Structural Funds

Excellence and Stairway to Excellence

bridges

Capacity Building and Smart Specialisation

➢ **Compatible rules in both programmes**

➢ **Horizon 2020 should attract aditional financing from the Structural Funds, EIB and private sector**

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➢ **Upstream from Horizon 2020 the structural funds can finance:**

- **equipment, human resource development, the creation of clusters in the priority areas of Horizon 2020 and as a source of small grants given for the preparation of proposals to be submitted to Horizon 2020**

- **ERC, Marie Curie or collaborative projects that meet the criteria of excellence but cannot be funded due to lack of European funds**

➤ **Downstream from Horizon 2020 the structural funds can finance :**

- **or co-finance the follow up to Horizon 2020 research projects (e.g. pilot scale and demonstration projects);**

- **to valorise research results in such a way as to encourage easy access to knowledge or to facilitate the deployment of the resulting knowledge in terms of its direct economic or societal use**

➤ **Widening participation to all *stakeholders*, including the transparency of processes in Public Private Partnerships and Joint Technology Initiatives**

➤ **Widening participation to SMEs and small research centres**

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> **Increase employment for young scientists**

> **Deployment of rules to facilitate the recruitment of young people in universities**

➤ **Balance between small focused projects and large integrative projects**

➤ ***Sound governance at all levels: at comitology level in the Programme Committees but also at the overall level of a Horizon 2020 Advisory Group*** and coordination with ***stakeholders***

➤ **Strong international cooperation in strategically defined priorities with key international partners,**

- **Funding programme well structured and accessible for all**

- **Efficient and appropriate funding mechanisms**

- **Excellence across all Horizon 2020 and "Stairway to Excellence"**

- **Synergies and complementarities with Structural Funds**

Thank you

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