



Horizon Europe

Le prospettive della Conferenza dei Rettori delle Università Italiane

ROMA, 11 ottobre 2018

Maria Cristina Messa

EU Research and Innovation Strategy

«Opening up to an era of *innovation*»



“It is often said that the future cannot be predicted. It cannot be read in a book. The future is created by purposeful strategies and actions”



«Companies in a digital world are creating market that did not exist before»

*Carlos Moedas, Commissioner for Research, Science and Innovation,
European Commission*

Why an European Framework Programme?

A Commission communication adopted in October 1981 recognised that Europe was 'falling behind its main competitors' and urgently needed 'to make the best use of its financial resources' and proposed to establish a 'true Community strategy' for research. The framework programme (FP) would act as a concertation mechanism and should be revised regularly.



Achieve growth through Innovation

strengthen innovation further, develop new activities and boost the productivity and competitiveness of our economy



Realize European Research Area - ERA

address the 'fragmentation, isolation and compartmentalisation of national research systems' and 'the lack of coordination in the manner in which national and European research policies are implemented'. This concept formed a strong base for a research policy at European level. In this context the FP was to become the main tool to implement this policy



Foster Excellence

boost the European Excellence through a program that funds the best researchers that pursue ground breaking, high-gain/high –risk research



Infrastructure economies of scale

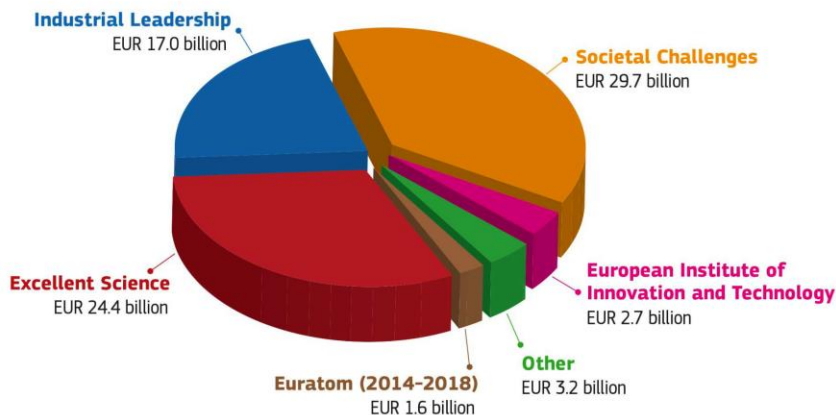
The efficiencies of scale and scope achieved by a European approach to construction, use and management of research infrastructures, including e-infrastructures, will make a significant contribution to boosting Europe's research and innovation potential. It is not only necessary to avoid duplication of efforts and to coordinate and rationalise the use of the facilities, but also to pool resources so that the Union can also acquire and operate research infrastructures at world level.

Horizon 2020 (2014-2020)

FP8 (2014-20) - Horizon 2020: the focus should be on **excellence, competitiveness** and addressing **societal challenges**. The programme should **speed up progress towards a genuinely unified ERA** and remain open to the world. The complementarity between the FP and the cohesion fund was also to be improved.

The **rules of participation were made simpler and common to all parts of the programme**. The budget adopted in 2013 for Horizon 2020 was €77 billion, reduced to €74.8 billion by the adoption of the European Fund for Strategic Investments (2015).

HORIZON 2020 BUDGET (in current prices)



Excellence Science	Industrial Leadership	Societal Challenge
<ul style="list-style-type: none"> ■ European Research Council Frontier research by the best individual teams (ERA) ■ Future and Emerging Technologies Collaborative research to open new fields of innovation ■ Marie Skłodowska Curie Actions Opportunities for training and career development ■ Research Infrastructures (Including e-infrastructure) Ensuring access to world-class facilities 	<p>Leadership in enabling and industrial technologies</p> <ul style="list-style-type: none"> ■ ICT ■ Nanotechnologies materials, biotechnologies, 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 	<ul style="list-style-type: none"> ■ Health, demographic change and wellbeing ■ Food security, sustainable agriculture, marine and maritime research, and the bio-economy ■ Secure, clean and efficient energy ■ Smart, green and integrated transport ■ Climate action, resource efficiency and raw materials ■ Europe in a changing world – inclusive, innovative, reflective societies ■ Secure Societies

Nuovo	European Innovation Council (EIC)
	European Institute of Innovation and Technologies (EIT)
	Spreading Excellence and Widening Participation
	Science with and for society
	Joint Research Center (JRC)
	Euratom



Horizon Europe (2021-2027)



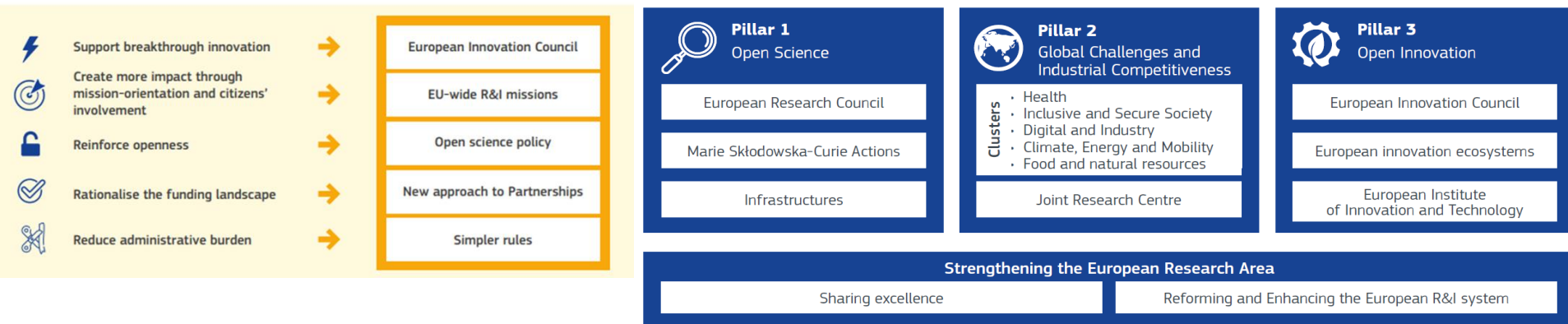
The **Open Science pillar (€25.8 billion)** supports frontier research projects defined and driven by researchers themselves through the European Research Council (€16.6 billion), funds fellowships and exchanges for researchers through Marie Skłodowska-Curie Actions (€6.8 billion), and invests in world-class research infrastructures.



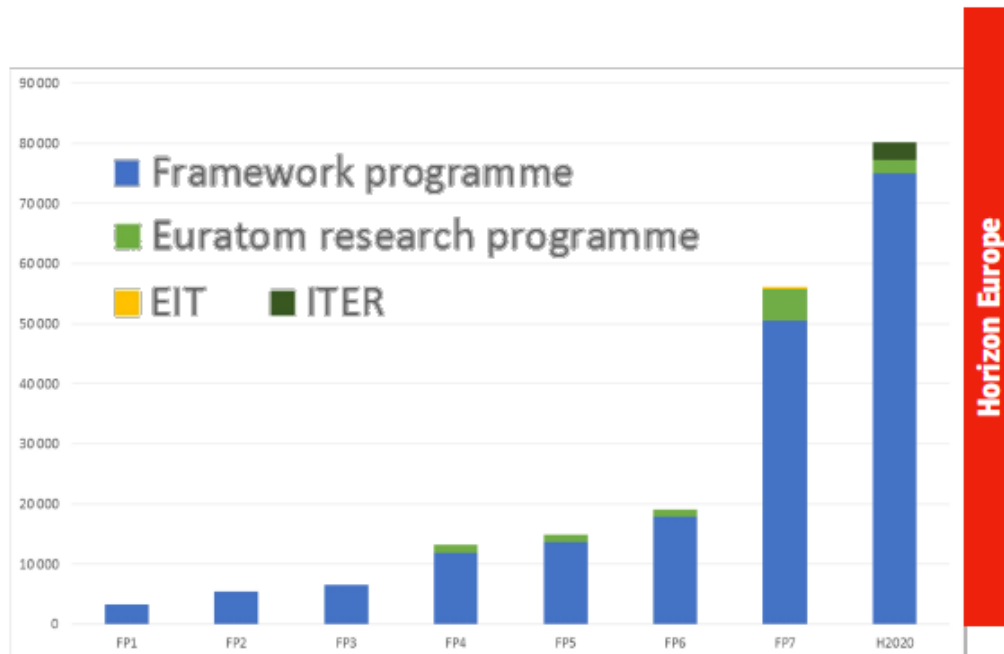
The **Global Challenges and Industrial Competitiveness pillar (€52.7 billion)** directly supports research relating to societal challenges, reinforces technological and industrial capacities, and sets EU-wide missions with ambitious goals tackling some of our biggest problems. It also includes activities pursued by the Joint Research Centre (€2.2 billion) which supports EU and national policymakers with independent scientific evidence and technical support.



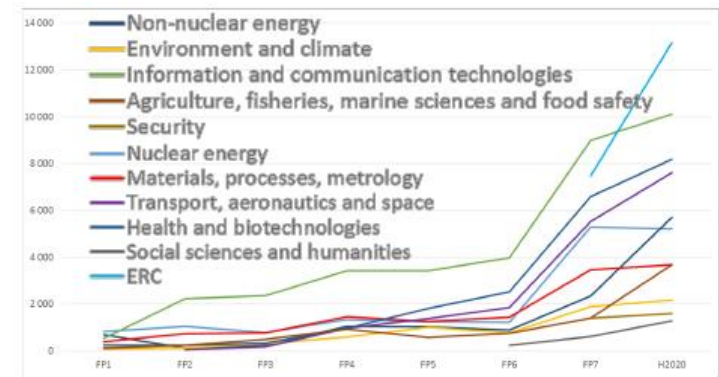
The **Open Innovation pillar (€13.5 billion)** aims to make Europe a frontrunner in market-creating innovation via the European Innovation Council (€10 billion). It will help develop the overall European innovation landscape, including by further strengthening the European Institute of Innovation and Technology (EIT) to foster the integration of business, research, higher education and entrepreneurship (€3 billion).



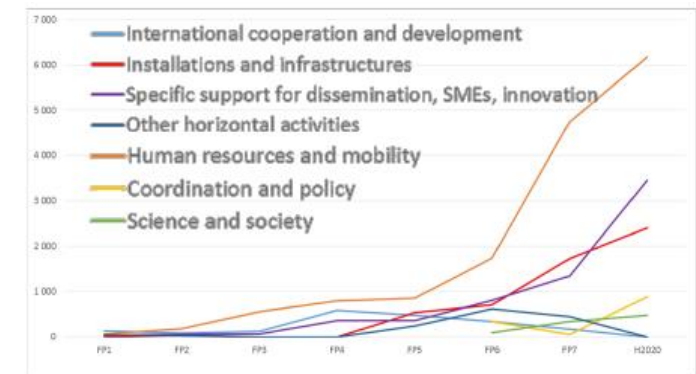
FP rise of the Budget (in million ECU/€)



thematic activities



horizontal activities



Horizon Europe EUA analysis

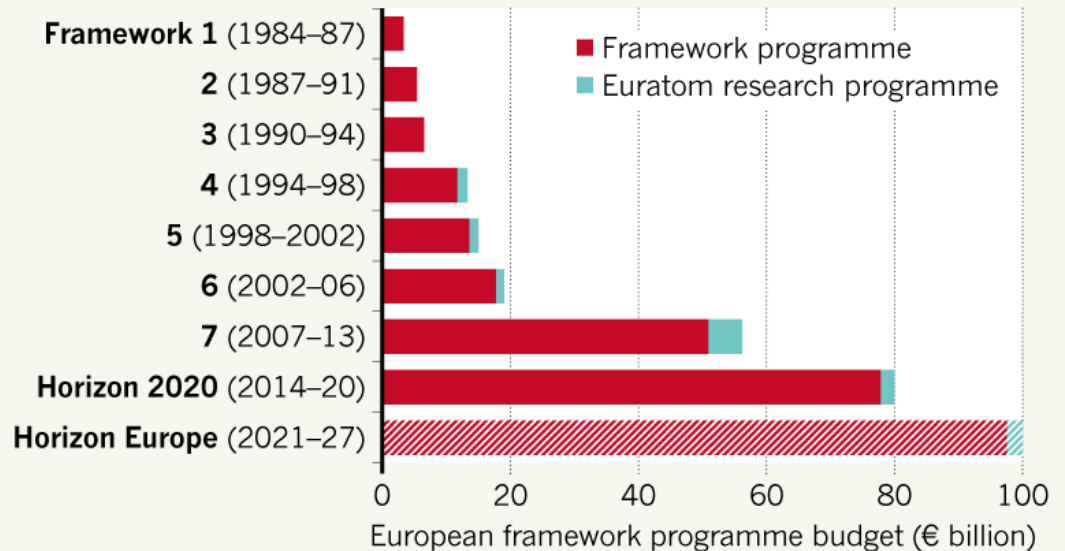
Investing in research and innovation

The proposed increase to **€100 billion** for Horizon Europe is a step in the right direction.

€160 billion is needed to address all components of fundamental science, particularly for the successful European Research Council and for the Marie Skłodowska-Curie Actions which have proven to be crucial in spreading excellence across Europe.

EUROPE'S SCIENCE SPENDING

The European Commission has proposed a €100-billion (US\$120-billion) budget for Horizon Europe, the next instalment of its research-funding programme, which will last from 2021 to 2027.





Universities united for the best HORIZON Europe



- **Increase** the total budget.
- **Review** the budget allocation.
- **Put** the realisation of the European Research Area at the centre of Horizon Europe across all pillars.
- **Foresee** better linkages between research, innovation and education.
- **Include** a human and societal reflection, as well as options for fundamental research, in all clusters and missions.





Italy VISION FP9 key points



European
Research Area

“Italy expects that the ERA priorities will be distinctly echoed in the formulation of the next FP”

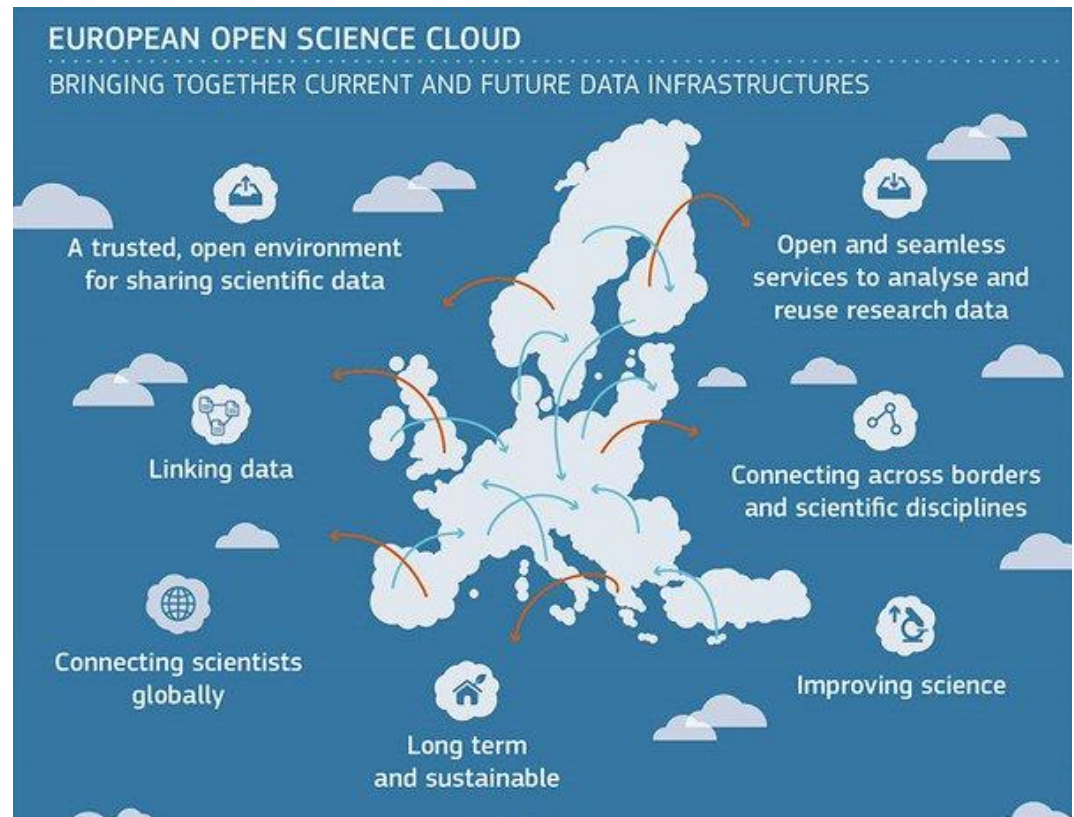
- ↘ **Excellent, enthusiastic and rewarded** human resources for research
- ↘ Changes within a stable architecture ‘**architectural stability**’
- ↘ **Adequate Financial Resources**
- ↘ **Excellent Research, Innovation and Impact**

European Research Area

**An open space
for knowledge and growth**

Italy VISION FP9 EU-level platforms

The **Joint Programming Process (JPP)** has been and remains crucial for providing an operational, concrete meaning to the concept of European Added Value and for progressively streamlining National and European research; **EU-level platforms could favour the operations of the Societal Partnerships**, and look forward to the implementation of a European Open Science Cloud.





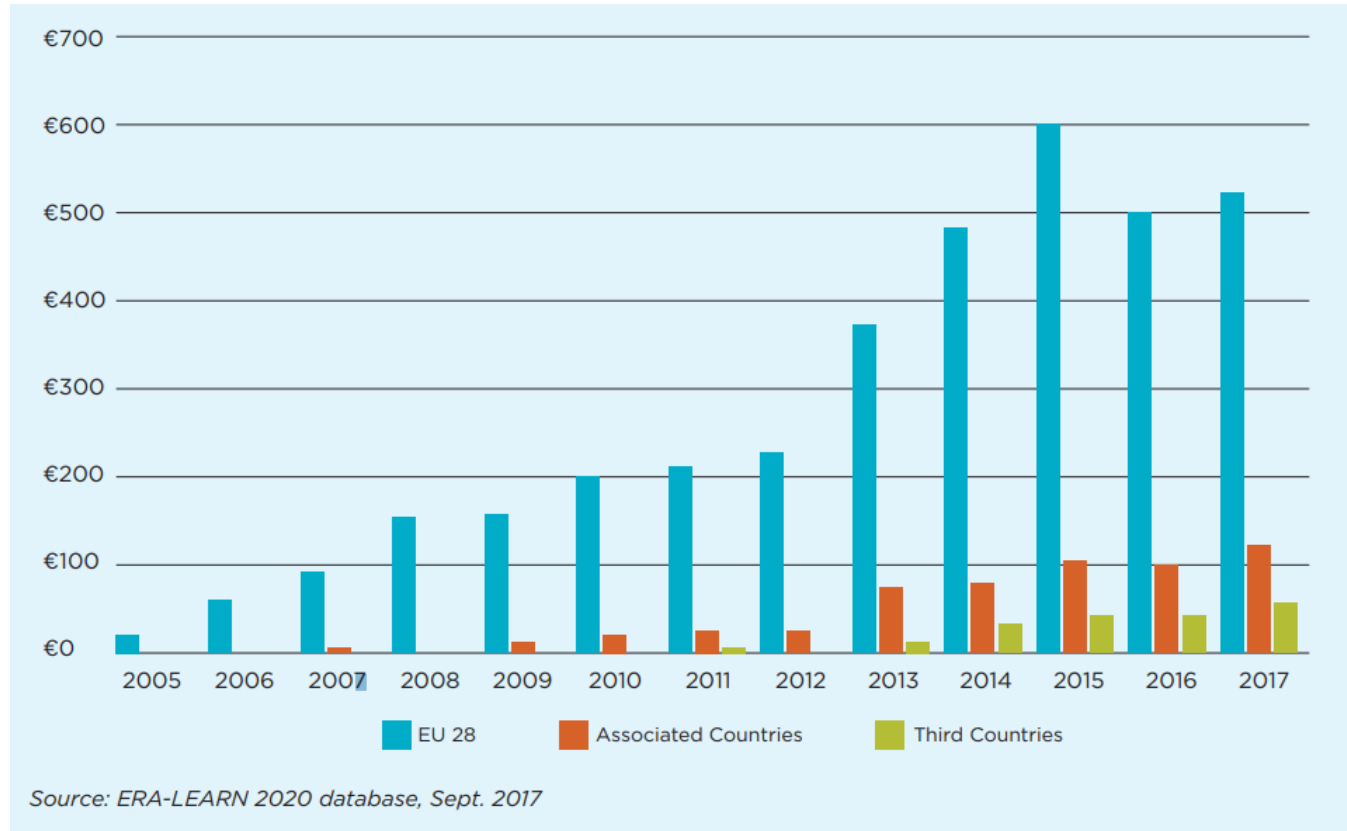
Italy VISION FP9

widening participation and spreading excellence



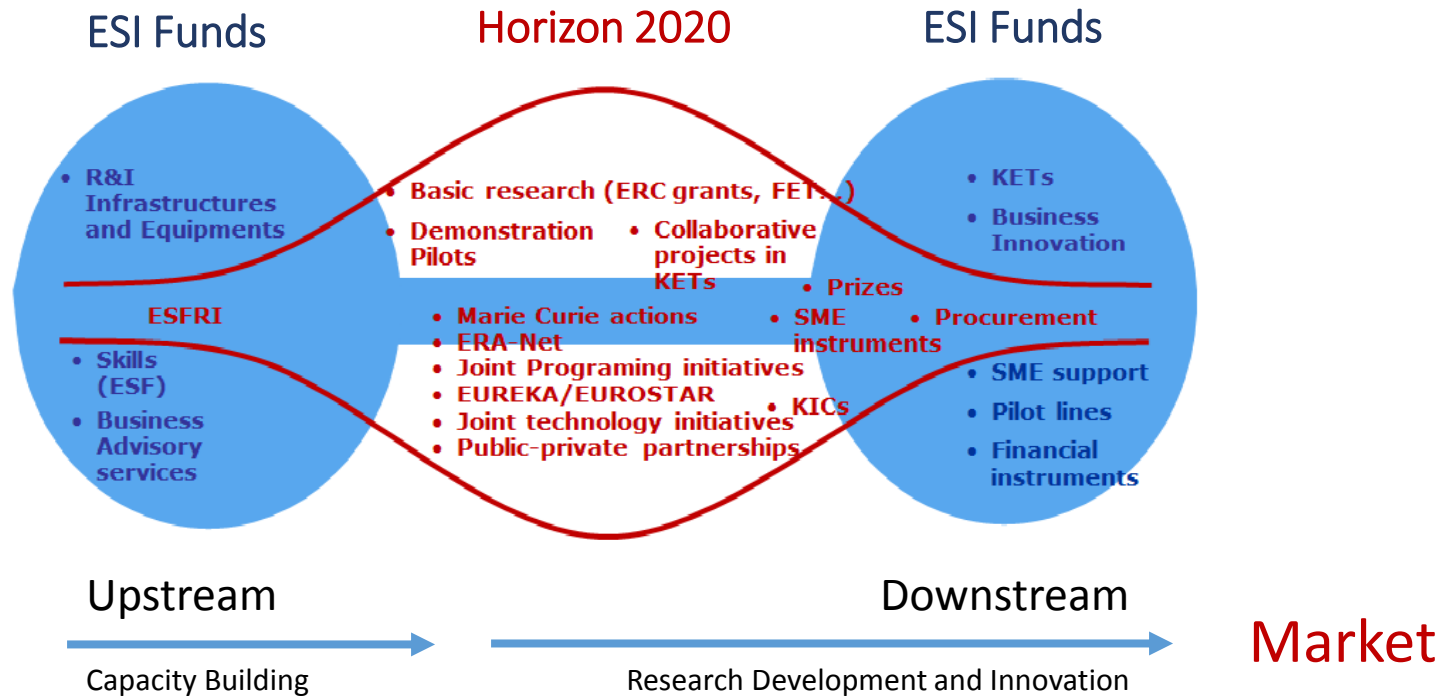
Making the European R&I landscape wider boost of the 'widening participation and spreading excellence' concept in the next FP; *the dimension of the projects/proposals eligible for funding by the FP should encourage application by newcomers.*

In addition to the 28 EU Member States a total of 13 Associated Countries and 50 Third Countries have participated in P2P calls.



Evolution of national investments in P2P calls (€million)

Italy VISION FP9: synergies between ESIF and FP





Synergies and simplification regulations of the next FP and the next ESIF cycle: extreme care should be taken in verifying that the principle can be easily applied by all MS; ‘Seal of Excellence’ concept should be maintained in the next FP; **Italy would favour further simplification steps in terms of procedures**

Italy VISION FP9: attention to the Mediterranean Area

PRIMA

Partnership for
Research and Innovation
in the Mediterranean Area

Partnership funded by Horizon 2020 and participating states
for sustainable food and water management systems

-  Participating States
-  Under Negotiation



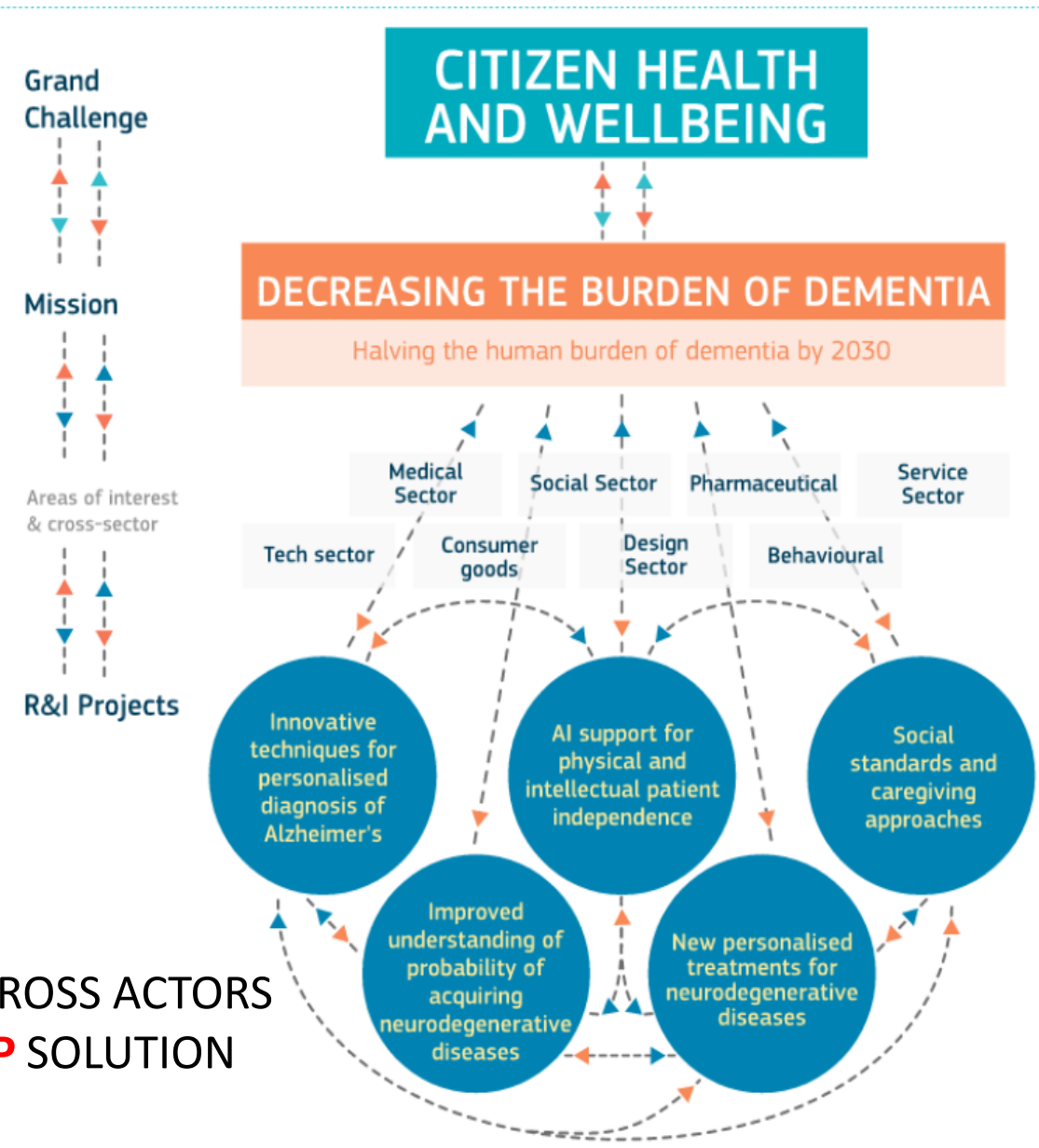
The international dimension special attention devoted to the **Mediterranean Area** and to the **African Continent** in general, for jointly tackling R&I issues related to challenges such as Migrations and, overall, to the achievement of the universally shared Sustainable Development Goals

MISSIONS

Mission-Oriented Research & Innovation in the European Union

A problem-solving approach to fuel innovation-led growth
 by Mariana MAZZUCATO

WIDE **SOCIETAL** RELEVANCE
 CLEAR DIRECTION
 AMBITIOUS BUT REALISTIC (**R&I**)
CROSS DISCIPL, CROSS SECTOR, CROSS ACTORS
 PROMOTE MULTIPLE **BOTTOM-UP** SOLUTION





Position Paper of Italian Universities (CRUI)



- Real breakthroughs with **impact** on our future life can only be reached by financing top fundamental research without looking prevalently at TRL
- **Increasing funding to Universities** and enlarging their participation into research topics definition will enable research with wider societal benefits and stronger interdisciplinary character
- Project calls with **success rates around or below 5%** represent a **quite inefficient process** because of the time spent by researchers for the preparation of unfunded proposals. Moreover, they give rise to important issues on project review processes and on soundness of the evaluation procedures
- **Let a scientist/researcher focus on his expertise and mission**, i.e. performing high quality research. Nowadays, proposals have too many sections and forms that have little to do with the scientific core of the project but often result decisive to be funded

Position Paper



CRUI

converging to national position



Simplify



- ✎ **Structure of the proposals and success rate**
- ✎ Involvement in **Topic definitions**
- ✎ Engagement towards **critical geographic areas**

- ✎ **Simplification**
- ✎ **Research Infrastructures**
- ✎ **Structural Funds** and FP9



CRUI VISION FP9 key points



More investment in fundamental research



European Innovation Council (EIC): recognize universities as central actors in innovation, beside research centers and companies.



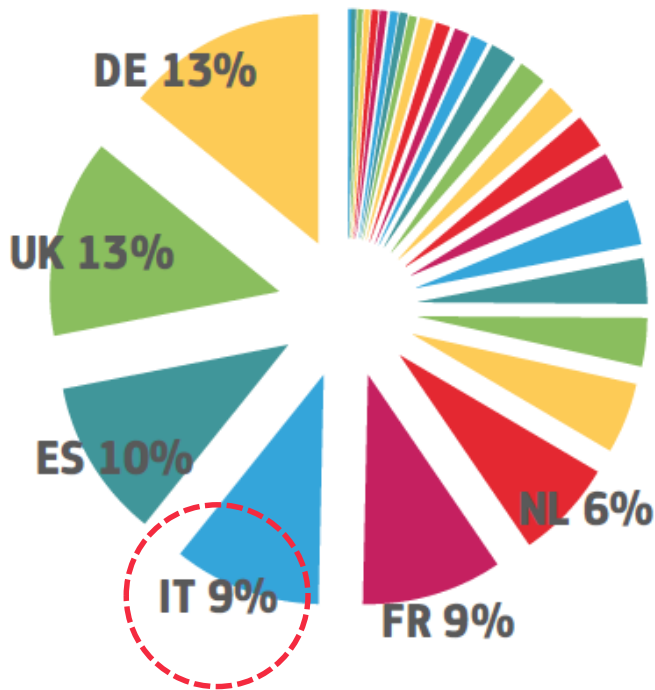
More investment in interdisciplinary research

Meet societal challenges: integrate research and education

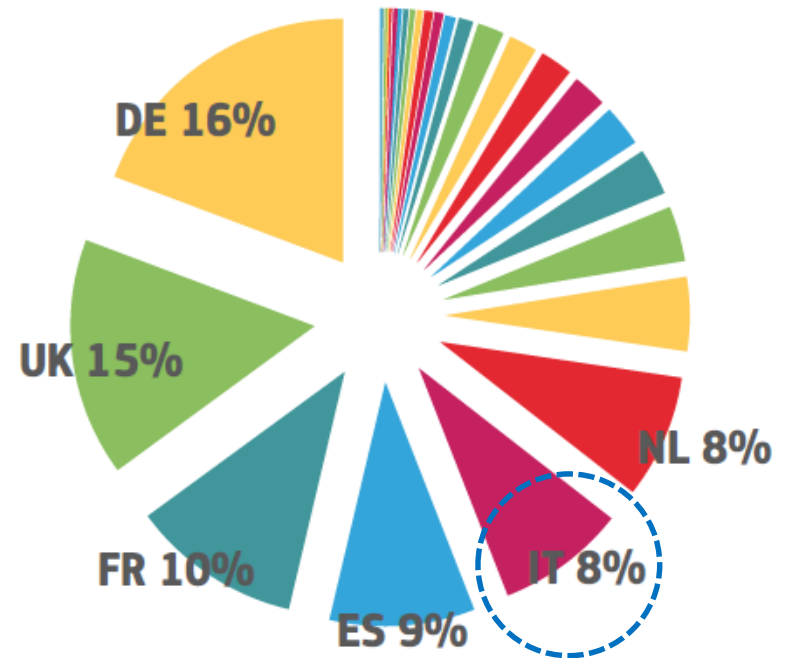


Italy in Horizon 2020

share of project funded (EU28)



share of fundings (EU28)





Italy towards Horizon Europe A NEW CHALLENGE



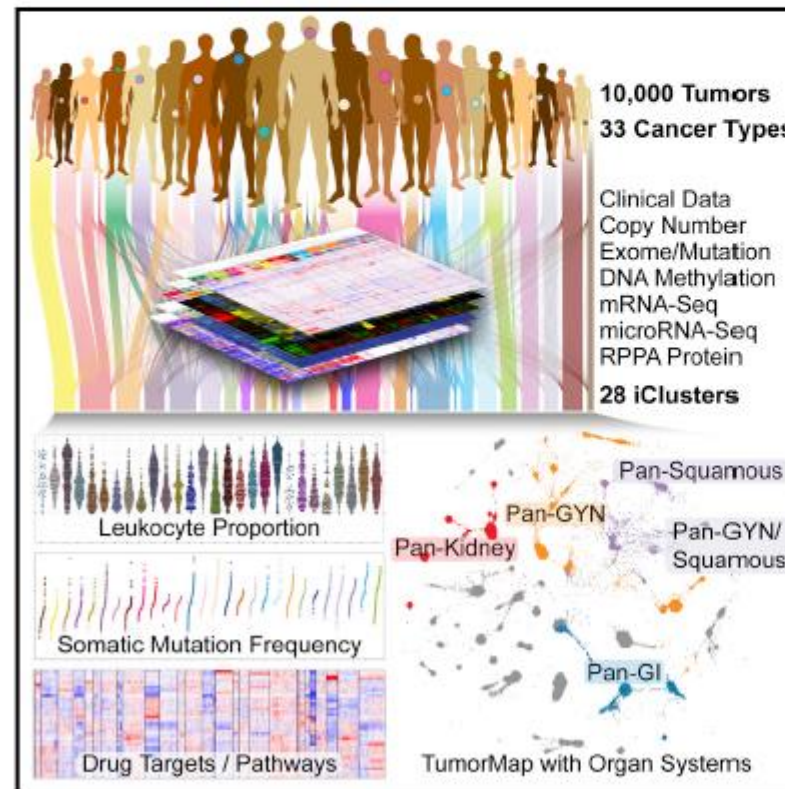
Doubling the **national budget**
for research and innovation

Grazie, Maria Cristina Messa

Cell

Cell-of-Origin Patterns Dominate the Molecular Classification of 10,000 Tumors from 33 Types of Cancer

Graphical Abstract



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In Brief

Comprehensive, integrated molecular analysis identifies molecular relationships across a large diverse set of human cancers, suggesting future directions for exploring clinical actionability in cancer treatment.