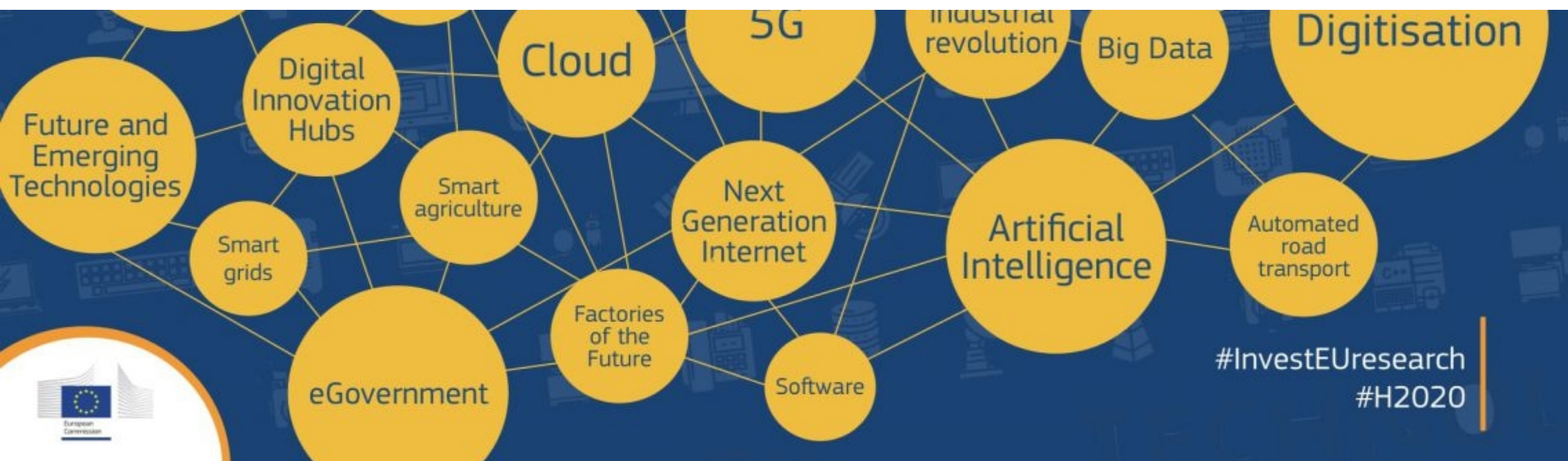




L'area ICT di Horizon 2020



#InvestEUresearch
#H2020

Considerazioni generali

ICT nel programma di lavoro 2018-2020

- Riguarda tutta la catena dell'innovazione, dalla ricerca di base alla commercializzazione:

Contributo dell'ICT alla ricerca "a monte" e all'innovazione → Pilastro "Eccellenze scientifiche", in particolare *future and emerging technologies* (FET) e *European research infrastructures* (eInfrastructures)

R&I su tecnologie ICT generiche → Pilastro "Leadership in Enabling and Industrial Technologies" (LEIT)

R&I multidisciplinari che fanno uso delle ICT per rispondere alle sfide del futuro → Pilastro "Societal Challenges"

Cosa cambia rispetto al passato?

(1/2)

- Struttura del programma di lavoro resta in linea con quelle precedenti di Horizon 2020.
- Qualche novità:

A) European Innovation Council (pilot) che raggruppa diversi schemi di sostegno all'innovazione (*SME Instrument, FTI, FET Open, Horizon Prizes*)

- Approccio **bottom-up** per le attività di sostegno alle PMI innovative raggruppate all'interno dello SME Instrument;
- FET Open combinerà ambizioni scientifiche di alto livello con implicazioni tecnologie concrete.

Cosa cambia rispetto al passato?

(2/2)

B) Focus areas → numero ristretto di grandi azioni che superano i confini dei sottoprogrammi specifici → allineamento bandi e sinergie con progetti in corso

- costruire un futuro a bassa emissione di CO₂ e resistente ai cambiamenti climatici → 3,35 miliardi €
- economia circolare → 980 milioni €
- digitalizzazione e trasformazione dell'industria e dei servizi europei → 1,68 miliardi €
- sicurezza e cybersecurity → 1,08 miliardi €

Bandi ICT in Horizon 2020

ICT in “Excellent science”

(1/2)

Tecnologie del futuro e emergenti (FET)

- FET Open → 40% di tutto il budget FET di Horizon, bottom-up, parte del pilota European Innovation Council nel WP2018-20
- FET Proactive → sostegno alle tecnologie emergenti. Due bandi: High Performance Computing e Boosting emerging technologies
- FET flagships → si aggiunge una terza su Quantum Technologies

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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Excellent Science

Future and Emerging Technologies (FET)

FET Open: novel ideas for radically new technologies

FETOPEN-01-2018-2019-2020	FET-Open Challenging Current Thinking	181.2 162.8 361.0	07/11/17	16/05/18	24/01/19 18/09/19 13/05/20
FETOPEN-02-2018	FET-Open Coordination and Support Actions	2.0	07/11/17	11/04/18	
FETOPEN-03-2018-2019-2020	FET Innovation Launchpad	2.5 2.7 3.0	07/11/17	16/10/18	08/10/19 14/10/20

FET Proactive - Boosting emerging technologies

FETPROACT-01-2018	FET Proactive: emerging paradigms and communities	88.0	31/10/17	22/03/18	
FETPROACT-02-2018	Community building in Neuromorphic Computing Technologies	0.5	31/10/17	22/03/18	
FETPROACT-03-2018	FET ERA-NET Cofund	6.0	05/06/18	18/12/18	

FET Proactive - High Performance Computing

FETHPC-01-2016	International Cooperation on HPC	4.0	01/02/18	15/05/18	
FETHPC-02-2017	Extreme scale computing technologies, methods and algorithms for key applications and support to the HPC ecosystem	68.0	07/05/19		24/09/19

FET Flagships - Tackling grand interdisciplinary science and technology challenges

FETFLAG-01-2018	Preparatory Actions for new FET Flagships	6.0	31/10/17	20/02/18 18/09/18	
FETFLAG-02-2018	ERA-NET Cofund for FET Flagships	10.0	31/10/17	17/04/18	
FETFLAG-03-2018	FET Flagship on Quantum Technologies	132.0	31/10/17	20/02/18	

ICT in “Excellent science”

(2/2)

Infrastrutture di ricerca (FET)

- realizzare lo European Open Science Cloud
- integrazione e apertura tra le infrastrutture di ricerca di interesse europeo
- infrastruttura dei dati europea → HPC
- dalla scienza aperta all’innovazione aperta

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
Research Infrastructures					
Implementing the European Open Science Cloud					
INFRAEOSC-01-2018	European Open Science Cloud for Research	12.0	05/12/17	22/03/18	
INFRAEOSC-02-2019	Prototyping new innovative services	28.5	16/10/18		29/01/19
INFRAEOSC-04-2018	Connecting ESFRI infrastructures through Cluster projects	95.0	05/12/17	22/03/18	
INFRAEOSC-05-2018-2019	Support to the EOSC Governance	50.0	10/01/18 26/07/18	19/04/18 21/11/18	
INFRAEOSC-06-2019-2020	Enhancing the EOSC portal and connecting thematic clouds	2.0	14/11/18		20/03/19
Integrating and opening research infrastructures of European interest					
INFRAIA-01-2018-2019	Integrating Activities for Advanced Communities	101.5 125.0	05/12/17 14/11/18	22/03/18	20/03/19
European Data Infrastructure					
INFRAEDI-01-2018	Pan-European High Performance Computing infrastructure and services (PRACE)	24.0	05/12/17	22/03/18	
INFRAEDI-02-2018	HPC PPP - Centres of Excellence on HPC	74.0	05/12/17	22/03/18	
INFRAEDI-03-2018	Support to the governance of High Performance Computing Infrastructures	0.9	05/12/17	22/03/18	
Demonstrating the role of Research Infrastructures in the translation of Open Science into Open Innovation					
INFRAINNOV-01-2019	Stimulate the innovation potential of SMEs	8.0	16/10/18		29/01/19
INFRAINNOV-02-2019	Network of research infrastructure Industrial Liaison and Contact Officers	1.5	14/11/18		20/03/19

ICT in “Leadership in Enabling and Industrial Technologies – LEIT”

- Parti dedicate a ICT sono state riviste e allineate alle priorità nel campo del digitale:

Digitalizzazione dell'industria europea e dei servizi

Infrastruttura dei dati europea

5G

Next Generation Internet

Cybersecurity

- tre bandi previsti dal WP2018-20:

ICT

Digitalizzazione del comparto industriale europeo

cybersecurity

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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Industrial Leadership

LEIT - Information and Communication Technologies

Information and Communication Technologies

Technologies for Digitising European Industry

ICT-01-2019	Computing technologies and engineering methods for cyber-physical systems of systems	40.0	16/10/18		28/03/19
ICT-02-2018	Flexible and Wearable Electronics	30.0	31/10/17	17/04/18	
ICT-03-2018-2019	Photonics Manufacturing Pilot Lines for Photonic Components and Devices	30.0	31/10/17	17/04/18	28/03/19
		30.0	16/10/18		
ICT-04-2018	Photonics based manufacturing, access to photonics, datacom photonics and connected lighting	55.0	31/10/17	17/04/18	
ICT-05-2019	Application driven Photonics components	76.5	16/10/18		28/03/19
ICT-06-2019	Unconventional Nanoelectronics	30.0	16/10/18		28/03/19
ICT-07-2018	Electronic Smart Systems (ESS)	48.0	31/10/17	17/04/18	
ICT-08-2019	Security and resilience for collaborative manufacturing environments	11.0	16/10/18		28/03/19
ICT-09-2019-2020	Robotics in Application Areas	50.0	16/10/18		28/03/19
ICT-10-2019-2020	Robotics Core Technology	42.0	16/10/18		28/03/19

European Data Infrastructure: HPC, Big Data and Cloud technologies

ICT-11-2018-2019	HPC and Big Data enabled Large-scale Test-beds and Applications	50.0	31/10/17	17/04/18	
		40.0	26/07/18	14/11/18	
ICT-12-2018-2020	Big Data technologies and extreme-scale analytics	31.0	31/10/17	17/04/18	
ICT-13-2018-2019	Supporting the emergence of data markets and the data economy	13.0	31/10/17	17/04/18	28/03/19
		48.0	16/10/18		
ICT-14-2019	Co-designing Extreme Scale Demonstrators (EsD)	80.0	26/07/18	14/11/18	
ICT-15-2019-2020	Cloud Computing	30.0	16/10/18		28/03/19
ICT-16-2018	Software Technologies	20.0	31/10/17	17/04/18	

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
5G					
ICT-17-2018	5G End to End Facility	60.0	31/10/17	31/01/18	
ICT-18-2018	5G for cooperative, connected and automated mobility (CCAM)	50.0	31/10/17	17/04/18	
ICT-19-2019	Advanced 5G validation trials across multiple vertical industries	92.0	26/07/18	14/11/18	
ICT-20-2019-2020	5G Long Term Evolution	44.0	16/10/18		28/03/19
ICT-21-2018	EU-US Collaboration for advanced wireless platforms	2.0	31/10/17	17/04/18	
ICT-22-2018	EU-China 5G Collaboration	6.0	31/10/17	31/01/18	
ICT-23-2019	EU-Taiwan 5G collaboration	4.0	05/09/18		15/01/19
Next Generation Internet (NGI)					
ICT-24-2018-2019	Next Generation Internet - An Open Internet Initiative	28.5	31/10/17	17/04/18	28/03/19
		21.5	16/10/18		
ICT-25-2018-2020	Interactive Technologies	3.0	31/10/17	17/04/18	
		20.0	26/07/18	14/11/18	
ICT-26-2018-2020	Artificial Intelligence	20.0	31/10/17	17/04/18	
ICT-27-2018-2020	Internet of Things	1.5	31/10/17	17/04/18	
ICT-28-2018	Future Hyper-connected Sociality	21.0	31/10/17	17/04/18	
ICT-29-2018	A multilingual Next Generation Internet	25.0	31/10/17	17/04/18	
ICT-30-2019-2020	An empowering, inclusive Next Generation Internet	8.0	16/10/18		28/03/19
ICT-31-2018-2019	EU-US collaboration on NGI	2.5	31/10/17	17/04/18	28/03/19
		3.5	16/10/18		
Cross-cutting activities					
ICT-32-2018	STARTS - The Arts stimulating innovation	9.0	31/10/17	17/04/18	
ICT-33-2019	Startup Europe for Growth and Innovation Radar	11.5	16/10/18		28/03/19
ICT-34-2018-2019	Pre-Commercial Procurement open	6.0	31/10/17	17/04/18	28/03/19
		6.0	16/10/18		
ICT-35-2018	Fintech: Support to experimentation frameworks and regulatory compliance	2.5	31/10/17	17/04/18	

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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Digitising and transforming European industry and services: digital innovation hubs and platforms

Support to Hubs

DT-ICT-01-2019	Smart Anything Everywhere	49.0	16/10/18		02/04/19
DT-ICT-02-2018	Robotics - Digital Innovation Hubs (DIH)	66.0	31/10/18	17/04/18	
DT-ICT-03-2020	I4MS (phase 4) - uptake of digital game changers and digital manufacturing platforms				
DT-ICT-04-2020	Photonics Innovation Hubs				
DT-ICT-05-2020	Big Data Innovation Hubs				
DT-ICT-06-2018	Coordination and Support Activities for Digital Innovation Hub network	1.0	31/10/18	17/04/18	

Platforms and Pilots

DT-ICT-07-2018-2019	Digital Manufacturing Platforms for Connected Smart Factories	48.0 47.0	31/10/18 16/10/18	17/04/18	02/04/19
DT-ICT-08-2019	Agricultural digital integration platforms	30.0	26/07/18	14/11/18	
DT-ICT-09-2020	Digital service platforms for rural economies				
DT-ICT-10-2018-19	Interoperable and smart homes and grids	30.0	26/07/18	14/11/18	
DT-ICT-11-2019	Big data solutions for energy	30.0	16/10/18		02/04/19
DT-ICT-12-2020	The smart hospital of the future				
DT-ICT-13-2019	Digital Platforms/Pilots Horizontal Activities	4.0	26/07/18	14/11/18	

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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Cybersecurity

SU-ICT-01-2018	Dynamic countering of cyber-attacks	40.0	15/03/18	28/08/18	
SU-ICT-02-2020	Building blocks for resilience in evolving ICT systems	47.0	25/07/19		19/11/19
SU-ICT-03-2020	Advanced cybersecurity and digital privacy technologies				
SU-ICT-04-2019	Quantum Key Distribution testbed	15.0	15/03/18	28/08/18	

ICT nel *pilot* European Innovation Council

Strumento per le PMI

- completamente bottom-up
- bando aperto con 4 scadenze all'anno

Fast Track to Innovation (FTI)

- completamente bottom-up, aperto a tutti i tipi di partecipanti
- promuove le attività innovative close-to-market

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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European Innovation Council (EIC) Pilot

SME Instrument

EIC-SMEInst-2018-2020	SME instrument	<p><i>Year 2018:</i> 479.7</p> <p><i>Year 2019:</i> 552.2</p> <p><i>Year 2020:</i> 601.0</p>	07/11/17	<p>Phase 1: 08/02/18 03/05/18 05/09/18 07/11/18</p> <p>Phase 2: 10/01/18 14/03/18 23/05/18 10/10/18</p>	<p>Phase 1: 13/02/19 07/05/19 05/09/19 06/11/19</p> <p>Phase 2: 09/01/19 03/04/19 05/06/19 09/10/19</p>
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Fast Track to Innovation (FTI)

EIC-FTI-2018-2020	Fast Track to Innovation (FTI)	100 <i>per year</i>	07/11/17	21/02/18 31/05/18 23/10/18	21/02/19 23/05/19 22/10/19
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ICT in “Societal challenges”

Apporto dal mondo ICT atteso in 7 sfide per la società

- SC1: Salute, cambio demografico e benessere
- SC2: Sicurezza alimentare, agricoltura sostenibile, bioeconomia
- SC3: Energia sicura, pulita ed efficiente
- SC4: Trasporti intelligenti, “verdi” e integrati
- SC5: Clima, ambiente, uso efficiente delle risorse
- SC6: L’Europa in un mondo che cambia
- SC7: Società sicure

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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Societal Challenges

Health, demographic change and wellbeing

Better Health and care, economic growth and sustainable health systems

Personalised medicine

SC1-BHC-05-2018	International flagship collaboration with Canada for human data storage, integration and sharing to enable personalised medicine approaches	40.0	07/11/17	18/04/18	
SC1-HCO-01-2018-2019-2020	Actions in support of the International Consortium for Personalised Medicine	8.0 4.0	07/11/17 26/07/18	18/04/18	16/04/19
SC1-HCO-02-2018	Data integration and data-driven in-silico models for enabling personalised medicine - a European standardization framework	2.0	07/11/17	18/04/18	

Infectious diseases and improving global health

SC1-BHC-13-2019	Mining big data for early detection of infectious disease threats driven by climate change and other factors	30.0	26/07/18		16/04/19
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Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
Digital transformation in Health and Care					
SC1-DTH-01-2019	Big data and Artificial Intelligence for monitoring health status and quality of life after the cancer treatment	35.0	16/10/18		24/04/19
SC1-DTH-03-2018	Adaptive smart working and living environments supporting active and healthy ageing	25.0	07/11/17	24/04/18	
SC1-DTH-05-2019	Large scale implementation of digital innovation for health and care in an ageing society	10.0	16/10/18		24/04/19
SC1-DTH-07-2018	Exploiting the full potential of in-silico medicine research for personalised diagnostics and therapies in cloud-based environments	35.0	07/11/17	24/04/18	
SC1-DTH-08-2018	Prototyping a European interoperable Electronic Health Record (EHR) exchange	30.0	07/11/17	24/04/18	
SC1-DTH-09-2019	Scaling up the univocal Identification of Medicinal Products	19.0	16/10/18		24/04/19
SC1-DTH-10-2019-2020	Digital health and care services	22.0	26/07/18	14/11/18	
SC1-DTH-11-2019	Large Scale pilots of personalised & outcome based integrated care	20.0	16/10/18		24/04/19
SC1-HCC-01-2018	Supporting investment in smart living environments for ageing well through certification	1.0	07/11/17	24/04/18	
SC1-HCC-02-2019	Support for the large scale uptake of open service platforms in the Active and Healthy Ageing domain	1.5	16/10/18		24/04/19
SC1-HCC-03-2018	Support to further development of international cooperation in digital transformation of health and care	2.0	07/11/17	24/04/18	
SC1-HCC-04-2018	Digital health and care services – support for strategy and (early) adoption	3.0	07/11/17	24/04/18	
SC1-HCC-05-2018	Support to a Digital Health and Care Innovation initiative in the context of Digital Single Market strategy	4.0	07/11/17	24/04/18	

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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Trusted digital solutions and Cybersecurity in Health and Care					
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Focus Area on Digitising and transforming European industry and services					
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DT-TDS-01-2019	Smart and healthy living at home	60.0	26/07/18	14/11/18	
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Focus Area on Boosting the effectiveness of the Security Union					
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SU-TDS-02-2018	Toolkit for assessing and reducing cyber risks in hospitals and care centres to protect privacy/data/infrastructures	35.0	07/11/17	24/04/18	
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SU-TDS-03-2018	Raising awareness and developing training schemes on cybersecurity in hospitals	1.0	07/11/17	24/04/18	
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Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy					
Sustainable Food Security					
From functional ecosystems to healthy food					
DT-SFS-14-2018	Personalized Nutrition	28.0	31/10/17	13/02/18	
Building capacities					
DT-SFS-26-2019	Food Cloud demonstrators	10.0	16/10/18		23/01/19
SFS-31-2019	ERANETs in agri-food	21.0	16/10/18		23/01/19
Blue Growth					
BG-02-2018	Blue Bioeconomy Public-Public Partnership	8.0	31/10/17	13/02/18	
DT-BG-04-2018-2019	Sustainable European aquaculture 4.0: nutrition and breeding	6.0	16/10/18		23/01/19
Rural Renaissance					
From farm to society: understanding dynamics and modernising policies					
RUR-02-2018	Socio-economic impacts of digitisation of agriculture and rural areas	5.0	31/10/17	13/02/18 11/09/18	
Taking advantage of the digital revolution					
DT-RUR-12-2018	ICT Innovation for agriculture – Digital Innovation Hubs for Agriculture	20.0	31/10/17	13/02/18	
RUR-13-2018	Enabling the farm advisor community to prepare farmers for the digital age	7.0	31/10/17	13/02/18	
RUR-14-2018	Digital solutions and e-tools to modernise the CAP	10.0	31/10/17	13/02/18	

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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Secure, Clean and Efficient Energy

Building a low-carbon, climate resilient future: secure, clean and efficient energy

Energy efficiency

LC-SC3-EE-4-2019-2020	Upgrading smartness of existing buildings through innovations for legacy equipment	10.0	24/01/19		03/09/19
LC-SC3-EE-13-2018-2019-2020	Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side as energy resource	4.0 8.0	25/01/18 24/01/19	04/09/18	03/09/19

Smart and clean energy for consumers

LC-SC3-EC-1-2018-2019-2020	The role of consumers in changing the market through informed decision and collective actions	5.0 5.0	25/01/18 24/01/19	04/09/18	03/09/19
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Smart citizen-centred energy system

LC-SC3-ES-1-2019	Flexibility and retail market options for the distribution grid	37.3	05/09/18		05/02/19
LC-SC3-ES-2-2019	Solutions for increased regional cross-border cooperation in the transmission grid	25.0	05/09/18		05/02/19
LC-SC3-ES-3-2018-2020	Integrated local energy systems (Energy islands)	26.3	05/12/17	05/04/18	
LC-SC3-ES-4-2018-2020	Decarbonising energy systems of geographical Islands	19.0	05/12/17	05/04/18	
LC-SC3-ES-5-2018-2020	TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale (RES) generation	30.0	05/12/17	05/04/18	
LC-SC3-ES-6-2019	Research on advanced tools and technological development	25.3	05/09/18		05/02/19

Smart Cities and Communities

LC-SC3-SCC-1-2018-2019-2020	Smart Cities and Communities	43.0 73.0	05/12/17	05/04/18	05/02/19
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Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
Smart, green and integrated transport					
Mobility for growth					
Safe, integrated and resilient transport systems					
MG-2-6-2019	Moving freight by Water: Sustainable Infrastructure and Innovative Vessels	30.0	05/09/18		16/01/19 12/09/19
MG-2-7-2019	Safety in an evolving road mobility environment	8.0	05/09/18		16/01/19 12/09/19
Global leadership and competitiveness					
MG-3-1-2018	Multidisciplinary and collaborative aircraft design tools and processes	12.0	31/10/17	30/01/18 19/09/18	
MG-3-2-2018	The Autonomous Ship	20.0	31/10/17	30/01/18 19/09/18	
Accounting for the people					
MG-4-5-2019	An inclusive digitally interconnected transport system meeting citizens' needs	7.0	04/09/18		24/04/19
Blue growth					
MG-BG-01-2018	Unmanned and autonomous survey activities at sea	8.0	31/10/17	04/04/18	
Digitising and Transforming European Industry and Services: Automated Road Transport					
DT-ART-01-2018	Testing, validation and certification procedures for highly automated driving functions under various traffic scenarios based on pilot test data	6.0	31/10/17	04/04/18	
DT-ART-02-2018	Support for networking activities and impact assessment for road automation	9.0	31/10/17	04/04/18	
DT-ART-03-2019	Human centred design for the new driver role in highly automated vehicles	8.0	04/12/18		24/04/19
DT-ART-04-2019	Developing and testing shared, connected and cooperative automated vehicle fleets in urban areas for the mobility of all	30.0	04/12/18		24/04/19
Building a low-carbon, climate resilient future: Green Vehicles					
LC-GV-01-2018	Integrated, brand-independent architectures, components and systems for next generation electrified vehicles optimised for the infrastructure	42.0	31/10/17	04/04/18	
LC-GV-02-2018	Virtual product development and production of all types of electrified vehicles and components	14.0	31/10/17	04/04/18	
LC-GV-04-2019	Low-emissions propulsion for long-distance trucks and coaches	25.0	04/12/18		24/04/19

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
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Climate action, environment, resource efficiency and raw materials

Greening the economy in line with the Sustainable Development Goals (SDGs)

Connecting economic and environmental gains - the circular economy

CE-SC5-03-2018	Demonstrating systemic urban development for circular and regenerative cities	39.0	07/11/17	27/02/18 04/09/18	
CE-SC5-04-2019	Building a water-smart economy and society	72.0	14/11/18		19/02/19 04/09/19

Raw materials

SC5-09-2018-2019	New solutions for the sustainable production of raw materials	20.0	07/11/17	27/02/18 04/09/18	19/02/19 04/09/19
		30.0	14/11/18		
SC5-10-2019-2020	Raw materials innovation actions: exploration and Earth observation in support of sustainable mining	20.0	14/11/18		19/02/19 04/09/19

Water for our environment, economy and society

SC5-11-2018	Digital solutions for water: linking the physical and digital world for water solutions	14.0	07/11/17	27/02/18 04/09/18	
SC5-12-2018	EU-India water co-operation	15.0	07/11/17	27/02/18	

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
Europe in a changing world – inclusive, innovative and reflective Societies					
Migration					
DT-MIGRATION-06-2018-2019	Addressing the challenge of migrant integration through ICT-enabled solutions	12.0 8.0	07/11/17 06/11/18	13/03/18	14/03/19
Socioeconomic and cultural transformations in the context of the fourth industrial revolution					
TRANSFORMATIONS-01-2018	Research for inclusive growth: addressing the socioeconomic effects of technological transformations	9.0	07/11/17	13/03/18	
DT-TRANSFORMATIONS-02-2018-2019-2020	Transformative impact of disruptive technologies in public services	9.0 7.0	07/11/17 06/11/18	13/03/18	14/03/19
TRANSFORMATIONS-03-2018-2019	Innovative solutions for inclusive and sustainable urban environments	1.5 6.0	07/11/17 06/11/18	13/03/18	14/03/19
DT-TRANSFORMATIONS-07-2019	The impact of technological transformations on children and youth	10.5	06/11/18		14/03/19
DT-TRANSFORMATIONS-11-2019	Collaborative approaches to cultural heritage for social cohesion	12.0	06/11/18		14/03/19
DT-TRANSFORMATIONS-12-2018-2020	Curation of digital assets and advanced digitisation	10.0	07/11/17	13/03/18	
TRANSFORMATIONS-13-2019	Using big data approaches in research and innovation policy making	1.9	06/11/18		14/03/19
Governance for the future					
DT-GOVERNANCE-05-2018-2019-2020	New forms of delivering public goods and inclusive public services	1.5 8.0	07/11/17 06/11/18	13/03/18	14/03/19
DT-GOVERNANCE-12-2019-2020	Pilot on using the European cloud infrastructure for public administrations	8.0	06/11/18		14/03/19
DT-GOVERNANCE-13-2019	Digitisation, Digital Single Market and European culture: new challenges for creativity, intellectual property rights and copyright	9.0	06/11/18		14/03/19

Topic ID	Topic title	Budget (M€)	Opening	Deadline 2018	Deadline 2019 - 20
Secure societies – Protecting freedom and security of Europe and its citizens					
Protecting the infrastructure of Europe and the people in the European smart cities					
SU-INFRA01-2018-2019-2020	Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe	24.0 22.0	15/03/18 14/03/19	23/08/18	22/08/19
SU-INFRA02-2019	Security for smart and safe cities, including for public space	16.0	14/03/19		22/08/19
Security					
Disaster-Resilient Societies					
SU-DRS02-2018-2019-2020	Technologies for first responders	28.0 21.0	15/03/18 14/03/19	23/08/18	22/08/19
Fight against Crime and Terrorism					
SU-FCT02-2018-2019-2020	Technologies to enhance the fight against crime and terrorism	21.0 28.1	15/03/18 14/03/19	23/08/18	22/08/19
SU-FCT03-2018-2019-2020	Information and data stream management to fight against (cyber)crime and terrorism	8.0 8.0	15/03/18 14/03/19	23/08/18	22/08/19
Border and External Security					
SU-BES02-2018-2019-2020	Technologies to enhance border and external security	21.0 21.0	15/03/18 14/03/19	23/08/18	22/08/19
SU-BES03-2018-2019-2020	Demonstration of applied solutions to enhance border and external security	10.0 10.0	15/03/18 14/03/19	23/08/18	22/08/19
Digital security					
Cybersecurity, Digital Privacy and data protection					
SU-DS01-2018	Cybersecurity preparedness - cyber range, simulation and economics	16.0	15/03/18	23/08/18	
SU-DS03-2019-2020	Digital Security and privacy for citizens and Small and Medium Enterprises and Micro Enterprises	18.0	14/03/19		22/08/19
SU-DS04-2018-2020	Cybersecurity in the Electrical Power and Energy System (EPES): an armour against cyber and privacy attacks and data breaches	20.0	15/03/18	23/08/18	
SU-DS05-2018-2019	Digital security, privacy, data protection and accountability in critical sectors	8.5 20.0	15/03/18 14/03/19	23/08/18	22/08/19

Informazioni e come partecipare

- Sito ufficiale della Commissione europea

<https://ec.europa.eu/programmes/horizon2020/en>

- Punti di contatto nazionali → APRE

www.apre.it

Commission proposal for
Horizon Europe

THE NEXT EU RESEARCH & INNOVATION
PROGRAMME (2021 – 2027)

#HorizonEU





NEW STRUCTURE OF THE EU BUDGET

In billion euro, current prices



I. SINGLE MARKET, INNOVATION AND DIGITAL

€187.4

- 1 Research and Innovation
- 2 European Strategic Investments
- 3 Single Market
- 4 Space



II. COHESION AND VALUES

€442.4

- 5 Regional Development and Cohesion
- 6 Economic and Monetary Union
- 7 Investing in People, Social Cohesion and Values



III. NATURAL RESOURCES AND ENVIRONMENT

€378.9

- 8 Agriculture and Maritime Policy
- 9 Environment and Climate Action



IV. MIGRATION AND BORDER MANAGEMENT

€34.9

- 10 Migration
- 11 Border Management



V. SECURITY AND DEFENCE

€27.5

- 12 Security
- 13 Defence
- 14 Crisis Response



VI. NEIGHBOURHOOD AND THE WORLD

€123

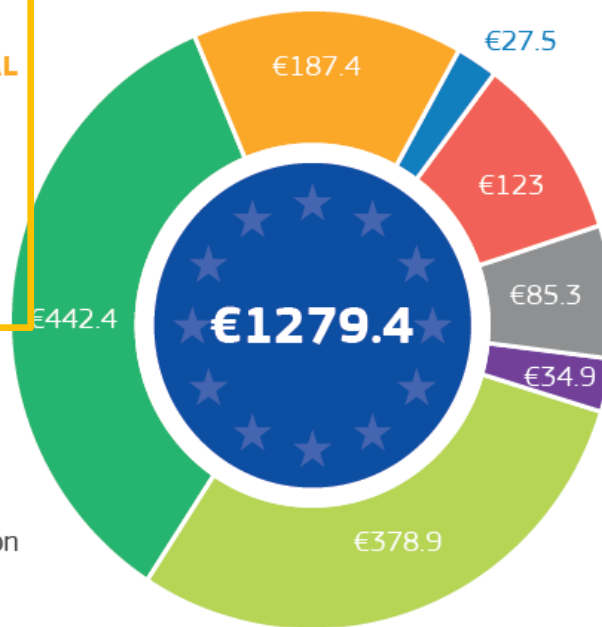
- 15 External Action
- 16 Pre-Accession Assistance



VII. EUROPEAN PUBLIC ADMINISTRATION

€85.3

- 17 European Public Administration





ALIGNED TO POLITICAL PRIORITIES (1)



I SINGLE MARKET, INNOVATION & DIGITAL

1 Research & Innovation

- Horizon Europe
- International Thermonuclear Experimental Reactor (ITER)
- Euratom Research & Training Programme

2 European Strategic Investments

- InvestEU Fund
- Connecting Europe Facility
- Digital Europe Programme (incl. Cybersecurity)

3 Single Market

- Single Market Programme (incl. Competitiveness and Small and Medium-Sized Enterprises - COSME, Food Safety, Statistics, Competition and Administrative Cooperation)
- EU Anti-Fraud Programme
- Cooperation in the Field of Taxation (FISCALIS)
- Cooperation in the Field of Customs (CUSTOMS)

4 Space

- European Space Programme



II COHESION & VALUES

5 Regional Development & Cohesion

- European Regional Development Fund
- Cohesion Fund
- Support to the Turkish-Cypriot Community

6 Economic & Monetary Union

- Reform Support Programme including the Reform Delivery Tool and Convergence Facility
- Protection of the Euro Against Counterfeiting

7 Investing in People, Social Cohesion & Values

- European Social Fund + (incl. Integration of Migrants & Health)
- ERASMUS+
- European Solidarity Corps
- Justice, Rights & Values
- Creative Europe (incl. MEDIA)

European
Solidarity
Fund

European
Investment
Stabilization
Function

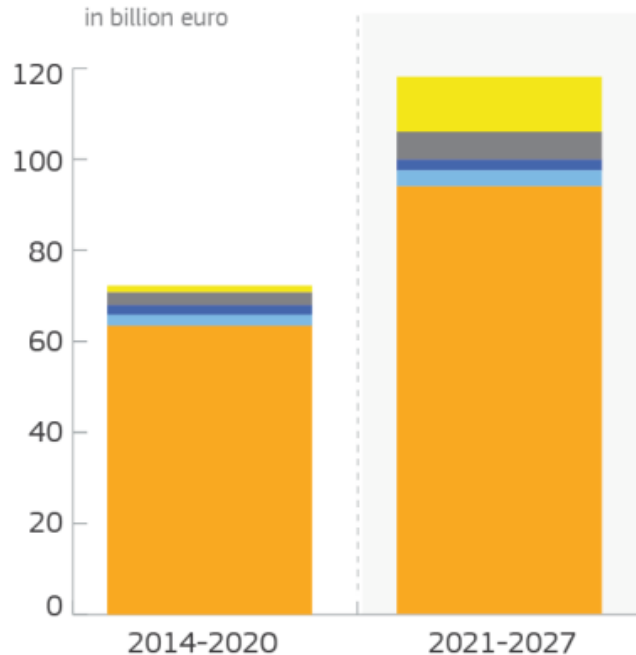
Globalization
Adjustment
Fund



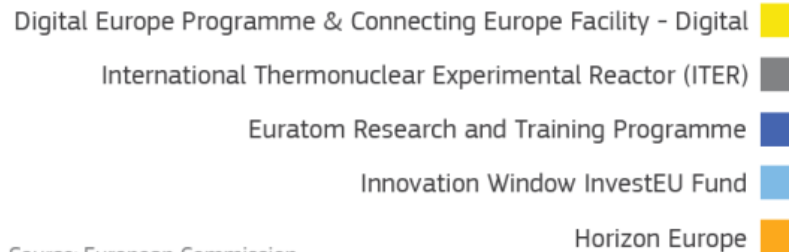


RESEARCH AND INNOVATION

Investing in the future



- Building on the success of the EU's past flagship research and innovation programmes, the Commission proposes to **increase investment in research and innovation by allocating €114.8 billion** from the future long-term EU budget.



Source: European Commission

Note: Compared to the Multiannual Financial Framework 2014-2020 at EU-27 (estimate)

Source: European Commission

Horizon Europe

is the Commission proposal for a **€ 100 billion** research and innovation funding programme for seven years (2021-2027)



to strengthen the EU's scientific and technological bases



to boost Europe's innovation capacity, competitiveness and jobs



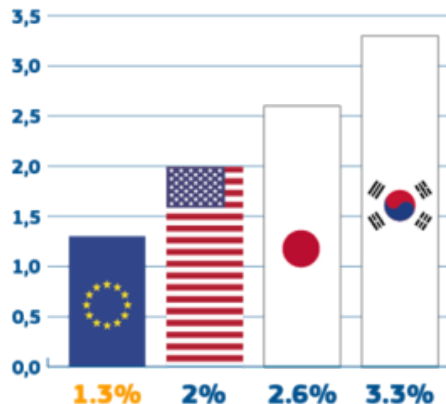
to deliver on citizens' priorities and sustain our socio-economic model and values

Additional **€ 4.1 billion** are proposed to be allocated for defence research, which is specified in the European Defence Fund that is subject to a distinct and complementary proposal.

Europe has world-class research and strong industries

Our knowledge and skills are our main resources.

- 7% of the world's population
- 20% of global R&D
- 1/3 of all high-quality scientific publications



1.3%
EU business
R&D
investment

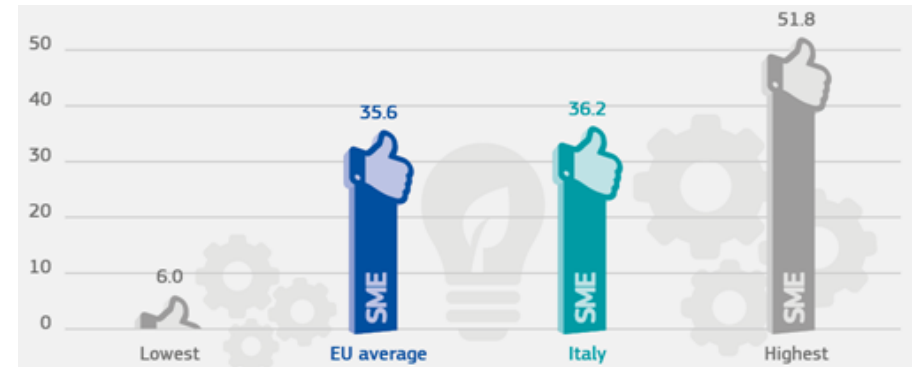
but Europe fails to transform leadership in science into leadership in innovation and entrepreneurship

ITALY



Innovative SMEs

Italian SMEs are keen innovators, which is an asset for the economy if well leveraged

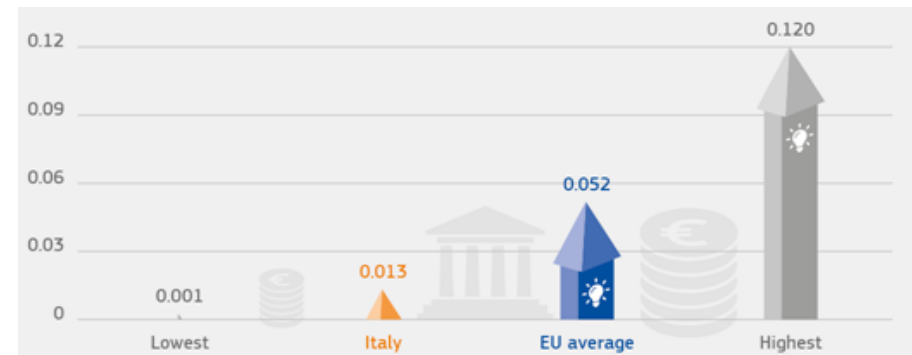


SMEs introducing product or process innovations as % of SMEs (2014)



Science-business cooperation

Low cooperation between academia and business hampers knowledge diffusion in the economy



Public expenditure on R&D funded by business as % of GDP (2015)

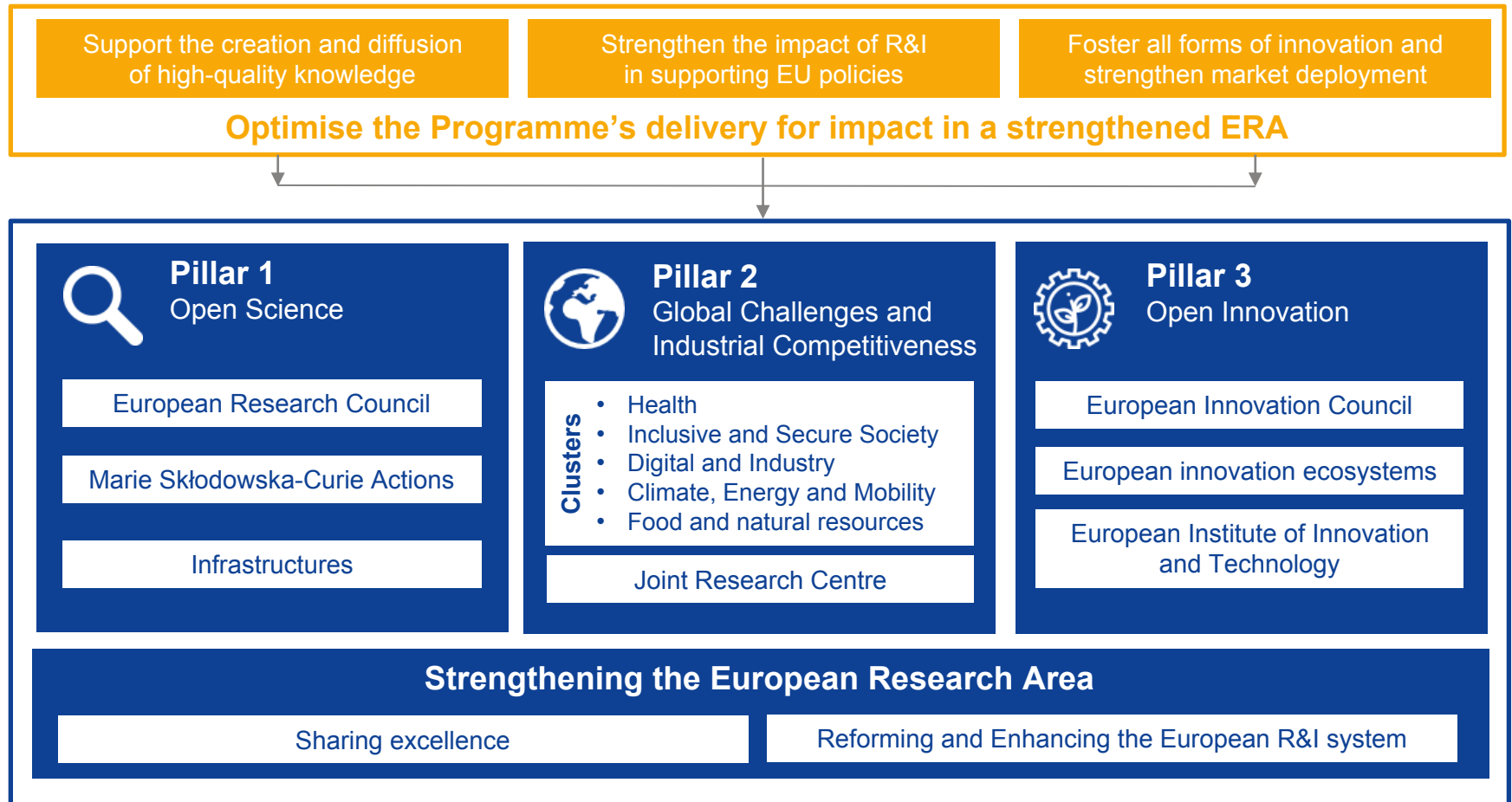
2018 Commission Specific Recommendation

Foster research, innovation, digital skills and infrastructure through better-targeted investment

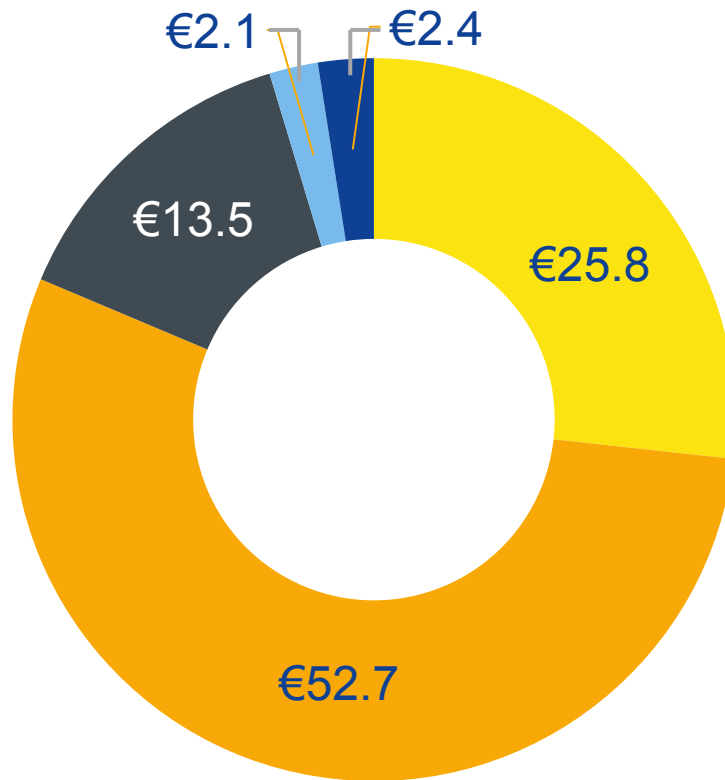
Horizon Europe – What?

Horizon Europe evolution not revolution!

Specific objectives of the Programme



Budget* € 97.6 billion



In current prices

- Open Science
- Global Challenges & Ind. Competitiveness
- Open Innovation
- Strengthening ERA
- Euratom 2021-2025

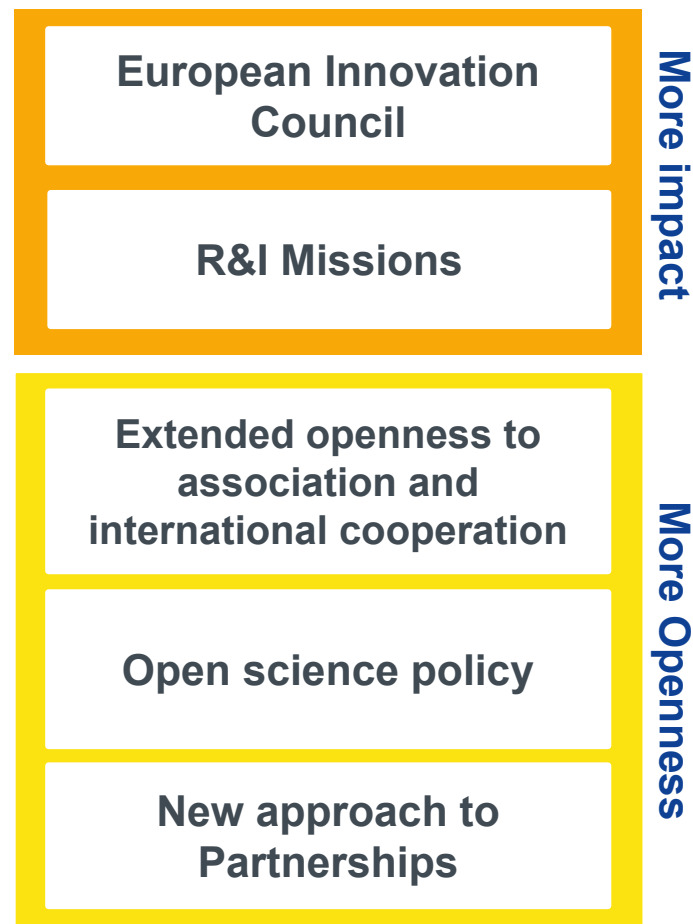
* In addition, this envelope includes EUR 3.5 billion allocated under the InvestEU Fund.

Horizon Europe – What's new?

Key Novelties

[See Impact Assessment]

-  Support breakthrough innovation →
-  Create more impact through mission-orientation and citizens' involvement →
-  Strengthen international cooperation →
-  Reinforce openness →
-  Rationalise the funding landscape →





European Innovation Council

The EIC will support innovations with breakthrough and disruptive nature and scaleup potential that are too risky for private investors.

**European
Innovation
Council**

**Helping innovators create markets of the future,
leverage private finance, scale up their
companies,
Innovation centric, risk taking & agile, pro-
active management and follow up**

Two complementary instruments bridging the gap from idea to investable project

Pathfinder: grants
(from early technology
to pre- commercial)

Accelerator:
grants & blended finance
(from pre-commercial
to market & scale-up)



R&I Missions

R&I Missions

Connecting to citizens: Missions will relate EU's research and innovation to society and citizens' needs, with strong visibility and impact

A mission will consist of a portfolio of actions intended to achieve **a bold and inspirational as well as measurable goal** within a set timeframe, with impact for science and technology, society and citizens that goes beyond individual actions

Horizon Europe proposal defines mission characteristics and criteria

Specific missions will be **co-designed with Member States, stakeholders and citizens** and programmed within the Global Challenges and Industrial Competitiveness pillar (drawing on inputs from other pillars)

OPEN INNOVATION:

stimulating market-creating breakthroughs and ecosystems conducive to innovation

European Innovation Council

- Support to innovations with breakthrough and market creating potential

€ 10 billion

European innovation ecosystems

- Connecting with regional and national innovation actors

€ 0.5 billion

European Institute of Innovation and Technology (EIT)

- Bringing key actors (research, education and business) together around a common goal for nurturing innovation

€ 3 billion

Next steps





'With growing international competition, Europe needs to act urgently on research and innovation.

The proposed € 100 billion for the next EU research and innovation programme would be a huge boost.'

Carlos Moedas, Commissioner, 15/05/2018

