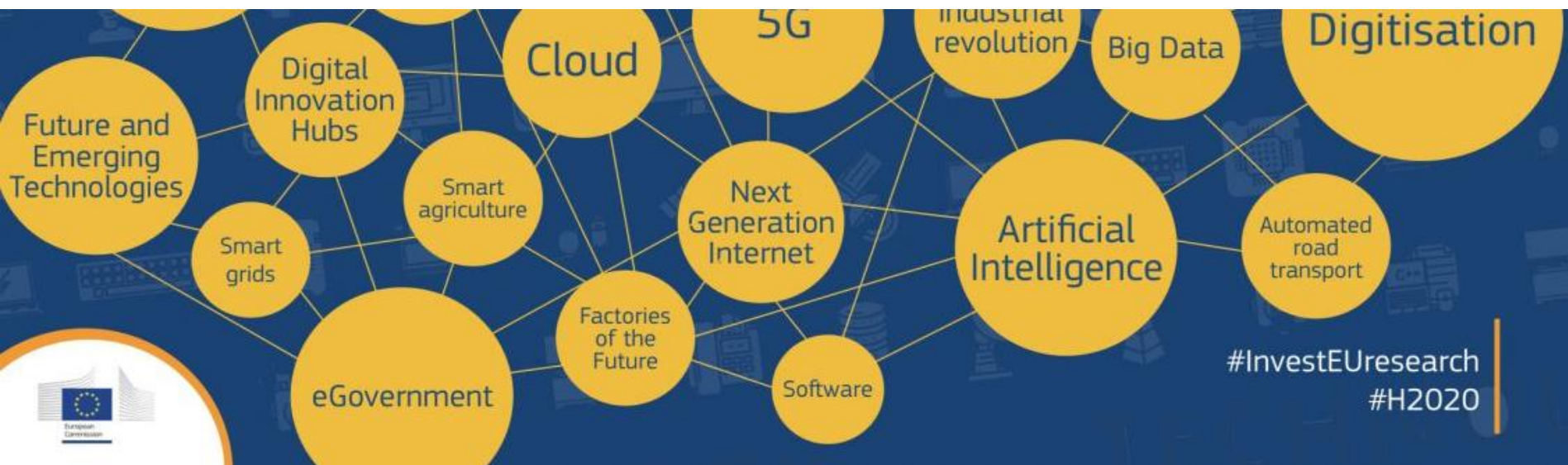




## L'area ICT di Horizon 2020



#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 CO<sub>2</sub> 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
<b>Research Infrastructures</b>					
<b>Implementing the European Open Science Cloud</b>					
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
<b>Integrating and opening research infrastructures of European interest</b>					
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
<b>European Data Infrastructure</b>					
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	
<b>Demonstrating the role of Research Infrastructures in the translation of Open Science into Open Innovation</b>					
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
<b>5G</b>					
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
<b>Next Generation Internet (NGI)</b>					
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		
<b>Cross-cutting activities</b>					
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
<b>Digital transformation in Health and Care</b>					
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**

**Focus Area on Digitising and transforming European industry and services**

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**

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
<b>Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy</b>					
<b>Sustainable Food Security</b>					
<b>From functional ecosystems to healthy food</b>					
DT-SFS-14-2018	Personalized Nutrition	28.0	31/10/17	13/02/18	
<b>Building capacities</b>					
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
<b>Blue Growth</b>					
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
<b>Rural Renaissance</b>					
<b>From farm to society: understanding dynamics and modernising policies</b>					
RUR-02-2018	Socio-economic impacts of digitisation of agriculture and rural areas	5.0	31/10/17	13/02/18 11/09/18	
<b>Taking advantage of the digital revolution</b>					
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
<b>Smart, green and integrated transport</b>					
<b>Mobility for growth</b>					
<b>Safe, integrated and resilient transport systems</b>					
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
<b>Global leadership and competitiveness</b>					
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	
<b>Accounting for the people</b>					
MG-4-5-2019	An inclusive digitally interconnected transport system meeting citizens' needs	7.0	04/09/18		24/04/19
<b>Blue growth</b>					
MG-BG-01-2018	Unmanned and autonomous survey activities at sea	8.0	31/10/17	04/04/18	
<b>Digitising and Transforming European Industry and Services: Automated Road Transport</b>					
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
<b>Building a low-carbon, climate resilient future: Green Vehicles</b>					
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
<b>Europe in a changing world – inclusive, innovative and reflective Societies</b>					
<b>Migration</b>					
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
<b>Socioeconomic and cultural transformations in the context of the fourth industrial revolution</b>					
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
<b>Governance for the future</b>					
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
<b>Secure societies – Protecting freedom and security of Europe and its citizens</b>					
<b>Protecting the infrastructure of Europe and the people in the European smart cities</b>					
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
<b>Security</b>					
<b>Disaster-Resilient Societies</b>					
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
<b>Fight against Crime and Terrorism</b>					
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
<b>Border and External Security</b>					
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
<b>Digital security</b>					
<b>Cybersecurity, Digital Privacy and data protection</b>					
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](http://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

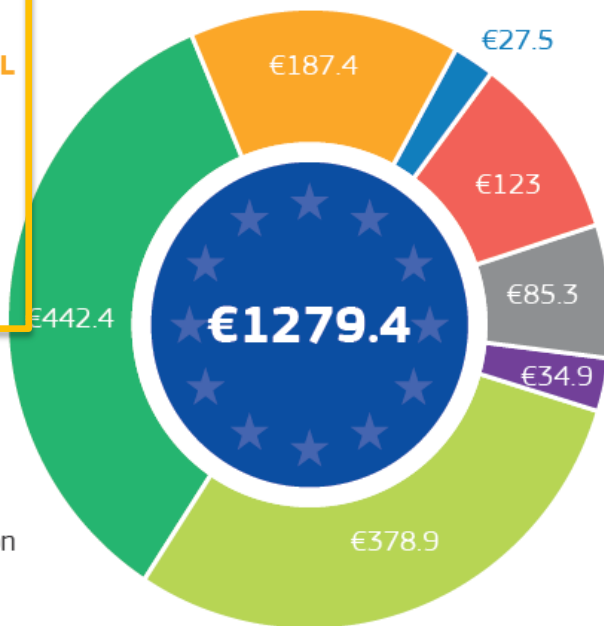
- 15 External Action
- 16 Pre-Accession Assistance



## 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

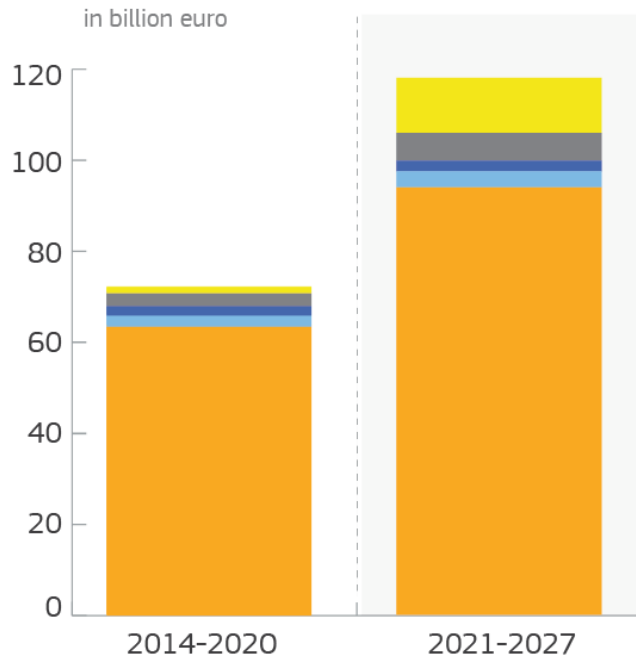
Globalization Adjustment Fund





# 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.

Digital Europe Programme & Connecting Europe Facility - Digital

International Thermonuclear Experimental Reactor (ITER)

Euratom Research and Training Programme

Innovation Window InvestEU Fund

Horizon Europe

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

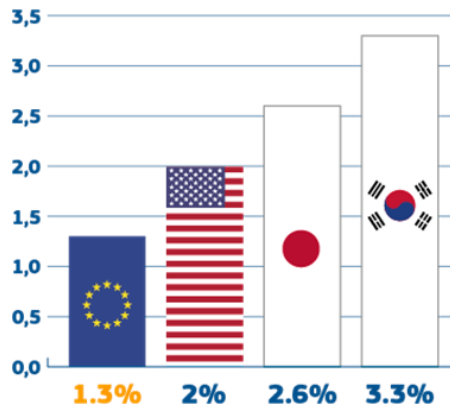
Additional **€ 4.1 billion** are proposed to be allocated for defence research, which is specified in the European Defence Fund that is subject to a distinct and complementary proposal.



# 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

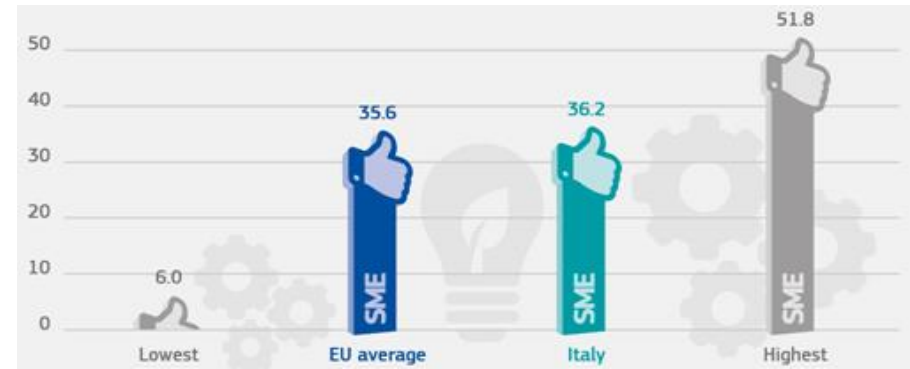
**but Europe fails to transform leadership in science into leadership in innovation and entrepreneurship**

# 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)

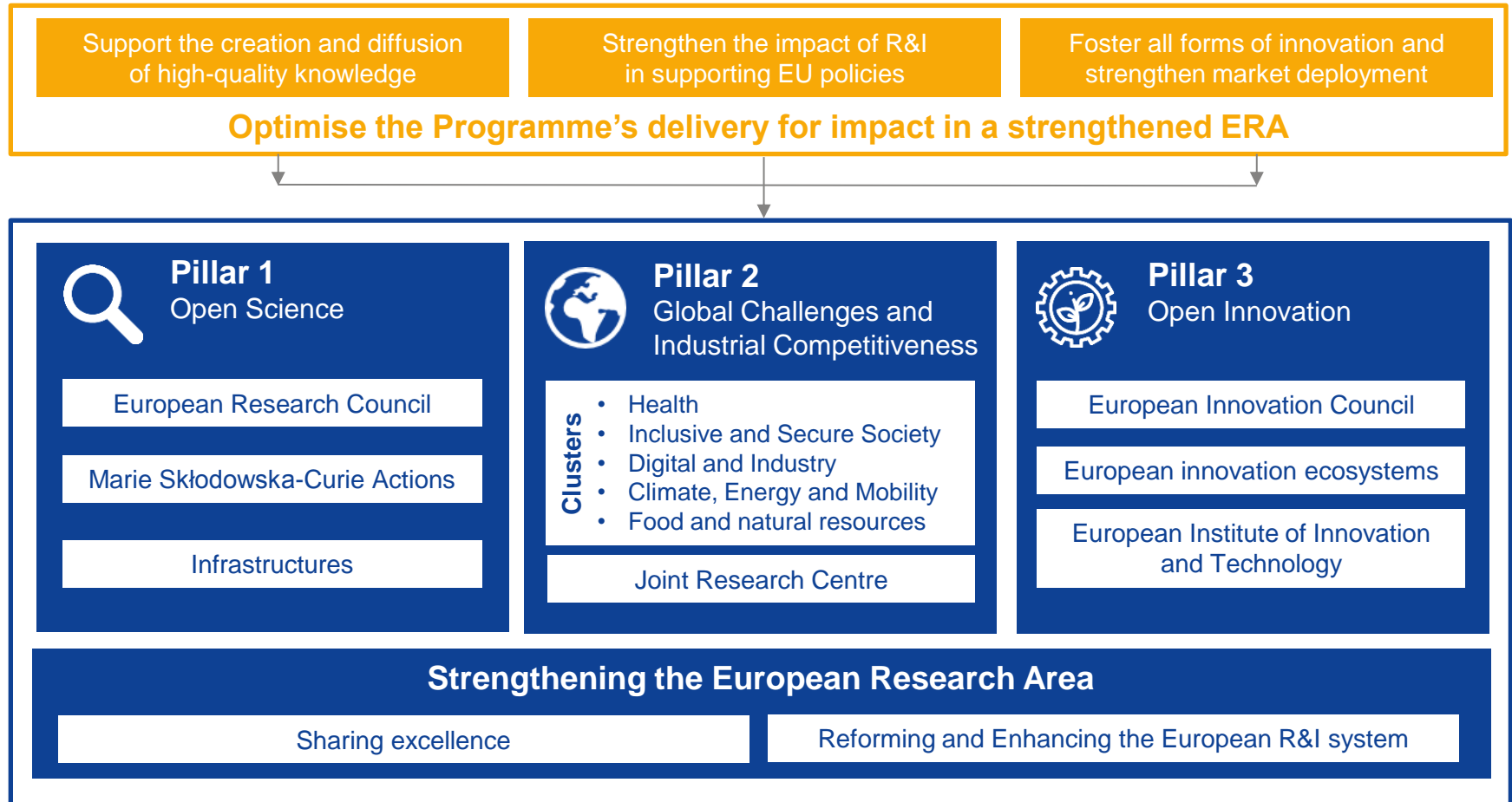
## 2018 Commission Specific Recommendation

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

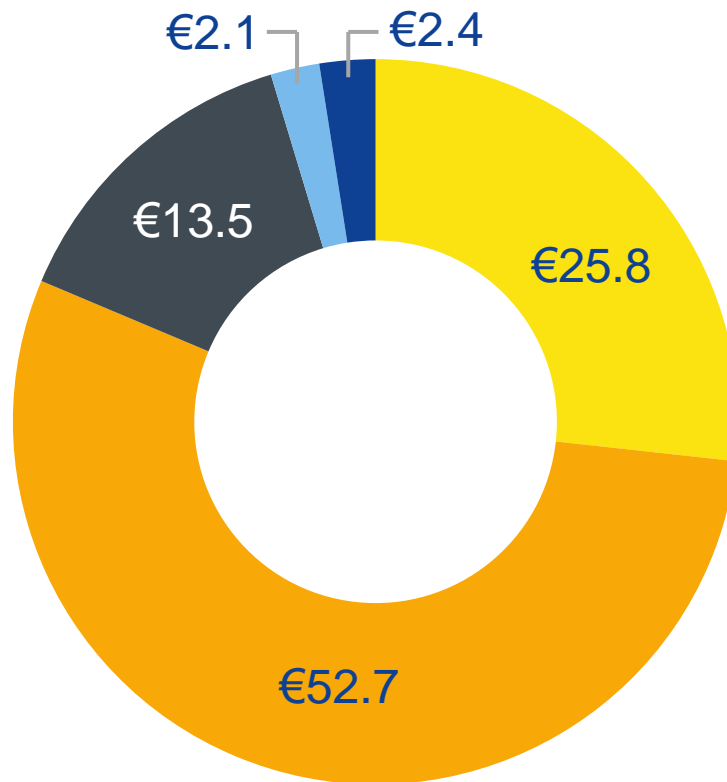
# Horizon Europe – What?

# 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

