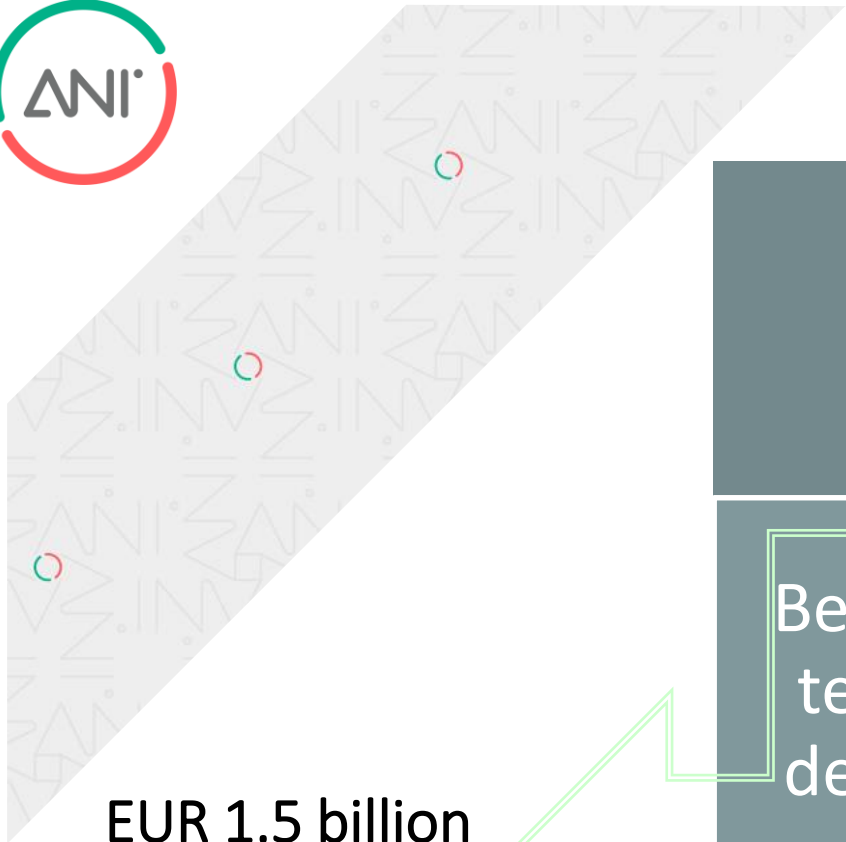# H2020 ARTIFICIAL INTELLIGENCE CHALLENGES AND FUNDING OPPORTUNITIES
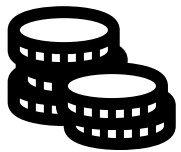
MARTA CANDEIAS

3/09/2019, EPIA, UTAD

- **EUROPEAN APPROACH TO ARTIFICIAL INTELLIGENCE**

- **AI FUNDING OPPORTUNITIES IN HORIZON 2020**

- **SUPPORT TO PORTUGUESE PARTICIPATION IN H2020**

- **STATISTICS OF PORTUGUESE PARTICIPATION IN H2020 AI PROJECTS**

A EUROPEAN APPROACH TO ARTIFICIAL INTELLIGENCE

EUR 1.5 billion
(2018-2020)

Being ahead of technological developments and encouraging uptake by the public and private sectors

Prepare for socio-economic changes brought about AI

Ensure an appropriate ethical and legal framework
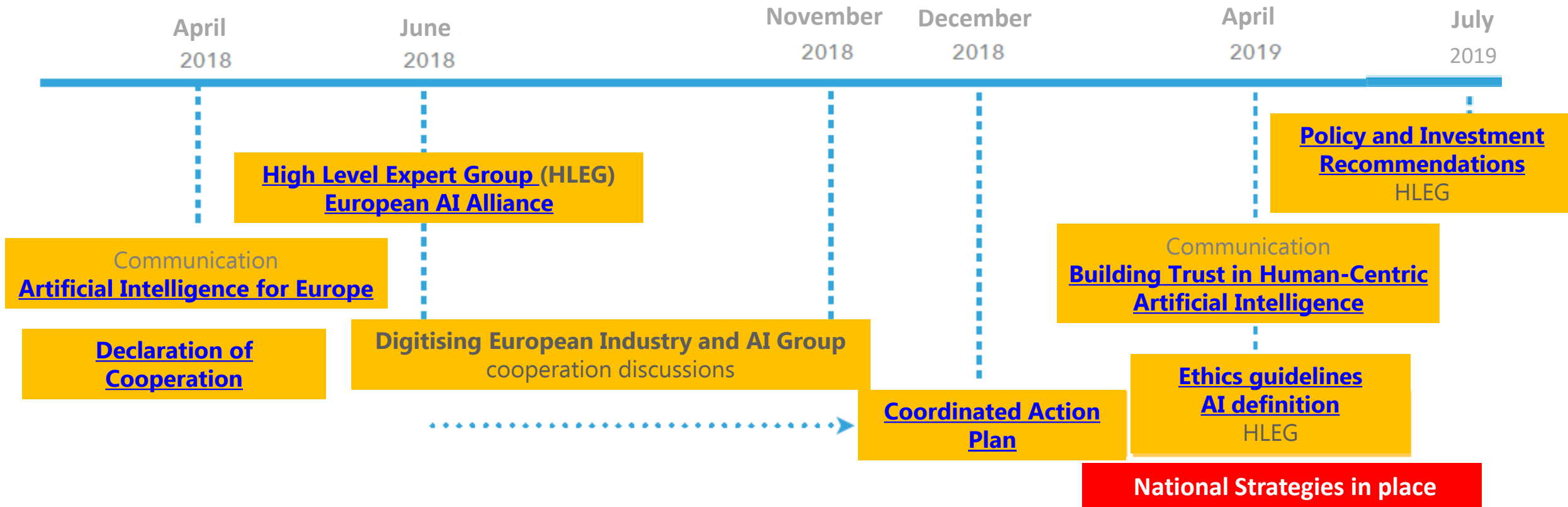
H2020 (2018 – 2020)

Budget (M€)	Initiatives
45	Equity investment fund for AI and blockchain (2020)
50	AI research excellence centres (2020)
30	5G cross-border testing corridors (2020)*
160	Large-scale pilots integrating AI elements - energy, healthcare, manufacturing, geo information and agriculture (2019/2020)
950	ECSEL lighthouse initiatives (2019/2020)
100	Digital Innovation Hubs (2019-2020)
100	Tools to facilitate data access and sharing (2019/2020)
27	Support to the development of blockchain-based and other secure solutions for access to and protection of the integrity of data (2020)
35	R&I initiatives on health data (2020)
50	Industrial data platforms (2019)

COORDINATED EU PLAN ON ARTIFICIAL INTELLIGENCE

*in addition to those already funded in 2018

300 B$ INVESTMENT

Leader in 2030
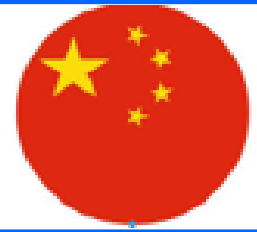
Authority

Increase Competences & Research

Difficult access to talent

10 B$ VC

MIT, CMU, Stanford, Berkeley

Google, IBM, Amazon, Facebook

850 000 Professionals

Talent Atraction

Big Companies Atraction

Research (Deep Learning)

3,2 B$ PRIVATE, 125 M$

Digital skills

Digital Infrastructure

AI applications
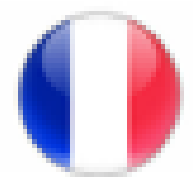
AI Research

1.5 B€

Open Data Policy

Digital skills

Human Capital

duplicar a Presença Portuguesa nos Programas Europeus

HORIZON 2020

(2014 -2020)

Excellent Science ~ 24 400 M€	Industrial Leadership ~ 17 800 M€	Societal Challenges ~ 29 700 M€

AI

Excellent Science column:

European Research Council
Frontier Research by the best individual teams

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

Bottom up

Industrial Leadership column:

Leadership in enabling and industrial technologies
Space, ICT, NMBP *(nanotechnologies, advanced materials, biotechnology, manufacturing)* **AI**

Access to Risk finance
Leveraging private finance and venture capital for research

Innovation in SMEs
Fostering all forms of innovation in all types of SMEs

Top down

European Innovation Council (EIC)
Pathfinder – *FET OPEN, FET PROACTIVE*
Accelerator – *SMEi2* **AI**

Bottom up

Societal Challenges column:

1. **Health,** demographic change and wellbeing **AI**

2. Food security, sustainable agriculture, marine and maritime research & the **bioeconomy**

3. Secure, clean and efficient **energy**

4. Smart, green and integrated **transport** **AI**

5. Clima**te action**, environment, resource efficiency and raw materials

6. Inclusive, innovative and reflective **societies**

7. **Security** society **AI**

Top down

European Institute of Innovation and Technology (EIT) (~2700 M€)

Spreading Excellence and Widening Participation (~1900 M€)

Science with and for Society (~1600 M€)

Joint Research Centre (JRC)

duplicar a Presença Portuguesa nos Programas Europeus

www.gppq.pt

Mandate

- **Created in 2007**

- **Promotion** of the Portuguese participation in FP

- **Support, advice and assistance** to portuguese participants (participation in European networks, dissemination, training, etc.)

- **Promotion of bridges, dialogue and partnerships** between portuguese and international institutions

- **Coordination of the activities of the Portuguese Delegations** in the Program Committees, Technological Platforms and Joint Technological Initiatives

- **Coordination** of the **National Contact Point (NCP)** network

- **Helpdesk**

Aims at providing support in Portugal to the participation of the scientific and industrial research communities in H2020

duplicar a Presença Portuguesa nos Programas Europeus

PROPOSAL APPLICATION PROCESS

Publication

Deadline

Evaluation Results

Grant Agreement

3-4 months

3 – 8 months

1st contact
What is H202?
How it works?

Idea
Does my idea fits any H2020 *call*? where?

Proposal preparation
Partner search, Consortium building, proposal writing, revision

Proposal Evaluation
by independent experts

Grant Signature
Legal & Administrative procedures

Project Management
Reports, ammendemnts, etc

Reeports, Exploitation of results EC Audits, etc

Our support

duplicar a Presença Portuguesa nos Programas Europeus

[Website GPPQ](#)

Portuguese Participation in FP

Year	PT Funding (M€)
2003	60,80
2004	30,80
2005	41,48
2006	33,68
2007	77,70
2008	47,46
2009	66,38
2010	58,87
2011	78,33
2012	109,50
2013	126,62
2014	154,30
2015	135,93
2016	133,58
2017	142,55
2018	174,38

Legend: PT Funding (M€) — PT funding percentage
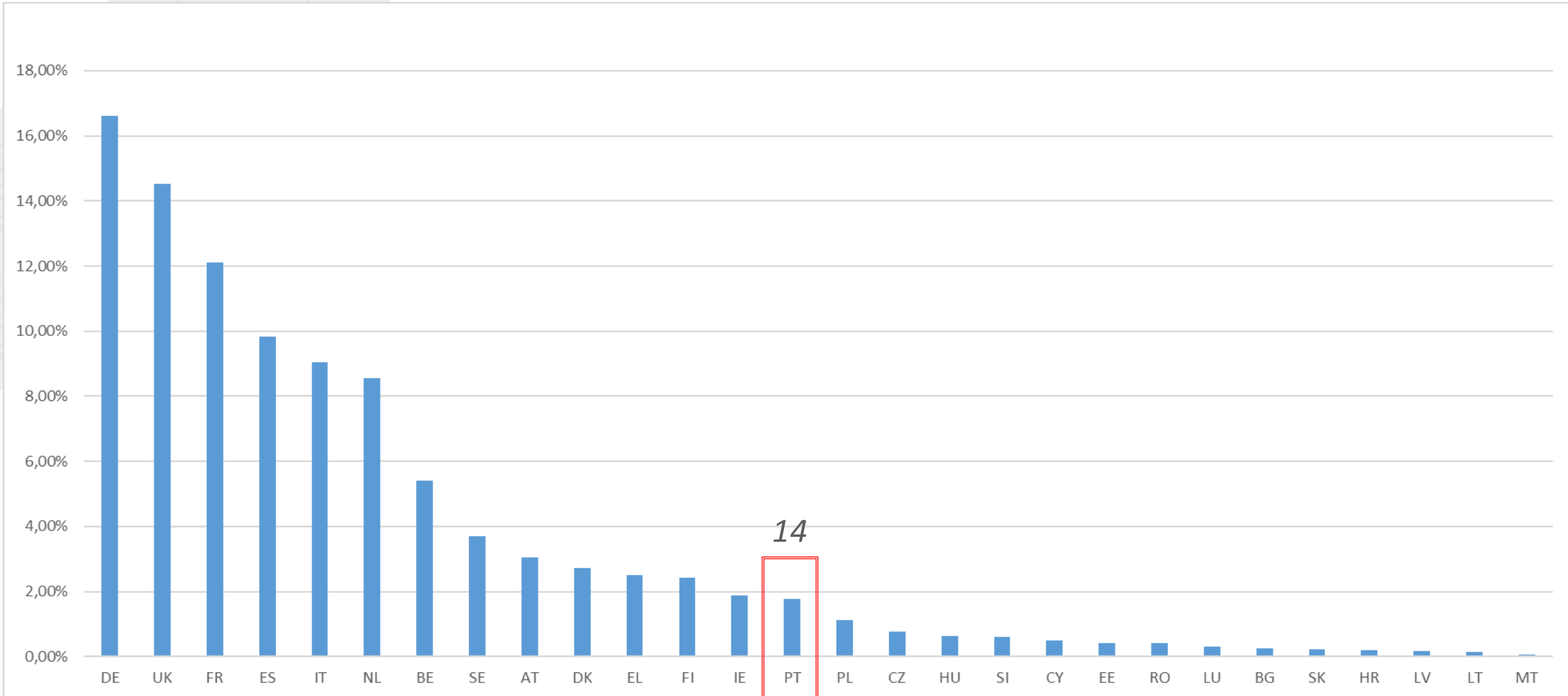
duplicar a Presença Portuguesa nos Programas Europeus

duplicar a Presença Portuguesa nos Programas Europeus

What type of project?

	Individual	Collaborative
Top-down	Prizes Coordination and Support Actions (CSA)	Research and Innovation Actions (RIA) Innovation Actions (IA) EIC – Proactive (FET)
Bottom-up	EIC – Accelerator ERC MSCA - IF	MSCA – COFUND, RISE EIC – Pathfinder (FET-Open) Fast Track to Innovation (FTI)

Elegibility conditions:
- 1 independent legal entity from a Member States or Associated Country
- European Impact

All kind of legal entities can participate (academia, companies, associations, civil society….) unless otherwise mentioned in the call topic
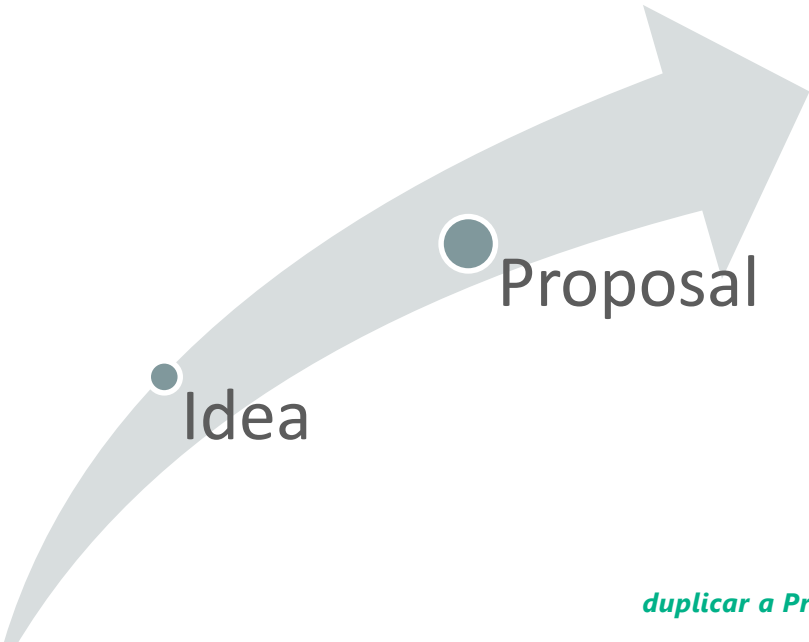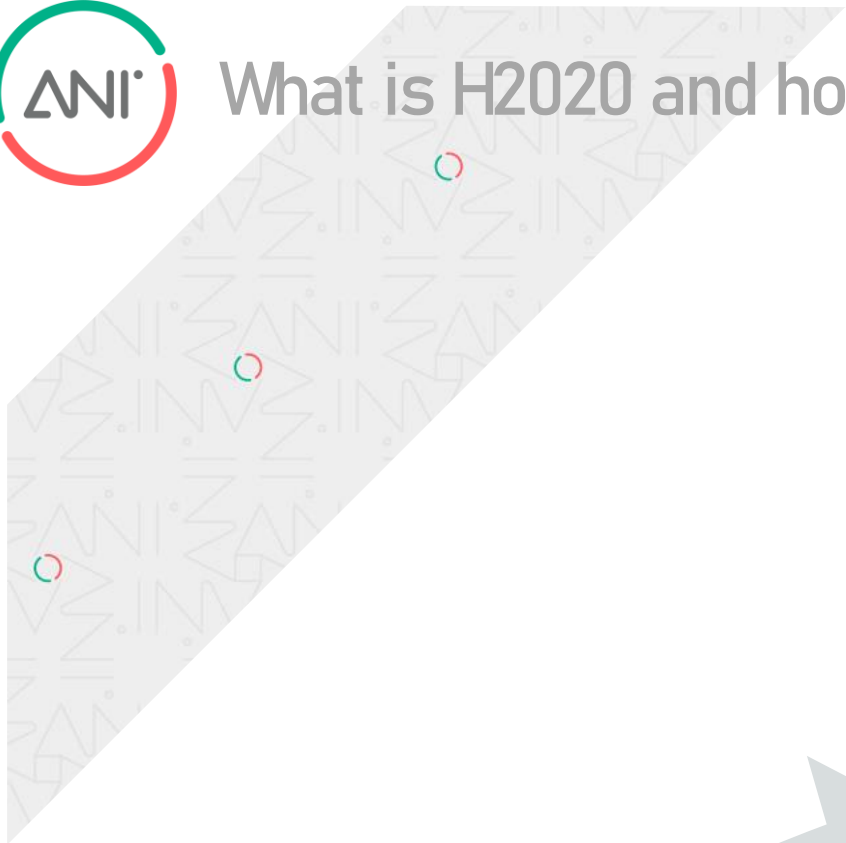
Elegibility conditions:
- At least 3 independent legal entities from different Member States or Associated Countries
- European Impact

All kind of legal entities can participate (academia,companies, associations, civil society….)

duplicar a Presença Portuguesa nos Programas Europeus

Strategic Programming

Work Program

Calls

Topics

Proposal

Idea

Top-down

Specific challenge:
contexto, problem, intervention

Scope:
detail, focus, boundaries, potential (non-prescriptive)

Expected impact:
key impacts, qualitatitive and quantitative

Type of Action:
funding rate, activities

EU Contribution

TRL

Specific conditions:
International cooperation, number of funded proposals, alignement with policies, projects, groups

Specific requests:
Business plan, relevant metrics, SSH, specific actors,

SwafS-20-2018-2019: Building the SwafS knowledge base [67]

Specific Challenge: Understanding the evolution of science and society will help proactive and anticipatory policy making. This includes examining how societal actors, including young people, behave, understand, react to and interact with science and scientific developments, and their motives for engaging in science-related activities. It encompasses investigating science communication and science advocacy in the digital world, and how science and technology studies and different disciplines (e.g. behavioural sciences, communication studies, gender studies, linguistics, and social anthropology) – and multi/transdisciplinary approaches – can help explain interactions between science and society. This includes a focus on blind spots of research and innovation in relation to people's needs and concerns and in any of the areas or dimensions covered by RRI. Moreover, consideration could be given to rewarding achievement in RRI in its various dimensions to signal the organisations that are more RRI aware (answering questions such as how such a reward could work and based on which criteria). Another area is implications of deep changes in science and innovation and their interactions with society and the economy, such as the transition to open science and open innovation, and resultant changes in the relationships between science and society.

Scope: The present topic is completely bottom-up. Research and innovation actions are invited, using the above specific challenge to help stimulate ideas about where research is most needed.

The Commission considers that proposals requesting a contribution from the EU of the order of € 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Consortia should choose a basket of indicators to measure the impact of their work against. In particular, consortia are expected to contribute to one or more of the MoRRI indicators[68] and/or to the Sustainable Development Goals[69]. R&I outcomes should help build effective cooperation between science and society, foster the recruitment of new talent for science, and pair scientific excellence with social awareness and responsibility. Scientific and other types of publication should be foreseen.

Type of Action: Research and Innovation action

---

duplicar a Presença Portuguesa nos Programas Europeus

Sofia Azevedo

H2020	Concurso	Fases Avaliação	Deadline	M€

FET[1]	**FETPROACT-EIC-05-2019**
	FET Proactive: emerging paradigms and communities (RIA)
	  a. *Human-Centric AI.*
	  b. *Implantable autonomous devices and materials*
		single	**13nov19**	87,4

	FETPROACT-EIC-06-2019 - *EIC Transition to Innovation Activities* • *Artificial Intelligence and advanced robotics*			26
	FETPROACT-08-2020: *Environmental Intelligence (RIA)*		**22abr20**	18

H2020	Concurso	Fases Avaliação	Deadline	M€
ICT³	ICT-48-2020 - Towards a vibrant European network of AI excellence centres (RIA, CSA)	single	13Nov19	50 RIA: 48 CSA: 2
	DT-ICT-03-2020: I4MS (phase 4) - uptake of digital game changers • Innovative Artificial Intelligence in manufacturing • Cognitive autonomous systems and human-robot interaction			71 IA: 70 CSA: 1
	ICT-55-2020 - Interactive Technologies (IA)			17
	ICT-38-2020 - Artificial intelligence for manufacturing (EU – Japão) (RIA, CSA)		16jan20	48 RIA: 47 CSA: 1
	ICT-44-2020 - Next Generation Media (IA, CSA)			17,5 IA: 15,5 CSA: 2
	ICT-51-2020 - Big Data technologies and extreme-scale analytics (RIA, CSA)			31,5 RIA: 30 CSA: 1,5

Sofia Azevedo

duplicar a Presença Portuguesa nos Programas Europeus

H2020	Concurso	Fases Avaliação	Deadline	M€
ICT	ICT-54-2020 - *Blockchain for the Next Generation Internet (RIA)*	single	16Jan20	20
	ICT-56-2020 - *Next Generation Internet of Things (RIA, CSA)*			48,5 RIA: 46 CSA: 2
	ICT-49-2020: Artificial Intelligence on demand platform (IA)		22Abr20	20
	ICT–52-2020 - *5G PPP – Smart Connectivity beyond 5G (RIA)*			55
	ICT-58-2020 - *International partnership building between European and African innovation hubs (IA, CSA)*			11 IA: 10 CSA: 1
	ICT-57-2020: *An empowering, inclusive Next Generation Internet (RIA)*			7
	DT-ICT-12-2020: AI for the smart hospital of the future (IA)			40
	ICT-40-2020 - *Cloud Computing: towards a smart cloud computing continuum*			20 RIA:19,4 CSA:0,6

Sofia Azevedo

duplicar a Presença Portuguesa nos Programas Europeus

Marta
Candeias

Ana
Sutcliffe

H2020	Concurso	Fases Avaliação	Deadline	M€
SPIRE[0]	DT-SPIRE-11-2020 - *Artificial Intelligence and Big Data Technologies for Process Industries (CSA)*			0,6
EEB[7]	LC-EEB-07-2020: *Smart Operation of Proactive Residential Buildings (IA)*	single	5 fev20	
	LC-EEB-08-2020: *Digital Building Twins (RIA)*			
FoF[8]	DT-FOF-09-2020: *Energy-efficient manufacturing system management (IA)*			
Espaço	DT-SPACE-25-EO-2020 - *Big data technologies and Artificial Intelligence for Copernicus (RIA)*	single	5mar20	10

duplicar a Presença Portuguesa nos Programas Europeus

Patricia Calado

H2020	Concurso	Fases Avaliação	Deadline	M€
DS1[1]	[SC1-BHC-06-2020](#) - *Digital diagnostics – developing tools for supporting clinical decisions by integrating various diagnostic data*	single	7abr20	40
	[SC1-DTH-12-2020](#) - *Use of Real-World Data to advance research on the management of complex chronic conditions (RIA)*			41
	[SC1-DTH-02-2020](#): *Personalised early risk prediction, prevention and intervention based on Artificial Intelligence and Big Data technologies (RIA)*		22abr20	32
	[DT-TDS-04-2020](#): *AI for Genomics and Personalised Medicine (RIA)*			35
	[DT-TDS-05-2020](#): *AI for Health Imaging (RIA)*	single	22abr20	35

H2020	Concurso	Fases Avaliação	Deadline	M€
DS7[1]	SU-FCT03-2018-2019-2020 – *Information and data stream management to fight against (cyber)crime and terrorism (IA)*	single	22ago19	8
	SU-INFRA01-2018-2019-2020 – *Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe*			22
	SU-FCT03-2018-2019-2020 – *Information and data stream management to fight against (cyber)crime and terrorism (IA)*			8
	SU-AI01-2020 - *Developing a research roadmap regarding Artificial Intelligence in support of Law Enforcement (CSA)*		27ago20	1,5
	SU-AI02-2020 - *Secure and resilient Artificial Intelligence technologies, tools and solutions in support of Law Enforcement and citizen protection, cybersecurity operations and prevention and protection against adversarial Artificial Intelligence (IA)*			17,5
	SU-AI03-2020 - *Human factors, and ethical, societal, legal and organisational aspects of using Artificial Intelligence in support of Law Enforcement* (CSA)			1,5
	SU-INFRA01-2018-2019-2020 – *Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe*			20,7

Researchers

SMEs

Entrepreneurs

Investors

eic European INNOVATION Council BETA

EMPOWERING EUROPEAN INNOVATORS

#EU_eic
#H2020

duplicar a Presença Portuguesa nos Programas Europeus

EUROPEAN INNOVATION COUNCIL eic

€3 billion-pilot package to support bottom-up ideas

PATHFINDER Pilot	ACCELERATOR Pilot
€ 845 million Approx.250 projects	€ 2,100 million 2,900 projects
FET OPEN + FET Proactive Future and Emerging Technologies (grant-only) Sofia Azevedo	**SME Instrument Phase 2 / Fast Track to Innovation (FTI)** (grant-only) Cristina Gouveia OR Marta Candeias **Blended finance** (grant + equity)
Visionary idea for developing radical and innovative technologies	Radically new, highly risky ideas commercially viable and with a potential to scale up

Coaching, mentoring and business acceleration services for all SMEs

EIC Horizon Prizes + Support actions
€50 million

Researchers
Entrepeneurs
SMEs

Start-ups
SMEs

duplicar a Presença Portuguesa nos Programas Europeus

FETOPEN

From new knowledge…

…to new technologies

18.09.2019
13.05.2020

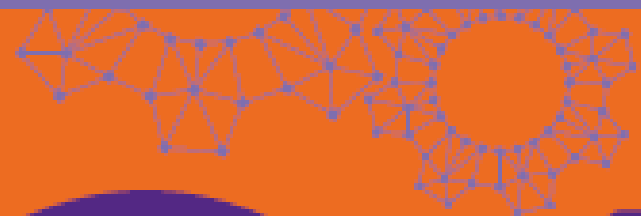**FETProactive**

03.09.2019

- Human-Centric AI
- Autonomous devices and materials
- Breakthrough zero-emissions energy generation for full decarbonisation

22.04.2020

- Future technologies for social experience
- Measuring the unmeasurable — Sub-nanoscale science for Nanometrology
- Digital twins for the life-sciences

EIC ACCELERATOR
A BLENDED
FINANCE MODEL

€1 billion
2019-2020
of which at least
€100 million will be available
as equity financing

For breakthrough market-creating innovations, radically new products services processes or business models

For developing and scaling up **high-risk innovations**

Grant funding of **up to €2.5 million** – 70% of costs

All funding is open – **no predefined thematic areas**

Option of an equity investment of **up to €15 million**

Access to EIC **coaching and mentoring services**, pitches with corporates, VCs, etc.

duplicar a Presença Portuguesa nos Programas Europeus

Deadlines

Accelerator blended finance and grant only

2019 – 9 October

2020 – 8 January; 8 March;

19 May; 7 October

FET OPEN
Future Emerging Technologies

Innovative Idea

FTI
Fast Track to Innovation

Test & Co-create

SME-Instrument
Phase-1

Feasibility Start-up

SME-Instrument
Phase-2

Development

Soft Blending

Scale-up Investment

H2020 Projects

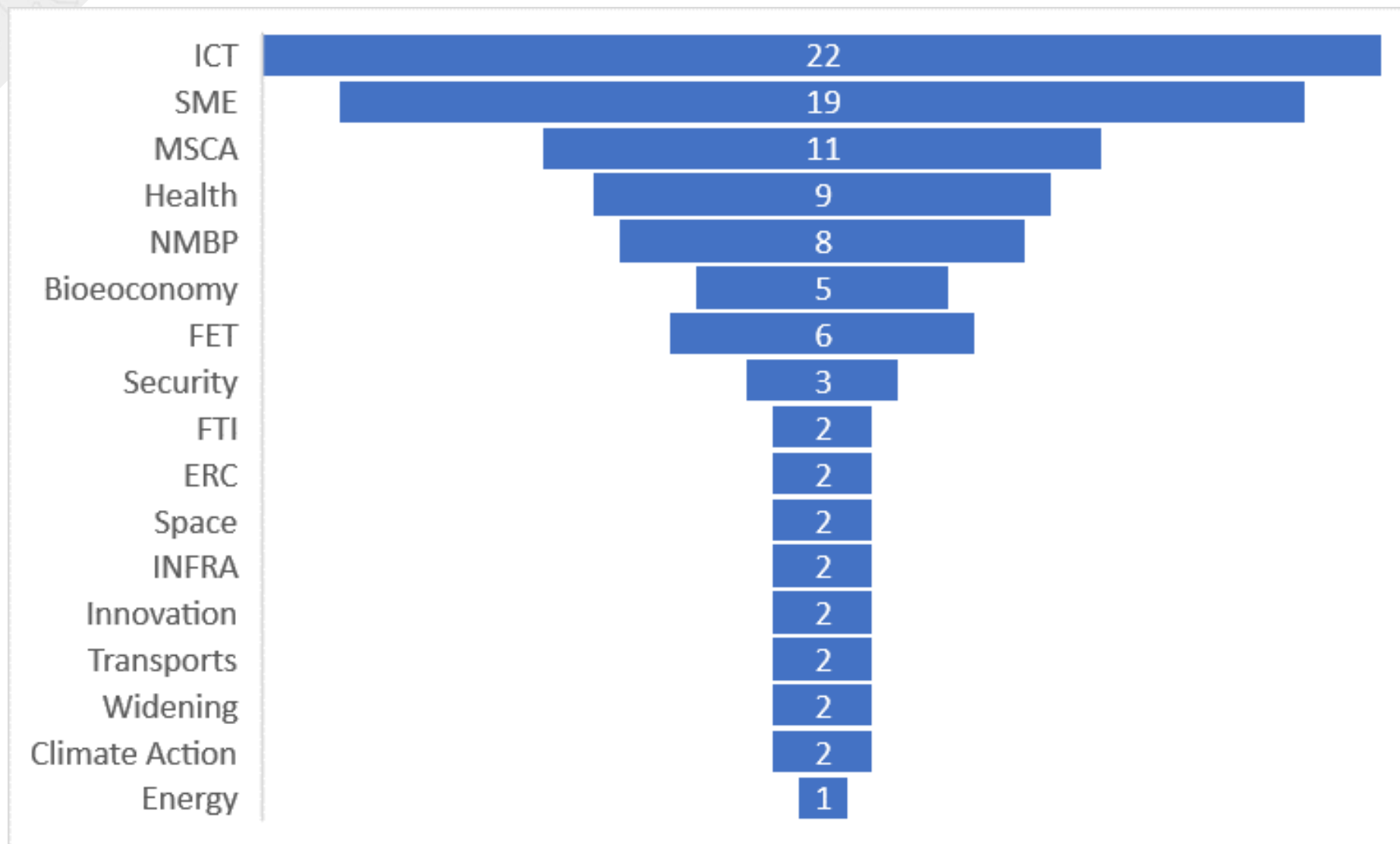Funded projects coordinated by PT – 41

PT Funded projects - 100

Horizon 2020 Funding

Funding for PT entities - 44 M€

European Funding for AI PT projects - 1.045 M€

Participation

PT Participation - 150

ICT	22
SME	19
MSCA	11
Health	9
NMBP	8
Bioeoconomy	5
FET	6
Security	3
FTI	2
ERC	2
Space	2
INFRA	2
Innovation	2
Transports	2
Widening	2
Climate Action	2
Energy	1

duplicar a Presença Portuguesa nos Programas Europeus

Marta Candeias

H2020 Delegate and National Contact Point
Nanotechnologies, Advanced Materials and Advanced
Manufacturing and Processing
Factories of The Future
Energy Efficient Buildings
Sustainable Process Industry
European Innovation Council
Artificial Intelligence

Marta.candeias@ani.pt