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About BF & EU RDI Funding Ministry of Defence - EDIDP

6 March 2020

Non-Confidential

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What Money 4 Which Purpose?

	Finland	EU
R&D&I	BF (Gr, R&D L)	Horizon 2020 (Gr)
Working Capital	Finnvera (Guar, L)	EIB (Guar, L)
Investments	Finnvera (Guar, L)	EIB (Guar, L)
Transactions	Finnvera (Guar, L)	EIB (Guar, L)
Anything	BFVC, Tesi (EQ., VC)	EU (EQ., VC)

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RDI FUNDING
Business Finland

NEW BUSINESS FORM RESEARCH IDEAS

Research organisation – Prepare commercialisation of your research idea

BUSINESS FINLAND FUNDING

- Calls twice a year
- Max 70 % of the total costs of the project
- At least 40% of the project costs must be targeted at preparation of commercialisation.
- The project must have several commercialisation options.
- The actual commercialisation of the idea will occur either within the new company being formed, or as a new business activity in an existing company.

► BUSINESSFINLAND.FI/EN/RESEARCHTOBUSINESS

CO-CREATION

Funding for developing a research idea and for building cooperation networks

- **For research organisations** aiming at a Co-Innovation project to be completed in close co-operation with companies
- Create new radical ideas and new cooperation with companies
- Ensure the need for the research goal and the solution and its suitability for business use, build a cooperation network

► BUSINESSFINLAND.FI/EN/COCREATION

CO-CREATION

BUSINESS FINLAND FUNDING

60 % of the total eligible costs for the project	Project duration 4-6 months	Maximum size of the project 100 000 e

- Funding can be applied for at any time

- Eligible costs include:
  - Indirect personnel costs 50%
  - Indirect costs (overheads) 20%
- Equipment costs are not eligible

CO-INNOVATION

Funding for **research organisations and companies** for their joint actions

- Companies and research organizations - develop jointly new knowledge and innovations for business needs
- A common goal and a plan to reach the goal
- At least one research organization and three companies, of which at least two have applied for funding for their R&D projects from Business Finland

► BUSINESSFINLAND.FI/EN/COINNOVATION

CO-INNOVATION

BUSINESS FINLAND FUNDING

For companies:

For R&D projects that are in line with companies´own growth strategies

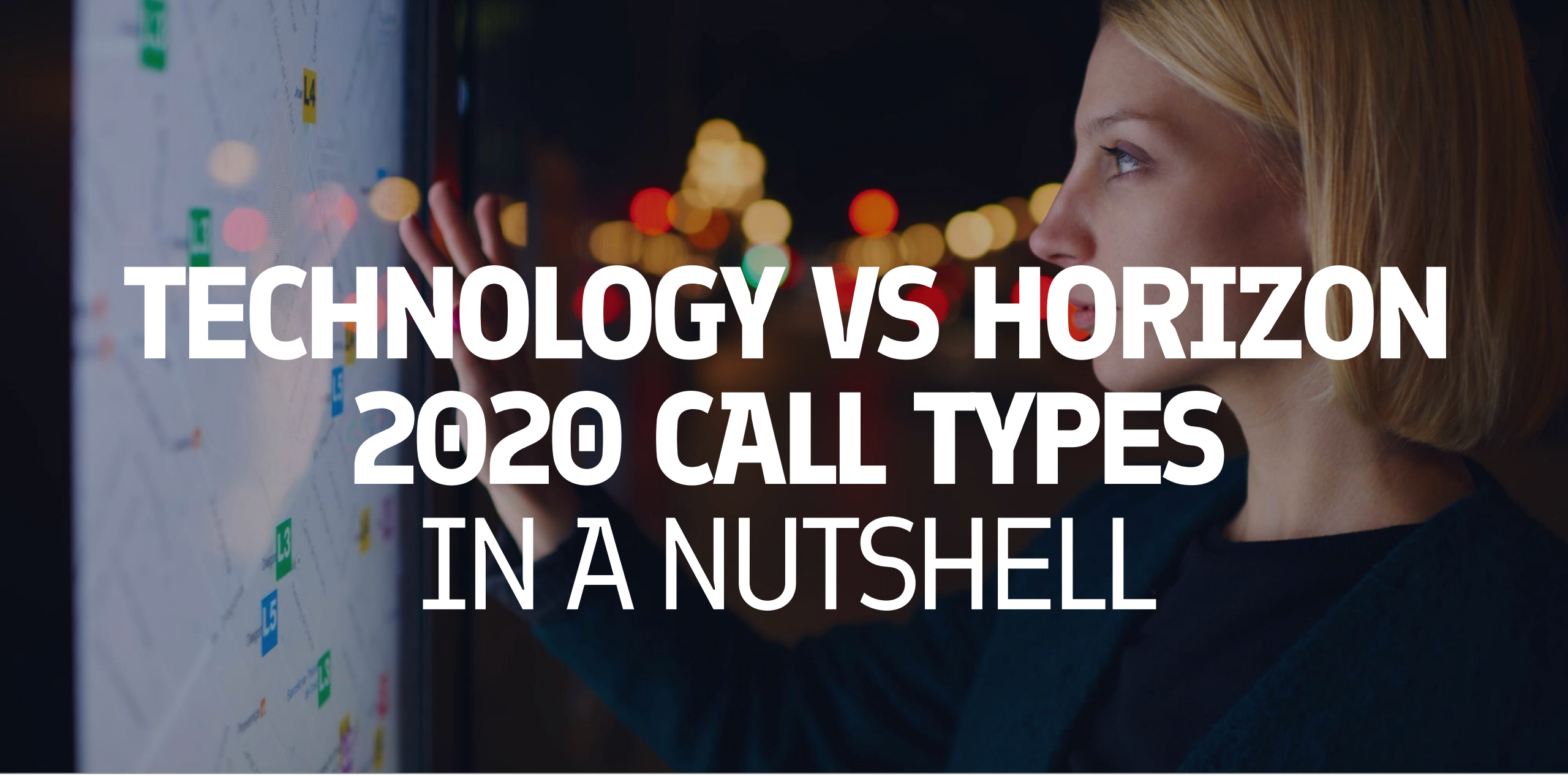
Funding is granted in accordance with the regular funding options or levels offered to companies

For research organizations:

For scientifically ambitious public research projects

70 % of the total eligible costs for the project

Duration max 2-3 years



TECHNOLOGY VS HORIZON 2020 CALL TYPES IN A NUTSHELL

Structure of €77B Horizon 2020 (2014-2020)

I Excellent Science

1. European Research Council (ERC): frontier research
2. Future and Emerging Technologies (FET).
   a) Open
   b) Proactive
   c) Flagships
3. Marie Skłodowska-Curie (MSCA) – actions:
   training, career development and mobility for researchers
4. Research Infrastructures

II Industrial Leadership

1. Leadership in Enabling and Industrial Technologies
   - 1.1. ICT
   - 1.2. nanotechnology
   - 1.3. materials
   - 1.4. biotechnology
   - 1.5. manufacturing and processing
   - 1.6. space
2. Risk finance:
   loans & equity funding
3. Innovation in SMEs

20% of the budget or pillars II + III to SMEs
- SME Instrument(1/3)
- Collaborative projects (2/3)

III Societal Challenges

1. Health, demographic change and wellbeing
2. Food security, sustainable agriculture and forestry, marine, maritime and inland water research and bioeconomy
3. Secure, clean and efficient energy
4. Smart, green and integrtaed transport
5. Climate action, resource efficiency and raw materials
6. Europe in a changing world: inclusive, innovative and reflective societies
7. Secure societies – protecting freedom and security of Europe and its citizens

Also: European institute of innovation and technology, Science with and for society, Spreading excellence and widening participation

IV Joint Research Center JRC, excl. nuclear

Nuclear research: EURATOM

HORISONTTI 2020
EU:n tutkimus- ja innovaatio-ohjelmat

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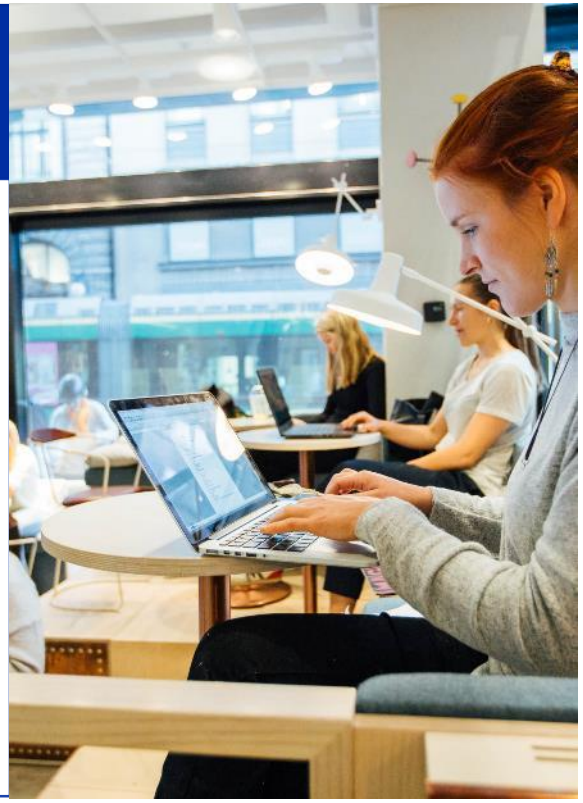
Technology Readiness Level Defines Which Call Suits 4 You

H2020 TRL definitions

https://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf

- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL4 – technology validated in lab
- TRL 5 – technology validated in (industrially*) relevant environment
- TRL 6 – technology demonstrated in (industrially*) relevant environment (~MVP)
- TRL 7 – system prototype demonstration in operational environment (~Pilot)
- TRL 8 – system complete and qualified
- TRL 9 –actual system proven in operational environment (Competitive manufacturing*)



* In the case of Key Enabling Technologies

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TOP 4 Call Types 4 Companies

- **Bottom-up | Commercial Time Horizon <3 yr (70 %)**
  EIC Accelerator ('SME-2'): TRL 6-9 (~BF | YIC)
  Fast Track to Innovation: TRL ~6-8 (~BF | Co-Innovation)

- **Top-down | Commercial Time Horizon ~3-5 yr (70 %)**
  Innovation Action (IA): TRL ~6-8 (~BF | Co-Innovation)

- **Top-down | Commercial Time Horizon ~5-8 yr (100 %)**
  Research and Innovation Action (RIA): TRL ~4-6 (~AoF+VTT)

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EIC Accelerator Pilot (SME funding)

- For innovative SMEs
- No consortium needed
- Two tracks:
  - Grant 0.5-2.5 M€
  - Grant + Blended (equity 0.5-15 M€)
- Grant (TRL 6-8); Blended (TRL 9)
- 12-24 month project
- Funding for both finalising R&D and business development
- **This is the only path for an SME to get 2,5M€ without diluting ownership!**

The proposal is like a business plan; to be competitive, you need

Clearly novel and innovative product, even disruptive	High enough maturity: At least TRL 6	Good business plan and skilful team
Ambition and chances for international growth	IPR strategy, freedom to operate (FTO)	European benefit – what's in it for the rest of the EU?

More information & advice from Business Finland: Outi.Kauppinen@BusinessFinland.fi, Heini.Gunther@BusinessFinland.fi

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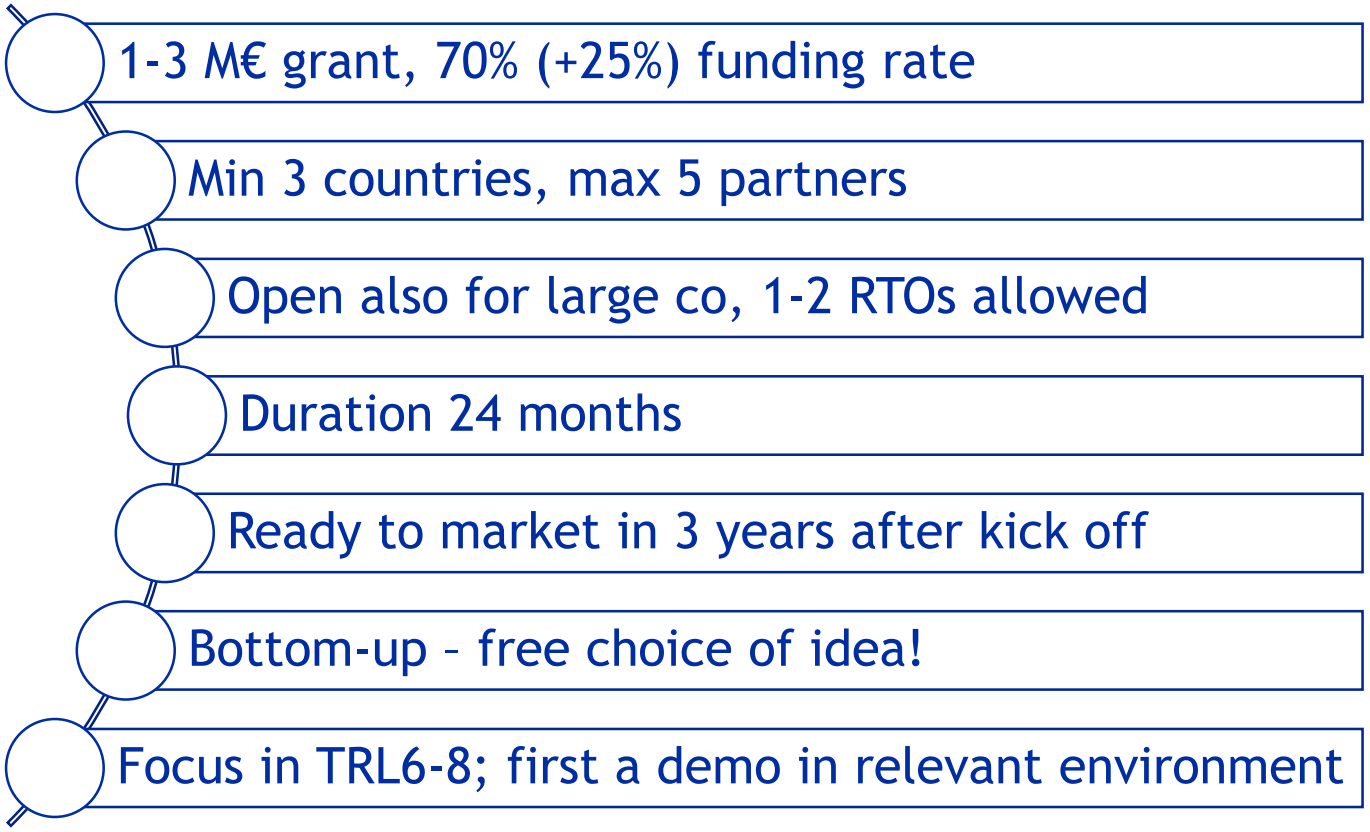
H2020 with “free topic”: Fast Track to Innovation

- For close to market innovations with strong business potential and risk
- Majority of the funding to industry industry (e.g. min. 60 % OR industry partners in the same consortium: 2/(3-4) or 3/5



More information & advice from Business Finland: Heini.Gunther@BusinessFinland.fi

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The Most Agile Bottom-up Instruments

Feature	EIC accelerator pilot	Fast Track to Innovation FTI	EuroStars
To whom?	Strong innovation and business potential, high risk included	Strong innovation and business potential, still risk included	Have an innovation that needs R&D
Source	H2020	H2020	National funding agencies; Business Finland
Max grant/ budget	2,5M€/3,6M€ (equity max 15M€)	3M€/4,3M€	0,5-6M€, average 1,4M€ (COO takes 50%)
Funding rate	70% +25%, option for blended	70% +25% (RTOs 100%+25%)	Defined by national funding agency.
Consortium	Single applicant	Min 3 countries. 3-5 partners, RTOs max 1/3 or 2/4-5.	Min 2 countries, typically 3-4 countries Note: Also Canada, Turkey and South Korea
Coordinator	SME	Large Enterprise (preferably)	R&D intensive SME (must)
Duration	24M	24M	12..36M, average 29
Funding scope	Topic is free; both R&D and business development are must and funded	Topic is free; both R&D and business development are must and funded	Topic is free; R&D is funded
TRL scope	TRL6-8	TRL6-8	Not defined clearly
Application dates	8.1.2020. 18.3.2020, 19.5.2020, 7.10.2020	22.2.2020, 9.6.2020, 27.10.2020	12.9.2019, 2020 not launched but probably 03/2020, 09/2020
Launch to market	As the project ends	In 3 years from project start	In 2 years from project end
Pros	High funding rate, resub not limited	High funding rate, resub not limited	30% get funded
Cons	5-15% get funded, High enough TRL when starting?	5-15% get funded High enough TRL when starting?	Low/no funding for Large Enterprises. Coordination must be by SME

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RIA/IA: Why Should I Care?

- ✓Opportunity to find, co-work and co-develop with the best academic and industry expertise. Contribute to future industry standards, certifications, regulation etc. Get independently validated in problem-solution and product-to-market-fit phases!
- ✓Your competitors (even US Fortune 500 companies) are utilizing funding either directly or indirectly.
- ✓Build international R&D networks and commercial channels.
- ✓Get access to hard to find IP (e.g. patents, data, algorithms) and get new technology and IP licensing income (partners!).

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*** CALL EXAMPLE ***
ICT-38-2020: Artificial intelligence for manufacturing

RIA | EUR 4-6M | Opening 9 Jul 2019 | DL 16 Jan 2020

Specific Challenge: State-of-the-art AI technologies need to be integrated with advanced manufacturing technologies and systems in order to exploit their potential in manufacturing and process industry. Specific attention has to be given to standardisation, synchronising EU and Member States activities, and to international collaboration.

Scope: AI technologies in the manufacturing domain, for example in agile production processes and predictive quality, taking into account e.g. time criticality, safety and security.

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CONSORTIUM CALLS IN SECURITY & AI [DL 08/2020]

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SU-INFRA01-2018-2019-2020: Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe

IA | EUR 7-8M | Opening 12 Mar 2020 | DL 27 Aug 2020

Specific Challenge: Recent events demonstrate the increase of combined physical and cyber-attacks due to their interdependencies. A comprehensive, yet installation-specific, approach is needed to secure existing or future, public or private, connected and interdependent installations, plants and systems.

Scope: To forecast, assessment of physical and cyber risks, prevention, detection, response, and in case of failure, mitigation of consequences (including novel installation designs), and fast recovery after incidents, achieving the security and resilience.

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SU-AI01-2020: Developing a research roadmap regarding Artificial Intelligence in support of Law Enforcement

CSA | EUR 1.5M | Opening 12 Mar 2020 | DL 27 Aug 2020

Specific Challenge: To better understand AI: 1) proactive policing (from reactive to anticipative policing); 2) data analysis (e.g., connecting the dots, discovering criminal patterns); 3) identity checks (improving detection, targeting and interdiction).

Scope: To provide an EU AI roadmap for LEAs, meeting their specific operational and cooperation needs, by identifying the key areas in which AI would be beneficial, where it could pose a threat to security, cybersecurity requirements for LEAs, as well as means of prevention and mitigation of malicious use of AI.

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SU-AI02-2020: Secure and resilient AI technologies, tools and solutions in support of Law Enforcement and citizen protection against adversarial AI

IA | EUR 17M | Opening 12 Mar 2020 | DL 27 Aug 2020

Specific Challenge: How to mostly benefit from the AI based technologies in enhancing EU's resilience against newly emerging security threats (both "classical" and new AI supported) and in reinforcing the capacity of the Law Enforcement Agencies.

Scope: To develop AI tools and solutions in support of LEAs daily work. This should include combined hardware and software solutions such as robotics or Natural Language Processing. To develop cybersecurity tools and solutions. To exploit AI technologies for cybersecurity operation purposes of LE.

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SU-AI03-2020: Human factors, and ethical, societal, legal and organisational aspects of using AI in support of Law Enforcement

CSA | EUR 1.5M | Opening 12 Mar 2020 | DL 27 Aug 2020

Specific Challenge: The lack of transparency of AI technologies and tools complicates their acceptance by users and citizens. Ethical and secure-by-design algorithms are necessary to build trust in this technology. To build a human-centred & socially driven AI.

Scope: An exhaustive analysis of human, social and organisational aspects related to the use of AI tools, including gender related aspects, in support of Law Enforcement, both for cybersecurity and the fight against crime, cybercrime, terrorism.

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SU-FCT03-2018-2019-2020: Information and data stream management to fight against (cyber)crime and terrorism

IA | EUR 8M | Opening 12 Mar 2020 | DL 27 Aug 2020

Specific Challenge: Large amounts of data and information from a variety of origins have become available to practitioners involved in fighting crime & terrorism. Lacks analysis capacities.

Scope: The effectiveness of law enforcement action depends on capabilities to improve the quality of data, and to convert voluminous and heterogeneous data sets (images, videos, geospatial intelligence, communication data, traffic data, financial transactions related date, etc.) into actionable intelligence. E.g. darknets, IoT, wearable devices, 3D printers, autonomous cars..

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SU-DS04-2018-2020: Cybersecurity in the Electrical Power and Energy System (EPES): an armour against cyber and privacy attacks and data breaches

IA | EUR 6-8M | Opening 12 Mar 2020 | DL 27 Aug 2020

Specific Challenge: The Electrical Power and Energy System (EPES) is of key importance to the economy, as all other domains rely on the availability of electricity.

Scope: The proposals should demonstrate how the actual EPES can be made resilient to growing and more sophisticated cyber and privacy attacks and data breaches. E.g. (i) assessing vulnerabilities and threats, (ii) designing adequate security measures, (iii) implementing resilience tests, (iv) demonstrating the effectiveness of the measures with a cost-benefit analysis.

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ICT-26-2018-2020: AI A PAN-EUROPEAN AI-ON-DEMAND PLATFORM

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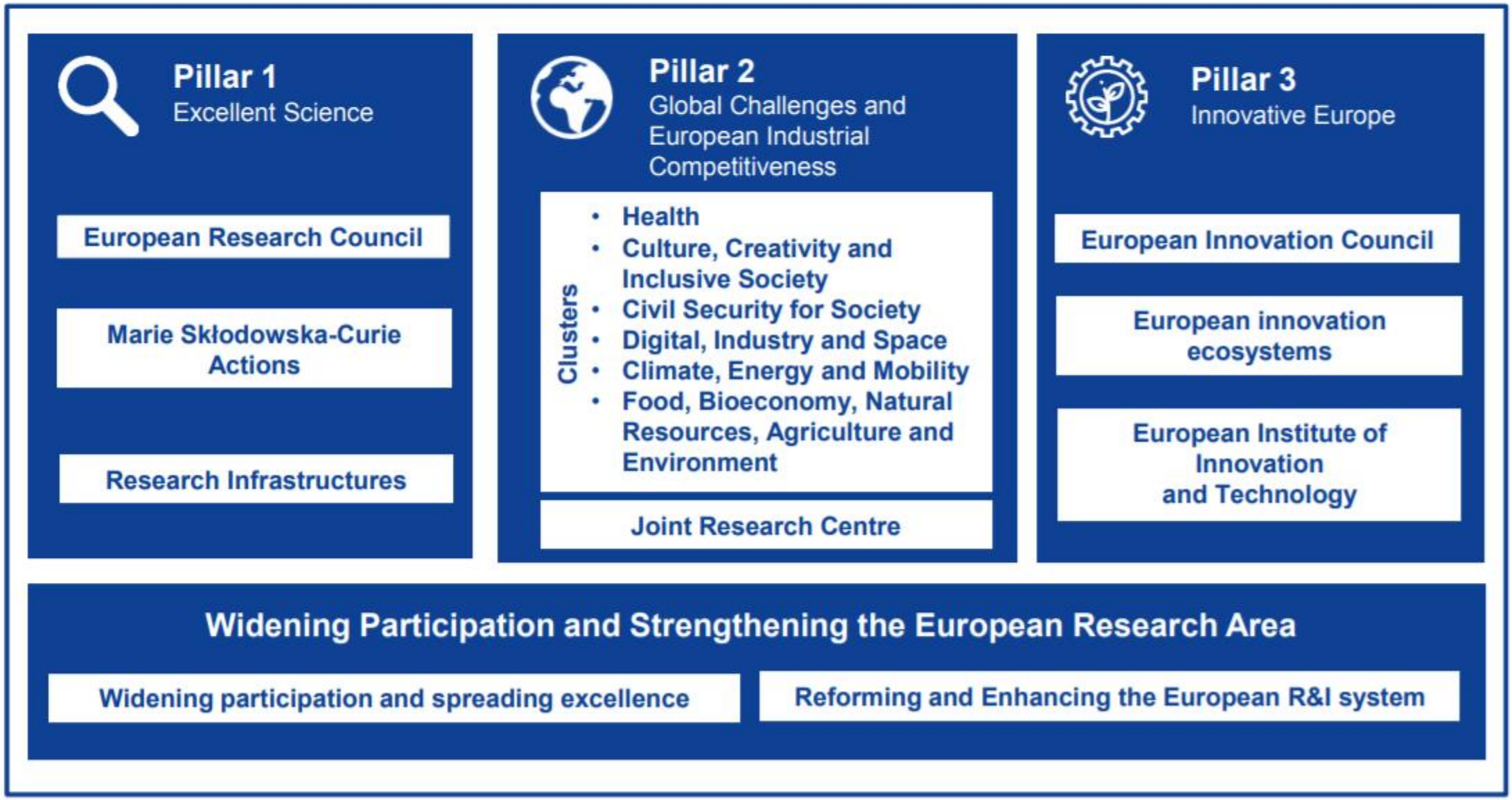
AI4EU

- ✓EUR 20 M, 87 participants, 22 countries, 36 mo project.
- ✓AI4EU will distribute €3 million equity-free among individuals, start-ups and SMEs. Organizes AI4EU Web Café Sessions.
- ✓AI Prototypes: AI4EU will select 25 individuals who could be researchers, students or developers per open call. Beneficiaries can receive to €30,000 and a 4-month support program to develop prototypes based on AI resources.
- ✓Tech Transfer program: AI4EU will select 20 Scale-ups that could be financed up-to €180,000 in equity-free cash.

A SNEAK PREVIEW OF HORIZON EUROPE

Horizon Europe: Preliminary structure



New approach to European Partnerships

New generation of objective-driven and more ambitious partnerships in support of agreed EU policy objectives

Key features

- **Simple architecture and toolbox**
- **Coherent life-cycle approach**
- **Strategic orientation**

Co-programmed

Based on Memoranda of Understanding / contractual arrangements; implemented independently by the partners and by Horizon Europe

Co-funded

Based on a joint programme agreed and implemented by partners; commitment of partners for financial and in-kind contributions

Institutionalised

Based on long-term dimension and need for high integration; partnerships based on Articles 185 / 187 of TFEU and the EIT-Regulation supported by Horizon Europe

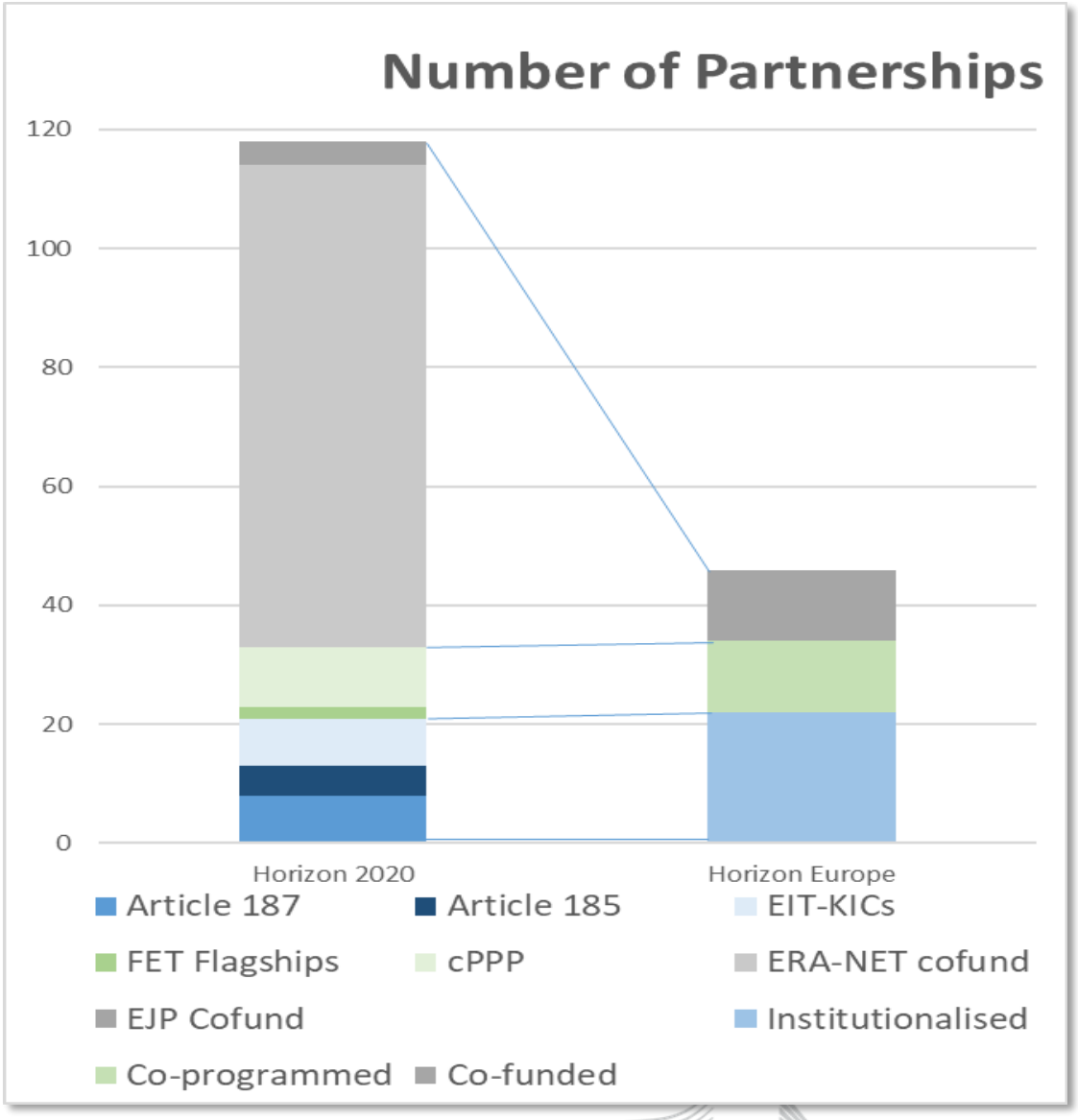
Emerging Partnership portfolio Horizon Europe

Rationalisation and reform achieved so far:

- Reduction from >120 (of all types) to currently 45;
- 6 new topics;
- 28 reformed continuations;
- 11 mergers and reforms;
- 35 partnerships candidates in Pillar II;
- 11 partnership candidates outside pillar II (9 EIT-KICs, SMEs, Open Science Cloud).

EU contributions/budgets:

- To be decided at a later stage following the overall MFF and Horizon Europe budgetary envelopes;
- To be determined once there are agreed objectives, and clear commitments from partners.

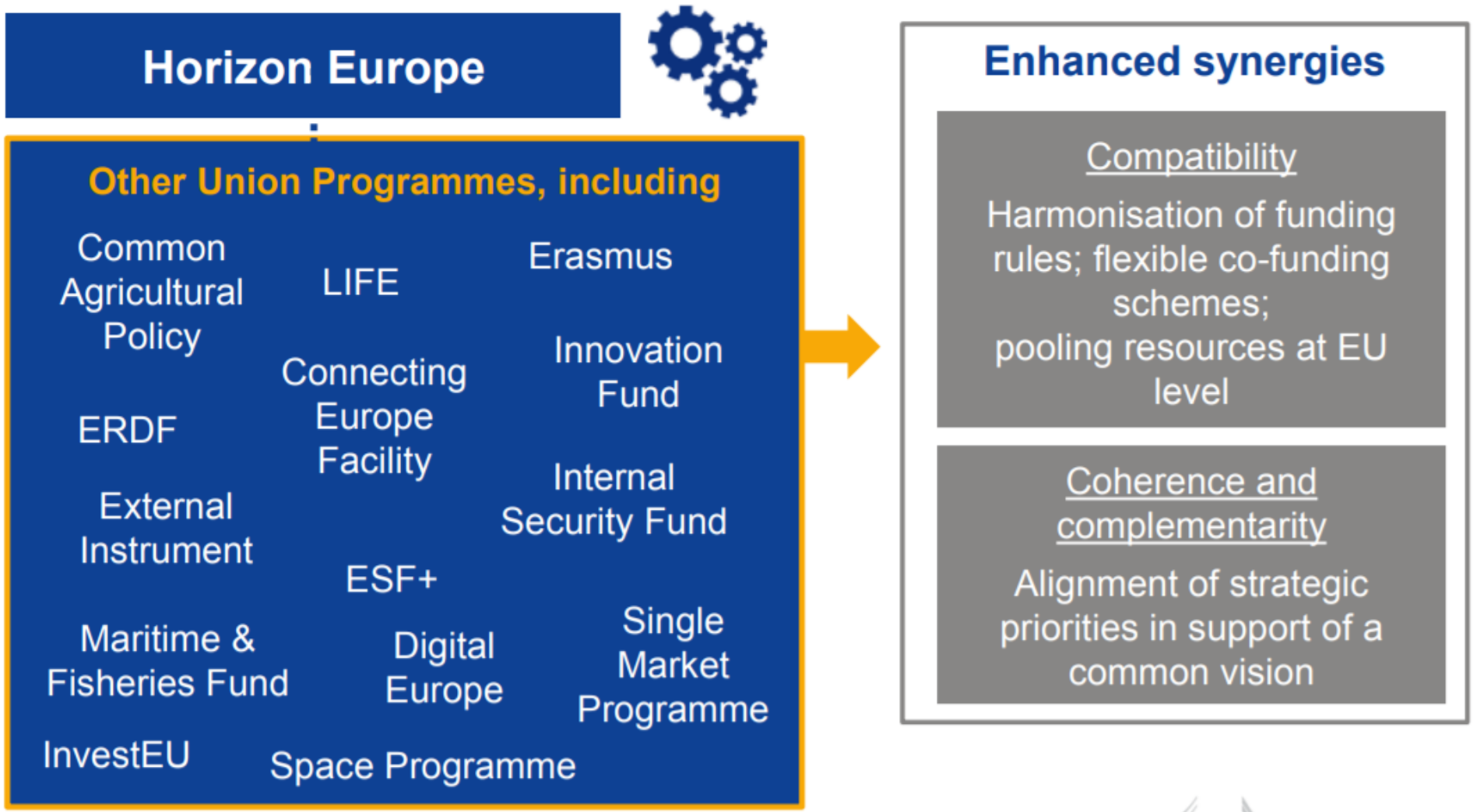


European Commission

Areas for possible Institutionalised European partnerships (based on Article 185/7 TFEU)

- Health innovations
- Key digital and enabling technologies
- Metrology
- EU air traffic, aviation and rail
- Sustainable bio-based solutions
- Hydrogen and sustainable energy storage
- Clean, connected mobility
- Innovative SMEs

Commission proposal for synergies with other Union programmes



European Commission

Portfolio of candidates for European Partnerships (49)

HEALTH

EU-Africa Global Health

Innovative Health Initiative

Chemicals Risk Assessment

Fostering an ERA for Health research

Large-scale innovation and transformation of health systems in a digital and ageing society

Personalised Medicine

Rare Diseases

One Health AMR

DIGITAL, INDUSTRY AND SPACE

High Performance Computing

Key Digital Technologies

Smart Networks and Services

AI, data and robotics

Photonics Europe

Clean Steel - Low Carbon Steelmaking

European Metrology

Made in Europe

Carbon Neutral and Circular Industry

Global competitive space systems

European Geological Service

PILLAR III AND CROSS-PILLAR

EIT Climate KIC

EIT Health

EIT Manufacturing

EIT Food

EIT InnoEnergy

EIT Manufacturing

EIT Raw Materials

EIT Digital

EIT Urban Mobility

EIT Cultural and Creative Industries

Innovative SMEs

European Open Science Cloud (EOSC)

CLIMATE, ENERGY AND MOBILITY

Transforming Europe's rail system

Integrated Air Traffic Management

Clean Aviation

Clean Hydrogen

Built environment and construction

Towards zero-emission road transport

Mobility and Safety for Automated Road Transport

Batteries

Clean Energy Transition

Sustainable, Smart and Inclusive Cities and Communities

Smart and zero-emission waterborne transport

FOOD, BIOECONOMY, NATURAL RESOURCES, AGRICULTURE AND ENVIRONMENT

Accelerating farming systems transition

Animal health: Fighting infectious diseases

Environmental Observations for a sustainable EU agriculture

Rescuing biodiversity to safeguard life on Earth

A climate neutral, sustainable and productive Blue Economy

Safe and Sustainable Food System for People, Planet & Climate

Circular bio-based Europe

Water4All: Water security for the planet

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APPENDIX. CYBERSECURITY PILOTS SU-ICT-03-2018

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SU-ICT-03-2018: General

- ✓*Establishing and operating a pilot for a Cybersecurity Competence Network to develop and implement a common Cybersecurity Research & Innovation Roadmap.*
- ✓Research and Innovation Action, EUR 16M, 100 % funding.
- ✓The consortium in a proposal must involve at least 20 partners.
- ✓A proposal should also include industrial partners from various (not less than 3) sectors (e.g. telecom, finance, transport, eGovernment, health, space, defence, manufacturing) that will be involved in the demonstration cases.

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SU-ICT-03-2018: Scope (1)

- ✓Common **research, development and innovation** in next generation industrial and civilian cybersecurity technologies (incl. dual-use), applications and services; focus should be on horizontal cybersecurity technologies as well as on cybersecurity in critical sectors;
- ✓Strengthening cybersecurity **capacities** across the EU and closing the cyber skills gap;
- ✓Supporting **certification** authorities with testing and validation labs equipped with state of the art technologies and expertise.

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SU-ICT-03-2018: Scope (2)

Projects should also include industrial partners and their cybersecurity research collaborators to create synergies and:

(a) collaboratively **identify and analyse scalable** (short/mid/long term) cybersecurity **industrial challenges** in the selected sectors;

(b) **demonstrate** their ability to collaborate in developing appropriate solutions to solve critical challenges through (not less than four) research and innovation demonstration cases. These **demonstration cases** will constitute the core part of the work to be done within the project.

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APPENDIX. 4 WINNING CONSORTIA SU-ICT-03-2018

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Cybersecurity

Horizon 2020 pilot projects

to prepare a European Cybersecurity Competence Network
& contribute to the European cybersecurity industrial strategy

More than **€63.5 million** invested in **4 projects**

CONCORDIA

Cyber security cOmpetenCe fOr Research anD InnovAtion

- Partners: **46**
- EU Member States involved: **14**

Key words
SME & startup ecosystem
Ecosystem for education
Socio-economic aspects of security
Virtual labs and services
Threat Intelligence for Europe
DDoS Clearing House for Europe
AI for cybersecurity
Post-Quantum cryptography

Cyber Security for Europe

- Partners: **43**
- EU Member States involved: **20**

Key words
Cybersecurity for citizens
Application cases
Research Governance
Cyber Range
Cybersecurity certification
Training in security

ECHO

- Partners: **30**
- EU Member States involved: **15**

Key words
Network of Cybersecurity centres
Cyber Range
Cybersecurity demonstration cases
Cyber-skills Framework
Cybersecurity certification
Cybersecurity early warning

SPARTA

- Partners: **44**
- EU Member States involved: **14**

Key words
Research Governance
Cybersecurity skills
Cybersecurity certification
Community engagement
International cooperation
Strategic Autonomy

Last updated 8 March 2019

More than **160 partners** from **26 EU Member States**

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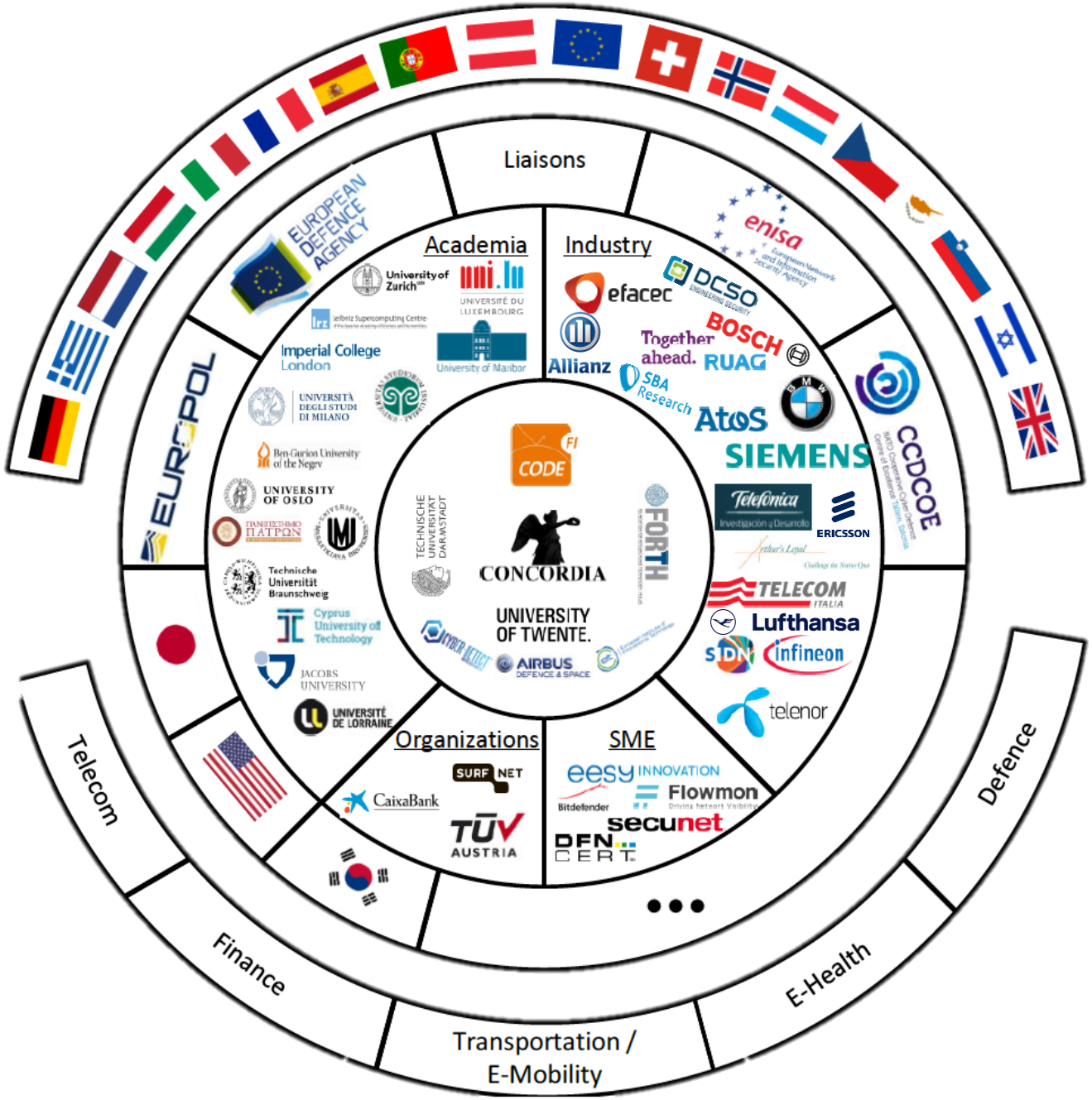
55 Partners:

- 27 Academia
- 28 Industry and Organisations



- 16 Millions EC funding for 4 years
- 7 Millions additional funding from national authorities and industry

Who Are CyberSec4Europe?

Centres of Excellence / Universities / Research Centres / SMEs

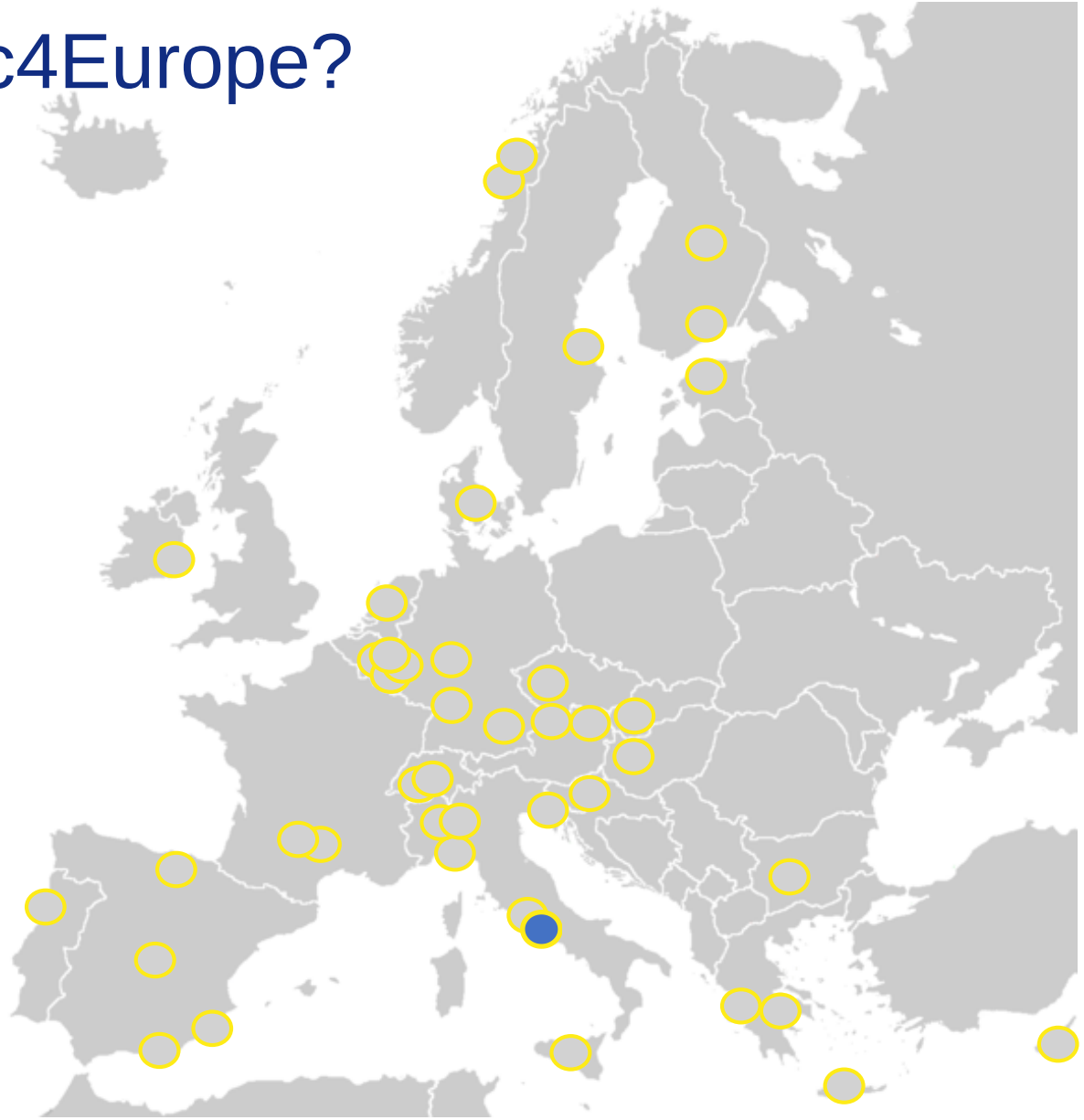
43 partners in 22 countries

26 ECSO members involved in 6 ECSO Working Groups

Existing networks (ECSO, TDL, EOS, CEPIS)

Experience from over 100 cybersecurity projects in 14 key cyber domains

11 technology/ application elements and coverage of nine vertical sectors



PARTNERS


acea


AGH


AON
Empower Results


BU
Bournemouth University


iti
Information Technologies Institute


certSIGN


CRM
CONSORZIO ITALIANO PER LA RICERCA IN MEDICINA


ENQUIRYA


ESI
European Software Institute
Center Eastern Europe


expriVia
future. perfect. simple.


FINCANTIERI


guardtime


IICT
INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGIES


XAI


LAUREA
Yhdessä enemmän


LINK University
CAMPUS


NAVAL
GROUP


Maynooth University
National University of Ireland Maynooth


RHEA


SIVECO
ROMANIA SA
Software that matters


EMC
Health Services Management Training Centre


telelink
BUSINESS SERVICES


Telefonica

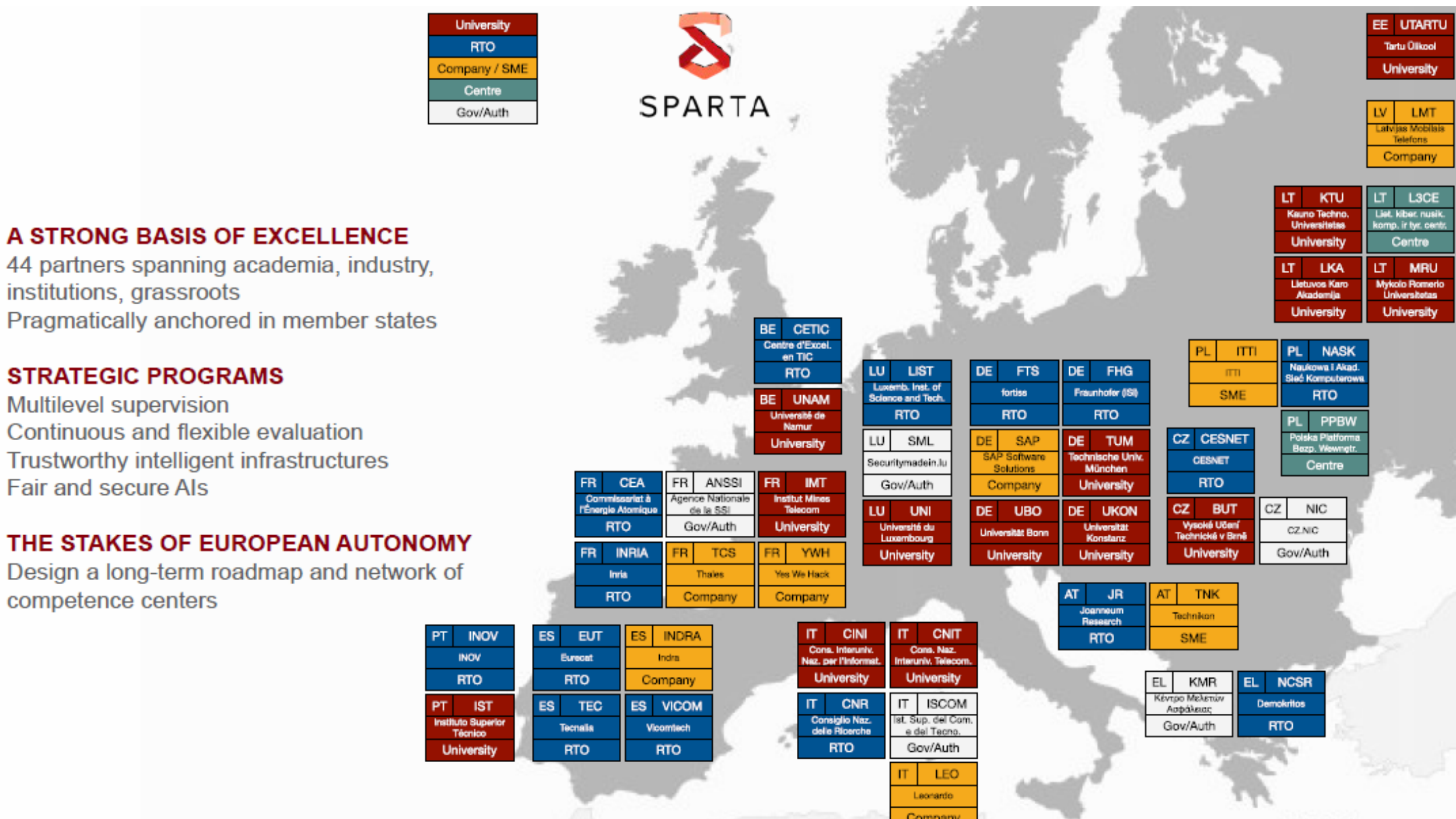

TAL TECH


VITROCISET
Belgium


VISI•NSPACE


Zanasi & Partners
Security Research and Advisory


VITROCISET



A STRONG BASIS OF EXCELLENCE

44 partners spanning academia, industry, institutions, grassroots

Pragmatically anchored in member states

STRATEGIC PROGRAMS

Multilevel supervision

Continuous and flexible evaluation

Trustworthy intelligent infrastructures

Fair and secure AIs

THE STAKES OF EUROPEAN AUTONOMY

Design a long-term roadmap and network of competence centers

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Contacts to Consortia & ECSO

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WORLD **IDEAS**

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