

BF & Horizon Europe

Funding Opportunities in 5G+

Traficom 5G Momentum Info 3 June 2021

Confidential

HORIZON EUROPE

— EU RESEARCH AND INNOVATION PROGRAMME —

What Kind of Public Money 4 Which Purpose?

	Finland	EU
➤ Science & Research	AoF (Gr)	Horizon Europe (Gr)
➤ R&D&I	BF (Gr, R&D L)	Horizon Europe (Gr)
✓ <i>Specific Example #1</i>	Matine (Gr)	European Defence Fund (Gr)
➤ Working Capital	Finnvera (Guar, L)	EIB (Guar, L)
➤ Investments	Finnvera (Guar, L)	EIB (Guar, L)
✓ <i>Specific Example #1</i>	n/a	Innovation Fund (Gr)
✓ <i>Specific Example #2</i>	n/a	CEF (Gr)
➤ Transactions	Finnvera (Guar, L)	EIB (Guar, L)
➤ Anything	BFVC , TESI (EQ)	EU (EQ)

BUSINESS FINLAND FUNDING FOR DIFFERENT STAGES OF DEVELOPMENT

Examples of funding

<p>INNOVATION VOUCHER</p> <p>Buy innovation expertise</p>	<p>EXPLORER PRODUCTS</p> <p>Funding to support companies' internationalization</p>	<p>TEMPO</p> <p>For companies aiming for international growth</p>	<p>INTO</p> <p>Innovation expertise in support of international growth</p>	<p>RESEARCH ORGANIZATIONS</p> <p>Commercialization of research findings and joint projects with companies (Research to Business + Co-Creation/Co-Innovation)</p>	<p>NIY (Under 5 y.o. fast growing start-ups)</p> <p>Scale globally.</p> <p>Develop the strategy, team, business model in a comprehensive manner.</p>	<p>R&D</p> <p>Develop a service, product, process, or a business model.</p> <p>Prove that your product works.</p>
<p>Grant 80%</p>	<p>Grant 50 %</p>	<p>Grant 75 %</p>	<p>Grant 50 %</p>	<p>Grant</p>	<p>Grant and loan gradually</p>	<p>Loan 50% / 70% Grant max. 50%</p>

* Specific one(s) -> <https://www.businessfinland.fi/en/whats-new/calls/2021/partnership-model-funding-call-for-companies-and-research-organizations>

Horizon Europe 2021 – 2027: ~95 B€

25 B€
(26,2 %)

Pillar 1 Excellent Science

European Research Council

Marie Skłodowska-Curie Actions

Research Infrastructures

53.5 B€
(56 %)

Pillar 2 Global Challenges and European Industrial Competitiveness

Clusters

- Health
- Culture, Creativity and Inclusive Society
- Civil Security for Society
- **Digital, Industry and Space**
- Climate, Energy and Mobility
- Food, Bioeconomy, Natural Resources, Agriculture and Environment

Joint Research Centre

13,6 B€
(14,2 %)

Pillar 3 Innovative Europe

European Innovation Council
(EIC Accelerator: deep-tech)

European innovation ecosystems

European Institute of Innovation
and Technology

3,4 B€
(3,5 %)

Widening Participation and Strengthening the European Research Area

Widening participation and spreading excellence

Reforming and Enhancing the European R&I system

The Most Common Intl Consortia Funding Instruments

	HEU Research and Innovation Action	HEU Innovation Action	EUREKA	EUROSTARS (PPP)
Public money source	EC	EC	NFAs	NFAs + EC
Focus company	SME, LE	SME, LE	SME, LE	R&D performing SME
Typical funding/company (EUR)	Depends on the call (0,25-1,0 M)	Depends on the call (0,25-1,0 M)	0,05-1 M	0,5-6 M
Funding rate for companies	100 % + 25 %	70 % + 25 %	40-70 %	40-50 % (from which EC returns 25 % to FI)
Funding type	Grant	Grant	Grant (or R&D loan)	Grant
Business case	Top down (within scope)	Top down (within scope)	Bottom-up	Bottom-up
Consortium structure	Min 3 from min 3 MS/AC	Min 3 from min 3 MS/AC	Min 2 from 2 countries	Min 2 from 2 countries
Typical coordinator	RTO, LE	RTO, LE (preferably)	SME, LE, RTO	R&D performing SME
Typical duration	36-48 mo	36-48 mo	24-36 mo	12-36 mo
Typical TRL scope	4-7	5-8	4-7	5-7
Application dates/cut-offs	Depends on the call	Depends on the call	Several	2 per year

AC	<i>Associated Country (with EU)</i>
EC	<i>European Commission</i>
HEU	<i>Horizon Europe (2021-2027)</i>
LE	<i>Large Enterprise</i>
MS	<i>Member State</i>
NFA	<i>National Funding Agency</i>
PPP	<i>Public-Private Partnership</i>
RTO	<i>Research and Technology Organization</i>
SME	<i>Small and Medium Sized Company</i>
TRL	<i>Technology Readiness Level (1-9)</i>

Technology Readiness Level Defines Which Action Suits Your R&D Phase (Bolded TRLs ~ in RIA/IA Calls)

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – *technology validated in lab*

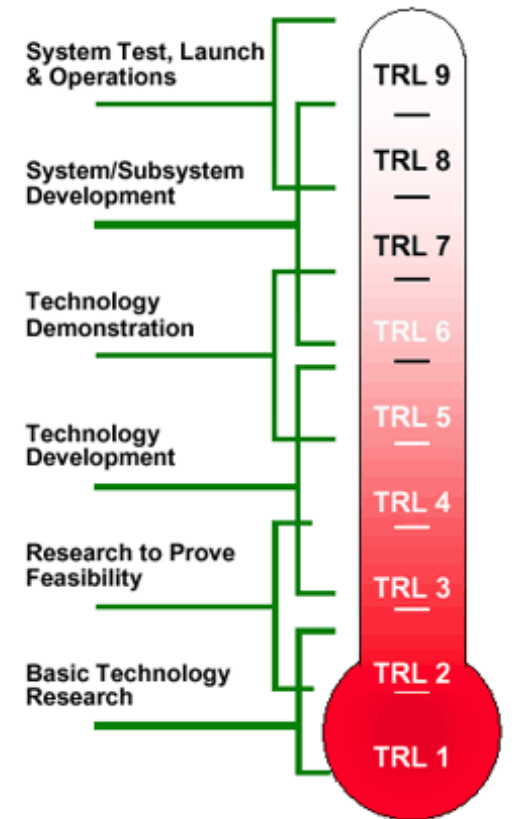
TRL 5 – *technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)*

TRL 6 – *technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies) ~"MVP"*

TRL 7 – *system prototype demonstration in operational environment ~"Pilot"*

TRL 8 – *system complete and qualified ~"Large-scale pilot"*

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)



A close-up, low-angle shot of a microscope objective lens. The lens is metallic and has a textured ring. The numbers "100/1.25" and "160/0" are visible on the lens. The background is dark blue with bokeh light effects.

Partnerships & Key Takeaways

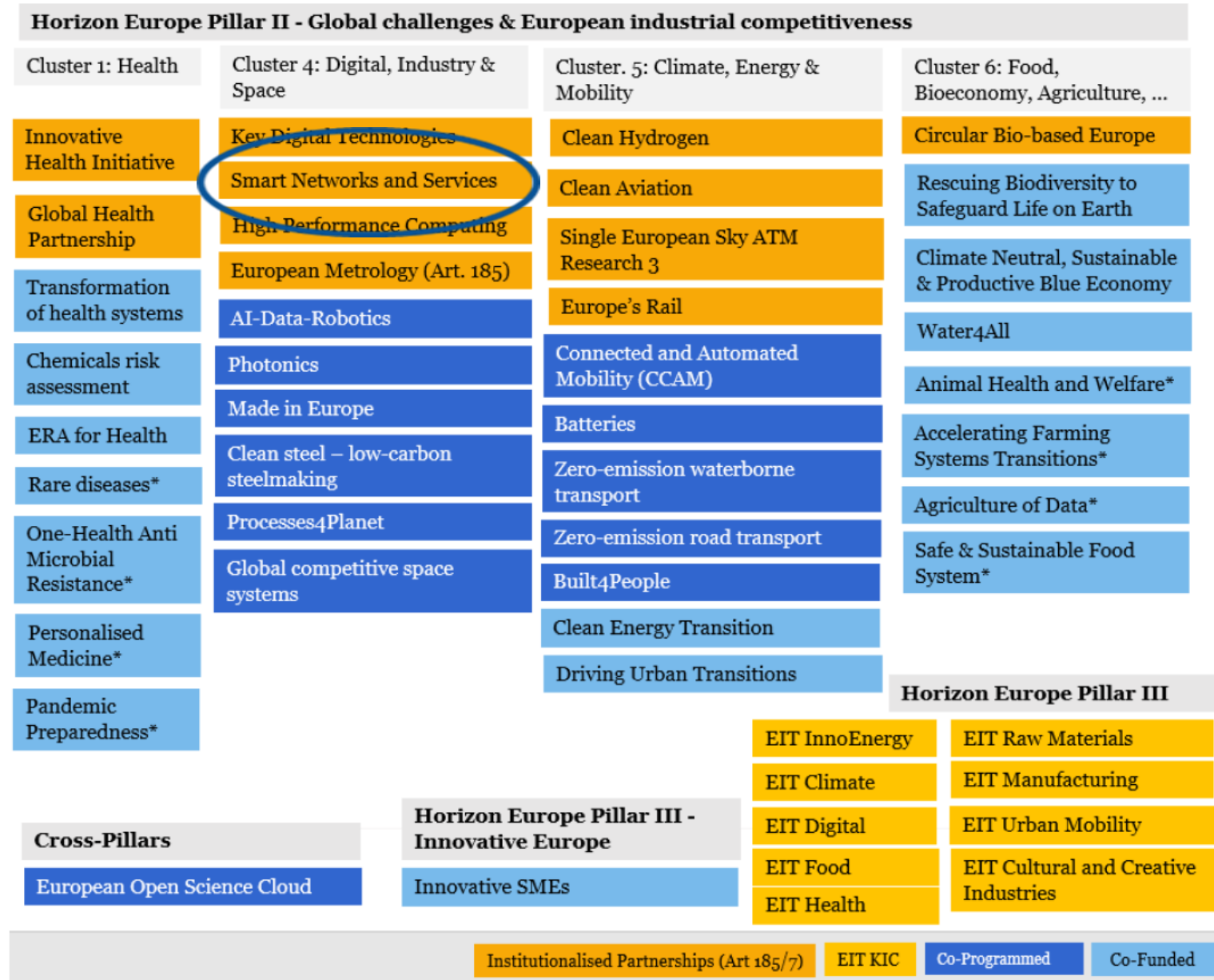
*"If You Want To Be A Good Archeologist,
You Gotta Get Out Of The Library!"*

- Indiana Jones

HORIZON EUROPE

— EU RESEARCH AND INNOVATION PROGRAMME —

Overview of 49 candidate European Partnerships according to Horizon Europe structure



60 % of HEU Cluster 4 Funding Is In Partnerships

- ✓ European Partnership for Key Digital Technologies (KDT) (1.800 M€)
- ✓ **European Partnership for Smart Networks and Services (SNS) (900 M€)**
- ✓ European Partnership on Artificial Intelligence, Data and Robotics (1.300 M€)
- ✓ European Partnership for Photonics (340 M€)
- ✓ European Partnership for Clean Steel - Low Carbon Steelmaking (350 M€)
- ✓ European Partnership on Metrology (300 M€)
- ✓ European Partnership Made in Europe (900 M€)
- ✓ Processes4Planet – Transforming the European Process Industry for a sustainable society (1.530 M€)
- ✓ European Partnership for Globally competitive Space Systems (500 M€)

Proposed structure of the Work Programme



5G Evolution (40%)

Stream A (20% - RIA): Smart communication components, systems and networks for 5G mid-term Evolution systems

Stream D (20% - IA): Large Scale SNS Trials and Pilots with Verticals

6G (60%)

Stream B (50% - RIA): Research for radical technology advancement towards 6G

Stream C (10% - IA): SNS experimental infrastructures

CSAs - TBD

Stream A: Smart communication components, systems and networks for 5G mid-term Evolution systems

- This is a **mid term evolutionary approach** on the road to 6G
- The draft Stream A definition is targeting **3 domains of activities and 7 topics**:
 - **Radio**: (1) Green radio technology and (2) Ubiquitous radio access.
 - **Architecture and Core**: (3) Sustainable capacity networks, (4) Towards Smart Green Systems and (5) Evolution on Cloud/Edge Computing architectures and operational support.
 - **System and security**: (6) Secure and reliable softwarization in telecommunications and (7) Real-time zero-touch service technologies.

Stream B: Research for Radical Technology Advancement towards 6G

- Provide the **research foundations for low TRL technology** advancement in preparation for the upcoming 6G networks
 - **Strand 1** - System Architecture
 - **Strand 2** - Wireless Communication Technology and Signal Processing
 - **Strand 3** - Core and Access Communication Technologies, and Devices
 - **Strand 4** - Trustworthy and Secure Service Development and Provision
 - **Strand 5** - Transformative Technologies
- Plus potential Cross-Strands System Flagship Projects

Stream C: Experimental Infrastructures

- Provide pre-6G experimental infrastructures following an evolutionary approach
- Focus on the integration of new components/technologies on top of existing 5G experimental platforms, where applicable
- Use the outcome for further validation through specific vertical use cases and/or large- scale showcasing events (Stream D – Phase 2)
- Stream A and Stream B projects are expected to deliver proof of concepts (PoCs) to be used as input for Stream C phase 2 projects

Stream D: Large Scale Trials and pilots with Verticals

- Demonstrate both technological and business validation with verticals
- Foster a close cooperation between ICT and other application domains stakeholders
- Potentially leverage existing relevant platforms projects such as 5G Infrastructure PPP, End-to-End Facility projects or/and Vertical Pilots projects, IoT & Cloud platforms
- Explore and demonstrate technologies, end devices, communication components and applications
- Demonstrate Europe's leading solutions
- SMEs, scaleups and startups are expected to play a key role in this process

Key Takeaways

- I. **Build capacities during national funding** phase and map current **R&D pipeline state-of-play**.
- II. Foresee company's R&D pipeline activities in **1-2 years ahead of the targeted RDI projects' inception**. Do not outsource it! Do your homework related to:
 1. Scan company's existing networks and activities in different RDI departments
 2. Survey existing BF, Eureka or VTT projects
 3. Take a look into pending or concluded EU projects (<https://cordis.europa.eu> & <https://h2020viz.vinnova.se/#/>)
 4. Take a deep dive into ten Horizon 2020 cPPPs (<https://ec.europa.eu/programmes/horizon2020/en/contractual-public-private-partnerships>)
- III. Get a **mandate from corporate C-level** to take actions to commit sweat (build networks, meet experts preferably face2face) and tiny monies (prepare consortia applications).
- IV. Consult national Horizon 2020/Europe **National Contact Point experts early and often!**

LET'S KEEP IN TOUCH!

Pekka Rantala

Senior Advisor

Horizon Europe National Contact Point

+358 50 396 2922

pekka.rantala@businessfinland.fi

HORIZON EUROPE

— EU RESEARCH AND INNOVATION PROGRAMME —