Future Internet Experimentation - Building a European experimental Infrastructure

a. Research and Innovation Actions

Proposals should cover one of the following bullet points:

- Proposals for at least one very large collaborative project that would i) build upon the federation efforts already undertaken, including the development of relevant federation tools and concepts like Experimentation-as-a-Service (EaaS); ii) develop a sustainability and evaluation framework for selecting testbeds for federation iii) continue federating the experimental testbeds under FIRE+, including testbeds (national, regional or local) selected using the above sustainability and evaluation framework, for the benefit of experimenters; iv) broker between facilities and experimenters, including in particular SMEs allowing experimenters to access the facilities for experimentation; v) pursue the efforts of federation in a global context, in particular with US, Japan, Brazil and South Korea, with the aim of exchanging best practices, tools and methodologies.
- Proposals for at least one large collaborative project in each of the following three areas, for the creation, reconfiguration and/or extension of experimental infrastructures: i) large-scale experimentation on management and control of cognitive radio, including in terms of compliance, as well as dynamic spectrum sharing in licensed and unlicensed bands, addressing also new spectrum bands; ii) large-scale experimentation for service delivery networks, based on heterogeneous and cooperative networks integrated through SDN/NFV techniques and compatible with demanding high mobility environments, e.g. connected vehicles ; iii) large-scale experimentation on Future Multimedia Internet (FMI) services fully integrated with broadcasting, with a focus on high mobility scenarios and its impact on communication and storage infrastructures.

The Technology Readiness Level (TRL) of proposed actions must be between 3 (experimental proof of concept) and 7 (system prototype demonstration in operational environment). Actions should contribute to pre-standardisation and standardisation on their respective technologies in collaboration with bodies and fora, such as ETSI, W3C and IETF.

Actions will involve financial support to third parties in line with the conditions set out in Part K of the General Annexes. The consortium will define the selection process of third parties for which financial support will be granted (typically in the order of EUR 50 000 – 150 000[[In line with Article 23 (7) of the Rules for Participation the amounts referred to in Article 137 of the Financial Regulation may be exceeded, and if this is the case proposals should explain why this is necessary to achieve the objectives of the action.]] per party). At least 50% of the EU funding should be allocated to experimentation-related financial support to third parties, while an additional 20% could be allocated to the brokering between facilities and experimenters. Lower percentages can be accepted, if justified, especially in the case of creation of new experimental facilities.[[It is recommended to also use established networks reaching out to SMEs like the Enterprise Europe Network and the NCP network for calls publications and awareness raising towards SME's.]]

The Commission considers that proposals requesting a contribution from the EU of up to EUR 10 million for the first bullet point and up to EUR 5 million for the second bullet point would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

b. Coordination and Support Actions:

Proposals should cover one or both of the following bullet points:

- Identification, evaluation and roadmap of the future needs for Future Internet large-scale experimentation; analysis and development of collaboration models, capabilities and resources; vision and strategy for FIRE+;
- Communication, community building, impact and effectiveness stimulation and dissemination of FIRE+ results; performance monitoring and performance indicators.

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

The validation of research results in large-scale, real life experimental infrastructures is essential for the design and deployment of products, applications and services on the Future Internet. Europe needs a Federated Experimental Infrastructure for Future Internet Research & Experimentation (FIRE+) available to experiments of any size, complexity, or networking technology. Experimenters need to run experiments under controlled and replicable conditions, according to specific requirements by accessing real or virtual equipment, services, systems and tools on demand, seamlessly and regardless of their geographical location.

A dynamic and promising segment of experimenters, in particular small and medium-size developers and innovators cannot afford testbeds or even testing equipment of their own and need to be provided easy and affordable access to said capacities. Real-world prototyping and experimenting environments are needed in certain cases for innovation creation. In addition, Future Internet Research and Experimentation in Europe could benefit from similar initiatives around the world.

Proposals should address the following and provide appropriate metrics for measuring success:

- Experimental capability at European level that covers a variety of networking technology areas and allows tens of experiments to be run on top of them each year;
- Potential to experiment without the constraints of the physical location or access to a specific experimental facility;
- Reduction of the time to experiment by allowing a larger set of experiments to take place on reliable and benchmarked infrastructure that can evolve and be re-configured;
- Response to the needs of individual, small and medium experimenters without access to experimental facilities or environments;
- Support of trials driven by vertical application areas with a good mix of supply and demand stakeholders;
- Contribution to the sustainability model of experimental facilities;
- Contribution to standardisation and interoperability of experimental facilities;
- Concrete cooperation and cross-fertilisation between European and international initiatives in experimentally-driven research as a first step towards a wider collaboration with US, Japan, Brazil and South Korea.

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