



Project Area: Future Internet

IIT, IMATI, ISTI, IEIIT, INM, ICAR, IASI, STIIMA, IMAMOTER, IFAC



Objective: Support the (r-)evolution of the Internet, addressing **both** long-term and medium-term research & innovation goals.

New paradigms and technologies for three synergic areas:

- (i) Next Generation Internet (**NGI**),
- (ii) Distributed, Parallel - High Performance Computing (**HPC**),
- (iii) Software Engineering (**SW**).

NGI, HPC and SW are **key enabling elements** for the **new Internet e.g. for IoT systems and applications**

Objectives **are well aligned** with reference research programmes, most notably FP9 “Horizon Europe”.

Approach: we exploit **synergy, complementarity and specialization**.

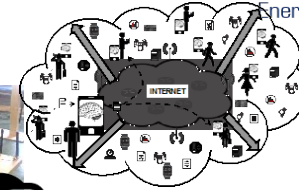
Integration between NGI and HPC provides complex global platforms and systems with high performance communication and distributed computing (e.g., for distributed data analytics), that need new and sounding **SW engineering** principles and techniques. This addresses the **emerging vision** of the Future Internet as a global platform for **integrated networking & computing**.

Specialization includes: (i) mobile communication technologies for 5G and Internet measurements; (ii) novel NGI network paradigms; (iii) IoT for industrial Internet in the **NGI area**; (i) virtualization and cloud computing, (ii) edge computing and (iii) heterogeneous parallel computing in the **HPC area**; (i) formal methods, (ii) end-user SW development, (iii) agent-based systems; (iv) testing, monitoring, modelling and verification techniques for the **SW area**.

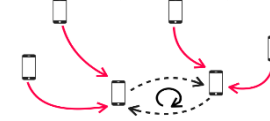
Figures:



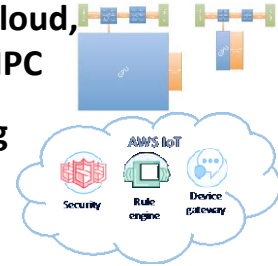
NGI paradigms



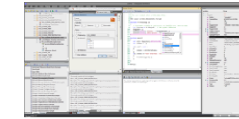
Edge computing



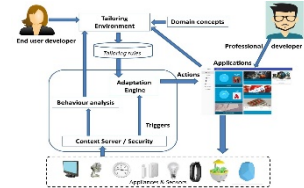
Virtualisation, Cloud, HPC



Industrial Internet



SW methods



Scientific Impact/Results: Results will impact on the international research in all the three areas.

The **NGI area** will impact with novel technologies for 5G networks, and novel networking paradigms. Special impact is expected in the Industrial Internet. The **HPC area** will impact with novel cloud/HPC architectures and technologies, including mobile devices at the edge of the network. The **SW area** will impact with novel methodologies for software modelling, design, monitoring and verification.

Joint effort will further strengthen these impacts, as it is already the case for the IoT area.

The PA is already mobilising **56.24 FTEs** across **10 Institutes**, with funded project amounting to around **6.6 MEuro**.