

Enabling Growth and Accelerating Innovation in Regione Lazio by repositioning the ICT industry: the Lazio Pulse Initiative

1. Scope of the Document

This document briefly describes the concept and core elements of the **Lazio Pulse** initiative proposed to Regione Lazio in response to the Call for Proposal Notice "Support to the competitive repositioning of regional business systems", Priority Axis 3 Action 3.3.1. with a volume of resources amounting to 70 million euro.

The Lazio Pulse initiative is aiming to foster economic growth in the emerging European Digital Single Market¹ through the development of an **Open and Social Innovation ecosystem of data-driven start-ups, new business opportunities and repositioning of business chains**, maximising the scientific, economic and societal value of **eScience Data**².

In particular, the document includes a high-level roadmap describing how Lazio Pulse could bring **assets** – including eScience data (e.g. ESA Earth observations, ENEA environmental information, INGV earth surveillance data, etc...), high-level products (e.g. climate data sets, disaster management, smart cities, traffic control, predictive analysis, etc...), e-infrastructures (e.g. ESA cloud, INFN grid, etc...) and programmes, together with **Business Incubation Centres (BICs)** and Research Centres know-how, to deliver new eScience-based services, attract new sources of financing and ensure continuous innovation and sustainability.

This initiative is well included within the framework of the European open innovation, in which ESA is actively developing a European network of "Earth Labs" that creates innovation around Earth observation (EO) and stimulate the creations of new businesses focused on this specific service offering.

2. Lazio Pulse responding to the Open Data and Digital Revolution

Rapid advances in digital technologies (e.g. Cloud computing, Semantic Web) combined with an increasing capability to monitor our planet through a web of sensors (e.g. eScience data like Earth Observation from space, crowd-sourcing and data mining, in-situ networks, Smart and Wireless Sensors, Internet of Things, etc.), have led to a true *Data Revolution*, whereby Petabytes of data are now routinely generated to *support growth*. The Rapid transition of Research towards Science 2.0 shows the on-going systematic changes in doing Research and organizing Science driven by

¹ <http://ec.europa.eu/priorities/digital-single-market/>

² eScience is computationally intensive science that is carried out in highly distributed network environments, or science that uses immense data sets that require grid computing; the term sometimes includes technologies that enable distributed collaboration, such as the Access.

rapid advances in ICT and Digital Technologies, combined with a growing demand to do Science for Society (actionable research) and in Society (co-design of knowledge)³.

Data provide the *foundation* of eScience to advance our understanding of how our planet operates as an integrated system. The digital revolution is now changing the way of doing and organising research, by fostering a new world of data-intensive research, referred as *Open Science*⁴, characterized by openness, access to large volume of complex data, availability of community tools, unprecedented level of computing power, and global collaboration among researchers and new actors, such as citizen scientists. At the same time, the open data revolution provides the *fuel* for the development of innovative services, offering incredible opportunities to young entrepreneurs to turn data into highly innovative commercial ventures, and to companies to diversify their services/products and reposition their business chains.

In this context, in order to foster the next generation of data-driven *digital start-ups* in Europe, we propose the development of a regional Public Private Partnership of stakeholders interested in sharing data, know-how and infrastructures.

This ecosystem will be supported by the already existing infrastructures of the Research Centres mainly based in Frascati area, which can share a huge amount of data through open software and gain by the existing ESA BICs infrastructures (Business Incubation Centres)⁵.

The Lazio Pulse Initiative aims to foster the development of innovative services addressing Grand societal challenges, by fostering the development of an ecosystem of industries and SMEs, developers, entrepreneurs and data scientists harnessing the power of eScience.

This ecosystem will be facilitated by the sharing of infrastructure of Research Centers in Frascati, which will provide a large amount of data through open software systems and will make use of the ESA business incubator (BICs) for entrepreneurship support.

Also, important to note that this initiative goes well beyond a simple project but provides a framework or venture to propel innovation ecosystems transversal to several different sectors:

- Space
- Life sciences
- Cultural and Creative industries
- Agrifood
- Security
- Environment
- Smart, green and integrated transport
- e-Health and Wellbeing

Although there exist several initiatives on innovation in Europe and globally (e.g. Technology and Knowledge and Innovation Communities KICs⁶ in Europe, iHub in Africa), our approach

³ <https://ec.europa.eu/digital-agenda/en/news/have-your-say-future-science-public-consultation-science-20>

⁴ <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/open-science-open-access>, <http://scienceintransition.eu>

⁵ BICs are located in 10+ European countries, including Holland (Noordwijk near ESTEC, Germany (Darmstadt near ESOC and Bavaria), Italy (Rome Tiburtina near ESRIN), Belgium (Geel and Redu), UK (Harwell near ECSAT), France (Toulouse, Bordeaux, Biarritz, Sophia Antipolis, Toulon), Spain (Barcelona, Madrid), Portugal (Coimbra, Porto, Cascais), and soon in Switzerland, Ireland (Cork, Galloway, Dublin), Czech Republic (Prague), and Sweden (Uppsala, Lulea, Trollhattan).

⁶ <http://eit.europa.eu>, <http://www.ihub.co.ke>

remains *unique* due to its scope, specific focus on eScience Data, and its integrated infrastructure and service offer capitalizing on existing Regional Research Centres and industries' assets.

The Lazio Open Data Initiative

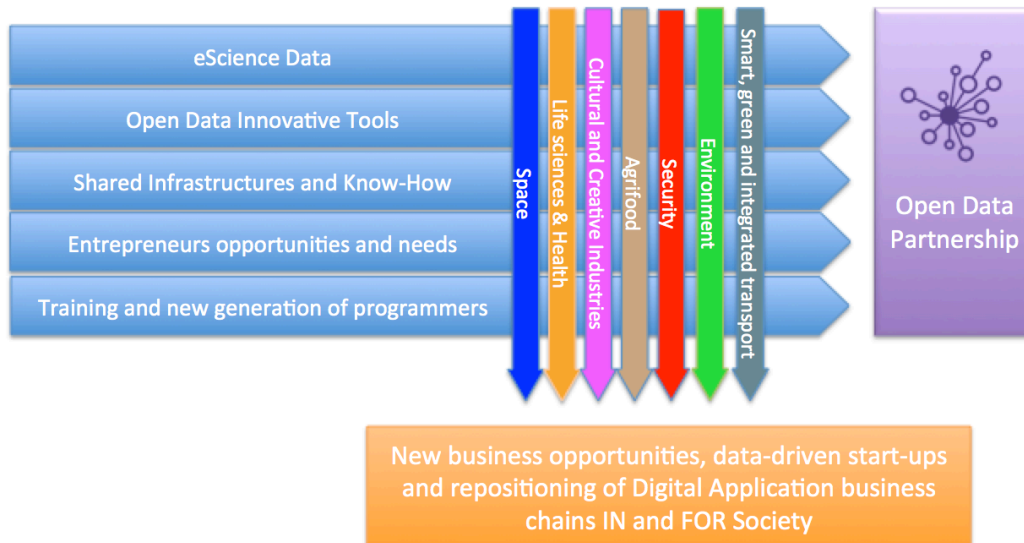


Fig 1: The Lazio Pulse ecosystem.



Fig 2: Fig 2: Schematic view of Lazio Pulse scientific and social benefits developed through the use of Open Data of different organisations through The Earth Lab. © ESA/PPM.

Lazio Pulse Partnership

Engineering spa
SAS spa
ELIS
Telecom Italia spa
IDS
ESA-ESRIN
INFN (Laboratori Nazionali di Frascati, Sezioni di Roma1, Roma2 e Roma3)
INGV (Roma)
INAF (Osservatorio Astronomico di Roma, Monteporzio Catone e IAPS)
ASI
ENEA (Roma, Casaccia)
ISS (Istituto Superiore di Sanità)
ItaliaCamp
Università di Roma TorVergata (Fondazione Economia)
UniNettuno
Consorzio Regioni Digitali (CRED)
Impresapiens – Università di Roma La Sapienza
Campus Biomedico
Eurokleis srl
T6-Ecosystems srl
Unidata spa
Evoluzione ufficio sas
Aedos srl
Nousmed srl
Olsa Informatica spa
Evodevo srl
Expert System spa
Info Solution spa
Innovation Engineering srl
SenTech srl
System Management srl
Deepblue srl
Digital Video spa
LINK srl
DSTECH
CiaoTech srl
Comunità Montana
Parco dei Castelli Romani
Comune di Frascati
Comune di Cave
Comune di Colonna
Comune di Monteporzio Catone
Comune di Rocca di Papa
Comune di Genazzano
Frascati Scienza
Associazione PIU