Frascati Living Lab

Identification of the Living Lab

The South-East part of Rome, close to Frascati, is unique in the Lazio region and in Italy as it is the most populated technological and research area in terms of SMEs dedicated to innovative sectors (ICT, Audiovisual, space …). In particular, among other institutional centres, in this area are located the campus of the second University of Rome Tov Vergata, the Banca d'Italia technological centre, INFN largest Italian Nuclear Physics Lab, ENEA technology centre for nuclear fusion, one large CNR site and the Italian establishment of ESA. Few miles away, in the Tiburtina area, are also located the Italian aeronautics and space industry and the new technological district for aerospace and ICT. At the same time, Lazio is an important region in terms of:

- agriculture production (fruits, wine, olive oil, vegetables …),
- environmental sensitive areas (more than 60 natural parks and a very large number of archaeological and historical importance),
- small rural villages located in a hilly area (some of particular cultural and historical value), and
- urban expansion (large inhabited areas, as the Rome province, with special attention to the area just outside Rome).

The Lazio region considers innovation as a key-element of its regional politics for economical development and it is supporting the implementation of the network and infrastructural RUPAR Lazio[1] system.

In the recent past, the Region and the Ministry of Innovation have approved, within the plan of extending the RUPAR Lazio to other important actors, the MEGALAB project, i.e. a Metropolitan Area Network South East of Rome. MEGALAB will constitute the starting point of the regional infrastructure providing high speed connectivity (more than 10 Gbps) in the central part of Lazio to interface major science institutions (including ESA-ESRIN, CNR, ENEA, INFN, and the three Universities in Rome). MEGALAB will be the Regional connectivity system for the public administration, to promote the cooperation with industry and the research centres and for developing innovative services for e-government, urban, environment, e-health, education, training, tourism, culture, multimedia, audiovisual etc. The MEGALAB infrastructure is due to be completed by the end of 2007, demonstrating non only the high speed connectivity, but also

- Access to shared computing and storage resources (Grid infrastructure) already available at various sites in the participating institutions;
- Support application services (presently in the process to be identified and implemented), involving researchers and institutional users.

Therefore, the area previously described is a very interesting location for experimenting the Living Lab approach in the development and exploitaiton of innovative services.

From the other side, the European Space Agency recognises the importance of supporting the reuse of space research results, and of easing the burden on public resources by adapting space technologies systems, and know-how to meet the needs of the wider population of Europe. Throughout technical agreements and political collaboration with regional development agencies that help companies to start up and grow and the local public offices to make better economic development plans, ESA offers an articulated and integrated system of transferring space technologies to non space sectors. This process is being implemented in various ESA establishments. In particular, the ESA site of Frascati (Italy) has operated in the last recent years the pre-incubation agreement with the Business Innovation Centre of Lazio Region (http://www.biclazio.it). The most innovative aspect of the agreement has been to provide the selected start-up companies with the economical and finance know-how of BIC Lazio in the business promotion sector, together with the technological competence of ESA.

ESA-ESRIN, the ESA establishment at Frascati, has competences in Earth Science operations and applications and in space communications services. In the last few years ESA-ESRIN has been particularly active in developing and promoting

[1] Rete Unitaria Pubblica Amministrazione Regione Lazio, the Public Administration regional network

- market development applications in various space sectors such as Earth Observation and Space Communications (see http://www.eomd.esa.int/, http://telecom.esa.int) and
- e-collaboration technologies in the Earth Science sector. Examples of projects and results achieved in this line are: THE VOICE – Thematic Vertical Organisations and Implementation of Collaborative Environments (ESA GSP funded in 2004, and completed in 2005 www.esa-thevoice.org).; AMI4FOR – Started in 2005 (www.ami4for.org) and funded by the ESA-PECS programme. AMI4FOR's objective is to determine a new Ambient Mobile Intelligence (AMI) concept for management of agriculture and forestry, integrating mobile communication, new navigation methods (GPS, EGNOS, GALILEO) and spatial information including satellite images (SPOT, IKONOS, EROS).

Similarly other local institutions have initiated the process of experimenting alternative models for promoting innovation in the business processes, as the. University of Tor Vergata, School of Economics - Centre for International Studies on Economic Growth – CEIS, http://www.ceistorvergata.it), where another interesting incubator, e2B Lab, has been developed (http://www.e2blab.it).

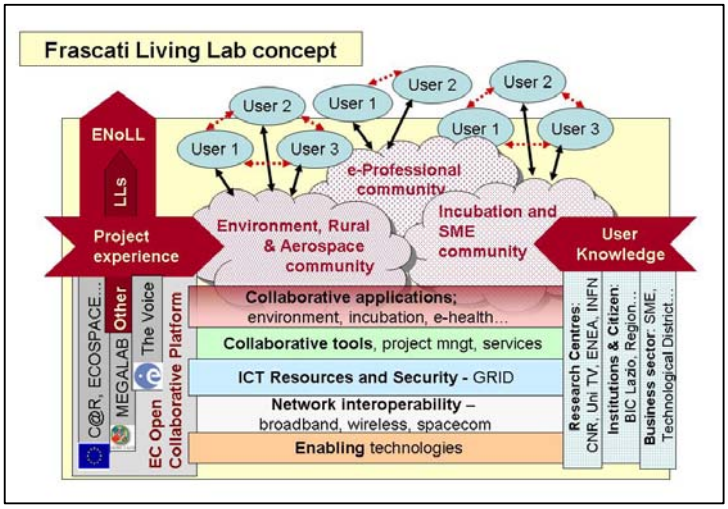
Another outstanding example in experimenting new models and organizational settings supporting open innovation is the Virtual Professional Community initiative, launched in 2005 by ESoCE Net, (www.esoce.net) the European Society of Councurrent Enterprise, in Rome, which is developing a new Collaborative Working Environment enabling Professionals and in general Knowledge workers to take active part in the innovation process of networks of SMEs especially in the Aerospace and Telecommunication sector. This initiative is specifically supported by the integrated projects ECOSPACE and COSPACES.

The Frascati Living Lab will build on the available infrastructure and services already offered to selected institutional and science users and on the development planned in EC funded projects, such as C@R, CoSpaces, WORKPAD, Ecospaces, Corelabs, Laboranova…

How does the Living Lab work?

The Frascati Living Lab aims to experiment a dynamic **dedicated collaborative platform** (see figure below) to support the development in real life scenarios, experimentation and operations of:

- **Innovative applications** involving **incubation** processes, such as those promoted in the ESA - BIC Lazio incubation initiative, for supporting the transfer of space technologies (including Earth Observation, Navigations and Telecom and their integration) to non-space sectors;
- More **traditional applications** in sectors such as environment, agriculture and tourism (to serve both the science and the industrial/service communities).



The following is a short list of functionalities that will be developed/experimented within this Frascati LL:

- Support the innovation, start-up of new enterprises and the participation of SMEs in the region (while populating/providing content in the regional technological and science districts).
- Support the creation and operation of Virtual Professional Communities as human centric organizations interacting with the networks of SME's , engaging the participation of individual knowledge workers and citizens for catalyzing the region innovation processes
- Develop new (customisable) services for various sectors in a dynamic and mobile environment.
- Take into full account socio-economical and sustainability issues.

- e-government and monitoring of the environment (vineyards, etc.) as well as support to rural activities benefiting the existing infrastructure that will be complemented as needed with additional technologies (like remote sensing, Grid on-Demand, Sensor web, services developed within the project THE VOICE, wireless technologies, navigation and positioning technology, etc. as appropriate to be part of the CWE) focussing on the transfer of relevant technology used, e.g., in ESA and other partners, to interested SMEs for the creation of new businesses and jobs.

The list of participants and users

The following list addresses the potential participants in this Frascati LL:

- Science and Research Centres: ESRIN, ENEA, INFN, ASI, INAF, CNR, University Tor Vergata, University of Sapienza
- Research Communities specialized in Collaborative Working Environments such as ESoCE Net
- SMEs Networks, Communities of Professionals, SMEs and Spin-off for value adding services and the new SME companies which will populate the emerging Technopolis being implemented in the South East Rome area
- Technology owners/providers, as needed by initial applications;
- System integrators and overall system architects, horizontal (among the same technologies) vs. vertical (among different technologies) communities;
- Institutional end-users, such as: Public administration including municipalities (Frascati, Rome, Grottaferrata, Monteporzio Catone, Colleferro, Ciampino …), Province of Rome and the Lazio Region; Institutional agencies…
- Regional organisations interested in the development of innovative solutions and in supporting new business opportunities (spin-off, start-up, etc.) like FILAS, BIC-Lazio., Industrial Associations. Special emphasis is made on the role that the BIC-Lazio incubator system at the Rome-Tiburtino ICT and Space Technological District will play once the Frascati Living Lab will start to demonstrate the SME and incubator support services
- High school

The adopted Living Labs approach will ensure to:

- Bring technology closer to people and organisational needs (ensure full integration of technologies also in cross-sectorial applications by making it simpler to use, available, affordable but also more trusted and reliable for example);
- Involve the user early in the process to better respond to their needs;
- Better support innovative digital content and services that adapt to users' content

Plans for the implementation of the Frascati Living Lab

The following **specific actions** shall be considered to reach the critical mass for the implementation and full deployment of the **Frascati Living Lab**:

- Final system design of the Open Collaboration Architecture to be developed within the C@R project, identification of key Living Labs requirements. This action will be completed by early 2007.
- Identification of key applications that will access the MEGALAB communication and collaboration services, to be finalised with the detailed design of MEGALAB, due to be completed by early 2007.
- Deployment of the MEGALAB communication and Grid infrastructure at ESRIN, to be completed by mid 2007.
- Implementation of C@R CWE generic services and initial validation of collaborative services, to be completed in 2007.
- Constitution of Virtual Communities supporting the engagement process of users, citizens and professional, by the end of 2007
- Personalisation of the Frascati Living Lab services and initial demonstrations, to be completed by the end of 2007.

The **Frascati Living Lab** will provide an opportunity for all participating entities. In fact the **following benefits** can be considered applicable:

- For **ESA ESRIN**: the opportunity to see how systemic innovation can help the development of new applications (including the use of Earth Observation data) integrating readily accessible technologies; better and faster reuse of space technologies in non space sectors; …

- For all participating **industry, SME, professionals and research centres**: sharing of functionalities/services developed within research programmes with potential new business oriented groups (spin-offs); promote the integration of young talent in the industrial / commercial/ business oriented society
- Benefit for the **end-user**: The benefit for the end-user is that they are interested in influencing the future of ICT solutions
- Benefit for the **institutional partners**: The regional authorities are able strengthen the regional development (e.g. start ups) and they gain from direct investments in the region.

Financing
For time being the Frascati Living Lab is partially financed in its initial development and demonstration phase, through the "supporting" active project in ESA (i.e. The Voice and AMI4FOR) and in EC (i.e. C@R and ECOSPACE), and any other "best will" projects (e.g. WORKPAD…) active in the area. Discussion is ongoing with all regional stakeholders' private, civic and public institutions to ensure its full deployment and operation.

Governance structure
It will be finalised in due time. It is anticipated that it will support a multi-stakeholder private public and citizens partnership environment.

Duration
The Frascati Living Lab is considered to be a permanent Living Lab.