SEVENTH FRAMEWORK PROGRAMME

ICT PPP

Future Internet

ENVIROFI

The Environmental Observation Web and its Service Applications within the Future Internet

FP7-284898

Collaborative project

D6.3.2 ENVIROFI Digital Living Lab II
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Description	This second version of the "ENVIROFI Digital Living Lab" document presents the required and available means to connect the environmental informatics community with the FI activities in Europe and to foster collaboration. Most notably, we discarded the ambition to create a novel Living Lab for the Environmental Usage Area. Instead, we investigate how a cyclic model for open innovation could be applied in order to connect existing laboratories, test beds and the like. We introduce the concept of an eInnovation Infrastructure as a supporting framework.
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v1.3	29/05/2012	Jose Lorenzo (ATOS)	Final Approval

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1 Glossary

The glossary of terms used in this deliverable can be found in the public document "ENVIROFI_Glossary.pdf" available at: http://www.envirofi.eu/

2 Abbreviations and Acronyms

Term	Explanation
AB	Advisory Board
CEN	European Committee for Standardization
DoW	Description of Work
EEA	European Environmental Agency
EGU	European Geosciences Union
ENVIROFI	The Environmental Observation Web and its Service Applications within the Future Internet
ESSI	Earth & Space Science Informatics division of the EGU
FI	Future Internet
FI-PPP	FI Public-Private Partnership
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
ICT	Information and Communication Technology
INSPIRE	Infrastructure for Spatial Information in the European Community
IoT	Internet of Things
IPR	Intellectual Property Rights
ISO	International Standardization Organization
EC-JRC	European Commission - Joint research Centre
OASIS	Organization for the Advancement of Structured Information Standards
OGC	Open Geospatial Consortium
OMG	Object Management Group
SOA	Service Oriented Architecture
SoaML	Service Oriented Architecture Modelling language
SDI	Spatial Data Infrastructure
SWE	Sensor Web Enablement
TC	Technical Committee
WP	Work Package

Table 1. Abbreviations and Acronyms

3   Executive Summary

The deliverable at hand (D6.3.2) reports on the on-going achievements in respect to a Digital Living Lab for Environmental and Geospatial Matters in the Future Internet. It builds on the general concept of a (Digital) Living Laboratory (Living Lab in short) as introduced in deliverable D6.3.1. Possible connections to Living Lab related activities within the coordination and support project for the FI-PPP (CONCORD) are outlined, based on intense bi-literal discussions between both projects. This deliverable furthermore presents the required and available means to connect the environmental informatics community with the FI activities in Europe and to foster innovation. Instead of proposing the creation of a novel Living Lab for the Environmental Usage Area, we investigate how a cyclic model for open innovation could be applied in order to connect existing laboratories, test beds and the like. We introduce the concept of an **eInnovation Infrastructure** as a supporting framework. This is the second deliverable in a group of three to address these issues. We furthermore present an updated view on the involved stakeholder network(s), as a continuation of an activity started under task T6.1. Updates will be provided in project month 24 (March 2013).

1 Introduction

One of the five ENVIROFI project objectives was to *'establish a Digital Living Laboratory for the ENVIROFI Stakeholders on the basis of existing expert groups in related interest communities to facilitate collaboration between the environmental ICT sector (including established SMEs, research projects, public institutions, standardization bodies, as well as citizen), the FI core platform community and other usage areas. This objective specifically targets a key concern of the Innovation Union initiative by linking ICT innovation and growth'* [01 - ENVIROFI Consortium].

After intense discussions between ENVIROFI and CONCORD, and with contact points of several Living Laboratories in Europe, we went away from the initial proposal of establishing a novel laboratory. Instead, we see higher potential and better feasibility in connecting existing Living Laboratories, but also test beds, pilots etc., in a common framework. Analyzing the existing capabilities, we see a strong need in developing the required underlying information infrastructure for enabling innovation (eInnovation Infrastructure), on which we further elaborate on in this document.

ENVIROFI brings on board the key developers and forward looking users from environmental domain: (1) through direct participation in the project consortium; (2) through project's advisory board; and (3) through community events. The eInnovation Infrastructure should support these activities by providing the platform for required collaborations.

While WP4 interacts with the FI core platform and other usage areas, WP6 ('Collaboration with ENVIROFI Stakeholder Communities') provides a hub to the ENVIROFI Stakeholder Communities i.e. to public and private organizations as well as people. Task T6.1 presented the state of play at the beginning of ENVIROFI; task T6.2 ensures valuable short-term project results; and this task (T6.3: 'Initiation of ENVIROFI Digital Living Lab') prepares sustainability for mid-term developments.

T6.3 analyses the required and available means to connect the environmental informatics community with the FI activities in Europe and to foster collaboration. ENVIROFI thus enables the dialog between environmental community and the FI community for the benefit of both sides. At the same time, this task provides a tool to exploit additional possibilities for large scale implementations in phase 2 of the FI-PPP. Once an eInnovation Infrastructure for the Environmental Usage Area in the Future Internet is available, unlocked capacities (such as additional large scale observation networks, FI related working groups at standardization bodies and new potential partners) can be used for deploying early trials, but also real large scale applications. Following recommendations from the ENVIROFI Advisory Board, T6.3 also takes up parts of the activities from T6.1; it namely elaborates further on stakeholder networks and value chains.

We do not assume that the full infrastructure will be in place at the end of the project, but we will prepare as much as possible. In this sense, the ENVIROFI task T6.3 is not only producing documentation, but also assembles usable tools, such as wikis, portals, specific web sites, etc. While the initial version of the deliverable provided a loose collection of some of the required building blocks, this version focuses on integration aspects. It particularly includes results from discussions with CONCORD and Living Lab representatives.

The remainder of this document is structured as follows. Section 2 presents an update of the ENVIROFI stakeholders. Section 3 is dedicated to the conceptual shift from establishing a Digital Living Lab to the concept of supporting open innovation in the Environmental Usage Area by an according eInnovation Infrastructure. The following section (Section 4) then lifts a promising approach for the creation of Living Labs to the wider goal of establishing an eInnovation Infrastructure. Section 5 summarizes promising methods for implementing the eInnovation Infrastructure for the Environmental Usage Area in the FI-PPP, which includes the connection requirements between the FI and the arising Environmental Usage Area, together with a state of play and gap analysis. Proposed future actions for addressing the identified issues are outlined in section 6, before we draw conclusions and outline our plan for future work (section 7). Supporting materials provided in the annexes.

The final version of this report (i.e. D6.3.3) will follow a similar structure.

2   Stakeholder Survey

We present the update of the stakeholder survey in form of a summary table (updated from D6.1.2 [14 - ENVIROFI Consortium]). It is planned to continuously update this table and to report on the status again in the final deliverable of task T6.3, D6.3.3.

Below we present an extension to the stakeholder overview table of deliverable D6.1.2, which has been extended with a column ('URL') serving a reference to further information, and updated diagrams for indicating the complete set of ENVIROFI stakeholders identified up to date. Updates consider novel insights from the thematic work packages (WP1 - biodiversity, WP2 – air quality and health, and WP3 – marine assets), as well as exploitation activities in WP7. Technology providers have been added as input from task T6.2. The provided information shall now be used for further exploitation activities within WP7 and for additional actions for stakeholder consultation as part of WP6, task T6.2.

Stakeholder	Type			Role	Geographical Extent	Theme	URI
	Organization	Enterprise	User	Resource Provider			
Municipality of Florence	x		x		Local	Transversal	http://en.comune.fi.it/
LEA La Finoria		x	x		Local	Transversal	http://www.leafinoria.org/
AEMET (Spanish National Meteorological Agency)	x			x	National	Weather	http://www.aemet.es/es/servidor-datos/acceso-datos/listado-contenidos/detalles/contaminacion
Australian Government, Bureau of Meteorology	x		x	x	National	Weather	http://www.bom.gov.au/
Terradata Environmetrics		x	x		Local	Ecosystems	http://www.terradata.it/
Museo di Storia Naturale della Maremma	x		x		Local	Ecosystems	http://www.museonaturalemaremma.it/
Department of agricultural biotechnology/University	x		x		Europe	Botanics	http://www.diba.unifi.it/changelang-eng.html/

Stakeholder	Type			Role	Geographical Extent	Theme	URI
	Organization	Enterprise	User	Resource Provider			
of Firenze							
Norge Asthma & Allergy Forbund	x			x	National	Weather	http://www.naaf.no
HMRC UCC – Hydraulics and Maritime Research Centre at University College Cork	x				Europe	Energy	http://hmrc.ucc.ie/
MRIA – Marine Renewables Industry Association	x				Europe	Energy	http://www.mria.ie/index.php
SEAI – Sustainable Energy Authority of Ireland	x				National	Energy	http://www.seai.ie/
MARINET - Marine Renewables Infrastructure Network	x				Europe	Water	http://www.fp7-marinet.eu/
EU-OEA - European Ocean Energy Association	x				Europe	Water	http://www.eu-oea.com/
Atlantic Ocean Energy Alliance	x				National	Energy	http://www.aoea.ie/
Aquamarine Power Ltd.		x	x		Global	Energy	http://www.wavebob.com/
Wavebob Ltd.		x	x		Global	Energy	http://www.wavebob.com/
Ocean Energy Ltd.		x	x		Europe	Energy	http://www.oceanenergy.ie/index.html
Eirgrid		x			National	Energy	http://www.eirgrid.com/
ESB / ESBI		x	x		Global	Energy	http://www.esbi.ie/

Table 2. Profiles of additional stakeholders (an extension to D6.1.2, Table 2)

In summary, at project month 14 (May 2012), 48 candidate stakeholders have been identified by a project internal consultation. Most of these (38) represent organizations and communities, which have multiple members from academia, the public sector and industry. In general, users and technology providers are highly represented (Figure 1).
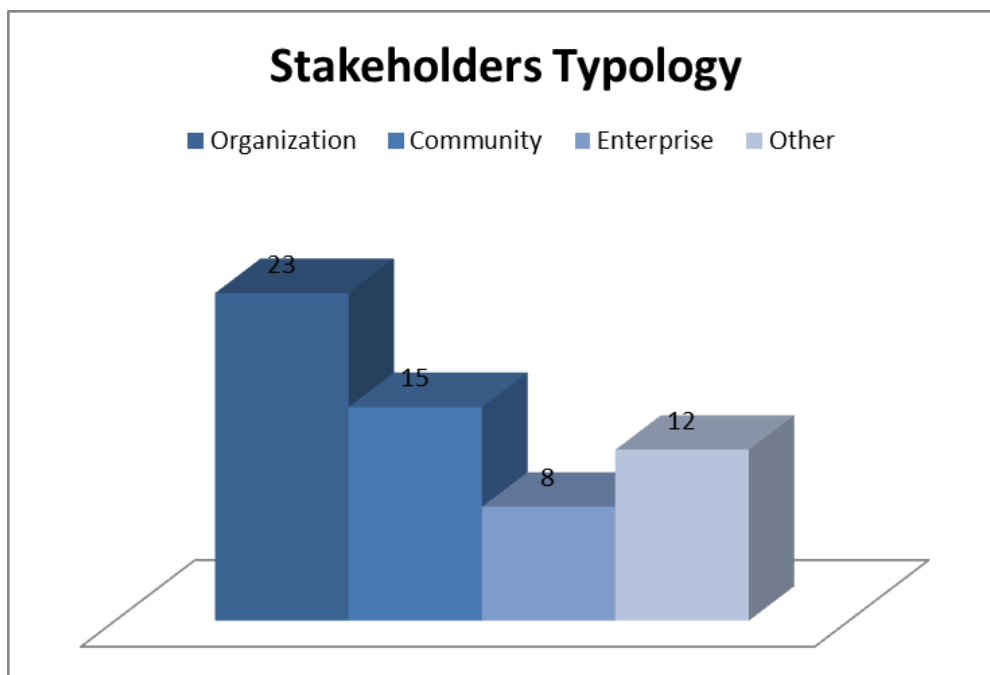
Figure 1. Typology of the ENVIROFI candidate stakeholders (taken from [ENVIROFI Consortium - 01])
– updated

Coverage of roles changes considerably in four of users of the ENVIROFI enablers and applications
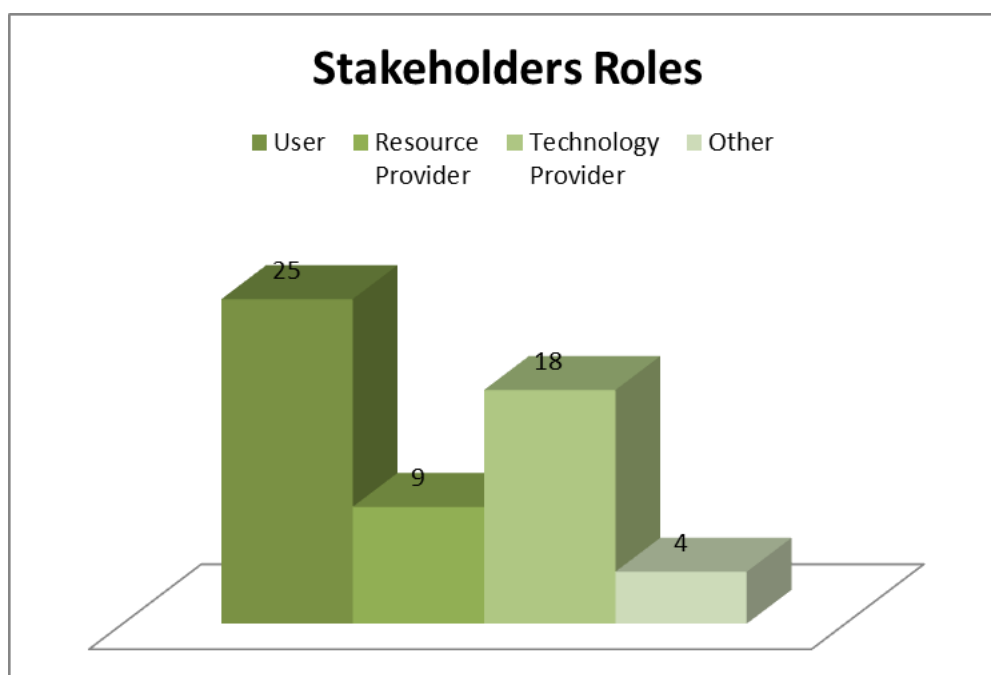(Figure 2).

Figure 2. Roles of the ENVIROFI stakeholders (taken from [ENVIROFI Consortium - 01]) – updated

At this stage, we mainly identified users from the three environmental spheres that are targeted within the ENVIROFI project (biodiversity (WP1), atmosphere (WP2) and marine (WP3)), see also Figure 3. We identified most communities (18) on European level, closely followed by globally active groups (17), whereas less national initiatives (9) have been listed. Compared to the previous version we now also identified several (4) stakeholders on local level. We expect these groups to increase drastically, with the shift to the community centric view (see below) and increasing user testing activities. Stakeholder records are now maintained as part of Task T6.3 and further analyses are on-going.
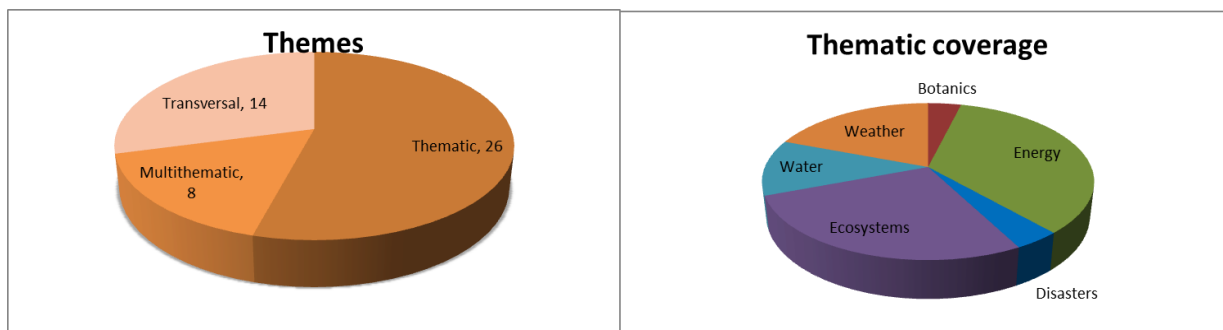
Figure 3. Themes addressed by the ENVIROFI candidate stakeholders (taken from [ENVIROFI Consortium - 01]) – updated

Complementary to this work, a secondary classification of stakeholders has been identified within WP4 (see deliverable D4.1.1 [05 - ENVIROFI Consortium]) and task T6.3 (see deliverable D6.3.1 [19 - ENVIROFI Consortium] and section 5, below). This sketch has initially been presented at an ENVIROFI contribution to an international conference [15 - ENVIROFI Paper]. It is now also reflecting a current separation in one of the CEN TC287 documents. The table below provides a mapping between both categorizations. Discussions on the use of either are ongoing, but the mapping table should facilitate translations in any case.

Categories used in T6.3 (so far)	Categories in Table 2, above
Citizens	Citizens
Environmental agencies	Type: Organization (Public)
Public authorities	Type: Organization (Public)
Industries	Type: Enterprise
Platform providers	Role: Resource Provider (Platform)
Infrastructure providers (incl. data and services)	Role: Resource Provider (Infrastructure)
Sensor network owners	Role: Resource Provider (Sensor Network)
Standardization organizations	Type: Organization, Role: Standardization Body

Table 3. Mapping between stakeholder categories

3   Shift in the General Concept

This section introduces the shift in the ENVIROFI approach towards open innovation by complementing the up to now technology focused work with a community-centric view and arguing for the need of 'collaboration enablers' in the FI-PPP. It furthermore introduces the concept of an eInnovation Infrastructure as an appropriate framework for addressing the arising issues. The involved stakeholders are briefly sketched. Decisions are argued in relation to the discussions, which took place between ENVIROFI, CONCORD and several Living Lab representatives from around Europe. Means for realizing the proposed infrastructure are presented in section 5, where we introduce the ENVIROFI contributions as such, and in section 6 respectively, where general requirements are opposed to available implementation capabilities.

The Future Internet is addressing the interplay between the public and the private sector: innovation should be triggered primarily by an application pull, whereas a technology-push is secondary. Consequently, ENVIROFI has to encompass the socio-economic and organizational dimensions of the development: facilitate the articulation of requirements and creation of added value services; motivate 'actors' (such as SMEs, research institutions, and public organizations) to develop and market innovative services in a competitive context; and motivate the 'data owners', 'sensor network owners', 'environmental modelers' and 'citizen' to market their resources.

The eInnovation Infrastructure for Environmental and Geospatial Matters in the Future Internet shall be a main instrument for the assessment of existing Research and Development (R&D), and Innovation activities of the Environmental Usage Area. It shall build on the inputs of tasks T6.1 and T6.2, and provide a tool which helps us to streamline standardization-related work in environmental application fields, but also to plan and carry out user driven testing. ENVIROFI shall develop a plan for user community building, including the development of the eInnovation Infrastructure specifications. Furthermore, ENVIROFI shall also provide the resources for its initialization; in particular through provision of the services allowing open individualized experimentation and Living Labs with collective capability in monitoring the environment at high resolution spatial scales. This overall incentive is summarized in Table 4.

Initial Objective	Measurable Success Indicators (Old)	Measurable Success Indicators (New)	Targets (New)
Establish a Digital Living Laboratory for Environmental ICT in Europe	o Availability of Living Lab specification o Availability of supporting platforms (in FI portal and in environmental communities) o Activities in that laboratory (due to ENVIROFI internal activities, but also to external collaborations)	o Availability of **eInnovation Infrastructure** Specification o Availability of supporting platforms (in FI portal and in environmental communities) o Activities and impact generated [1] **using that infrastructure** (due to ENVIROFI internal activities, but also to external collaborations)	D6.3.x ENVIROFI Digital Living Lab scheduled at: o M6: **Initial Specifications** o M14: **New specifications and availability of first set of collaboration enablers (connecting to the environmental ICT domain)** o M24: **ENVIROFI use cases and first enablers connected via the eInnovation Infrastructure**

Table 4. Success measures for eInnovation Infrastructure for Environmental and Geospatial Matters in the FI: a modification of D6.3.1 [19 – ENVIROFI Consortium], Table 2, changes highlighted in bold

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[1] Outputs in terms of activities and clear impact are important such as ideas of applications created in collaboration, ideas assessed in collaboration, prototypes created, training and knowledge transfer activities among stakeholders, etc.

3.1 Moving to a Community-Centric View

So far, ENVIROFI and most FI-PPP projects focused on a technology-oriented view, which could be summarized as in Figure 4. Enablers, as defined by FI-Ware of the Usage Area projects are provided on top of existing hardware in order to support area-specific pilots. Here, we particularly decided not to further sub-divide the "enabler space", because categorizations are arbitrary and strongly depend on the specific project consortia.
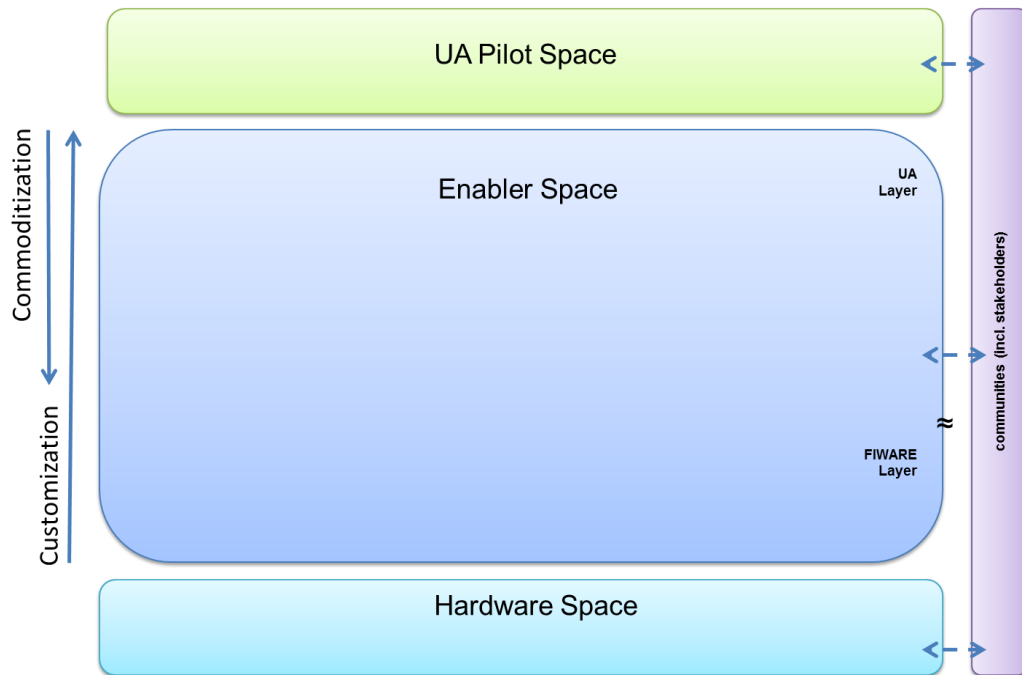
Figure 4. FI-PPP high level architecture.

Any pilot implementation instantiates the enabler ecosystem according to the specific needs. Figure 5 provides an example for the "Plausibility Pilot" as introduced in deliverable D1.3.1 [21 – ENVIROFI Consortium].
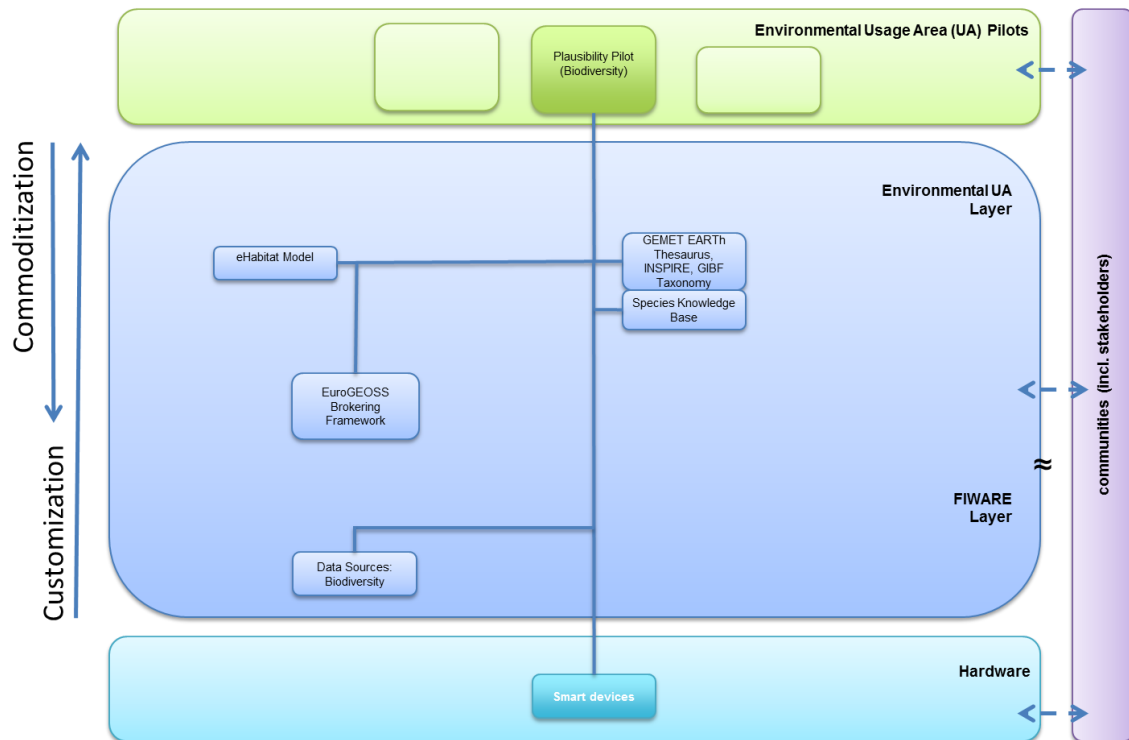
Figure 5. Example instantiation of the FI-PPP high level architecture, the Plausibility Pilot

After intense discussions within the Environmental Community (see also D6.2.2 [23 – ENVIROFI Consortium]), we suggest shifting from this technology-centric to a community-centric view (Figure 6). Here, hardware and enablers remain central components, usage area projects, their pilots and associated stakeholders however become more attention. The upper part of the figure illustrated that communities (in a generic sense, which might be an ad hoc and dynamic group of people) are not independent, but interconnected and sometimes even contain each other. Such communities would not only embrace research projects, such as the FI-PPP projects, but also crisis mappers, test beds, Living Labs, and thematic expert groups of any kind.
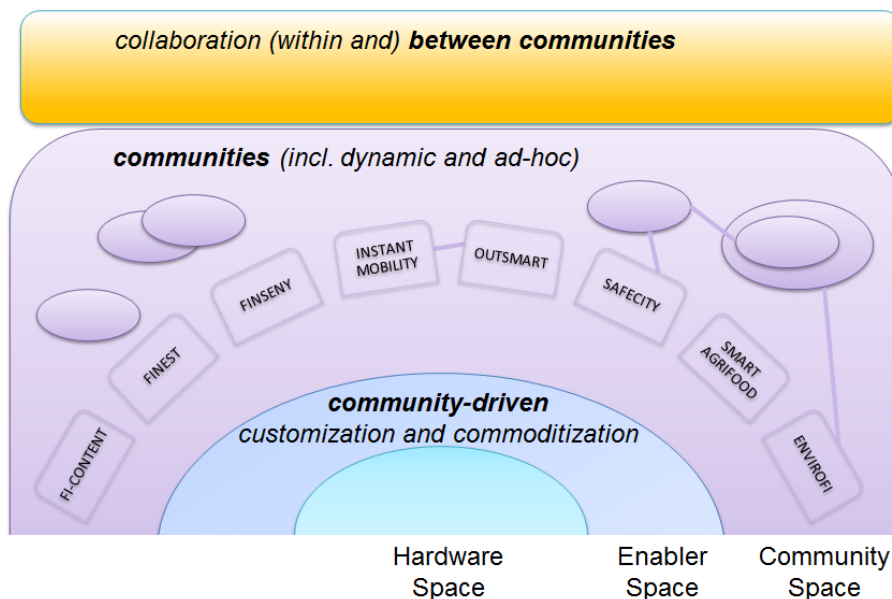
Figure 6: community centric view, with FI-PPP usage area projects as examples

For us, this conceptual shift is fundamental for the further progressing in respect to innovation and the preparation on large-scale pilots. We will further elaborate on this in the following pages.

3.2   Collaboration Enablers

Following the community-centric view just introduced above, we feel an under representation of components, which facilitate communication within communities, but even more important the collaboration between communities, which will be a central requirement for open innovation [04]. In the following we call these components "collaboration enablers".

We currently see only some services supporting collaboration within communities, but especially between communities. The FI-PPP already provides:

- FI-Ware fusion-forge for interacting between Usage Area projects and FI-Ware on technical matters.

- FI-Ware chapter on 'Business Framework', which reports on available collaboration enablers within the FI-PPP, including the market place.

- INFINITY repository of infrastructures XiPi (http://www.xipi.eu/).

- CONCORD (soft) services for connecting to Living Laboratories and test sides.

However, these collaboration enablers can support only parts of the required bi-directional collaboration between stakeholder communities in and outside the FI-PPP. For example, we see a need for:

- Monitoring of user testing.

- Feedback mechanisms from users to Usage Area projects, not only at testing stage but also at early stages such as collecting new needs and requirements.

- Platform for offering enablers for (open) community testing.

In a bi-literal discussion between CONCORD and ENVIROFI, it was decided that CONCORD will elaborate on the feasibility to set up a repository of collaboration enablers, which are currently available in the FI-PPP to further progress on this issue.

Note: We are well aware that many of these enablers have to be provided specifically focused on a user community, e.g. Usage Area, and that testing of those always have to be done in relatively closed settings.

3.3   eInnovation Infrastructure

We call the provision of an ecosystem of the above mentioned collaboration enablers, or of multiple customized instantiations of such, an eInnovation Infrastructure. We decided to introduce this term in line with notions such as eScience, in which cyber-infrastructures provide the means for scientists to collaborate and particularly to exchange early ideas, model workflows, and data that is required in order to make experiments reproducible.

In a mid-term perspective, we intend to further elaborate on the provision of an eInnovation Infrastructure for Environmental Enablers in the Future Internet. This work is initiated below.

4 Lifting of the Methodology

A sound, flexible methodology is required to help us to shape the desired infrastructure on the premises of the open innovation, and to materialize our planned objectives, aims, and expectations with respect to the eInnovaiton Infrastructure for Environmental and Geospatial Matters in the Future Internet. As the methodology of choice, we decided to follow an approach suggested within the Apollon project (http://www.apollon-pilot.eu), which has also been adopted by the European Network of Living Labs (ENoLL) and the CONCORD project [07 - Living Lab definition], to the creation of Living labs, which in turn is based on the Cyclic Innovation Model (CIM) [08 - User innovation definition, 09 - CONCORD Project]. In doing so, the benefits are several. In a short-term, our eInnovation Infrastructure efforts shall be in line with the Living Lab view in CONCORD project and thereby with the FI-PPP program as a whole. In a mid- and long-term period, as eInnovation Infrastructure for Environmental and Geospatial Matters in the Future Internet should be shaped according to the CIM methodology, this will notable increase the likelihood to endure the infrastructure (or at least parts of it) after the ENVIROFI project ends. Notably, the lifting of CIM from a pure Living Lab focus to the wider concept of an infrastructure for supporting open innovation (eInnovation Infrastructure) was straight forward and did not require mature modifications.

The most important feature of the CIM methodology (Figure 7) is that the different phases towards innovation are not a one-way pipeline but a circle: innovations build on innovations (feedback), ideas create new concepts, successes create new challenges, and failures create new insights [08 - User innovation definition][10][11].
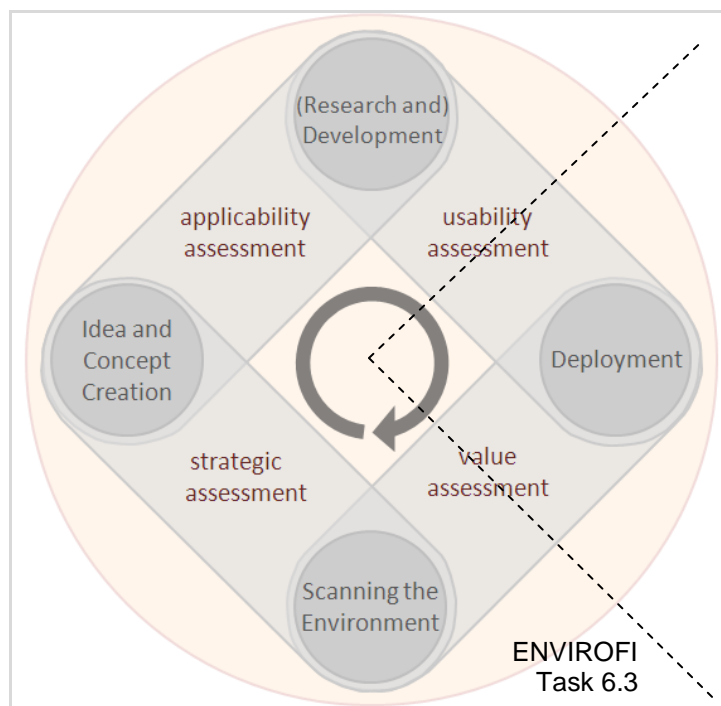
Figure 7. Cyclic Innovation Model and ENVIROFI ([07 - Living Lab definition])

The first two phases (Scanning the Environment and Idea Concept and Creation) may be suggested in this deliverable. The Research and Development phase may be dealt to some extent at the end of the project. The last phase, Deployment, is envisioned in an advanced state of the project (phase 2), so it is not explicitly dealt in this deliverable. Furthermore, the CIM methodology proposes an innovation model composed of dynamic processes, which evolve according to environment and context changes, along with four phases: Scanning the Environment (market transitions), Ideas Creation (innovation), Research and Development, and Deployment. This means that the four phases influence each other. As a result, relations between innovation and creativeness (left side, Idea and Concept Creation), science and

technology (top, Research and Development), industry (right side, Deployment) and market (bottom, Scanning the Environment) are reflected in the model, which leads to creative, open, and interactive innovation processes. ENVIROFI mainly addresses the first three of these phases. Follow–up on R&D, eventually leading to highly scalable implementations of environmental enablers and to large scale implementations ('deployment') are foreseen for the ENVIROFI follow-up project in the phase 2 of the FI-PPP.

The Apollon approach [07 - Living Lab definition] suggests extending the CIM methodology for the creation of user-driven innovation networks (Living Labs in their case). Each of the CIM phases (see Figure 7 above) follows a cyclic model made up of four methods as illustrated below (Figure 8):

- Connect: This step is concerning with the initial, minimum infrastructure to enable collaboration, etc. to start each CIM phase. An important aspect at this step is the definition of the intended users and audience to delimit and anticipate the needed resources, scope, and impact of the Living Lab at each CIM phase. For instance in the case of the eInnovation Infrastructure that is prepared within ENVIROFI, the target audience for the phase "Idea and Concept Creation" (section 5.2.1) may be different from those in the "Development" phase (section 5.4.1). Furthermore, trying to answer to following questions is a good exercise: do we prefer to engage a lot of people, even without knowledge or expertise in the Environmental Usage Area, or a smaller, more selective team? Do we find incremental or disruptive ideas? Do we want to establish a trusted network of partners or just to attract people interested in such themes?

- Set boundaries and engage: the definition of the boundaries in terms of intellectual right management and formal agreements among the involved stakeholders, as well as the definition of use cases and best practices. In the case of the eInnovation Infrastructure for Environmental and Geospatial Matters in the Future Internet, this step may include the initial consortium and collaboration agreements, as pointed out in section 5.1.2.
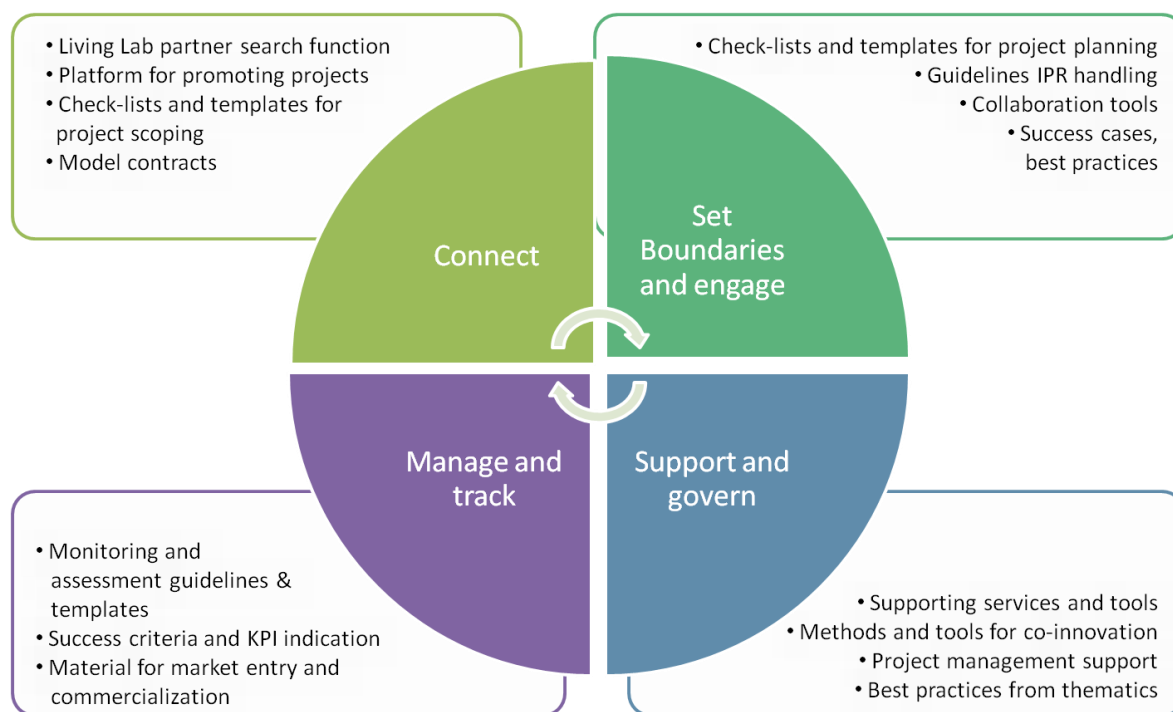
Figure 8. Cyclic Innovation model for User-driven innovation networks ([07 - Living Lab definition])

- Support and govern: As each CIM phase is related to different aspects in an open innovation program, such as market, science, innovation, technology, and industry, the supporting tools, services, and infrastructure to carry out each phase may be distinct. Some examples of supporting services are listed in section 5.2.3.

- <u>Manage and track</u>: This step includes an assessment of the expected impact and expectations of the outcomes of each CIM phases, according to the initial goals and scope set in the Connect step. Again, in the case of the eInnovation Infrastructure for Environmental and Geospatial Matters in the Future Internet, this step may include different actions, depending on the CIM phase, as briefly illustrated in sections 5.1.4 and 5.2.4.

The aim of the extended CIM approach is then to accommodate the core CIM methodology to the specific scenario of the setup of specific pilots/tests. In other words, each CIM phase in Figure 7 suffers a 'specific tuning' though the application of the four cyclic steps in Figure 8. Notably, each step may (and most likely will) include different methods and supporting services as they aim at different outcomes and because different people are involved.

5   Methods for Implementing the eInnovation Infrastructure

Discussions between ENVIROFI and CONCORD (especially with ENoLL and IBBT) helped to align the approach suggested ENVIROFI with the on-going discussions at FI-PPP level. This deliverable contains advanced results of these discussions and will in future be used to raise major questions, using the structure that is imposed by the general framework. Updates of this section will be provided where appropriate. Naturally, at this stage of the FI-PPP Programme, the earlier sub-sections of this chapter include more information than the latter ones.

5.1   Scanning the Environment

It is one main objective of ENVIROFI to provide community consolidated Future Internet requirements and enabler specifications for the Environmental Usage Area. Supporting conceptual prototypes and a socio-economic analysis of the expected impacts is requested in addition. Focusing on the environmental observation web and facilitated applications [02 – ENVIROFI Paper], the work is defined in a way that may have major implication on the future generation of environmental information infrastructures (Digital Earth). Accordingly, public and private organizations, as well as people, have to be involved from the beginning. This includes the provision of reference material together with a sketch of the desired ENVIROFI architecture.

The environment for establishing the above has already been scanned during the proposal preparation and in the first month of the ENVIROFI project. Particularly task T6.1 provided major contributions in terms of general stakeholders and available technical components (see also deliverables D6.1.1 [13 - ENVIROFI Consortium] and D6.1.2 [14 - ENVIROFI Consortium]). Activities are now continued as part of tasks T6.2 and T6.3.

5.1.1   Connect

The FI-PPP project consortia and especially the ENVIROFI partners are destined to be early adopters and testers of the intended eInnovation Infrastructure. In addition, stakeholders of the various domains of environmental informatics have been identified [14 - ENVIROFI Consortium]. Section 2 of this document already provides an update. Intense connections to the FI-PPP are established via WP4 and WP7, while the strong connection to the environmental and environmental informatics sector is primarily taken care of by WP6 (task T6.2). The latest report is available as ENVIROFI deliverable D6.2.2 [23 – ENVIROFI Consortium].

The intensification of such connections naturally would increase and be progressing into phases 2 and 3 of the FI-PPP.

5.1.2   Set Boundaries and Engage

Boundary conditions have been already set within the FI-PPP Programme and internally within the ENVIROFI project. Achievements include:

- The Signatures of the consortium and collaboration agreements.
- The establishment of project and programme mailing lists etc.
- The engagement of project consortium members in terms as defined in the ENVIROFI Description of Work (DoW) [01 - ENVIROFI Consortium].
- The contributions of all project partners to task T6.1, especially to the stakeholder and technical components surveys [02 - ENVIROFI Paper].
- The continuation of the above in the context of task T6.3, where this deliverable provides an update and deliverable D6.3.3 will provide the final results in project month 12.
- The ENVIROFI scenarios set a focus in terms of content (to terrestrial biodiversity, atmospheric conditions and pollen, and marine assets).

5.1.3 Support and Govern

Support and governance structures are mainly topic to tasks T6.1 ('ENVIROFI Stakeholder Analysis: Communities, Architectures and Technologies') and T6.2 ('Preparation, Execution and Reporting of Community Consultations'). However, decisions on appropriate tools still had to be taken. For ENVIROFI, following tools have been used for scanning the open innovation and Living Lab environment:

- ENVIROFI Stakeholder and Components Wiki ([03 - ENVIROFI Wiki], not publically available at the time of writing this document)

- ENVIROFI Web page (http://www.envirofi.eu/), which is currently extended with specific pages for the stakeholder and testing communities under the scenario work packages (WP1, WP2 and WP3).

- ENVIROFI Twitter account (http://twitter.com/ENVIROFI)

- Future Sensor Web and its Applications group on the INSPIRE Forum (http://inspire-forum.jrc.ec.europa.eu/pg/groups/9265/the-future-sensor-web/)

- Environmental Information Infrastructures and Platforms (ENVIP) portal (http://www.envip.eu) [12 – ENVIP Portal]

- FI-PPP web page (http://www.fi-ppp.eu/, offered by CONCORD)

- FIA and general FI web pages (http://www.future-internet.eu/, for some reason weakly linked with the FI-PPP one)

- ENVIROFI Advisory Board Wiki

- CONCORD Wiki for capturing the results of bi-literal discussions between CONCORD and ENVIROFI in an open setting.

5.1.4 Manage and Track

The coordination of required actions in centralized in WP6. Whereas task T6.2 is the main carrier for managing and tracing stakeholder engagement, task T6.3 provides the required tools. Related risks have been defined and tracked [01 - ENVIROFI Consortium]. The discussions with CONCORD became one of the major contributions over the last months. Tracking is supported by the CONCORD project in form of their Wiki (see also below).

5.2 Idea and Concept Creation

The evolution of a Future Internet infrastructure goes in line with the emergence of open, secure and trusted service platforms for building networked applications, and the arising cyber infrastructures in various science domains. Such an infrastructure can be leveraged through user-centered open innovation schemes.

The eInnovation Infrastructure for Environmental and Geospatial Matters in the Future Internet provides the urgently required grounds for a collaborative development approach. It will help to relieve eGovernment for environment from its infancy. Contributions will continue after the end of the project. This includes the agreement on common/representative scenarios, as well as discussions of (i) FI requirements (ii) environmental enablers for the FI, (iii) ENVIROFI conceptual prototypes, and (iv) socio-economic impacts.

In respect to the environmental informatics sector, this activity started and is in progress (in terms of task T6.2); a first stakeholder workshop and advisory board meeting, which both took place in early October 2011, a second round (where the community-centric-view has first been presented) was held in mid April 2012 [22 – ENVIROFI Consortium]. The final events are planned for early 2013. According

efforts are coordinated within task T6.2. Additional discussions on the capabilities of, e.g. Living Laboratories were carried out with CONCORD and will be continued in the context of task T6.3.

5.2.1 Connect

The needs of the usage areas represented within FI-PPP cannot be fully represented by the respective Usage Area projects. The usage area projects therefore have to rely on additional inputs and feedback from their respective stakeholders communities. For these reasons, WP6 establishes and coordinates the collaboration with the ENVIROFI Stakeholder Communities, which includes environmental agencies up to national and European level, standardization bodies and related international initiatives, SMEs working in the earth observation, environmental and geospatial sector, as well as local authorities and end-users. Activities for establishing relevant communities have already been undertaken. For example, EC-JRC and the European Environmental Agency (EEA) organized a workshop on 'The Future Sensor Web and Its Applications' in late January 2010, in which core areas for innovation have been identified. It was concluded, that many issues of the observation web can be addressed by existing research results. The effort to lift available prototypes to innovative scalable and robust products/services is the real challenge. Additionally, SINTEF and JRC co-organized the two Environmental Information Systems and Services Infrastructures and Platforms (ENVIP) workshops, which brought together current FP7 research projects dealing with environmental content and services. The participants agreed to proceed with the community building; a third workshop is planned for August 2012. CEN/TC287 follows similar efforts in order to maintain research results and to facilitate related standardization processes. ENVIROFI is now in liaison with CEN/TC287 and already contributed to a technical report on spatial data infrastructures (SDI). Similarly, revisions of the SDI reference models of OGC and ISO have been initiated.

Main stakeholders include:

- *Citizens* of a particular social, political, or national community;
- *Environmental agencies* on sub-national, national and European level;
- *Public authorities* of national and regional and other level;
- *Industries* from the primary, secondary and service sector; and
- *Standardization organizations* providing the umbrella for establishing standard procedures.

5.2.2 Set Boundaries and Engage

ENVIROFI shall establish the connections between the involved communities. Instead of building new expert groups, the project shall establish an environmental connector to the Future Internet, as well as a Future Internet hub for the environmental sector. In terms of standardization, the latter shall be used to contribute to the advancement of the 10 year old service model ISO 19119 of ISO/TC211 and accordingly contribute to an updated OGC reference model. Both shall take the Future Internet development into account and allow for the best integration possible. ENVIROFI standardizations shall help to lay the basis of the Digital Living Lab for Environmental and Geospatial Matters in the Future Internet. They shall allow for collaboration with geospatial and environmental standardization bodies (ISO, CEN, OGC etc.) and provide access to experimentation infrastructures and technology, preparing for both an environmental and a geospatial enabling of the Future Internet. Related end users from the public and private sectors shall become involved.

The ENVIROFI Advisory Board (AB) reflects the targeted audience. Advisory board has been selected and formally invited [16 - ENVIROFI Consortium]. The above also holds for wider communities, as we invited stakeholder representatives to the first ENVIROFI consultation workshop [16 - ENVIROFI Consortium].

Future engagement might be reached by launching open competitions e.g. together with OGC test beds, GEOSS Architecture Implementation Pilots or with the upcoming ENVIROFI workshops. Particularly the discussion on the Internet of Things (IoT) at OGC, to which ENVIROFI also invited FI-Ware to give a presentation, provided a good step forward. An according working group at OGC is under way now and ENVIROFI is represented.

Beyond that, several Living Laboratories across Europe in order to investigate possible trials for the Environmental Usage Area and to start to define connections between the identified communities and stakeholder networks.

5.2.3   Support and Govern

For this stage, the eInnovation Infrastructure requires means for connecting the FI with the Environmental Informatics communities and vice versa. This section outlines the basic needs, available capabilities and an analysis of the missing pieces. It provides the basis for defining next actions in the preparation of the eInnovation Infrastructure for Environmental and Geospatial Matters in the Future Internet:

- ENVIROFI Stakeholder and Components Wiki ([02 - ENVIROFI Paper], not publically available)
- ENVIROFI Web page (http://www.envirofi.eu/)
- ENVIROFI Twitter account (http://twitter.com/ENVIROFI)
- Environmental Information Infrastructures and Platforms (ENVIP) portal (http://www.envip.eu)
- FI-PPP web page (http://www.fi-ppp.eu/, offered by CONCORD)
- FIA and general FI web pages (http://www.future-internet.eu/, for some reason weakly linked with the FI-PPP one)
- ENoLL Web page (http://www.openlivinglabs.eu/)
- Incoming tools from the Apollon project (http://www.apollon-pilot.eu/)
- FI-Ware Applications/Services Ecosystem and Delivery Framework (http://forge.fi-ware.eu/plugins/mediawiki/wiki/fiware/index.php/Applications/Services_Ecosystem_and_Delivery_Framework)
- OGC web page (http://www.opengeospatial.org/) and portal (http://portal.opengeospatial.org/)
- OGC IoT and SWE pages (http://www.ogcnetwork.net/node/1802).
- GEOSS front-ends (http://www.earthobservations.org/geoss.shtml)
- INSPIRE web page (http://inspire.jrc.ec.europa.eu/)
- INSPIRE portal (http://www.inspire-geoportal.eu/index.cfm)
- INSPIRE forum (http://inspire-forum.jrc.ec.europa.eu/)

As far as concrete supporting techniques are concerned, and on top of the techniques already mentioned in deliverable D6.2.1 [16 – ENVIROFI Consortium], we initiated activity within CONCORD to report on available collaboration enablers within the FI-PPP.

5.2.4   Manage and Track

Management and tracking will largely depend on the choice of appropriate tools. For the time being, we exploit the ENVIP portal [12 - ENVIP], which provides the required means for reporting on the stakeholder workshops. We host a Wiki for the ENVIROFI Advisory Board activities, e.g. on writing a joint white paper.

At the same time, we began to investigate connectors to test beds and Living Labs, including contact forms, user monitoring and feedback mechanisms on the use of specific enablers.

5.3   (Research and) Development

The project is in advanced state in terms of the specification and required development work within the scope of the thematic WPs, i.e. WP1, WP2 and WP3, as well as in WP5. In their combinations,

ENVIROFI starts to provide (conceptual) prototypes, which illustrate how envisioned scenarios of the Environmental Usage Area could be realized within the FI. The resulting software components provide the basis for large scale implementation in phase 2 of the FI-PPP. Thus, they should become part of the eInnovation Infrastructure. Related discussions are planned for the final consultation event of the project, see also task T6.2.

5.3.1 Connect

This includes collaborations with standardization organizations such as ISO, OGC and CEN, see deliverables D4.2 [06 – ENVIROFI Consortium] and D6.2.2 [23 – ENVIROFI Consortium]. It also involves the stakeholders of the thematic work packages, see deliverables D1.3.1 [20 – ENVIROFI Consortium], D2.3.1 [21 – ENVIROFI Consortium], and D3.3.1 [22 – ENVIROFI Consortium]. Further expansion of these stakeholder communities will now be established by promoting linkage to existing Living Labs and test beds within Europe.

Main stakeholders include:

- *Environmental agencies* on sub-national, national and European level;
- *Public authorities* of national and regional and other level;
- *Industries* from the primary, secondary and service sector;
- *Platform providers* offering frameworks on which applications may be run;
- *Standardization organizations* providing the umbrella for establishing standard procedures.

5.3.2 Set Boundaries and Engage

- In terms of spatial extend we intent to concentrate on Europe. Scaling to global coverage will be examined at a later stage.
- Thematically, we concentrate on the three spheres covered by WP1 (biodiversity), WP2 (air quality and health) and WP3 (marine assets).
- In terms of standardization we keep considering OGC, ISO and CEN.
- Clear technical components are defined in scope of WP5, deliverable D5.2.1 [24 – ENVIROFI Consortium].

Note: INSPIRE and GEOSS compliance is continuously examined here.

- Engagement with user communities has been initiated as reported on in the x.3.1 deliverables of WP1, WP2 and WP3 respectively.
- Investigations on trials are ongoing within Europe, also with engagement of the CONCORD project partner ENoLL.
- Presentations and discussions have been initiated within ISO, CEN and OGC. OGC even opened an IoT SWE working group in which ENVIROFI is involved.
- Again, future engagement might be reached by launching open competitions e.g. together with OGC, GEOSS or with the upcoming ENVIROFI workshops.

5.3.3 Support and Govern

So far, the required measures are project internal:

- WP1, WP2 and WP3 for thematic components.
- WP5 for common environmental enablers.
- WP4 for any reference model work, incl. standardization.

- WP6 for outreach, incl. exploitation of Living Labs to use. This is partially supported by CONCORD.

Additional requirements will be examined at a later stage of the project.

5.3.4   Manage and Track

Again, so far, most of the required measures are project internal:

- WP1, WP2 and WP3 for thematic components.
- WP5 for common environmental enablers.
- WP4 for any reference model work, incl. standardization.
- WP6 for outreach, incl. exploitation of Living Labs to use. This is partially supported by CONCORD (using their Wiki).

Additional requirements will be examined at a later stage of the project.

5.4   Deployment

In terms of the eInnovation Infrastructure, deployment and instantiation is at the moment out of the scope of the first phase of the FI-PPP, which also holds for the ENVIROFI project. First tests might however be carried out in the second year of the project.

5.4.1   Connect

In terms of the eInnovation Infrastructure, deployment and instantiation is at the moment out of the scope of the first phase of the FI-PPP, which also holds for the ENVIROFI project. Main stakeholders include:

- *Citizens* of a particular social, political, or national community;
- *Environmental agencies* on sub-national, national and European level;
- *Public authorities* of national and regional and other level;
- *Industries* from the primary, secondary and service sector;
- *Platform providers* offering frameworks on which applications may be run;
- *Infrastructure providers* offering physical components and essential services;
- *Sensor network owners* holding the sensor and basic communication hardware.
- *Standardization organizations* providing the umbrella for establishing standard procedures.

5.4.2   Set Boundaries and Engage

In terms of the eInnovation Infrastructure, deployment and instantiation is at the moment out of the scope of the first phase of the FI-PPP, which also holds for the ENVIROFI project.

5.4.3   Support and Govern

In terms of the eInnovation Infrastructure, deployment and instantiation is at the moment out of the scope of the first phase of the FI-PPP, which also holds for the ENVIROFI project.

5.4.4   Manage and Track

In terms of the eInnovation Infrastructure, deployment and instantiation is at the moment out of the scope of the first phase of the FI-PPP, which also holds for the ENVIROFI project.

6 Proposed Next Actions

Part of this deliverable is based on material, which the CONCORD project kindly provided. However, as indicated previously, this material just presents the recent status of work that is still in progress within the support action. At the same time, we identified a series of material as well as of processes that have to be provided for ENVIROFI and beyond the project lifetime. We can subdivide required actions accordingly.

6.1 ENVIROFI Internal Actions

Within ENVIROFI, we have to:

- Maintain the stakeholder and technical components Wiki [02 - ENVIROFI Paper], which has been initiated within T6.1. Stakeholder updates will be carried out as part of task T6.3, whereas we provide technology trends with examples in the context of task T6.2.

- Decide whether the above mentioned Wiki should become fully or partially accessible to the FI-PPP or the public.

- Define an IPR strategy based on the collaboration agreement within ENVIROFI.

- Establish a mechanism that allows project external stakeholders to register FI requirements from the Environmental Usage Area (probably moderated by ENVIROFI WP6).

- Define a promotion strategy for the eInnovation Infrastructure in collaboration with WP7, by identifying already available infrastructures and initiatives, such as ENVIP, CEN TC/287 and ENoLL.

- Specify the optimal setting of the newly identified available tools, new developments and community building efforts in a comprehensive way that is independent of the project lifetime.

- Continuing related discussions with CONCORD.

- Further elaborate on the related FI-Ware generic enablers.

- Exploit requirements on collaboration enablers.

- Review FI-Ware marketplace, if it meets our requirements. (In fact it seems more triggered to commercial use of some products from ENVIROFI and others.)

6.2 FI-PPP Internal Actions

Outside ENVIROFI, but still within the FI-PPP, we have to:

- Continue to discuss the ENVIROFI instantiation of the overall methodology with CONCORD.

- Discuss the overall integration of the eInnovation Infrastructure for Environmental and Geospatial Matters in the Future Internet with other FI-PPP projects.

- Align the IPR strategy with the overall FI-PPP IPR strategy.

- Further discussing possible relations to the European Network of Living Labs (ENoLL), a consortium member of CONCORD.

- Elaborating on the repository of "collaboration enablers".

- Discuss meaning of "collaboration enablers" at the programme level with the rest of the Use Cases (through a Use Case workshop coordinated and facilitated by CONCORD).

6.3 FI-PPP External Actions

Outside the FI-PPP, we have to:

- Actively engage community building and merging with existing communities. This requires additional efforts, beyond building a community portal.

- Discuss the (potentially close) connection of the ENVIP community and portal.

- Discuss the (potentially close) connection of the CEN/TC287 document registry.

- Investigate the suitability of tools, such as the Oxford style debate [17], statistics from survey, individual highlights, brief questions/opinions, for our purposes.

- Generalize over the above to specific the required eInnovation Infrastructure and instantiation.

7   Conclusions and Outlook

This second deliverable of task T6.3 presented a shift from the overall concept of the Digital Living Lab for Environmental and Geospatial Matters in the Future Internet to a community centric-view, collaboration enablers and an overarching eInnovation Infrastructure. The connections to program level activities, mainly initiated by the CONCORD project have been established. In respect to our goals indicated in Table 4, we have provided a first eInnovation Infrastructure specification and set the grounds for implementation, including several available tools, and CONCORD has agreed to provide an inventory about the currently available components inside the FI-PPP program. However, further discussions are required, now that the various projects become stable and provide mature outcomes. The results of these discussions should be used for stepwise future improvements. In respect of ENVIROFI, those will be reported on in deliverable D6.3.3 (month 24, i.e. March 2013).

Given the high number of participants and of available tools, further decisions on establishing usage area specific or common eInnovation Infrastructure, will require an honest reality check within ENVIROFI, but also inside the FI-PPP. In the end, eInnovation infrastructure implementations will strongly depend on 'value for money' measures. Given the available resources, prioritizations still have to be made across FI-PPP projects and risks have to be defined and closely monitored. From our perspective, final decisions should be taken to the best possible benefit to FI and to environmental informatics. We hope to be able to provide an overview of available tools and governance workflows within the next version of this deliverable, i.e. D6.3.3.

The intense debate on the intended use of eInnovation Infrastructure and Living Labs in phases 2 and 3 of the FI-PPP still has to be finalized. This should include considerations of usage area internal activities (e.g. roadmaps of INSPIRE, SEIS and GEOSS [18 - GIGAS project forum]). We hope to be able to provide more concrete outcomes on these issues with the next and final version of this deliverable.

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Table 5. References

Annex A: Report on Interactions with CONCORD

Below, we present the track record of the CONCORD and ENVIROFI discussions, as maintained in a wiki provided by CONCORD (http://fi-ppp-ll.wikispaces.com/ENVIROFI).

September 2011: ENVIROFI is interested in exploring the Living Lab approach for preparations of the Digital Living Lab for the Environmental Usage Area. Among the CONCORD roles is to give methodological support for the use case projects. CONCORD's consortium has strong background in Living Lab research (ENoLL, IBBT, AALTO). Some preliminary concepts are exchanged with ENVIROFI.

November - December 2011: ENVIROFI and CONCORD (led by ENoLL as a partner) continued the conversations based on a list of questions provided by ENVIROFI. ENoLL provides ENVIROFI with a first draft of a list of ENoLL Living Labs that could be of the interest of ENVIROFI:

Goals:

1) define scenarios for using LLs in the FI-PPP context
2) implement 3-4 practical actions within ENVIROFI, i.e. in phase 1 of the FI-PPP. (These might include testing mock-ups in a specific LL)

Actions:

- CONCORD analyses ENoLL content on technical oriented LL, which work in the environmental domain (including contact points for potential follow up)
- ENVIROFI to check the above mentioned list for possible candidates to engage with
    - on going (several LLs contacted and discussions have started).
- CONCORD sets up a Wiki for continuing joint discussions
- CONCORD and ENVIROFI invite other UAs, INFINITY and FI-WARE to contribute
- CONCORD, ENVIROFI and all who might join the discussions on the Wiki should organize a physical meeting (t.b.d.)
- CONCORD provides comments on ENVIROFI deliverable D6.3.1

Last meeting: April 11th, 2012, at ENoLL offices. (Update of documentation by CONCORD pending)

Next meeting: 9 May 2012 (conference call)

A.1 MEETING TOPICS/GOALS + Results of the discussion

1. Alignment of Living Lab related work between CONCORD, ENVIROFI and potentially other usage area projects, including required actions.

[Concord] There are no specific CONCORD deliverables planned (as per DoW) regarding Living Labs and the work done is part of the CONCORD T2.2 (D2.2: Methodologies and tools to support use case validation). We are following a Customer-driven approach (being the FI-PPP projects the Customers of

this tasks) and eventually if the demand is high enough we will plan a deliverable of generic usage (especially targeting support for phase 2 and phase 3 but also helping in phase 2 proposals preparation). Next Use Case workshop could definitely the place where openly discuss this and commonly defined the tools/deliverables needed (in alignment with topic 2).

2. Common understanding on the proposed shift from a merely technology-oriented to a community-centric view, introducing the idea of 'collaboration enablers' for a kind of eInnovation Infrastructure in support of the environmental sector.

[Concord]

1. Ways of including Living Labs, particularly of iLab.o, in phase 2.

2. Well described relations to other Living Lab related projects, such as Apollon.

3. Offers from the environmental sector and ENVIROFI expertise in relation to open innovation and standardization.

4. The CONCORD view on the FI-PPP work on "infrastructures" and the FI-Ware work on the testing laboratory.

A.2 NEW QUESTIONS FROM ENVIROFI

Note: We are aware that some of these questions overlap with those discussed earlier, but they are more focused now and we would appreciate dedicated answers in order to plan for the next actions (within and beyond ENVIROFI).

*   [Envirofi] Now that first contacts with several living labs have been established, and first bi-literal meetings have been held, it seems at the time to make plans. These should be made in alignment with FI-PPP level scheduling, i.e. particularly with CONCORD. We see this alignment work as the top-priority item for the coming weeks (until early April). As a next step, we would be interested to get more information about the CONCORD view to this scenery, especially:

    o   [Envirofi] What are the milestones related to LLs within CONCORD?

    [Concord] CONCORD does not have any specific milestones related to LLs. Living Labs are in a certain way tools for user and SME engagement. Living Labs can also offered already established real-life settings for experimentation and experience in cross-border experimental activities, what we think it could be very beneficial for the large scale trials in phase 2, and 3. CONCORD offers support to the UA on demand and main milestone now is phase 2.

    o   [Envirofi] Are any specific workshops already planned?

    [Concord] May 22nd - 23rd in Brussels (north). Register here. If necessary we could organise a private meeting during that week.

*   [Envirofi] What is the schedule of related CONCORD deliverable, that ENVIROFI and other Usage Area Projects should be aware of

    [Concord] There is no specific CONCORD deliverable. T2.2 (Methodologies and tools to support use case validation) accommodates all our actions related to support UA projects interesting in integrating Living Labs in phase 2 or as part of its methodology)

*   [Envirofi] For the mid-term planning, we have to know what is CONCORD's view on the role of LLs in phase 2 (and in phase 3, respectively)! How much can be said at this stage?

    [Concord] ENoLL's main role in the FI-PPP as part of CONCORD is to strongly and actively facilitate

the involvement and engagement of sufficient SME's (especially towards the phase 3) and user communities to ensure programme success while supporting one of the main FI-PPP pillars: the user driven approach: "User-driven – as services and applications become ever more agile and changing, users play a key role in driving application led initiative" (See European Commission. (2011). Digital agenda: Future Internet Public Private Partnership Frequently Asked Questions. Retrieved at, http://ec.europa.eu/information_society/activities/foi/events/fi-fpp-launch/memo.pdf.). To do so, ENoLL relies on its large and diverse community of Living Labs in Europe and all over the world. It is the main objective of ENoLL therefore to assure a proper dissemination of FI-PPP among its members and facilitate engagement and to encourage usage of results. **Engagement with the FI-PPP use cases:** with 4 main different possibilities of engagement identified so far:

1. **Living Labs joining the phase 2 use cases** (bringing experimenting scenarios, infrastructure, user communities, SMEs and other stakeholders and methodologies and tools).

2. **Living Labs using the results for the projects**

3. **Projects using the Living Labs services** (This could be included in option **a**. but there are other possibilities of engagement where projects actually subcontract co-design and testing services to a Living Lab)

4. **Living Labs as partners for the Large Scale trials of phase 2 using other funding (**e.g. national or regional funding to complement the project funding**).**

- [Envirofi] From our discussions with the LLs, we got the strong impression that task-specific networking, scaling to national level and cross-boarder activities are currently emerging topics in the community.

  o [Envirofi] Is this true? What is the novel movement here?

  [Concord] The community has been working on this in the last few years but not for long. Many Living Labs have however important experiences and learnings in this matter that can be brought to the FI-PP

  o [Envirofi] Assuming the above, we consider a kind of Digital Living Lab, in the sense of a forum, which provided enablers, training material, discussion platforms, etc. as a possible future direction. As this is not a Usage Area specific topic, are their any plans/possibilities to realize something alike within CONCORD (as support for phase 2)?

  [Concord] (To be discussed on April 11th)

- [Envirofi] Along with the above and our decision to not set-up classical living labs within ENVIROFI, we plan to 'tweak' the CONCORD methodology used in ENVIROFI deliverable D6.3.1 for setting-up user-driven innovation platforms by re-using existing living labs. Re-reading the deliverable, we believe that this will in fact only be a minor update in terms of change, but a big impact in terms of feasibility.

  o [Envirofi] What does CONCORD think about this idea? Would you advise us to proceed in such a way?

  [Concord] Re-using existing Living Labs can bring a lot of know-how and know-who to ENVIROFI not easy to get just reading documents or having access to documentation, so this will indeed bring value to the project accelerating the ENVIROFI Living Lab implementation and speeding up the large-scale phase. (To be discussed on April 11th)

  o [Envirofi] Which other changes to D6.3.1 would you propose?

  [Concord] (To be discussed on April 11th: We can go through the document and discuss).

A.2 OLD QUESTIONS FROM ENVIROFI

[Envirofi] What are the plans of CONCORD on using a Living Lab approach in phases 2 and 3? Do they foresee the 'Deployment phase' of the suggested methodology only after phase 1 and would they envision further cycles, i.e. also collecting new ideas at a later stage of the FI-PPP?

[Concord] Living Labs can help the FIPPP in several ways:

1. Applying Living Lab methodology in the context of the FI-PPP use case projects (and this applies for the whole programme but mainly for phase 1 and phase 2) à the FI-PPP projects using the services provided through the Living Labs (i.e. real-life experimentation facilities for testing purposes; co-designing services; etc.).

2. Supporting the SME uptake mainly for phase 3

3. As Ecosystems where the platform is tested and used, out of the context of the FI-PPP funding, i.e. developing services at their own expenses (or funded by other programmes) à living labs creating new products and services based on the project outcomes (i.e. exploitation of the FI-PPP results);

[Envirofi] So is this (mainly) about exploiting existing (and maybe connecting) living labs and not about establishing new once (with programme funding)?

[Concord] It can be about establishing a new one. But a Living Lab needs to go beyond a single project funding. For more info about criteria for a Living Lab to be part of the European Network please check http://www.scribd.com/doc/70102736/Invitation-ENoLL-6th-Wave.

[Envirofi] What is the envisioned temporal scale? The suggested cyclic methodology foresees iterations in two levels of granularity, but how do these relate to phases in the FI-PPP and to the milestones we already have considering the interaction between usage area projects and Fi-WARE? A clarification would also help to better understand the relation to stronger SME evolvement (phase 3, only?).

[Concord] Let's discuss that on the phone.

[Envirofi] What is foreseen outside the FI-PPP in the next 5 years? Can we expect FI focused Living Labs?

[Concord] Yes, look at the answer to question 1 (3rd point). We are working now in selecting those living labs (considering the diversity of Living Labs within ENoLL) that are more FI oriented. ENoLL has already got expression of Interests from some of its members.

[Envirofi] This is mainly for better understanding. What are the foreseen relations to existing Living Labs (in ENoLL, but also outside)? If we would establish Living Labs, should we also plan for the resources that would be required to connect this to ENoLL? What would be the required efforts, conditions and benefits?

[Concord] IF you create a new Living Lab, to be part of ENoLL can bring you some benefits, such as get a certification (ENoLL label means that your LLab has been evaluated by a group of experts), creation of internal partnerships (within network), Brokering function towards external members and networks (e.g, ENoLL has a Mou signed with World Bank, FAO and it Is establishing links with Africa, LatinoAmerica and Asia). This could give some benefits for the exploitation of the value created in your LLab, to establish partnerships in other continents, etc. Also ENoLL is a good dissemination channel and works in the integration of LLabs in EU policies.

[Envirofi] How far does CONCORD intent to open (i) the topics and (ii) the communities? For example, in ENVIROFI, we currently work on focused topics (FI, environmental information and the Observation Web) with relatively small groups (ENVIROFI Advisory Board, participants at community events). Should we change anything in this approach?

[Concord] This needs to be discussed further to better understand the question. The Living Lab approach is to open the communication and engagement channel to all the communities that would be beneficiaries of the project results, considering the whole value chain. CONCORD would like to use this approach. In this way you can really get feedback and contributions in the design, development and testing phases, and to feed requirements back to the Core Platform (if needed) as early as possible.

> [Envirofi] Yes, the value chain aspect if very important here. Still, in order to better understand which parts of the value chain should be involved when, we would like to stress again the need for a definition of the temporal scale.

> [Envirofi] Again relating to timing: when saying 'feed requirements back to the Core Platform (if needed) as early as possible', does this imply that we have to complete a full cycle (including user testing of possible applications) before the next interaction window with FI-WARE?

> [Concord] To discuss on the phone.

[Envirofi] How far does all of this find support on the FI-PPP, especially in respect to the other Usage Area projects? Is any of them following already a comparable approach?

[Concord] At this stage ENVIROFI, SMARTAGRIFOOD and FINEST have shown interest.

> [Envirofi] That is good to know. We should try to bring the involved parties together at some point (most probably after bi-literal discussions with you, see also below).

> [Concord] Yes, I think this would be beneficial.

[Envirofi] What is the scheduling of CONCORD in respect to Living Lab development and methodology descriptions across the first phase of the PPP?

[Concord] We work both on demand (bottom-up) like what we are doing now with you (ENVIROFI), asking your questions as basis for further conversations and to support your project to deliver. In your case I think it would be interesting to set up a meeting/workshop doing some pre-work with you. We are also defining a plan (mainly to support the stakeholder engagement) and defining tools to support the program). This is being internally discussed and planned

> [Envirofi] Absolutely. As JRC is leading the work package that is dealing with stakeholder engagement, we would be very interested in such a workshop. One of our early deliverables (D6.3.1 ENVIROFI Digital Living Lab I) might serve as additional input from our side. This is the first outcome of our activities in preparing a Living Lab for phase 2 developments and we already tried to align it with the Cyclic Innovation Model as discussed within CONCORD (given the material that was made available to us in early September). The document is publicly available from the ENVIROFI web page at: http://www.envirofi.eu/Portals/89/Docs/Project/Public_deliverables/ENVIROFI%20D6.3.1_Digital_Living_Lab_I.pdf

[Envirofi] Does CONCORD plan to provide supporting Living Lab tools and descriptions of governance workflows?

[Concord] Yes, but we need to understand what your needs are.

[Envirofi] Sure. This needs to be discussed after the general setting has been clarified. We would for example be interested in concrete descriptions of engagement processes within the proposed Cyclic Innovation Model.

[Envirofi] What might be possible collaboration tools for discussion beyond this workshop (whitepaper, e-mails, wiki etc.)?

[Concord] Indeed. We can set up a wiki easily

[Envirofi] Very good to know. Again, this needs to be discussed after the general setting has been clarified. We have to find out the tool requirements and identify which parts should be provided on program level and which rather within ENVIROFI (or other usage area projects).

[Envirofi] Would CONCORD be willing to provide us with feedback on D6.3.1 and the later versions?

[Concord] What is D6.3.1??

[Envirofi] Initially it was not intended that these questions would be send to you by mail, so we did not describe what D6.3.1 is. However, now you can find this info already above. We would appreciate your comments on this document in order to better understand collaboration possibilities and to improve alignment between ENVIROFI and the other FI-PPP projects. We have planned to provide two updates of this document, along with possible implementations in May 2012 and towards February/March 2013.

[Envirofi] What are the possible relations between CONCORD, ENVIROFI and ENoLL?

[Concord] CONCORD and ENVIROFI are FIPPP projects and the relation is well established through boards and working groups (it does not need explanation).

ENoLL is a partner in CONCORD, and as such will provide knowledge, tools and use the network to benefit both the FIPPP community and ENoLL community always pursuing the success of the FIPPP as a whole (as a channel for Dissemination and SE and as described in answer to Q1).

ENVIROFI might decide, based on the results of the project, to set up a Living Lab (that goes beyond to the duration of the project), involving all the necessary parties and with the aim of achieving certain objectives using multiple funding mechanisms.

[Envirofi] OK, point taken. We have in fact contemplated the setting up of a FI Living Lab in order to support large scale developments. Before continuing, we would greatly appreciate your feedback on this concept. Again, details are included in D6.3.1.

[Concord] CONCORD Task 2.2 Methodologies and tools to support use case validation, which will be a CONCORD task focused on supporting tools and methodologies, including Living Labs.

[Envirofi] ENVIROFI Task 6.3 Initiation of ENVIROFI Digital Living Lab.