

Title:

Title: User Involvement Document – Final Version

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Short Description:

The purpose of this document is to describe and monitor the way end users are involved in HUMBOLDT. The User Involvement Document was updated regularly to monitor the amount and quality of end-user involvement into the project. This is the final version, and as such, the aim is also to show the strategy and outlook for keeping the User Community alive and active after the 'official' end of the HUMBOLDT project.

Keywords:

Users; User involvement; User@HUMBOLDT Platform

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1 Introduction

1.1 Aim of this document

This document aims to define a strategy to maximize the involvement of users in HUMBOLDT. User involvement is a key element and is therefore vital in the user-driven development of the framework itself, its use by application domains as well as for its long-term sustainability.

The User Involvement Document is a strategic document serving as a reference for all user-related activities. Different versions of this document have accompanied the project since the beginning, with regular updates and tuning to match the strategy to the project needs over the consequent period. It serves as a main guideline for the measures to be taken in terms of user involvement, and as such it has been the basis for the developments and the creation of user-related infrastructure. Synchronisation with other documents and joint efforts with other working groups are also necessary, e.g. the collaboration with the work package responsible for Dissemination and Exploitation is of high importance.

This is the final version of the User Involvement Document, which has been updated regularly during the project period in order to incorporate the most up-to-date information outputs from the project and to refine the strategy as the project progresses.

1.2 Context

HUMBOLDT supports the implementation of a European Spatial Data Infrastructure (ESDI) that integrates the diversity of spatial data available from the multitude of European organisations. Thereby, it facilitates cross-national harmonisation of spatial data and the implementation of the European Directive INSPIRE (Infrastructure for Spatial Information in Europe) in applications related to GMES (Global Monitoring for Environment and Security). HUMBOLDT partners collaborate on the development and enhancement of IT solutions to support the harmonisation of spatial data to be used within Spatial Data Infrastructures (SDI). To achieve this objective and to maximise the benefits gained from this integration, the requirements of INSPIRE, of GMES, of the environmental agencies and of other related activities in the EU will be met.

HUMBOLDT started with an analysis to facilitate the re-use of existing concepts, processes, implementations and experiences. This also included the analysis of harmonisation processes in other application areas. Following this, HUMBOLDT extended the existing state of the art according to the needs of users and administrators especially in the area of GMES. As a cornerstone for future businesses, citizen security, risk management and many more fields of application, the ESDI has to be a lasting development, prepared for the steps that will inevitably follow with the continuing progression of globalisation.

To facilitate all of this, the HUMBOLDT project proposes an optimised, community-centred implementation process. New knowledge is gained thereby and new processes are already and will be developed from the combination of data that already exists, but which is currently highly scattered and heterogeneous. Besides a technological-focused framework, which is developed in HUMBOLDT, the project also has set up a number of scenarios which use the developed framework components in real-world conditions, and which are used as promoters for the target users of the project. Several user groups like industry, public authorities and research are targeted and dissemination and training instruments have been and are used as early as possible within the project, coherent with the INSPIRE time plan, based on feedback from the project results to enhance the effectiveness of the dissemination activities.

The core philosophy of this project is that success comes from acceptance, use and continual improvement of the results of its work. Acceptance is therefore gained by offering concepts that make migration manageable without loss of data, time, or other resources. Therefore, lessons learned from the many prototypes in various application areas, and the groundwork provided by standardisation organisations and projects are leveraged, to support more effective implementation. The cycle that is thereby created leads to the development of products that are really required by the user groups in an iterative process. In this way, the implementation of INSPIRE is supported at all levels, the development of GMES services benefits, and the hurdles for the data harmonisation processes are lowered significantly by the HUMBOLDT project.

A strategy is described in this document concerning the means to involve a wide community of users, who are often data providers and users at the same time (institutions, local authorities). This strategy is the guideline which has been followed from the beginning of the project activity, identifying how the stakeholders will be reached by the dissemination and training plans. This guideline has been adapted constantly according to the project status. All Public Relations activities draw upon information generated by other work packages illustrating the technical capabilities of the concepts and the methodology of the components developed within the project. The HUMBOLDT dissemination partners have considered activities such as training and exploitation of the results of the demonstrators as very effective instruments for demonstrating the potential and actual use of harmonised spatial data, GMES services, Web-GIS facilities, according to the INSPIRE principles since its beginning.

The needs of the potential users of an ESDI are integrated into the development process and form a basis for the conception of business models. These needs have been identified and are regularly monitored by direct involvement of the user groups, such as public authorities including environmental agencies monitoring the state of natural resources, planning agencies, cadastral authorities and national mapping agencies, as well as developers implementing new software, replacing legacy software, and adding new interfaces to existing software.

Several user groups like industry, public authorities and research agencies will be targeted and dissemination and training instruments used as early as possible within the project to achieve a high coherence with the INSPIRE time plan, and also to achieve effective dissemination and feedback for the project results. A User Platform addresses and builds on existing user federations and user groups including those from previous GMES projects (e.g. GSE phase I, IP Geoland, IP BOSS4GMES eSDI-Net+), current projects (e.g. GSE phase II, ESDIN) and future projects. In the past these user groups have been mainly oriented to provide user needs within each specific project. The User Platform is a major source of feedback for the user-driven development of the HUMBOLDT Framework. Moreover, it reinforces the required collaboration across projects and contributes to the dissemination of project results.

The components and measures developed in this document are a major source for HUMBOLDT's dissemination and exploitation strategy. Therefore, both the final report on the Dissemination and Exploitation Plan and this forth User Involvement Document cross-reference at each other.

2 Definition of HUMBOLDT products from a user's perspective

The output of the HUMBOLDT project should be analysed and the “products” are to be identified from the user perspective in order to identify the relevant products and the groups to be targeted.

2.1 Software products

Software products are of principal importance and constitute the main output of the HUMBOLDT project. They are essential in establishing bi-directional connections as making them available to the users is a true catalyser for user involvement and also boosts user feedback.

All the developments within the project are released under the open-source LGPL license. The project has also created a Community Website (<http://community.esdi-humboldt.eu>) to support the needs of the User Community – including the Developer Community – and to ensure the long-term sustainability and exploitation of software results.

2.1.1 The HUMBOLDT Service Integration Framework

The HUMBOLDT Service Integration Framework is one of the main outcomes of the project. It is a set of webservice components that can be used by themselves or all together to create geodata harmonisation applications and that are re-useable in multiple toolset applications and scenario applications.

2.1.2 The HUMBOLDT Toolkit

The HUMBOLDT Toolkit is the collection of general-purpose data harmonisation tools with well-defined transformation capabilities. It is a set of applications that support data modelling experts with all activities surrounding data harmonisation processes. For more information on HUMBOLDT Tools and Services please refer to chapter 6.1.3.2 *Available HUMBOLDT software components*.

2.1.3 HUMBOLDT Scenario Applications

HUMBOLDT Scenario Applications are concrete End-User applications using the framework components and (adopted) versions of toolset applications.

2.2 Documentation

Reports, deliverables and other documentary output of the project can be interesting and relevant for users and stakeholders. Another important item is the HUMBOLDT Wiki, which is currently used as an efficient communication tool for the developers, available for the wide public on the Community Website (see link above) serving as a basis for communication and reaching common sense.

2.3 Training products

The HUMBOLDT Training Platform (www.gisig.it/humboldt/training/) and specific training packages are of interest for all users. The overall training on data harmonisation and the specific solutions provided by the HUMBOLDT project is presented in the training packages at different levels according to the user categories defined.

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The Training Package is the main access to the training material and training infrastructure of the project. It is structured around a website accessible from both, the project's public website and its Community Website.

This “portal” gives the user all necessary information about the training offer in the form of detailed descriptions of the courses. From this site the users have also the possibility to subscribe to the courses that are of interest and have direct access to the e-learning platform.

This site is online and updated periodically as new courses are incorporated. The subscription is open to the public.

The HUMBOLDT Training Material is structured in a modular and flexible way according to a net-based learning approach, mainly in form of lectures and interactive tutorials.

The material is available at three different levels:

- Level 1, aims to include training material related to knowledge useful to operate with the HUMBOLDT Framework
- Level 2, aimed at providing training on data harmonisation and the HUMBOLDT Framework tools
- Level 3, addressed to the users and in particular currently to those organisations that are involved in the HUMBOLDT Application Scenarios and in the future to all people using the HUMBOLDT Framework, tools and services.

As part of the post-project activities, it is foreseen to update and complement existing training material based on feedback from user groups and new developments of the HUMBOLDT Framework. This includes translations of training materials to various European languages, such as German, Spanish and Italian, among others.

3 Definition of HUMBOLDT User Roles

Although numerous user group definitions exist (see e.g. INSPIRE User Group segmentations defined in "Environmental Thematic User Needs Position paper", available online: http://inspire.jrc.ec.europa.eu/reports/position_papers/inspire_etc_pp_v2_3_en.pdf), this document focuses on specific user groups targeted by HUMBOLDT. Moreover, the HUMBOLDT Consortium was aware from the beginning that it is necessary to take into account the manifold connections between user groups from the perspective of the project. Therefore, it was decided to define "user roles" from the HUMBOLDT point of view, applying a *functional* instead of *organisational* grouping. This grouping is also in line with Deliverables A3.3 D1 and D2 (State of the Art in User Groups and Needs). HUMBOLDT does not distinguish between government, researchers, industry and other cross-domain roles at the very general level. Of course, each of the HUMBOLDT User Groups may contain interested organisations as mentioned above. The categorisation based on thematic domains instead of business roles will support the application-oriented approach of the HUMBOLDT R&D and will contribute to the long-term sustainability of the project results.

After several iterations within the User Involvement Group and taking into account the proposals of the HUMBOLDT Review and Advisory Board, the following HUMBOLDT user roles have been defined:

- **HUMBOLDT Developers,**
- **HUMBOLDT Data Custodians,**
- **HUMBOLDT Data Integrators,**
- **HUMBOLDT End-Users of Geo-Data,**
- **HUMBOLDT End-Users of Spatial Information.**

The definition of each user role can be found below.

All of these user groups are partly represented by members of the consortium, but to ensure the wide use and the sustainability of the results further users are continuously involved in the project.

Following the EU guideline of gender equality the HUMBOLDT Consortium took the issue into consideration to address as well gender specific user needs and requirements (see Chapter 3.5).

3.1 Developers

HUMBOLDT Developers are software developers who work on the HUMBOLDT Framework directly or implement software on the basis of the framework, supporting the Open Source Community of HUMBOLDT.

On the long term, HUMBOLDT's aim is to get as many organisations as possible to ensure the sustainability of the models, concepts and the software framework that are developed during the project. Therefore this group covers organisations that are mainly interested in the technical development and the usage of HUMBOLDT results, especially the Framework.

3.2 Data Custodians

HUMBOLDT Data Custodians are people or institutions who are offering data which have been adapted to given standards (harmonised) because of legal or market requirements. They provide data and have the responsibility to do so in a format that may be different from the one they normally use. They are mainly data providers. Examples for this group are the national INSPIRE-responsible bodies.

This group is basically interested in the HUMBOLDT toolset as it can serve their generic data harmonisation requirements and support the data processing they are responsible for. The framework is also of interest for them as it can serve as a basis for custom-made software serving their specific needs.

3.3 Data Integrators

HUMBOLDT Data Integrators are people who have to use heterogeneous geodata to meet the requirements of their daily job (e.g. integration of data for complex analysis). They need data themselves and access this from different facilities potentially in different formats. They have to combine various data sources, harmonise them to make use of them for their own purposes. They are mainly service providers.

They are also interested in the HUMBOLDT toolset as it can serve their generic data harmonisation requirements and support data processing, and possibly the framework as a basis for custom-made software serving their specific needs. Moreover, they may be interested in some of the scenario applications if they cover their activity area.

3.4 End-users

The HUMBOLDT End-users, building a large group, want to solve a problem and decide to use geospatial data for applications purposes – not interested in the harmonisation process itself but only in its results.

Initially GMES provides a framework for defining the end user community as described in Annex I. The User Involvement Document approach is to gain more insight into this user segment and their manifold requirements. This will be supplemented by analysis of the Scenarios' user community. Although the most relevant thematic areas for HUMBOLDT are those tackled by the project and covered by the scenarios, more users are included in the detailed analysis throughout the project as a result of the midterm scenario calls, connection made with the user community via the dissemination and training activities etc, and further evolution of GMES. HUMBOLDT allows others to get information about the project and to being kept informed, but the strategic approach focuses on Scenario related user groups, and as soon as they are covered completely, further thematic areas will be approached.

Two further subgroups can be distinguished within this user role.

3.4.1 End-users of geodata

End-users of geodata are users who are directly working with geographical data itself. They either use geodata in an already harmonised form or geodata that do not need harmonisation or integration at all. They are interested in the toolset to support their generic data harmonisation needs, or in some of the scenario applications depending on their activity.

3.4.2 End-users of spatial information

End-users of spatial information do not use geographical data directly; they only use information arising from it (indirect use of geodata). Most commonly they are users on laymen level, e.g. people using navigation systems, online routing services, etc.

4 Intentions and Expectations towards Users

4.1 General Intentions and Expectations by User Role

4.1.1 Intentions and expectations towards Developers

At the beginning of the project, developers have been HUMBOLDT Consortium members. However, by involving further users in HUMBOLDT as soon as a certain level of usage had been reached, we aimed at generating network effects, which contribute to a self-sustaining project result. Moreover, Software developers can act as multipliers: a good marketing strategy could get them to use the HUMBOLDT Framework, and at the point when there is a sufficient critical mass of users, software manufacturers will find it commercially viable to produce plugins or applications extending the capabilities of HUMBOLDT, making it more attractive for organisations to switch over. These manufacturers can then become HUMBOLDT developers as well. This will most certainly include migration paths from current, non-ESDI-enabled applications to ESDI-enabled ones.

Currently HUMBOLDT is strongly engaged in creating a developer community to ensure continuity in the development of the framework even after the end of the project itself. The ownership of the framework and the developer community may be organised within a “HUMBOLDT Developer Platform”.

Feedback from the developers is used especially for usable software architecture, interfaces, documentation, FAQs, tutorials etc for the framework.

4.1.2 Intentions and expectations towards Data Custodians and Data Integrators

Data Custodians and Data Integrators have the deepest insight into data harmonisation needs. Therefore, they should provide the essential inputs and feedback to developers for the user-driven development of the HUMBOLDT Framework. They were involved as test candidates in the evaluation phases of HUMBOLDT. Their feedback was mainly used for ensuring efficient support for the harmonisation process.

4.1.3 Intentions and expectations towards End-users

End-users are essential for obtaining feedback on the results (outputs) of the entire HUMBOLDT Framework. The scenario users provide feedback for the development of the framework and each of the Scenarios. The needs of the end-users have been indirectly focussed by the HUMBOLDT Framework and directly focussed by the HUMBOLDT scenarios. Usually end-users will not be in direct contact with the HUMBOLDT Tools and Services, but by using the HUMBOLDT Framework it should be easier for Data Custodians to deliver the required quality of data, with a reasonable effort, and it should be easier for the Developers to provide the best fitting applications for users needs. So, end-users and their needs and requirements are in general the motivator for each of the targeted groups. Therefore, it is evident for HUMBOLDT to ask for feedback from this group and to distinguish between feedback relevant for the scenarios and feedback relevant for the framework.

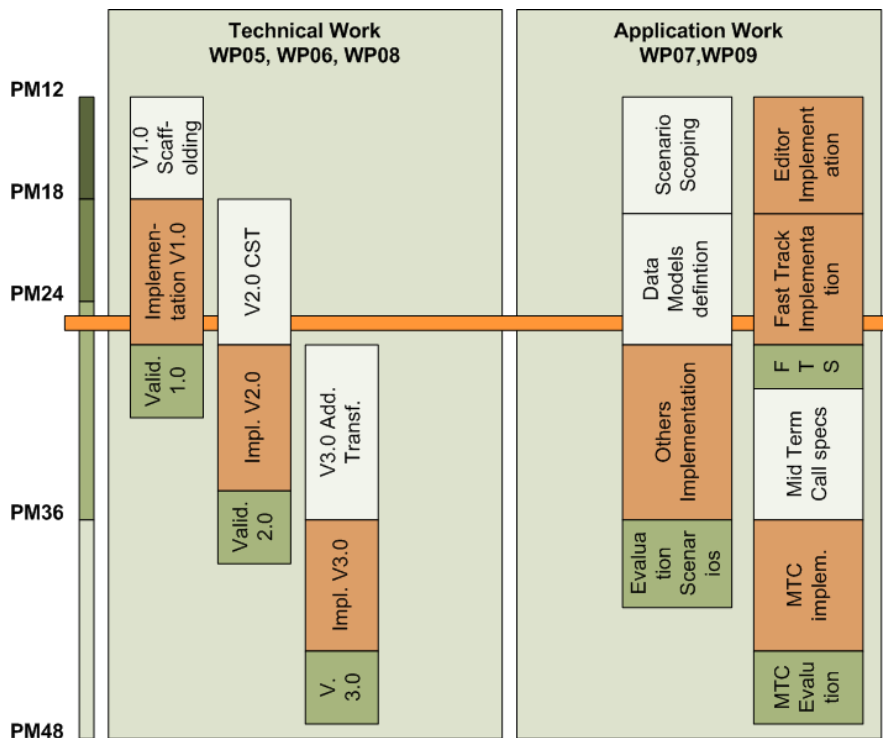


Figure 1. Project phases and activities between PM 12 and 48.

4.2 Intentions and Expectations by Project Phase

The integration of users has been a priority for the HUMBOLDT project from the beginning. User Integration has been intended to provide WP5 with both functional and technical requirements and also with the verification of the proposed architecture. For this purpose, different user groups have been involved at different phases of the project. Figure 1 presents an overview of the different project phases described below.

4.2.1 Prototype Phase (*finished*)

In this phase, the development was mainly technology-driven. The purpose of the prototype was basically to test key technologies that are to be re-used for the framework, and to see whether these can be integrated. The selection of these technologies was based on inputs from developers and researchers in the project itself that have been gathered in WP3.

However, there was also a checking step that involves the project partners developing the HUMBOLDT scenarios. For this, all scenarios were provided with a dossier of questionnaires that aimed at determining both the current system landscape, and the new elements that could be introduced based on HUMBOLDT. Furthermore, these questionnaires addressed both business aspects and technological aspects, but targeted at determining technological consequences and thus aimed at developers.

Based on the results of these dossiers, a set of technological requirements was extracted and used to test whether the system design fits within the different environments, and if it is also able to cover the Use Cases presented.

4.2.2 Framework Version 1.0 (*specification finished in PM18, implementation finished in PM26*)

This phase intended to create a robust framework based on the lessons learnt in the prototype phase. At this stage, the capabilities of user interfaces were still low. Further, only limited capabilities for the harmonisation module were available. Obviously, the development for Framework V1 still was mainly technology-driven.

For this phase, a series of requirements was extracted from the A3.3-D1 and A3.3-D2 reports. Here, secondary literature was analysed which consists mainly of third-party user surveys. The items collected from these studies and surveys were used to prioritise developments within Framework Phase I and II.

Further, inputs of external users became more important in this phase. The external users for this phase were developers and researchers from the related projects, and also from INSPIRE. Since this phase has seen the commencement of the harmonisation activities in WP7, the domain knowledge and modelling capabilities of the Data Custodians and Data Integrators were also important to integrate.

In addition, the processes for the integration of requirements and for specification suggestions were available both for the limited external users and for all project-internal users. This involved means to directly propose specification changes and addendums, as well as additional information on existing requirements and on new ones.

At the end of this phase, the software was released to the public, therefore ending the phase of limited external access.

4.2.3 Framework Version 2.0 (*specification finished in PM26, implementation finished in PM34*)

In this phase, the rather empty frame needed to be filled, and the harmonisation capabilities had to be significantly advanced. Therefore, the development of the scenarios started in this phase. A great deal of feedback was provided from the usage of the framework and its extension by the developers working in the scenarios, addressing items such as developer usability of the APIs, but also the verification of the scenario requirements collected during the Prototype Phase through the involvement of utilisers, as described in the next paragraph.

The people actually using the scenarios played an additional role in this phase, since they have defined the functionalities they need, which in turn were evaluated for integration into the main framework. Even though these people have been asked for their requirements in the earlier project phases as well, many requirements came up during the actual formation of the scenarios.

The call for additional scenario concepts also occurred in this period. The call invited industry and research to examine the specification and implementation, and to identify both technical and functional gaps that can then be addressed within their proposal.

At the end, a consistent and sufficiently detailed set of requirements has been achieved through web-based requirement management and personal consolidation meetings, brainstorming.

4.2.4 Framework Version 3.0 (*specification started in PM 27, implementation and validation finished in PM47*)

This second phase of filling the framework ended with a HUMBOLDT Framework that is functionally complete, i.e. all necessary modules have been implemented. There are some open points and

certainly improvable characteristics such as performance and resource consumption, but the essential developments especially in processing and data harmonisation have been completed by now. Here, inputs from data providers have been as important as from users in the scenarios and external applications, to see if their quality expectations on harmonisation are reached. Becoming Open Source and establishing the web-based communication platforms was essential in this period to ensure this feedback and to prepare post-project life - which results in a migration from project environment to community environment.

4.2.5 Post-project era - the Open Source Development Community

Up to now, there is already a great demand both from the users within the project and from external users to update the software according to their requirements and issues they identify in their day-to-day-work. Furthermore, with the inclusion of new user groups, e.g. from the NatureSDIplus and ESDIN projects, additional requirements have been determined and covered.

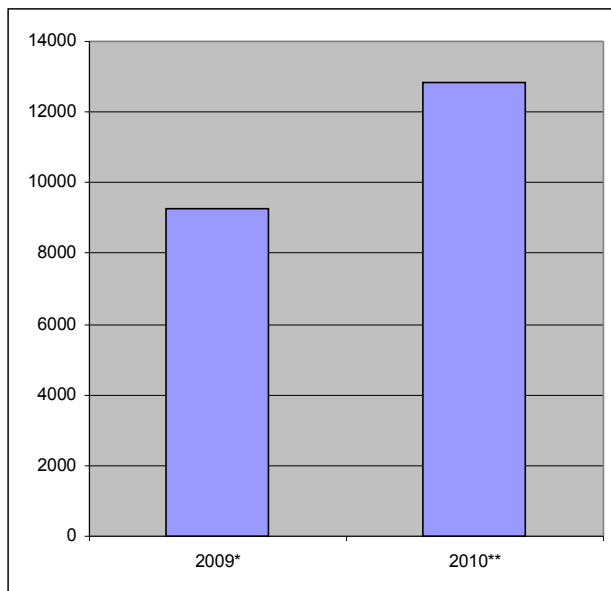


Figure 2: Community Website visitors per year (2009 - 2010)¹

In the post-project era, the Open Source Community will have to keep alive the results, make further developments and adaptations of the Framework and Toolset.

Translation of user documentation and user interfaces of HUMBOLDT components into other languages is also foreseen as they have been explicitly requested by users of HUMBOLDT Tools and Services.

Another important task in the post-project era will be to add capabilities to the framework components to continuously match new requirements requested by existing and new users.

This is also true for reacting to bug reports from the community, creating development of required patches to existing HUMBOLDT components and making new releases based on these will be one of the follow-on activities.

¹ *: 2009 includes May 19th until December 31; **: 2010 includes January 1st until August 25th.

5 Expectations and Intentions of Users

5.1 Developers

During the four years of the HUMBOLDT project, the Consortium members are obviously motivated in framework development. However, it is reasonably expected that they will be deeply involved in the further development of the framework, an issue that will be further detailed in the Exploitation Plan.

The HUMBOLDT Framework can also be appealing for “external” software developers if a large number of users is involved. They can then develop, for example, specific interfaces for each user group tailored to their needs, which provide the basis for business development. In the INSPIRE Internet Consultation Report (http://inspire.jrc.it/reports/analysis_consultation_01092003.pdf) a key comment states that the IT and geographical information industries should be involved in the development of the ESDI standards. HUMBOLDT can become a testbed for this. As HUMBOLDT will be provided as an open source framework under LGPL even business models of particular actors can be based in part on the Software. Therefore the quality of implementation and implementation relevant information, as well as an efficient and reliable structure for ownership and decision making are the evaluation criteria for this group.

The HUMBOLDT products of interest for developers:

- Framework and its documentation,
- (possibly) the Toolset and some Scenario Applications if ready-made solutions exist to their specific goals,
- Training material on developer level (HUMBOLDT components & architecture).

5.2 Data custodians and data integrators

Public-sector data providers possess a vast amount of diverse data that needs to be harmonized in a common framework e.g. public authorities who have to react to the implementation of the INSPIRE or the WFD Directives. What HUMBOLDT can offer to the data providers is therefore a reduction of their efforts by offering a complete framework for data harmonisation.

According to the already above mentioned INSPIRE Internet Consultation Report, numerous users, acting as “harmonisers” from the HUMBOLDT point of view, stated that information for spatial infrastructure should be built upon the existing elements available in the Member States. In many cases they take part in these initiatives and therefore can avoid duplication of effort.

On the other hand, private companies offering cross-border services may also benefit from the HUMBOLDT Framework as it enables them to obtain seamless data for their specific field e.g. fleet management or navigation including live traffic information, etc.

HUMBOLDT can also help in increasing the number of possible consumers of both data and services. Currently, spatial data are often acquired and used in a single context. An aim of this project is therefore to make it possible to reuse data in various application contexts. This will be accomplished by laying the groundwork for a semantic interoperability of the data, as well as by providing modules for the automatic reclassification of data by user's demands, and by the creation of data views that “remodel” the raw data for use in other applications. In this way, organisations from raw data providers to value added service providers can offer their products for new applications and so address a wider

audience. Logically, both subgroups are motivated in applying the framework and giving feedback to the developers as this increases its usefulness and hence their benefits.

Important criteria for this group to use HUMBOLDT results or not, are the efficiency and quality of the harmonisation, and the sustainability concept of the framework.

The following HUMBOLDT products are of particular interest for data custodians/integrators:

- HUMBOLDT Framework (depending on the availability of developers within the organisation),
- HUMBOLDT Toolset (for general-purpose data harmonisation),
- HUMBOLDT Scenario Applications (especially for Data Integrators, depending on activity area),
- HUMBOLDT Documentation,
- HUMBOLDT Training Package / Data custodian & integrator level.

5.3 End-users

It is evident that all end-users would like to have specific data for their activity area. If this activity requires cross-border or cross-disciplinary harmonisation of the data, then the framework developed in HUMBOLDT should be of interest for these users. Much effort has been expended in INSPIRE and GMES to develop a picture of user needs and requirements. During the internet consultation on INSPIRE, most users agreed with the basic principle that *“It must be possible to combine seamlessly spatial data from different sources across the EU and share it between many users and applications”*. The HUMBOLDT Framework will be able to solve the technical part of this. Moreover, three of the five main obstacles listed in the study – namely: lack of documentation, incompatible spatial data sets, and incompatible geographic information systems – are within the scope of the project.

End-users will therefore be motivated in using HUMBOLDT and providing feedback, provided they are aware of its importance and practical use in their particular field of activity.

The following HUMBOLDT products are of particular interest for end-users:

- HUMBOLDT Toolkit,
- HUMBOLDT Scenario Applications (depending on the user’s activity area),
- HUMBOLDT Documentation,
- HUMBOLDT Training Package / End-user level.

6 Instruments for User Involvement and Feedback Management

6.1 Raising Awareness

6.1.1 Building on existing networks: Creation of the Key User Group

In order to raise awareness on the project and construct a solid Key User Group, it was decided to make use of the pre-existing networks of the Consortium Members and build on their well-established connections. Therefore, all Partners were asked to identify and contact possible Key Users in their respective environment (country / application area), inform them about the potential benefits and requirements of the HUMBOLDT project, and ONLY if they agree and are motivated to join, to forward their contact information to the Project Office. (It is, again, very important to underline that the user must be contacted and has to agree before the contact information is submitted to the PO.) The Project Office manages an online database of user contact information, which is – according to the regulations – intended to the purposes of the HUMBOLDT project only and is not in any case provided to third parties. The list of the users is handled confidentially, but some information is provided in the User Inventory section (9.1.2.1).

On the other hand, GI-related professional organisations (associations, consortiums, etc.) on national and international levels are intended to be used as multipliers. All Partners have been asked to identify and target these organisations in their respective countries and areas, as most of them are members of such bodies. These links will also be used intensively in the post-project period.

6.1.2 HUMBOLDT Main Dissemination Instruments

The HUMBOLDT dissemination instruments are described in detail in the Dissemination and Exploitation Plans (A11.1-D1 and A11.1-D2). However, dissemination is vital in raising awareness, and is thus crucial from the point of view of efficient user involvement. Therefore, user involvement activities have to use dissemination instruments, namely:

- HUMBOLDT Scientific Publications and Articles
- HUMBOLDT White Papers
- HUMBOLDT Brochures
- HUMBOLDT Leaflets
- HUMBOLDT Scenario Leaflets
- HUMBOLDT Web pages:
 - HUMBOLDT Public Web page www.esdi-humboldt.eu
 - HUMBOLDT Community Website community.esdi-humboldt.eu
 - HUMBOLDT Training Platform www.gisig.it/humboldt/training/
- HUMBOLDT Newsletters
- HUMBOLDT Open Day in Lisbon, Portugal
- Press Conferences and Press Releases.

- Attendance at National and International Workshops, Fairs and Conferences
- Publication in GI-related newsletters

6.1.3 Motivating users to join the HUMBOLDT User Community

6.1.3.1 Public deliverables, summaries

HUMBOLDT users have the right to browse all the public deliverables created during the project. As for non-public deliverables, we still keep the possibility of sharing them with a well-targeted audience. Therefore, work package leaders are assigned as contact points to whom interested people can send e-mails asking for specific documents created in their respective work packages. The work package leader then decides (together with other not yet named persons in charge), if the requested document will be sent to this person in total or only partially.

6.1.3.2 Available HUMBOLDT software components

Up to now, a number of valuable HUMBOLDT components has been developed that can be of interest to various kinds of users. The new Community Website is the main platform for their distribution and feedback management. Below is a short list introduction to the different components of FW V3.0; more details can be found in the document "A Lightweight Introduction to the HUMBOLDT Framework V3.0" (Deliverable A5.2-D3 [3.0]) and in the specification documents referenced in within.

The HUMBOLDT Data Harmonisation Toolkit

The HUMBOLDT data harmonisation toolkit consists of a set of graphical user interfaces that enable users to perform different tasks related to the HUMBOLDT software, such as conceptual schema mapping, workflow or context definition.

- The GeoModel Editor: a tool to support users in producing suitable data schemas and data specifications for geospatial demands. The GeoModel Editor was specified and developed as part of activities for framework version 1 and version 2.
- The Alignment Editor HALE: a rich graphical user interface for defining mappings between concepts in conceptual schemas (e.g. application schemas created with the HUMBOLDT GeoModel Editor), as well as for defining transformations between attributes of these schemas.
- The Context Client: allows users to create and manage contexts and user / organisation profiles. Within HUMBOLDT, the term Context refers to a set of constraints on geospatial data sets, such as constraints on language, spatial reference system or bounding box. Contexts can be linked to Organisation- and / or User Profiles, where information on users and organisations is maintained. The Context Client is the graphical user interface for the HUMBOLDT Context Service.
- The Workflow Frontend: a workflow designer and the graphical user interface of the Workflow Design and Construction Service (WDCS). It allows users to register, manage and graphically compose geoprocessing components into workflows. The Workflow Frontend therefore offers quite similar functionality as e.g. the GUI of the ArcGIS Model Builder or a BPEL Workflow Designer.

The HUMBOLDT Framework for Service Integration

The HUMBOLDT Framework for Service Integration consists of software components that enable users to publish geodata and to consume geodata via OGC-conformant interfaces, harmonised and transformed to their requirements. It consists of the following services:

- *the Context Service (CS)*, a service for managing product descriptions for transformation results, users and organisations;
- *the Mediator Service (MS)*, a harmonisation workflow execution engine that offers transformation, download and view service interfaces for seamless integration with existing environments;
- *the Workflow Design and Construction Service (WDCS)*, a component for analysing harmonisation needs and for constructing workflows;
- *the Information Grounding Service (IGS)*, is the HUMBOLDT catalogue. It provides cascading catalogue functionalities by periodically harvesting external catalogues.
- *the Model Repository (MR)*, a conceptual schema and mappings repository.

6.1.3.3 User Involvement by means of Training

Training and awareness are two of the most important issues in capacity building, both the basic rationale and the final target of any action carried out. Training impacts on the capacity of the stakeholders in developing an understanding of innovative technologies and processes and in exploiting them.

Awareness in SDI, standards, metadata, web technology, as well as training in the use of the HUMBOLDT Framework as a base for developing harmonised applications contribute to the creation of the “HUMBOLDT Community” compliant with INSPIRE principles, at the cutting edge of the GI technology, with proper skills concerning technical features including OGC standards, interoperability etc.

A HUMBOLDT training package assisted by a well-organised training framework is then able to support the HUMBOLDT dissemination and exploitation policy, and the effective involvement of the users. The training package will be available for download through the project website for the registered HUMBOLDT users.

The training platform is available online, see 2.3 and <http://www.gisig.it/humboldt/training/>.

It is a useful and effective instrument to involve users throughout a training schema that leads them to build-up their own use cases with their own datasets within one or more of the HUMBOLDT scenarios, according to the following schema:

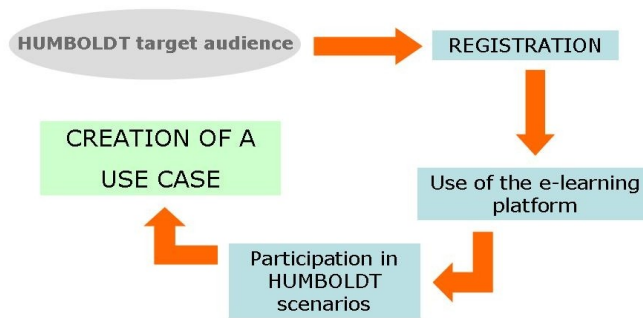


Figure 3. The e-learning platform as a tool for user involvement.

6.2 Management of user requests and feedback

6.2.1 Development processes driven by project-internal users

Deliverable “Process specification evaluation and improvement” (A4.3-D1) contains all relevant information on the processes and tools at the disposal of users to influence developments. In the beginning, most of these possibilities were available for project-internal users only, but many of them are made available gradually as the project became open to the public, through the Community Website (see next section).

Generally, the role of specification in HUMBOLDT is one of collecting and filtering requirements and other input from all the different groups in the project and outside it in such a way that a working software system can be built and enables its users to cope with their tasks. The two groups mainly influencing specification work are technicians and researchers on the one hand and users (mainly addressed through the scenarios) on the other hand. Both groups have the same means of influencing specification and therefore the project results.

Also, for a project's long-term success as an open source project, an open process is essential. Open process does not only mean to be able to retrace what happens in the process, it also means to be able to influence the input and processing in the specification process. Finally, it means any group aforementioned can change or influence the process itself. If they have any suggestions for modifying one of the processes below or adding a new instrument, they should contact the person in charge named on each respective section at the Community Website with their suggestion.

The following sections describe in detail what options and tools are available for influencing or driving specification. Each of these means can be used any time since PM18 (i.e. after V1.0 of the specification has been released). However, most of the requests are applied to the second working version of the specification, so they have not been reflected in the specifications from the beginning. This was necessary since the validation process, where the entire set of requirements is analysed looking for dependencies and conflicts was needed in order to gather correct and consistent requirements. This is the VOLERE approach² (see also next chapter). Also efficient development is hardly possible when requirements change all the time.

Management of user requests and feedback

The specific procedures to be followed according to the purpose of the request are explained here. For each kind of request, a specific procedure and a specific tool is used. The following table will guide finding the right procedure for the modification wished to introduce in the specifications:

² <http://www.volere.co.uk>

If you expect...	Then you can follow the procedure for...	Tool to be used...	Requester...
...expertise on how application-specific needs can be implemented.	<i>Architecture Request (AR)</i>	<i>HUMBOLDT Forum</i> (http://forum.esdi-humboldt.eu)	Scenarios within HUMBOLDT
...integration of concrete (functional or technical) solutions into the framework.	<i>Requirement Request (RR)</i>	<i>VOLERE Tool</i> (http://humboldt.etra.es)	Anyone within HUMBOLDT, related projects and initiatives
...that your possibly revised needs for concrete solutions be taken into account before the solutions are implemented.	<i>Requirement Change Request (RCR)</i>	<i>VOLERE Tool</i> (http://humboldt.etra.es)	Anyone within HUMBOLDT, related projects and initiatives
...integration of a whole new service into the framework.	<i>Specification Request (SR)</i>	<i>HUMBOLDT Forum</i> (http://forum.esdi-humboldt.eu)	Scenarios, WP6, WP7, WP8 within HUMBOLDT
...modification of an existing solution.	<i>Change Request (CR)</i>	<i>Polarion</i> (http://polarion.esdi-humboldt.eu/)	Anyone within HUMBOLDT, related projects and initiatives, preferably with a technical background

Table 1: Matrix of procedures and tools for managing requests in specification process.

POLARION system is a rather complex application that is mainly centred on technology experts. It allows to specify the requests in great detail, but can be confusing to people not doing software engineering or implementation regularly. It is therefore recommended only for Change Requests (CR, see A4.3-D1 for more details), when it is known in detail what is expected.

VOLERE system is easier to use and gives additional guidance on how to formulate requirements; it is therefore recommended for the submission of requirements (RR, see A4.3-D1 for more details) and changes to requirements (RCR, see A4.3-D1 for more details).

The **HUMBOLDT Forum** is a good public working space for the management of requests from users dealing with the Framework implementation. It is recommended for requests regarding specific needs of the users; they are Architecture Requests and Specification Requests. These requests should be managed using a specific Microsoft Word Template (see A4.3-D1 for more details).

A project-internal **HUMBOLDT Wiki** is also used and proved to be a very powerful information exchange tool not only in collaborative software development but also in all kinds of distributed work. On the long term, this could serve as a basis for more efficient open-source development, and it can contain all kinds of HUMBOLDT-related information in a well-structured documentation system and thus can also be regarded as a “product” containing the result of common efforts.

6.2.2 Connections with the "outer world" and transition to post-HUMBOLDT phase: the Community Website

Communication with project-external users is becoming increasingly important as the project evolves and the transition towards the post-project ("Community") phase is getting closer. Open access to the

source code repository and corresponding documentation has been provided since March 2009 through the "HUMBOLDT Community Website". This website has been provided to be the main communication platform, for the HUMBOLDT developer, professional user and key user communities, to exchange not only software, but also experiences, requirements, documentation. As the project is getting into the finish line, development processes will also be migrated to the Community Platform to ensure the smooth transition from the project period to the Community phase.

This website offers documentation on the developed software, contains news about on-going work and provides several means for interested parties to give their feedback on the tools HUMBOLDT is implementing. The Community Website was received very well both within the project and by the community. Positive proof of the acceptance and usefulness of the Community Website was given following the INSPIRE Workshop at the GSDI11 Conference hosted by the HUMBOLDT Consortium with several hundred people visiting this website, and several dozen downloading software. Some of them also provided detailed feedback and filed bug reports which have been included in HUMBOLDT's specification process. We have also received several feature requests via the community website.

The "Community Website" (www.community.esdi-humboldt.eu) has already proven to be a well accepted tool for getting in contact with the HUMBOLDT user and developer community and vice versa. Regarding the users, this Community Website addresses particularly the more technically skilled people, but this goes in line with the project status which still requires especially technological input in the means of development activities. This platform is assigned to be an important part of the sustainability strategy of the HUMBOLDT project. In this sense, step by step the whole community and user involvement activities will be consolidated here in the near future. That is why the "Get involved!" section of the project's public website (www.esdi-humboldt.eu/get_involved.html) has been restructured so that it presents an "entry point", a vehicle where interested people can find their way into the multiple possibilities of getting involved into the project. Each type of user finds there its specific description HOW they can get involved; WHERE they can do it and WHOM they can contact for further information. Therefore, the "Get involved!" section provides all necessary information, e.g. links to corresponding tools at the Community Website.

As the Community Website is constantly updated, visitors can use it to trace recent development activities and to get an overview about the planned next milestones.

6.2.3 Other ways for gathering feedback

Personal contacts are very important from the feedback point of view. National and international events offer important opportunities for gathering direct feedback. Therefore, an Event Calendar was created on the Intranet server. In this calendar, consortium members are able to:

- Browse events
- Enter events relevant to the project for dissemination and feedback collection
- Indicate if they will take part in that event, add comments
- Request dissemination material for particular events

The Event Calendar is also published on the public web server of the project, so that external users can browse the events and can also see where HUMBOLDT will be represented.

Consortium members presenting HUMBOLDT related work at those events intend to gather feedback as far as possible and they share their observations with the relevant HUMBOLDT partners, and with the Advisory and Review Boards.

6.3 Use of Dissemination Instruments in the Project Phases

Opportune dissemination materials are an important communication vehicle regarding User Involvement. Therefore, all actions have been accompanied by dissemination work with the aim of general awareness, higher visibility and the sustainability of HUMBOLDT. This includes the planned events throughout the project duration, PR, workshops, training, off and online marketing, Web PR, Point Of Interest presence with posters i.e. in academic, governmental and research environments etc.

6.3.1 Prototype Phase (*finished*)

Within the prototype phase, internal communication between project partners was of major importance, primarily needed for the development of the core technology. In this sense, the intranet performed a key role in dissemination supported by personalized contacts, phone, Skype and e-mail. From the beginning of the project the intranet serves as a distributional tool for the exchange of deliverables and as an archive for documents etc.

6.3.2 Framework Version 1.0 (*specification finished in PM18, implementation finished in PM26*)

This phase required active dissemination towards external users, and access to specific sections of the intranet was provided for the contributing external parties, including that derived from related projects. Besides this, data custodians and data integrators were addressed, i.e. by personal contact via the scenario teams, to encourage them to join the HUMBOLDT User Platform. As the basic fundamentals on which USER@HUMBOLDT can grow and develop dynamically involve comprehensive print material, such as brochures, leaflets, technology descriptions, these were provided to project partners and users for further distribution among interest groups. Confirmed contacts were stored and categorized, and a functional address data management was established. Newsletters and a frequently updated public website convey the data custodians' and data integrators' commitment to HUMBOLDT related challenges and perspectives. Moreover, the possibilities and needs of a Community Website have been discussed and its implementation has been started in the last third of this phase.

6.3.3 Framework Version 2.0 (*specification finished in PM26, implementation finished in PM34*)

Following the action items of Framework Version 1.0, in this phase additional dissemination instruments came to use in order to provide deeper knowledge of the HUMBOLDT Framework, and secure feedback from scenario related developers about their requirements concerning HUMBOLDT functionalities. Besides the use of the above mentioned dissemination instruments, the implementation of the Community Website has been promoted and further customisation has taken place in order to meet the varying needs and expectations of the audience. The development of a training framework has been started to distribute further knowledge and skills. The participation of project partners in conferences and external workshops (see event list within A11.1-D2 Revised Dissemination and Exploitation Plan) has been accompanied by the distribution of updated dissemination material supplemented by personalised direct mailings.

6.3.4 Framework Version 3.0 (*specification finished in PM 40, implementation and validation due in PM47*)

All featured dissemination instruments have been further aligned with individual goals, amongst others the demonstrators developed by the HUMBOLDT application scenarios were embedded into the

project websites. In addition, the final conference – the HUMBOLDT Open Day in Lisbon, Portugal – has been organised and implemented. In addition to the last Annual Report (A11.5-D4) due in September 2010, a Final Public Report will be published at the end of the project to summarize the results and achievements of the project. This report will provide the HUMBOLDT results for the community and all interested user groups to build a basis for the continuation of the activities, specifically the further development of the Framework, and to describe the state of the art in GI data harmonisation for future projects in this area.

6.4 Correct handling of collected information

Due to the fact that the HUMBOLDT project regularly collects data and information (including personal information) to carry out some parts of the work, and also because HUMBOLDT is establishing close connection to users and user groups, a detailed HUMBOLDT Privacy Statement covering all relevant aspects of information handling was elaborated and is available at the following address: <http://www.esdi-humboldt.eu/contact/privacy.html>.

7 Gender perspective in user involvement

Gender issues are addressed in the Gender Issue Plan and a specific chapter deals with these issues in the Dissemination and Exploitation Plan (Deliverable A11.1-D2, section 2.3). Please refer to these documents for further details on gender issues; this chapter gives only a short overview on the topic in the context of user involvement.

User involvement is already implemented within the consortium as HUMBOLDT as Open Source Software project needs to involve the targeted user groups from early stage. Therefore, different user groups and stakeholders are represented beside developers within the working groups. These groups were chosen with the goal of creating balanced sets of people considering their technical skills as well as the gender aspect.

Moreover, the needs of both genders have been distinguished during the state of the art work and requirements analysis by mixed groups of interviewers and interviewees. The fact that the research topic itself did not bring up any gender specific needs in terms of harmonisation and GI services may however not be concealed. One of the reasons for these missing findings might be that the project's focus lies to a huge extent on the technical issue – i.e. programming – of how to harmonize the different data formats successfully. The discussions in the HUMBOLDT working groups have evidenced that the individual differences in everyone's programming style carry much more weight than gender-related ones.

The opinion that programming or IT itself is not gender-related is also emphasized in a paper for the OECD-CERI Conference “Return to Gender: Gender in ICT and Education” in June 2008 in Oslo, Norway (http://www.oecd.org/document/20/0,3343,fr_2649_35845581_40830228_1_1_1_1,00.html) written by Tone Bratteteig. She suggests that there are two ways of looking into the subject of IT and gender: On the one hand, informatics include human-computer interaction and information system analysis and design, areas which require certain kinds of socio-cultural knowledge and skills. On the other hand, IT focuses mainly on the computer which makes it difficult to see gender aspects. Discussing gender with the latter, mostly leads to questions like: “Is software gendered? Will a female programmer write a piece of code differently – how and why? What difference would it make? Are computer systems gendered? How can you tell? How could they be made differently, and what difference would that make?” Bratteteig on the contrary aims at highlighting that IT “is more than being able to search and type on a keyboard”. For her “being literate” is the major motive as IT is never the “goal” but always the “means”: “IT is a tool or a prosthesis supporting human activity” which means that not technology itself is gender-related but the technical know-how and the way of interacting.

As the female members of HUMBOLDT working groups and key user groups are inserting their opinions and needs in logic, interaction and user environments into the HUMBOLDT developments from the start, gender equilibrium of all project components is ensured. Especially for an Open Source Software project like HUMBOLDT the fact that more than 30% of its key users are women is a noteworthy success.

8 Current status of User Involvement and future perspectives

The main objective set in the previous version of the User Involvement Document for the past period was to further disseminate results and rise awareness, specifically in the following areas:

- Towards GMES & End-users
 - Presentation of Scenario results, Demonstrators

- Participation at thematic events
- Towards INSPIRE & Data Custodians / Integrators
 - Framework components: demonstration of use and integration through other projects
 - Community website – maintaining continuous communication
 - Participation at events
 - HUMBOLDT as SDIC
- Towards Developers
 - Community website - maintaining continuous communication
 - Participation at events

It can be stated that they were mostly successfully achieved (see details below).

8.1 Achievements in the last period (from PM37 to PM48)

In the last project year, user involvement activities were tailored to match the strategy and goals described in the previous version of the User Involvement Document. The activities aligned along the main axes of the strategy have been as follows:

1. Further dissemination, awareness-rising and demonstration of project results towards GMES:
 - a. UWE participated in GMES UK Forum and Land Use meetings to represent HUMBOLDT based data harmonisation potentials for GMES community
 - b. FHG-IGD kept strong link towards GMES/INSPIRE/GEOSS communities through the GIGAS project
2. Further dissemination, awareness-rising and demonstration of project results towards INSPIRE:
 - a. HUMBOLDT was involved in the review of the State of the Art for the creation of Technical Guidance on INSPIRE Schema Transformation Services.
 - b. HUMBOLDT had a very strong representation at the 2010 INSPIRE Conference (Krakow, 22-25 June 2010). First, a Workshop session entitled "Data Harmonisation in the HUMBOLDT Scenarios and the HUMBOLDT Training Framework" was held on the 22nd of June, with a large number of ESDI stakeholders and key players attending. Evaluation questionnaires were also distributed on paper and were also put on the website in electronic form, and substantial feedback was gathered this way. Then, individual presentations were also given in different sections of the Conference, such as "Data Harmonisation Put into Practice by the HUMBOLDT Project" (by Astrid Fichtinger, Joachim Rix, Ulrich Schäffler, Simone Scherer and Moses Gone) and "Integrating spatial data integration: An Architecture for Complex Transformation Services" (by Thorsten Reitz, Daniel Fitzner, Marian de Vries and Ana Belen Antón Gironés).
3. Further dissemination, awareness-rising and demonstration of project results towards end-users, data integrators and data custodians in general:

- a. The Website was continuously updated and new public deliverables were made available.
 - b. The HUMBOLDT Training Platform was finalised to provide all the planned courses publicly (after registration).
 - c. The 2009 October and 2010 March/April HUMBOLDT Newsletters were created and disseminated towards all registered HUMBOLDT Users (including Key Users).
4. Further dissemination, awareness-rising and demonstration of project results through collaboration with other projects:
- a. Links to and cooperation with other projects were strengthened as well; see the evolution of the list of associated projects and brief description of collaboration presented in 9.1.2.3.
5. Transition to post-project life, ensuring the continuity open-source development:
- a. The HUMBOLDT Community Website (www.community.esdi-humboldt.eu) was continuously updated to keep track on the developments in a continuous way. It has been used as core medium providing all the necessary technical background for community building, discussion and community-enabled open source development.

8.1.1 Specific user involvement activities per partner

Further to the general, strategic user involvement activities, the large majority of partners was active in dissemination, demonstration and knowledge transfer in their respective areas and sectors. Below is a (certainly not exhaustive) list of user involvement activities per project partner:

- FHG-IGD:
 - Continuous dissemination towards and synchronisation with the GMES/INSPIRE/GEOSS communities through the GIGAS project
 - Collaboration in paper “An Architecture for Complex Transformation Services”, accepted for the INSPIRE Conference
 - Participating in the preparation of a HUMBOLDT workshop at INSPIRE conference in Krakow
- ETRA:
 - Collaboration in paper “An Architecture for Complex Transformation Services”, accepted for the INSPIRE Conference
- FOMI:
 - Participating in the preparation and moderation of the HUMBOLDT workshop at the INSPIRE conference in Krakow
 - Continuous monitoring and adaptation of user involvement activities through the Application Manager
- HSRS:
 - Dissemination on Plan4all, Habitats and Briseide meetings

- 25.02.2010 Presentation of Open Source and Open Data Accessibility as the way to Single Information Space for Environment also at the Local Government, Budapest
- IGN:
 - communication about HUMBOLDT in the ESDIN project
 - warning/facilitating communication with consortium RSW – 1Spatial – Rob Walker in charge of Technical Guidance of INSPIRE Schema Transformation Services
- TUD:
 - Preparing and presenting papers for several conferences: ISPRS joint workshop on: "Core Spatial Databases - Updating, Maintenance and Services - from Theory to Practice" 15-17 March, 2010, Haifa; European Geoscience Union General Assembly, April 2009, Vienna; INSPIRE Conference 2010, 22-25 June Krakow.
 - Participating in the preparation of a HUMBOLDT workshop at INSPIRE conference in Krakow
 - Participated in the initial preparations for a special journal issue for schema transformation
- ULSoR:
 - Participation of two persons in the International Conference European SDI Best Practice Awards 2009 Learning from Best Practices.
 - HUMBOLDT Training Framework presentation during the VESTA-GIS workshop organised within the 13th ASITA (www.asita.it) Conference, December 3rd 2009, Bari, Italy. ULSoR has been invited by EU VESTA - GIS project consortium for the aforesaid presentation as an important issue in relation to the specific workshop theme "GIS training and mobility in Europe". The presentation, in Italian language, has been published in the VESTA-GIS website (http://www.vesta-gis.eu/index.php?option=com_content&task=view&id=359&Itemid=47).
 - Participation of four persons in the aforesaid 13th ASITA Conference. Distribution of HUMBOLDT material during the aforesaid Italian leader Conference of GI between the attendees.
 - HUMBOLDT project presentation during the working-day with Prof. Tyen-Yin Chou of the Fang Chia University and his colleagues.
 - Preparatory work of two abstracts to submit to the call for paper for the 14th ASITA Conference (www.asita.it), 9th – 12th November 2010 Brescia, Italy. ULSoR intends present two papers about HUMBOLDT Training Framework and HUMBOLDT Framework.
- MARIS:
 - MARIS has presented HUMBOLDT in the IMDIS conference via an oral presentation after the abstract was approved. The IMDIS conference is the main marine event for marine and oceanographic data management.
- TUM:
 - An Abstract for presentation at the INSPIRE Conference was submitted

- A HUMBOLDT workshop proposal was drafted, discussed with partners and submitted to the INSPIRE Conference
- Coordination of activities towards the HUMBOLDT presence at the INSPIRE Conference
- 2010-03-10 Fichtinger, A.; Kutzner, T. 2010: Datenharmonisierung im Kontext von INSPIRE. Presentation, 15. Münchner Fortbildungsseminar Geoinformationssysteme, 10-11 March 2010, Munich, Germany. (included information about HUMBOLDT and HS-ERiskA) Publication; Munich, Germany
- March 2010 Fichtinger, A.; Kutzner, T. 2010: Datenharmonisierung im Kontext von INSPIRE. In: Schilcher, M. (ed.): Proceedings of the 15. Münchner Fortbildungsseminar Geoinformationssysteme, pp. 222-238. (included information about HUMBOLDT and HS-ERiskA data harmonisation examples. Publication
- 2010-03-08 Fichtinger, A.; Schäffler, U. 2010: Grenzüberschreitende Datenharmonisierung für ein Hochwasser-Anwendungsszenario. In: Schilcher, M. (ed.): INSPIRE - Grundlagen, Beispiele, Testergebnisse. Available online at http://www.rtg.bv.tum.de/clickStats.php?file=images/stories/downloads/projektarbeit/projekte_topaktuell/INSPIREGMES/INSPIRE_Broschuere_V5_druck.pdf. (about HS-ERiskA) Publication
- 2009-11-20 Fichtinger, A. 2009: Anforderungen an ein INSPIRE-konformes Fließgewässernetz. Presentation, Workshop Fließgewässernetz, 20. November 2009, Feldkirch, Austria. (Workshop organised by one of the HS-ERiskA data providers, presentation included information about HS-ERiskA data harmonisation results) Publication; Munich, Germany
- 2010-03-09 Fichtinger, A. 2010: Datenmodelltransformation im EU-Projekt HUMBOLDT. Presentation, Expertenworkshop Semantische Datenmodelltransformation im Kontext von INSPIRE, 15. Münchner Fortbildungsseminar Geoinformationssysteme, 9 March 2010, Munich, Germany. (about schema translation in HUMBOLDT) Publication; Munich, Germany
- 2009-11-25 Fichtinger, A. 2009: Forschung am Fachgebiet Geoinformationssysteme. Presentation at the Jahressitzung DGK – Sektion Geoinformatik, 25 November 2009, Munich, Germany. (included information about HUMBOLDT and HS-ERiskA) Publication; Munich, Germany
- UWE:
 - ·Participation in GMES UK Forum and Land Use meetings to represent HUMBOLDT based data harmonisation potentials for GMES community
- NERC-BODC:
 - Editing and updating HUMBOLDT webpages on the BODC website
 - Co-author of HUMBOLDT Ocean presentation at International Marine Data and Information Systems Conference
 - Submission of abstract for the UK AGI Geocommunity '10 Conference
- HCMR:

- HCMR disseminate HUMBOLDT in European Geosciences Union General Assembly (EGU) in Austria Vienna, 02-07 May with the oral presentation “Oil spill event tracking in the Aegean Sea. Integration of diverse data sets by the use of harmonisation tools” That is the HUMBOLDT Ocean Scenario implementation in Greek waters.
- GISIG:
 - HUMBOLDT Training Package and scenarios presentation in the Briseide Kick Off Meeting, Trento
 - Submission of the proposal for the "Training and Scenarios" workshop at the INSPIRE Conference.
 - 2009-10-28 HUMBOLDT presentation during the GISIG Assembly open to all members
- IGP:
 - SNIG-INSPIRE workshop that took place in Lisbon in 14 of October 2009
 - Workshop INSPIRE that took place during the SASIG conference (II Jornadas de Software Aberto para SIG), Évora, 3 of November 2009
- CLS:
 - CLS is the “ HUMBOLDT promoter” among the MyOcean (EU-GMES- Marine Core Service) operational oceanography community for the definition of work to do for the MyOcean Information System (MIS). CLS is deeply involved particularly in the information system specifications and is a reference and adviser for Mercator Ocean, the French organism which leads the MyOcean project. CLS also promotes INSPIRE and OGC standards culture among the other GMES projects where we are partners, particularly the SEADATANET project.
- HiG:
 - Abstract submitted to Kartdagarna 2010
- TU-DA:
 - Public and Final Conferences: Contribution to strategy planning and concept
 - Continuous assessment and review of Dissemination Material, Public and Community Website
 - Preparation and submission of Gender Issue Plan
 - Preparation, content contribution and publication of the HUMBOLDT Newsletter
 - Preparation and Publication of the WP11 Deliverables (e.g. A11.5-D3 Annual Report)

8.2 Strategy for the next period and outlook

8.2.1 Sharing project results with the broader public

Software elements developed within the project and considered as final are made available to the public. Furthermore, active dissemination is needed to make people aware of the newest results. This will be achieved via newsletters, conference presentations and workshops, continuing HUMBOLDT's dissemination efforts of the last project years, but the software elements or their showcases/demonstrators will also be made available on the Community Website.

All finished public deliverables are available on HUMBOLDT's Public Website. Moreover, a number of project-internal documents has been listed there, too. If a user is specifically interested in one of the restricted documents, he or she can write a request to the assigned contact person. The decision of making it available to the interested is then be taken on a by-case basis.

8.2.2 Transition to post-project life

HUMBOLDT went open-source in March 2009. The necessary steps and preparations have been made within the Work Packages responsible for "Development Process Specification", "Framework Models, Interface and Architecture" and "Framework Development" to ensure a smooth start. Basic considerations are written in "State of the art in collaborative software development and definition processes" (Deliverable A4.1-D1).

Creation of the Community Website was an important step toward the post-project era. In the last project year, all internal processes have been migrated towards the Community Website and the Project Website, which (both) will be the primary platform for subsequent developments.

Dissemination, exploitation and business perspectives are addressed in details within the Dissemination and Exploitation Plan (Deliverable A11.1-D2).

The key strategy for the post-project era can be summarised as follows:

- Spreading the expertise and knowledge gained during the project
- Fostering a wider use of the HUMBOLDT Framework Components and reaching higher acceptance
- Generating success stories in dedicated user communities to increase the visibility and the exploitation opportunities

Exploiting these three opportunities will help to involve a multitude of different end users.

The proposed focus for the post-project period will be put on Exploitation, Dissemination, Training and Adoption of HUMBOLDT software for additional user communities, namely:

- Exploitation, e.g.
 - Transition of the Project and Community Website for the long term sustainability
 - Implementation of one of the options from the Business/Exploitation Plan
- Dissemination, e.g.
 - Transfer of the results into the community networks and related projects, specifically PLAN4All, NATURESDIplus, GIS4EU, VestaGIS and others

- Presentation of the results and tools at further events, like INTERGEO 2010, GSDI12, ASITA 2010, EOGC2011, ...
- Provide experience reports from users of the HUMBOLDT Framework Components
- Edited Book and a Video on HUMBOLDT results
- Training, e.g.
 - in-depth trainings for the now ready tools in different languages for different user groups
 - adaptation of existing on-line basic and advanced training courses for specific target audiences
- Adoption of HUMBOLDT results, e.g.
 - updates to core software according to new requirements formulated by additional user communities
 - maintenance and support through the community website

9 Annex I: User Inventory

9.1 Inventory of current users

9.1.1 Users in HUMBOLDT Scenarios

The leader of WP9 and the Scenario leaders completed the compilation of all relevant information on users currently involved in the HUMBOLDT Scenarios. The results are incorporated in the Scenario System Specification deliverables, and are summarized below.

The list of users already represented in the Scenarios is provided below.

- HS Urban Planning
 - Indra Espacio (Spain)
- HS Forest:
 - Forest Management Institute (Czech Republic)
 - Regional Government Liberec Environment Protection and Forestry Department
 - Regional Government Usti nad Labem Environment Protection and Forestry Department
 - Regional Government Karlovy Vary Environment Protection and Forestry Department
 - CENIA
 - Grauba, Saxonian regional government
 - Forest owners
 - State Czech Forests

- State Saxonishe Forest
 - Forest schools (secondary, Universities)
- HS ProtectedAreas:
 - Regione Liguria (Italy)
- HS Eriska:
 - Bodenseekreis (Lake Constance district office, Germany)
 - Konstanz district office (Germany)
 - Water management agency of Kempten (Germany)
 - Office for warning affairs of the state Vorarlberg (Austria)
 - Office for military and civil protection of St. Gallen (Switzerland)
 - Office for environmental affairs of Thurgau (Switzerland)
 - National mapping agency of province Vorarlberg (Austria)
- HS Water (*Now integrated into the new Transboundary Catchment Scenario, see below*)
- HS Ocean:
 - Aegean region:
 - General Secretariat of Civil Protection
 - Ministry of Mercantile Marine/Marine Environment Protection Division
 - Baltic region:
 - Seatrack Web users – Helsinki Commission (Baltic Marine Environment Protection) members
 - UK region:
 - The Maritime and Coastguard Agency
 - French region:
 - CEDRE, the French Marine Pollution Organisation
- HS Galileo:
 - Individual Users that are dependent on location-based air quality information (e.g. [allergic persons](#))
 - Emergency respondent
- HS Transboundary Catchment (Midterm Scenario):
 - Conseil Général des Alpes Maritimes - Technical services (France)
 - PACA Region - Technical services (France)
 - Mercantour - Argentera Natural Parc (France)

- Regione Liguria (Italy)
- Province of Imperia (Italy)
- Catchment management Authority (Italy)
- Regional Parks (Liguria, Piedmont – Italy)
- HS Sustainable Urban Atlas (Midterm Scenario)
 - ...
 - ...

9.1.2 Project-external users

9.1.2.1 Key Users

Due to privacy reasons, only the corporate users and the respective countries are shown in the below table.

Organisation	Country
Research Institute of Geodesy and Cartography in Bratislava	Slovak Republic
Nitra self-governing region	Slovak Republic
Landeswarnzentrale Vorarlberg	Austria
Ministry of Mercantile Marine / Marine Environment Protection Directorate / Informatics and New Technology Directorate	GREECE
General Secretariat for Civil Protection	GREECE
Hungarian Ministry of Environment and Water / Dept. of Environment and Nature Protection / Dept. of Nature Protection Informatics	Hungary
Instituto de Meteorologia	Portugal
Instituto Hidrográfico	Portugal
Instituto Nacional de Estatística	Portugal
Office fédéral de topographie	Switzerland
NATURE-GIS (SDIC)	Italy
GI-CLAN (SDIC)	Italy
Fondazione Graphitech	Italy
Regione Piemonte	Italy
Regione Liguria	Italy
Provincia di Savona	Italy
Provincia di Genova	Italy
ICCOPS	Italy

Centre d'études techniques de l'équipement du sud ouest	France
Conseil Régional Nord Pas de Calais	France
Oil Spill Response and East Asia Response Limited	UK

9.1.2.2 Self-registered users

Due to privacy reasons, only the corporate users and the respective countries are shown in the below table.

Organisation	Country
Surveying and Mapping Authority	Slovenia
Arpa Piemonte - Centro Regionale per le Ricerche Territoriali e Geologiche - Sistema Informativo Geografico	Italy
Environment agency (UK)	United Kingdom
Sparx Systems Pty Ltd	Australia
Amt für Stadtentwicklung und Statistik	Germany
Environmental Studies Centre (Vitoria-Gasteiz City Council)	Spain
Monte Pino Met Research Observatory, GTOS/TEMS Database (FAO, UN)	Italy
University P. Comillas, Department of Sociology and Social Work	Spain
TeleGIS LAb - Dep. of Earth Science - Cagliari University	Italy
Space Research Center PAS	Poland
Deputación a Coruna	Spain
AMDE	Portugal
CMLisboa / DAEV	Portugal
EuroGeoSurveys	Belgium
Redcar and Cleveland Council	United Kingdom
Bundesamt für Kartographie und Geodaesie	Germany
SIGRID S.L.	Spain
Institute of Spatial and Cadastral Systems (ISPIK)	Poland
Plan4all project	Czech Republic / EU

9.1.2.3 Related projects

Project Name and contacts	Status and activities
BOSS4GMES	

Project Name and contacts	Status and activities
<p><i>Contact on project side:</i></p> <p>Dr. Richard Hilton (Co-ordinator)</p> <p>Jürgen Cronau</p> <p>Lars Tufte, Frédérique Blanc (CLS)</p> <p><i>Contact on HUMBOLDT side:</i></p> <p>Thorsten Reitz (FHG-IGD)</p> <p>David Ludlow (UWE)</p> <p>Frédérique Blanc (CLS)</p>	<p>MoA signed</p> <p>Joint workshops, e.g.:</p> <p>22nd-23rd May 2008 Paris: Discussion of GMES – INSPIRE interactions in the context of the development of the top-down and bottom-up perspectives on service evolution.</p> <p>25th-26th June 2008 Toulouse: Discussion of GMES – INSPIRE interactions in the context of the development of the top-down and bottom-up perspectives on service evolution.</p> <p>November 2008, Delft: feedback on specifications;</p> <p>BOSS4GMES has already ended (cf. report in CLS, WP3).</p>
<p>CASCADOSS</p> <p><i>Contact on project side:</i></p> <p>Thérèse Steenberghen</p> <p><i>Contact on HUMBOLDT side:</i></p> <p>Thorsten Reitz (FHG-IGD)</p> <p>Joachim Rix (TU-DA)</p>	<p>MoU signed, documents exchanged; Provision of contacts and references</p> <p>Participation and Presentation at the CASCADOSS Workshop June 2008 in Warsaw, Poland (Thorsten Reitz):</p> <p>Confidentiality Agreement</p> <p>A2.4-D1 Report on Software Distribution Strategies</p> <p>A3.3-D1 State of the Art in User Groups and Needs</p> <p>A3.6-D3 Handbook of Standards</p> <p>Participation in the CASCADOSS workshop in Poland in June 2008: keynote presentation, information exchange and discussion</p> <p>December 2008: Announcement of a national and regional CASCADOSS workshop among the HUMBOLDT consortium and in the HUMBOLDT event calendar at http://esdi-humboldt.eu/events.html;</p> <p>Distribution of information about the CASCADOSS project in the HUMBOLDT consortium.</p> <p>January 2009: Presentation of HUMBOLDT at the Hungarian national CASCADOSS workshop (Szeged 29-30/01/2009)</p> <p>March 2009: Hosting the CASCADOSS workshop in FÖMI on behalf of HUMBOLDT (Budapest 27/03/2009)</p>

Project Name and contacts	Status and activities
	CASCADOSS has ended.
<p>RISE / MOTIIVE</p> <p><i>Contact on project side:</i> Wyn Cudlip</p> <p><i>Contact on HUMBOLDT side:</i> Tomas Černevičius and Anders Östman for CBA; David Ludlow, Marianne De Vries, Manfred Loidold, Peter Winkler for Harmonisation with special Attention to HS Ocean</p>	<p>Working exchange on WP02/WP07.</p> <p>Project has ended.</p>
<p>BRICKS</p> <p><i>Contact on project side:</i> Robert Hecht</p> <p><i>Contact on HUMBOLDT side:</i> Thorsten Reitz</p>	<p>Exchange of documents; BRICKS provided their software and reports</p> <p>Project has ended.</p>
<p>SeaDataNet</p> <p><i>Contact on project side:</i> Dick Schaap Gilbert Maudire (IFREMER) Frédérique Blanc (CLS)</p> <p><i>Contact on HUMBOLDT side:</i> Dick Schaap Gilbert Maudire (IFREMER) Frédérique Blanc (CLS)</p>	<p>Ocean partners ensure a working exchange</p> <p>SeaDataNet will provide the reference for terminology and homogeneous XML scheme issues with tools to initialise or revise discovery metadata as well as an exhaustive ocean data base for research needs.</p>
<p>MerSea / MyOcean</p> <p><i>Contact on project side:</i> Frederique Blanc (CLS) Gilbert Maudire (IFREMER)</p>	<p>Ocean partners ensure a working exchange</p> <p>MyOcean will implement a standard catalogue for operation oceanography purposes, and standard networking services on the data (access, viewing).</p>

Project Name and contacts	Status and activities
<p><i>Contact on HUMBOLDT side:</i></p> <p>Frederique Blanc (CLS) Gilbert Maudire (IFREMER)</p>	
<p>NaturNet Redime NaturNet plus</p> <p><i>Contact on project side:</i> Tomas Mildorf</p> <p><i>Contact on HUMBOLDT side:</i> Karel Charvat</p>	<p>NaturNet Redime project was finished, now there is under Leonardo project follow up project NaturNet plus. There exist interlinkage of portals and usage of HUMBOLDT results as educational materials for NaturNet plus.</p>
<p>c@r</p> <p><i>Contact on project side:</i> Petr Horak</p> <p><i>Contact on HUMBOLDT side:</i> Karel Charvat</p>	<p>Working exchange with Urban Planning Scenario</p> <p>c@r project already finished, results are used in practice and inside of Plan4all, Habitats and NaturNet plus projects</p>
<p>AMI4for</p> <p><i>Contact on project side:</i> Petr Horak</p> <p><i>Contact on HUMBOLDT side:</i> Karel Charvat</p>	<p>Working exchange with Forest Scenario, Ami4for project already finished, technological solution start to be used in practice</p>
<p>InterRisk</p> <p><i>Contact on project side:</i> François Parthiot (Cèdre – France)</p> <p><i>Contact on HUMBOLDT side:</i> Gilbert Maudire</p>	<p>Ocean partners ensure a working exchange</p>
<p>GI-INDEED</p> <p><i>Contact on project side:</i> Anders Östman (University of Gävle)</p>	<p>ICT-based Training Platform, cross-check</p>

Project Name and contacts	Status and activities
<p><i>Contact on HUMBOLDT side:</i> Giorgio Saio (GISIG)</p>	
<p>eSDI-Net+</p> <p><i>Contact on project side:</i> Joachim Rix (Coordinator)</p> <p><i>Contact on HUMBOLDT side:</i> Eva Klien (FHG-IGD)</p>	<p>Regular bilateral meeting between the Coordinators of both projects in Darmstadt: Information exchange, discussion on strategic partnership</p> <p>Promoting synergies to achieve sustainability for both projects, e.g. complementary dissemination and awareness raising activities.</p> <p>Regular communication between work package leaders in dissemination and awareness of both projects:</p> <p>Exchange of information about implementation of INSPIRE and ESDI at national and regional level.</p> <p>GISIG, also involved in both projects communicates user requirements and stakeholder needs among the participants of both projects.</p>
<p>ORCHESTRA</p> <p><i>Contact on project side:</i> Christine Giger (ETHZ)</p> <p><i>Contact on HUMBOLDT side:</i> Thorsten Reitz (FHG-IGD)</p>	<p>Re-use of Architectural requirements in HUMBOLDT specifications. Document exchange for RM-OA.</p> <p>Reports and Comments were provided</p> <p>HUMBOLDT presentation given at ORCHESTRA Day in Stresa</p> <p>Project has ended</p>
<p>GENESIS</p> <p><i>Contact on project side:</i> Christian Alegre (Thalys)</p> <p><i>Contact on HUMBOLDT side:</i> Daniel Fitzner (FHG-IGD)</p>	<p>The projects HUMBOLDT and GENESIS collaborate by exchanging knowledge and documents, mainly on topics of data harmonisation and INSPIRE-related topics</p>
<p>GS Soil</p> <p><i>Contact on project side:</i> Katharina Feiden, (PortalU)</p> <p><i>Contact on HUMBOLDT side:</i> Daniel Fitzner (FHG-IGD)</p>	<p>The projects HUMBOLDT and GS Soil collaborate by exchanging knowledge, especially on harmonisation and transformation in the context of INSPIRE. Further, certain HUMBOLDT tools for data harmonisation might be reused within GS Soil.</p>

Project Name and contacts	Status and activities
<p>Nature SDI<i>plus</i></p> <p><i>Contact on project side:</i> Giorgio Saio (GISIG)</p> <p><i>Contact on HUMBOLDT side:</i> Moses Gone (FHG-IGD)</p>	<p>Regular discussions between co-ordinators</p> <p>Lessons and outcomes from NATURE-SDI<i>plus</i> harmonisation process can contribute to feed the development of the HUMBOLDT Framework together with the collection and the organisation of requirements of Protected Areas application domain developed by HUMBOLDT.</p> <p>The Training Framework developed within NATURE-SDI<i>plus</i> could be shared with HUMBOLDT.</p> <p>The HUMBOLDT Open Day was co-located with a Training Conference organised by the NatureSDI<i>plus</i> project on Wednesday, 29th September 2010.</p>
<p>VESTA GIS</p> <p><i>Contact on project side:</i> Anders Östman (HiG)</p> <p><i>Contact on HUMBOLDT side:</i> Giorgio Saio (GISIG)</p>	<p>Regular discussions between co-ordinators</p> <p>The Training Framework developed within VESTA-GIS could be shared with HUMBOLDT. In particular, the training courses developed in HUMBOLDT can be included into the VESTA-GIS Course Catalogue. Joint HUMBOLDT / VESTA-GIS training workshops are organised. Therefore, training material created in HUMBOLDT has been provided to VestaGIS as example courses</p> <p>Moreover, synergies between the HUMBOLDT Scenarios “Protected Areas” and “Transboundary Catchments” and the respective VESTA-GIS streams “Natural Environment Protection” and “Water Management” are used.</p> <p>The HUMBOLDT Open Day is organised by the consortium of the HUMBOLDT project in cooperation with the VESTA-GIS project.</p>
<p>Plan4all</p> <p><i>Contact on project side:</i> Tomas Mildorf (WBU)</p> <p><i>Contact on HUMBOLDT side:</i> Otakar Cerba</p>	<p>Co-ordination of exploitation results of HUMBOLDT related to Urban Planning in Plan4all</p> <p>Plan4all planned to use HUMBOLDT work related to data harmonisation and transformation services:</p> <p>Project Plan4all is continuing to activities of HUMBOLDT Scenario Urban Planning such as spatial data harmonisation and combination of different spatial data leading to building spatial planning background data used in designing of spatial plans and area limits and restrictions. Plan4all project plans to use free HUMBOLDT Tools regarding to spatial data harmonisation. Finally results of HUMBOLDT project (e.g. analyses, user requirements) are also used as backgrounds of introductory</p>

Project Name and contacts	Status and activities
	phase of Plan4all. Help service – remote sensing (HSRS) together with the University of West Bohemia are doing common dissemination strategy
<p>GIGAS</p> <p><i>Contact on project side:</i> Eva Klien</p> <p><i>Contact on HUMBOLDT side:</i> Thorsten Reitz</p>	Contributions to the Technology Watch activities in GIGAS
<p>ESDIN</p> <p><i>Contact on project side:</i> Dominique Laurent (IGN) Dániel Kristóf (FÖMI)</p> <p><i>Contact on HUMBOLDT side:</i> Dániel Kristóf (FÖMI) Dominique Laurent (IGN)</p>	<p>Regular communication; working links established between several WPs</p> <p>Synchronisation of activities and identification of joint actions through partners involved in both projects.</p> <p>MoU in preparation</p> <p>Developments of particular interest: HUMBOLDT Geomodel Editor, HUMBOLDT Alignment Editor</p> <p>A joint meeting with ESDI took place in Copenhagen, Denmark, in 2010. For HUMBOLDT Thorsten Reitz and Christine Giger participated in the meeting.</p>
<p>EnviroGrids</p> <p><i>Contact on project side:</i> Karel Charvat (HSRS)</p> <p><i>Contact on HUMBOLDT side:</i> Petr Horak (CCSS)</p>	<p>The coordination between scenarios and development in EnviroGrids.</p> <p>The Urban Planning and Forest Scenario was used as explanation of harmonisation purposes inside of EnviroGrids Black see</p>
<p>Briseid</p> <p><i>Contact on project side:</i> Karel Charvat (HSRS)</p> <p><i>Contact on HUMBOLDT side:</i> Petr Horak (CCSS)</p>	The coordination between projects. The tools from HUMBOLDT are expected to be used in Bridside
<p>Habitats</p>	Results and data of Forest Scenario are used as input of Habitats project. Habitats project is now contributing to INSPIRE Annexes themes 16–19, so the results of HUMBOLDT are now use also for

Project Name and contacts	Status and activities
<p><i>Contact on project side:</i> Karel Charvat (HSRS)</p> <p><i>Contact on HUMBOLDT side:</i> Jachym Cepicky (HSRS)</p>	<p>definition of data models for these themes.</p>
<p>SDI EDU</p> <p><i>Contact on project side:</i> Karel Janecka (WBU)</p> <p><i>Contact on HUMBOLDT side:</i> Karel Charvat (HSRS)</p>	<p>The education and research results of HUMBOLDT are used in education of Habitats project</p>