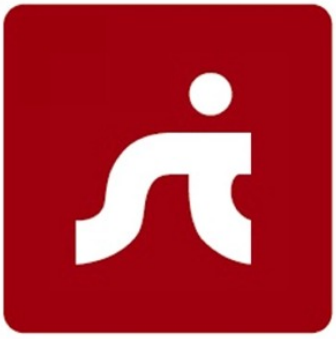
STI INTERNATIONAL



PLANETDATA ONLINE DISSEMINATION HANDBOOK

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2012-04-11

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STI INTERNATIONAL TECHNICAL REPORT

Abstract. This handbook covers on-line communication strategies for web 1.0, web 2.0, and semantic channels for the Planet Data Project and is based on the STI International Technical Report “Effective and Efficient On-line Communication”. It raises the approach described in the technical report to a higher level and summarizes it for the end-user.

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List of Shortcuts

A1L	Activity 1 Leader
A2L	Activity 2 Leader
A3L	Activity 3 Leader
A4L	Activity 4 Leader
C	Contact
CD	Concept Description
CM	Call Manager
CM	Communication Manager
E	Event
I	Interact
i	instance
IS	Instance Set
J	Join
JFP	Join as Full Partner
M	Mission
O	Organization
P	Project
PD	Project Description
PM	Project Manager
R	Result
SD	Scientific Director
WM	Webmaster
WP	Work package
WP1L	Work package 1 Leader
WP2L	Work package 2 Leader
WP3L	Work package 3 Leader
WP4L	Work package 4 Leader
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1 Introduction

As described in the STI International Technical Report "Effective and Efficient On-line Communication"[1] on-line communication is a time consuming and not scalable task, and there is still a big challenge in making it more effective and efficient.

The technical report describes an approach to achieve this by introducing a layer on top of the various internet based communication channels that is domain specific and not channel specific. The solution has been described for on-line communication of the Semantic Technology Institute (STI) International research association[2] and the Planet Data project[3].

This handbook raises the solution described in the technical report to a higher level where it can be used as a reference and guidelines for on-line communication for the Planet Data project.

The handbook will be structured as follows. Section 2 specifies the information models identified in the technical report in detail. Section 3 defines the channels that are used by Planet Data. Section 4 introduces the weaver that brings together information with the specified communication channels.

2 The Information Models

In this section we define the information models of PlanetData. We indentified the following top-level concepts (see Section 2.1.-2.4):

- **Organization**. This structural model defines both as structured entitys composed of elements organized in a certain structure.
- **Interact**. This communication model defines how you can interact with them.
- **Event**. This activity model describes their major activities.
- **Result**. Here we describe measurable and durable outcomes. We capture *das Erlöschen des Prozesses in seinem Resultat*.

Each of the categories comes with an editor responsible for maintaining the contents (see Section 2.5). Editors serve as a contact point to provide content. They are also responsible for collecting this content and passing it to the operational process that publishes the contents in the various information channels. A clear definition of editorship for each information item ensures a manageable process model for gathering and publishing this content.

After defining an informal model we formalized the information model as an ontology in in Section 2.6. We model structured information items as concepts and non-structured ones as properties, i.e., we assume simple non-structured values for properties. In general our model is rather simple but this may reflect the fact that we do ***not*** model a domain with all its complexity but rather the information chunks that are disseminated about it. That is, our modeling

[1] http://www.sti-innsbruck.at/TR/OnlineCommunication
[2] http://www.sti2.org
[3] http://www.planet-data.eu/

perspective and grainsize is defined by the consideration that an information provider can make informal sense of a chunk and that this chunk can be mapped onto a communication channel.

2.1 Organization

An organization is a means to an end. Therefore it should have a crystal-clear **mission** statement defining why it is there. Obviously such a justification of existence is based on three principal elements: *what* problem an organization is dealing with, *why* it is an important problem, and *how* the organization contributes to its solution.

The project body of PlanetData that carries it, is composed by **partners** that should be mentioned. As a Network of Excellence[4] it wishes to distinguish its membership by **core** and **associate partners**.

Notice each of these partners or members is again an organization and we could/should here recursively refine the model.

These members and partners set up **legal bodies** that represent the organization. In the case of PlanetData these are:

- It has a *Project Coordinator*, providing the overall leadership, a *Scientific Director* responsible for the scientific lead, and a *Project Manager* that helps both and therefore the project in achieving the mission. These persons and one representative per core partner form the **Project Management Board** which is responsible for the operational management of the project.
- The working structure of the project is organized in *tasks*, which are aggregated into **work packages**, and work packages are aggregated into **Activities**. The **Technical Management Board** oversees the scientific and technical progress of the project and is composed of the scientific director, the activity and work package leaders.
- Finally, the **General Assembly** is the overall governing board of the project and is similarly structured as the Project Management Board.

Legal entities are, in the end, nothing more than a structured pattern of interaction between the people that carry these legal bodies. Additionally, these people appreciate being publically awarded and recognized for the great service they provide for their organizations. Therefore, it is more than wise to list the **people** that are responsible for the actual work on the project (as a subset of all the people that keep a partner organization alive).

PlanetData is further described by **documents**. It offer **Press Material** and a number of other, addional, specific documents:

- PlanetData: A **project description** roughly reflecting what is called a project *fact sheet* by the European commission and legal documents such as the **Document of Work**,

[4] Network of Excellence projects are "designed to strengthen scientific and technological excellence on a particular research topic through the durable integration of the research capacities of the participants." http://en.wikipedia.org/wiki/Network_of_Excellence

defining the body of work that will be delivered in return to the public funding received, and the **Consortium Agreement** as a contract with all project participants.

Finally, PlanetData mentions the **funding body** and framework that is financing and therefore ultimately enabling the project as an actual process.

2.2 Interact

We have just learned two things. People love to get funding and projects have funding to give. Obviously people may be interested in how to join PlanetData. Actually, PlanetData offers the possibility to join as an **associate partner** and as a **core partner**. Clearly, both possibilities should be described in necessary detail. The latter option is based on two calls, where one is already closed. Describing the *closed call* and the *future call* for core partners is of core interest for people reading about PlanetData.

An individual requires an **address** to approach an organization. One might wish to know things like a *Skype id*, an *email address*, a *phone number*, a *fax number*, a *postal address*, a *Facebook account name*, a *Twitter account name*, and a list of *email lists*.

2.3 Event

A project is a sequence of events and each **event**[5] is an object in time. In our more specific setting an **event** in our sense of the word is a type of gathering.[6] Immediately two important dimensions arise to distinguish events from a general and a PlanetData point of view:

- *past event* and *current & upcoming event*; and
- *internal event* (i.e., project meetings) that is "owned" by PlanetData and *external events* that is aligned with and supported by PlanetData. A third category of events are so-called strategic events (also called *Ornithorhynchus anatinus events*) that are organized by the project (possible in cooperation with external partners) but for the broader audience. Examples are strategic workshops around the call activities of PlanetData.

2.4 Result

A process is a means to achieve a result. A **Result** is therefore the final and ultimate description element for a project. In the case of PlanetData they are:

- Project deliverables
- PR material
- Publications.
- Presentations.
- Data sets and Tools
- Videos

[5] http://en.wikipedia.org/wiki/Event_(philosophy)
[6] http://en.wikipedia.org/wiki/Event_(philosophy)

- Event summaries.

2.5 Editorship

Each of the categories comes with an editor responsible for maintaining the contents. Editors serve as a contact point to provide content. They are also responsible for collecting this content and passing it to the operational process that publishes the contents in the various information channels. A clear definition of editorship for each information item ensures a manageable process model for gathering and publishing this content.

2.6 The Information Model in Detail

Table 1. Information Model of PlanetData

No	Information Item	OWL URI	Editor
1	Project	oc:project	Scientific Director
2	P – Image	oc:hasImage(pd:PlanetData)	Project Manager
3	P – Name	oc:hasName(pd:PlanetData)	Project Manager
4	P – mission	oc:hasMissionStatement (pd:PlanetData)	Scientific Director
5	P – project description	oc:hasDescription(pd:PlanetData)	Scientific Director
6	P – PD – Factsheet	oc:hasFactsheet(pd:PlanetData)	Project Manager
7	P – PD – PR material	pd:hasPR_Material	Communication Manager
8	P – Partners (Associate and Core)	oc:hasPartner(pd:PlanetData)	Project Manager
9	P – Partners – Description	oc:hasDescription(oc:hasPartner(pd:PlanetData))	Project Manager
10	P – Partners – Image	oc:hasImage(oc:hasPartner(pd:PlanetData))	Project Manager
11	P – Partners – Name	oc:hasName(oc:hasPartner(pd:PlanetData))	Project Manager
12	P – Partners – Address	oc:hasAddress(oc:hasPartner(pd:PlanetData))	Project Manager
13	P – Partners – Partner status	oc:hasPartnerStatus(pd:Partner)	Project Manager
14	P – People	pd:hasTeamMember(pd:PlanetData)	Project Manager
15	P – People – Image	oc:hasImage(oc:hasTeamMember(pd:PlanetData))	Project Manager
16	P – People – Name	oc:hasName(oc:hasTeamMember(pd:PlanetData))	Project Manager
17	P – People – Affiliation	oc:isAffiliatedWith(oc:hasTeamMember(pd:PlanetData))	Project Manager
18	P – Funding Agency	oc:isFundedBy(pd:PlanetData)	Project Manager
19	P- Activity 1	pd:Activity1	Activity 1 Leader
20	P- Activity 2	pd:Activity2	Activity 2 Leader
21	P- Activity 3	pd:Activity3	Activity 3 Leader
22	P- Activity 4	pd:Activity4	Activity 4 Leader
23	P- Work package 1	pd:WorkPackage1	Work package 1 Leader
24	P- Work package 2	pd:WorkPackage2	Work package 2

			Leader
25	P- Work package 3	pd:WorkPackage3	Work package 3 Leader
26	P- Work package 4	pd:WorkPackage4	Work package 4 Leader
27	P- Work package 5	pd:WorkPackage5	Work package 5 Leader
28	P- Work package 6	pd:WorkPackage6	Work package 6 Leader
29	P- Work package 7	pd:WorkPackage7	Work package 7 Leader
30	P- Work package 8	pd:WorkPackage8	Work package 8 Leader
31	P – Document of Work	pd:DescriptionOfWork	Project Manager
32	P – Consortium Agreement	pd:ConsortiumAgreement	Project Manager
33	P – General Assembly	pd:GeneralAssembly	Project Manager
34	P – Project Management Board	pd:ProjectManagementBoard	Project Manager
35	P – Technical Management Board	pd:TechnicalManagementBoard	Project Manager
36	Join	oc:ApplicationProcess	Project Manager
37	J– Join as Associate Partner	pd:AssociatePartnerApplication	Project Manager
38	J – JAP – Application Form	pd:ApplicationForm	Project Manager
39	J – Join as Full Partner		Project Manager
40	J – JFP – Call 1	pd:Call1	Call Manager
41	J – JFP – Call 2	pd:Call2	Call Manager
42	J – Contact	oc:hasContactPoint(pd:PlanetData)	Project Manager
43	J – C – Skype id	oc:hasSkypeAccount(pd:PlanetData)	Project Manager
44	J – C – email address	oc:hasEmail(pd:PlanetData)	Project Manager
45	J – C – phone number	oc:hasPhoneNumber(pd:PlanetData)	Project Manager
46	J – C – fax number	oc:hasFaxNumber(pd:PlanetData)	Project Manager
47	J – C – postal address	oc:hasAddressr(pd:PlanetData)	Project Manager
48	J – C – Facebook account name	oc:hasFacebookAccount(pd:PlanetData)	Project Manager
49	J – C – Twitter account name	oc:hasTwitterAccount(pd:PlanetData)	Project Manager
50	J – C – list of project email lists	oc:hasMailingList(pd:PlanetData)	Project Manager
51	Event	oc:Event	Communication Manager
53	E – Description	oc:hasDescription(oc:Event)	Project Manager
54	E – Image	oc:hasImage(oc:Event)	Project Manager
55	E – Name	oc:hasName(oc:Event)	Project Manager
56	E – Attendees	oc:isAttendedBy(oc:Event)	Project Manager
58	E – End date	oc:endsAt(oc:Event)	Project Manager
59	E – Performers	oc:hasPerformer(oc:Event)	Project Manager
60	E – Start date	oc:beginsAt(oc:Event)	Project Manager
61	E – Sub events	oc:hasSubEvent(oc:Event)	Project Manager
62	E – Super events	oc:hasSuperEvent(oc:Event)	Project Manager

63	E – Location	oc:hasLocation(oc:Event)	Project Manager
64	Result	oc:Document	Project Manager
65	R – Deliverables	pd:Deliverable	Project Manager
66	R – D – Title	oc:hasTitle(pd:Deliverable)	Project Manager
67	R – D – Creator	oc:hasCreator(pd:Deliverable)	Project Manager
68	R – D – Topic	oc:hasTopic(pd:Deliverable)	Project Manager
69	R – D – Subject	oc:hasSubject(pd:Deliverable)	Project Manager
70	R – D – Date	oc:hasDate(pd:Deliverable)	Project Manager
71	R – Factsheet	pd:FactSheet	Project Manager
72	R – F – Title	oc:hasTitel (pd:FactSheet)	Project Manager
73	R – F – Creator	oc:hasCreator(pd:FactSheet)	Project Manager
74	R – F – Subject	oc:hasSubject(pd:FactSheet)	Project Manager
75	R – F – Date	oc:hasDate(pd:FactSheet)	Project Manager
76	R – PR Material	pd:PR_Material	Communication Manager
77	R – P – Title	oc:hasTitle(pd:PR_Material)	Communication Manager
78	R – P – Creator	oc:hasCreator(pd:PR_Material)	Communication Manager
79	R – P – Topic	oc:hasTopic(pd:PR_Material)	Communication Manager
80	R – P – Subject	oc:hasSubject(pd:PR_Material)	Communication Manager
81	R – P – Date	oc:hasDate(pd:PR_Material)	Communication Manager
82	R – Publications	pd:Publication	Communication Manager
83	R – Pub – Title	oc:hasTitle(pd:Publication)	Communication Manager
84	R – Pub – Creator	oc:hasCreator(pd:Publication)	Communication Manager
85	R – Pub – Topic	oc:hasTopic(pd:Publication)	Communication Manager
86	R – Pub – Subject	oc:hasSubject(pd:Publication)	Communication Manager
87	R – Pub – Date	oc:hasDate(pd:Publication)	Communication Manager
88	R – Pub – Publisher	oc:hasPublisher(oc:Publication)	Communication Manager
89	R – Presentations	pd:Presentation	Communication Manager
90	R – Pres – Title	oc:hasTitle(pd:Presentation)	Communication Manager
91	R – Pres – Creator	oc:hasCreator(pd:Presentation)	Communication Manager
92	R – Pres – Topic	oc:hasTopic(pd:Presentation)	Communication Manager
93	R – Pres – Subject	oc:hasSubject(pd:Presentation)	Communication

			Manager
94	R – Pres – Date	oc:hasDate(pd:Presentation)	Communication Manager
95	R – Data sets and Tools	pd:DataSet, pd:Tool	Work package 4 Leader
96	R – Data sets and Tools – Descriptions	pd:DataSet, pd:Tool	Work package 4 Leader
97	R – Videos	oc:Video	Work package 6 Leader
98	R – Videos – Descriptions	oc:Video	Work package 6 Leader
99	Pictures	oc:Image	Scientific Director

Table 2. Editors of PlanetData

No	Function	Who
1	Activity 1 Leader	Grigoris Antoniou
2	Activity 2 Leader	Karl Aberer
3	Activity 3 Leader	Lyndon Nixon
4	Activity 4 Leader	Dieter Fensel
5	Call Manager	Anna Fensel
6	Communication Manager	Simeona Pellkvist
7	Project Manager	Alice Carpentier
8	Scientific Director	Elena Simperl
9	Web Master	Dimitris Agelakis
10	Work package 1 leader	Ying Zhang
11	Work package 2 leader	Andreas Harth
12	Work package 3 leader	Irini Fundulaki
13	Work package 4 leader	Chris Bizer
14	Work package 5 leader	Zoltan Miklos
15	Work package 6 leader	Mitja Jermol
16	Work package 7 leader	Simeona Pellkvist
17	Work package 8 leader	Anna Fensel

3 The Channel Model

We identified a number of categories for on-line communication channels in our technical report. In the following, we list al channels that are used by STI International:

3.1 Broadcastin static information

Planet Data Website: http://www.planet-data.eu/

The Planet Data Website mostly reflects the conceptual structure of its information model. Future versions my become optimized for accessibility issues.

Table 3. Static Broadcasting Channels of PlanetData

No	Name	What
1	http://planet-data.eu/ = homepage	static web site
2	homepage/project	static web site
3	homepage/project/fundingagency	static web site
4	homepage/project/mission	static web site
5	homepage/project/partners	static web site
6	homepage/project/people	static web site
7	homepage/project/projectdescription	static web site
8	homepage/project/projectdescription/factsheet	static web site
9	homepage/project/projectdescription/prmaterial	static web site
10	homepage/event	static web site
11	homepage/event/upcoming-events	static web site
12	homepage/event/past-events	static web site
13	homepage/join	static web site
14	homepage/join/contact	static web site
15	homepage/join/joinasassociatepartner	static web site
16	homepage/join/joinasfullpartner	static web site
17	homepage/result	static web site
18	homepage/result/factsheet	static web site
19	homepage/result/dataandtoolsets	static web site
20	homepage/result/deliverables	static web site
21	homepage/result/presentations	static web site
22	homepage/result/prmaterial	static web site
23	homepage/result/publications	static web site
24	homepage/result/videos	static web site
25	flyingbox: Partner	web site particle with dynamic updated contents
26	flyingbox: People	web site particle with dynamic updated contents
	Button for web site	
27	+1	Like button of Google+

28	Add to favorites	In your browser
29	Email	With a web-based email service
30	facebook	https://www.facebook.com/pages/Planet-Data/124932387564593
31	facebook-like[7]	Like button of Facebook
32	Share	In various web 2.0 sites
33	slideshare	http://www.slideshare.net/STI_PlanetData
34	twitter	http://twitter.com/#!/PlanetData_NoE
35	VideoLectures	http://videolectures.net/planetdata/
36	Wiki	http://wiki.planet-data.eu/
37	Wikipedia	Entry on PlanetData in Wikipedia

3.2 Broadcastin dynamic information

Table 4. Dynamic Broadcasting Channels of PlanetData

No	Name	what
1	homepage/news	web site providing a chronological list of all news
2	homepage/archive	Query interface for news
3	News	web site particle with dynamic contents; containing the latest news
4	RSS	Push service for news
5	http://twitter.com/#!/PlanetData_NoE	Internet-based short message service
6	dbworld@cs.wisc.edu	Email list
5	seworld@listserv.acm.org	Email list
8	public-lod@w3.org	Email list
9	semantic-web@w3.org	Email list
10	is-world@aisnet.org	Email list
11	IRList@lists.shef.ac.uk	Email list
12	community@sti2.org	Email list
13	planetdata@lists.sti2.at	Email list
	Buttons for news box	
14	RSS	
	Buttons for news	
15	+1	Like button of Google+
16	Add to favorites	In your browser
17	Email	With a web-based email service
18	Like	Like button of Facebook

[7] "Individuals or companies can create "Like Pages" which allows fans of an individual, organization, product, service, or concept to join a Facebook fan club. Like Pages look and behave much like a user's personal private profile, with some significant differences. Public Profiles are integrated with Facebook's advertising system, allowing Public Profile owners to easily advertise to Facebook's users. Owners can send updates to their fans, which shows up on their home page." http://en.wikipedia.org/wiki/Facebook_features#General

19	Share	In various web 2.0 sites

Planet Data Twitter: “http://twitter.com/#!/PlanetData_NoE

3.3 Sharing

An account for Planet Data has been created for

- **Slideshare:** http://www.slideshare.net/STI_PlanetData
- **Video Lectures:** http://videolectures.net/planetdata/

Table 5. Sharing Channels of Planet Data

No	Name	Description
	Slideshare	
1	Main page	General Info on PlanetData and overview on the shared presentations
2	Presentations	PlanetData can share Presentations
	VideoLectures	
3	Main page	General Info on PlanetData
4	Tutorials	Shared Videos of Tutorials
5	Schools	List of Schools (for example ‘International Summer School on Semantic Computing’) where videos have been taken

3.4 Collaboration

We use **MediaWiki**[8] as a technical means to implement a wiki: http://wiki.planet-data.eu/.

Table 6. Wiki Channel of PlanetData

No	Name	Description
1	Main page	Navigation
2	Partners	Page to share content
3	People	Page to share content
4	Activities	Page to share content
5	Work packages	Page to share content
6	Deliverables	Page to share content
7	PlanetData Programs	Page to share content
8	Project meetings	Page to share content
9	Management Procedures	Page to share content
10	Dissemination	Page to share content
11	News Archieve	Page to share content

[8] “MediaWiki is a free software open source wiki package written in PHP, originally for use on Wikipedia.” http://www.mediawiki.org/wiki/MediaWiki

12	Templates	Page to share content
13	Logo	Page to share content
14	PR Material	Page to share content
15	Legal Documents	Page to share content
16	List of people	Page to share content
17	List of partners	Page to share content
18	List of datasets	Page to share content
19	List of activities	Page to share content
20	List of work packages	Page to share content
21	List of deliverables	Page to share content
22	List of tools	Page to share content
23	Information about PlanetData programs	Page to share content
24	Information about Project meetings	Page to share content
25	Information about Management procedures	Page to share content
26	Recent Changes	Automatic generated change page
27	Information about Dissemination	Page to share content
28	Information about Training Activities	Page to share content
29	Download of Templates	Page to share resources
30	Download of Logos	Page to share resources
31	Download of PR material	Page to share resources
32	Download of Legal documents	Page to share resources
33	Pictures	Page to share resources
34	Proposal for a mobility program	Page to share resources
35	TO-DOs	Page to share contents
36	Project timeline	Page to share contents

3.5 Group communicationg

A page or Planet Data has been set up at Facebook https://www.facebook.com/pages/Planet-Data/124932387564593

Table 7. Facebook Channel of PlanetData

No	Name	Description
	facebook	
1	Info	General info on PlanetData
2	Photos	Users can upload albums of photos, tag friends and comment on photos.
3	Wall/Status	Users and PlanetData can post messages for all their friends to read.

3.6 Semantic-based Dissemination

An important approach to broaden the scope of a dissemination activity is to add machine-processable semantics to the information. With this approach, search and aggregation engines can provide much better service in finding and retrieving this information. Semantic annotations injected in websites are used by search engines such as Google to provide a structured presentation of the contents of websites.

The Planet Data Website is enriched with following two formats of adding machine-processable semantics to data:

- RDFa[9] adds a set of attribute-level extensions to XHTML enabling the embedding of RDF triples;
- Microdata[10] use HTML5 elements to include semantic descriptions into web documents aiming to replace RDFa and Microformats.

We use content management system Drupal 7 to include RDFa, microdata, and microformats in the web documents. The data will also be exported from Drupal into OWLIM[11] to support direct RDF[12] and SPARQL (see Figure 6).

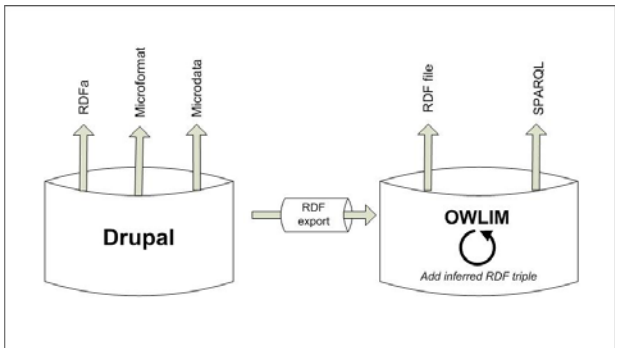

Figure 1. Technical Means to publish Semantic Data

[9] http://www.w3.org/TR/xhtml-rdfa-primer/. "RDFa (or Resource Description Framework – in – attributes) is a W3C Recommendation that adds a set of attribute-level extensions to XHTML for embedding rich metadata within Web documents. The RDF data-model mapping enables its use for embedding RDF triples within XHTML documents, it also enables the extraction of RDF model triples by compliant user agents." http://en.wikipedia.org/wiki/RDFa

[10] "Microdata is a WHATWG HTML5 specification used to nest semantics within existing content on web pages. Search engines, web crawlers, and browsers can extract and process Microdata from a web page and use it to provide a richer browsing experience for users. Microdata use a supporting vocabulary to describe an item and name-value pairs to assign values to its properties. Microdata helps technologies such as search engines and web crawlers better understand what information is contained in a web page, providing better search results. Microdata is an attempt to provide a simpler way of annotating HTML elements with machine readable tags than the similar approaches of using RDFa and Microformats." http://en.wikipedia.org/wiki/Microdata_(HTML5)

[11] "OWLIM is a family of semantic repositories, or RDF database management systems, with the following characteristics: native RDF engines, implemented in Java and compliant with Sesame, robust support for the semantics of RDFS, OWL Horst and OWL 2 RL, best scalability, loading and query evaluation performance" http://www.ontotext.com/owlim

[12] The RDF file hast to be generated by OWLIM to include inferred triples.

Either the editors, or alternatively, the dissemination manger enrich the content for on-line presentation by adding links and tags to the presented information. For this purpose we use the Open Calaus Web Service.

The *OpenCalais Web Service*[13] creates metadata for the content you submit. Using natural language processing (NLP), machine learning and other methods, Calais analyzes your document and finds the entities within it. Additionally, Calais returns the facts and events hidden within your text. The metadata gives you the ability to build maps linking documents to people, companies, places, products, events, geographies, etc. You can use those maps to improve site navigation, provide contextual syndication, tag and organize your content, create structured folksonomies, filter and de-duplicate news feeds, or analyze content to see if it contains information you care about.

In addition to predefined formats and technical means, we need to reuse predefined *LOD vocabularies* to describe our data to enable semantic-based retrieval of information.[14] Currently, we use Dublin Core, FOAF, GoodRelations, and schema.org.

- **Dublin Core** "…set of metadata elements provides a small and fundamental group of text elements through which most resources can be described and catalogued."[15]
- "The **Friend of a Friend (FOAF)** project is creating a Web of machine-readable pages describing people, the links between them and the things they create and do"[16]
- **GoodRelations** is a vocabulary for publishing details of products and services optimized towards search engines, mobile applications, and browser extensions.[17]
- **Schema.org** "… provides a collection of schemas, i.e., html tags that webmasters can use to markup their pages in ways recognized by major search providers."[18]

First, we introduce the concepts we define.

Table 8. Semantic-based Dissemination of PlanetData: Concepts

No	Information Item		comment
1	oc:Event	rdfs:subClassOf(schema:Event,schema:Thing) rdfs:subClassOf(oc:Event,schema:Event)	
2	foaf:Project	rdfs:subClassOf(foaf:Project,schema:Organization) rdfs:subClassOf(foaf:Project,foaf:Agent) rdfs:subClassOf(pd:Project,foaf:Project)	
3	pd:Partner	rdfs:subClassOf(pd:Partner, schema:Organization) rdfs:subClassOf(pd:Partner, foaf:Agent)	
4	oc:Person	rdfs:subClassOf(oc:Person,foaf:Person) rdfs:subClassOf(oc:Person,schema:Person)	
5	pd:AssociatePartnerApplication	rdfs:subClassOff(pd:AssociateApplication,schema:Thing)	
6	pd:Call1	rdfs:subClassOff(pd:Call1,schema:Thing)	

[13] http://www.opencalais.com/
[14] More than a hundred of them are listed at http://labs.mondeca.com/dataset/lov/index.html.
[15] http://en.wikipedia.org/wiki/Dublin_Core
[16] http://www.foaf-project.org/
[17] http://www.heppnetz.de/projects/goodrelations/
[18] http://www.schema.org/ and http://schema.rdfs.org/

7	pd:Call2	rdfs:subClassOff(pd:Call2,schema:Thing)	
8	pd:DataSetsAndTools	rdfs:subClassOff(pd:DataSetsAndTools,schema:Thing)	
9	pd:Deliverable	rdfs:subClassOff(pd:Deliverable,pd:Document)	
10	pd:PRMaterial	rdfs:subClassOff(pd:PRMaterial,foaf:Document)	
11	pd:Presentation	rdfs:subClassOff(pd:Presentation,foaf:Document)	
12	oc:Publication	rdfs:subClassOff(pd:Publication,foaf:Document)	
13	oc:Video	rdfs:subClassOff(pd:Video,schema:Thing)	
14	pd:Factsheet	rdfs:subClassOff(pd:Factsheet,pd:Deliverable)	
15	pd:Activity	rdfs:subClassOf(pd:Activity,schema:Thing)	
16	pd:WorkPackage	rdfs:subClassOff(pd: WorkPackage, schema:Thing)	
17	oc:Committee	rdfs:subClassOf(schema:Organization,schema:Thing) rdfs:subClassOf(schema:Organization,foaf:Organization) rdfs:subClassOf(oc:Committee, schema:Organization)	
18	pd:ProjectManagementBoard	rdfs:subClassOf(pd:ProjectManagementBoard,oc:Committee)	
19	pd:TechnicalManagementBoard	rdfs:subClassOf(pd:TechnicalManagementBoard,oc:Committee)	
20	pd:GeneralAssembly	rdfs:subClassOf(pd:GeneralAssembly,oc:Committee)	
21	oc:Document	rdfs:subClassOf(oc:Document,foaf:Document) rdfs:subClassOf(foaf:Document,schema:Thing)	

Then we define the properties.

Table 9. oc:Event

No	pd:Event	Range
1.1	schema:description	
1.2	schema:image	
1.3	schema:name	
1.4	schema:url	
1.5	schema:attendees	
1.6	schema:endDate	
1.7	schema:location	
1.8	schema:performers	
1.9	schema:startDate	
1.10	schema:subEvents	
1.11	schema:superEvent	
1.12	oc:isPastEvent	

Table 10. foaf:Project

No	foaf:Project	Range
2.1	schema:description	
2.2	schema:image	
2.3	schema:name	
2.4	schema:url	
2.5	schema:address	

2.6	schema:email, foaf:mbox	
2.7	schema:employees	
2.8	schema:faxNumber	
2.9	schema:telephone	
2.10	foaf:skypeID	
2.11	oc:hasTwitterAccount	twitter ID
2.12	oc:hasFacebookAccount	facebook profile
2.13	oc:hasMailingList	list of mailinglists
2.14	oc:hasMissionStatement	text
2.15	foaf:fundedBy	

Table 11. pd:Partner

No	pd:Partner	Range
3.1	schema:description	
3.2	schema:image	
3.3	schema:name	
3.4	schema:url	
3.5	schema:address	
3.6	pd:hasPartnerStatus	associate or full

Table 12. oc:Person

No	pd:Person	Range
4.1	schema:image	
4.2	schema:name	
4.3	schema:url	
4.4	schema:affiliation	

Table 13. pd:AssociateApplication

No	pd:AssociateApplication	Range
5.1	schema:description	
5.2	pd:applicationForm	schema:organization and foaf agent

Table 14. pd:CoreApplicationCall1

No	pd:CoreApplicationCall1	Range
6	schema:description	

Table 15. pd:CoreApplicationCall2

No	pd:CoreApplicationCall2	Range
7	schema:description	

Table 16. pd:DataSetsAndTools

No	pd:DataSetsAndTools	Range
8	schema:description	

Table 17. pd:Deliverable

No	pd:Deliverable	Range
9.1	schema:url	
9.2	foaf:topic	
9.3	dc:creator	
9.4	dc:date	
9.5	dc:subject	
9.6	dc:title	

Table 18. pd:PRMaterial

No	pd:PRMaterial	Range
10.1	schema:url	
10.2	foaf:topic	
10.3	dc:creator	
10.4	dc:date	
10.5	dc:subject	
10.6	dc:title	

Table 19. pd:Presentation

No	pd:Presentation	Range
11.1	schema:url	
11.2	foaf:topic	
11.3	dc:creator	
11.4	dc:date	
11.5	dc:subject	
11.6	dc:title	

Table 20. oc:Publication

No	pd:Publication	Range
12.1	schema:url	
12.2	foaf:topic	
12.3	dc:creator	
12.4	dc:date	
12.5	dc:publisher	
12.6	dc:subject	
12.7	dc:title	

Table 21. oc:Video

No	pd:Video	Range

13.1	schema:description	
13.2	schema:url	

Table 22. pd:Factsheet

No	pd:Factsheet	Range
14.1	schema:url	
14.2	foaf:topic	
14.3	dc:creator	
14.4	dc:date	
14.5	dc:subject	
14.6	dc:title	

Table 23. pd:Activity

No	pd:Activity	Range
15.1	sc:description	
15.2	sc:name	
15.3	sc:url	
15.4	pd:hasWorkPackage	schema: Thing
15.5	oc:hasChair	schema:Person

Table 24. pd:WorkPackage

No	pd:WorkPackage	Range
16.1	sc:description	
16.2	sc:name	
16.3	sc:url	
16.4	oc:hasChair	schema:Person

Table 25. oc:Committee

No	pd:Committee	Range

Table 26. pd:ProjectManagementBoard

No	pd:ProjectManagementBoard	Range
19.1	schema:description	
19.2	schema:name	
19.3	schema:url	
19.4	schema:members	
19.5	oc:hasChair	schema:Person
19.6	schema:description	

Table 27. pd:TechnicalManagementBoard

No	pd:TechnicalManagementBoard	Range
20.1	schema:description	

20.2	schema:name	
20.3	schema:url	
20.4	schema:members	
20.5	oc:hasChair	schema:Person
20.6	schema:description	

Table 28. pd:GeneralAssembly

No	pd:GeneralAssembly	Range
21.1	schema:description	
21.2	schema:name	
21.3	schema:url	
21.4	schema:members	
21.5	oc:hasChair	schema:Person

Table 29. oc:Document

No	pd:Document	Range
22.1	schema:description	
22.2	schema:name	
22.3	schema:url	
22.4	foaf:topic	
22.5	dc:creator	
22.6	dc:date	
22.7	dc:publisher	
22.8	dc:subject	
22.9	dc:title	

4 The Weaver

The central element of our approach is the separation of content and communication channels. This allows reuse of the same content for various dissemination means. Through this reuse, we want to achieve scalability of multi-channel communication. The explicit modeling of content independent from specific channels also adds a second element of reuse: Similar agents (i.e., organizations active in the same domain) can reuse significant parts of such an information model.

Separating content from channels also requires the explicit alignment of both. This is achieved through a weaver. Formally, a weaver is a set of tuples of nine elements:

1. An **information item**: As discussed in Section 2, it defines an information category that should be disseminated through various channels.
2. An **editor**: The editor defines the agent that is responsible for providing the content of an information item.

3. An **editor interaction protocol**: This defines the interaction protocol governing how an editor collects the content.

Elements 1 to 3 are about the content. They define the actual categories, the agent responsible for them, and the process of interacting with this agent. Elements 4 to 9 are about the dissemination of these items.

4. An **information type**: We make a distinction between three types of content: an instance of a concept, a set of instances of a concept (i.e., an extensional definition of the concept), and a concept description (i.e., an intensional definition of a concept).
5. A **processing rule**: These rules govern how the content is processed to fit a channel. Often only a subset of the overall information item fits a certain channel.
6. A **channel**: The media that is used to disseminate the information.
7. **Scheduling information**: Information on how often and in which intervals the dissemination will be performed which includes temporal constrains over multi-channel disseminations.
8. An **executor**: It determines which agent or process is performing the update of a channel. Such an agent can be a human or a software solution.
9. An **executor interaction protocol**: It governs the interaction protocol defining how an executer receives its content.

A weaver is basically a large collection of tables specifying what is disseminated by whom to where. Interaction protocols, rules, and constraints further guide this process. Such a manual is of extreme importance to manage the on-line communication process. Obviously, it determines the need to implement and mechanize essential aspects of it, improving its scalability. However, a major step is to structure the process towards a mechanizable routine.

Editors are assigned to information items, responsible for producing or collecting their information instances. In general, an editor can also be the executor, directly publishing the information. However, expertise in a certain information domain may not necessarily correspond to technical expertise and even if it does, it may not be a very efficient way of distributing labor. Only if a fully automated and easy to use software solution is provided can this model make sense. Otherwise, a person with more technical skills often helps in disseminating the information. Again, an interaction protocol has to be defined for interacting with this person. Recursively, some of his tasks may be manual (importing contents into a content management system such as Drupal) and some can be fully mechanized (like producing a feed and a tweet automatically for certain information items introduced into Drupal). We identified five different roles involved in this process (see Figure 6):

- The *communication manager* that actively reads and writes information in the multi-channel space and manages the overall communication process.
- The *quality manager* that routinely checks the outcome of the process and the impact that is achieved through it.
- The *editors* that provide information that should be disseminated or that infer actives from information provided by others.
- The *web manager (executor)* is an expert in web technology who is able to publish information with current web technology including content management systems such as

Drupal, email lists and Web 2.0 services such as Twitter, Blogs, RSS, and has the means to share information, cooperate, or organize communities through SNS sites.

- The *repository manager (executor)* is an expert in semantic web technology in terms of syntax, implementations via repositories, and various vocabularies used to publish this information. In a nutshell, the web manager manages the web of documents and the repository manager manages the web of data.

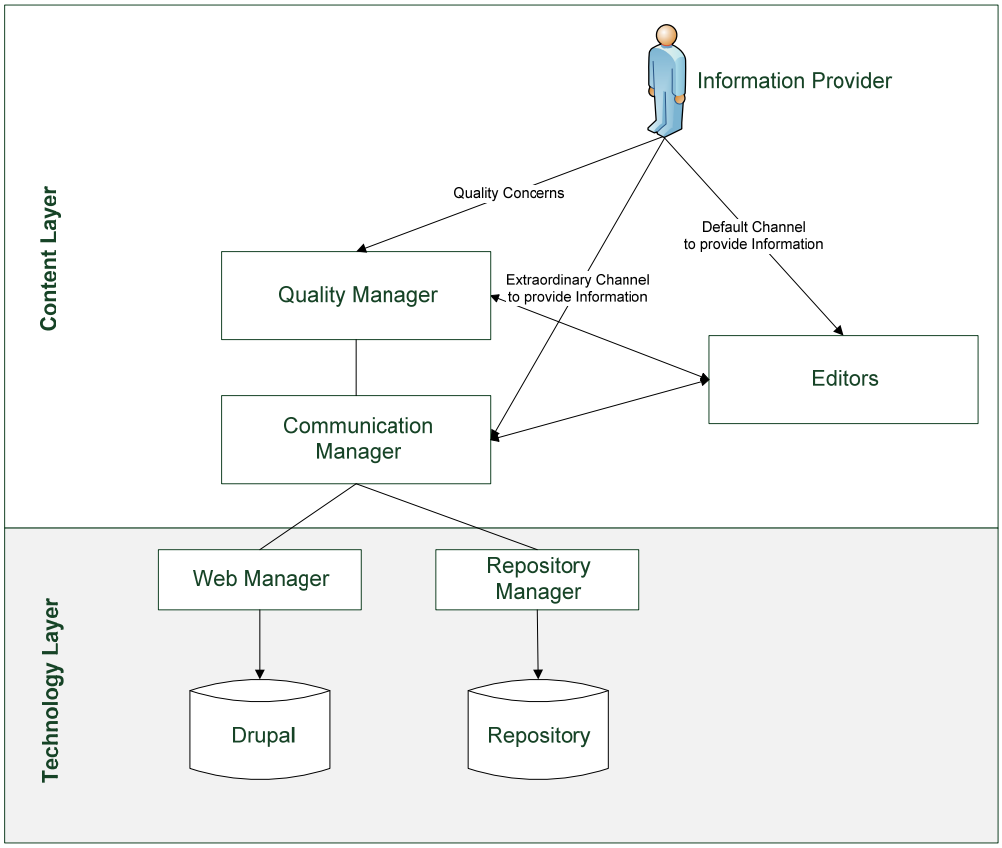

Figure 2. Roles

4.1 Static Broadcasting

We present our box in a box design of the web site:

The yellow boxes provide a click to the page of the top concept plus a menu of sub-concepts of this concept. The home button redirects to the start side www.planet-data.eu/). The uncolored boxes provide a snap-shot textual description of the top concept plus a link to the page of the top concept. As the top page and the sub pages are structured in one-to-one correspondence with the information model, the alignment with the various places and subpages of the web site is trivial.

The red boxes are on all pages and provide dynamically changing content: news, partners, and projects. News as well as the buttons are aspects that will be discussed in the next sub-

sections. Partners and people are taken from the list of all partners and people and are dynamically rotated.

The items in gray are menu items that lead to the page that describes the sub-concepts.

Home

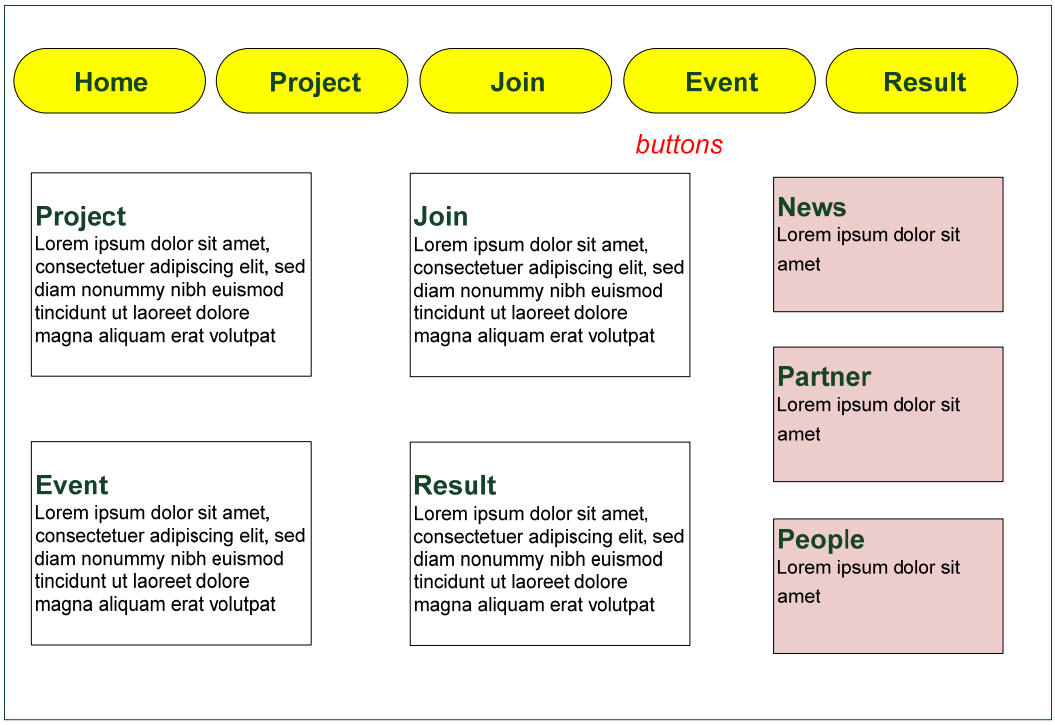

Figure 3. Home Site of PlanetData

The sub-pages appear as follows.

Project

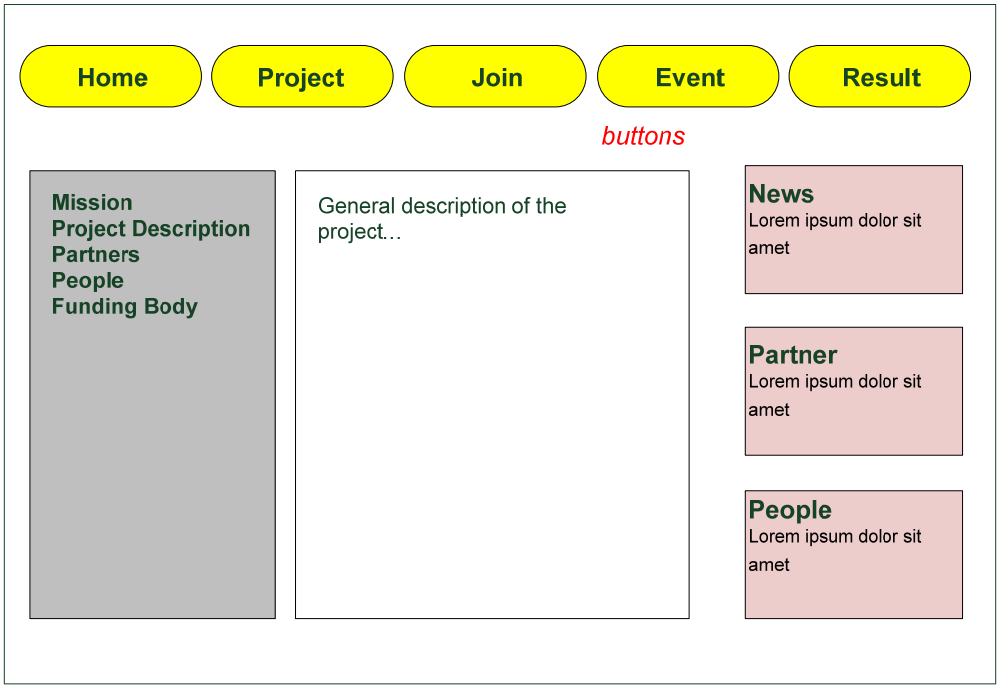

Figure 4. Project Site of PlanetData

Join

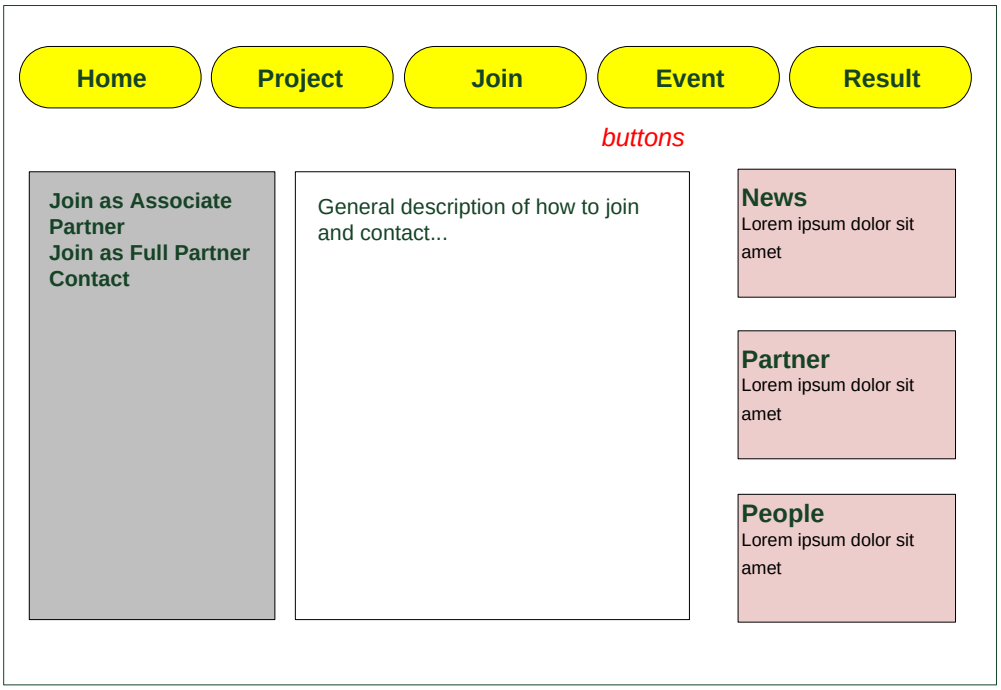

Figure 5. Join Site of PlanetData

Event

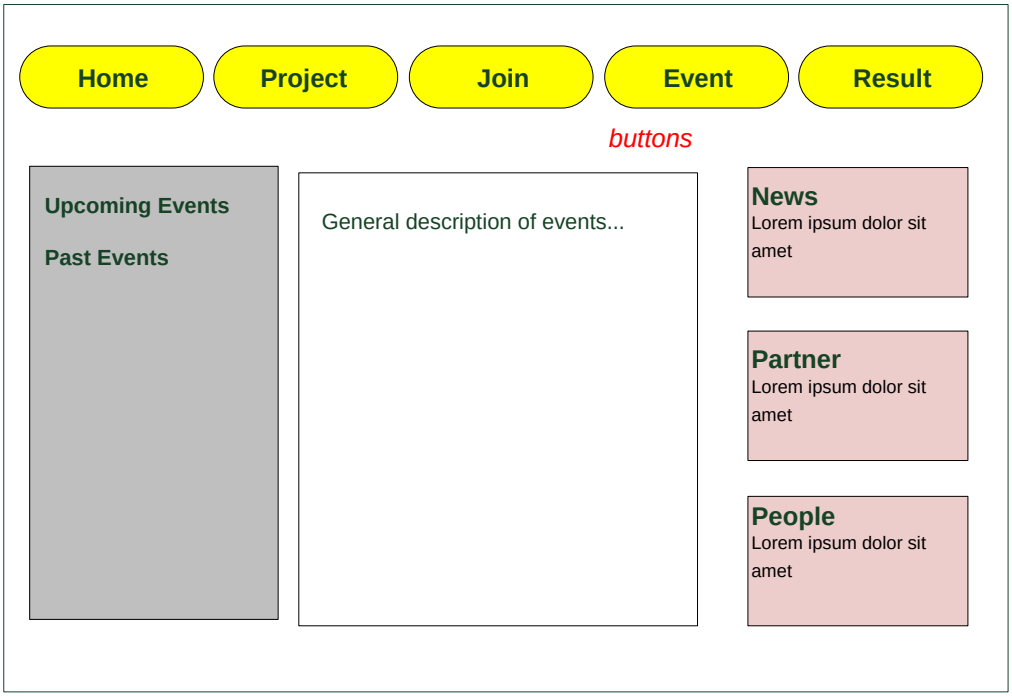

Figure 6. Event site of PlanetData

Result

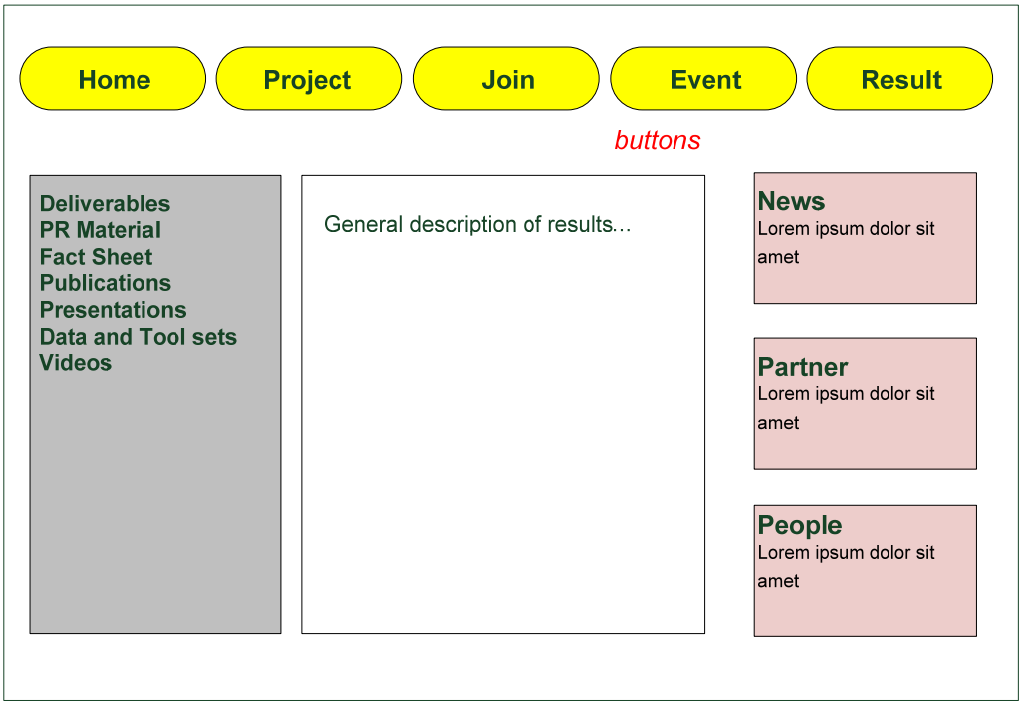

Figure 7. Result site of PlanetData

The content-channel weaver is provided by sending an email with the content to the web master or by directly accessing the content management system Drupal[19].

Table 30. Content-Channel Weaver of PlanetData

No	Item	Editor	Editor Interaction Protocol	Type	Rule	Channel	Schedule Constrain	Executor	Executor Interaction Protocol
1	pd:PlanetData	SD	is author	CD		homepage/project		WM	
2	oc:hasMissionStatement (pd:PlanetData)	SD	is author	CD		homepage/project/mission		WM	
3	oc:hasDescription(pd:PlanetData)	SD	is author	CD		homepage/project/projectdescription		WM	
4	pd:hasFactSheet(pd:PlanetData)	PM	is author	CD		homepage/project/projectdescription/factsheet		WM	
5	pd:hasPR_Material	DM	is author	IS		homepage/project/projectdescription/prmaterial		WM	
6	oc:hasPartner (pd:PlanetData)	PM	is author	CD+IS		homepage/project/partners		WM	
7	oc:hasPartner (pd:PlanetData)	PM	is author	i		flyingbox: Partner	20 sec periodic update	Drupal	
8	pd:hasTeam Memberg(pd:PlanetData)	PM	is author	CD+IS		homepage/project/people		WM	
9	pd:hasTeam Member(pd:PlanetData)	PM	is author	i		flyingbox: People	20 sec periodic update	Drupal	
10	oc:isFundedBy(pd:PlanetData)	PM	is author	IS		homepage/project/fundingagency		WM	
11	oc:ApplicationProcess	PM	is author	CD		homepage/join		WM	
12	pd:AssociatePartnerApplication	PM	is author	CD		homepage/join/joinasassociatepartner		WM	
13	pd:Call1	CM	is author	CD		homepage/join/joinasfullpartner		WM	
14	pd:Call1	CM	is author	CD		homepage/join/joinasfullpartner		WM	
15	oc:hasContactPoint(pd:Pla	PM	is author	CD		homepage/join/contact		WM	

[19] http://drupal.org/

	netData)								
16	oc:Event	PM	Is author	CD		homepage/event		WM	
17	oc:Event	PM	Is author	IS	if (oc:isPastEvent=false)	homepage/event/upcoming-events		WM	
18	oc:Event	DM	Send email to DM	IS	if (oc:isPastEvent=true)	homepage/event/past-events		WM	
19	oc:Document	PM	author	CD		homepage/result		WM	
20	pd:Deliverable	PM	author	IS		homepage/result/deliverables		WM	
21	pd:FactSheet	PM	author	IS		homepage/result/factsheet		WM	
22	pd:PR_Material	DM	author	IS		homepage/result/prmaterial		WM	
23	pd:Publication	DM	Send email to DM	IS		homepage/result/publications		WM	
24	pd:Presentation	DM	Send email to DM	IS		homepage/result/presentations		WM	
25	pd:DataSet, pd:Tool	WP4L	work package 4 organization	IS		homepage/result/dataandtoolsets		WM	
26	oc:Video	WP6L	work package 6 organization	IS		homepage/result/videos		WM	

In general, the Scientific Director, the Communication Manager, the Project Manager, the Work package 4 and the Work package 6 Leaders, and the Call Manager have to agree with the Web Master an interaction protocol:

- Sending an email with the content to the web master
- Accessing the content management system Drupal
- Putting stuff on the wiki.

4.2 Dynamic Broadcasting

Each web site defined in the section before contains a news box that shows the latest news.

Home

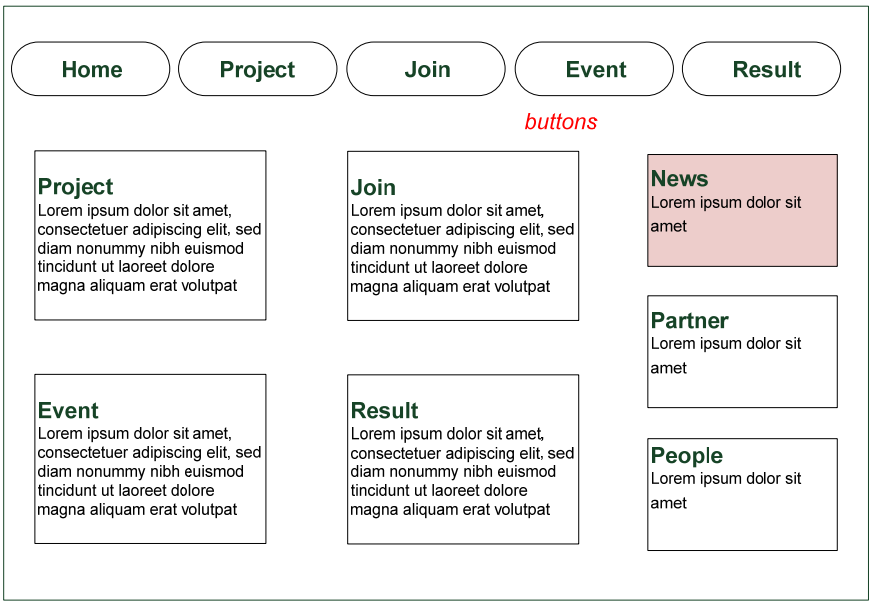

Figure 8. News Box of Planet Data

In addition, there is a web site **homepage/news** providing materialized archive of all news and **homepage/archive** that provides a query interface for news.

News

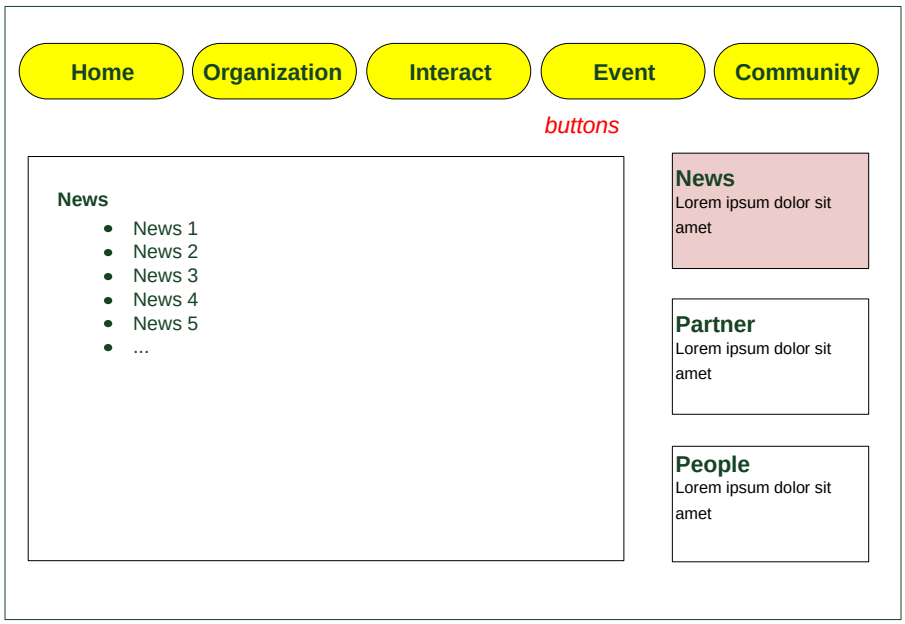

Figure 9. News Site of PlanetData

Archive

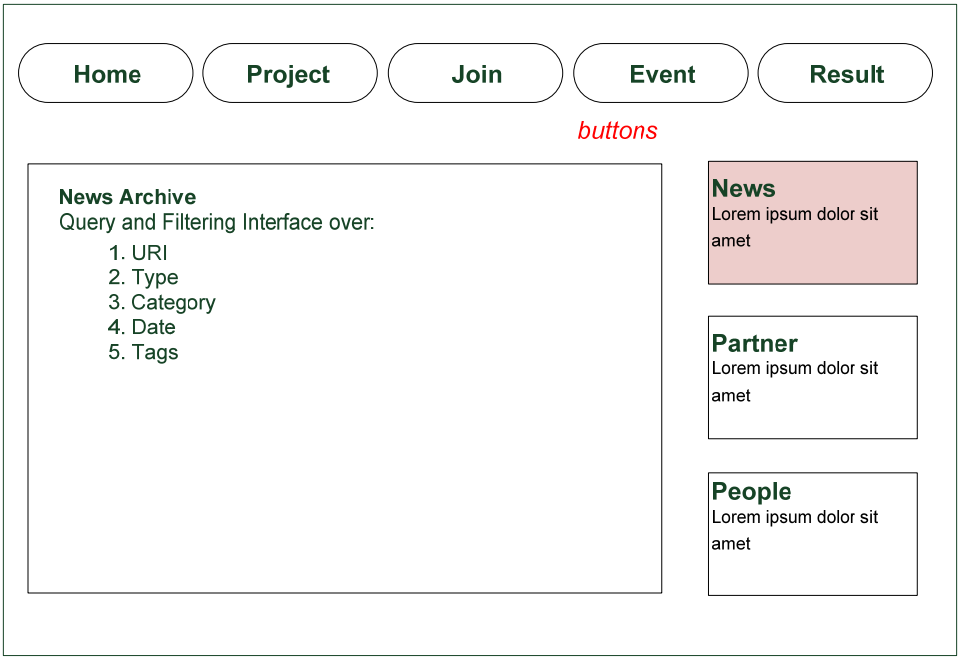

Figure 10. News Archive of PlanetData

Each news can be *shared*, *emailed*, *add to favorites*, and *liked.* News *types* are:

- new partner
- call 1
- call 2
- Events
- Publication
- Presentation
- Data set and Tool

The account “http://twitter.com/#!/PlanetData_NoE” has been generated at **twitter**.

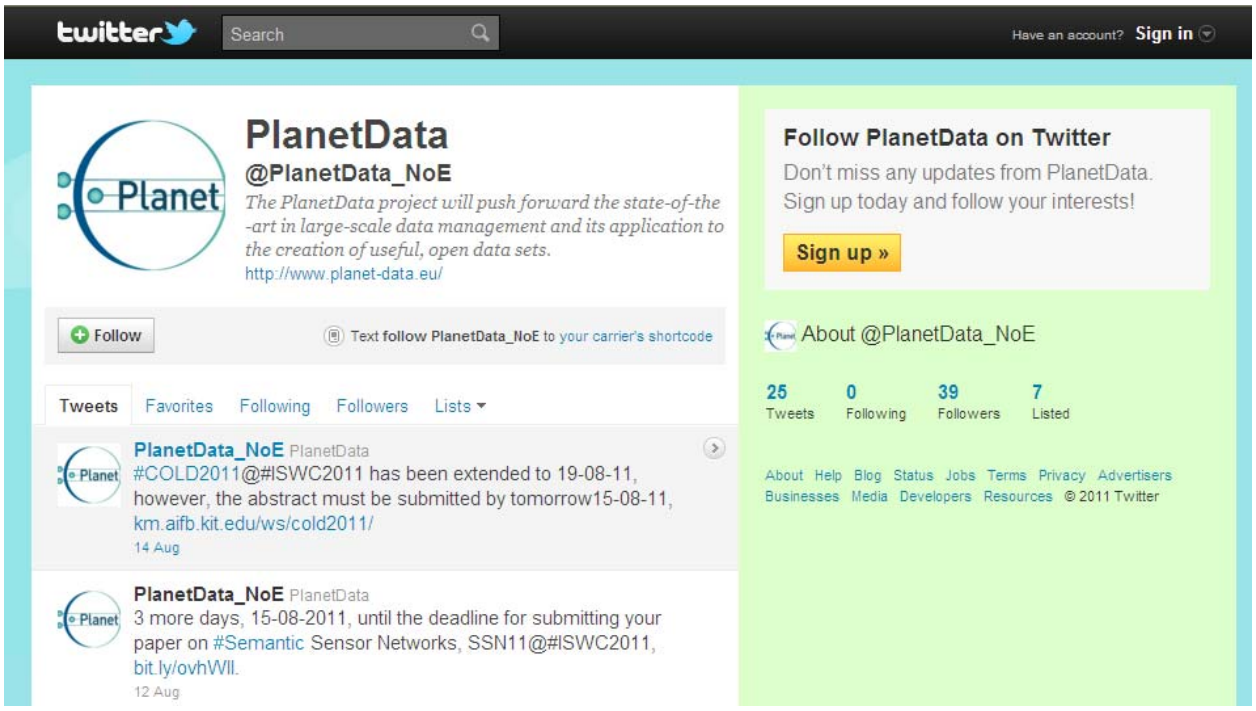

Figure 11. Twitter Page of PlanetData

Workflow: First news is published as news and then this news is tweeted referring to the URI of the news. Finally they are integrated into the Facebook site.

Table 31. News Weaver of Planet Data

No	Item	Editor	Editor Interaction Protocol	Type	Rule	Channel	Schedule Constrain	Executor	Executor Interaction Protocol
1	oc:hasPartner (pd:PlanetData)	PM	is author	i		homepage/news	1x	WM	
2	oc:hasPartner (pd:PlanetData)	PM	is author	i		homepage/archive	1x	WM	
3	oc:hasPartner (pd:PlanetData)	PM	is author	i		News	1x	WM	
4	oc:hasPartner (pd:PlanetData)	PM	is author	i		RSS	1x	DM	
5	oc:hasPartner (pd:PlanetData)	PM	is author	i		http://twitter.com/#!/PlanetData_NoE	1x, after RSS	Drupal	
6	oc:hasPartner (pd:PlanetData)	PM	is author	i		planetdata@lists.sti2.at	1x	PM	
7	pd:Call1	CM	is author	i		homepage/news	1. Announcement 2. Deadline	WM	

							Reminder 3. Final Deadline Reminder 4. Results		
8	pd:Call1	CM	is author	i		homepage/archive	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	WM	
9	pd:Call1	CM	is author	i		News	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	WM	
10	pd:Call1	CM	is author	i		RSS	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	WM	
11	pd:Call1	CM	is author	i		http://twitter.com/#!/PlanetData_NoE	1. Announcement 2. Deadline	Drupal	

							Reminder 3. Final Deadline Reminder 4. Results		
12	pd:Call1	CM	is author	i		dbworld@cs.wisc.edu	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
13	pd:Call1	CM	is author	i		seworld@listserv.acm.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
14	pd:Call1	CM	is author	i		public-lod@w3.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
15	pd:Call1	CM	is author	i		semantic-web@w3.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	

16	pd:Call1	CM	is author	i		is-world@aisnet.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
17	pd:Call1	CM	is author	i		IRList@lists.shef.ac.uk	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
18	pd:Call1	CM		i		community@sti2.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	CM	
19	pd:Call1	CM		i		planetdata@lists.sti2.at	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	CM	
20	pd:Call2	CM	is author	i		homepage/news	1. Announcement 2.	WM	

							Deadline Reminder 3. Final Deadline Reminder 4. Results		
21	pd:Call2	CM	is author	i		homepage/archive	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	WM	
22	pd:Call2	CM	is author	i		News	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	Drupal	
23	pd:Call2	CM		i		RSS	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	WM	
24	pd:Call2	CM	is author	i		http://twitter.com/#!/PlanetData_NoE	1. Announcement 2.	Drupal	

							Deadline Reminder 3. Final Deadline Reminder 4. Results		
25	pd:Call2	CM	is author	i		dbworld@cs.wisc.edu	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
26	pd:Call2	CM	is author	i		seworld@listserv.acm.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
27	pd:Call2	CM	is author	i		public-lod@w3.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
28	pd:Call2	CM	is author	i		semantic-web@w3.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminde	CM	

							r		
29	pd:Call2	CM	is author	i		is-world@aisnet.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
30	pd:Call2	CM	is author	i		IRList@lists.shef.ac.uk	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder	CM	
31	pd:Call2	CM	is author	i		community@sti2.org	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	CM	
32	pd:Call2	CM	is author	i		planetdata@lists.sti2.at	1. Announcement 2. Deadline Reminder 3. Final Deadline Reminder 4. Results	CM	
33	oc:Event	PM	is author	i	if (pd: ispa	homepage/news	1x	WM	

					steven t =false)				
34	oc:Event	PM	is author	i	if (pd: ispa steven t =true	homepage/archive	1x	WM	
35	oc:Event	PM	is author	i	if (pd: ispa steven t =false)	News	1x	Drupal	
36	oc:Event	PM	is author	i	if (pd: ispa steven t =false)	RSS	1x	WM	
37	oc:Event	PM	is author	i	if (pd: ispa steven t =false)	http://twitter.com /#!/PlanetData_NoE	after RSS	Drupal	
38	oc:Event	PM	is author	i	if (pd: ispa steven t =false)	planetdata@lists.sti2.at	1. Announcement 2. Reminder	PM	
39	pd:Call2	DM	Send email to DM	i		planetdata@lists.sti2.at	1. Announcement 2. Deadline Reminder	DM	

							3. Final Deadline Reminder 4. Results		
40	oc:Publication	DM	Send email to DM	i		homepage/news	1x	WM	
41	oc:Publication	DM	Send email to DM	i		homepage/archive	1x	WM	
42	oc:Publication	DM	Send email to DM	i		News	1x	Drupal	
43	oc:Publication	DM	Send email to DM	i		RSS	1x	WM	
44	oc:Publication	DM	Send email to DM	i		http://twitter.com/#!/PlanetData_NoE	1x, after RSS	Drupal	
45	pd:Presentation	DM	Send email to DM	i		homepage/news	1x	WM	
46	pd:Presentation	DM	Send email to DM	i		homepage/archive	1x	WM	
47	pd:Presentation	DM	Send email to DM	i		News	1x	Drupal	
48	pd:Presentation	DM	Send email to DM	i		RSS	1x	WM	
49	pd:Presentation	DM	Send email to DM	i		http://twitter.com/#!/PlanetData_NoE	1x, after RSS	Drupal	
50	pd:Dataset, pd:Tool	WP4L	is author	i		homepage/news	1x	WM	
51	pd:Dataset, pd:Tool	WP4L	is author	i		homepage/archive	1x	WM	
52	pd:Dataset, pd:Tool	WP4L	is author	i		News	1x	Drupal	
53	pd:Dataset, pd:Tool	WP4L	is author	i		RSS	1x	WM	
54	pd:Dataset, pd:Tool	WP4L	is author	i		http://twitter.com/#!/PlanetData_NoE	1x, after RSS	Drupal	
55	pd:Dataset, pd:Tool	WP4L	is author	i		public-lod@w3.org	1x	WP4L	
56	pd:Dataset, pd:Tool	WP4L	is author	i		planetdata@lists.sti2.at	1x	WP4L	

In general, the Communication Manager, the Project Manager, the Work package 4 Leader, and the Call Manager have to agree with the Web Master an interaction protocol:

- Sending an email with the content to the web master
- Accessing the content management system Drupal
- Putting stuff on the wiki.

4.3 Sharing

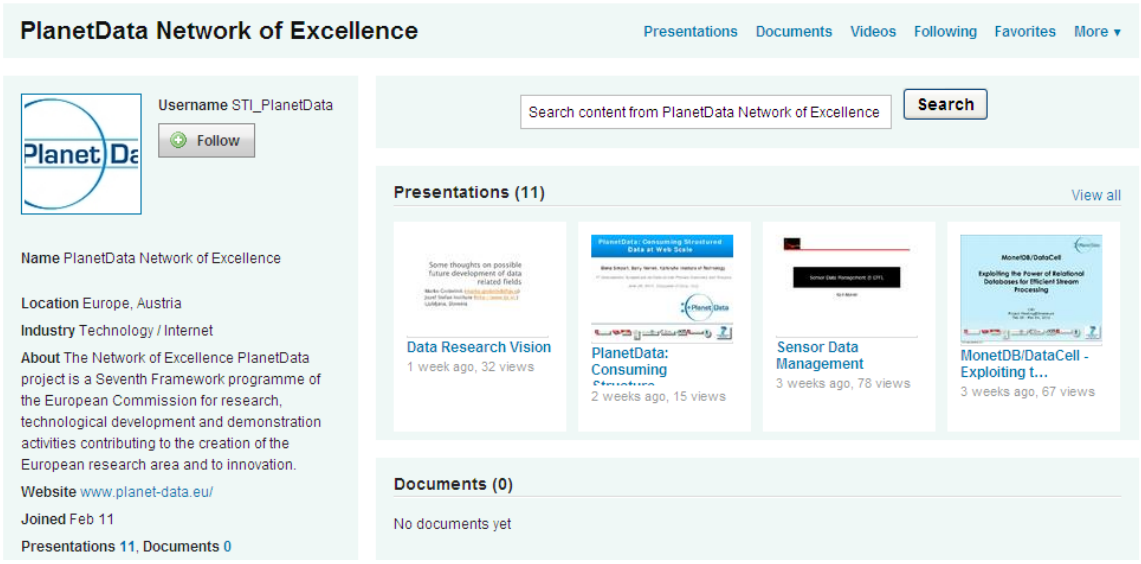

Figure 12. Slideshare Page of PlanetData

Figure 13. VideoLectures Page of PlanetData

Slideshare should receive all presentations; executor DM. When you are adding slides ensure to add a description and tags. **VideoLectures** receives all videos.

Table 32. Sharing Weaver of PlanetData

No	Item	Editor	Editor Interaction Protocol	Type	Rule	Channel	Schedule Constrain	Executor	Executor Interaction Protocol
	Slides								
1	pd:Presentation	DM		IS		Slideshare		DM	
	Videos								
2	oc:Video			IS		Videolectures			

4.4 Collaboration

The PlanetData **wiki** is at http://wiki.planet-data.eu/.

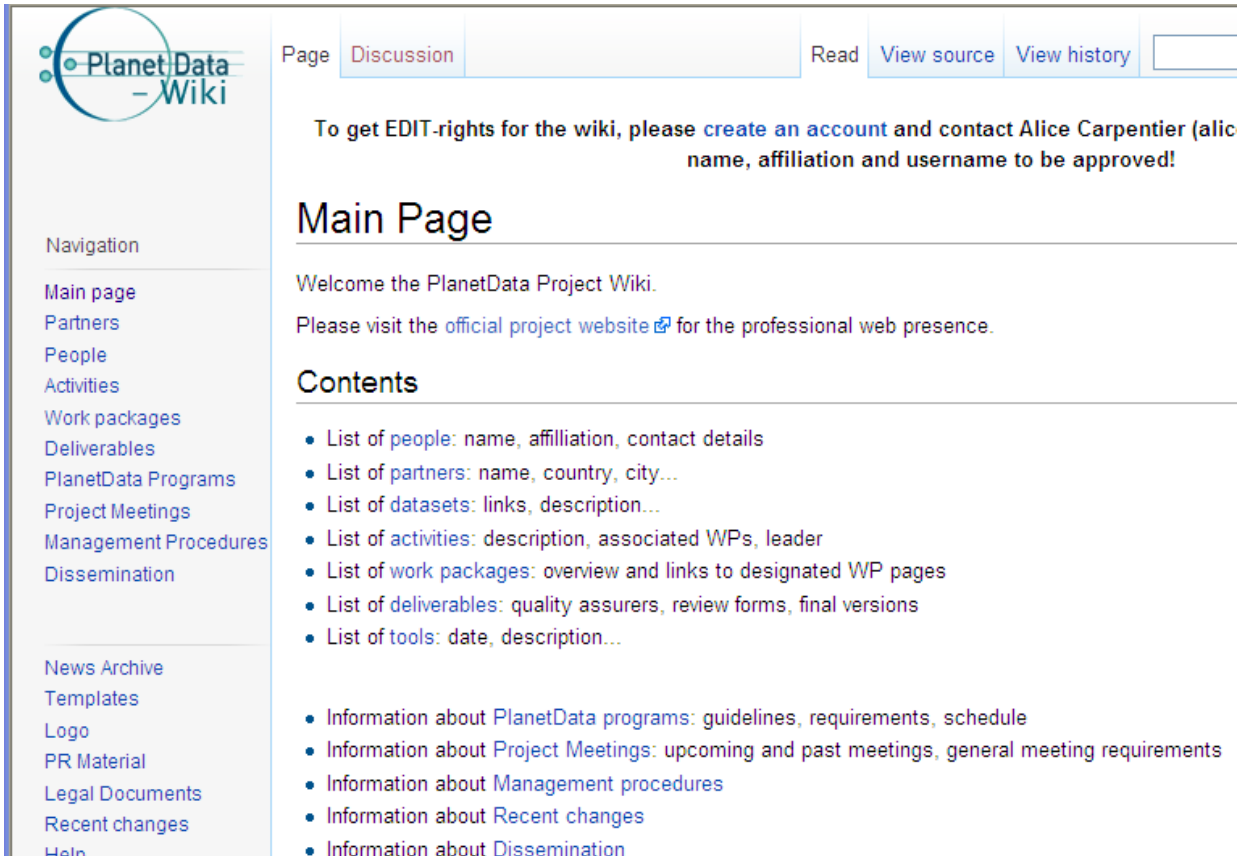

Figure 14. Wiki Page of PlanetData

Both the navigation menu on the left side as well as the main page provide channel for various information items of PlanetData. However, partially the structure is similar and

redundant, partially it is using a different structure. This redundancy and heterogeneity are obvious results of crowed sourced activities with little central leadership in addition.[20]

Table 33. Wiki Weaver of PlanetData

No	Item	Editor	Editor Interaction Protocol	Type	Rule	Channel	Schedule Constrain	Executor	Executor Interaction Protocol
1	oc:hasPartner (pd:PlanetData)	PM	Author	IS		Partners		PM	
2	oc:hasPartner (pd:PlanetData)	PM	Author	IS		Main/List of partners		PM	
3	oc:hasTeamMember (pd:PlanetData)	PM	Author	IS		People		PM	
4	oc:hasTeamMember (pd:PlanetData)	PM	Author	IS		Main/List of partners		PM	
5	pd:Activity1	PM		CD		Activities		PM	
6	pd:Activity1	PM		CD		Main/List of activities		PM	
7	pd:Activity2	PM		CD		Activities		PM	
8	pd:Activity2	PM		CD		Main/List of activities		PM	
9	pd:Activity3	PM		CD		Activities		PM	
10	pd:Activity3	PM		CD		Main/List of activities		PM	
11	pd:Activity4	PM		CD		Activities		PM	
12	pd:Activity4	PM		CD		Main/List of activities		PM	
13	pd:WorkPackage1	WP1L		CD		Work packages		WP1L	
14	pd:WorkPackage1	WP1L		CD		Main/List of work packages		WP1L	
15	pd:WorkPackage2	WP2L		CD		Work packages		WP2L	
16	pd:WorkPackage2	WP2L		CD		Main/List of work packages		WP2L	
17	pd:WorkPackage3	WP3L		CD		Work packages		WP3L	
18	pd:WorkPackage3	WP3L		CD		Main/List of work packages		WP3L	
19	pd:WorkPackage4	WP4L		CD		Work packages		WP4L	

[20] Actually many more anomalies have already been fixed as a result of our activity.

20	pd:WorkPackage4	WP4L		CD		Main/List of work packages		WP4L	
21	pd:WorkPackage5	WP5L		CD		Work packages		WP5L	
22	pd:WorkPackage5	WP5L		CD		Main/List of work packages		WP5L	
23	pd:WorkPackage6	WP6L		CD		Work packages		WP6L	
24	pd:WorkPackage6	WP6L		CD		Main/List of work packages		WP6L	
25	pd:WorkPackage7	WP7L		CD		Work packages		WP7L	
26	pd:WorkPackage7	WP7L		CD		Main/List of work packages		WP7L	
27	pd:WorkPackage8	WP8L		CD		Work packages		WP8L	
28	pd:WorkPackage8	WP8L		CD		Main/List of work packages		WP8L	
29	pd:DescriptionOfWork	PM		i		Legal Documents		PM	
30	pd:DescriptionOfWork	PM		i		Main/Download of Legal Documents		PM	
31	pd:ConsortiumAgreement	PM		i		Legal Documents		PM	
32	pd:ConsortiumAgreement	PM		i		Main/Download of Legal Documents		PM	
33	pd:GeneralAssembly	PM		CD		Mangement Procedures		PM	
34	pd:GeneralAssembly	PM		CD		Main/Information about Management Procedures		PM	
35	pd:ProjectManagementBoard	PM		CD		Mangement Procedures		PM	
36	pd:ProjectManagementBoard	PM		CD		Main/Information about Management Procedures		PM	
37	pd:TechnicakManagementBoard	PM		CD		Mangement Procedures		PM	
38	pd:TechnicakManagementBoard	PM		CD		Main/Information about Management Procedures		PM	
39	oc:ApplicationProcess	PM		CD		PlanetData Programs		PM	
40	oc:ApplicationProcess	PM		CD		Main/Information about PlanetData		PM	

						progrmas			
41	pd:Call1	CM		CD		PlanetData Programs		CM	
42	pd:Call1	CM		CD		Main/Information about PlanetData progrmas		CM	
43	pd:Call2	CM		CD		PlanetData Programs		CM	
44	pd:Call2	CM		CD		Main/Information about PlanetData progrmas		CM	
45	oc:Event	PM		IS		Info/Web Site		PM	
46	oc:Event	PM		IS		Info/Web Site		PM	
47	oc:Event	PM		IS		Info/Web Site		PM	
48	pd:Deliveralble	PM		IS		Info/Web Site		PM	
49	pd:PR_Material	DM		IS		Info/Web Site		DM	
50	pd:PR_Material	DM		IS		Info/Web Site		DM	
51	pd:Dataset, pd:Tool	WP4L		IS		Info/Web Site		WP4L	
52	pd:Dataset, pd:Tool	WP4L		IS		Info/Web Site		WP4L	
53	oc:Image	SD		IS		Info/Web Site		SD	

4.5 Group communication

https://www.facebook.com/pages/Planet-Data/124932387564593

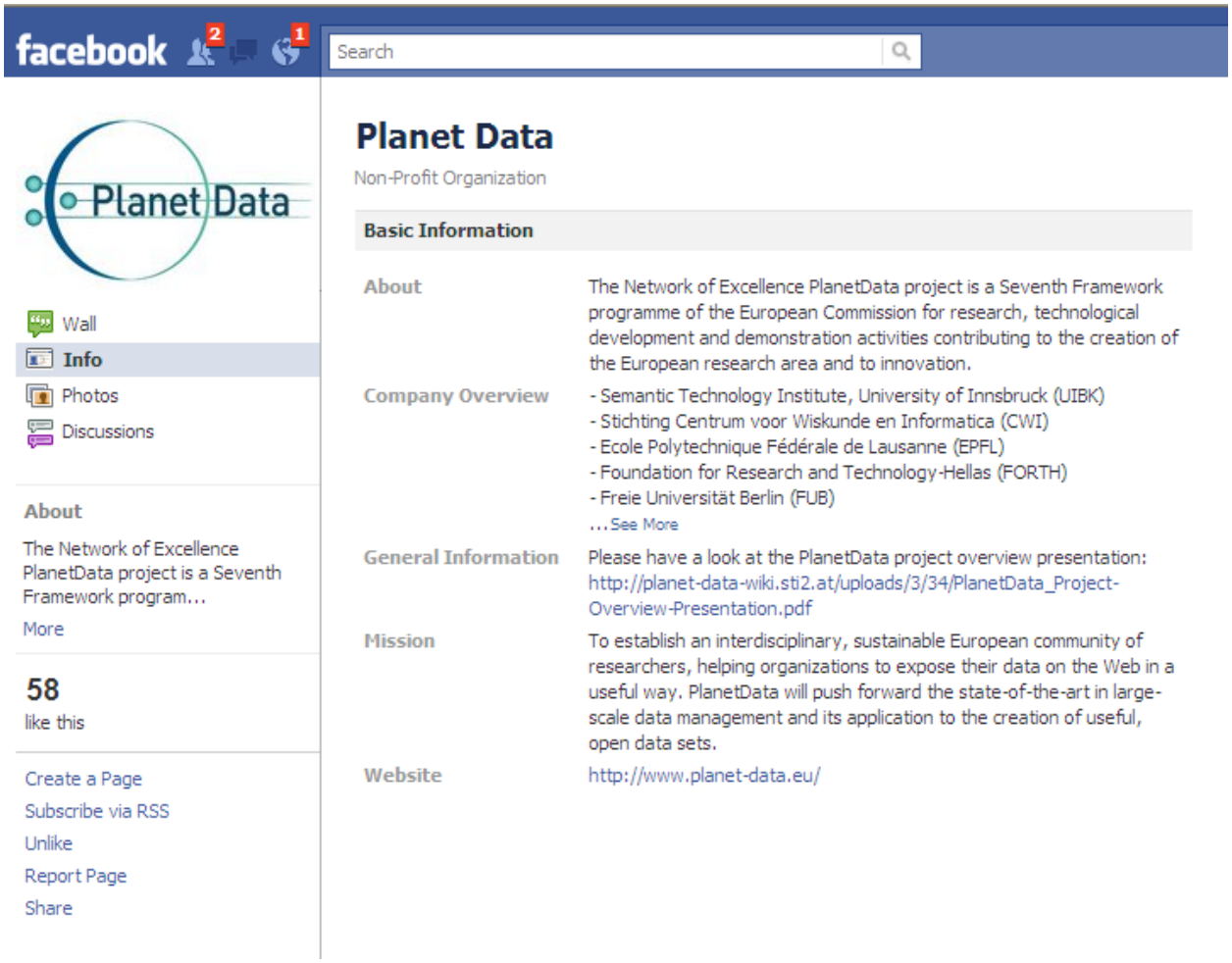

Figure 15. Facebook Page of PlanetData

Facebook should receive the tweets (can be fully automated) and photos[21] are downloaded there (executor Scientific Director). Weaver for Social Network Site **Facebook**:

Table 34. Facebook Weaver of PlanetData

No	Item	Editor	Editor Interaction Protocol	Type	Rule	Channel	Schedule Constrain	Executor	Executor Interaction Protocol
1	pd:PlanetData	WM	Author	i	URI (Project)	Info/Web Site		WM	

[21] A not yet mentioned information item.

2	oc:hasMission Statement (pd:PlanetData)	SD	Author	CD		Info/Mission		WM	
3	oc:hasDescript ion(pd:PlanetD ata)	PM	Author	CD		Info/About		WM	
4	oc:hasPartner(pd:PlanetData)	PM	Author	I		Info/company overview		WM	
5	oc:hasPartner(pd:PlanetData)	PM	Author	I		Wall/Status		Drupal	Automatic ally
6	pd:Call1	CM		i		Wall/Status		Drupal	Automatic ally
7	pd:Call2	CM		i		Wall/Status		Drupal	Automatic ally
8	oc:Event	PM		i	if (pd:i spas teve nt =fals e)	Wall/Status		Drupal	Automatic ally
9	oc:Publication	DM		i		Wall/Status		Drupal	Automatic ally
10	pd:Presentatio n	DM		i		Wall/Status		Drupal	Automatic ally
11	pd:Dataset, pd:Tool	WP4 L		i		Wall/Status		Drupal	Automatic ally
12	oc:Image	SD		IS		Photos		SD	

4.6 Semantic-based Dissemination

Table 35. Semantic-based Dissemination of PlanetData

No	Item	Ed itor	Editor Interac tion Protoc al	Typ e	Rule	Channel	Schedul e Constrai n	Execu tor	Execut or Interac tion Protoc ol
1	pd:PlanetData			URI		foaf:Project		Drupa l	
2	oc:hasImage(pd:P lanetData)			I		schema:image(foaf:P roject)		Drupa l	
3	oc:hasName(pd:P lanetData)			I		schema:name(foaf:P roject)		Drupa l	
4	pd:PlanetData			I		schema:url(foaf:Proj ect)		Drupa l	
5	oc:hasMissionSta tement(pd:Planet Data)			CD		oc:hasMissionStatem ent(foaf:Project)		Drupa l	

6	oc:hasDescription (pd:PlanetData)			CD		schema:description(f oaf:Project)		Drupa l	
7	oc:hasPartner(pd: PlanetData)			URI s		pd:Partner		Drupa l	
8	oc:hasDescription (oc:hasPartner(pd :PlanetData)			IS		schema:description(pd:Partner)		Drupa l	
9	oc:hasImage(oc:h asPartner(pd:Plan etData))			IS		schema:image(pd:Pa rtner)		Drupa l	
10	oc:hasName(oc:h asPartner(pd:Plan etData))			i		schema:name(pd:Par tner)		Drupa l	
11	oc:hasPartner(pd: PlanetData)			URI s		schema:url(pd:Partn er)		Drupa l	
12	oc:has Address(oc:hasPa rtner(pd:PlanetD ata)			IS		schema:address(pd:P artner)		Drupa l	
13	pd:hasPartnerSta tus(pd:Partner)			IS		pd:hasPartnerStatus(pd:Partner)		Drupa l	
14	oc:hasTeamMem ber(pd:PlanetDat a)			IS		schema:employees(f oaf:Project)		Drupa l	
15	oc:hasTeamMem ber(pd:PlanetDat a)			URI s		oc:Person		Drupa l	
16	oc:hasImage(oc:h asTeamMember(pd:PlanetData))			IS		schema:image(oc:Pe rson)		Drupa l	
17	oc:hasName(oc:h asTeamMember(pd:PlanetData))			IS		schema:name(oc:Per son)		Drupa l	
18	oc:hasTeamMem ber(pd:PlanetDat a)			URI s		schema:url(oc:Perso n)		Drupa l	
19	oc:isAffiliatedWit h(oc:hasTeamMe mber(pd:PlanetD ata))			IS		schema:affiliation(oc :Person)		Drupa l	
20	oc:isFundedBy(pd :PlanetData)			i		foaf:fundedBy(foaf:P roject)		Drupa l	
21	pd:AssociatePart nerApplication			URI		pd:AssociatePartner Application		Drupa l	
22	pd:AssociatePart nerApplication			CD		schema:description(pd:AssociatePartner Application)		Drupa l	

23	pd:ApplicationForm					pd:hasApplicationForm (pd:AssociatePartnerApplication)		Drupal	
24	pd:Call1			URI		pd: Call1		Drupal	
25	pd:Call1			CD		schema:description(pd: Call1)		Drupal	
26	pd:Call2			URI		pd: Call2		Drupal	
27	pd:Call2			CD		schema:description(pd: Call2)		Drupal	
28	oc:hasSkypeAccount(pd:PlanetData)			i		foaf:skypeID(foaf:Project)		Drupal	
29	oc:hasEmail(pd:PlanetData)			i		schema:email(foaf:Project)		Drupal	
30	oc:hasPhoneNumber(pd:PlanetData)			i		schema:telephone(foaf:Project)		Drupal	
31	oc:hasFaxNumber(pd:PlanetData)			i		schema:faxNumber(foaf:Project)		Drupal	
32	oc:hasAddressr(pd:PlanetData)			i		schema:address(foaf:Project)		Drupal	
33	oc:hasFacebookAccount(pd:PlanetData)			i		oc:hasFacebookAccount(foaf:Project)		Drupal	
34	oc:hasTwitterAccount(pd:PlanetData)			i		oc:hasTwitterAccount(foaf:Project)		Drupal	
35	oc:hasMailingList(pd:PlanetData)			IS		oc:hasMailingList(foaf:Project)		Drupal	
36	oc:Event			URIs	if (pd:ispastevent =false)	oc:Event		Drupal	
37	oc:Event			i	if (pd:ispastevent =false)	schema:description(oc:Event)		Drupal	
38	oc:hasImage(oc:Event)			i	if (pd:ispastevent =false)	schema:image(oc:Event)		Drupal	
39	oc:hasName(oc:Event)			i	if (pd:ispastevent	schema:name(oc:Event)		Drupal	

					=false)				
41	oc:isAttendedBy(oc:Event)			IS	if (pd:isaste vent =false)	schema:attendees(oc:Event)		Drupal	
42	oc:endsAt(oc:Event)			i	if (pd:isaste vent =false)	schema:endDate(oc:Event)		Drupal	
43	oc:hasLocation(oc:Event)			i	if (pd:isaste vent =false)	schema:location(oc:Event)		Drupal	
44	oc:hasPerformer(oc:Event)			IS	if (pd:isaste vent =false)	schema:performers(oc:Event)		Drupal	
45	oc:beginsAt(oc:Event)			i	if (pd:isaste vent =false)	schema:startDate(oc:Event)		Drupal	
46	oc:hasSubEvent(oc:Event)			i	if (pd:isaste vent =false)	schema:subEvents(oc:Event)		Drupal	
47	oc:hasSuperEvent(oc:Event)			i	if (pd:isaste vent =false)	schema:superEvent(oc:Event)		Drupal	
48	pd:Deliverable			URIs		pd:Deliverable		Drupal	
49	pd:Deliverable			URI		schema:url(pd:Deliverable)		Drupal	
50	oc:hasTopic(pd:Deliverable)					foaf:topic(pd:Deliverable)		Drupal	
51	oc:hasCreator(pd:Deliverable)					dc:creator(pd:Deliverable)		Drupal	
52	oc:hasDate(pd:Deliverable)					dc:date(pd:Deliverable)		Drupal	
53	oc:hasSubject(pd:Deliverable)					dc:subject(pd:Deliverable)		Drupal	
54	oc:hasTitle(pd:Deliverable)					dc:title(pd:Deliverable)		Drupal	
55	pd:FactSheet			URI		pd:Factsheet		Drupal	

56	pd:FactSheet			URI		schema:url(pd:Factsheet)		Drupal	
57	oc:hasTopic(pd:FactSheet)			i		foaf:topic(pd:Factsheet)		Drupal	
58	oc:hasCreator (pd:FactSheet)			i		dc:creator(pd:Factsheet)		Drupal	
59	oc:hasDate(pd:FactSheet)			i		dc:date(pd:Factsheet)		Drupal	
60	oc:hasSubject(pd:FactSheet)			i		dc:subject(pd:Factsheet)		Drupal	
61	oc:hasTitle(pd:FactSheet)			i		dc:title(pd:Factsheet)		Drupal	
62	pd:PR_Material			URIs		pd:PRMaterial		Drupal	
63	pd:PR_Material			URI		schema:url(pd:PRMaterial)		Drupal	
64	oc:hasTopic(pd:PR_Material)					foaf:topic(pd:PRMaterial)		Drupal	
65	oc:hasCreator(pd:PR_Material)					dc:creator(pd:PRMaterial)		Drupal	
66	oc:hasDate(pd:PR_Material)					dc:date(pd:PRMaterial)		Drupal	
67	oc:hasSubject(pd:PR_Material)					dc:subject(pd:PRMaterial)		Drupal	
68	oc:hasTitle(pd:PR_Material)					dc:title(pd:PRMaterial)		Drupal	
69	oc:Publication			URIs		oc:Publication		Drupal	
70	oc:Publication			URI		schema:url(oc:Publication)		Drupal	
71	oc:hasTopic(oc:Publication)					foaf:topic(oc:Publication)		Drupal	
72	oc:hasCreator(oc:Publication)					dc:creator(oc:Publication)		Drupal	
73	oc:hasDate(oc:Publication)					dc:date(oc:Publication)		Drupal	
74	oc:hasPublisher(oc:Publication)					dc:publisher(oc:Publication)		Drupal	
75	oc:hasSubject(oc:Publication)					dc:subject(oc:Publication)		Drupal	
76	oc:hasTitle(oc:Publication)					dc:title(oc:Publication)		Drupal	
77	pd:Presentation			URIs		pd:Presentation		Drupal	
78	pd:Presentation			URI		schema:url(pd:Presentation)		Drupal	
79	oc:hasTopic(pd:Presentation)					foaf:topic(pd:Presentation)		Drupal	
80	oc:hasCreator(pd:Presentation)					dc:creator(pd:Presentation)		Drupal	
81	oc:hasDate(pd:Pr					dc:date(pd:Presentat		Drupa	

	esentation)					ion)		l	
82	oc:hasSubject(pd:Presentation)					dc:subject (pd:Presentation)		Drupal	
83	oc:hasTitle(pd:Presentation)					dc:title (pd:Presentation)		Drupal	
84	pd:Dataset, pd:Tool			URIs		pd:DataSetsAndTools		Drupal	
85	pd:Dataset, pd:Tool					schema:description(pd:DataSetsAndTools)		Drupal	
86	oc:Video			URIs		oc:Video		Drupal	
87	oc:hasDescription (oc:Video)					schema:description(pd:Video)		Drupal	
88	oc:Video			URIs		schema:url(pd:Video)		Drupal	
89	pd:Activity1			URIs		pd:Activity			
90	oc:hasDescription (pd:Activity1)					sc:description(pd:Activity)			
91	oc:hasName(pd:Activity1)					sc:name(pd:Activity)			
92	pd:Activity1			URI		sc:url(pd:Activity)			
93	pd:hasWorkPackage(pd:Activity1)					pd:hasWorkPackage(pd:Activity)			
94	– oc:hasChair(pd:Activity1)					oc:hasChair(pd:Activity)			
95	pd:Activity2			URIs		pd:Activity			
96	oc:hasDescription (pd:Activity2)					sc:description(pd:Activity)			
97	oc:hasName(pd:Activity2)					sc:name(pd:Activity)			
98	pd:Activity2			URI		sc:url(pd:Activity)			
99	pd:hasWorkPackage(pd:Activity2)					pd:hasWorkPackage(pd:Activity)			
100	– oc:hasChair(pd:Activity2)					oc:hasChair(pd:Activity)			
101	pd:Activity3			URIs		pd:Activity			
102	oc:hasDescription (pd:Activity3)					sc:description(pd:Activity)			
103	oc:hasName(pd:Activity3)					sc:name(pd:Activity)			
104	pd:Activity3			URI		sc:url(pd:Activity)			
105	pd:hasWorkPackage(pd:Activity3)					pd:hasWorkPackage(pd:Activity)			
106	– oc:hasChair(pd:A					oc:hasChair(pd:Activity)			

	ctivity3)								
107	pd:Activity4			URIs		pd:Activity			
108	oc:hasDescription (pd:Activity4)					sc:description(pd:Activity)			
109	oc:hasName(pd:Activity4)					sc:name(pd:Activity)			
110	pd:Activity4			URI		sc:url(pd:Activity)			
111	pd:hasWorkPackage(pd:Activity4)					pd:hasWorkPackage(pd:Activity)			
112	– oc:hasChair(pd:Activity4)					oc:hasChair(pd:Activity)			
113	pd:WorkPackage 1			URI		pd:WorkPackage			
114	pd:WorkPackage 1			URI		sc:url(pd:WorkPackage)			
115	oc:hasDescription (pd:WorkPackage 1)					sc:description(pd:WorkPackage)			
116	– oc:hasChair(pd:WorkPackage1)					oc:hasChair(pd:WorkPackage)			
117	pd:WorkPackage 2			URI		pd:WorkPackage			
118	pd:WorkPackage 2			URI		sc:url(pd:WorkPackage)			
119	oc:hasDescription (pd:WorkPackage 2)					sc:description(pd:WorkPackage)			
120	oc:hasChair(pd:WorkPackage2)					oc:hasChair(pd:WorkPackage)			
121	pd:WorkPackage 3			URI		pd:WorkPackage			
122	pd:WorkPackage 3			URI		sc:url(pd:WorkPackage)			
123	oc:hasDescription (pd:WorkPackage 3)					sc:description(pd:WorkPackage)			
124	oc:hasChair(pd:WorkPackage3)					oc:hasChair(pd:WorkPackage)			
125	pd:WorkPackage 4			URI		pd:WorkPackage			
126	pd:WorkPackage 4			URI		sc:url(pd:WorkPackage)			
127	oc:hasDescription (pd:WorkPackage 4)					sc:description(pd:WorkPackage)			
128	oc:hasChair(pd:WorkPackage4)					oc:hasChair(pd:WorkPackage)			
129	pd:WorkPackage			URI		pd:WorkPackage			

	5								
130	pd:WorkPackage 5			URI		sc:url(pd:WorkPackage)			
131	oc:hasDescription (pd:WorkPackage 5)					sc:description(pd:WorkPackage)			
132	oc:hasChair(pd:WorkPackage5)					oc:hasChair(pd:WorkPackage)			
133	pd:WorkPackage 6			URI		pd:WorkPackage			
134	pd:WorkPackage 6			URI		sc:url(pd:WorkPackage)			
135	oc:hasDescription (pd:WorkPackage 6)					sc:description(pd:WorkPackage)			
136	oc:hasChair(pd:WorkPackage6)					oc:hasChair(pd:WorkPackage)			
137	pd:WorkPackage 7			URI		pd:WorkPackage			
138	pd:WorkPackage 7			URI		sc:url(pd:WorkPackage)			
139	oc:hasDescription (pd:WorkPackage 7)					sc:description(pd:WorkPackage)			
140	oc:hasChair(pd:WorkPackage7)					oc:hasChair(pd:WorkPackage)			
141	pd:WorkPackage 8			URI		pd:WorkPackage			
142	pd:WorkPackage 8			URI		sc:url(pd:WorkPackage)			
143	oc:hasDescription (pd:WorkPackage 8)					sc:description(pd:WorkPackage)			
144	oc:hasChair(pd:WorkPackage8)					oc:hasChair(pd:WorkPackage)			
145	pd:ProjectManagementBoard			URI		pd:ProjectManagementBoard			
146	oc:hasDescription (pd:ProjectManagementBoard)					schema:description(pd:ProjectManagementBoard)			
147	oc:hasName(pd:ProjectManagementBoard)					schema:name(pd:ProjectManagementBoard)			
148	pd:ProjectManagementBoard			URI		schema:url(pd:ProjectManagementBoard)			
149	oc:hasMember(pd:ProjectManagementBoard)					schema:members(pd:ProjectManagementBoard)			
150	oc:hasChair(pd:ProjectManagementBoard)					oc:hasChair(pd:ProjectManagementBoard)			

151	pd:TechnicalManagementBoard			URI		pd:TechnicalManagementBoard			
152	oc:hasDescription(pd:TechnicalManagementBoard)					schema:description(pd:TechnicalManagementBoard)			
153	oc:hasName(pd:TechnicalManagementBoard)					schema:name(pd:TechnicalManagementBoard)			
154	pd:TechnicalManagementBoard			URI		schema:url(pd:TechnicalManagementBoard)			
155	oc:hasMember(pd:TechnicalManagementBoard)					schema:members(pd:TechnicalManagementBoard)			
156	oc:hasChair(pd:TechnicalManagementBoard)					oc:hasChair(pd:TechnicalManagementBoard)			
157	pd:GeneralAssembly			URI		pd:General Assembly			
158	oc:hasDescription(pd:GeneralAssembly)					schema:description(pd:General Assembly)			
159	oc:hasName(pd:GeneralAssembly)					schema:name(pd:General Assembly)			
160	pd:GeneralAssembly			URI		schema:url(pd:General Assembly)			
161	oc:hasMember(pd:GeneralAssembly)					schema:members(pd:General Assembly)			
162	oc:hasChair(pd:GeneralAssembly)					oc:hasChair(pd:General Assembly)			
163	pd:DescriptionOfWork					pd:Document			
164	oc:hasDescription(pd:DescriptionOfWork)					schema:description(pd:Document)			
165	oc:hasName(pd:DescriptionOfWork)					schema:name(pd:Document)			
166	pd:DescriptionOfWork					schema:url(pd:Document)			
167	oc:hasTopic(pd:DescriptionOfWork)					foaf:topic(pd:Document)			
168	oc:hasCreator(pd:DescriptionOfWork)					dc:creator(pd:Document)			
169	oc:hasDate(pd:DescriptionOfWork)					dc:date(pd:Document)			
170	oc:hasPublisher(pd:DescriptionOfWork)					dc:publischer(pd:Document)			

171	oc:hasSubject(pd:DescriptionOfWork)					dc:subject(pd:Document)			
172	oc:hasTitle(pd:DescriptionOfWork)					dc:title(pd:Document)			
173	pd:ConsortiumAgreement					pd:Document			
174	oc:hasDescription(pd:ConsortiumAgreement)					schema:description(pd:Document)			
175	oc:hasName(pd:ConsortiumAgreement)					schema:name(pd:Document)			
176	pd:ConsortiumAgreement					schema:url(pd:Document)			
177	oc:hasTopic(pd:ConsortiumAgreement)					foaf:topic(pd:Document)			
178	oc:hasCreator(pd:ConsortiumAgreement)					dc:creator(pd:Document)			
179	oc:hasDate(pd:ConsortiumAgreement)					dc:date(pd:Document)			
180	oc:hasPublisher(pd:ConsortiumAgreement)					dc:publischer(pd:Document)			
181	oc:hasSubject(pd:ConsortiumAgreement)					dc:subject(pd:Document)			
182	oc:hasTitle(pd:ConsortiumAgreement)					dc:title(pd:Document)			