



Co-ordination & Harmonisation of Advanced e-Infrastructures
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Abstract:

This document describes the architecture of the CHAIN's website and available online tools. Planning for the future evolution of the web site and tools is also outlined.

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1. Introduction

The CHAIN project, started on the 1st of December 2010, aims to coordinate and leverage the efforts made over the past 6 years to extend the European e-Infrastructure (and particularly Grid) operational and organisational principles to a number of regions in the world. CHAIN uses their results with a vision of a harmonised and optimised interaction model for e-Infrastructure and specifically Grid interfaces between Europe and the rest of the world. The project will elaborate a strategy and define the instruments in order to ensure coordination and interoperation of the European Grid Infrastructure with those emerging in other regions of the world (Africa, Asia, Latin America, Mediterranean and Middle East).

1.1. Purpose

The purpose of this deliverable is to describe the current implementation of the project's web site, as well as its planned evolution during the project lifetime. The CHAIN web site is intended to be one of the most important instruments for the dissemination of the project's results and at the same time will be a key to the communication towards the scientific communities, the eInfrastructure providers and the stakeholders.

1.2. Terminology

This subsection provides the definitions of terms, acronyms, and abbreviations required to properly interpret this document.

1.3. Glossary

GA	Grant Agreement
DoW	Description of Work – Annex I to the GA
EC	European Commission
FP7	European Commission's Framework Programme Seven
Africa ROC	Africa Regional Operation Centre
CHAIN	Co-ordination and Harmonisation of Advanced e-Infrastructures
EGI	European Grid Initiative
EGI-InSPIRE	European Grid Initiative-Integrated Sustained Pan-European Infrastructure
EPIKH	Exchange Programme to advanced e-Infrastructure Know-How
HPC	High Performance Computing
MoU	Memorandum of Understanding
NREN	National Research and Education Network
Portlet	Portlets are pluggable user interface software components that are managed and displayed in a web portal.

2. Executive summary

The development and implementation of a dynamic and effective web platform is intended to support the activities of the CHAIN project. The website has been one of the initial priorities for the project and, although a preliminary version was available several months before the project start, the design of the architecture and the details of the implementation were carried out during the first two months of the project. The time spent in the new design of the web site was a consequence of a change of technology foreseen for its implementation. The original idea was to use consolidated tools such as Joomla!, but recently some positive experience with Liferay has led the WP5 team to reconsider the architecture in order to use a modern framework that better fits the needs of a Grid community and, at the same time, be a future-proof technology. The choice has been also favoured by the movement towards this technology that has been made for other projects and initiatives in INFN Catania and CIEMAT. In this way the investment in existing expertise already available allowed a quick transition between the two technologies without investing a large effort. The new platform better addresses the needs and expectations of the Grid communities and offers opportunities to better integrate grid tools by means of the portlets.

The web site was thus designed to achieve all the objectives originally foreseen in the Project's Description of Work (Annex I to the Grant Agreement) and it makes use of the already available tools such as Agenda, Document Repository, Video Conference, etc. The Liferay Technology, however, allows to plug-in new tools profiled as "portlets" that can be easily re-used in the web portals. This will of course not only facilitate the maintenance and upgrading of the web site, but also will allow benefiting of portlets developed by third parties (e.g. other projects). The ever-evolving website can be found at www.chain-project.eu.

This deliverable briefly outlines the main features of the CHAIN's web site with several screenshots visually expressing the work accomplished and the impact reached. The website was designed to provide a complete set of online services for the project and a wider community, including dedicated pages for both project and relevant e-Infrastructure technical and non-technical information.

Liferay is a modular and extensible package with a range of add-on options. CHAIN will leverage selected features with the aim of evolving the website with a series of interactive tools. Technical specifications were drafted by INFN (responsible for the development, implementation and maintenance of the web platform infrastructure) and CIEMAT in close collaboration with other partners who will be responsible for web content maintenance of their parts during the lifetime of the project. The project participants are indeed the first users of the web site and its future revisions will be based on a consultation of users and not only on new project requirements.

This report briefly describes the rationale behind the website, in relation to the design and the development of core messaging around the project. Section four provides an outline of the CMS, and provides details on the layout, main features and functions of the website. Section five details the currently state of the website, with the already available features and an overview of the evolution for the upcoming months and throughout the project, with particular reference to: project aims and events, multi-channel communication tools, synergies and dedicated resources. This section also includes short-, medium- and long-term goals for the website, as the project evolves over time. The last section summarises the main outcomes and conclusions.

Overall, the design and layout of the website ensures easy navigation for the target communities, with regular updates and news features, highlighting new content and information of interest. Over the course of the next months and throughout the lifetime of the project, the website will be constantly developed, improved and populated with content.

3. Objectives

The CHAIN project has several objectives, with different activities aiming at gathering the experience made in the previous Regional eInfrastructure Projects and elaborate, on the basis of the past and present knowledge, a model and a road-map for the interconnectivity of European eInfrastructures with other similar regional infrastructures worldwide. A few Virtual Research Communities will also be selected to validate the proposed model.

Generally speaking, the creation of an online platform capable of providing advanced communication features is considered a key factor for the success of the project dissemination strategy, as well as to create cohesion in the project community, also in consideration of the geographic location of partners, that limits the possibility of face-to-face meetings. The platform proposed is thus intended to provide Web features to the project and its community, that will help integrating and managing the institutional communication and improve the attractiveness toward new interested communities and collaborators.

3.1. The key features

The activities planned in the CHAIN project need to be supported by a dedicated web site that will be used internally by the project community, but also will act as a vehicle of dissemination to a large set of target audience: stakeholders, technologists, scientists, and the general public.

The set-up and maintenance of an attractive and technologically advanced Web platform will be a key to attract new communities, gather similar groups worldwide, increase their level of involvement and disseminate the project's results.

The project is planning adequately resourced activities devoted to dissemination towards specialised constituencies (e.g. eInfrastructure providers, Virtual Research Communities) and the general public, with a special focus on creating awareness on eInfrastructure providers/managers and Virtual Research Communities. The dissemination action has to consider also adequate messages about the project objectives and its impact. The tools to be used should include web-based communication, press releases, brochures, booklets, multimedia material, etc.

Dissemination materials (hard and soft copies, with the latter showcased on the project website) should be regularly updated to provide the latest version of the project status and objectives.

The Web Site will also be fundamental in supporting the project's activities of enlarging and training scientific and technical communities to promote the usage of e-Infrastructures also in cooperation with other projects (e.g. EPIKH, EGI-Inspire, EUMEDGRID-Support, EUIndiaGrid2, etc.). The following main lines have been defined:

- Dissemination of results and advanced knowledge related to e-Infrastructures and gathering of experience and feedbacks in cooperation with EPIKH, and other projects.
- Dissemination towards stakeholders: dedicated brochures to stimulate the political support to e-Infrastructures initiatives in Europe and in the other regions.
- Create and maintain a contacts database.

The CHAIN project will disseminate its results also via presentations in the events organised by other projects and will regularly invite other relevant projects to contribute to CHAIN's Thematic Workshops and High-Level Conferences.

The Web platform is intended to provide a wide set of advanced communication features to the project and its community, including:

- **State-of-the-art CMS facility** allowing all partners involved in dissemination activities to post, edit and update content and upload and share different media through a standard web interface (i.e., regardless their geographic location).
- **Fine-grained permissions:** users with different levels of involvement (i.e., for instance, project management, project participants, user community, etc.) can be granted different levels of permissions, thus ensuring confidentiality in the access to certain contents, if needed, as well as editing and posting rights in specific sections of the website.
- **User profiling functionality:** contents (documents, news, links, videos, training courses, etc.) on specific topics are proposed to users according to their specific interests. This function is expected to have a positive impact on creation of user communities, as well as helping the project consortium to segment the user community in order to better address it.
- **Searchable document library area:** a specific section of the project web portal will allow users browsing project documents and materials, or search them with the internal search engine. Documents will be uploaded, tagged and described by project partners, in order to be searchable by multiple criteria.
- **Web-tv area** allowing the project community to share audio and video content and broadcast relevant events on demand.

4. Design and Architectural structure

In order to accomplish all the requirements coming from the project's planned activities, the initial design was based on the previous experience made in other projects. The initial version of the CHAIN's web site was made ready a few months before the project's official start (1 December 2010) and it was used to advertise the first events, such as the Kick-Off Meeting and the Launch Event in Rome in December 2010. The underlying technology has been based on Joomla!. Since the project start, however, a study was opened on the possible alternatives to make the web site more attractive, content-rich and technologically advanced, with the purpose of facilitating the introduction of new collaborative tools and standardised interfaces.

4.1 The first version using Joomla!

The first version, implemented over Joomla!, has been designed with a "traditional" aspect that includes the main services that are generally expected by the project's community. The initial menu on the left side (Figure 1) included a description of the project's objectives, the synthetic description of the action plan and the activities, the information regarding the partners.

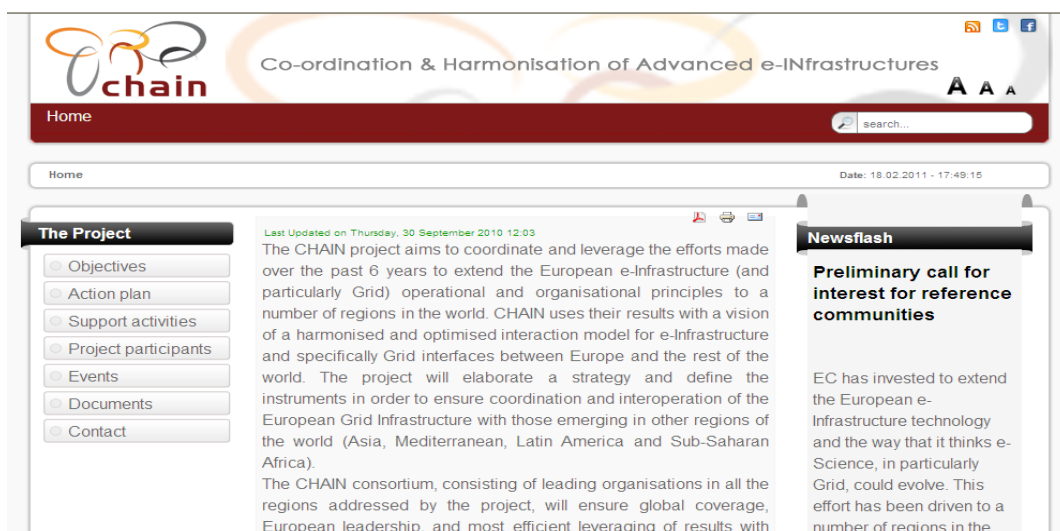


Figure 1 - The CHAIN web site as it was in January 2010

The event section was implemented with an agenda server, based on Indico (Figure 2) that contains the possibility to create agendas for conferences and workshops, Project meetings and training events co-organised by CHAIN. Indico is a mature product that is being successfully used by the project reference community, so that its interface, features and usage are well-known among the user community, as well as among the web and system administrators, making the learning curve to make the best of the tool is of no importance.

The screenshot displays the CHAIN Project website. At the top left is the INDI CO logo (Integrated Digital Conference) and a 'login' button. The breadcrumb trail reads 'Home > CHAIN Project'. The main heading is 'CHAIN Project (Managers: Barbera, R.; Ruggieri, F.)' with the CHAIN logo and the tagline 'Co-ordination & Harmonisation of Advanced e-INFRASTRUCTURES Project Web Site'. A 'Tools' sidebar on the right lists: Browse Categories, Events Overview, Calendar, Site Map, Room Booking, Statistics, and Help. A 'Categories' section lists: Conferences & Workshops (1), External Events (2), Project meetings (1), and Training events (7). At the bottom, it states 'INFN Catania | Powered by CERN Indico 0.96.2 | http://agenda.ct.infn.it/categ79 | HELP'.

Figure 2 - The Agenda system based on Indico

The document repository was based on CDS Invenio (Figure 3) another well known product that is part of the CDS suite as Indico and is thus used by other projects and organisations.

The screenshot shows the Invenio Document Server interface for the CHAIN Project. The top navigation bar includes 'DOCUMENTS', 'Search', 'Submit', 'Personalize', and 'Help'. A user profile icon shows 'guest :: login'. The breadcrumb trail is 'Home > CHAIN Project'. The main heading is 'CHAIN Project'. A search bar shows 'Search 4 records for:' with a dropdown menu set to 'any field' and buttons for 'Search' and 'Browse'. Below the search bar are links for 'Search Tips' and 'Advanced Search'. A 'Narrow by collection:' section lists several categories with checkboxes: CHAIN - Templates (4), CHAIN - Presentations & Slides (0), CHAIN - MoUs (0), CHAIN - Dissemination Material (0), CHAIN - Minutes (0), and CHAIN - Deliverables (0). The footer contains metadata: 'Documents :: Search :: Submit :: Personalize :: Help', 'Powered by CDS Invenio v0.99.1', 'Maintained by rita.ricceri@ct.infn.it', 'Last updated: 17 Feb 2011, 16:49', and a language selection option for 'English'.

Figure 3 - The Invenio Document Server

As a last menu item, the project's main contacts were made available. On the right side bar a news system has been implemented using the Joomla! module. Some collaborative tools such as the links to the main social networks and RDS were also available.

The web site was thus actually providing, since the beginning, all the basic services needed for the project to effectively start the activities and the exchange of information.

However this site implementation did not yet provide user registration to build up the project community and was still lacking some important tools for collaborative work, such as videoconference, wiki pages, etc.

A detailed analysis of the project's requirements in terms of online communication and collaboration tools was performed in order to gain an understanding not only of the current needs, but also of their evolution during the project lifetime, also in consideration of the latest trends and technical developments. The results led to reconsider the technical solutions originally chosen.

The Table 1 below shows main features of the web platform for the project, as well as the added value that they are expected to bring to the project and the technologies envisaged for their implementation.

The originally proposed solution relies on widely adopted and supported open software (Joomla!, Moodle), whose functions may, in some cases be integrated with proprietary solutions (Adobe Connect) of which partners own licenses. It is completed by a multi-videoconferencing system provided and maintained by GARR as a part of its service portfolio (GARR Vconf service).

This approach ensures some advantages to the project consortium:

- cost-effectiveness;
- high level of flexibility in the implementation and customization of communication and training requirements;
- reasonable level of support for main services;
- possibility for partners to use and update the platform after the end of the project, without additional charges (with obvious advantages in terms of optimization and training);
- possibility for other partners of taking over (partly or completely) the management of the tool should the responsible partner recede, or be otherwise incapable of fulfilling its obligations, thanks to the widespread diffusion of the proposed technologies.

Table 1 - Original Analysis of the requirements for the Web

Component or feature	Added value for the project	Technology
User Interface	Overall project management as well as all WP activities Back end - All consortium partners, irrespective of geographical location, can access CMS and upload and edit content directly on the web site. Front-end - All thematic communities as well as new users can interact with the project via the web platform taking advantage of the easy to use and content rich interface.	Joomla (see: http://www.joomla.org/about-joomla.html).
CMS and content repository with profiling services	All content uploaded to the platform is annotated allowing intelligent organization of content as well as personalized proposals to each profiled user. A new user on web registers (2 minute process) and on each new login content according to profile preferences is proposed. For example, climate change checked as area of interest with a special interest in greenhouse gas would be proposed content (documents, news, links, videos, training courses, etc.) on this topic. Strong impact on creation of user communities.	Joomla (see for references: http://www.joomla.org/about-joomla.html).
Documental content fruition area (doc, ppt, pdf ...)	Overall project management as well as all WP activities This area organizes all "textual" documents by topics and section of visualization; the user can browse the documents guided by an intuitive tree structure or using a powerful internal search engine.	Joomla (see for references: http://www.joomla.org/about-joomla.html).

Web-TV Area (audio/video content)	Organise video conference Organise and propose thematic contents oriented to pre-assigned user groups Broadcast in asynchronous way relevant events, Offer to visitors an opportunity to view presentations they missed at events visual and audio material offer increased dissemination possibilities	2 options here are envisaged (possibly combined): GARR VConf Adobe Connect Pro
Content Sharing Area	Document sharing tools & video-streaming to facilitate knowledge transfer not only between project partners on an on-going basis but also for dedicated forums or working groups set up around specific themes, user communities and events.	This part can be implemented on Joomla. Multimedia with Adobe Connect Pro
Distance Consultancy Area	Training synergies with other projects and initiatives. One-to-one and many-to-many interactions between users and consultants. Thanks to an intuitive tool, simple & immediate, where configuration or installation is not needed.	Wiki
Back end administration for content and user	An advanced console dedicated to the management of the contents; the console allows the system administrator to annotate, insert, modify, delete the content and manage the personal and commercial user information.	Joomla (see above)

4.2 The new Liferay approach

The Liferay platform (<http://www.leosys.net/liferay-portal-development.aspx>) is a technology that enables to design and deploy web portals that has recently gained a lot of attention due to its modern approach to web standard and the usage of portlets combined with a pragmatic attitude of inclusiveness regarding the already existing technologies and tools.

Some of the general features of the platform are regarded as providing a real advantage for the CHAIN community.

- Liferay is regularly released and maintained by a large and vital community of developers which can support it in the years to come and provide innovative and powerful tools thanks to the easy integration of portlets.
- The inclusiveness of the software “All-in-One Package” integrating Content & Document Management with Microsoft Office® integration, Web Publishing and Shared Workspaces, Collaboration tools, Social Networking and Mashups, identity management, etc

Of course the adoption of such a solution, which requires a non trivial change of architecture, can be considered as “limited impact” if some conditions are met, the main one being the compatibility with the existing IT environment which in turn requires that:

- the platform runs on existing application servers, databases and operating systems to eliminate new spending on infrastructure;
- it supports existing and frequently used Scripting languages (PHP, Ruby, Python and Java).

The Grid Community is mainly using the Scientific Linux operating system and makes use of scripting languages in the middleware and in the related tools. These requirements are thus

mandatory for the CHAIN project that mainly addresses such community of users and developers.

As additional requirements the Compliance with Standards and specifically to open standards for content, portlets, web services and front-end technologies are needed to reduce development cost.

The choice of Liferay as a platform for the implementation of the CHAIN web site has been taken after a detailed evaluation of its possibilities and the technological advantages it could offer. Here we analyse the main features mapping them with opportunities they offer to match the requirements of the CHAIN's web portal.

Table 2 - Technical Specifications and Features of Liferay

Technical Specification or Feature	Matching need
<p>Highly scalable supporting millions of users, daily page hits, and more</p> <p>Supports both horizontal and vertical scaling methodologies</p> <p>Clusterable configuration for high availability</p> <p>Implements top ten OWASP-recommended security practices</p> <p>Options for Terracotta, Oracle RAC, and other scalability solutions</p> <p>Deployable to the Cloud and available as SaaS</p>	<p>Scalability, integration of different technologies (platform expected to be accessed by many users in different organisations and continents.</p>
<p>Operating Systems</p> <ul style="list-style-type: none"> • Linux (CentOS, RHES, SUSE, Ubuntu, and others) • Unix (AIX, HP-UX, Mac OS X, Solaris, and others) • Windows 	<p>Use of Linux is mandatory in a Grid Community. Adopting a platform which supports all these Oss is therefore useful for the community</p>
<p>Servlet Containers</p> <ul style="list-style-type: none"> • Jetty • Resin • Tomcat 	<p>Reusable contents. We expect to reuse most of the existing contents with minor adaptation effort.</p>
<p>Application Servers</p> <ul style="list-style-type: none"> • Geronimo • GlassFish • JBoss • JOnAS • OracleAS • SUN JSAS • WebLogic • WebSphere 	<p>Reusable contents. We expect to reuse most of the existing contents with minor adaptation effort.</p>
<p>Databases</p>	<p>Reusable DB</p>

Technical Specification or Feature	Matching need
<ul style="list-style-type: none"> • IBM DB2 • MySQL • Oracle • PostgreSQL • SQL Server • Sybase 	gathered from partners or from community members.
<p>Public & Private Clouds Liferay Portal is deployable to the cloud and virtualized environments, including EC2 and VMWare.</p>	Easy to port and support in the long term, even beyond the project's duration.
<p>Technologies Used</p> <ul style="list-style-type: none"> • AJAX • Apache ServiceMix • ehcache • Groovy • Hibernate • ICEfaces • Java J2EE/JEE • jBPM • JGroups • Lucene • MuleSource ESB • Seam • Spring 3.0 & AOP • Struts & Tiles • Tapestry • Velocity 	Easy transition reusing existing knowledge and expertise. Open to de facto standards.
<p>Scripting Language Support</p> <ul style="list-style-type: none"> • Javascript • Ruby • PHP • Python 	Easy transition reusing existing knowledge and expertise.
<p>Standards</p> <ul style="list-style-type: none"> • AJAX • iCalendar & Microformat • JSR-168 • JSR-127 • JSR-170 	Usage of standards is a must for migration of contents and tools. It also favours long term support for the platform.

Technical Specification or Feature	Matching need
<ul style="list-style-type: none"> • JSR-286 (Portlet 2.0)* • JSF-314 (JSF 2.0) • OpenSearch 	
Web Services <ul style="list-style-type: none"> • JSON • Hessian • Burlap • REST • RMI • Spring HTTP • WSRP (full support for 1.0 and 2.0) • WebDAV 	Richness of opportunities for service deployment.
Architecture <ul style="list-style-type: none"> • Hierarchical and extensible system of communities and organizations • Replicable templated communities and organizations • Message-oriented architecture leveraging Liferay's lightweight message bus, Mule, or ServiceMix ESB. • Dependency injection provides pluggable service implementations 	Easy to implement. Limited impact in the transition.
Identity Management <ul style="list-style-type: none"> • LDAP Authentication and Synchronization • Oracle Access Manager • Novell Identity Manager • Sun Identity Manager / Open SSO • SiteMinder • Tivoli 	Easy User Access and profiling
Performance & Scalability <ul style="list-style-type: none"> • Clustering at any combination of tiers (presentation, service, business logic, and database) • Terracotta DSO integration • Advanced Caching (Ehcache, Memcached) • Page Caching • Load Balancing • Static Content Export • Portlet Performance Monitoring • Code Performance Monitoring 	Large user community can be supported. The portal can be opened to general public and scaled up when and if the load on the system requires it.
Security Liferay Portal uses industry standard, government-grade encryption technologies including advanced algorithms such as DES, MD5 and RSA. Liferay was benchmarked as among the	Web Portal less prone to hacking and misuse.

Technical Specification or Feature	Matching need
<p>most secure portal platforms using LogicLibrary's Logiscan suite.</p> <ul style="list-style-type: none"> • Pluggable Authentication • Email Verification • Granular Permissioning • LDAP Authentication • Session Management 	
<p>Single Sign On</p> <ul style="list-style-type: none"> • CAS and Siteminder out of the box • Support for JAAS, JOSSO, LDAP, Netegrity, Microsoft Exchange 	<p>Easy management and access.</p>
<p>Document Library</p> <ul style="list-style-type: none"> • JSR-170 compliant Java Content Repository • Check in/check out • Integration with Microsoft Office® • Versioning • Workflow • Fine grained permissioning • Multi-file uploads • File format conversion among common formats like Microsoft Office, PDF, TXT and HTML (import and export) • WebDAV enabled • Image gallery 	<p>Repository for the project's documents.</p>
<p>Themes & Layout</p> <ul style="list-style-type: none"> • User group page templates • Administrator-defined page/layout templates • Automatic page structure inheritance • jQuery standardized • Semantic & nonobtrusive markup • LAR import/export of themes • Hot-deployable 	<p>Customisable</p>
<p>Language Support</p> <ul style="list-style-type: none"> • I18N support for any language • Ships with default translations for 32 languages. 	<p>Possible customisation in many countries</p>
<p>Web & Workspace Publishing</p> <ul style="list-style-type: none"> • One-click page creation • Rich (WYSIWG) text editors • Separation of content from layout • Reusable content • CSS • Logical content templates using either Velocity or XSL 	<p>Easy management and update in a collaborative project.</p>

Technical Specification or Feature	Matching need
<ul style="list-style-type: none"> • Bookmarks • Dynamically generated site taxonomy • Drag and droppable site map • Sitemaps protocol support • Search Engine Optimization (SEO) • OpenSearch • Live page editing • Staging and scheduling to remote servers • Friendly URLs • Meta tagging 	
<p>Knowledge Management</p> <ul style="list-style-type: none"> • NEW KnowledgeBase portlet for team-driven creation of content and knowledge stores (see Features for details) • Taxonomy (categorization) framework • Framework to add taxonomies to custom portlets • Web Content Management, Wiki, Knowledge Base Taxonomy-enabled • Category-based navigation 	<p>Tools for internal WP work.</p>
<p>Wikis</p> <ul style="list-style-type: none"> • Rich text editor (WYSIWYG) • Versioning & reversion • Creole syntax support • File attachments • Threaded comments • Recent changes tracking • LDAP integration • Tag-based navigation • RSS 	<p>Tools for internal WP work.</p>
<p>Blogs</p> <ul style="list-style-type: none"> • Rich Text Editor (WYSIWYG) • Social bookmarking • Threaded comments • Tags and Labels • Social Bookmarking • Rating system 	<p>Tools for internal WP work and possible interaction with the rest of the community</p>
<p>Collaboration & Social</p> <ul style="list-style-type: none"> • Trackback URLs • RSS 	<p>Communication</p>
<p>Message Boards</p> <ul style="list-style-type: none"> • Rich text editor (WYSIWYG) 	<p>Communication</p>

Technical Specification or Feature	Matching need
<ul style="list-style-type: none"> • Role-based permissioning • User data display • Threaded comments and categories management • Versioning • Statistics • Recent posts • Email based subscriptions • RSS • Presence 	
<p>KnowledgeBase</p> <ul style="list-style-type: none"> • Rich text editor (WYSIWYG) • Threaded articles • Versioning • Easy creation of content with templates • Print to PDF • File attachments • Integration with Open Search • Inheritance based permissioning • Inheritance based subscriptions/RSS • Rating system • Threaded comments 	<p>New ways of communication and easy creation of contents. Support of standards.</p>
<p>Calendar</p> <ul style="list-style-type: none"> • AJAX-based interface • iCal and Microformats support • Task lists for event creation, management, and search • Events sharing across communities • Event reminders via email, IM, or SMS 	<p>Internal and external Events.</p>
<p>Mashups & Integration</p> <ul style="list-style-type: none"> • User location map • Facebook • OpenSocial container / Shindig • iGoogle / Google Gadget • NetVibe 	<p>Integration of social networks and modern tools</p>
<p>Alerts & Announcements</p> <ul style="list-style-type: none"> • AJAX-based • Targeted group delivery • Remote delivery (email, SMS) 	<p>Security and compatibility</p>

5. Deployment and future plans

The choice of Liferay as supporting technology for implementing the new web platform was made at the beginning of February 2011 after a careful evaluation of the pro and cons of the operation. Of course it was evaluated the cost of such migration in terms of new effort to be spent and time needed to acquire the expertise and the necessary skill in order to have a smooth transition from the old implementation to the new one. In the final decision a large weight in favour of the movement towards Liferay technology was the availability of support and collaboration from CIEMAT that has flanked the INFN personnel in the decision and implementation process. Both institutions had already started Liferay implementations for other projects and initiatives and the transition was considered as an optimisation of human resources that will be beneficial for the web maintenance in the mid and long term.

The screenshot displays the CHAIN project website. At the top, the CHAIN logo is shown with the tagline "Co-ordination & Harmonisation of Advanced e-INFrastructures". A navigation menu includes links for Home, About us, Project Area, Infrastructure, Events, Multimedia, and Contact.

The main content area is divided into two columns. The left column, titled "The Project", contains two paragraphs:

- The first paragraph states that the CHAIN project aims to coordinate and leverage efforts for a harmonised and optimised interaction model for e-infrastructure and specifically Grid interfaces between Europe and the rest of the world. It mentions elaborating a strategy and defining instruments for coordination and interoperability of European Grid Infrastructures with other external e-Infrastructures.
- The second paragraph describes the CHAIN consortium, which ensures global coverage and European leadership. It details the project's goals, including defining a coherent operational model, collaborating with EGI.eu, and validating the model by supporting virtual communities and distributed facilities across regions for trans-continental research.

The right column, titled "News", features two news items:

- Conference on Role of e-infrastructures for Climate Change Research**: A link to "View" is provided. The text states the main goal is to expose participating scientists and stakeholders to modern... (truncated).
- CHAIN Public Launch Event**: A link to "View in Context" is provided. The text states the event will take place on next 14 december 2010 at CNR Headquarter ... (truncated).

Below the news section is a calendar widget showing "Friday, February 25" and options to "Look for earlier events" and "Look for more". It also indicates "Events shown in time zone: Rome" and includes a "Google Calendar" link.

The bottom section, titled "Focus on", features a banner for the "EGI User Forum 2011" (11-15 April, Vilnius, Lithuania). The text states: "The User Forum will be held in Vilnius (11-14 April), in conjunction with the European Middleware Initiative (EMI) Technical Conference. A draft programme for the event is now available." It includes a link to the "2011 EGI User Forum homepage" and a link to a "Preview of the User Forum (inspired article)".

The footer contains the Grant Agreement no. 260011, the European Union flag, the CAPACITIES logo, the e-infrastructure logo, and the European Research Area logo.

Figure 4 - The CHAIN web site as it is now

Figure 4 and Figure 5 show the website as it is now, after the migration to Liferay platform, the look and feel was only slightly changed but the core changed dramatically.

In this first step towards the final configuration, the website accomplishes the initial goals of creating a repository of official documents, contacts database, events manager and general information about the project and partners.

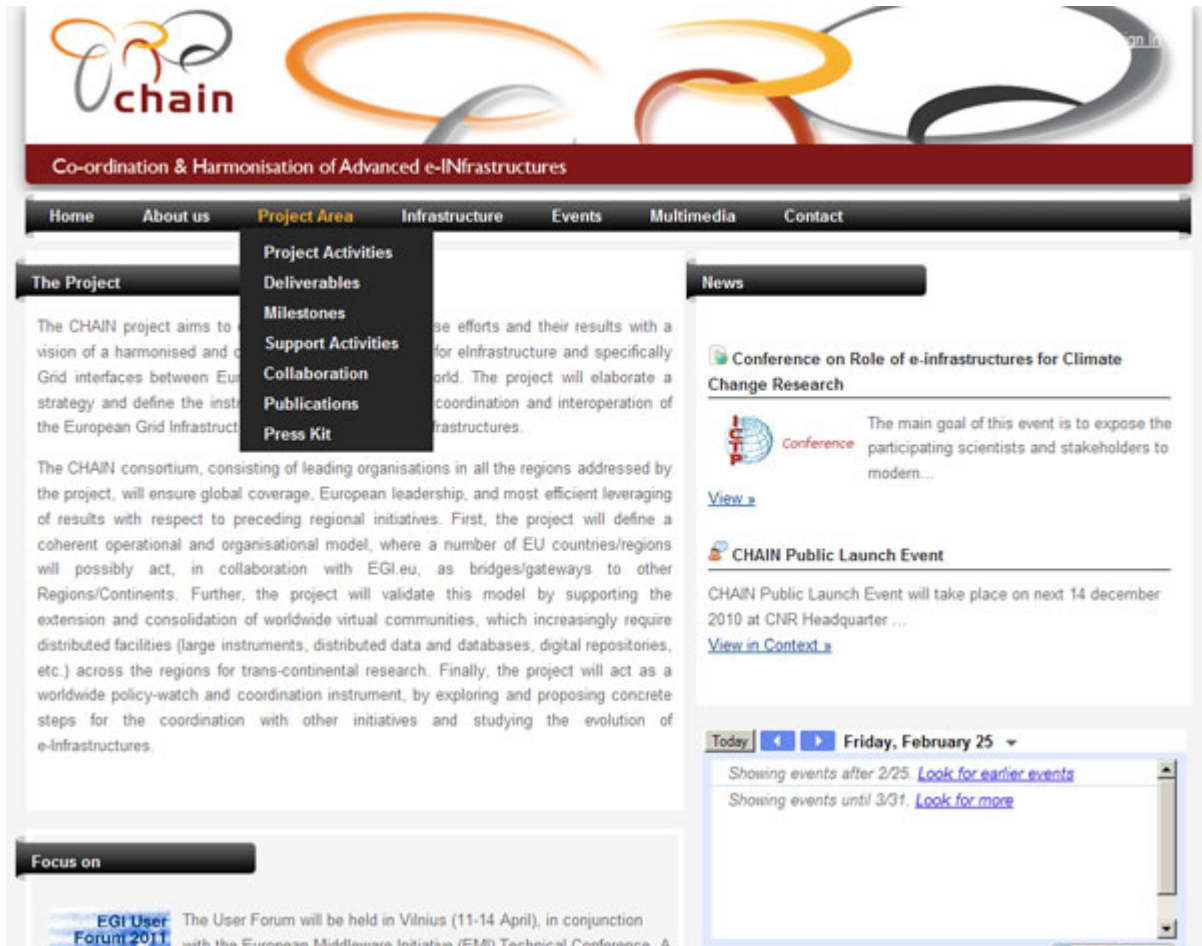


Figure 5 - The CHAIN web site with sub menu deployed

There is also a section with a list of people involved in the project with contact details (restricted zone).

A registration system was implemented in order to profile the users accordingly to their role: project partners, collaborating projects, general interested people, etc.

Registered users, if authorised, can create their own contents of general interest, upload events and news, share documents, videos and any kind of multimedia files.

Thanks to the fine-grained permission, public and confidential documents are kept separate.

Templates, brochures, posters, logos and any kind of file for presentations and events are also available for download; this section will be fed with materials coming from conferences, training, workshops, etc...

During the first months of the project the main efforts of web administrators will be dedicated to develop web content to generate as much information as possible for the CHAIN community and interacting with the users of the web site, collecting suggestions for improving and strengthening this essential tool.

During the following months, all pages will be consistently monitored to ensure all information is as up-to-date as possible, with post-events summary and downloadable multimedia files but with an eye to the possible emergence of new needs.

That is why we have scheduled the installation of typical web 2.0 tools such as:

- **Multi-Video conference service:** this feature will allow organizing internal project conference calls, thematic interactive sections with users, broadcasting live content on the website.
- **Online collaboration facilities** designed to enhance collaboration and contribution to the community building action. These will be designed depending on the specific requirements of each segment of the user community and may include one or more tools amongst forums, instant messaging tools, wikis, thematic channels or blogs.
- **e-Learning platform:** this component will be set-up importing the already available material from other projects (e.g. EPIKH, EUMEDGRID-Support) and will allow providing blended courses on-line, enrolling trainees, providing supporting materials and media, and facilitate the interaction between tutors and trainees, and among the latter. The training platform will be an integral component of the dissemination synergies (Task T5.3 of the CHAIN's Description of Work) as well as for dissemination of event broadcasting overcoming time zone and distance barriers.
- **Social networks:** take advantage of social networks to strengthen relationships within the community.
- **Usage statistics collection:** this feature will allow collecting and analysing the usage of the website and provide feedbacks for improvement (i.e., for instance, typical number of pages viewed or downloaded materials can provide important insights on the quality of contents, user's preferences and expectations, etc. This action can therefore effectively complement the users profiling and the delivery of survey to the community).

5.1. Resources to be committed

The web platform has been installed in INFN Catania where the hardware and software will be maintained and updated. The management of the web platform will continue to see the involvement of CIEMAT.

The e-Learning platform is currently based on Moodle that is provided under the GNU license, so no costs are connected to its use. Moreover most of the material will be imported from other projects or simply linked to their web portals whenever possible. This will be part of the synergies established with other projects and initiatives (i.e. EPIKH and EUMEDGRID-Support).

Specific functions can be integrated thanks to Adobe Training, of which GARR, COMETA and INFN hold already licenses.

Videoconferencing and live streaming will be implemented making use of the already available GARR Vconf service. GARR is a Third Party of INFN in the project and we assume that no setup cost will be needed. Support is generally provided unfunded from Mon to Fri (office hours).

The Adobe Connect Pro usage could possibly expose limited costs of manpower on the basis of events/needs.

6. Conclusions

The major aim of the website is to raise awareness of the project amongst the wider public and to encourage the participation from relevant sources, and to contribute to build the necessary sense of community.

Moreover, due to the constrictions of time and distance between members of the community, the web should be viewed as the most important form of aggregation and service provider available at anytime and anywhere.

Our intention is to achieve this goal by providing the best possible service, constantly developing new features and tools as the project evolves.

This report has succinctly described the rationale behind the website in relation to the design and the development of core messaging around the project. The document has clearly defined the original objectives of the Project's web implementation and the original choices made at the beginning in order to provide a functional web site from the first day of the project.

The rapid evolution of the technologies has pushed the members of the project to reconsider some of the basic decisions taken at the time of the proposal (late 2009) and a new Liferay technology has been adopted to better address the modern role that a Web Portal should have in the project life. The new web site, already available and constantly improving, has been described with the already available features and an overview of the evolution for the upcoming months and throughout the project with particular reference to project aims and events; multi-channel communication tools, synergies and dedicated resources. Short-, medium- and long-term goals for the website, as the project evolves over time have been also presented.

Overall, the design and layout of the website ensures easy navigation for the target communities, with regular updates and news features, highlighting new content and information of interest. Over the course of the next several months and throughout the lifetime of the project, the website will be consistently developed, improved and populated with content.

The joint effort of INFN, CIEMAT and GARR will ensure a successful implementation of all the necessary tools and applications.