http://speedd-project.eu/

Basic Dissemination Material

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February 2014

Project

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Executive Summary

This deliverable will cover the initial material to be used for dissemination purposes, including the project website and the fact sheet.

WP2 deals with the SPEEDD dissemination, exploitation and standardization activities. For dissemination, WP2 will communicate the project's scope and objectives by:

- producing the SPEEDD dissemination material such as a project website, posters, flyers;

- organizing and participating in scientific conferences, workshops and exhibitions;

- coordinating scientific publications, articles and brochures;

- organizing and maintaining an effective social media strategy.

Concerning exploitation and standardization, WP2 will:

- execute a competitive market analysis on a regular basis;

- develop, maintain and supervise an on-going internal and external exploitation plan;

- ensure that developments are market-centric with a clear view to future exploitation;

- identify results to be made available as open source and open data;

- identify intellectual property to be protected through patent filing;

- develop a standardization plan and initiate standardization activities.

This document fulfills the requirements for D2.1 and presents the basic dissemination material for the SPEEDD project. Specifically, it provides an overview of the SPEEDD website. It describes the methods and tools used for its construction and the reasons behind the choices made. Moreover, it explains how the website can be used by members of the SPEEDD consortium. Finally, it presents the document management system deployed for the purposes of both internal coordination and external communication of the project's activities.

The SPEEDD Web site will provide project overviews and highlights; up-to-date information on intermediate and final project results, including public reports and publications as well as synthesis reports drawn from selected confidential material; project events, including e.g. user group meetings,

conferences and workshops; contact details, etc. The project's Web site first point of access will describe the goals of the project. It will be cross-linked from/to other relevant EC and EC sponsored sites.

The Web site will be maintained and updated until the end of the project. It will contain an RSS-enabled news or blog section. This section will be used to advertise project related events, to describe its progress for an interested but not specialised public; to comment on how societal or technology developments in the world at large demonstrate the importance of or open opportunities for the technologies developed under the project. The project's main website shall prominently indicate a link to the repositories of open source software produced in the project and, whenever possible, download statistics. All open source components published shall be extensively documented by means of textual documents and screencasts of professional quality illustrating how to download, install and operate the components in question. Documentation manuals and screencasts shall be specifically identified as project deliverables and prominently published on the project's website.

1

Introduction

According to the the SPEEDD DoW:

> *The SPEEDD Web site will provide project overviews and highlights; up-to- date information on intermediate and final project results, including public reports and publications as well as synthesis reports drawn from selected confidential material; project events, including e.g. user group meetings, conferences and workshops; contact details, etc.*

The SPEEDD Project Site has been implemented accordingly and has two main components:

- the SPEEDD site, accessed publicly at `http://speedd-project.eu/` and

- the SPEEDD document repository, accessed by SPEEDD members at `https://lshtc.iit.demokritos.gr/svn/SPEEDD/`.

This deliverable serves mainly as a documentation reference of the SPEEDD Project Site. Chapter 2 describes the components of the Project Web site and the document management system, while Chapter 3 describes how the user can interact with the Project Web site to have access or contribute information.

2

System Components

2.1 The Project Web-site

The project web site (`http://speedd-project.eu/`) has been designed to be used as a portal to provide information for the project. The website is made with the Content Management System (CMS) Drupal[1]. Here are some reasons for which Drupal has been chosen.

- It is open source.

- It's a mature platform, used by thousands of organizations and businesses and supported by a worldwide development community. It is also continuously being monitored for security issues by a large community of developers.

- It's easy to use, it allows every-day users to add and update web pages without technical assistance.

- It is dynamic and customizable, it can be extended by adding new or by modifying existing features.

An important number of Drupal modules has been used incuding: Color, Contact, Contextual links, Dashboard, Database logging, Field UI, Forum, Help, List, Menu, Number, Overlay, PHP filter, RDF, Search, Shortcut, Statistics, Syslog, Tracker, Update manager, Administration menu Toolbar style, Backup and Migrate, Content Access, Date Popup, File entity, Filebrowser, Google Analytics, Insert, jQuery Update, Libraries, Link, Metatag, Module filter, mPDF library handler, Pathauto, Printer-friendly pages UI, Send by email, Social Share, Views, Views UI, Wysiwyg

2.2 Document Management System

The aim of the Document Management System is to provide a unique resource for all the documentation and reporting created within the project.

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[1]http://drupal.org/

The SPEEDD Document Management System supports revision control. Revision control, also known as version control, refers to the management of changes to documents or other collections of information. Changes are usually identified by the *revision number*. Each revision is associated with a time stamp and the person making the change. Revisions can be compared, restored, and with some types of files, merged. Several open source revision control system exist nowadays, operating in either the client-server model (e.g. CVS, Subversion) or in the distributed model (e.g. Git, Mercurial, Bazaar, Darcs).

We have opted to work with the Subversion revision control system. Our choice has been made by considering:

- the experience of most members of the consortium with the given system,

- reliability resulting from software maturity,

- clients existing in both Windows and Linux operating systems,

- the existence of a convenient web-client for read/write access.

Figure 2.1 shows the top-level view of a working copy, using the RabbitVCS Subversion client, integrated into the Nautilus file viewer (Linux). A similar interface is provided for Windows using the TortoiseSVN client.

Figure 2.1: Working copy of the Subversion Repository. Items with a question mark indicate changes on the PC that are not yet committed to the SPEEDD server.
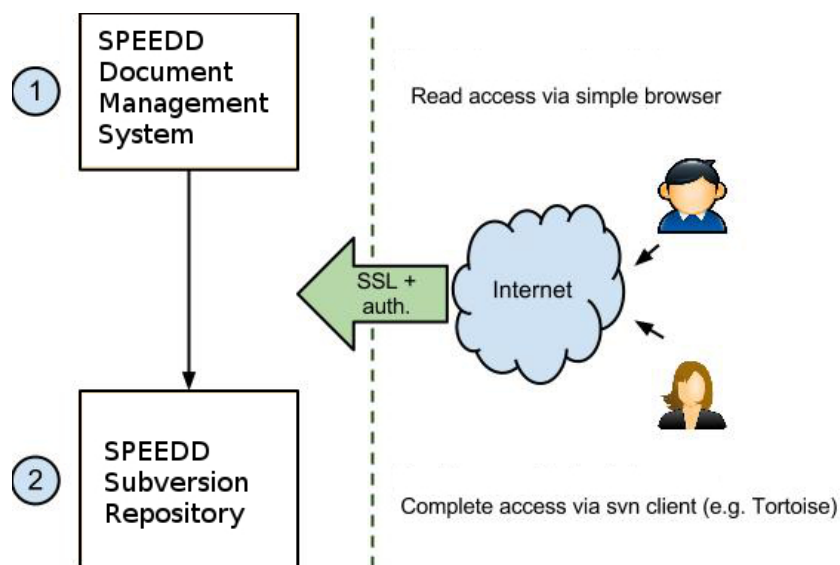
Figure 2.2: Accessing SPEEDD document repository system.

2.3 Security Issues

The project documents may contain critical information about the project. Therefore, particular cautions need to be taken in order to guarantee that project information is only accessible by the authorized users. In particular

- Network access to any document content is given after a user has been authorised using his credentials. As an exception, public project documents can be accessed anonymously through the project web site

- Network communication project restricted (non-public) documents and for user authentication is done using encryption mechanisms, in particular the Secure Sockets Layer (ssl) protocol.

Access to the documents from outside the NCSR "D" local network is provided only to authorised members through ssl encryption.

3

Interacting with the system

3.1 Interacting with the Document Management System

3.1.1 Authorization

To access any project-restricted content, the user should use his credentials. i.e. his user name and password. The same credentials apply to all interfaces (subversion client, project web site).

3.1.2 Content organisation

All documents are represented by files, organised into a directory tree-structure. Figure 3.1 shows the first two levels of the current directory structure.

In general, access to the contents of the DMS is restricted to the consortium. As an exception, all documents that can be accessed publicly are placed into the `PublicDocuments` directory. The contents of this folder are publicly accessible through the SPEEDD web site. Contents of the `RelevantBibliography` folder are also publicly accessible in the same way.

Note that project-specific data, such as event processing articles and/or abstracts in their original or preprocessed form are not stored in the Document Management System.

3.1.3 Adding, Removing and Modifying content

The first time one wishes to upload content, some preparatory steps are required to set up the environment.

```
├─Admin
│   ├─Management Board
│   ├─DocumentTemplates
│   ├─Financial
│   ├─Meetings
│   ├─PR
│   ├─Quality Assurance
│   ├─Reports
│   └─Time Plan
├─Contract
├─DoW
├─Proposal
├─PublicDocuments
├─RelevantBibliography
├─ResearchPapers
├─Workshops
├─WP1-Project-Management
├─WP2-Dissemination
├─WP3-Real-Time ER
├─WP4-Real-Time Decision Making
├─WP5-Real-Time Visual Analytics
├─WP6-Scalability and System Integration
├─WP7-Fraud Use Case
└─WP8-Traffic Use Case
```
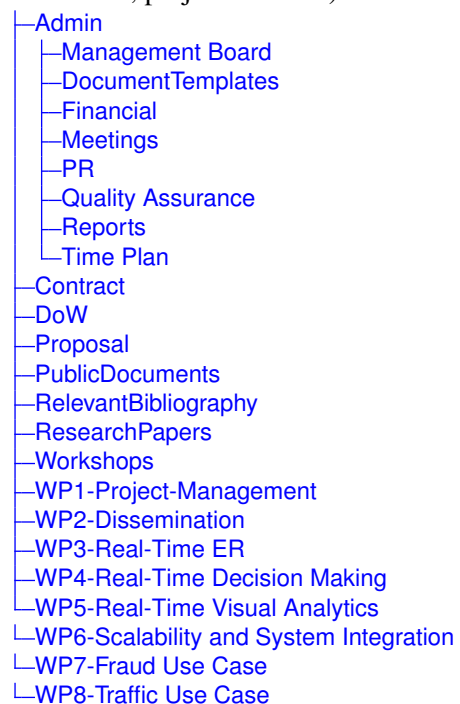
Figure 3.1: Directory Tree Structure of SPEEDD DMS

1. First, the Subversion client of one's choice needs to be installed. For Windows users, a popular choice is Tortoise SVN. For Linux users, beside the command line tools, one may try RabbitVCS.

2. Using the Subversion client, one should check out a working copy of the SPEEDD document repository. The SPEEDD repository URL is https://lshtc.iit.demokritos.gr/svn/SPEEDD/. Sufficient space should be available on the hard disk to hold the entire repository.

3. To complete this operation, one needs to provide his credentials, provided by the SPEEDD administration office.

Each time one wishes to interact with the repository, he needs to make sure his working copy reflects the latest. revision of the SPEEDD repository. To do so, the client needs to "update" the working copy to the "head" Subsequently, changes to the files of the repository (add/remove/modify) can be made and committed.
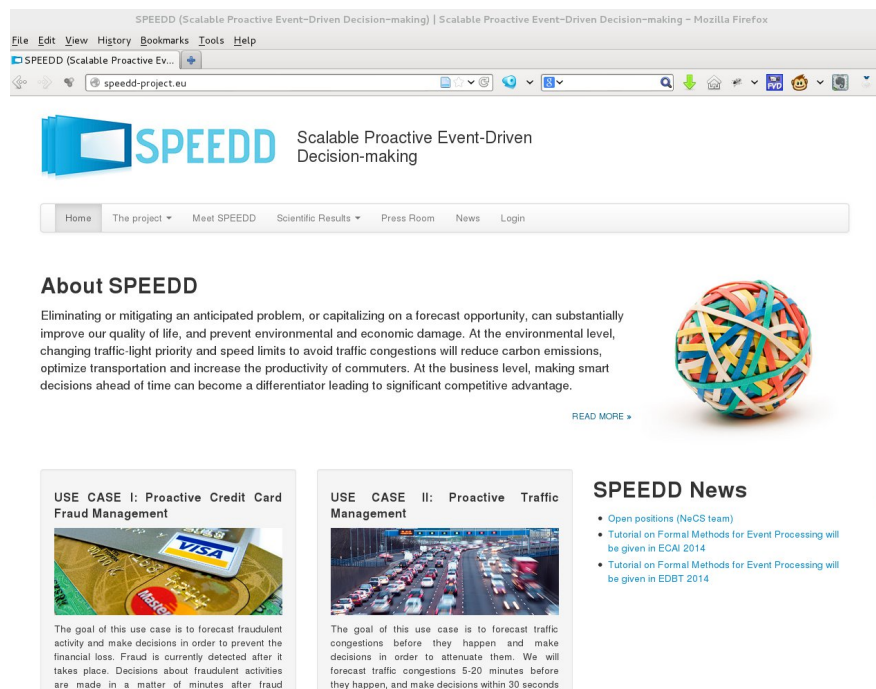
Figure 3.2: The home page of the SPEEDD web site

3.2 Browsing the SPEEDD Web Site

The SPEEDD web site url is `http://speedd-project.eu`. It supports anonymous browsing, as well as restricted-content browsing after authentication, for specific groups such as SPEEDD project members and the SPEEDD management board.

3.2.1 Site's structure

The home page

Figure 3.2 shows the home page of the SPEEDD web site. The user is given a quick overview of the SPEEDD project, including its aim, the tasks, important dates and contact information. News and announcements are accessible from a right-side column. Their information is regularly updated by the SPEEDD administration team. Furthermore, links at the top of page allow the user to navigate to the more detailed project-related pages. At any time, the user may give his credential in order to login as project-related user.
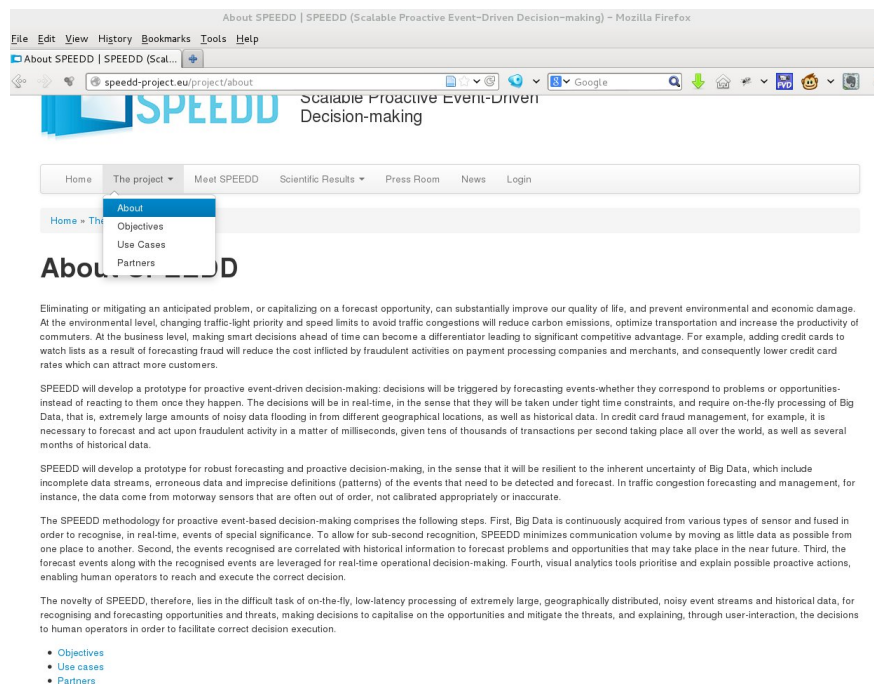
Figure 3.3: Project-related information from the SPEEDD web site

The "Project" menu

Figure 3.3 shows a view of the web site accessible from the "Project" menu. This menu addresses the visitor who wishes to know more about the SPEEDD project. It provides information for its objectives, its use cases and the consortium.
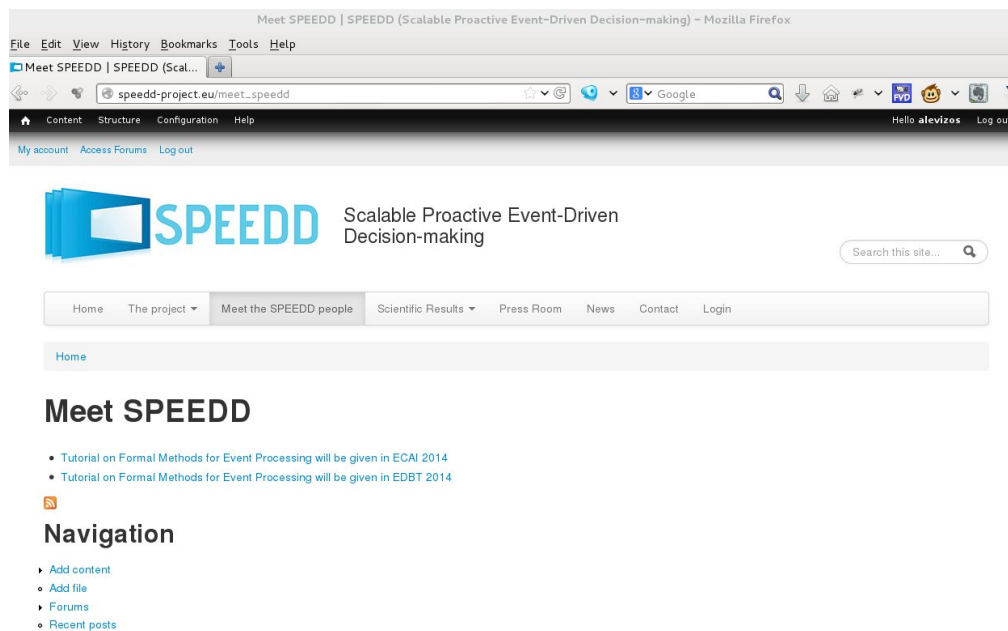
Figure 3.4: The "Meet the SPEEDD people" menu of the SPEEDD web site

The "Meet the SPEEDD people" menu

Figure 3.4 shows a view of the web site accessible from the "Meet the SPEEDD people" menu. This menu provides information about future (and past) events (e.g. conferences) in which members of the SPEEDD consortium are going to be involved.
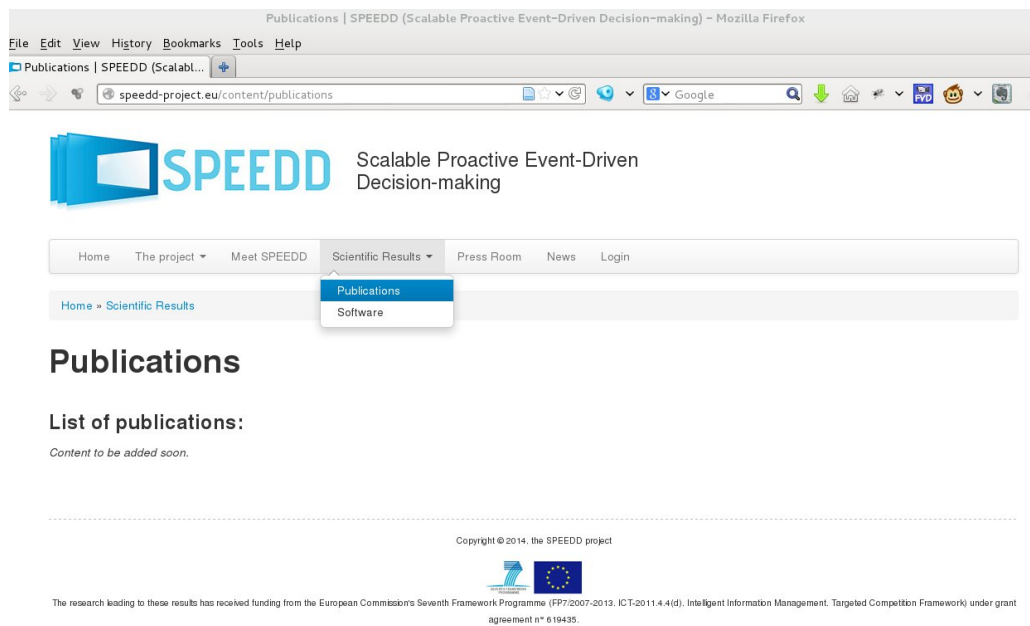
Figure 3.5: The "Scientific Results" menu of the SPEEDD web site

The "Scientific Results" menu

Figure 3.5 shows a view of the web site accessible from the "Scientific Results" menu. This menu hosts any publicly accessible publications and software packages written and developed as part of the SPEEDD project. It also features a "related content" page that links the web site to other relevant project and event sites of interest.

Figure 3.6: The "Press Room" menu of the SPEEDD web site

The "Press Room" menu

Figure 3.6 shows a view of the web site accessible from the "Press Room" menu. This menu provides information about the SPEEDD project which might be of interest to the general public, like public reports, newspaper articles etc.
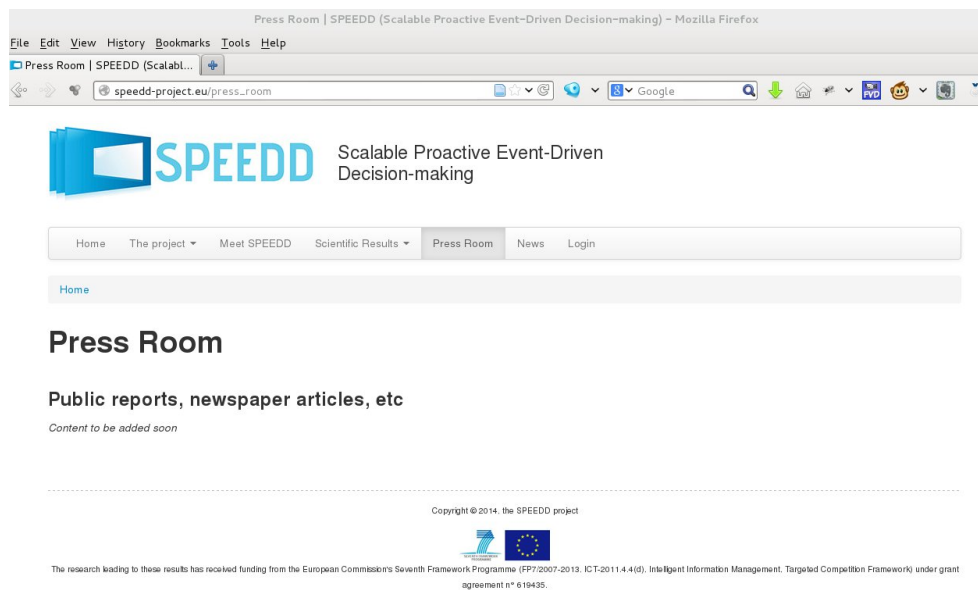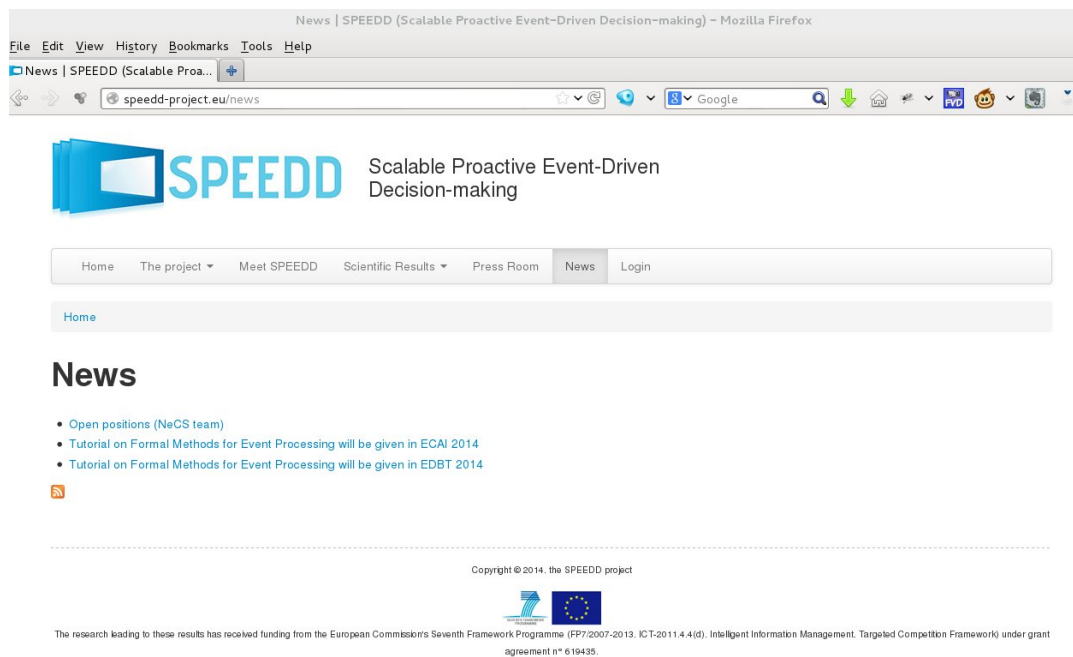
Figure 3.7: The "News" menu of the SPEEDD web site

The "News" menu

Figure 3.7 shows a view of the web site accessible from the "News" menu. Any SPEEDD related news items, like workshops, calls for papers, job openings etc., are presented in this menu. Announcements which should be viewed only by SPEEDD members are also located in this menu, but the user must have logged in first in order for him to be able to access them.
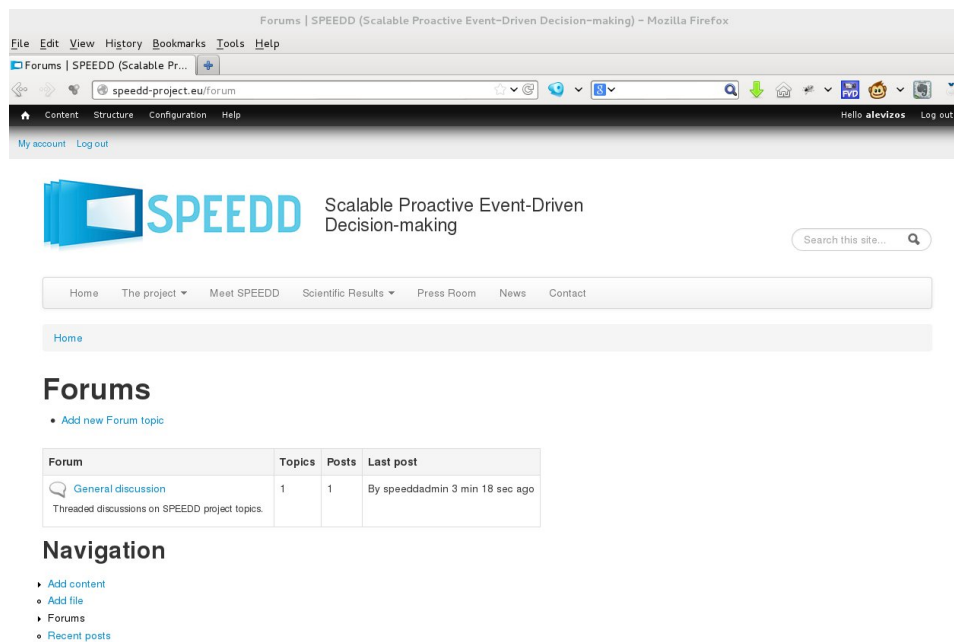
Figure 3.8: The forum of the SPEEDD web site

The Forum

Figure 3.8 shows a view of the web site accessible from the "Forum" menu. The forum is used by the management board in order to coordinate activities, meetings etc. Access to the forum is restricted only to members of the management board.
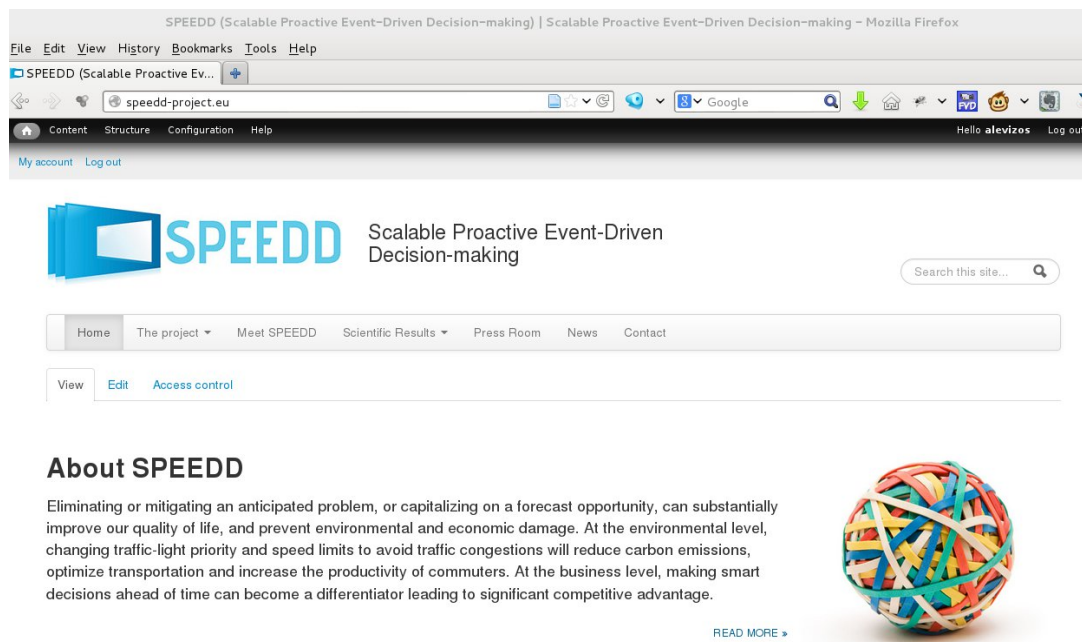
Figure 3.9: The SPEEDD web site view for an authorised user

3.2.2   Logging in and Adding content

Users and User groups

Besides anonymous browsing, the SPEEDD web site supports user login that allows access or editing specific content. In particular, two user groups exist: the SPEEDD project members and the SPEEDD management board. Once logged in, a special bar appears at the top of the browsing window that provides the user with the extra functionality (see Figure 3.9). Notably, some of the users from the above groups are also allowed to directly add content to the site, such as announcements and articles.

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Appendix A: Fact Sheet

D2.1: Basic Dissemination Material

Scalable ProactivE Event-Driven

Decision-making

http://speedd-project.eu

<div style="border: 2px solid cyan; border-radius: 15px;">

Project Quick Facts

Coordinator:
- National Centre for Scientific Research "Demokritos" (Greece)

Partners:
- IBM (Israel)
- ETH Zurich (Switzerland)
- Technion Institute of Technology (Israel)
- University of Birmingham (UK)
- Centre National de la Recherche Scientifique (France)
- FeedZai S.A. (Portugal)

Duration: 36 months
Total cost: 4,334,779 €

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Concept and Objectives

Rapid business, economic, social and political changes are leading organizations to shift their thinking from reactive to proactive in order to detect opportunities and threats that could affect their business. Eliminating or mitigating an anticipated problem, or capitalizing on a forecast opportunity, can substantially improve our quality of life, and prevent environmental and economic damage. At the environmental level, changing traffic-light priority and speed limits to avoid traffic congestions will reduce carbon emissions, optimize transportation and increase the productivity of commuters. At the business level, making smart decisions ahead of time can become a differentiator leading to significant competitive advantage. For example, adding credit cards to watch lists as a result of forecasting fraud will reduce the cost inflicted by fraudulent activities on payment processing companies and merchants, and consequently lower credit card rates which can attract more customers.

SPEEDD will develop a prototype for proactive event-driven decision-making: decisions will be triggered by forecasting events-whether they correspond to problems or opportunities-instead of reacting to them once they happen. The decisions will be in real-time, in the sense that they will be taken under tight time constraints, and require on-the-fly processing of Big Data, that is, extremely large amounts of noisy data flooding in from different geographical locations, as well as historical data. In credit card fraud management, for example, it is necessary to forecast and act upon fraudulent activity in a matter of milliseconds, given tens of thousands of transactions per second taking place all over the world, as well as several months of historical data.

The SPEEDD methodology for proactive event-based decision-making comprises the following steps:

1.   Big Data is continuously acquired from various types of sensor and fused in order to recognise, in real-time, events of special significance. To allow for sub-second recognition,

SPEEDD minimizes communication volume by moving as little data as possible from one place to another.

2. The events recognised are correlated with historical information to forecast problems and opportunities that may take place in the near future.
3. The forecast events along with the recognised events are leveraged for real-time operational decision-making.
4. Visual analytics tools prioritise and explain possible proactive actions, enabling human operators to reach and execute the correct decision.

SPEEDD proposes a highly adaptive system which is capable of learning from human reasoning and decision-making. Machine learning techniques extract supervision from human decision-making through visual analytics tools in order to continuously refine event recognition and forecasting models. The proposed approach is applicable to a wide range of domains where proactivity is useful. The SPEEDD technology will be tested in two such domains: Credit card fraud management and traffic management.

Fraud detection and forecasting is a needle in the haystack problem as fraudulent transactions constitute at most 0.1% of the total number of transactions. In 2010, fraud in the Single Euro Payments Area (that includes 27 EU member states) was estimated at 1.26 billion Euros. Furthermore, fraud is continuously evolving and therefore the fraud patterns are constantly updated (new fraud patterns appear on almost a weekly basis). Perfect recall (finding all fraud cases) and perfect precision (never raise a false alarm) are out of reach – the state-of-the-art recall and precision rates are about 60% and 10% respectively. At the same time, raising false alarms (that is, unnecessarily calling customers or blocking cards) is very costly in time and customer relationships. Missing true alarms is also very costly (in terms of lost money). SPEEDD will be able to successfully detect and forecast the ever evolving fraudulent activities as it will incorporate machine learning techniques supporting the continuous refinement of event patterns expressing fraud.

Traffic detection and forecasting requires the analysis of massive noisy data streams storming from various sensors, including fixed sensors installed in highways and mobile sensors such as smart phones and GPS traces, as well as large amounts of historical data. The goal of this use case is to forecast traffic congestions before they happen and make decisions in order to attenuate them. SPEEDD will forecast traffic

congestions 5-20 minutes before they happen, and make decisions within 30 seconds of the forecast about adjustment of traffic light settings and speed limits. This will be achieved by enabling the fusion and assimilation of a multi-technology sensor network for real-time traffic data collection.