Project no: 269317

**nSHIELD**

new embedded Systems arcHItecturE for multi-Layer Dependable solutions

Instrument type: Collaborative Project, JTI-CP-ARTEMIS

Priority name: Embedded Systems

# D1.1: Collaborative tools and document repository

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Selex Galileo, SG

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| **Dissemination Level** | | |
| PU | Public | |
| PP | Restricted to other programme participants (including the Commission Services) | X |
| RE | Restricted to a group specified by the consortium (including the Commission Services) | |
| CO | Confidential, only for members of the consortium (including the Commission Services) | |

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# Glossary

Please refer to the Glossary document, which is common for all the deliverables in nSHIELD.

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# 1 Introduction

nSHIELD is an international research project. The scientific and technical works of the project are going to be performed by the partners from several countries. To facilitate the effective cooperation between the partners, the project should enable an easy-to-use document repository platform and a collaboration platform supporting knowledge management and visualisation. The project should also satisfy the public interests by providing overview of the project and its partners, disseminating the scientific outcome of the project.

This deliverable describes the document repository and collaboration platform. nSHIELD collaborates in total on three platforms, each of them satisfying specific needs:

- nSHIELD Web page:
  Public for information, news and promotion
  The Web page is available at: nSHIELD Web: http://newshield.eu
  Further details on the Web page are provided in deliverable D8.1.

- Semantic Media Wiki for collaboration, day-to-day work and repository
  The Semantic Wiki is available at http://nshield.unik.no

This deliverable is built up as follows: It describes in Chapter 2 the requirements for a collaborative platform. Chapter 3 provides the description of the document repository, while Chapter 4 provides details on the Semantic MediaWiki.

## 1.1  Requirements for collaborative platforms

The challenge of each collaborative project is to create physical and virtual meeting places for collaboration, as well as an efficient handling of information and documentation in a platform.

Starting from the discussions during the kick-off meeting, we saw the need for different types of requirements:

- An efficient handling of deliverables, answering "where to find the latest version of that file"
- A collaborative tool for handling all "up to date" information, avoiding email spamming and the search for "latest information".
- Functional requirements like
    - single sign on
    - user management
    - data export

## 1.2  nSHIELD platform overview

Based on these requirements, the project decides to select two platforms:

- nSHIELD Web page

    The main reason for having an "own-standing platform" for the publication of information and news is the requirement for a good "look and feel". Such functionality is not core functionality of wiki implementations and except for the Institute of Applied Informatics and Formal Description Methods at the Karlsruhe Institute for Technology[1]. An implementation as done by AIFB would have exceeded the frame of the project, and nSHIELD therefor decided to go for traditional Web design for the nSHIELD Web, which is available at: http://newshield.eu
    Further details on the Web page are provided in deliverable D8.1. The main deficiencies of conventional web pages are the non-interactive way of updating information and handling documents. This is the reason for using a wiki-based collaboration and document repository tool.

- Semantic Media Wiki for collaboration, clean document exchange and repository:

    Wiki software is the state-of-the-art collaboration software and used in a number of international projects. It supports day-to-day work through a useable interface. Special focus in nSHIELD was to on the semantic extensions, allowing machine-readable information and information exchange through the platform. The latter capability was introduced to open for an extension of sensor input into business process, being a part of a M2B platform. The Norwegian associate partner Norwegian Rail Authorities (Jernbaneverket - JBV) has structured all their internal processes on a semantic mediawiki, thus one of the visions of nSHIELD is to allow for sensor input towards these processes. The Semantic Wiki is available at http://nshield.unik.no

As already mentioned, the Semantic Wiki is used also for document storage of all relevant documents, such as deliverables, minutes of meetings and administrative documents.

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[1] Institute of Applied Informatics and Formal Description Methods (AIFB), http://aifb.kit.edu

While using two different tools, the project participants recognised one major deficiency, the lack of seamless and personalised access. Each platform requires its own login, and has its own user management. nSHIELD has tackled this lack of seamless interoperability by a clear distinction on responsibilities:

- Mondragon is responsible for the WEB page, and the update with relevant information. The aim of this tool is more basically external public dissemination of project outcomes.

- Movation has implemented the Semantic MediaWiki and is hosting the software. Requirements were provided by Movation thanks to the previous experience with the pilot project. This tool will ease the internal dissemination and collaboration among project partners.

The following section will provide an overview over the special functionality provided by the document repository and the collaboration platform.

# 2  Document Repository and Collaboration Platform

Wiki software is the state-of-the-art collaboration software and used in a number of international projects. It supports day-to-day work through a useable interface. It has been extended during the pilot project to include the functionality of a document repository, and includes all relevant documents, such as deliverables, minutes of meetings and administrative documents.

The focus in nSHIELD is on the semantic extensions for machine-readable information and information exchange through the platform. The latter capability was introduced to open for an extension of sensor input into business process, being a part of a M2B platform. The Norwegian associate partner Norwegian Rail Authorities (Jernbaneverket - JBV) has structured all their internal processes on a semantic MediaWiki, thus one of the visions of nSHIELD is to allow for sensor input towards these processes.

The selection of a semantic MediaWiki platform introduces lots of functionality to handle the specific challenges for projects; these functionalities are further described in the next sections.

## 2.1  Functionality overview

The nSHIELD collaboration platform is based on a Semantic Wiki implementation and is available at http://nshield.unik.no. Figure 1 shows the entry page for the nSHIELD wiki.



**Figure 1 Entry page for the nSHIELD wiki**

The platform was originally developed for interaction between the Norwegian partners and the associate partners JBV and Telenor Objects. Having demonstrated the functionality towards project partners, the platform was adopted for pSHIELD as a collaboration platform. The good

experience from the pilot project and the positive feedback from the partners drove the nSHIELD consortium to adopt the Semantic Wiki as collaboration and document repository tool.

nSHIELD wiki is generated to ease the communication between the participants in the ARTEMIS nSHIELD project. Figure 4 provides the disclaimer of the collaboration platform.
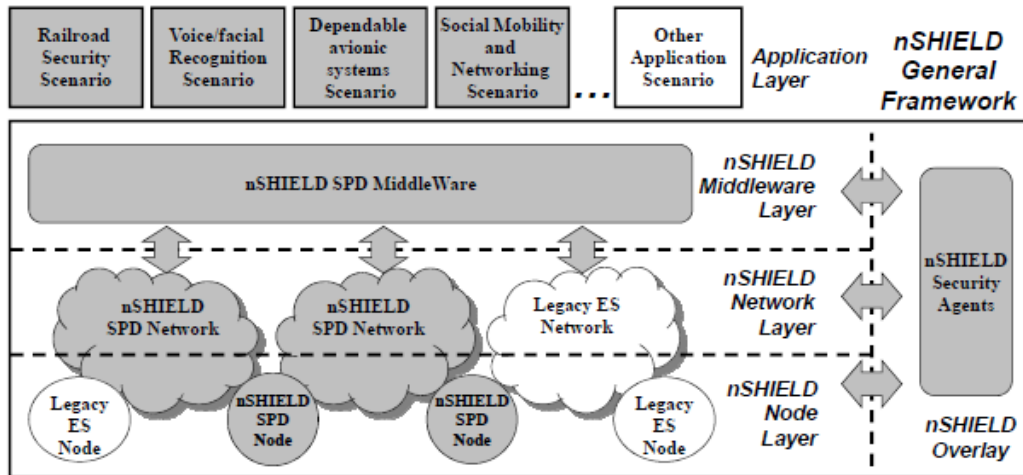


**Figure 2 Disclaimer for the nSHIELD collaboration platform**

The platform uses form templates for creating inputs, such that this semantic information can be used to in automated page generations, avoiding the input for manual creation of pages.

## 2.2  Semantic search for automated pages

Traditional Web pages are hand-made, and require manual input for any relevant updates. Advanced Web tools use dynamic content, which is configured through manually described page settings.

nSHIELD uses a Semantic MediaWiki (which was introduced in the pilot project), allowing the "on the fly" generation of pages based on the semantic queries and the input being provided through forms and templates.  Two examples of such forms are provided here, further details can be obtained directly from the wiki: http://nshield.unik.no

The following Figure 3 shows an implementation of WP7, providing both the list of deliverables, the contributors and tasks of this Work Package. A traditional web or wiki would have needed duplication of information, while our nSHIELD Wiki uses semantic queries based on the ask[2] functionality.

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[2] Search in the Semantic MediaWiki: http://semantic-mediawiki.org/wiki/Help:Semantic_search

**Figure 3 Work Package description containing Deliverables, Contributors (Partners) and Tasks**

Using this functionality, our implementation uses the following commands to establish WP7:

```
=[[Workpackage::{{PAGENAME}}]] - SPD Applications=



Validate nSHIELD platform on real application demonstrators



* S1: Urban railways protection



* S2: Voice/Facial recognition



* S3: Avionic Computer that is an embedded system by definition: to provide a
methods for dependable design in order to make possible a high functionality
integration.



* S4: There objective for SMN application scenarios is to provide proof of the
concept by using 4 key building blocks for this scenario:
```

```
Lists

* [[nSHIELD emails]] lists including WP7,

==Deliverables in {{PAGENAME}} ==

{{#ask:  [[Workpackage::{{PAGENAME}}]] [[Deliverable::+]]

| ?Title

| ?Due month

| ?Lead partner

| ?Dissemination level

}}

==Partners in {{PAGENAME}}==

{{#ask:  [[Workpackage::{{PAGENAME}}]] [[Partner::+]]| ?Lead partner | ?Partner
| format=ul}}

==Tasks in {{PAGENAME}}==

{{#ask: [[Workpackage::{{PAGENAME}}]] [[Task number::+]] [[Objective::+]]

| ?Title=

| ?Lead partner

| ?Partner

| ?Objective

| format=ul

}}

===Other Templates===

(8Jan2011) we currently encountered problems with upload of docx documents
(MIME type error) - are working on a fix

* [[Media:ExampleFile.docx]] - problem for both Media: and File:

* [[File:SPDtaxonomy.pdf]]

==WP Leader Responsibility==

[[THYIA]]

[[Category:Workpackage]]

___SHOWFACTBOX___
```

The first part of the codes establishes the Work Package specific description, while the second part starting contains three "ask" statements, which provide the list of deliverables, the list of partners and the description of tasks in this Work Package.

## 2.3  Partner Description

The same mechanism is used to establish the responsibility of each partner, shown in the following snapshot for Selex Galileo (SG).

SG leads

- D1.1 (Title Collaborative tools and document repository)
- D1.10 (Title Periodic Management Report 3)
- D1.11 (Title Liaisons Report)
- D1.12 (Title Periodic Annual Report 3)
- D1.2 (Title Quality Control Guidelines)
- D1.3 (Title Liaisons Plan)
- D1.4 (Title Periodic Management Report 1)
- D1.5 (Title Periodic Annual Report 1)
- D1.6 (Title Quality Control Report 1)
- D1.7 (Title Periodic Management Report 2)
- D1.8 (Title Periodic Annual report 2)
- D1.9 (Title Quality Control report 2)
- D7.11 (Title Dependable Avionic System demonstrator - Validation and Verification)
- D7.3 (Title Dependable Avionic System demonstrator - integration and validation plan)
- D7.7 (Title Dependable Avionic System demonstrator - integration report)
- T1.1 (Title Project management)
- T1.2 (Title Liaisons)
- T7.3 (Title Dependable Avionic Systems)
- T8.2 (Title Standardization)

SG is involved in the following activities

| ⋈ | ⋈  Title |
|------|-------------------------------------------|
| T2.1 | Multi-technology requirements & specification |
| T2.2 | Multi-technology SPD metrics |
| T3.1 | SDR/Cognitive Enabled node |
| T3.2 | Micro node |
| T3.3 | Power Node |
| T4.1 | Smart SPD driven transmission |
| T4.4 | Trusted and dependable Connectivity |
| T5.1 | SPD driven Semantics |
| T5.2 | Core SPD services |
| T6.1 | Multi-Technology System Integration |
| T8.1 | Dissemination |

Involvement of people and activities from SG in pSHIELD are

- Luigi.Trono (Luigi Trono e: luigi.trono@selexgalileo.com p: +39 011 9967861 m: +39 331 6551164)

Category: Partner

**Figure 4 Selex Galileo responsibilities, involvement, members and contact information in nSHIELD**

The associated query is again established by just three ask functions:

```
{{PAGENAME}} leads {{#ask: [[Lead partner::{{PAGENAME}}]] | ?Title | format=ul

}}


{{PAGENAME}} is involved in the following activities

{{#ask:  [[Partner::{{PAGENAME}}]] [[Task number::+]]

 | ?Title
```

Involvement of people and activities from {{PAGENAME}} in nSHIELD are
{{#ask: [[Partner::{{PAGENAME}}]] [[User::+]]
 | ?Prename=
 | ?Name=
 | ?Email= e:
 | ?Phone = p:
 | ?Mobile phone = m:
 | format=ul
}}

This description is identical for all partners, thus the set-up of the complete collaboration platform is made extremely easy. Once developed, the content of each partner info page is identical.

The semantic functionality opens for export of information towards other platforms and systems. It further allows the import of information, a functionality which will be further investigated to realise the vision of importing sensors into business processes.

## 2.4 List of Forms and Templates

As indicated in the previous section, the nSHIELD collaboration platform uses standardised input mechanisms based on semantic templates. These forms were established allowing the following tasks:

> ActionItem
> AddTask
> AddUser
> Deliverable
> Meeting
> NewTask
> PhoneConf
> UserRegistration
> Workpackage

The following snapshot provides an overview table using the functionality for action items, phone conferences and meetings.

**Actions, Meetings and Phone conferences**

**Open ActionItems:**

- AI:All deliverables shall have a deliverable owner001 (2012-02-10 for Luigi.Trono WP leaders AI: All deliverables shall have a deliverable owner)
- AI:Company profile and WP presentation001 (2011-10-19 for ALL AI: Company profile and WP presentation)
- AI:Fill-in A3 Form for those with national agreement001 (2012-01-15 for ALL partner responsibles AI: Fill-in A3 Form for those with national agreement)
- AI:Identify delayed deliverables and propose action001 (2012-02-15 for Luigi.Trono AI: Identify delayed deliverables and propose action)
- AI:Sign Consortium Agreement001 (2011-11-15 for ALL Luigi.Trono AI: Sign Consortium Agreement)
- AI:Update reason for TA change001 (2012-02-15 for Andrea.Fiaschetti AI: Update reason for TA change)
- AI:email lists aliases from wiki 001 (2012-02-15 for Josef.Noll AI: email lists aliases from wiki)

⚠ Please add action items through Special:FormEdit/ActionItem

**Phone Conferences:**

| ⋈ | ⋈ Date | ⋈ Phone |
|---|---|---|
| TMC Feb2012 | 2012-02-01T15:00:00 | +39 02 36009741, +44 1452568500, 4771657# |
| PA 17Nov2011 | 2011-11-17T12:00:00 | see lists below |

⚠ Planning a phone conference? Please add through Form:PhoneConf

**Meetings:**

| ⋈ | ⋈ Date | ⋈ Place | ⋈ Title |
|---|---|---|---|
| Project-Meeting-15Feb2012 | 15 February 2012 | Brussels, JU, White Atrium | Project Meeting |
| Kick-off-19Oct2011 | 19 October 2011 | Brussels | Project |

Planning a new meeting? Please add through Form:Meeting

**Figure 5 Form-based information for nSHIELD providing collaboration tools**

Figure 5 shows an example of form-based information used in nSHIELD. The experience within our project shows that such a collaboration platform provides relevant information.

However, it requires a change of mentality for users being used to distribute all information by email.

# 3 Project Website

A new public website that has been created for nSHIELD and the following domain has been registered (http://www.newshield.eu/). The web site provides information regarding the objectives of the project, the partners forming the project consortium, and the public project deliverables. Press-releases will be also be available in the web site, later a news-section reporting on achievements and dissemination activities.

In any case the nSHIELD website should be considered as the core tool for diffusion of information. As a principle all partners' websites should have a visible link to the website. Getting external links from relevant websites will also be sought.

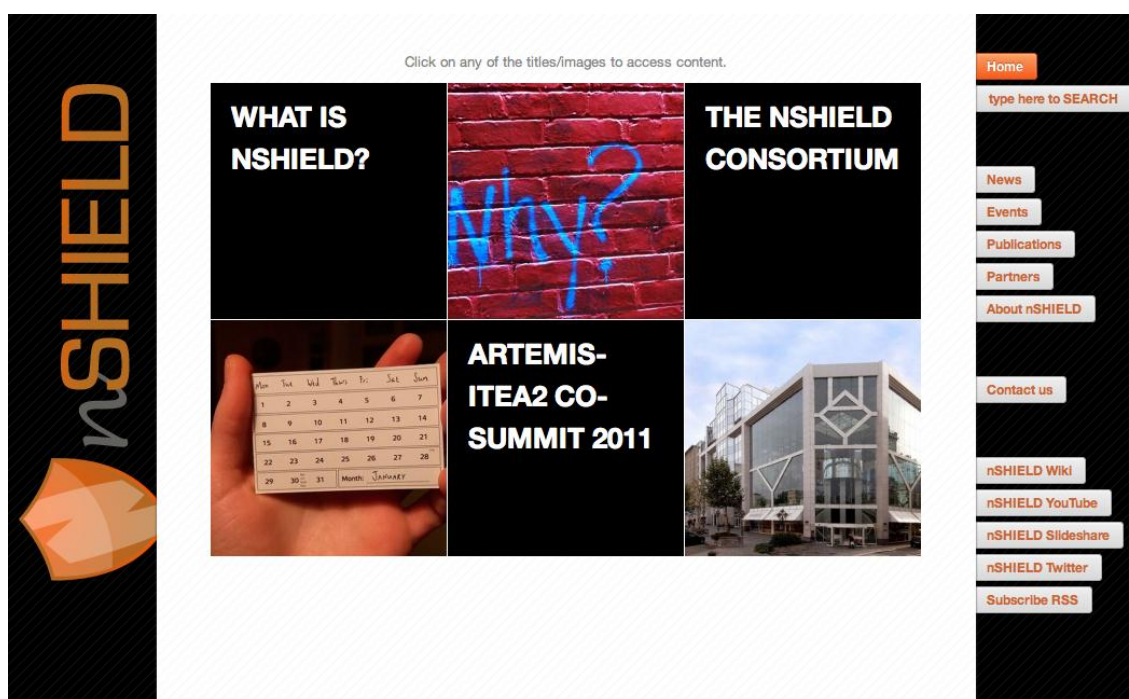Google analytics is being used to monitor the activity in the website.



**Figure 6 View of the www.newshield.eu homepage**

The site has five sections so far:

- News: with latest news related to the project

- Events: events of interest for partners and target groups

- Publications: related to the project such as press releases, scientific papers etc.

- Partners: description of each partner and role in the project.

- About nSHIELD: general information about the project.

There is also a contact form and some external links to social media and the Wiki.

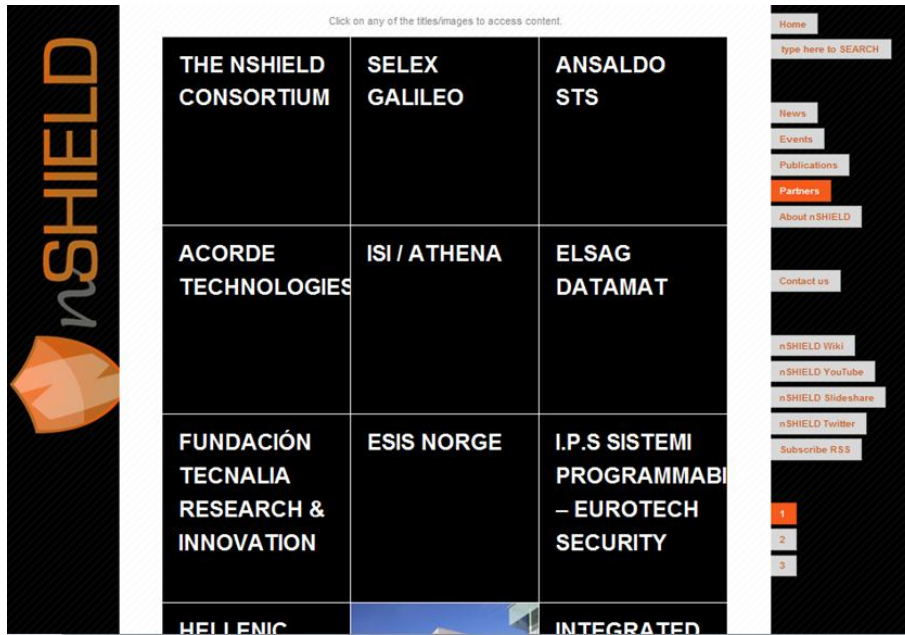All partners will contribute to the website with relevant content.
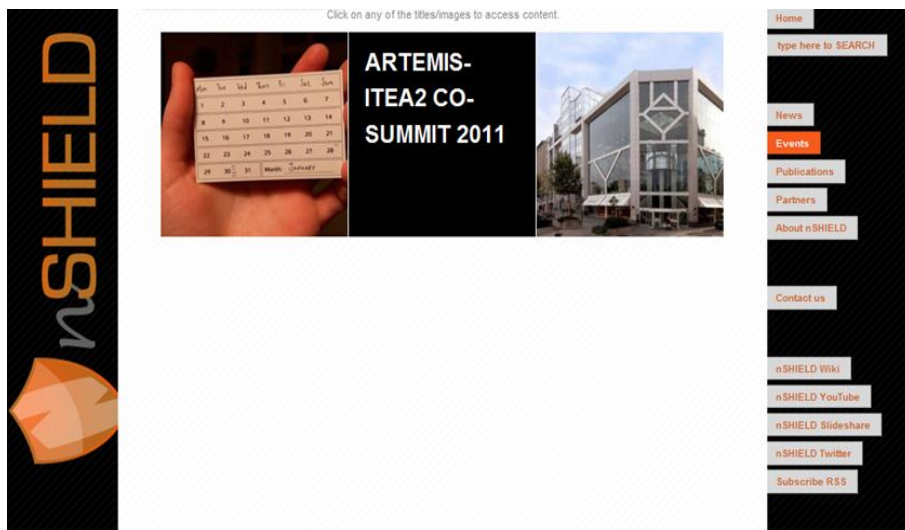
**Figure 7 nSHIELD Partners**
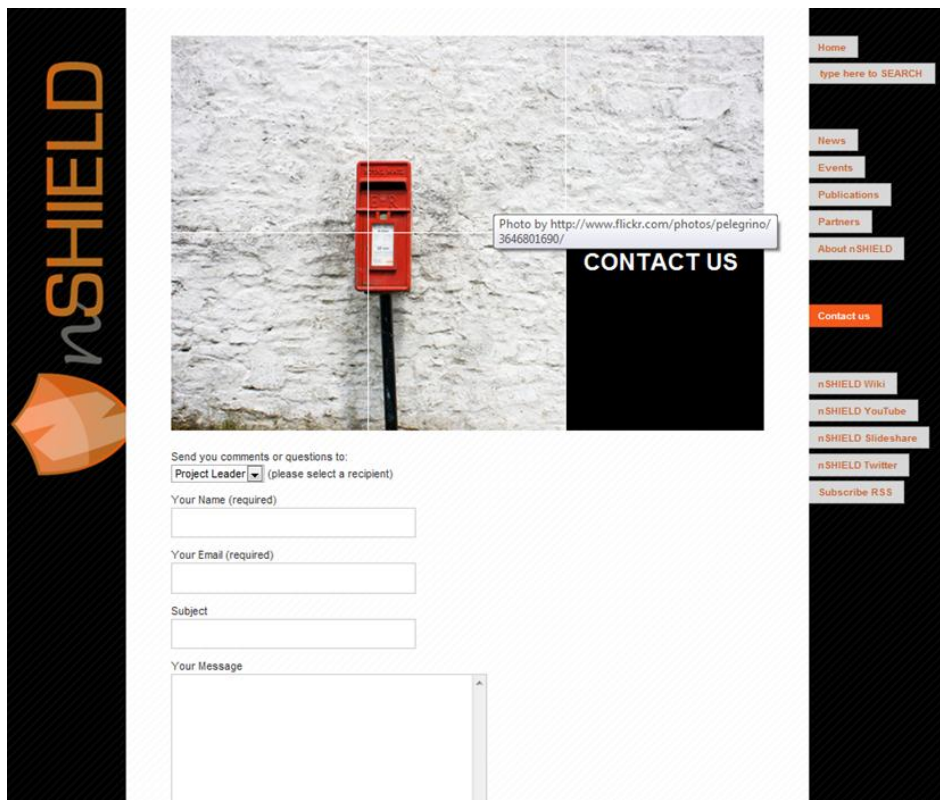


**Figure 8 nSHIELD Events**

**Figure 9 Contact Form**

# 4  Conclusions

nSHIELD is an international research project. The scientific and technical works of the project are going to be performed by the partners from several countries. To facilitate the effective cooperation between the partners, the project provides two distinct tools:

- nSHIELD Web page:
  The main reason for having an "own-standing platform" for the publication of information and news is the requirement for a good "look and feel". Such functionality is not core functionality of wiki implementations and except for the Institute of Applied Informatics and Formal Description Methods at the Karlsruhe Institute for Technology. An implementation as done by AIFB would have exceeded the frame of the project, and nSHIELD therefor decided to go for traditional Web design for the nSHIELD Web, which is available at: http://www.newshield.eu/. Further details on the Web page are provided in deliverable D8.1. The main deficiencies of conventional web pages are the non-interactive way of updating information and handling documents. This is the reason for using the Wiki as document repository and collaboration.

- Semantic Media Wiki for collaboration:
  Wiki software is the state-of-the-art collaboration software and used in a number of international projects. It supports day-to-day work through a useable interface. Special focus in nSHIELD is on the semantic extensions, allowing machine-readable information and information exchange through the platform. The latter capability was introduced to open for an extension of sensor input into business process, being a part of a M2B platform. The Norwegian associate partner Norwegian Rail Authorities (Jernbaneverket - JBV) has structured all their internal processes on a semantic mediawiki, thus one of the visions of nSHIELD is to allow for sensor input towards these processes.
  The Semantic Wiki is available at http://nshield.unik.no

Through these platforms nSHIELD enables an efficient way of collaboration, and opens for the vision of nSHIELD sensor input for business processes.