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# SEnDIng

## D7.4

### SENDING PROJECT WEBSITE

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## Delivery Slip

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## PROJECT SUMMARY

SEnDIng project aims to address the skills' gap of Data Scientists and Internet of Things engineers that has been identified at the ICT and other sectors (e.g. banking and energy) at which Data Science and Internet of Things have broad applications. To achieve this goal, SEnDIng will develop and deliver to the two aforementioned ICT-related occupational profiles two learning outcome-oriented modular VET programmes using innovative teaching and training delivery methodologies.

Each VET program will be provided to employed ICT professionals into three phases that include: (a) 100 hours of on-line asynchronous training, (b) 20 hours of face-to-face training and (c) 4 months of work-based learning. A certification mechanism will be designed and used for the certification of the skills provided to the trainees of the two vocational programs, while recommendations will be outlined for validation, certification & accreditation of provided VET programs.

Furthermore, SEnDIng will define a reference model for the vocational skills, e-competences and qualifications of the targeted occupational profiles that will be compliant with the European eCompetence Framework (eCF) and the ESCO IT occupations, ensuring transparency, comparability and transferability between European countries.

Various dissemination activities will be performed – including the organization of one workshop at Greece, Bulgaria and Cyprus and one additional conference at Greece at the last month of the project – in order to effectively disseminate project's activities and outcomes to the target groups and all stakeholders. Finally, a set of exploitation tools will be developed, giving guides to stakeholders and especially companies and VET providers, on how they can exploit project's results.

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## 1 Introduction

This document describes the SEnDIng website objectives, supporting infrastructure, structuring and contents. The project website is a major dissemination tool that will collect all the relevant news, results, documents, and events of the project. The main aim of the website is to strengthen project impact through explaining the project objectives and disseminating information. The website will publish completed deliverables so that all relevant stakeholders have access to project outcomes, namely: Higher Education Institutions, VET providers, SMEs, Policy Makers/Associations, as well as Accreditation Institutions.

The setup of the website is responsibility of the University of Patras and will be reviewed and approved by all partners in all national languages (Greek, Bulgarian and English). The web-site will host informative material about the project and its public deliverables. Furthermore, it will provide information about the project, the partners, the products; newsletters, presentations, articles, and other dissemination material will be uploaded.

The website will integrate functionality for the provision of e-newsletters. University of Patras will be responsible for the development of the newsletters in English language. The newsletters will be produced in English and will also be translated in Greek and Bulgarian by University of Patras and BASSCOM respectively. They and will be provided every 6 months (total 6 newsletters).

In addition, it will incorporate appropriate social networking characteristics to promote the project into various well-known networks (LinkedIn, Twitter, and Facebook). Moreover, the SEnDIng website is envisioned to play a dual role; be one of the dissemination tools and the central point for publishing project information and reached outcomes and also, as a file sharing space for partners and the EC.

The website of the project will be constantly updated throughout the project lifetime and will reflect the project current state of progress. As soon as there is new and crucial content produced it is very likely that the home page and the structure may be revised to highlight recent results and upcoming events.

## 2 Technical infrastructure

### 2.1 Infrastructure

The SEnDIng website resides on the following infrastructure:

- Static hostname: sending-project.eu
- Icon name: computer-vm
- Chassis: vm
- Virtualization: qemu
- Operating System: Debian GNU/Linux 9.3 (stretch)
- Kernel: Linux 4.9.0-3-amd64
- Architecture: x86-64

### 2.2 Web Server and Language

The SEnDIng website uses the Apache HTTP Server 2.4.25, which is a powerful, flexible HTTP/1.1 compliant web server. It is highly configurable and extensible with third party modules and implements features like:

- DBM databases, relational databases and LDAP for authentication.
- Password protected pages with enormous numbers of authorized users.
- Customized responses to errors and problems.
- Flexible URL rewriting and aliasing.
- Content negotiation.
- Virtual hosts.
- Configurable reliable piped logs.

The scripting language of the server is PHP (ver 7.1.13). PHP can be used on all major operating systems and has support for most of the web servers today. It is not limited to output HTML but includes outputting images, PDF files and even Flash movies (using libswf and Ming) generated on the fly. It also outputs easily any text, such as XHTML and any other XML file. PHP can autogenerate these files, and save them in the file system, instead of printing it out, forming a server-side cache for your dynamic content.

One of the strongest and most significant features in PHP is its support for a wide range of databases. Writing a database-enabled web page is incredibly simple using one of the database specific



extensions (e.g., for mysql), or using an abstraction layer like PDO, or connect to any database supporting the Open Database Connection standard via the ODBC extension. Other databases may utilize cURL or sockets, like CouchDB.

PHP also has support for talking to other services using protocols such as LDAP, IMAP, SNMP, NNTP, POP3, HTTP, COM (on Windows) and countless others. You can also open raw network sockets and interact using any other protocol. PHP has support for the WDDX complex data exchange between virtually all Web programming languages. Talking about interconnection, PHP has support for instantiation of Java objects and using them transparently as PHP objects.

PHP has useful text processing features, which includes the Perl compatible regular expressions (PCRE), and many extensions and tools to parse and access XML documents. PHP standardizes all of the XML extensions on the solid base of libxml2, and extends the feature set adding SimpleXML, XMLReader and XMLWriter support.

## 2.3 Database Server

The DB server that supports the operation of the SEnDIng website is MySQL (ver 5.5.9999). The main characteristics of MySQL comprise:

- Written in C and C++.
- Tested with a broad range of different compilers.
- Works on many different platforms.
- For portability, uses CMake in MySQL 5.5 and up. Previous series use GNU Automake, Autoconf, and Libtool.
- Tested with Purify (a commercial memory leakage detector) as well as with Valgrind, a GPL tool.
- Uses multi-layered server design with independent modules.
- Designed to be fully multi-threaded using kernel threads, to easily use multiple CPUs if they are available.
- Provides transactional and non- transactional storage engines.
- Uses very fast B-tree disk tables (MyISAM) with index compression.
- Designed to make it relatively easy to add other storage engines. This is useful if you want to provide an SQL interface for an in-house database.
- Uses a very fast thread-based memory allocation system.
- Executes very fast joins using an optimized nested-loop join.

- Implements in-memory hash tables, which are used as temporary tables.
- Implements SQL functions using a highly optimized class library that should be as fast as possible. Usually there is no memory allocation at all after query initialization.
- Provides the server as a separate program for use in a client/server networked environment, and as a library that can be embedded (linked) into standalone applications. Such applications can be used in isolation or in environments where no network is available.

## 2.4 Content Management System

The SEnDIng website is built using the Joomla! Content Management System (CMS). Joomla! enables building web sites and powerful online applications. A content management system is software that keeps track of every piece of content on a website (simple text, photos, music, video, documents, etc). Joomla! is an open source solution that is freely available, and this also means that the source code can be modified according to specific project needs. Joomla! is a good option for online projects for reasons that include:

- Flexible system, easy to extend and customize (verified third party extensions, high quality templates available, easy to create customized solutions).
- Optimized search engine (metadata and keywords, mod\_rewrite support, menu creation process that makes clear and consistent sitemaps)
- User management with different groups (unlimited user-defined groups, a user can be assigned to multiple groups, unlimited user-defined access levels, groups are assigned to access levels)
- Multilingual support (over 70 translation packs available for the core, multilingual content management. language associations)
- Cache management that speeds up website (page caching, view caching, module caching)
- Design Features (template override, Jlayouts, render HTML from objects/arrays of data, template assignment, responsive, custom templates)
- Content editing (publishing tools, WYSIWYG editor, content versioning, article management, media manager, categories)
- Rich core functionality (easy redirect urls, banners, departments and contact form, tags, syndication with rss feeds, news feed, custom fields to add to articles, users and contacts, messaging in between administrators)
- Administrative management (core updates, extensions updates, user registration, sitemap)

### 3 Website layout

The wireframe of the website comprises the following structural parts (Figure 1):

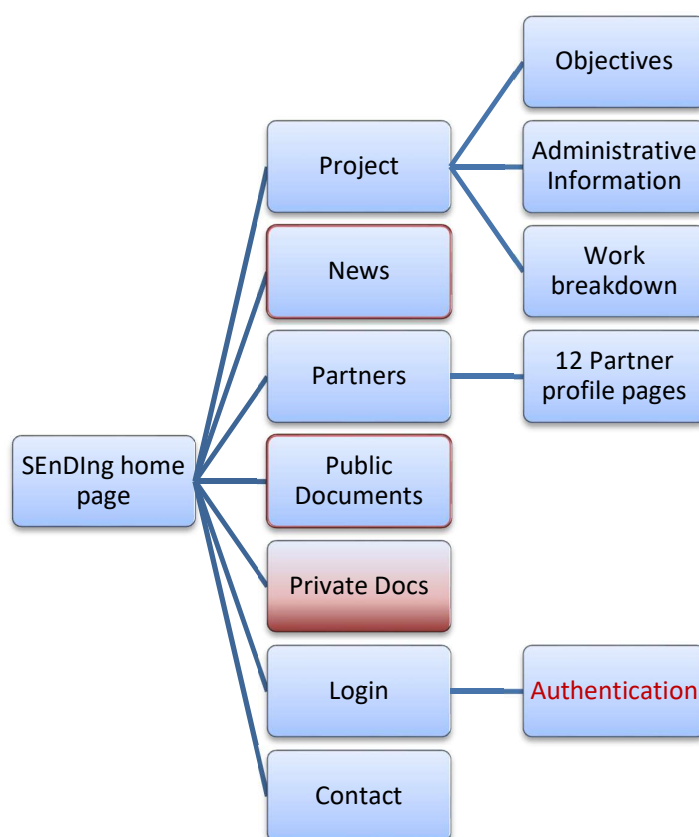
1. Upper part (header, same for all site pages): contains a group of social media icons (linking to project pages on Facebook, LinkedIn and Twitter) and a second group of icons for language selection (EN, GR, BL). Below on the left there is the SEnDIng Logo and the 1<sup>st</sup>- level menu options, namely Project, News, Partners, Public Documents, Login and Contact.
2. Middle part (main page contents): this is the place where all page-specific content is displayed in the form of text, images, video, links, applets or downloadable independent files (documents in pdf, etc.).
3. Footer (same for all site pages): in compliance with the Erasmus+ publicity obligations, it provides the **Erasmus+ logo**, the co-financing **statement** (*"Co-funded by the Erasmus+ programme of the European Union"*) and the **disclaimer** (*"The European Commission support for the production of this publication does not constitute endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein"*). Moreover the footer includes the social media icons of Facebook, LinkedIn and Twitter linking to respective SEnDIng project social pages.



**Figure 1.** Website layout (structural parts)

## 4 Website map and pages

The overall information architecture of the SEnDIng website is depicted in Figure 2, where nodes represent webpages. Nodes with red outline (i.e. News and Public Documents) can be updated with new entries by all partners having an account in the website (those that can be authenticated via Login). Also authenticated users see the Private Docs page which acts as a private file repository that stores deliverables in draft version or other working/private documents produced by the project. Project Officers will also be granted access to the Private Docs page to be able to see produced deliverables before the Interim/Final Report. The rest of the pages can be modified by an admin account which is held by the Coordinator (University of Patras team).



**Figure 2.** Sitemap

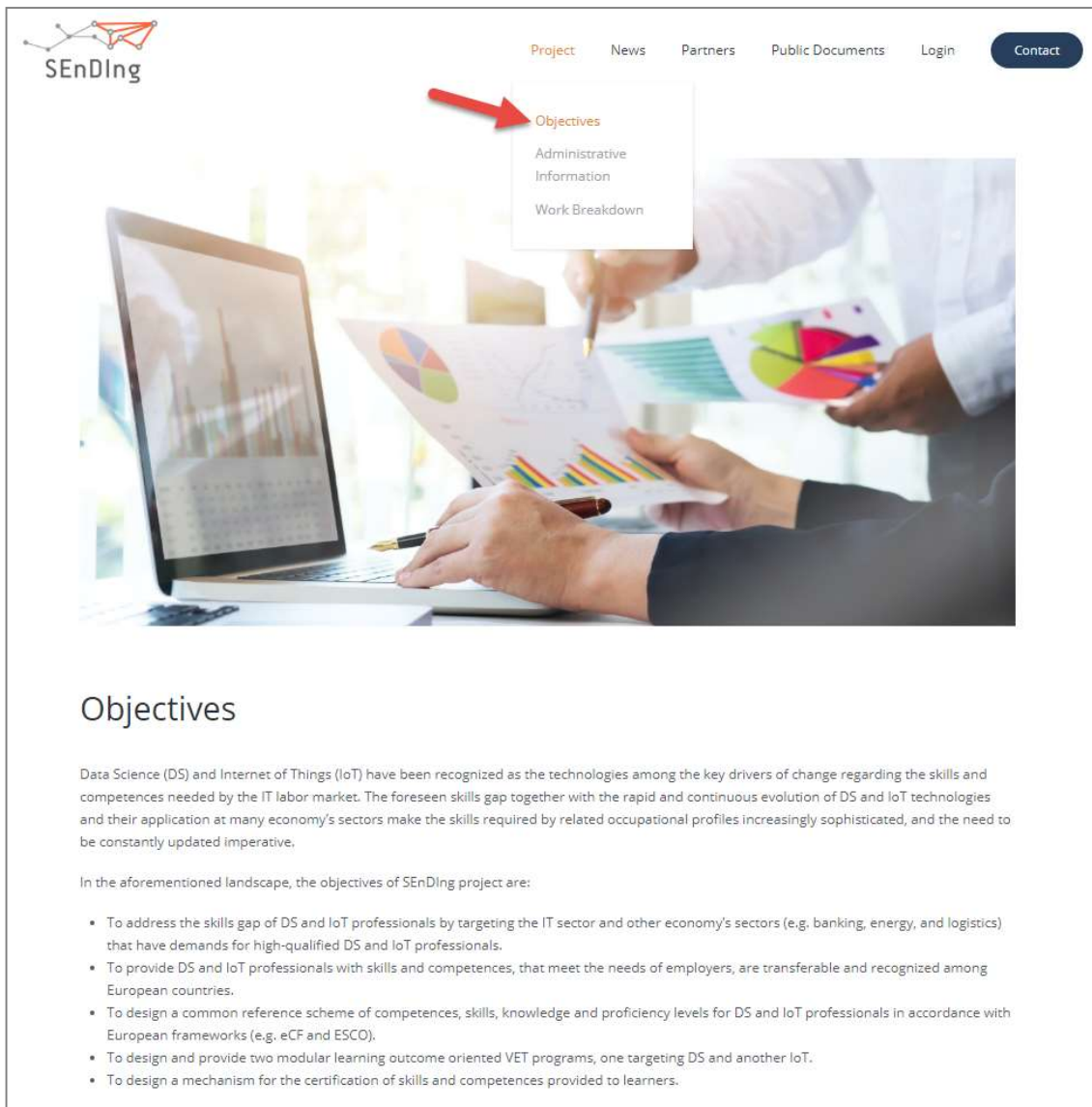
### 4.1 Home page

The Home page (Figure 1) is the landing page of the website and offers links to all major site contents (general project information, key definitions on the main project domains and expected outputs, partners of the project, as well as information concerning the funding). The home page will

be constantly updated and enriched to provide at any point in time the latest information about the project.

## 4.2 Project > Objectives page

Provides information regarding the planned outputs of the project and key beneficiaries.



**Objectives**

Data Science (DS) and Internet of Things (IoT) have been recognized as the technologies among the key drivers of change regarding the skills and competences needed by the IT labor market. The foreseen skills gap together with the rapid and continuous evolution of DS and IoT technologies and their application at many economy's sectors make the skills required by related occupational profiles increasingly sophisticated, and the need to be constantly updated imperative.

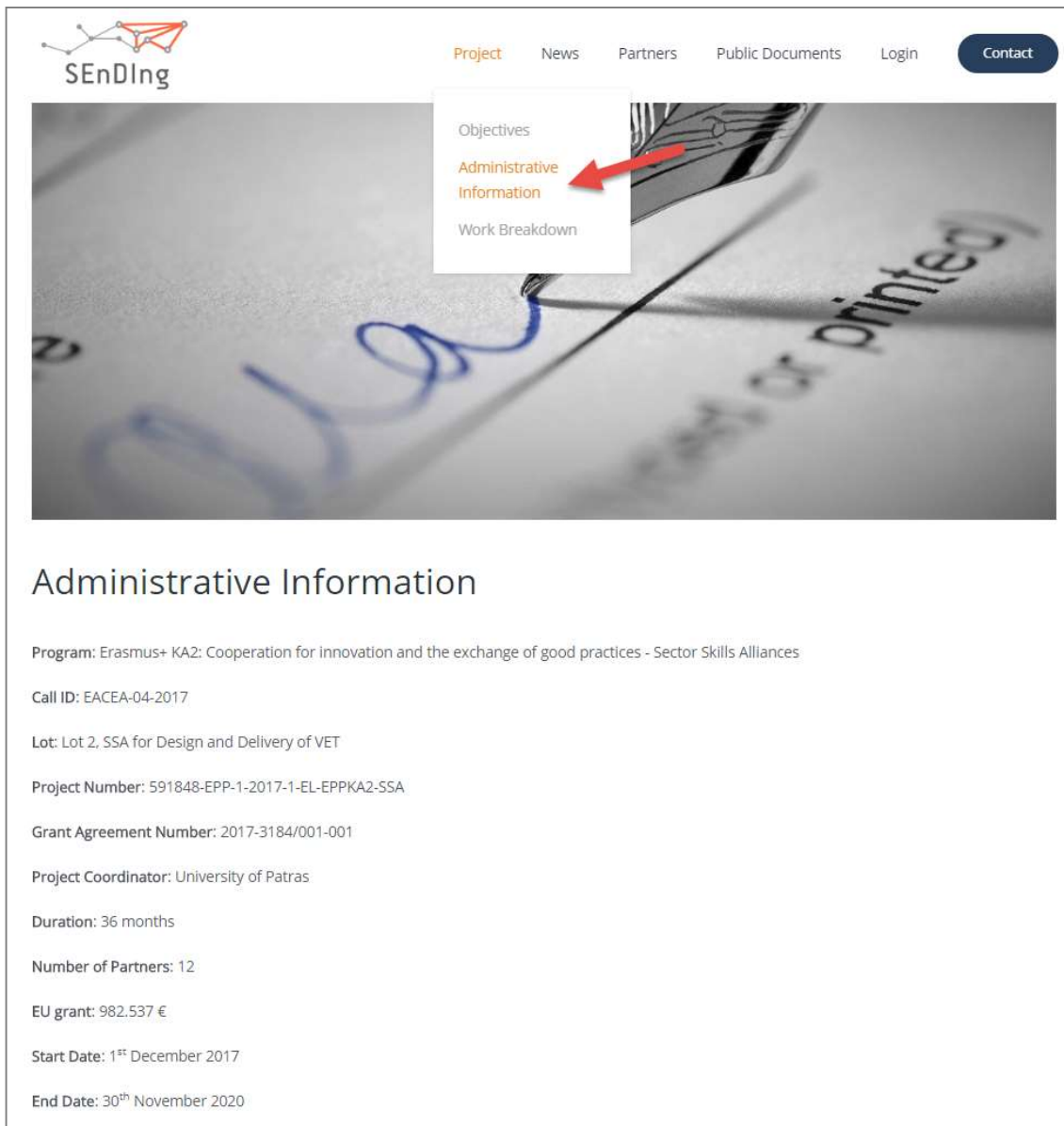
In the aforementioned landscape, the objectives of SEnDIng project are:

- To address the skills gap of DS and IoT professionals by targeting the IT sector and other economy's sectors (e.g. banking, energy, and logistics) that have demands for high-qualified DS and IoT professionals.
- To provide DS and IoT professionals with skills and competences, that meet the needs of employers, are transferable and recognized among European countries.
- To design a common reference scheme of competences, skills, knowledge and proficiency levels for DS and IoT professionals in accordance with European frameworks (e.g. eCF and ESCO).
- To design and provide two modular learning outcome oriented VET programs, one targeting DS and another IoT.
- To design a mechanism for the certification of skills and competences provided to learners.

**Figure 3.** Project objectives page contents

## 4.3 Project > Administrative Information page

This page provides formal information and numbers describing the project on an administrative basis.



**Administrative Information**

**Program:** Erasmus+ KA2: Cooperation for innovation and the exchange of good practices - Sector Skills Alliances

**Call ID:** EACEA-04-2017

**Lot:** Lot 2, SSA for Design and Delivery of VET

**Project Number:** 591848-EPP-1-2017-1-EL-EPPKA2-SSA

**Grant Agreement Number:** 2017-3184/001-001

**Project Coordinator:** University of Patras

**Duration:** 36 months

**Number of Partners:** 12

**EU grant:** 982.537 €

**Start Date:** 1<sup>st</sup> December 2017

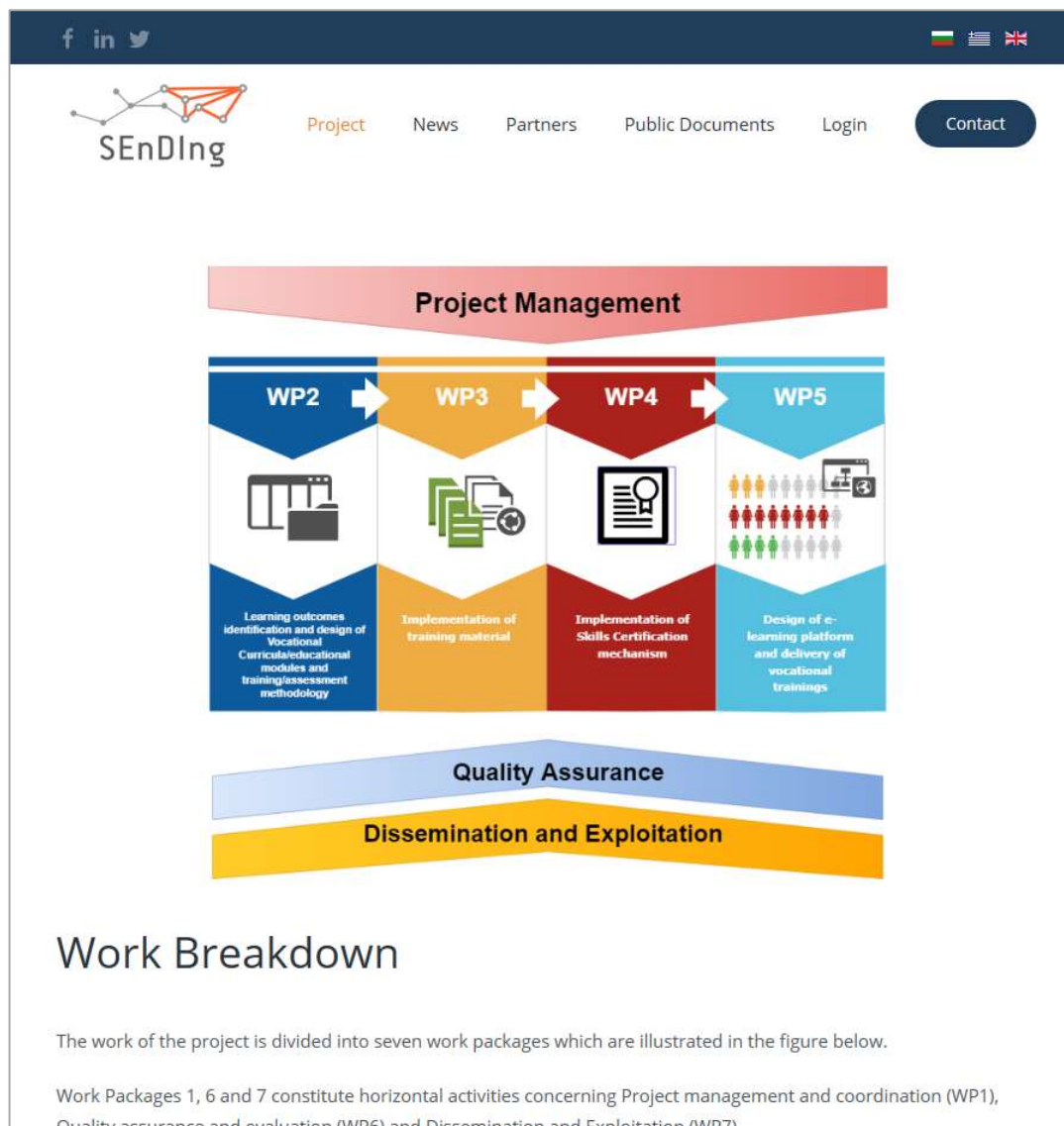
**End Date:** 30<sup>th</sup> November 2020

**Figure 4.** Administrative information page contents



## 4.4 Project > Work Breakdown page

Work breakdown presents all work packages and their correlations in terms of dependencies and timing. The SEnDIng project will be executed based on 3 horizontal WPs (Project Management, Quality Assurance and Dissemination and Exploitation) while WP2 to 5 constitute the four phases of designing the VET programs, implementing them, generating the certification mechanism and delivering them online, face-to-face and in a work-based mode.

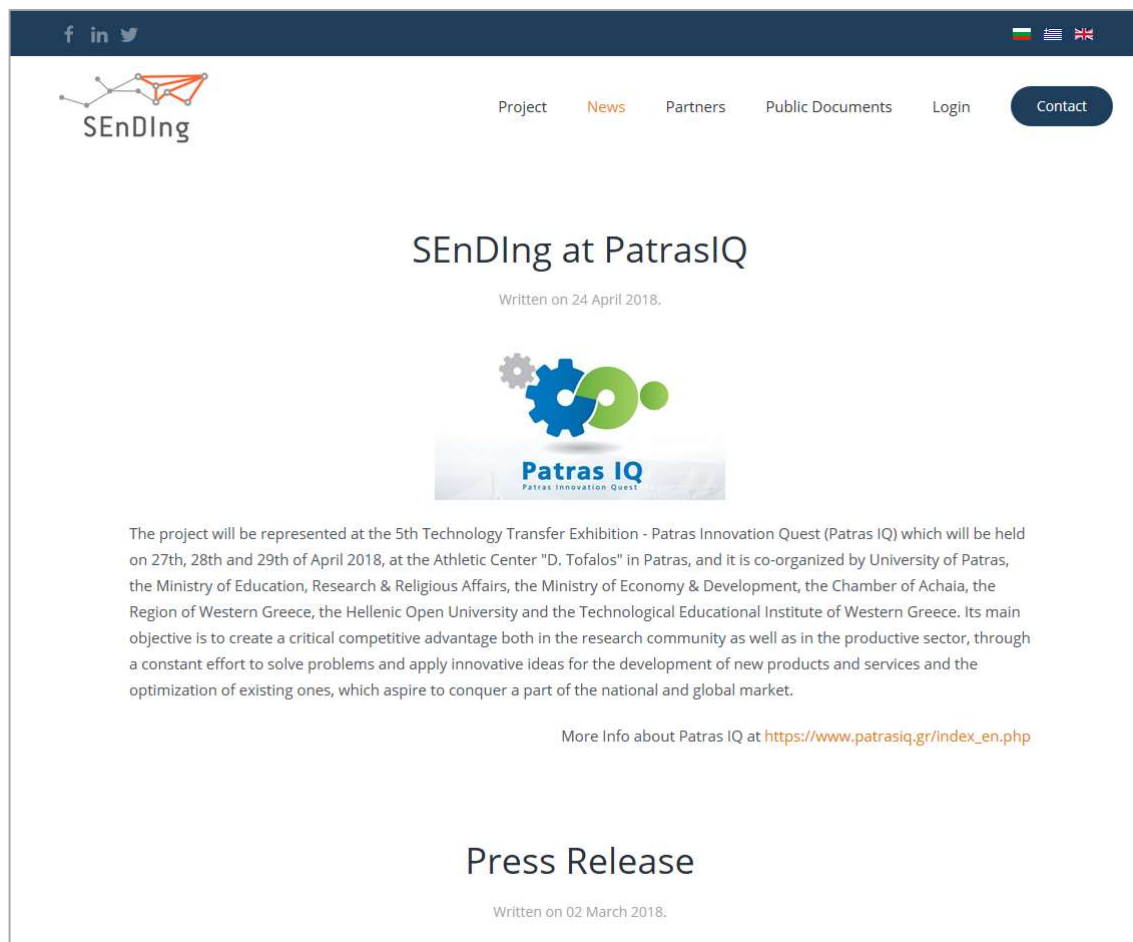


**Figure 5.** Work Breakdown page contents



## 4.5 News page

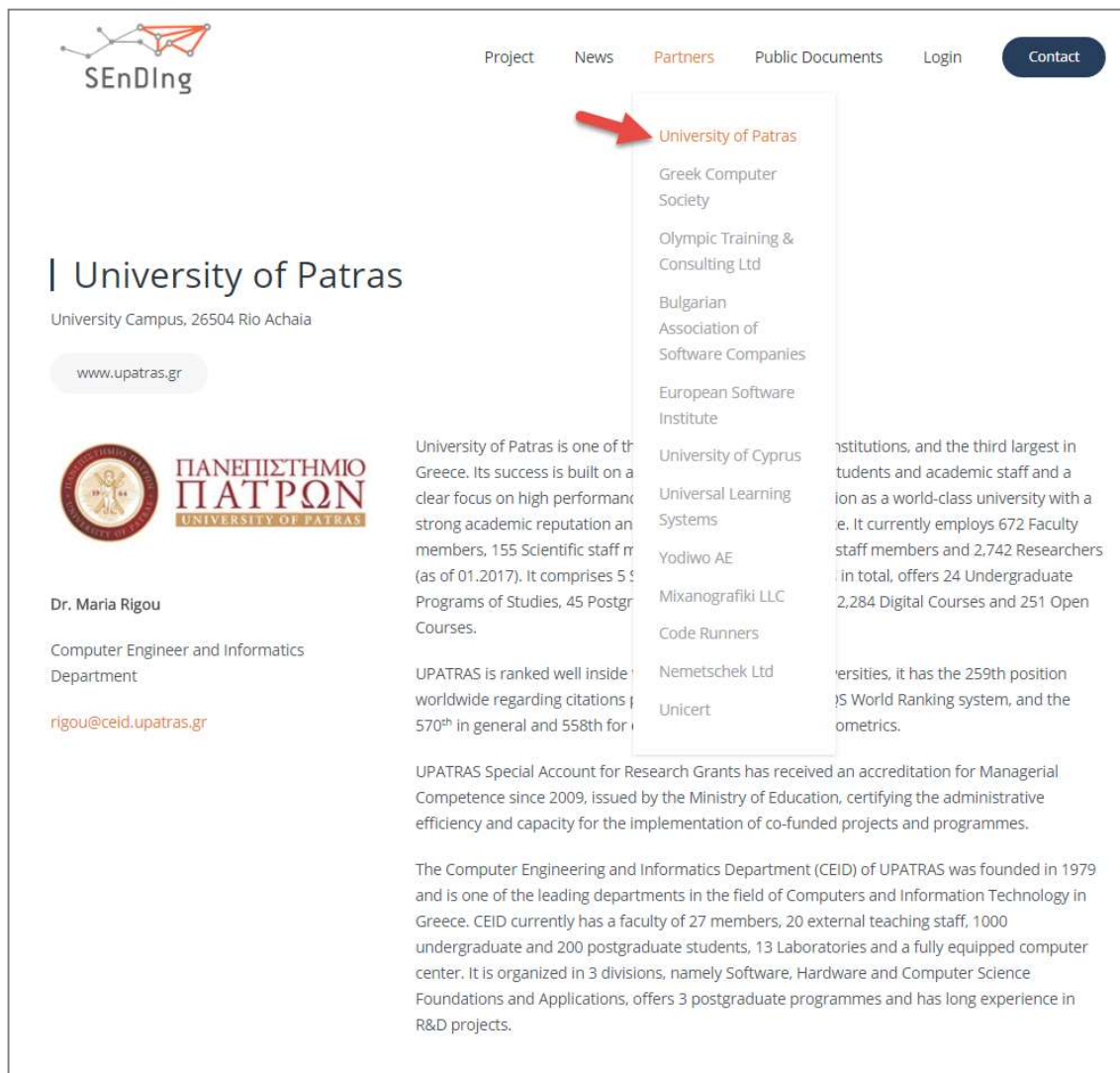
News are displayed in newest-on-top fashion but when their number increases it is very likely that we will use a short preview display format.



**Figure 6.** News page contents

## 4.6 Partners pages

Provides profile descriptions, website and logo for all project partners along with contact details.

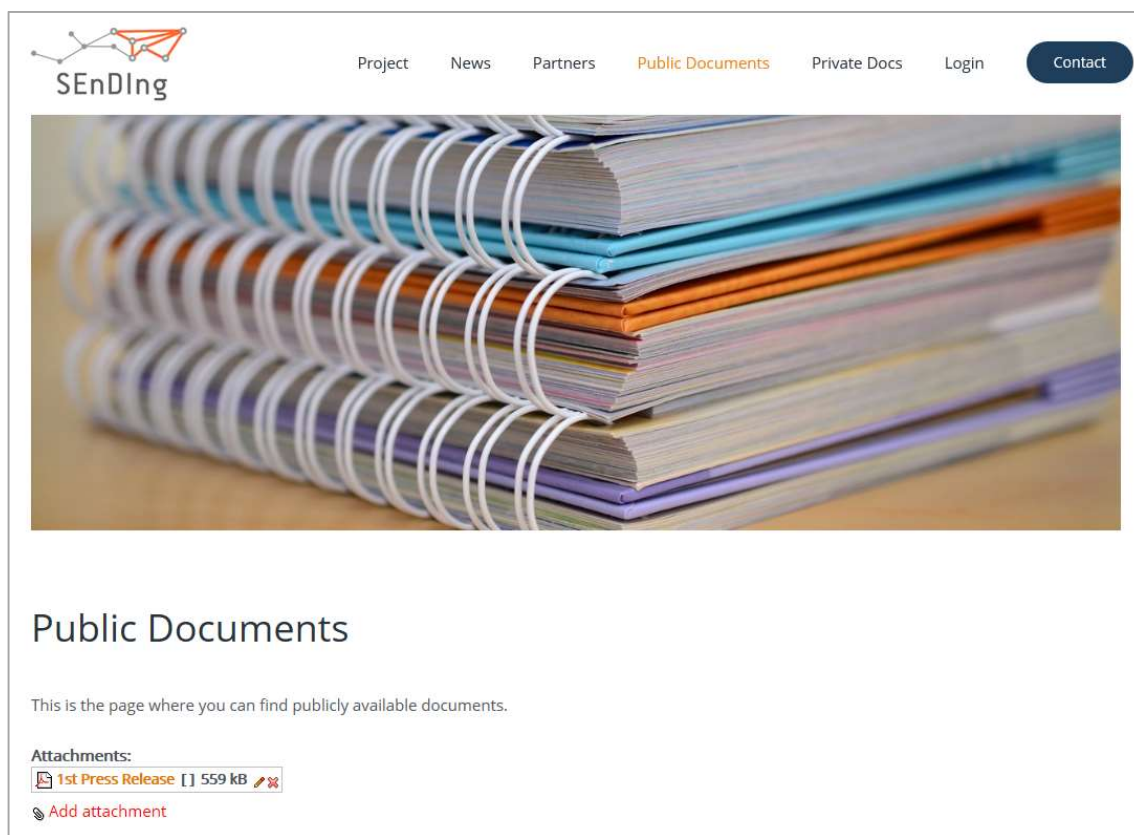


The screenshot displays the SEnDIng website's 'Partners' page. The navigation bar at the top includes 'Project', 'News', 'Partners' (highlighted), 'Public Documents', 'Login', and a 'Contact' button. A dropdown menu is open under 'Partners', listing several partners: University of Patras, Greek Computer Society, Olympic Training & Consulting Ltd, Bulgarian Association of Software Companies, European Software Institute, University of Cyprus, Universal Learning Systems, Yodiwo AE, Mixanografiki LLC, Code Runners, Nemetschek Ltd, and Unicert. The main content area features the profile of the University of Patras, including its logo, name in Greek and English, address, website, and contact information for Dr. Maria Rigou. The profile text describes the university's history, academic focus, and its ranking. A red arrow points to the 'University of Patras' option in the dropdown menu.

**Figure 7.** Partner page contents

## 4.7 Public Documents page

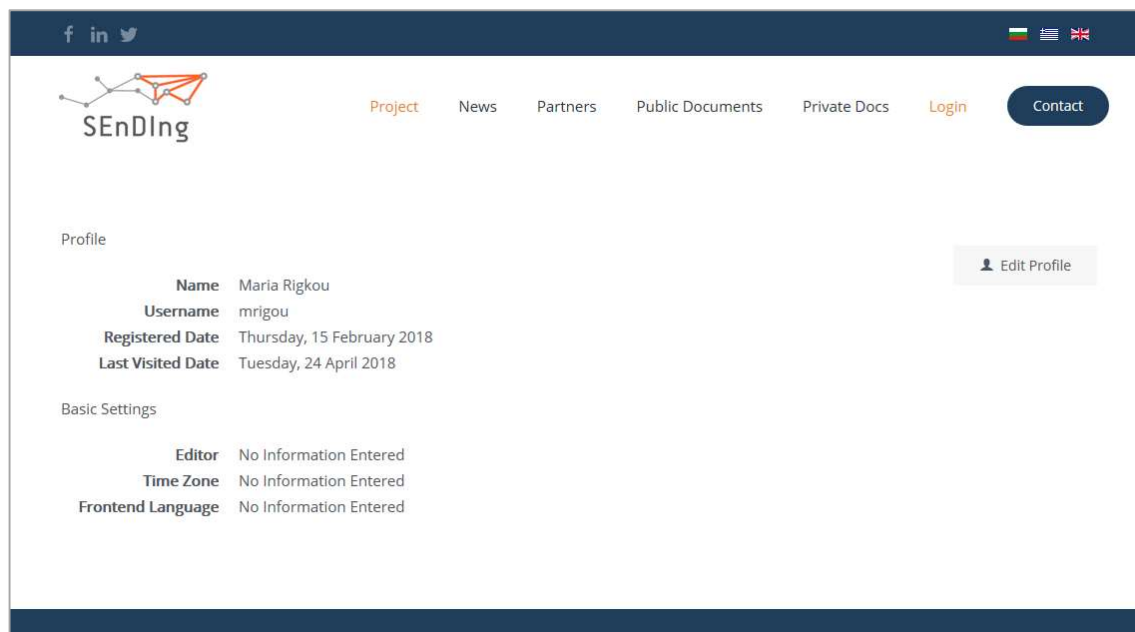
This page is a public access repository of all produced project deliverables (that have been characterized as public). Moreover, the page will provide newsletters, Press releases, the ppt project presentation, the video teaser, the exploitation toolkits, etc.



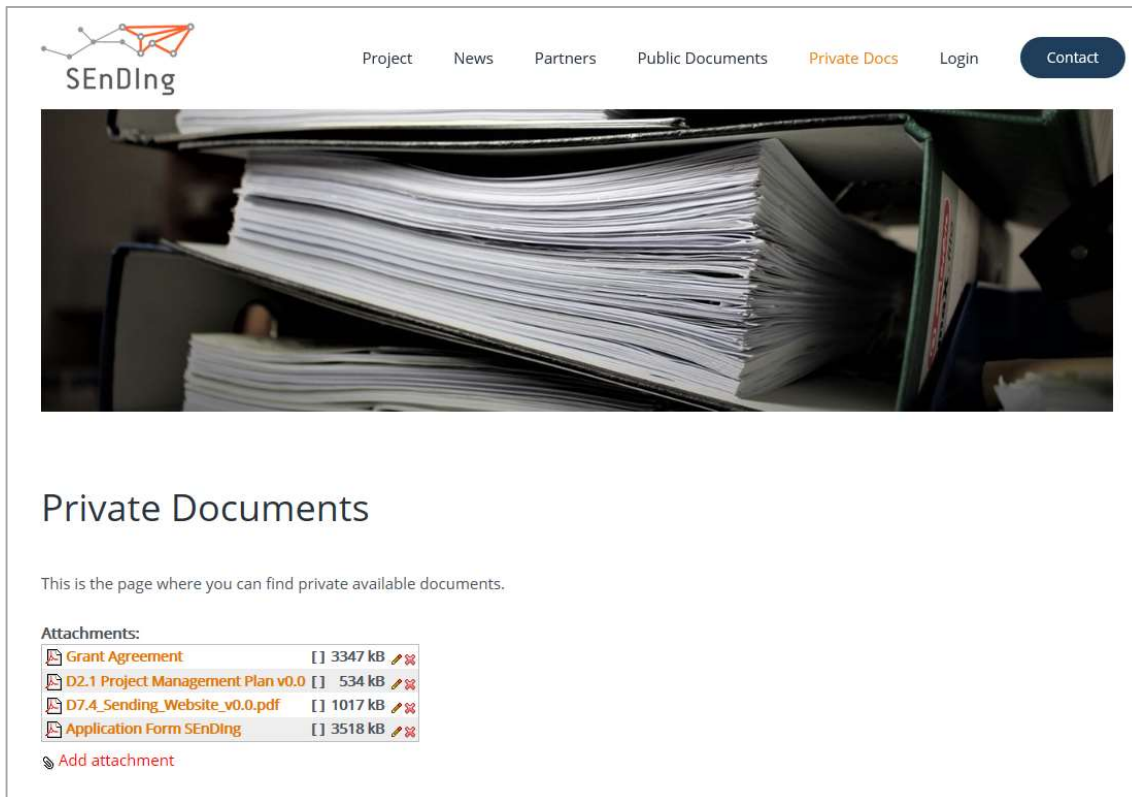
**Figure 8.** Public Documents page (when the user has logged in)

## 4.8 Login page and Private Docs









As soon as an authorized user (partner of EC Officer) successfully logs in to the website he/she accesses the profile page (Figure 9) and may update the respective info. In addition, the main menu is updated and offers access to the Private Docs page (Figure 10) where the user may edit the current contents. A user with an account in the website may also edit the contents of News and Public Documents page.




**Figure 9.** Profile page (when the user has logged in)



The screenshot shows the SEnDIng website's 'Private Documents' page. At the top, there is a navigation bar with links: Project, News, Partners, Public Documents, Private Docs (highlighted in orange), Login, and a Contact button. Below the navigation bar is a large image of a stack of papers. The main heading is 'Private Documents'. Below this, a message states: 'This is the page where you can find private available documents.' Under the heading 'Attachments:', there is a table listing four documents with their respective file sizes and download icons. At the bottom of the attachments list is a link to 'Add attachment'.

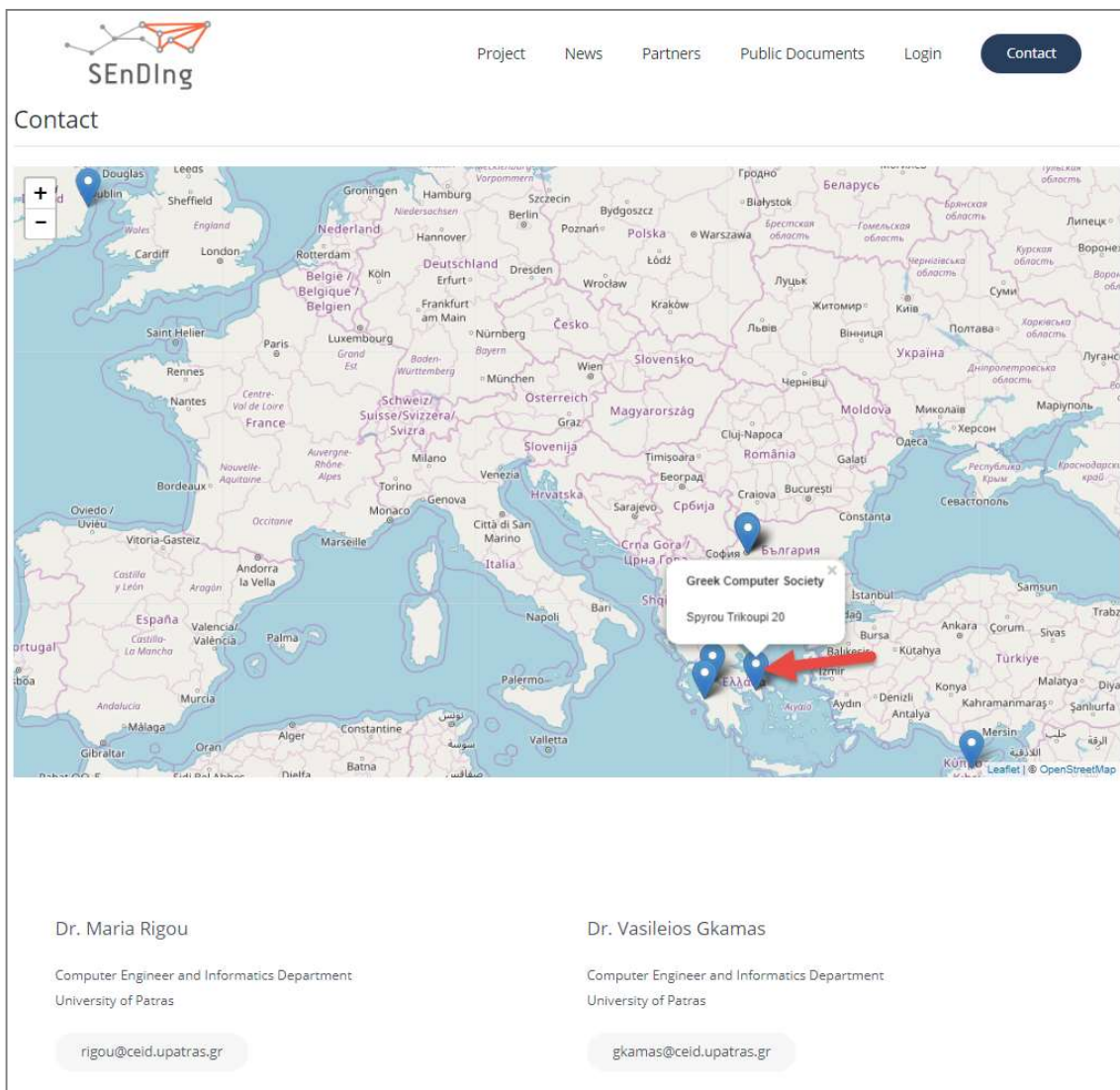
Attachments:		
 Grant Agreement	[ ] 3347 kB	
 D2.1 Project Management Plan v0.0	[ ] 534 kB	
 D7.4_Sending_Website_v0.0.pdf	[ ] 1017 kB	
 Application Form SEnDIng	[ ] 3518 kB	

 [Add attachment](#)

**Figure 10.** Private Documents page (when the user has logged in)

## 4.9 Contact page

The contact page (Figure 11) provides a map view of Europe and pins indicating the location of partner organizations along with address details. In addition it provides the main project contacts on behalf of the project coordinating organization (University of Patras).



**Contact**

Dr. Maria Rigou  
Computer Engineer and Informatics Department  
University of Patras  
rigou@ceid.upatras.gr

Dr. Vasileios Gkamas  
Computer Engineer and Informatics Department  
University of Patras  
gkamas@ceid.upatras.gr

**Figure 11.** Contact page contents

## 5 Website updating

It is expected that the SEnDIng website will be a live 'organism' and will change contents and even structure throughout the project lifetime serving as the central reference point for information on current project status and achieved outputs. The University of Patras as project coordinator has undertaken the main responsibility of supporting and updating the website but also all partners will be granted accounts so that they can post news, access and upload private documents and upload public documents.



## REFERENCES

- [1] <https://httpd.apache.org/>
- [2] <http://php.net/>
- [3] <https://www.mysql.com/>
- [4] <https://www.joomla.org/>

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