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CYBERROAD

DEVELOPMENT OF THE CYBERCRIME AND CYBER-TERRORISM RESEARCH ROADMAP

Grant Agreement N. **607642**

D7.5 Project Website and Social Networking accounts

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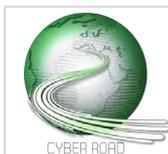


D7.5 Project Website and Social Networking accounts

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Summary:

This document discusses the website of the CyberROAD (**Development of the Cybercrime and Cyber-terrorism Research Roadmap**). First, we focus on its different content sections, the integration of social networking features, and the content update mechanism. Then we provide a short overview of the platform and methods used for its development. Finally, we conclude the website report.

Keywords:

website, social networks

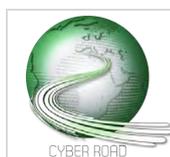
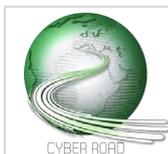


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This document details the creation of the public CyberROAD website which is one of the main objectives of Task WP7.3 of the project. The CyberROAD website can be accessed from <http://www.cyberroad-project.eu>. The main objective of the website is to maximize the impact of the project. Its main goal is to make all project activities and results visible and accessible to the research community and the stakeholder's community. In order to achieve these goals, the site has been developed with *social networking features* to the website and we hope to be able to extend our reach to the wider cybersecurity community and general public as well.

1.1 DOCUMENT OUTLINE

In the following Chapters, we will describe the CyberROAD website as it was at the time of delivery of this document. In Chapter 2 we initially present the content and features of the CyberROAD website and then describe how the website can be updated using a web browser. Next, in Chapter 3 we describe the tools used to create the website and why we chose them. We also briefly present the principles that the site is based on and the *web standards* that the CyberROAD website adheres to. Closing the chapter we present the hardware and network infrastructure we use to run the site. Finally, in Chapter 4 we summarize the website setup and outline possible future additions and enhancements. These are content and features that are can be added at any time through the course of the project to help the website to better serve its purpose.





2.1 CYBERROAD WEBSITE TIMELINE

2.1.1 LOGO AND DOMAIN

In the e-mail discussion preceding the kick-off project meeting, it was decided to use the domain **cyberroad-project.eu** for the activities of the project. Also, the coordinator had already prepared the project logo. The logo can be seen in Figure 1. The logo was developed for use within the website but is also suitable for other uses as well (printed material, t-shirts etc.).



Figure 1 The official CyberROAD logo.

At the project kick-off meeting, on June 24-25, 2014, a website was already displaying a placeholder page (Figure 2) with the project logo. The placeholder page was displayed through the development and setup of the website.



Figure 2 The CyberROAD placeholder page

2.1.2 TEMPLATE DEVELOPMENT

At the kick-off meeting a draft design for the template of the website was presented. The development of the template had been commissioned by FORTH to an external company. It was decided to request some changes to the template before it reached its final state. The first version of the template chosen by the consortium was delivered on August 2014. The consortium provided some feedback to the designers while at the same time worked on setting up and integrating the template with Django-CMS. The CyberROAD website was finally launched on **September 1, 2014**.

2.2 WEBSITE SECTIONS

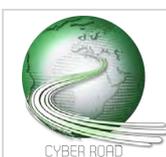
In this section we will briefly present the current sections of the CyberROAD website. At this point of time, the main goal of the website is to provide information on the project and its goals while facilitating interested parties to get in touch with the project. Of course, the website will be a work-in-progress throughout the duration of the project. We will later be adding information about CyberROAD organised events, as well as talks, publications and news.

2.2.1 THE “HOME” SECTION

The primary goal of the *Home* section is to provide a quick overview of the CyberROAD project. A screenshot of the *Home*



section can be seen on Figure 3. We can see that *Home* section uses a two-column layout. The larger left part is used to provide the overview of the project. The right part of the layout is used to show the latest CyberROAD news. The displayed news are obtained real-time from the *CyberROAD Twitter feed*.



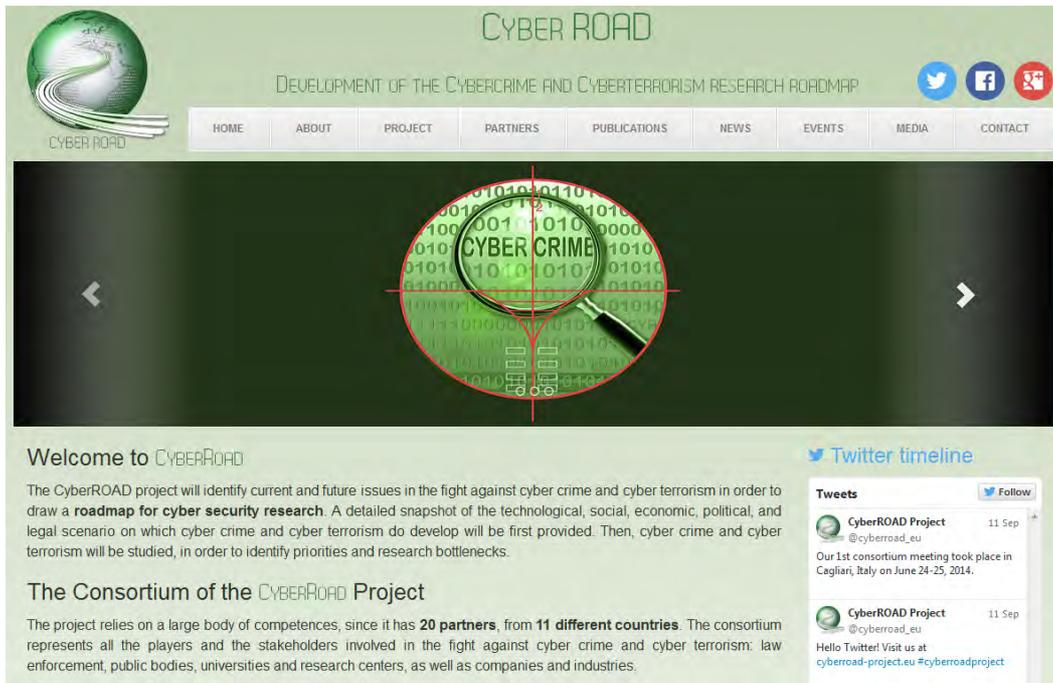


Figure 3 Website Home page

2.2.2 THE “ABOUT” SECTION

The *About* section (Figure 4) provides general information about the CyberROAD project. It contains the objectives of the project as well as a brief summary of our work plan and the results that the project will produce.

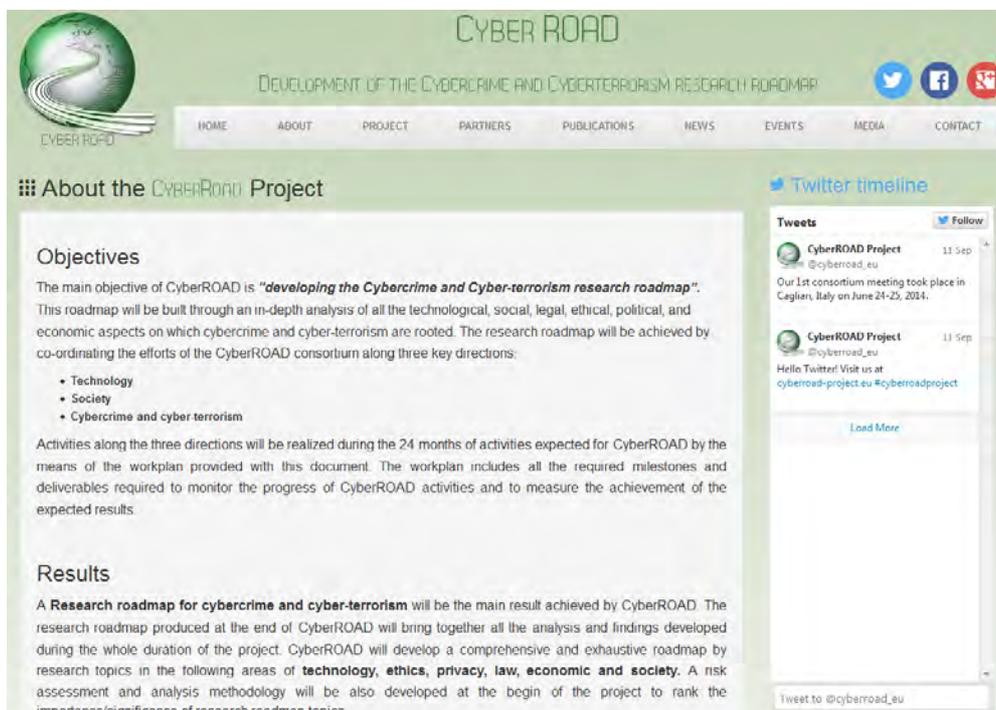


Figure 4 Website About page

2.2.3 THE “PROJECT” SECTION

The *Project* section (Figure 5) provides some details regarding the overall organisation of the project (in terms of WPs) and the governing board. The interconnections between the various WPs and the leading partners on each one of them are presented.



The image shows the 'The CyberROAD Project' section of the website. It features a table with 7 work packages (WP1 to WP7) and their descriptions and leaders. Below the table is a diagram illustrating the interconnections between the work packages. The diagram shows a central box for 'WP2 - Scientific Coordination' connected to other boxes for 'WP1 - Cyberterrorism', 'WP3 - Cyberterrorism', 'WP4 - Cyberterrorism', and 'WP5 - Cyberterrorism'. The diagram also shows 'WP6 - Cyberterrorism' and 'WP7 - Cyberterrorism' connected to the central box. The diagram is color-coded and includes arrows indicating the flow of information and collaboration between the work packages.

No	Title	Description	Leader
1	Management	Management of the Project	UNICA
2	Scientific Coordination	Scientific coordination and preparation of the research roadmap	SUPSI
3	Social, Economic, Political, and Legal Scenario	Investigation of research topics concerning social, legal, ethical, and political aspects	RHUL
4	Technological Scenario	Technological Landscape	INDRA
5	Cybercrime	Cybercrime related research topics	CYBERDEFCON
6	Cyber-terrorism	Cyber-terrorism related research topics	PJ
7	Dissemination and Exploitation	Dissemination and Exploitation of the CyberROAD results	NCSR

Figure 5 Website Project page

2.2.4 THE “PARTNERS” SECTION

A very short profile of all the project partners is provided through the *Partners* section of the website. All the official partners’ logos have been included in this page and the visitor can have a clear view of the consortium of the CyberROAD project (see Figure 6).



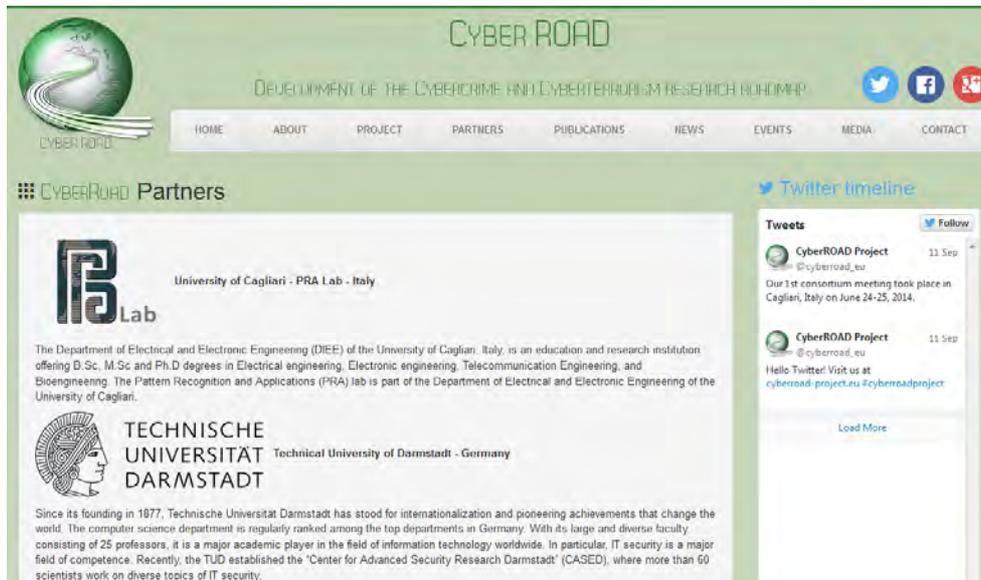


Figure 6 Website Partners page

2.2.5 “PUBLICATIONS” SECTION

The *Publications* section (Figure 7) is used to make available to the public the documents published by CyberROAD. As the list of published documents will expand both in length (i.e. more conference papers) and in diversity (i.e. inclusion of deliverables) it is expected that more pages will soon be added to this section. In its current state, the title of each paper is added to the page as soon as its acceptance notification is received. The download link is added later when the text of the paper has been finalized (camera ready version).

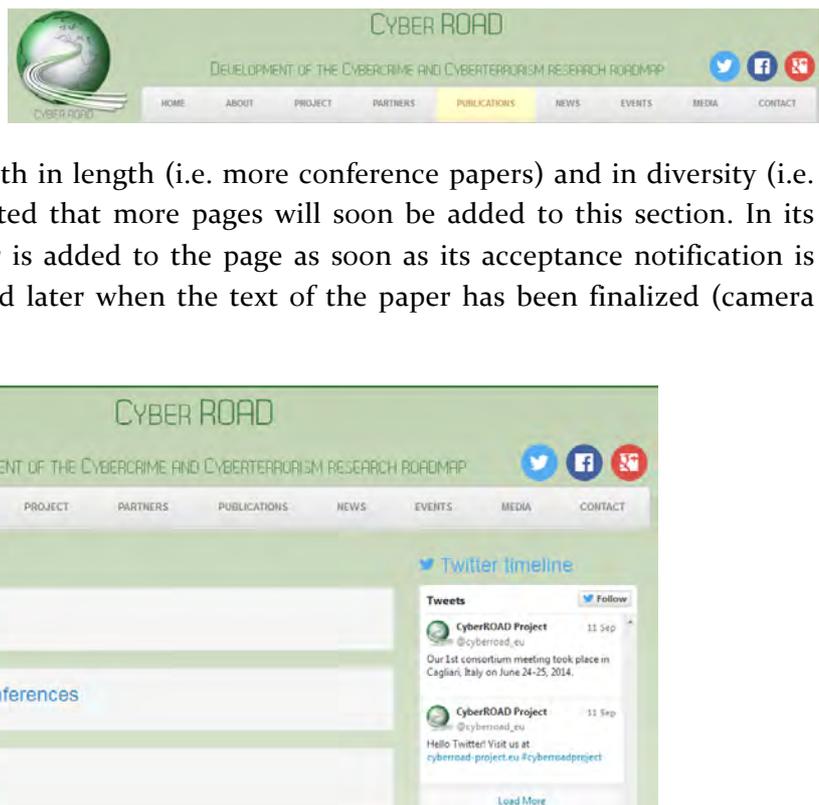


Figure 7 Website Publications page



2.2.6 “NEWS”, “EVENTS” AND “MEDIA” SECTIONS

The *News*, *Events* and *Media* sections of the website will be used to provide a picture of the media coverage. It is expected that the visitor will be able to see there photo galleries related to the project and the events organized by the project. These sections are expected to be enriched with content since CyberROAD is expected to organise three (3) workshops throughout its duration.



2.2.7 THE “CONTACT” SECTION

The *Contact* page (Figure 8) contains a contact form allowing visitors to contact project consortium and submit comments, questions, or suggestions. The *email* address of the visitor is required in order to send feedback. We opted for a contact form, instead of publishing a contact email address, in order to avoid having our email address harvested and spammed through the course of the project. As an additional anti-spam measure, the form is protected by a CAPTCHA.

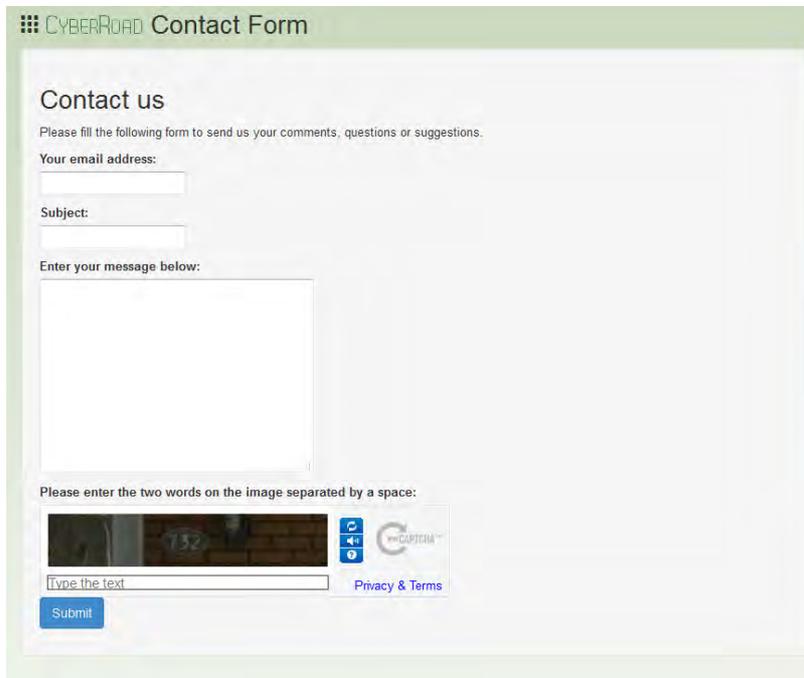


Figure 8 CyberROAD contact form



2.3 INTEGRATION WITH SOCIAL NETWORKS

Currently, CyberROAD presence is established in two of the most popular social networks: *Facebook* and *Twitter*.

2.3.1 TWITTER PRESENCE

Twitter is a social networking microblog that enables users to communicate with short messages called *tweets*. Users are able to “*follow*” other users which results in the tweets of the followed user being displayed in their personal message feed.

The Twitter profile of the CyberROAD¹ can be seen on Figure 9. It has been also integrated to the website in the form of the *news feed* in the right part of our layout.



Figure 9 Twitter profile of CyberROAD

2.3.2 FACEBOOK PRESENCE

Facebook is the most popular social network site and website. It was launched in February 2004. Facebook is much more complex than Twitter as it works as a social platform that allows many independently developed applications to run. Its richer content makes it appealing to a much larger audience. As a result, by the beginning of 2014 Facebook had more than *1.3 billion active users*. The much larger potential audience in Facebook led to the consortium’s decision to also establish a

¹ Our Twitter profile can be accessed on https://twitter.com/cyberroad_eu



CyberROAD presence there². As a result, a page was created on Facebook which can be seen on Figure 10.



Figure 10 Facebook profile

2.4 GOOGLE ANALYTICS

Google Analytics is a service offered by Google that generates detailed statistics about a website's traffic and traffic sources and measures conversions and sales. It's the most widely used website statistics service.

To monitor how effective is our website we have registered with Google Analytics. This allow us to record information such as the number of visitors and sessions within a selected date range, the geographic distribution of visitors and the popularity of our links and sections.

Google Analytics can help us to improve our website and learn more about our visitors experience. An example of the Google Analytics dashboard is illustrated in Figure 11.

² Our Facebook page can be accessed on <https://www.facebook.com/cyberroadproject>

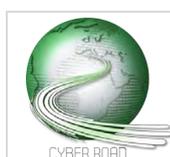




Figure 11 Google Analytics dashboard example

2.5 UPDATING THE WEBSITE

The contents of the CyberROAD website can be easily updated using a web browser. This feature is provided by the CMS we use. After successful authentication, the website editor is presented with the *Site Administration Panel* shown in Figure 12. Through this panel all of the website's modules can be configured.

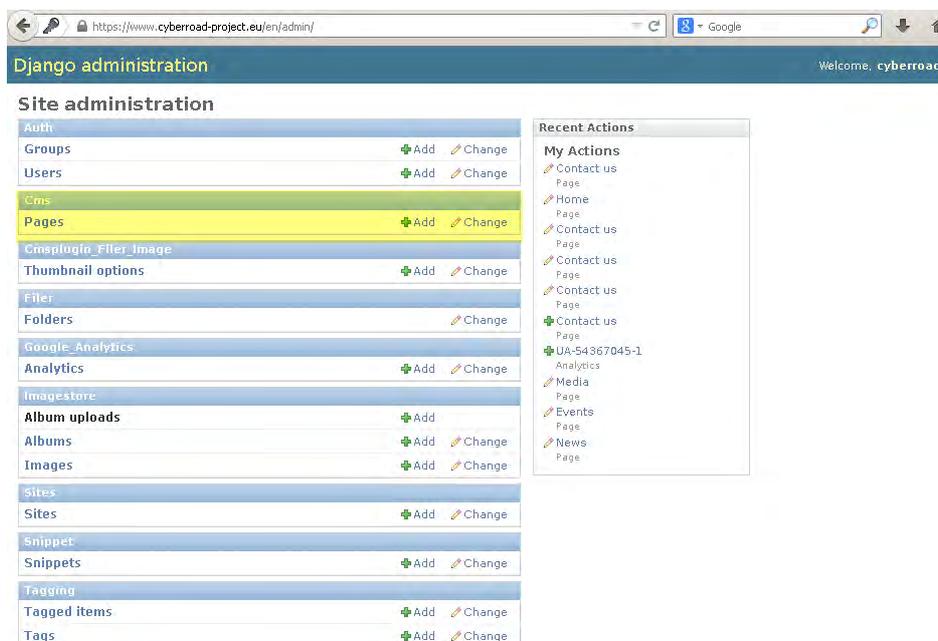


Figure 12 Site administration panel. Highlighted is the section of the CMS module, which is used to edit content.



The contents of the site are updated through the *CMS module* which appears highlighted. Following the Pages link, the *page hierarchy panel* (shown in Figure 13) is displayed. The panel allows the website editor to restructure the website menu by using *drag & drop* on the items. Additionally with a single-click the editor may hide a page from the navigation menu or take it offline.

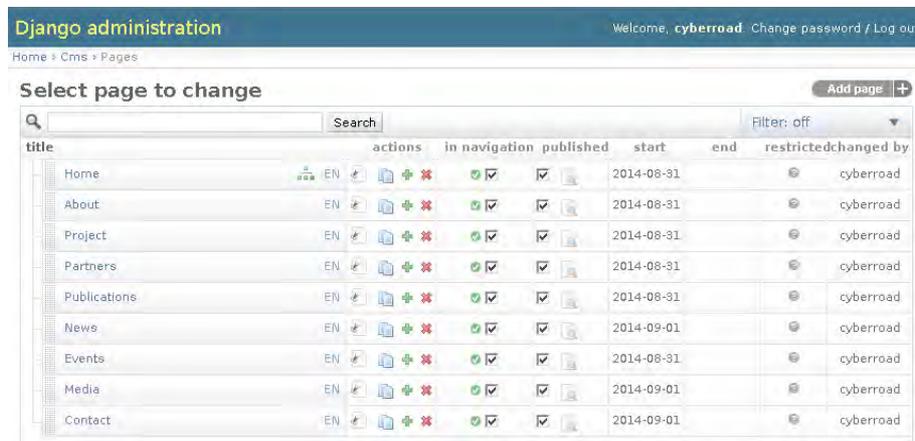


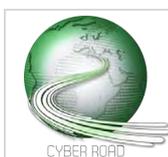
Figure 13 Page hierarchy panel. The pages can be rearranged by dragging them and dropping them on their new location in the hierarchy tree.

While it is possible to edit the content of a page through the admin interface we presented, it is usually more convenient to update it through the front-end editor of Django-CMS. The front-end editor feature is automatically enabled when visiting the website after having logged in the administrative interface. When it is enabled, a toolbar appears on the top of the page which enables the user to go into edit mode.

In edit mode, the user is allowed to edit existing or add new *Content Plugins*. All content in Django-CMS has to be encapsulated in Content Plugins. Obviously, the most commonly used plugin is the *Text Plugin* which is used to edit and then display html formatted text. However more specialized plugins exist for interfacing with specific data sources (e.g. Twitter).

There is a built-in editor used for editing the page text and it offers most of the formatting options that can be found in a full-blown word processor. Still, it encourages semantic-based html formatting. I.e. the contents are marked according to their semantics on the page and their final appearance is determined by the CSS stylesheet used.

From its day-to-day use, we have found the website update mechanism very convenient and easy to use. Currently, the content of the website is updated by FORTH. If the need arises, it would be straightforward for other partners to contribute with only minimal training (if any at all).



3.1 WEBSITE DESIGN

3.1.1 GRID BASED DESIGN

We wanted the CyberROAD website to have a visual layout which is clean-cut while at the same time is easy to change in order to accommodate future needs. For this, we chose to have it designed and built using [Twitter Bootstrap](#). Twitter Bootstrap is a CSS framework that allows the rapid prototyping of *gridbased website designs* while working equally well when integrated into a production system.



In grid based designs, the visual blocks that comprise the website (e.g., menus, text boxes, information boxes, ads etc) are not placed on arbitrary positions. Instead they are laid out on predefined rigid positions on a grid. This may sound restrictive but in practice the resulting design is much more efficient in communicating its contents to the visitor. This is because placing the visual blocks of the website on a grid results in *clear visual paths* and *visual structure and balance* on the design. Additionally, a grid based design also ensures consistency between the website pages and are much easier to update in order to accommodate any additional content.

3.1.2 BROWSER COMPATIBILITY AND WEB STANDARDS COMPLIANCE

The CyberROAD website pages have been tested to comply with the *HTML5* standard, using the [W3C Markup Validator](#). The situation is more complicated with regards to *CSS* compliance. We have chosen to use *CSS3* for the CyberROAD website because it greatly simplifies the implementation of aesthetic elements such as rounded element corners, element shadows etc. Without *CSS3*, these elements have to be rendered as bitmap images and then included in the page, which degrades the semantic integrity of the produced HTML output.



However, the *CSS3* standard is currently a work in progress. So, while we have taken every care for our *CSS* code, it has been proved impossible to have *CSS3* code that both validates on the *W3C CSS Validator* and works on all popular browsers. This made us take a more pragmatic approach and instead strive to have our pages render correctly with the latest versions of all popular web browsers.



3.2 WEBSITE HOSTING

3.2.1 SOFTWARE STACK

For serving the CyberROAD website we use a *LAMP software stack*:

- Linux as the operating system
- Apache as the web server
- MySQL as the database backend
- Python for dynamically compiling the web pages

The later components of the stack have been distributed between two servers. The first server is dedicated to running the *MySQL server*, while the second runs the *Apache web server* and generates the dynamic pages using the python-based [Django web framework](#).

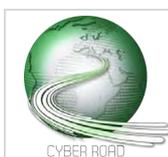
Django itself is a generic web framework that provides an *Object-Relational-Mapper (ORM)* that allows accessing objects stored in a relational database (in our case *MySQL*) as Python objects. For serving and managing our pages we use [Django-cms](#) a Content Management System built on top of django.

The benefit of the Django/Django-cms combo is that they provide a clear, well documented Application Programming Interface. They are much more compact than other solutions which make tweaking and extending them much easier. This could prove useful in case we need to extend the functionality of the CyberROAD website beyond the basics. An additional benefit of this combo is the existing expertise of the consortium (specifically FORTH) on building and maintaining Django-cms sites. Finally, we should mention that all the software components are regularly updated in order to be immune to known (and patched) security vulnerabilities.

3.2.2 HARDWARE AND HOSTING

The CyberROAD website is hosted by FORTH on their premises in Heraklion. The hosting server features two Intel Xeon dual-core CPUs running at 2.66GHz and a total memory of 4GB. It is connected to the Internet through FORTH's Gigabit connection to the GRNET backbone. The server has two high performance SAS disks (10k RPM) arranged as RAID-1 for fault-tolerance.

The server is protected by both software and hardware firewalls in order to minimize the risk from cyber-threats. As an additional security measure, the database server used by the CyberROAD website is located on a separate host with even more restricted access rules. Both hosts are internally and externally monitored. Finally, remote backups through the *rsync* utility are performed for both on a daily basis.



It is also important that the hosts reside in a protected physical environment. They are located in one of FORTH's data-centres. For ensuring optimal operating environment, it is fitted with industrial-strength air conditioning with more than 240.000BTUs efficiency. In power emergencies, it is supported by a UPS power supply and an external power generator which is engaged automatically on power failure. Additionally, the date-centre features an automatic carbon dioxide fire-extinguishing system.

4.1 CONCLUSIONS

In this document, we discussed the CyberROAD website. We provided a description of its section and content and outlined the *social networking* features we have integrated. Moreover, we presented the process of updating the website through a user-friendly *front-end editor*. Additionally, we provided an overview of the components and methodology we used to deploy the website. We also detailed its software and hardware hosting environment. Closing, we should cite that at the time of writing of this document the CyberROAD website was already capable to provide the functionality requirements that had been laid out in the project's description. However, in addition to the existing commitment to keeping the CyberROAD website running and up to date, the consortium will continue looking through the whole remaining course of the project for features that could be integrated to it in order to provide an enhanced experience to the visitors.