Improved Robotic Platform to perform Maintenance and Upgrading Roadworks: The HERON Approach

Grant Agreement Number: 955356

D8.2: Project Website

Work package	WP8: High-Impact Communication and Dissemination Activities
Activity	Task 8.3: Development and use of dissemination materials and tools
Deliverable	D8.2: Project Website
Authors	Eirini Vourlakou (RG), Athanasia Kazantzi (RG), Dimitrios Vamvatsikos (RG)
Status	Final (F)
Version	1.0
Dissemination Level	Public (PU)
Document date	31/08/2021
Delivery due date	31/08/2021
Actual delivery date	31/08/2021
Internal Reviewers	Matthaios Bimpas (ICCS), Stefanos Camarinopoulos (RISA)
	This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no 955356.

Document Control Sheet

Version history table			
Version	**Date**	**Modification reason**	**Modifier**
0.1	25/06/2021	Initial Table of Contents	Dimitrios Vamvatsikos
0.2	01/07/2021	Basic structure of the deliverable	Eirini Vourlakou
0.3	20/07/2021	Version modified with the feedback from all partners	All partners
0.4	26/07/2021	First Draft	Dimitrios Vamvatsikos, Athanasia Kazantzi
1.0	31/07/2021	Final version ready for submission	Matthaios Bimbas

Legal Disclaimer

Table of Contents

List of Figures

Abbreviation List

Abbreviation	Definition
CMS	Content Management System
HTTP	Hyper Text Transfer Protocol
HTTPS	Hyper Text Transfer Protocol Secure
URL	Uniform Resource Locator
WP	Work Package

Executive Summary

Deliverable 8.2 “Project Website” provides a brief description of the HERON website and its main functionalities. It stems from Task 8.3 “Development and use of dissemination materials and tools”, under WP8 “High-Impact Communication and Dissemination Activities”.

Within WP8 all the activities linked to the communication and dissemination of the project outcomes and results are served by web-based means. Following this rationale, a project website has been developed in view of communicating and disseminating the project, including project objectives, project’s news, technology news, all project public documents (deliverables, presentations, scientific publications etc.), as well as consortium contacts.

In its present form, the deliverable reflects the current status of the website and the planned content that will be developed during the project progress. Modifications and improvements will occur during the course of the project to address any additional needs that will be identified later on. The website will be maintained and updated on a regular basis during the project’s lifetime and after the project’s end in order to provide all interested stakeholders with information on project results and contact details.

1 Introduction

1.1 Purpose of the Document

The HERON Deliverable 8.2 namely "Project Website", introduces the first version of the project website that was developed in order to enhance the visibility and the accessibility of the project results and overall promote the exploitation of the project findings to the interested stakeholders.

The project website is created to enable the HERON project to communicate its goals, some key facts and introduce the HERON partners to the general public, in order to start raising awareness among the target groups.

1.2 Intended Audience

The targeted audience of the present document is the HERON consortium partners. This report presents all the tools that will be used for enabling and monitoring the project endeavors and and raise awareness about its findings and innovations among the targered stakeholders and end users.

1.3 Roles of the Partners

The project website was created and will be continuously updated under the Work Package 8 activities and during the entire duration of the HERON project (48 Months). This task is led by Resilience Guard GmbH, under the coordination of CORTE, who is leading WP8.

2 HERON Project Website

2.1 Domain name

The URL "www.heron-h2020.eu" is employed to portray our project branding and its European nature. The project URL will be included in all communication and dissemination material that will be produced, as an integral part of our online and offline identity. The project URL has been added to the leading international search engines (i.e. Google, Bing) so as to increase the online visibility of the HERON project.

2.2 Hosting and maintenance

The site is hosted by IPGLOBAL IKE [1], an experienced webhosting provider in Greece.

The webpage was setup by ResilienceGuard GmbH who is the only partner with administrative rights on both the hosting server and the website backend, and is responsible for the technical maintenance of the website. In case of any question or difficulty regarding technical maintenance, Mr. Fanis Markou (fanis.markou@resilienceguard.ch) is the contact point from the consortium.

2.3 Content Management System

The aim of the HERON project website is to provide general information and news about the project whereas it will also serve as a repository for its public outcomes, using an open source web publishing platform. Towards this direction, we have taken the conscious decision to design it on WordPress (current WordPress version is 5.6) , which is the most popular free and open-source Content Management System (CMS).

The WordPress CMS was selected since it is continuously updated and supported by its vast developer community, and this provides an extra assurance for the website's security and uptime. Moreover, it enables the use of various plugins and features, such as easy multiuser publishing, seamless cross-linking to social media content from multiple sources, easy manipulation of user input and all website content from a very user-friendly administration console.

The CMS was further customized by selecting the Avada theme, as it is one of the most popular multi-purpose WordPress themes. It offers multiple page layouts, plenty of customization options, settings and tools, using a drag-and-drop page builder tool to tweak and customize the individual pages.

2.4 Security

An encryption certificate has been obtained for the HERON project website to enable its operation over Hyper Text Transfer Protocol Secure (HTTPS). This is the secure version of HTTP, the protocol over which data is sent between the user's browser and the website that the user is connected to. HTTPS adds encryption, authentication, and integrity to the HTTP protocol, making it much safer.

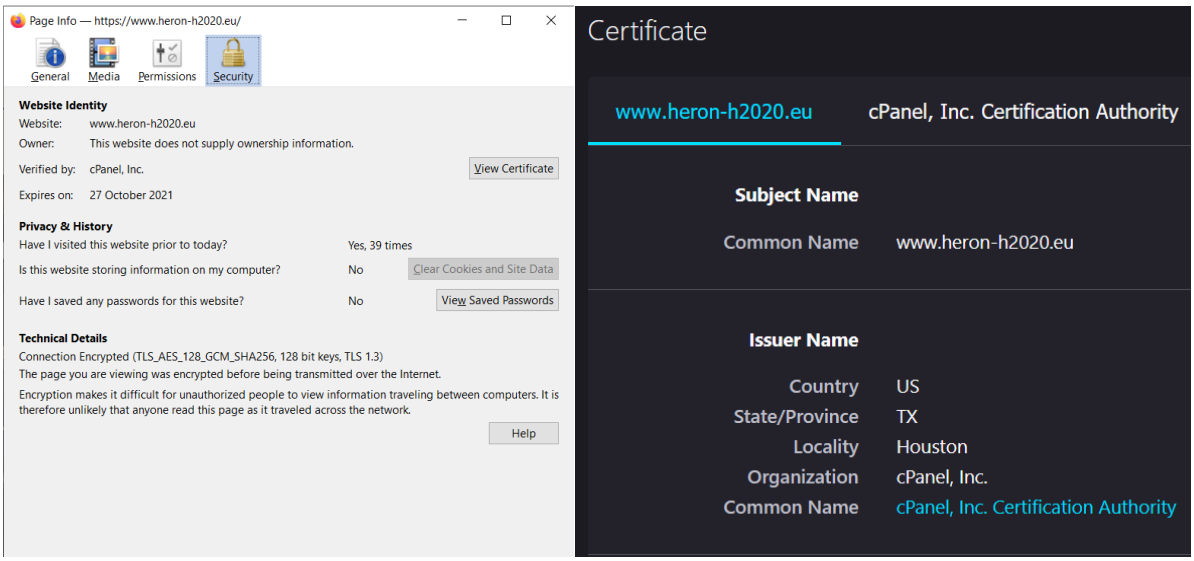

Figure 1: HERON HTTPS settings and security certificate.

3 HERON project website pages

We have followed a mixed presentation strategy utilizing both a "single page" layout that displays a first set of key project information, as well as a "multi-page" layout, via the menu for more specific thematic information relevant to the HERON project. The color scheme follows the basic color scheme of the HERON logo and the dissemination material of the whole project. The first version of the website contains the following pages:

- Home
- Project
- Consortium
- Latest News/Events
- Contact

On the top of each page, the HERON logo is present along with the main pages that the website visitor may access and the social media icons with the HERON project links.

The HERON project website is directly linked to the HERON project social media accounts (Facebook, LinkedIn, ResearchGate).

3.1 Home

The homepage was designed on a cellphone-friendly "single page" layout basis, displaying a rich amount of information to the website visitors, in order to welcome them to the website and quickly introduce them to all of the main features of the project.

The home page describes the HERON's main scope and objectives, it presents the project news, and displays the logos of the project partners, along with a continuously updated status of the all WPs.

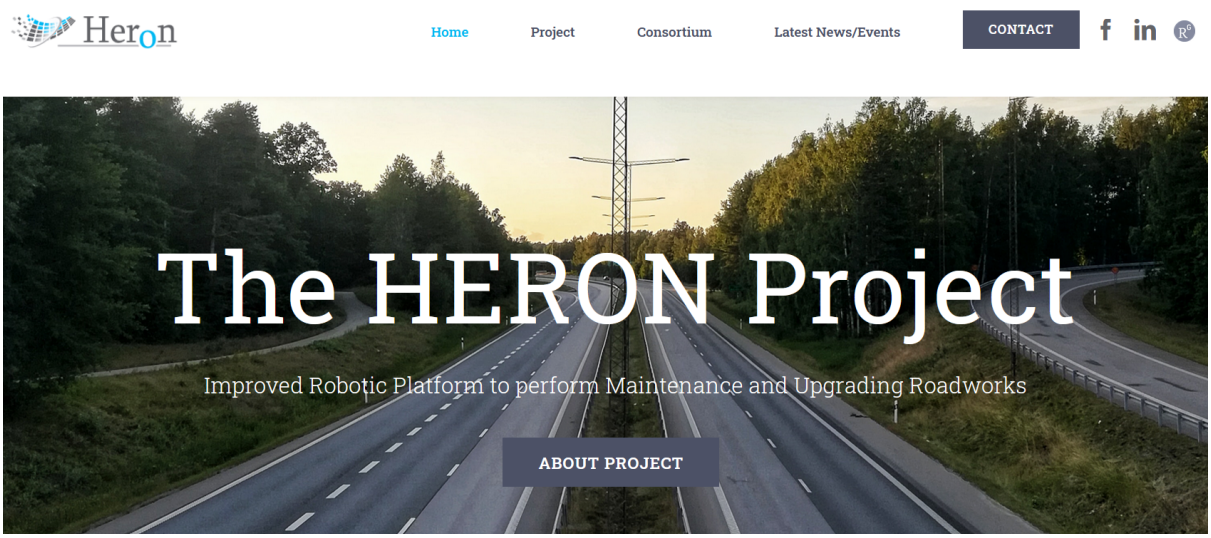

Figure 2: HERON home page – Top menu.

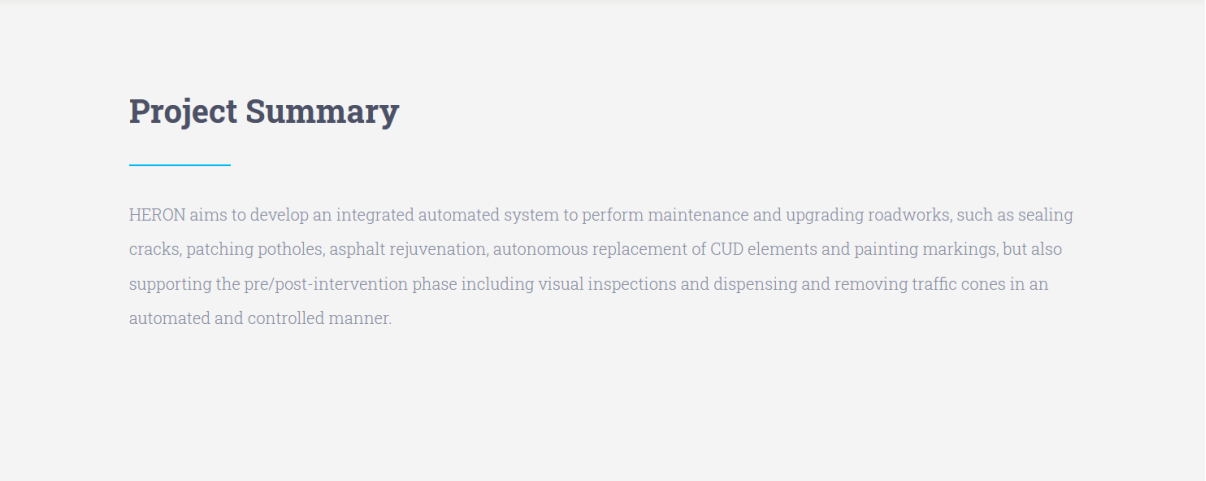

Figure 3: HERON home page – Project summary.

Figure 4: HERON home page – Project Partners (summarized).

Figure 5: HERON home page – WP progress (indicative).

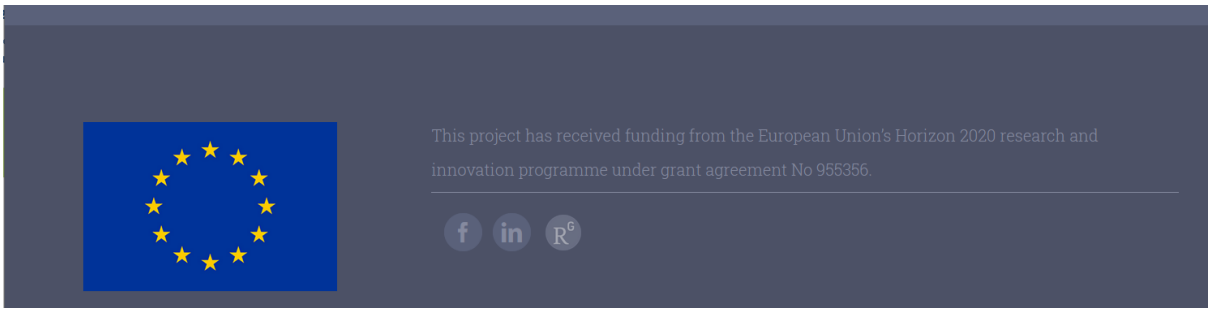

Figure 6: HERON home page – Footer.

3.2 Project

The "Project" page describes the HERON project, offering specialized sub-page parts to elaborate an extended summary, concept, objectives and pilots.

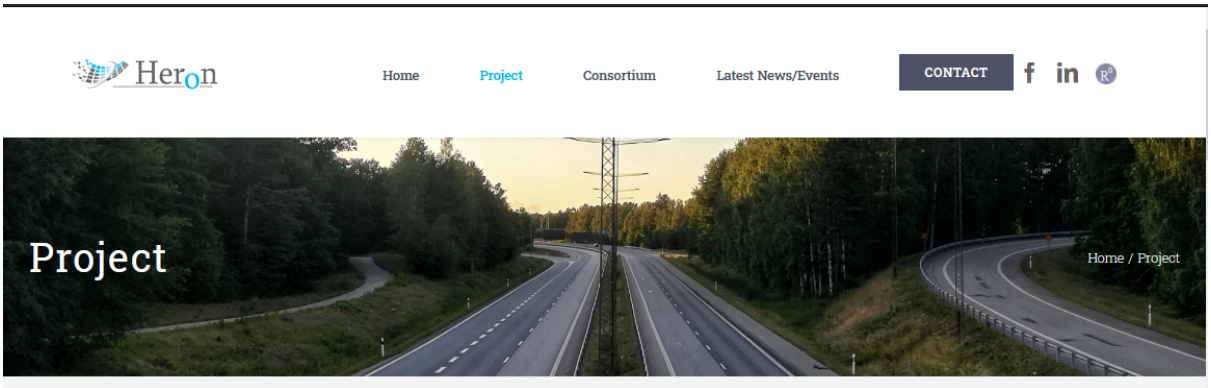

Figure 7: HERON Project page – Top menu.

Project Summary

HERON aims to develop an integrated automated system to perform maintenance and upgrading roadworks, such as sealing cracks, patching potholes, asphalt rejuvenation, autonomous replacement of CUD elements and painting markings, but also supporting the pre/post-intervention phase including visual inspections and dispensing and removing traffic cones in an automated and controlled manner. The HERON system consists of:

i) autonomous ground robotic vehicle that will be supported by autonomous drones to coordinate maintenance works and the pre-/post-intervention phase;

ii) various robotic equipment, including sensors and actuators (e.g., tools for cut ad fill, surface material placement and compaction, modular components installation, laser scanners for 3D mapping) placed on the main vehicle;

iii) sensing interface installed both to the robotic platform and to the Road Infrastructures (RI) to allow improved monitoring (situational awareness) of the structural, functional and RI's and markings' conditions;

iv) the control software that interconnects the sensing interface with the actuating robotic equipment;

v) Augmented Reality (AR) visualization tools that enable the robotic system to see in detail surface defects and markings under survey;

vi) Artificial Intelligence/AI-based toolkits that will act as the middleware of a twofold role for: a) optimally coordinating the road maintenance/upgrading workflows and b) intelligent processing of distributed data coming from the vehicle and the infrastructure sensors for safe operations and not disruption of other routine operations or traffic flows; and

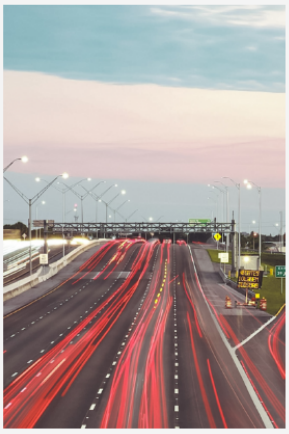

Figure 8: HERON Project page – Project extended summary.

Heron

Concept

The (semi-) automated HERON system relying on improved intelligent control of a multi-degree-of-freedom (MDOF) robotised vehicle, improved CV and AI/ML techniques combined with proper sensors, decision-making algorithms and AR components to perform corrective and preventive maintenance and upgrading of roadworks is considered an advanced solution, which pushes routine roadwork activities quite beyond the state-of-the-art. At the same time, by using advanced data coming from various sources (including V2I and aerial drone surveillance) and well-established methods (from existing know-how from research and industrial projects), the automated system will be able to provide some non-routine (emergency) maintenance operations when required. Towards that direction, HERON targets the development and prototype validation of an innovative, automated intelligent robotic platform for performing the above tasks safely, promptly, reliably and modularly.

Figure 9: HERON Project page – Concept.

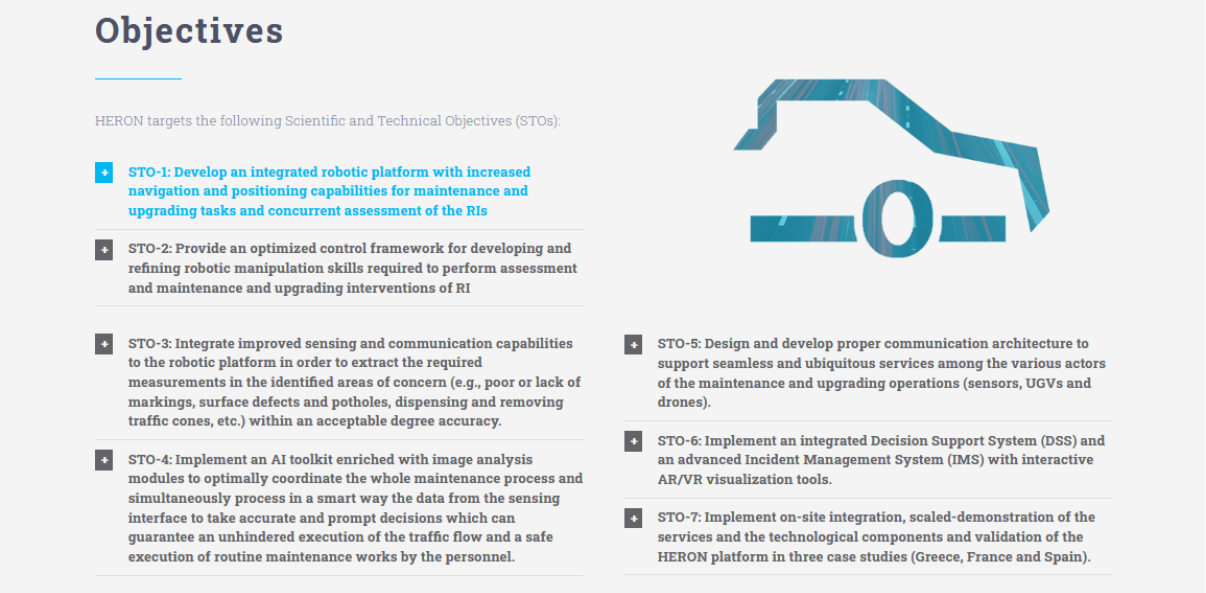

Figure 10: HERON Project page – Objectives (summarized "collapsed" view).

Figure 11: HERON Project page – Objectives (extended view of STO-3).

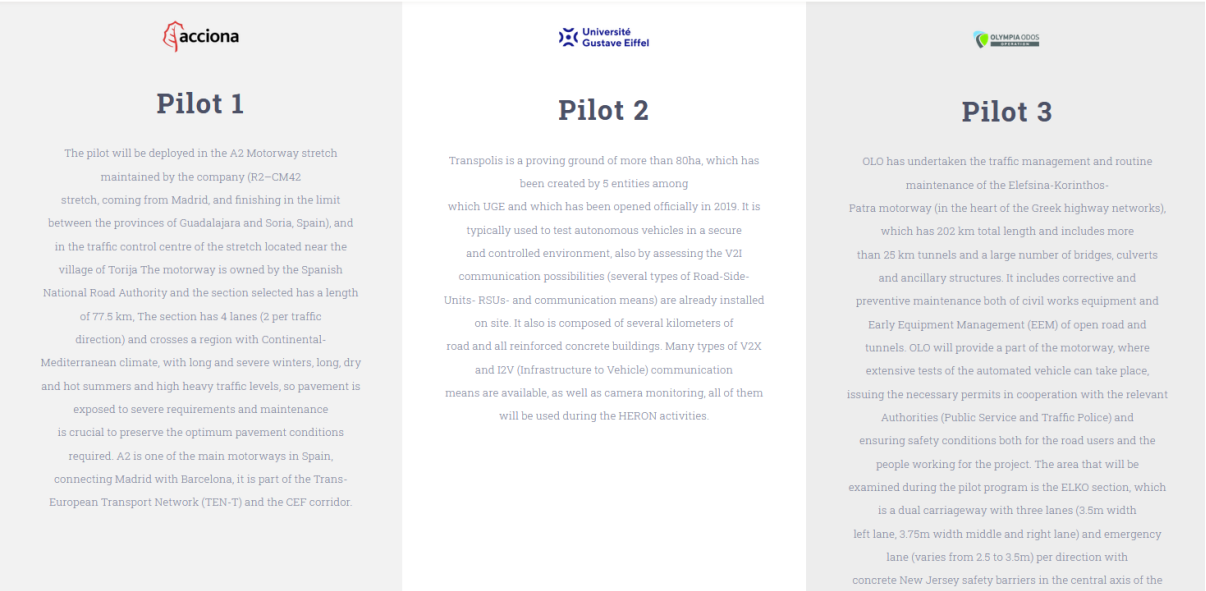

Figure 12: HERON Project page – Pilots.

3.3 Consortium

The “About” page provides details on the HERON project partners along with their logos and links to their respective websites.

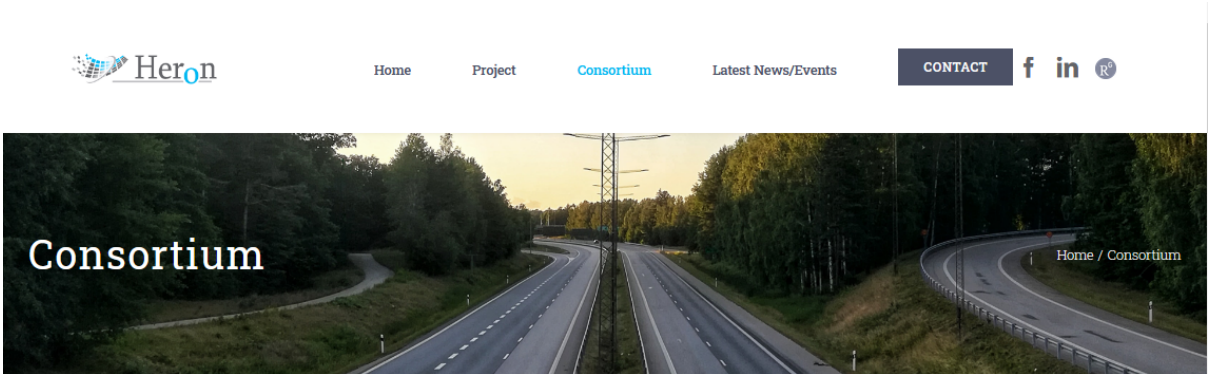

Figure 13: HERON Consortium page – Top menu.

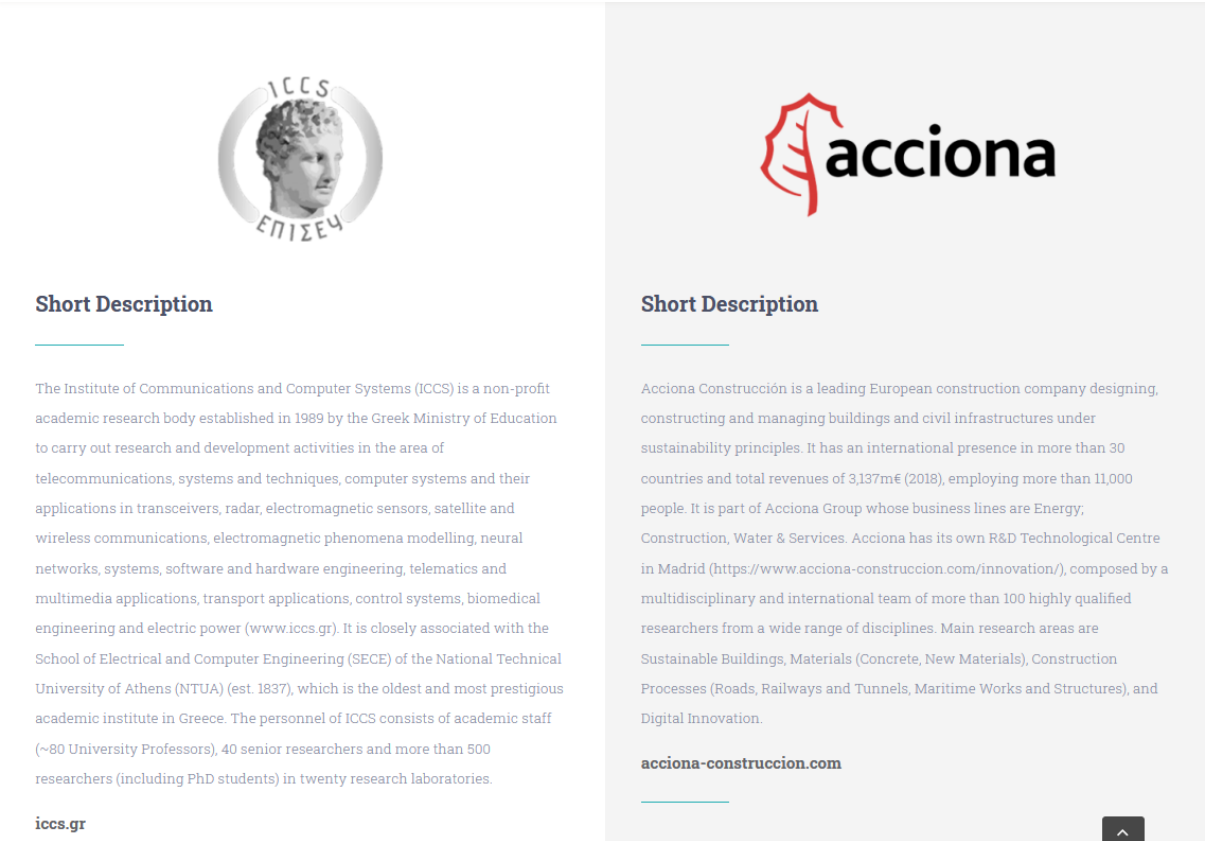

Figure 14: HERON Consortium page – Partner Descriptions.

Figure 15: HERON Consortium page – Funding Agency Description.

3.4 Latest News / Events

The “Latest News / Events” page is the main section where all relative project content will be disseminated, following a chronological hierarchy and a “blog” layout.

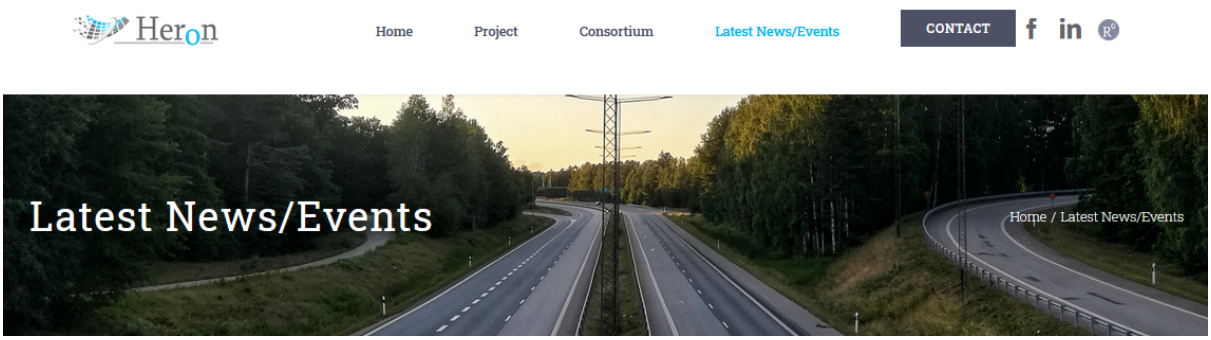

Figure 16: HERON Latest News / Events page – Top menu.

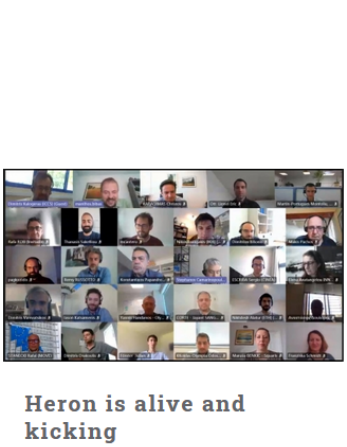

Figure 17: HERON Latest News / Events page – Blog summary.

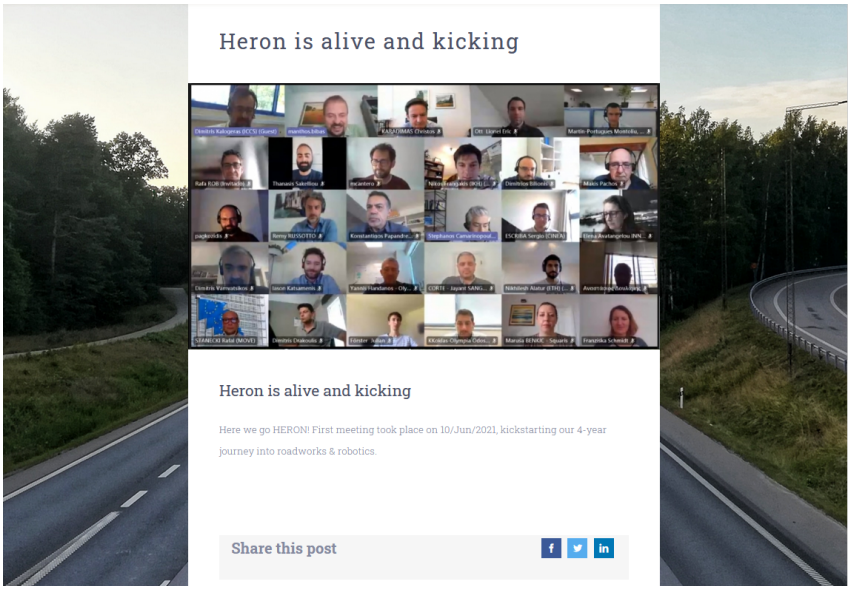

Figure 18: HERON Latest News / Events page – Blog post.

3.5 Contact

The “Contact” page offers to the visitors the opportunity to reach out and contact the project partners by means of e-mail, or social media. Moreover, it lists the details of the project coordinator, for direct contact.

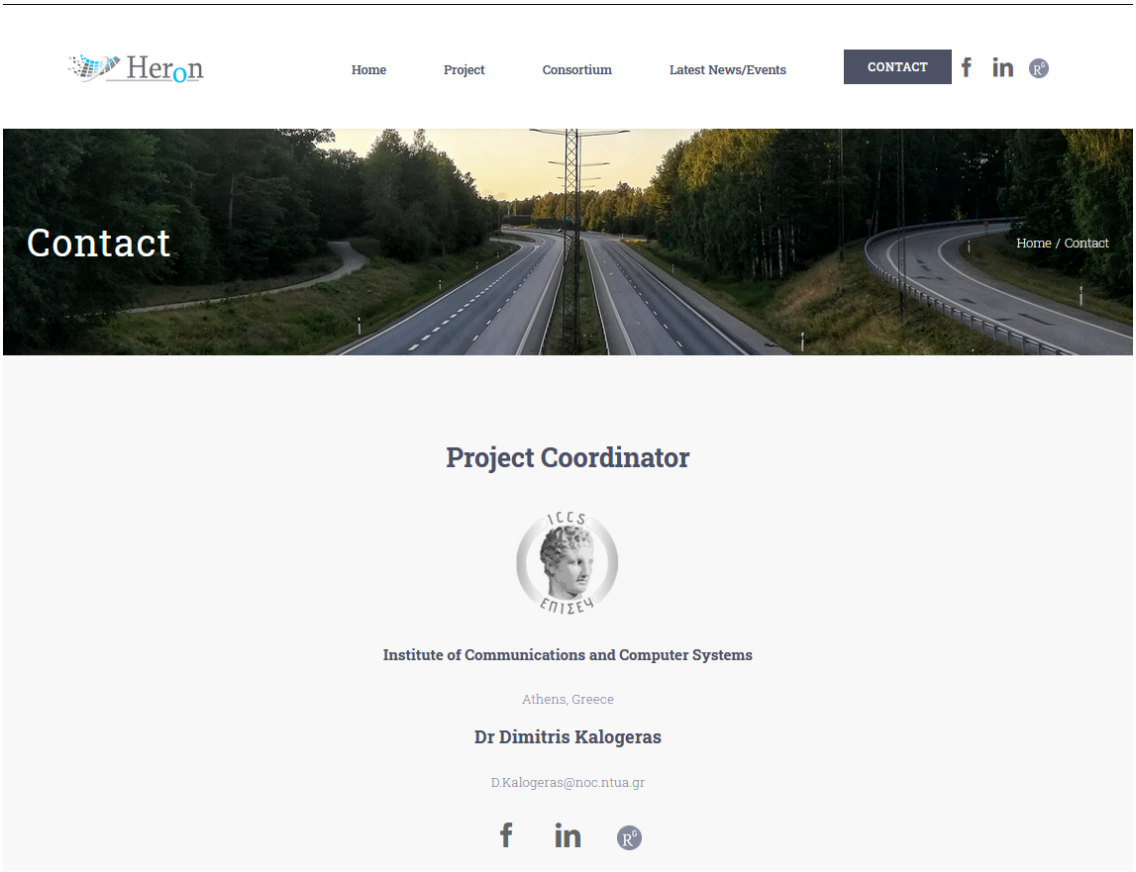

Figure 19: HERON Contact page.

4 Conclusions

Deliverable D8.2, namely “Project Website”, which was developed within the Work Package 8 “High-Impact Communication and Dissemination Activities”, by the responsible partner ResilienceGuard GmbH, aims to deliver and describe the HERON project website, which has been designed and implemented in order to act as the main dissemination project tool towards the target audiences.

The website content will be continuously updated as the project implementation progresses, and new categories (such as publications, public deliverables etc.) will be added respectively. The news section contains a dynamic content that will be directly linked to the projects’ social media channels (i.e. Facebook, Linkedin, and ResearchGate) thus creating awareness, as well as increasing interactivity. All major project activities, such as meetings, workshops and events, as well as project results, will be documented and presented to the website visitors, enhancing the project’s visibility. Finally, we will regularly track and monitor the usage of the website content by utilizing the “Google Analytics” tool, which has been installed throughout our content management system.

References

[1] IPGLOBAL IKE, Web hosting solutions. URL: https://www.ip.gr/en/
[2] WordPress Content Management System. URL: https://WordPress.org/
[3] ThemeFusion, Avada Theme for Wordpress. URL: https://avada.theme-fusion.com/