



BRIDGITISE

Industrial Doctoral Network on
Bridge Digitalised Lifecycle Management

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WEBSITE

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1. Introduction

The primary technical objective of work package 5 (WP5) is to coordinate dissemination, exploitation, and communication activities aimed at informing and engaging various stakeholders, including industry professionals, policymakers, end-users, and citizens. The overarching goal is to promote and disseminate the activities of the BRIDGITISE network.

In the modern landscape of scientific research and technological innovation, effective communication plays a pivotal role in ensuring the success and impact of a project. This is particularly true in the context of the BRIDGITISE, a project aimed at revolutionizing Bridge Integrity Management field through the application of advanced technologies. To maximize the visibility and effectiveness of our research, we have planned to implement a series of communication channels including a dedicated website, periodic newsletters, a documentation sharing platform, and others that will be described in following deliverables.

This report focuses on the website, as the centerpiece of our online presence, providing a central point for accessing key information about BRIDGITISE. Through the website, we can present our work comprehensively and in detail, offering interested parties an in-depth overview of our activities, objectives, and results. Additionally, the website serves as a hub for visitors interested in further engaging with the project, providing opportunities for direct contact and access to additional resources. The website will undergo continuous updates, improvements, and promotions throughout the project's duration to ensure that its content remains current and reaches a large audience. Specifically, the website will serve the following purposes:

1. Present key project information in a user-friendly format to maximize audience reach.
2. Disseminate project actions and progress through the publication of deliverables intended for public dissemination, regular updates, and advertisement of news and events.
3. Engage the widest possible audience in the project by offering the opportunity to subscribe to a dedicated newsletter.

This report is devoted to the detailed description of BRIDGITISE website structure and content.

2. Work done and current status

BRIDGITISE website (www.bridgitise.polimi.it) was launched at the end of January (as planned by milestone M2). The Website is managed by Politecnico di Milano as a member of Work Package 5 and it is aimed at gathering the most relevant information on the project, its goals, and its deliverables. The website will be continuously updated and improved by the members of the Consortium. Currently, the website is composed of 8 sections, including the Home page. The content reflects the development of the project till now, and they will be continuously enhanced and improved over the whole project duration. Table 1 summarizes the structures of the Website sections.



Table 1: BRIDGITISE Webpage structure and short content description

SECTION	CONTENT
HOME	Welcome Page
ABOUT US	Short abstract of the BRIDGITISE Project
RESEARCH	Description of scientific Work Packages (WP1, WP2 and WP3)
TRAINING	Description of the training planned for each Doctoral Candidate
OPEN PHD POSITIONS	Detailed description of all available Ph.D. position available and a link for the submission of the applications
PARTNERS	Each Consortium member is introduced. The section includes logos and short descriptions for each institution of the consortium
D_BOOK	Collaborative platform for communication and dissemination of project deliverables
CONTACTS	Main contacts to reach BRIDGITISE management

The following subsections provide a more detailed description of each section, also including some screenshots.

2.1. Home

The homepage is crafted to welcome visitors with an engaging image and to seamlessly guide them through the entire website. It features the project's logo, its full name, and a top menu enabling easy navigation to the eight sections of the website. Additionally, there's a prominent link to the OPEN PHD POSITIONS, facilitating access to descriptions of the research projects and to the application form (Figure 1). Positioned in the center of the homepage, another direct link to the ABOUT US page is provided, allowing visitors to delve into a more comprehensive understanding of the project.

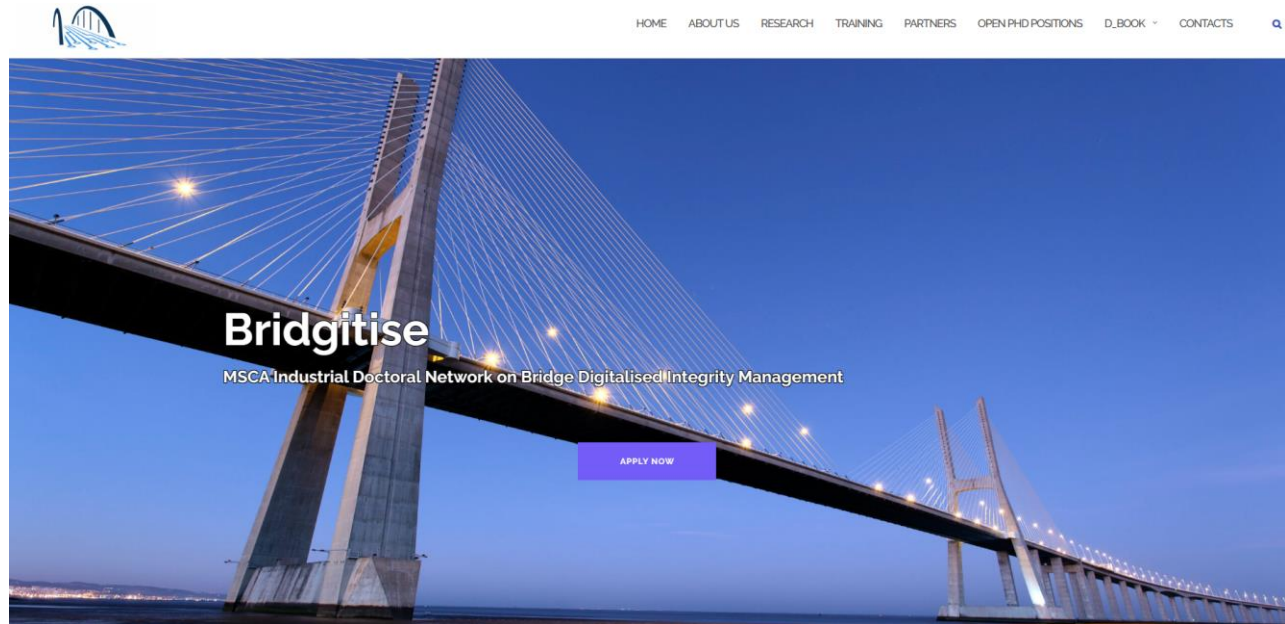


Figure 1: BRIDGITISE Welcome Page



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In the latter portion of the page, all members of the consortium are introduced through their logos, categorized into Beneficiaries and Associated partners (Figure 2). Each logo serves as a hyperlink, directing users to the official website.

Beneficiary Partners



Associated Partners



Figure 2: BRIDGITISE members logos.

The final section of the homepage is dedicated to engaging the widest possible audience. This includes specific sections dedicated to BRIDGITISE News and newsletter subscription (Figure 3).

News

The kickoff meeting of the BRIDGITISE project was held on January 24th and 25th, with Professor Maria Pina Limongelli serving as the Project Coordinator.

The meeting kicked off the project in style! All the partners gathered around the table for some fruitful brainstorming.

"The bridge integrity management sector lags in digitalization compared to other industries. To fill this gap, academia and industry must collaborate closely, with a focus on needs-driven research and knowledge transfer"

said the Coordinator. BRIDGITISE will take up these challenges, proposing a new paradigm for the first Industrial Doctoral Network within the EU that will pave the way to the training of new generations of researchers and professionals with expertise in digital BrIM.

But hey, it wasn't all business! the kick-off meeting was also a chance for the partners to get to know each other better and have a blast in beautiful Milan!

Join Our Newsletter

Name (required)

Email (required)

BRIDGITISE ADHERES TO THE GENERAL DATA PROTECTION REGULATION PRINCIPLES BY APPLYING ITS PRIVACY POLICY. BY SHARING YOUR PERSONAL DATA WITH BRIDGITISE, YOU ACKNOWLEDGE AND ACCEPT ITS POLICY AND AUTHORIZE US TO COMMUNICATE WITH YOU

SUBSCRIBE

Figure 3: News section and Newsletter subscription.



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2.2. About us

The ABOUT US page is designed to provide an understandable description of the main contents of the project to a broad audience, highlighting main objectives and primary tools to achieve them. It holds significant importance as it primarily serves to outline the overarching goals and objectives of doctoral programs. This section offers visitors essential insights into the core challenges driving our research, enhancing our commitment to advancing research across Europe. By articulating our BRIDGITISE fundamental values and aspirations, the "About Us" page establishes a foundation of transparency and credibility, among potential applicants and stakeholders. Figure 4 shows a screenshot of the page.

About us

Bridgitise: where Digital Innovation meets bridge Safety and Sustainability

BRIDGITISE (call HORIZON-MSCA-2022-DN-01) is the first Industrial Doctorate within the EU dedicated to advancing cost-effective and sustainable Bridge Integrity Management (BrIM) through the integration of digital technologies.

A large number of bridges in Europe have been in operation for more than half a century and exhibit widespread signs of deterioration. Besides, they are often operating under conditions substantially deviating from original design assumptions, also due to accelerated deterioration produced by the effects of climate change. Effective management is essential to keep Europe's transport infrastructure operating, and get it prepared for future social, economic, and environmental developments.

BRIDGITISE will take up these challenges proposing a new paradigm for digital BrIM within the EU. The basic idea underlying the project is that the achievement of excellence in this field requires the deployment of innovative technologies for the management of bridge information and their use as decision-support tools for lifecycle integrity management.

To this aim, a network of 16 PhD projects is structured around three main research and training clusters focused on the development and validation of digital technologies to collect bridge information; on Artificial Intelligence and IoT technologies to process and share bridge integrity information, on digital decision support tools to manage bridges across their lifecycle.

The development of the BRIDGITISE will be achieved through a multidisciplinary international consortium, including 24 academic and industrial partners, that covers the whole digital BrIM value chain including distributed sensors, drones, crowdsensing, satellite radar, digital twins, Internet of things (IoT) and Artificial Intelligence (AI) as decision support tools.

The BRIDGITISE approach will pave the way for the training of new generations of researchers and professionals, able to address the pressing challenges related to bridge efficient maintenance through the digitalization of the integrity management value-chain.

Figure 4: ABOUT US Webpage

2.3. Research

RESEARCH webpage serves as a pivotal resource for those visitors seeking a deeper understanding of the project's opportunities. At its core, the page is designed to provide clarity on the project's structure, offering visitors a schematic overview that serves as a visual roadmap through its various components (Figure 5).



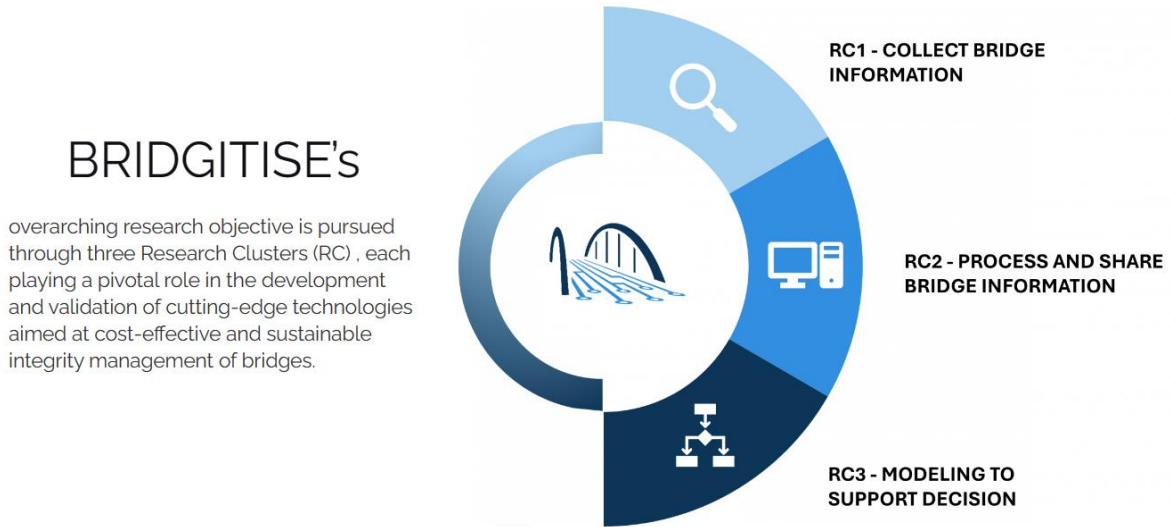


Figure 5: Schematic overview of BRIDGITISE Research Clusters.

Then, the webpage is subdivided into three distinct subsections, each dedicated to illustrating the objectives of the scientific Research Clusters (RC); Figure 6 shows an example of Research Cluster description.

RC1

Collect Bridge Information. Innovative devices and technologies will be examined for information collection, such as crowdsensing with smartphones to collect information at a large scale and low cost, InSAR to collect information at a large scale with high precision; vision-based monitoring to increase the accuracy and reliability of weight in motion systems, unmanned vehicles with flight path optimized in real-time based on the collected information; low-cost sensors with edge computing capacity to optimize the volume of information to transmit; and computer vision and domain adaptation to automatize visual inspections of internal bridge areas.

Figure 6: Example of RESEARCH subsection.

2.4. Training

TRAINING webpage is devoted to explaining the various Training Levels (TL) that each doctoral candidate will undergo: individual, cluster, and networking training levels. The page incorporates an initial schematic overview of the Training levels structures (Figure 7).



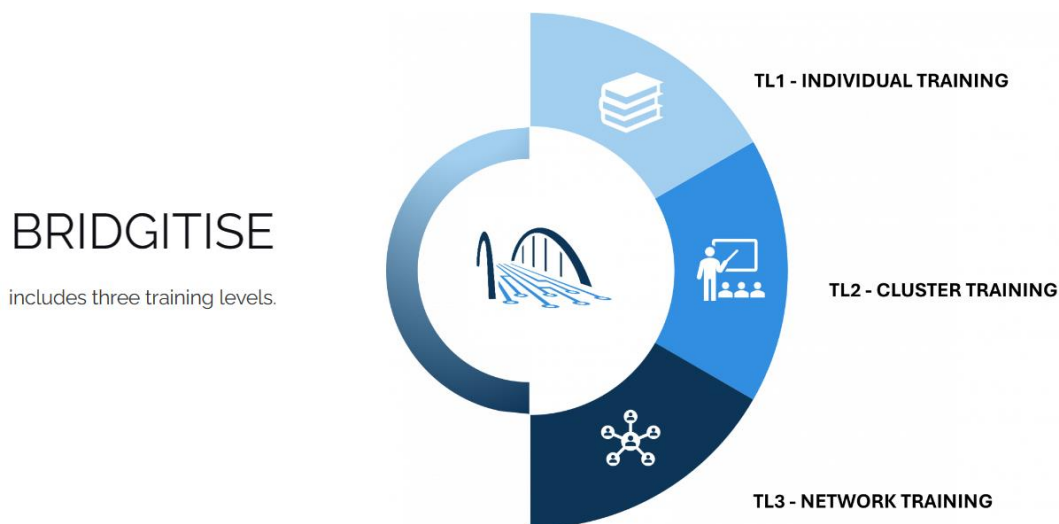


Figure 7: Schematic overview of BRIDGITISE Training Levels: Individual, Cluster and Network Training.

Consequently, the page is divided into three subsections, each comprising a detailed description of the specific activities and an original graphic designed to summarize the relevant information. Figure 8 shows an example of Training Level Description.

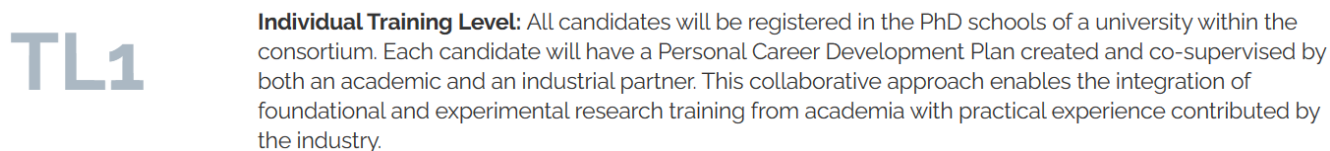


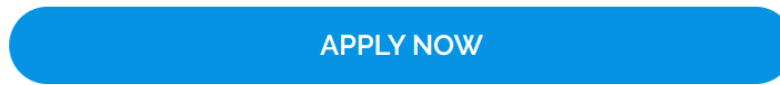
Figure 8: Example of TRAINING subsection.

2.5. Ph.D. Positions

OPEN PH.D. POSITIONS webpage is the heart of the website, as it serves as a comprehensive repository of the 16 doctoral programs to be developed over the next four years. This page provides a centralized hub where prospective applicants can access detailed information about available Ph.D. positions, research topics, and application procedures. By showcasing several Ph.D. positions across various disciplines and research areas, the webpage strives to encourage applications from candidates with diverse backgrounds, perspectives, and experiences. In this page detailed descriptions of research projects, expected outcomes, and potential impacts are provided, enabling applicants to gain a clear understanding of the intellectual merits and societal relevance of doctoral programs. This, in turn, facilitates informed decision-making among applicants, ensuring alignment between their research interests and our consortium's strategic priorities.



At the top, a brief description highlighting the benefits a Doctoral Candidate will have in the context of BRIDGITISE, followed by the link to the application form, with the clear indication of the submission deadline (Figure 9).



Application Deadline: March 31, 2024

Figure 9: Direct link to the submission form.

Figure 10 shows the complete list of the available Ph.D. positions. Each listed project is directly linked to a detailed description, which includes an in-depth exploration of scientific aspects, hosting institutions, and specific Ph.D. school enrollment requirements. Additionally, general information related to MSCA projects, such as monthly salary and overall eligibility criteria, is provided.

List of available PhD positions:

DC1	Mobile crowdsensing and IoT for bridge system identification
DC2	Integration of InSAR-derived and environmental measurements for anomaly detection
DC3	Automated visual inspections of bridges using Unmanned Aerial Systems and vision-based digital imaging
DC4	Advanced Bridge Weigh in Motion (B-WIM) performance using vision-based data and machine learning
DC5	Edge computing and dense low-cost sensing for early damage detection
DC6	Robots, such as Boston Dynamics SPOT
DC7	An advanced digital platform to integrate SHM data into bridge management
DC8	Probabilistic Digital Twins for continuous bridge performance modelling
DC9	Advanced and secure identity provisioning and network monitoring for augmented bridge infrastructures
DC10	Machine learning for deterioration prediction based on digital information streams
DC11	Augmented reality enhanced bridge condition assessment
DC12	Circular life cycle management of bridges
DC13	Small data becoming big data
DC14	Hybrid modelling of corrosion in reinforced concrete structures using heterogeneous data
DC15	Value quantification of digital information systems for climate change mitigation
DC16	Building Information Modelling for decision support

Figure 10: The complete list of available Ph.D. positions. Each position is linked to a detailed description.



2.6. Partners

This section gives to the visitors the general overview of academic and industrial partners of the Consortium. For each partner the page includes the official logo, a short description and the link to the official website. Figure 11 shows an example of a Partner description.



Figure 11: Example of a Partner description available in BRIDGITISE Webpage

2.7. D-BOOK

BRIDGITISE D-BOOK section includes two different parts that can be selected by the user (Figure 12):

1. The **Public Deliverables** area: a public repository intended as a communication and dissemination channel for the project's results and for engaging with the community.
2. The **Members Area**: a consortium work-space (accessible only to the consortium members), containing all information, including working documents and deliverables (Sensitive and Public).

D_Book

D-BOOK (Digital Bridge Online Open Knowledge) functions as the Bridgitise Web Platform designed to facilitate the sharing of research and training materials developed within the project. It serves as a dedicated space for DCs (Designated Contributors) to disseminate their results, theses, and host benchmark case studies. It provides an open-access environment for the global storage and sharing of documents, codes, and data.



Figure 12: D-BOOK Section



2.8. Contacts

The CONTACTS page includes the main contacts to reach out BRIDGITISE management team, to which all visitors can refer for questions and comments. A screenshot of the page is shown in Figure 13.

Contacts

✉ **Project Manager**

Silvia Bianchi: bridgitise@polimi.it

✉ **Administrative Manager**

Alessandra Musto d'Amore: alessandra.mustodamore@polimi.it

✉ **Project Coordinator**

Maria Pina Limongelli: mariagiuseppina.limongelli@polimi.it

Figure 13: Contact Page

3. Concluding Remarks

The BRIDGITISE website has been designed with the primary objective of maximizing its outreach and facilitating the exploration of project content by a wide audience. From its welcoming homepage to detailed descriptions of research projects and available Ph.D. positions, every aspect has been designed to make the website easy and accessible.

As the project progresses, the website will continue to evolve. Specifically, we have plans to introduce new sections dedicated to presenting the enrolled Ph.D. candidates, advertising upcoming events related to the project, and providing a platform for archiving newsletters.

Furthermore, as the research progresses, efforts will be made to enrich the content by presenting the main results in an understandable manner. This strategic approach aims to enhance dissemination efforts, making project findings accessible not only to technical audiences but also to the broader public. BRIDGITISE website serves as a very effective communication and engagement tool throughout the project's lifecycle, reflecting our commitment to accessibility and impactful dissemination of research outcomes.

