Bridgitise INSIGHTS

Welcome to the first BRIDGITISE newsletter!

As we embark on this new journey, we are pleased to bring you the latest updates, insights, and achievements of the BRIDGITISE project. Funded by the European Union, BRIDGITISE promises to revolutionize bridge management.

In this newsletter, we will keep you informed about our progress, milestones, and the people driving this project forward. From groundbreaking research to exciting real-world applications, we invite you to join us on this exciting venture as we shape the future of bridge engineering.

Introduction to the Project

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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; Artificial Intelligence and IoT technologies to process and share bridge integrity information; digital decision support tools to manage bridges across their lifecycle.
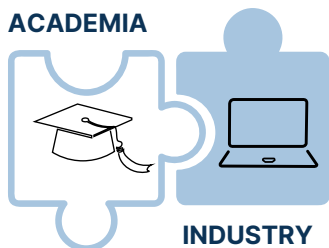
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Meet the Team

The development of the BRIGITISE project will be achieved through a multidisciplinary international consortium of 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. You can find the complete list at **https://www.bridgitise.polimi.it/partners/**

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. The project is coordinated by Professor Maria Pina Limongelli, from Politecnico di Milano.

ACADEMIA

INDUSTRY

Events

The project's kick-off meeting was a great success! Hosted at the beautiful Politecnico di Milano's rectorate on January 24-25, it sparked productive brainstorming sessions.

KICK OFF

Beyond business, it was a chance to bond and enjoy Milan's charm.

Call for Ph.D.

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We are very proud to announce the opening of 16 fully-funded Ph.D. positions as part of BRIDGITISE project! Complete descriptions of the 16 Doctoral positions available are described at **www.bridgitise.polimi.it.**
Here is the complete list of the available Ph.D. Projects:

Position 1 CROWD – Mobile crowdsensing and IoT for bridge system identification (*Politecnico di Milano, Italy*)

Position 2 SATELLITE – Integration of InSAR-derived and environmental measurements for anomaly detection (*Politecnico di Milano, Italy*)

Position 3 DRONES – Automated visual inspections of bridges using Unmanned Aerial Systems and vision-based digital imaging (*Politecnico di Bari, Italy*)

Position 4 WIM – Advanced Bridge Weigh in Motion (B-WIM) performance using vision-based data and machine learning (*Politecnico di Bari, Italy*)

Position 5 EDGE – Edge computing and dense low-cost sensing for early damage detection (*KTH Royal Institute of Technology, Sweden*)

Position 6 ROBOT – Robots, such as Boston Dynamics SPOT (*Swiss Federal Institute of Technology Zurich, Switzerland*)

Position 7 PLATFORM – An advanced digital platform to integrate SHM data into bridge management (*Politecnico di Milano, Italy*)

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Position 8 TWINS – Probabilistic Digital Twins for continuous bridge performance modelling (*Politecnico di Milano, Italy*)

Position 9 CYBER – Advanced and secure identity provisioning and network monitoring for augmented bridge infrastructures (*Politecnico di Bari, Italy*)

Position 10 NEURAL – Machine learning for deterioration prediction based on digital information streams (*KTH Royal Institute of Technology, Sweden*)

Position 11 VISUAL – Augmented reality enhanced bridge condition assessment (*University of Twente, The Netherlands*)

Position 12 CIRCULAR – Circular life cycle management of bridges (*University of Twente, The Netherlands*)

Position 13 CODES – Small data becoming big data (*Politecnico di Milano, Italy*)

Position 14 CORROSION – Hybrid modeling of corrosion in reinforced concrete structures using heterogeneous data (*Politecnico di Milano, Italy*)

Position 15 VALUE – Value quantification of digital information systems for climate change mitigation (*University of Lund, Sweden*)

Position 16 D-BIM – Building Information Modelling for decision support (*University of Lund, Sweden*)

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Next Steps

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Following the publication of the Ph.D. calls, a significant milestone to highlight on your calendar is the official enrollment of the 16 Doctoral Candidates. The selected doctoral candidates will engage in close collaboration with both universities and industry partners, facilitating the effective transfer of academic knowledge into practical applications. This collaboration aims to bridge the gap between theoretical insights and real-world implementation, fostering meaningful contributions to the field.

Stay connected

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Follow us on Linkedin for the latest updates and insights from BRIDGITISE!

@ in www