ASHVIN's Newsletter vol. 3

May 2022

Check our Public Deliverables!

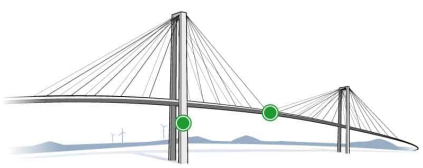
Over the last six months of our exciting project, **ASHVIN** consortium has released a number of public deliverables highlighting all major outcomes of our work! Visit **our website** to access all documents and read all about our recent work.

Find out more

Find out more about our recent work!

ASHVIN's Value Proposition

Value proposition usually refers to **why customers recognize and are willing to buy the products or services** of a particular enterprise, that is, what value the products or services of an enterprise can bring to customers. To this extent, the value proposition **determines the positioning and integration of the strategic direction**, operation structure and



Structural Health Monitoring (SHM)

A **SHM system** is defined as both **"the observation"** and **"the analysis"** of a built asset over time using periodically sampled response measurements to monitor changes to the material and geometric properties of engineering structures such as bridges and buildings. The **fundamental objective** of SHM **is to manage**

overall business process of the enterprise. The report presents ASHVIN's value proposition which is based on 4 main categories with the same objective of optimizing collective performance.

Read more »

the risks and to take the appropriate decisions associated with an asset, including information for the assessment of the risks and for understanding how they might develop with time.

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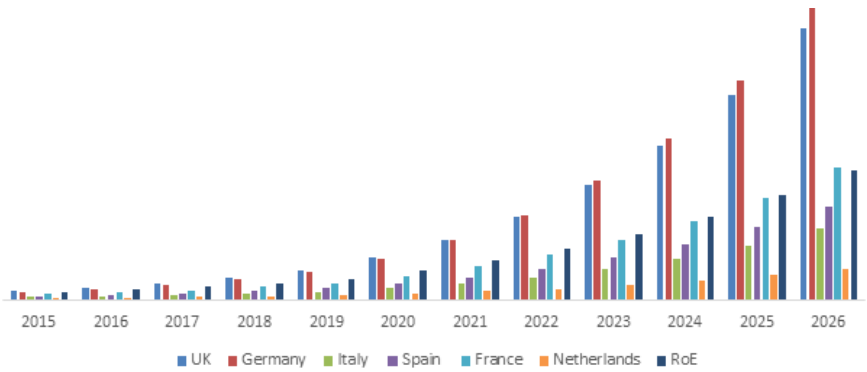
Scale reduced cable net - Tests on Sensors and MatchFEM

The Digital Twins Market: An Overview



By providing a proposal for a **pan European digital twin standard**, an **open-source digital twin platform integrating IoT and image technologies**, and a **set of tools and demonstrated procedures** to apply the platform and the standard proven to guarantee specified productivity, cost, and safety impediments, our project, **ASHVIN** will **strive to enable the European construction industry to significantly improve productivity while reducing costs and ensuring absolutely safe working conditions**.

The integration of digital twin technology with practically every stakeholder presents a strategic solution to address challenges across the full spectrum of **ASHVIN**'s asset's life cycle. The benefits of digital twins are varied; however, they can generally be categorized into the following **three key business drivers**:**1) Creates a centralized database and single source of truth. 2) Supports decision-making for allocating investment dollars. 3) Accelerates continuous process optimization**.

Find out more

COGITO: Digital twin solution for lean construction

The acceleration of digitalisation in lean building/infrastructure construction will facilitate the industrialisation of the construction sector. The EU-funded **COGITO** project proposes to materialise the digitalisation benefits through a digital Construction 4.0 toolbox that harmonises Digital Twins with the Building Information Model concept. This allows a semantic and pragmatic alignment between novel data capture techniques and value-adding end-user services leveraging the power of near-real-time data for the timely detection of health & safety hazards to humans, construction quality defects as well as a constantly up-to-date workflow management in order to minimise construction project time/cost overruns and alleviate workplace accidents.

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BIM2TWIN: Optimal Construction Management & Production Control

The use of advanced technology is essential for improving the construction industry by allowing for more efficient management, increased productivity, and reduction of operational waste and carbon footprint. The EU-funded **BIM2TWIN** project will create a Digital Building Twin (DBT) platform for construction site management using artificial intelligence (AI) and semantic linked data techniques. The platform will provide full situational insight on the as-built product and as-performed processes, which will be used and compared to the as-designed product and as-planned processes through an extensible set of construction management applications to implement a closed-loop Plan-Do-Check-Act process.

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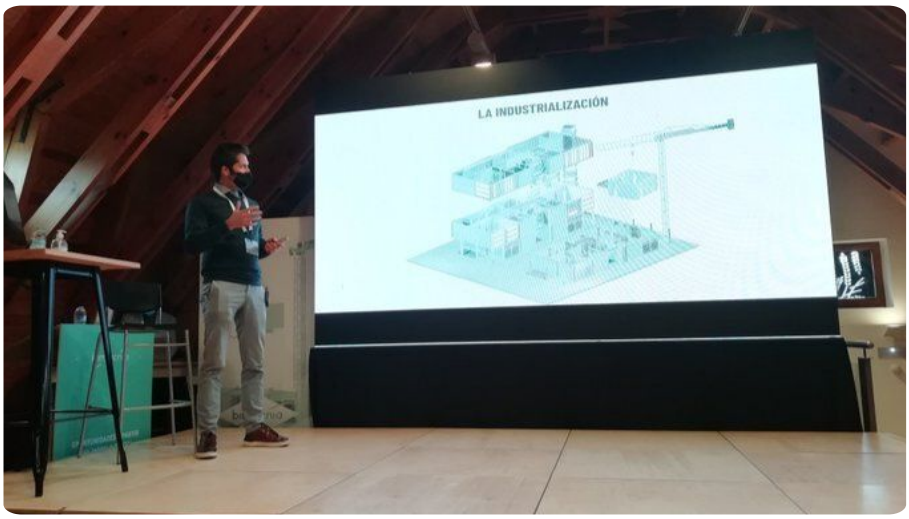
Kineum office building in Sweden

BIMprove: Improving Building Information Modelling by Realtime Tracing of Construction Processes

The construction industry sector creates 18 million direct jobs and contributes to 9 % of Europe's GDP, driving economic growth. However it also accounts for social, climate and energy challenges. The EU-funded **BIMprove** project will connect people, technology and processes to move beyond building information modelling (BIM), improving efficiency and outcomes in building and construction planning and operations with digital twin technology. **BIMprove** will develop a comprehensive end-to-end digital thread that can continuously identify deviations and update the digital twin accordingly. Construction companies can use real-time data to plan the fine-tuned allocation of resources, flow of people and safety of employees.

Find out more

ASHVIN at BIMTECNIA2021!

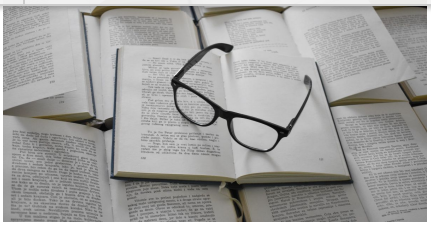


Professor Rolando Chacón from **Universitat Politécnica de Catalunya (UPC)** was invited by the Industrial Sector as a Keynote Speaker at the **BIMTECNIA2021**, a conference on BIM Technologies and Construction 4.0 activities, that took place at **14th December 2021 at Valladolid, Spain**.

Professor Chacón presented on **"The potential use of digital twins in design, construction and maintenance of infrastructures"**. The lecture was focused on actions taken in recent years within Academia and European research projects. In particular, **ASHVIN** solutions were presented together with some explanations of the activities developed in the **Laboratory of Digital Twins** at **UPC**.

Find out more

ASHVIN's Publications!



Virtual construction with digital twins – The key for leanly planned complex construction systems

Our first publication is a fact! **Professor Timo Hartmann** from **TUB** wrote our first paper on **"Virtual construction with digital twins – The key for leanly planned complex construction systems".** This paper describes the **envisioned lean construction approach** to be developed during the project. Additionally, the paper provides a number of reflections on how digital supported construction planning can further reduce waste by streamlining resources required for planning activities and by empowering the construction workforce.

Read more »

Open-source terrestrial laser scanner for the virtualization of geometrical entities in AEC classrooms

Our partner **Universitat Politécnica de Catalunya (UPC)** released our first peer reviewed paper! **Carlos Ramonell** and **Professor Rolando Chacón**, published our first paper entitled **"Open-source terrestrial laser scanner for the virtualization of geometrical entities in AEC classrooms"**. This paper depicts a case study that shows an open-source Terrestrial Laser Scanner (TLS) for use on the virtualization of simple yet precise geometrical entities in AEC classrooms.

Read more »

ASHVIN's YouTube Channel

Don't miss to visit **ASHVIN**'s **YouTube Channel**! In this channel you will find videos from our pilot sites and demonstrations of our exciting and innovative technologies. Don't forget to subscribe to stay tuned for more content!

Visit our Channel

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