ASHVIN

Supporting the Digitalisation of Your Construction Sites

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the European Union

Create a Digital Twin of Your Construction site

Do you already use sensor devices to collect data from your site but miss the integration within an internet of things (IoT) platform (internet-driven platform)?

Are you interested in implementing sensor-based monitoring?

If yes, onboard the ASHVIN digital twin platform now! FREE OF CHARGE

With ASHVIN, you can analyze, get insights and make visualisations from data that you have already collected. If you do not collect data yet, the ASHVIN experts can deploy sensors on your site and utilise this data.
All of this, **FREE OF CHARGE,** as a part of our research & innovation project.

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ASHVIN Partners

your points of reference

Research and Technical organisations

Technische Universität Berlin

CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Erasmus University Rotterdam

AUSTRIAN STANDARDS Driven by Making Sense

SMEs organsations

DIGITAL TWIN TECHNOLOGY

digitÆC matters

AUSTRALO

MAINFLUX Internet of Things Solutions

infra plan konzalting

Organisations in civil engineering

FASADA

NCC

PlanB

sbp schlaich bergermann partner

INGEO

The ASHVIN solution is created by a group of **15 European organisations**, experts in digital innovation for construction projects

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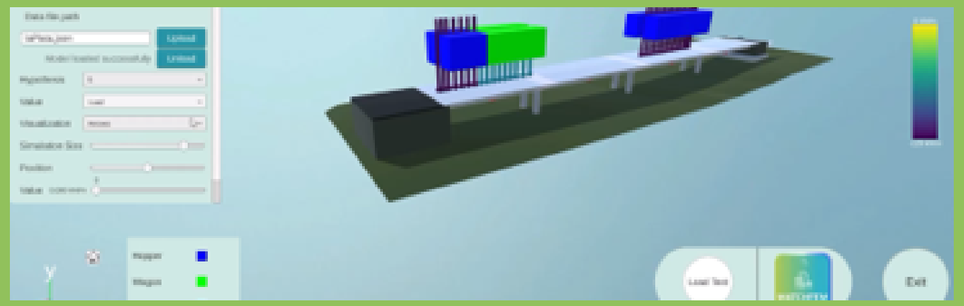
ASHVIN is a Novel Digital Solution

Designed and Developed for Construction Sites

The ASHVIN solution is composed of an IoT platform, **a digital twin platform** and 10 smart building tools (applications).

It supports **varied types of civil engineering projects** (e.g., buildings, bridges, stadium roofs, quay walls etc.) in the design, construction, and maintenance of the asset.

The 3-year project, in its final year, **opens the results of its innovation to new construction projects** by proposing to onboard them to the ASHVIN Digital Twin platform.



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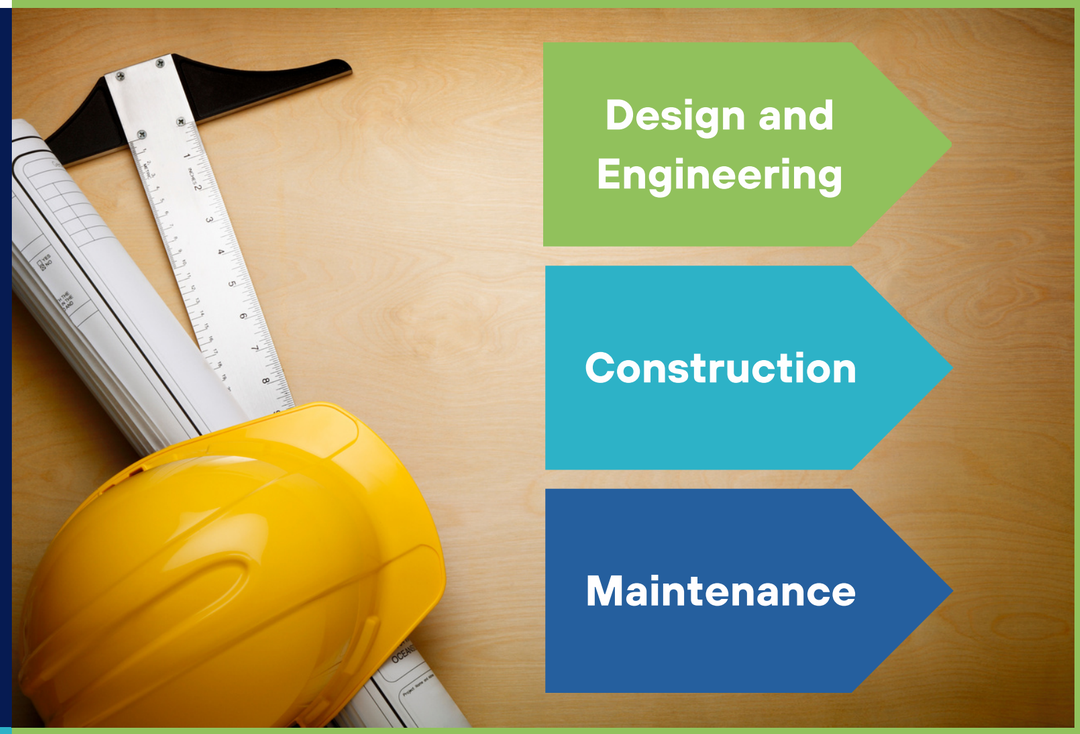
ASHVIN Demo Sites

We are testing the system at **10 European demonstration sites;** collecting and analysing data to ease the real-time management of the asset.

Now, meet a few of these sites to understand how data can serve you in construction project management!

Demonstrated Project Phases



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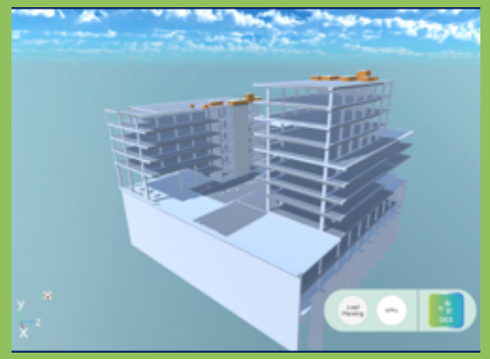
ASHVIN Demo Sites

ASHVIN for **Construction & Digitalisation of an asset**

Kineum Office Building in Sweden



Project phase
Construction

Objective
We create a dynamic digital twin with tailor-made support feeding back to the site management during construction works, health and safety improvements on site.

Collected Data
- Temperature
- RH
- Dust
- Noise
- Evacuation alarm & activity
- 3D point clouds recorded with laser scans

Airport runaway in Croatia

Project phase
Maintenance

Objective
We digitalize and automate the airport management system to show how ASHVIN can improve the efficiency of asset management.

Collected Data
- Visual inspection data collected by a drone
- Image semantic segmentation detects and classifies four types of damages or instances on the runway: cracks, joints, repaired cracks and tyre marks

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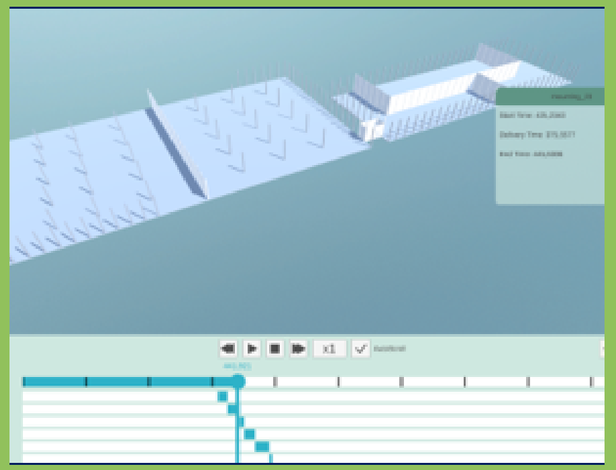
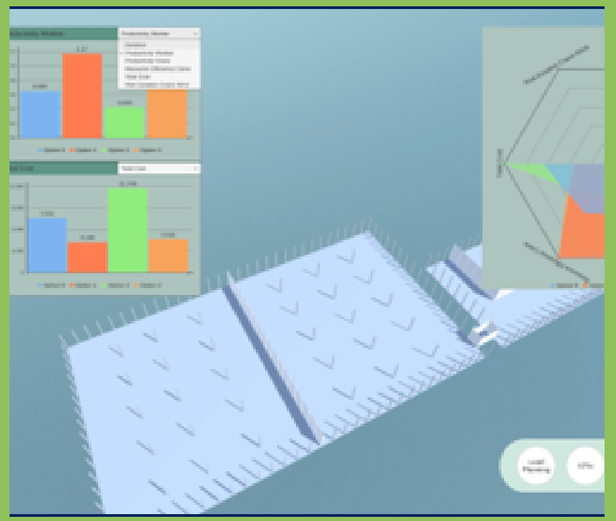
ASHVIN Demo Sites

ASHVIN for **Construction - Focus on Concrete and Crane works**

Logistics Hall in Germany





Objective

We support the construction processes through the data gathering of construction equipment and usage of Digital Twin in real-time

Collected Data

- Time-lapse images of the construction process
- Tracking mounting of Prefabricated Columns, Finishing Works, and Concrete works using a tower crane

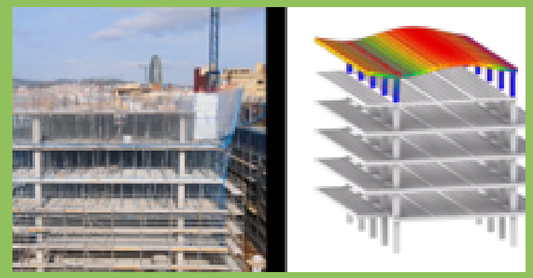
Office Building in Spain

Objective

We facilitate and support of construction process from the perspective of materials, structures, geometry, processes, quality and safety

Collected data

- The temperature of fresh concrete (strength of materials and components properties),
- The vibration of concrete (Accelerometers)
- Slabs deformation point cloud (TLS)
- Strain gauges (post-tensioning of slabs)
- Photogrammetry
- Tracking of crane hook (GPS, accelerometers, barometer)



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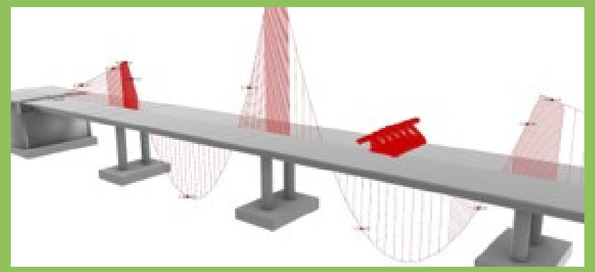
ASHVIN Demo Sites

ASHVIN for
Maintenance

Bridges for High-Speed Railways in Spain



Objective

We create of a virtual replica of the bridges to ease their maintenance, especially during load testing.

Collected data

- Strain gauges,
- Displacements,
- Accelerometer.

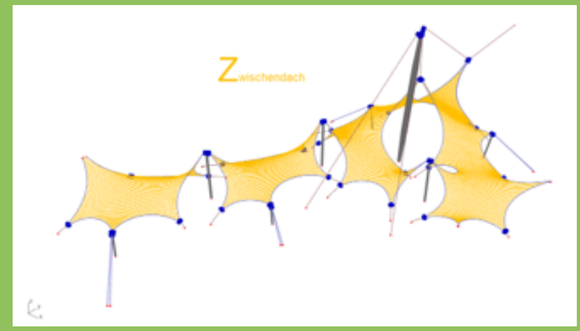
Sport Stadium Structure in Germany

Objective

We develop a digital representation and correlate data of measurements with the structural model. The aim is to improve future maintenance and asset management.

Collected data

- Measurement of the position of the nodes and cable structures



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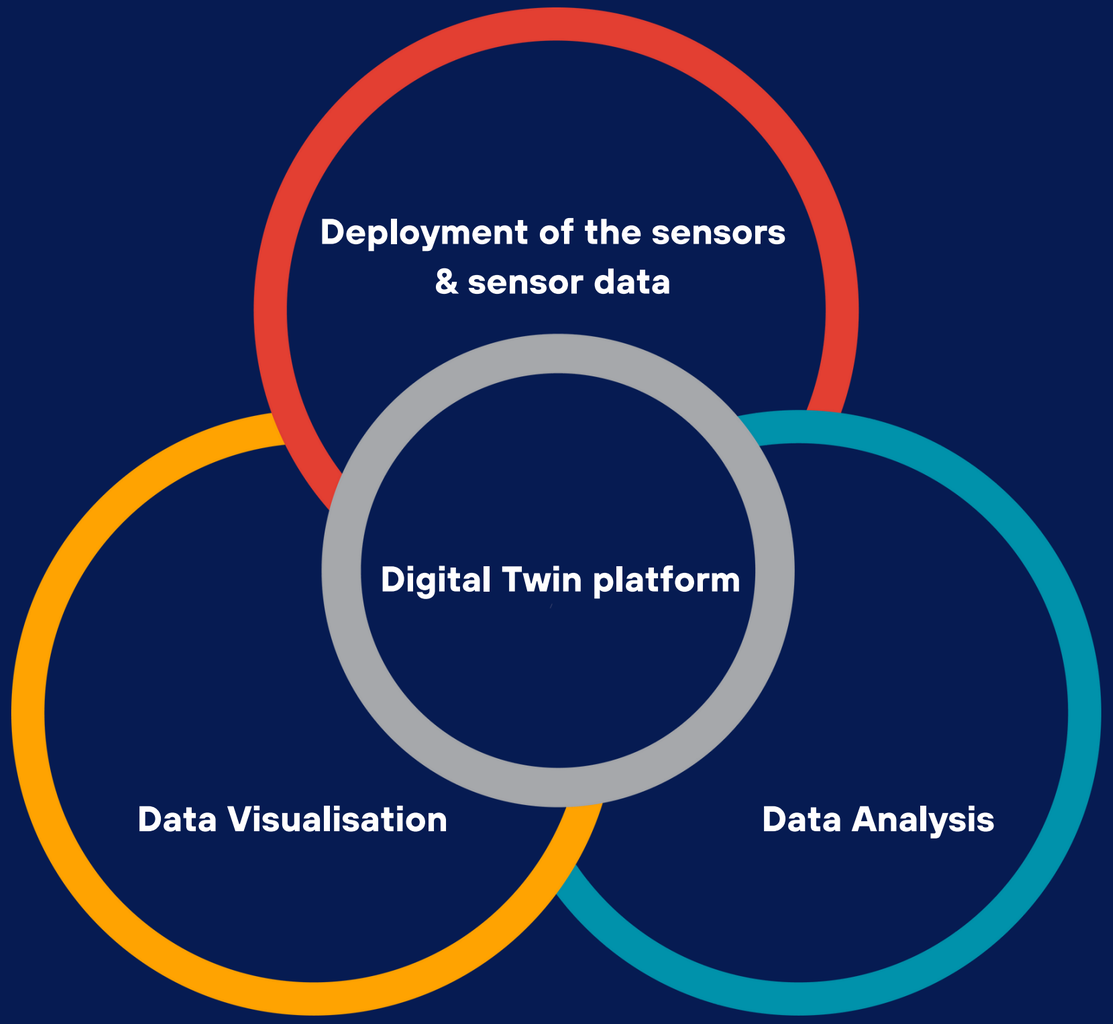
What ASHVIN Offers to Your Construction project?

ASHVIN offers you **access to the developed digital platforms** that enable you to deploy the collected data from your construction project and then analyse and visualise it.

We can support you in the **design**, **construction** or **maintenance** of your asset.

We also offer you **the technical expertise of our partners**, that can support you one-to-one in the deployment of the ASHVIN platform and related data collection, analysis and management.

This proposed experiment is entirely FREE OF CHARGE to you!



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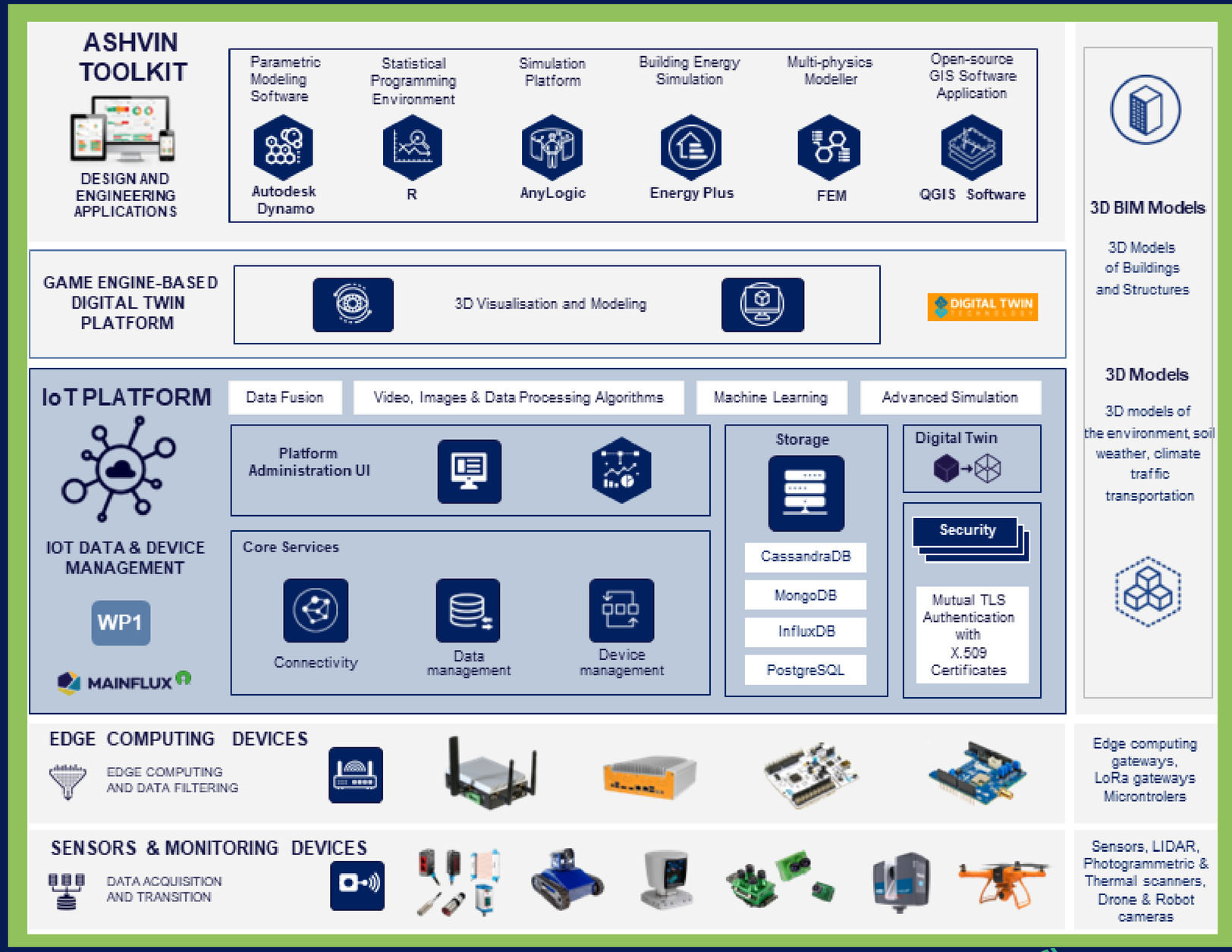
How ASHVIN works?

01 ASHVIN runs on an **Internet of Things platform** connecting the solution to varied devices collecting data.

02 The Digital Twin platform enables to visualise the data supporting **real-time** maintenance of your site.

03 A set of **10 smart building applications** analyse and deploy the data for specific purposes supporting the project, such as evidence-based design.



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Secure Data Management

Sounds good, but how can one be sure that the data you bring to ASHVIN is securely managed and that its privacy is respected?

Secure data management is an elemental value of our work:

How will your data be stored?

Your provided data can be stored on Amazon AWS cloud in Frankfurt, on the preferred cloud server, or on your premises (e.g., on a private server).

Who will have access?

Your company decides who will have access to the data.

How long will it be used?

The data is used in ASHVIN until the end of the ASHVIN project, which is fixed at the end of September 2023. However, a possible extension can be discussed.

Who will be responsible?

To determine the person in charge, a non-disclosure agreement can be issued.

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What resources are needed to benefit ASHVIN?

What kind of Data Types & Sensor Sytems are Used?

Until now deployed, the sensor system comprises an inertial measurement unit (IMU), GPS tracker, and barometer. The IMU sensor detects the crane's 3-axis acceleration, angular rate, and orientation. The GPS tracker enables the system to locate the crane's position, while the barometer detects the crane's altitude by measuring atmospheric pressure.
Also, point clouds and time-lapsed images can be used.

What can the ASHVIN team provide to your project?

We can support you in the deployment of sensors and their connection with the IoT platform, as well as assist the data collection and perform data analysis and visualisation on our Digital Twin Platform.

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You are interested in using the ASHVIN Digital Twin solution?

... Next Steps

01 Make sure your construction project is based in an EU country.

02 Contact us via email at **contact@ashvin.eu** or via your personal contact within the ASHVIN team.

03 We organise an online meeting to plan the onboarding and to understand the status of your construction site.

04 We will also settle specific aspects, such as the API, potential site visit by the ASHVIN team and timeline to respect the current work of your site.

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Welcome to ASHVIN!

www.ashvin.eu

www.linkedin.com/company/ashvin-h2020

contact@ashvin.eu

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