

#New technologies & energies

2024
**iNTER
MAT.**

**PARIS
24 - 27 APRIL 2024**

Sustainable
construction solutions
& technology exhibition

The New technologies & energies hub at INTERMAT 2024:

New technologies for building & public works

- 3D printing
- Digital site monitoring
- Drones
- Equipment sharing platform
- Exoskeletons to lift heavy loads
- Infrastructure monitoring
- Machine guidance (techniques)
- Management information systems for distributors of civil engineering and handling equipment
- Mechanical and electrical design software
- On-board weighing system for site equipment and machinery
- Optimisation of the use of site equipment
- Real-time positioning monitoring
- Safety software
- Site waste recycling management
- Tunnelling equipment management

BIM

- 3D digital model
- 3D modelling software
- Augmented reality module
- BIM engineering services
- BIM management
- Building data management system
- Computerised site management
- Construction project simulation
- Digital design and robotic manufacturing
- On-site digital tools
- Plan drafting
- Plotters
- PPE advice and management
- Predictive maintenance tools
- Radio telephony for sites
- Sensors
- Site management ERP
- Virtual reality module

Topography, engineering, automation

- Topography
- Engineering
- Automation
- Measurement and control of construction materials

New & renewable energies

- Biofuel
- Compressed natural gas (CNG)
- Hydraulics
- Hydrogen
- Solar panels for construction sites
- Storage/Distribution/Refuelling of energy
- Other new & renewable energies

#New technologies: the top trio

BIM

The building information modelling (BIM) market was estimated at €8.1 billion in 2020 and is expected to reach €21.1 billion by 2026, recording CAGR of +17.62% over the forecast period (2021-2026)

+17.62%
2021-2026

€8.1 billion in 2020 → €21.1 billion by 2026

(mordorintelligence) – dollar to euro conversion of 14/04/2023

50% of the largest construction companies in France use BIM mainly at level 2*, i.e. total collaboration

(constructioncayola)

BENEFITS: Improved collaborative working, time savings, interface management, simulations, optimisation, increase in quality *(FFB)*

**BIM level 2 (total collaboration): Information is shared among the different members of the project. At this level, two new project management dimensions are introduced: 4D, related to time management, and 5D, related to cost analysis. Collaborative working is at the centre of BIM level 2. Source TP.demain*

3D printers

The 3D printer market in the construction industry was estimated at €3.2 billion in 2022 and is expected to reach €36.5 billion by 2027 (CAGR +29.48%)

€3.2 billion in 2022 → €36.5 billion by 2027 **+29.48%** CAGR

Dollar to euro conversion of 19/04/2023 (SmarTech Publishing)

BENEFITS: 30 to 60% reduction of construction costs, time saving, ecological benefit, ease of construction. *(planradar)*

IoT

IoT in the construction industry

€7 billion in 2019 → €17 billion in 2027 **+14%** CAGR

Source (Mokosmart) - dollar to euro conversion of 02/02/2024

Number of connected objects in France

44
MILLION



Study by Ademe and Arcep

BENEFITS: Cost savings, improves productivity, improves safety and security, predictive maintenance, easier project management. *(Moko Smart)*

#The challenges of building and public works in France:

Today, France is following a National Low Carbon Strategy (SNBC) which aims to achieve net zero by 2050 in order to combat climate change. The Major Investment Plan for the construction sector provides for €20 billion, including **€7 billion** for the development of renewable energies.

Source Europe TP

The building and public works sector is one of the most polluting, in particular the Building sector which accounts for nearly **45%** of domestic energy consumption and contributes **20%** to greenhouse gas emissions (GHG) in France.

Source Ecologie.gouv

Infrastructure construction accounts for **3.5%** of CO₂ emissions in France.

Source European Commission

To speed up this decarbonisation, several levers have been identified:

- ◆ Use low-carbon energy
- ◆ Improve the energy efficiency of buildings
- ◆ Improve recovery of construction waste
- ◆ Carry out energy renovation work

Close-up on alternative energies:

Civil works companies consume a lot of fuel for travel and transportation through their fleets of light vehicles, light commercial vehicles and heavy goods vehicles.

- In France in 2018, 100% of fuels used were fossil fuels.
- 21% of CO₂ emissions are generated by civil works equipment and fuels on construction sites

The use of alternative fuels, such as synthetic biofuels and GTL; the use of electricity or even green hydrogen (zero carbon hydrogen) are solutions for the future:

- Reductions of greenhouse gas emissions from zero carbon hydrogen are estimated at between 75% and 69% compared to an equivalent diesel vehicle, over the entire life cycle.

A sum of €9 billion was announced by the French government in 2022 and the France 2030 Plan to invest in developing hydrogen as part of the national strategy for the development of zero carbon hydrogen.

- Biofuels reduce greenhouse gas emissions by as much as 90%

Source Acteur pour la planète – FNTP: LES TRAVAUX PUBLICS S'ENGAGENT POUR LE CLIMAT

To achieve the climate targets more easily:

- ◆ In 2021, the French cement industry undertook to cut its greenhouse gas emissions by 24% by 2030, and by 80% by 2050. Cement is responsible for 98% of CO₂ emissions from concrete.

Source La Tribune – Décarbonation de l'industrie : La filière béton pousse l'Etat à changer de logiciel

- ◆ The National Low Carbon Strategy plans for a **50%** decrease in emissions by 2030 for the building sector.

Source Le Moniteur des Travaux Publics et du Bâtiment – En route vers la décarbonation complète du bâtiment

- ◆ Civil works companies are committed to decarbonising their construction sites, with a target of **-40%** by 2030 compared to 1990.

Source FNTP: L'engagement des entreprises de TP pour la décarbonation des chantiers

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