

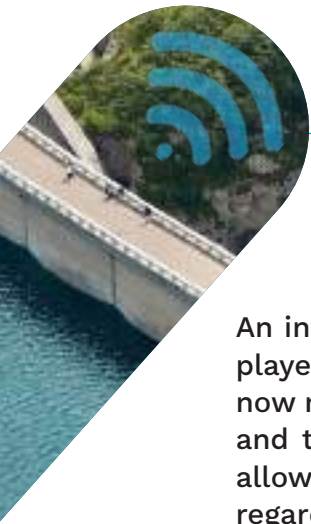


MANIFEST

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openBIM, Support toward ecological transition

To face the climate emergency, as recalled by the IPCC reports, construction stakeholders (Main contractors/ Builders/Operators/Maintainers) are committed to implementing a circular economy and achieving carbon neutrality by 2050. Digital tools allowing solutions to be proposed, trajectories to be simulated and progress to be monitored, are essential levers for ensuring this ecological transition.



CARBON AND DIGITAL IMPACT

An infrastructure project is complex, given its high number of interfaces between players, physical properties, lifespan of the works... The maturity of digital tools now makes it possible to simulate, measure, compare and manage the information and their exchanges. Based on open data and work process standards, openBIM allows all construction stakeholders to collaborate around the same digital model, regardless of the software solution used. Technically, French design, construction, operation, and maintenance companies have been committed to this digital transformation for many years.

A shared environment common to all players can now start its implementation, thanks to ongoing standardization work.

Understanding the complexity and condition of existing infrastructures, to ensure the accuracy of the dimensioning by guaranteeing the lifespan of the structure, to simulate its aging, with for example the consequences of predictable climatic events are now possible thanks to their digital tools. It is also possible to generate reliable information at all levels, for purchases, deliveries, work phases, safety, decision-making, management of up-to-date documents, etc.

This numerical efficiency can now be used for structures that generate low CO2 emissions. It allows for simultaneous work, particularly on materials, objects, construction processes and uses. Gains can be pooled between all phases, and this, throughout the lifecycle of the structures.

Thanks to openBIM, indicators, and acquisition of reliable data to inform them, can now be specified and calculated. Furthermore, behaviours can also be forecasted, performance of the structures monitored and checked.

The emergence of innovative and disruptive solutions will be necessary. Only the agility of digital tools will allow it, as soon as the characteristics of ecological sobriety, durability and sharing of information free of technical obstacles are associated with them.

As the construction industry develops openBIM, the interoperability allowed by openBIM, guarantees everyone the possibility of participating in the design, construction, management, and deconstruction of the work.

At the local or territory level, the data will provide a broader view of the issues at stake by producing relevant reports.

Based on the work already in progress on digital technology, the profession has committed itself to three ambitions to further proceed in the ecological transition of its businesses :

- a common vision,
- a shared framework,
- a common roadmap.

AMBITION 1 : A COMMON VISION

The digital transition can only be efficient if it is in accordance with the common vision of the profession¹. As a reminder :

- open BIM and open GIS² guarantee full accessibility to data, sole guarantee of collaboration between actors and of efficiency during the different stages of a project.
- The data must be interoperable, usable in a sustainable way, and efficiently traced, for smooth exchanges and maximal trust between all project stakeholders.
- Clouds are necessary for sharing information but must be protected against third parties who could endanger the sovereignty, neutrality, reversibility, and ecological sobriety (in terms of data redundancy).
- The regulations must be supplemented and improved to protect all stakeholders' data, know-how and intellectual property.

A shared openBIM vision for ecological transition means embracing a common goal, including by the decision-makers. With the implementation of digital twins, this vision includes low-carbon trajectory monitoring for the lifetime of the infrastructure.

AMBITION 2 : A SHARED FRAMEWORK

In recent years, actors in the sector have developed and published a full set of standardisation documents. Principals can therefore rely on this complete corpus in the building, infrastructure, and territory fields. Some project owners and managers of built assets and territories have already implemented a proactive strategy prescribing the use of openBIM and digital twins. It is now time we establish these solutions. The particularly dynamic French construction ecosystem supports these transformations in a concerted and operational manner, with international partners and software publishers.

The current corpus acts on :

- Organizing the data around the objects to be built : IFC 4.3 standard, called ISO 16739³ deals, among others, with all the territory's digital twin data and is the first to be implemented.
- Organizing data exchange processes, with the ISO 19650⁴ standard, allowing the implementation of digital processes in contracts.
- Structuring business knowledge related to construction objects, with the ISO 23386⁵ standard. This text allows business experts to define object properties. The development of measurable performance indicators and quantitative reckoning will flow from it.

¹ Document sharing a common position, published by EGF-BTP, FNTP, MINnD and Syntec Ingénierie in 2021 "Delivering a digital transformation that enhances the services and the impacts of the Public Works Sector".

² geographic information system

³ ISO 16739:2013 "Industry Foundation Classes (IFC) for data sharing in the construction and facilities management sectors"

⁴ ISO 19650 and its 6 chapters "Organization and digitization of information about buildings and civil engineering works, including building information modelling"

⁵ ISO 23386 "Building information modelling and other digital processes used in construction - Methodology to describe, author and maintain properties in interconnected data dictionaries"

AMBITION 3 : A COMMON ROADMAP

It is now high time for Public Procurement to fully play its role as a lever for ecological transition. All players must be motivated by it, to implement it through digital transformation⁶, during all phases of the development and life of the infrastructures. New frameworks and terms of reference to guide the call for tenders will be required, including for the operation/maintenance phases to best conduct and control the monitoring of the works. The terms of reference of the public calls for tenders (technical as well as administrative specifications) should :

- Include technical specifications oriented towards openBIM and “open Cloud” technologies.
- Include specifications promoting the creation of digital twins as long-lasting digital assets.
- Optimize investments (CAPEX) and operating expenses (OPEX), and therefore the asset management of infrastructures, thanks to the technology available.
- Integrate quantifiable, standardized, and transparent parameters for fair competition, while comparing bids.
- Integrate these indicators in rating systems for the purpose of promoting the best bidders in terms of carbon footprint and circular economy.

⁶ [COMMISSION STAFF WORKING DOCUMENT ‘Scenarios for a transition pathway for a resilient, greener and more digital construction ecosystem’](#) English version or en version française

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