



OFFER SHEET

Building Information Modeling - BIM

Business processes for facilities and buildings management

Use Cases

Studies: design, pre-synthesis, concurrent engineering and advanced uses (costs, simulations, etc.)

Construction and testing: work phase synthesis, clash management and site planning

Operation and maintenance: asset management and reverse engineering

Dismantling: study and definition of dismantling scenarios

In-operation digital Twin anticipation during design phases

Project Benefits

Optimisation and schedule consistency

Cost reduction

Configuration management of the assets throughout its life cycle

Reduction of the risk of information loss through the centralisation and traceability of data

Decision-support tool, via scenarios

Better management of co-activity

CONTEXT & STAKES

Owners are required to build buildings or facilities that are increasingly complex and efficient. They must be "intelligent", connected, optimised, prepared for operation, while being safe, eco-responsible, or energy self-sufficient.

Traditional tools such as 2D plans and paper files, which are still used in the majority of cases, are insufficient today in view of these requirements. The ambition is to be able to capitalise on centralised and shared data in a collaborative working environment throughout the lifecycle of projects/buildings (from design to deconstruction).

THE OFFER

Through its BIM offer, Assystem provides a digitalized and collaborative reference system. This paradigm shift provides stakeholders with a BIM (3D model and data) to serve as a shared decision-making environment.

This aids the communication, exchange and management of data throughout the life of the installation.

As a result, Assystem's BIM offer is modular and adaptable around a BIM model and its linked documentation repository (codifying the structuring, the organization of the data and the business processes). For pre-existing or yet to be built designs, Assystem's BIM teams advise, define and implement new services and use cases leveraging added value for your projects.

BIM models can be created during the design phase or, in the case of reverse engineering, semi-automatically or even automatically by laser-scanning the industrial infrastructure (Scan2BIM). In this case, advanced technologies based on Artificial Intelligence make it possible to segment the architectural elements and objects of interest for a given point cloud.

CENTRALISE all project information

VISUALISE accurately the assets to date and in the future

EVALUATE the performance of the facilities using digital models

OPTIMISE the use of space on industrial sites

IMPROVE co-activity (coordination between different trades)

ANTICIPATE design risks

AVOID conflicts, schedule delays and additional costs

CHARACTERISTICS OF THE OFFER

BIM

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Assystem's BIM offer is articulated around a set of use cases and services that can be developed, adjusted and deployed in a modular way within a collaborative digital environment (existing or to be built).

These services are based on:

- Creation and analysis of digital mock-ups, in design or from the existing (retro design & "as built")
- Production of deliverables from digital mock-ups, parameterised exports (bills of material, deliverables, etc.) and quantitative exports (measurements, costs, etc.)
- Project and document reviews, mode control and existing information
- Checking compliance with regulatory requirements
- 3D synthesis and 4D site planning (simulations of site progress and conflict prevention)
- Configuration management of the structure and decision support with the proposal of project variants
- Integration of post-design modifications
- Analysis and optimisation of the structure's performance (structural, thermal, lighting, etc.) in design and operational management
- Support for extracting the architecture of the industrial infrastructure and detecting objects of interest in a building from a point cloud obtained from a laser scan of the industrial infrastructure
- Consolidation of information obtained from a 3D scan into a BIM model (ScanToBIM).

A tailored approach

- Multi software skills, in Autodesk, Dassault Systems, Nemetcheck, Trimble environment
- Easy integration of complementary digital data (BMS, CMMS, IWMS, IoT)
- Possible integration of costs (5D), sustainable development (6D) and operation and maintenance (7D) aspects
- Improved interoperability with business tools and models (electricity, HVAC, etc.) and simulations (energy performance, etc.)

The 'Celestins' facility, modelled by Assystem for the French Atomic Energy Commission, in preparation for dismantling



CASE STUDY

Celestins dismantling



Management of complex dismantling operations



Enhanced co-activity management and monitoring



Improvement of operations robustness and safety of facility

The project concerns the dismantling of Célestin I and II, two reactors on the Marcoule site, built in the 1960s

Context. The client needed to control the configuration of its facilities in a dynamic way. The age of the installation and the amount of work to be carried out made the management of this configuration and the analysis of activities complex and time consuming.

Solution. The BIM model made it possible to visualise current and future states of the installations throughout the dismantling process. This allowed for configuration of the programme to be controlled. In addition, the sets of views provide a graphic and complete visualization of important information such as the risks of co-activities or nuclear zoning. This information can be shared with contractors to ensure the reliability of the worksites and their phasing.

Benefits. Improved reliability of operations and better understanding of future work and associated risks through summary views. Improved knowledge of the installation, easier access to information.