



Press kit

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# The BIM revolution by SNCF Gares & Connexions, Dalkia and Stereograph

122 stations on one platform for the first time in the world



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## ORIGIN OF THE PROJECT

Since 2014, the use of digital technology in construction has been encouraged in Europe. In 2017, at the Batimat trade fair, 50 companies in the sector signed the "Objective BIM 2022" charter of the Digital Transition in Construction Plan (PTNB). The PTNB was completed in December 2018 and then passed on through the 2022 BIM plan.

SNCF Gares & Connexions, already familiar with building modelling techniques, now wants to go further in the use of BIM. As the BIM solutions available on the market do not meet all of its needs, SNCF Gares & Connexions has launched a project to become actively involved in the development of these tools in order to be able to manage, operate and maintain the physical and digital heritage of its stations.

**IN ORDER TO INVENT THIS INNOVATIVE TOOL, SNCF GARES ET CONNEXIONS, DALKIA (EDF GROUP) AND STEREOGRAPH SIGNED AN UNPRECEDENTED PUBLIC-PRIVATE INNOVATION PARTNERSHIP ON 8 JUNE 2020.**

**THIS 12-YEAR CONTRACT COVERS ALL THREE PHASES: RESEARCH, DEVELOPMENT AND DEPLOYMENT OF THE NEW TOOL.**

## WHAT IS BIM?

**B**IM, or Building Information Modelling, corresponds to the use of digital models of buildings to assist collaboration between different trades. The BIM model contains all the information and technical data of the newly-constructed building, from the boiler model to the location of the windows and all the cables and pipes in the building.

Previously, all this data was used by people in different trades on a variety of tools. With BIM, all of this data is gathered on a single platform that may be accessed at any time by all trades, saving a significant amount of time. In fact, any contribution or modification of a component is immediately brought to the attention of everybody else involved, thus facilitating collaboration and implementation.



## WHAT IS BIM GEM?

**O**nce the building has been constructed, its operation phase begins. This is generally synonymous with multiple modifications and developments over time, such as changes to office partitions or replacements of equipment, or even modifications to circulation or the building itself.

BIM GEM, for "Gestion, Exploitation, Maintenance" (Asset Management, Operation and Maintenance), refers to the process of updating and using data from the digital model, which, in real time, enables all data about the current state of the building and any changes to be collected. This is known as digital twinning.

Just as BIM allowed this during the construction phase, BIM GEM gives access to up-to-date information that can be shared between all stakeholders during the service life of the asset, as it evolves.

# HOW DOES BIM GEM WORK?

1

## "Static" data, intrinsic to the building,

such as the location of the windows or the specifications of the boiler, anything that makes up the DNA of the building. Using this data, a 3D model of the building is produced by the construction teams, accompanied by Dalkia's technical division. The latter ensures the follow-up and acceptance of the model in order to guarantee progression to operation.

3

## BIM in Operation

Thanks to this collaborative ecosystem, all stakeholders in the service life of a building (design, construction, operation) are involved. Static and dynamic data is collected and analysed on a single platform, which is then used by Dalkia experts to monitor energy performance. They carry out a technological watch and update the digital model according to changes in use of the building.

2

## "Dynamic" data,

such as temperature changes or room lighting. This data is collected by connected sensors installed on site.



## Uses and advantages of BIM in Operation

a

- For Dalkia experts
- Better management of on-site interventions
  - Enhanced security and more time
  - Better knowledge of the assets to be maintained

b

- For the property manager
- Optimised calculation of rents and charges
  - Accounting and financial management of assets
  - Asset management

c

- For users/occupants
- Quality of life at work and ideal comfort
  - Concierge services
  - Better management of meeting rooms, building spaces and car parks

## THE FIRST LARGE-SCALE BIM GEM

By joining forces, SNCF Gares & Connexions, Dalkia and Stereograph wish to create a BIM tool that does not yet exist: a platform that can gather all the data relating to the current state and any changes at more than a hundred French stations.

**FOR THE FIRST TIME IN THE WORLD, THE DIGITAL TWINS OF 122 STATIONS WILL BE BROUGHT TOGETHER ON A SINGLE PLATFORM.**

The new, easy-to-use platform will be developed from the TEIA solution created by the Lille-based company Stereograph. The tool will integrate the main SNCF regional and departmental stations, which are historic, modern and large.

### THIS REVOLUTIONARY TOOL WILL:

- PROVIDE A REAL-TIME AND LONG-TERM OVERVIEW OF STATION ASSETS
- ENSURE, FOR EACH STATION, IMPROVED MANAGEMENT THANKS TO DIGITAL TWINNING

## TOWARDS MORE EFFICIENT STATION MANAGEMENT

This new BIM is full of potential and represents an opportunity for SNCF Gares & Connexions, but also for the management and enhancement of all assets.

Thanks to the quantity and quality of the data converging daily on the platform, the cross-analysis of historical and multi-site data will provide a real decision-making aid to users (maintainers, operators, etc.), up to the use of artificial intelligence for the development of predictive maintenance.

This new BIM will help to increase the quality of service and production offered to SNCF Gares & Connexions customers: passengers and visitors, transport operators and organising authorities. This goal is particularly focused on the maintenance and modernisation of stations, by facilitating their maintenance and operation through innovation projects like the BIM GEM project.

**IT WILL NOW BE POSSIBLE TO OPTIMISE THE PERFORMANCE OF FACILITIES AND IMPROVE THE LEVEL AND QUALITY OF SERVICE.**

However, the BIM designed by SNCF Gares & Connexions, Dalkia and Stereograph will go beyond maintenance. The project also integrates station service management and rental management. In particular, it will focus on updating the digital models, genuine twins of the stations, which should be maintained and developed as a mirror of what is happening with the physical asset. It is the launch of a new profession: BIM Data Manager, a real digital asset maintainer.

## TIMETABLE

Dalkia, Stereograph and SNCF Gares & Connexions have set themselves a number of milestones for the successful completion of this major project.

1

The first, begun in 2020, consists of developing prototypes and running a pilot at two stations that are representative of SNCF Gares & Connexions assets and their diversity: the brand new Nîmes Pont-du-Gard station and the listed building of Toulouse Matabiau station. This first stage will mark the arrival of the stations' first two digital twins.

2

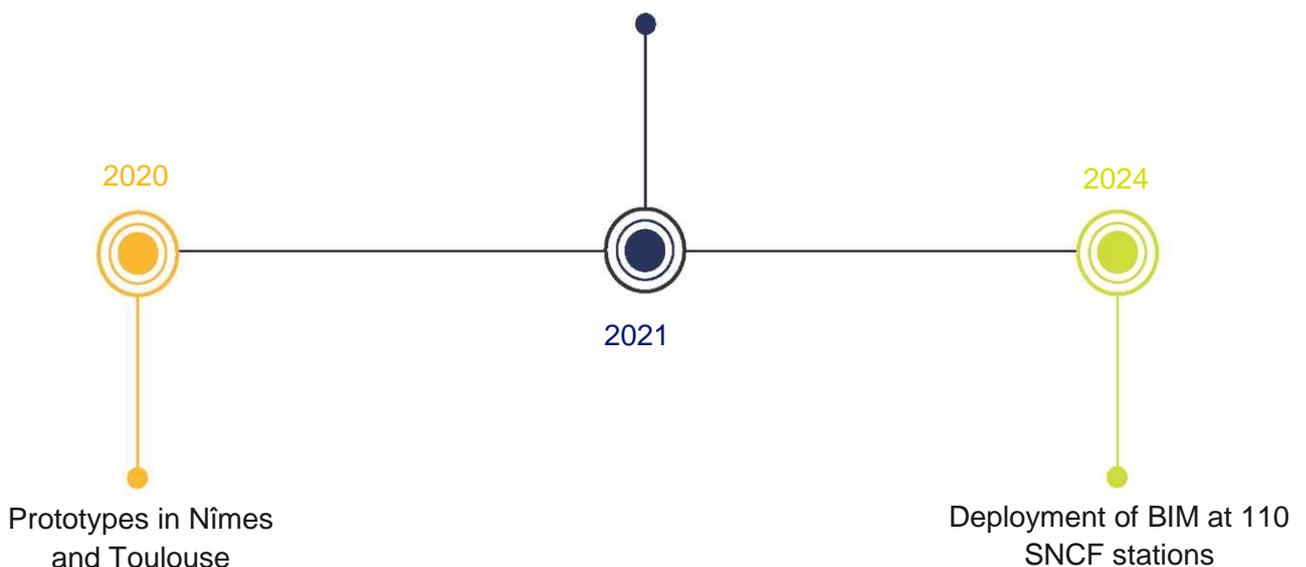
Once the prototypes have been approved, the second phase will begin with the deployment of the platform at ten stations in Brittany (Auray, Guingamp, Saint Brieuc, Lorient, Vannes, Saint Malo, Quimper, Rennes, Morlaix and Brest).

3

Finally, the last phase is the roll-out of BIM at the 122 main SNCF stations throughout France.



Deployment of BIM at  
ten stations in Brittany



## A FIRST FOR SNCF GARES & CONNEXIONS, DALKIA AND STEREOGRAPH

In order to create this revolutionary new tool, SNCF Gares & Connexions, Dalkia and Stereograph have chosen to develop a constructive partnership and to break away from the usual customer/supplier relationship by signing a new 12-year public-private innovation contract.

This is the third partnership of this type for the SNCF group and the first for SNCF Gares & Connexions. For Dalkia, it also represents a new approach and a new focus on innovation in partnership with its customers. For Stereograph, a software publisher, integrating its expertise at the heart of a product of the future and participating in its development is an opportunity to put its experience of BIM in Operation to good use within the framework of an exceptional collaboration.

The three partners share a common vision on the contributions and performance levers that this tool will bring to their respective activities.

## AN INNOVATIVE AND COLLABORATIVE WAY OF WORKING

This innovative partnership enables SNCF Gares & Connexions to pool its experience and resources with a major building facility management company. The aim of this association is to give impetus to the creation of the tool, guarantee its quality and focus it on the real and operational needs of Dalkia and SNCF Gares & Connexions' businesses, while basing it on a long-term, proven solution.

This new type of collaboration is based on co-financing the project and sharing the results. A dedicated area has also been set up on Dalkia's premises at La Défense to accommodate the entire project team and thus promote AGILE mode operation.

This tool will also accelerate the energy transition of the stations through controlled energy consumption.

AREP, a multi-disciplinary architecture firm and a subsidiary of SNCF Gares & Connexions, is participating in the development of the company's BIM methods.

For this reason, several AREP BIM specialists were brought on board the project, right from definition of the BIM and BIM GEM strategy for the stations. They provide daily technical support for implementation of the partnership.



Marlène Dolveck,  
General Manager  
SNCF Gares & Connexions

« **S** SNCF Gares & Connexions is the station specialist, from design and marketing through to operation.

Every day, we welcome more than ten million passengers at our 3,000 stations. It is a responsibility to which we are committed. Our BIM policy is part of this framework, and our ambition is strong: BIM must provide us with a real-time X-ray of our stations. We want to have the digital copy of the 122 largest stations on a single platform by 2025. This will enable the station teams to benefit from the same level of information at all times and to share it with all the departments in our company.

Our building assets are very specific because all our stations are different. However, our approach must be industrial. This is why we have chosen to partner with the Dalkia Group and Stereograph.

The challenge with BIM is to go even further in the quality of the operation of our stations, in order to offer practical, efficient and modern stations to our BtoB and BtoC customers."



Sylvie Jéhanno,  
Chairwoman and CEO  
Dalkia Group

« For more than 80 years, Dalkia has supported its customers in their energy and digital transformations by promoting the use of local renewable energies and reducing their energy consumption. As such, we very quickly became involved in BIM and the potential it offers to revolutionise building management and maintenance.

This partnership with SNCF Gares & Connexions enables us to go further by bringing together, for the first time in the world, the digital twins of more than 120 stations in France, with great prospects. With this project, nearly 50 features will be developed in two years, enabling the management of all buildings to be redesigned in a sustainable, economic and ecological way. In order to succeed, we rely on a partner in Lille, an expert in software publishing, Stereograph.

I would like to thank SNCF Gares et Connexions for placing its faith in us. Together, we will revolutionise BIM dedicated to the city of tomorrow and the sustainable well-being of its citizens. We are proud of this partnership."



Manuel Gomes,  
Chairman of  
Stereograph



**D**riven by a constant quest for innovation to improve experiences and performance, I wanted to place technology at the centre of Stereograph's project. This desire for technological innovation has led us to work in the innovative field of BIM standards for the building and infrastructure sectors during the operational phases.

Stereograph's expertise and maturity in this area has now enabled us to join this unprecedented partnership, alongside the SNCF Group and Dalkia."



In charge of the management, operation and development of France's 3,000 stations, SNCF Gares & Connexions is committed to constantly improving the quality of operations, inventing new services and modernising its building assets for its ten million daily passengers and visitors. Since 1 January 2020, SNCF Gares & Connexions has been a public limited company with public capital, a subsidiary of SNCF Réseau. With its subsidiaries AREP, SNCF Retail & Connexions and SNCF Hubs & Connexions, SNCF Gares & Connexions has been able to develop specific know-how geared towards boosting urban vitality. Its mission is to make all stations the primary asset of cities and territories, dedicated to all its customers. SNCF Gares & Connexions is taking advantage of a technological breakthrough that is already under way in the field of BIM. BIM design and works began in 2010 within the AREP Group (subsidiary of SNCF Gares & Connexions). The first studies and analyses of BIM opportunities for SNCF Gares & Connexions were carried out in 2015. A full-time team is now working on turning the BIM ambition into a reality for SNCF Gares & Connexions.



Dalkia, a subsidiary of the EDF Group, has been helping its customers with their energy and digital transformations for more than 80 years. As the French leader in energy and technical performance for buildings and networks, Dalkia invested very early on in the sector's digital transformation to offer its customers solutions that enable them to benefit both from its expertise and from the advantages of the latest digital advances.

Drawing on the vast possibilities offered by BIM technologies, Dalkia has developed a 360° management, operation and maintenance tool that was unique on the market in 2019. With its partnership with SNCF Gares & Connexions, the group is going even further and developing new features that may subsequently be used by other business sectors.



Based in Lille, Stereograph joined the Euratechnologies cluster soon after it was founded and launched its 3D image and video creation studio. Its services are aimed at architectural studios and prestigious property developers.

A few years later, Stereograph extended its activities to the industrial world and turned to 3D software publishing with Teia, the first BIM GEM web solution capable of keeping the BIM model in operation whilst making it smart and connected. Stereograph now markets Teia to major international customers in the secondary and tertiary sectors and has established itself as an innovative, recognised leader in its field.