KDDI France Project: Designing and Building a Datacenter in the Heart of Paris

The Project

KDDI France, which is the world's 4th largest rental property manager, entrusted Cap Ingelec with the transformation of one of its semi-industrial sites into a datacenter in the heart of Paris' 11th arrondissement.

This renovation project involved outfitting the building with utility rooms, server rooms, and office space. Following this framework, Cap Ingelec provided a turnkey service with a Guaranteed Maximum Price.

Key project figures:

Total surface area: 8,800 m²

IT room area: 4,690 m²

IT power: 5 MW IT

Power Usage Effectiveness: 1.37

Objective: TIER III +

Project cost: €48 million (phase 1)

CAP INGELEC
INGENIERIE & REALISATION

Project Management: KDDI France
General Contractor: Cap Ingelec
Architecture Firm: RB Architects
Deadlines
6 months of study
1 year of work

The Challenge

1. Complex design, which needed to account for reduced space for network installation
2. As-built conditions came with existing unforeseen issues, as this was a renovation and not a new construction
3. Challenging integration of specialized technical rooms
4. Urban location: project design and site management required minimum nuisance to the neighborhood

The Solution

Cap Ingelec deployed BIM Track's coordination platform during the design phase. The models were published each week in IFC to BIM Track, and the native files were shared via the project's electronic data management. Cap Ingelec led the design effort and used Navisworks for clash detection. It also used Revit to edit the models as needed.

Following this preparatory work, all relevant stakeholders met regularly to discuss any problems or challenges, and brought up the following points:

- Top issues were raised either by the design committee or one of the stakeholders -> These were recorded in Navisworks or Revit
- New topics were discussed by the design manager -> Navisworks and Revit viewpoints were already prepared
- Follow-ups were done where necessary -> Used the BIM Track plugin, either in Navisworks or directly on the web application.

Once meetings were concluded, the issues and conflicts were published via the BIM Track add-ons for Navisworks and Revit, and tasks were assigned to the appropriate stakeholders.

Figure 1: Image of models compiled in the BIM Track viewer.

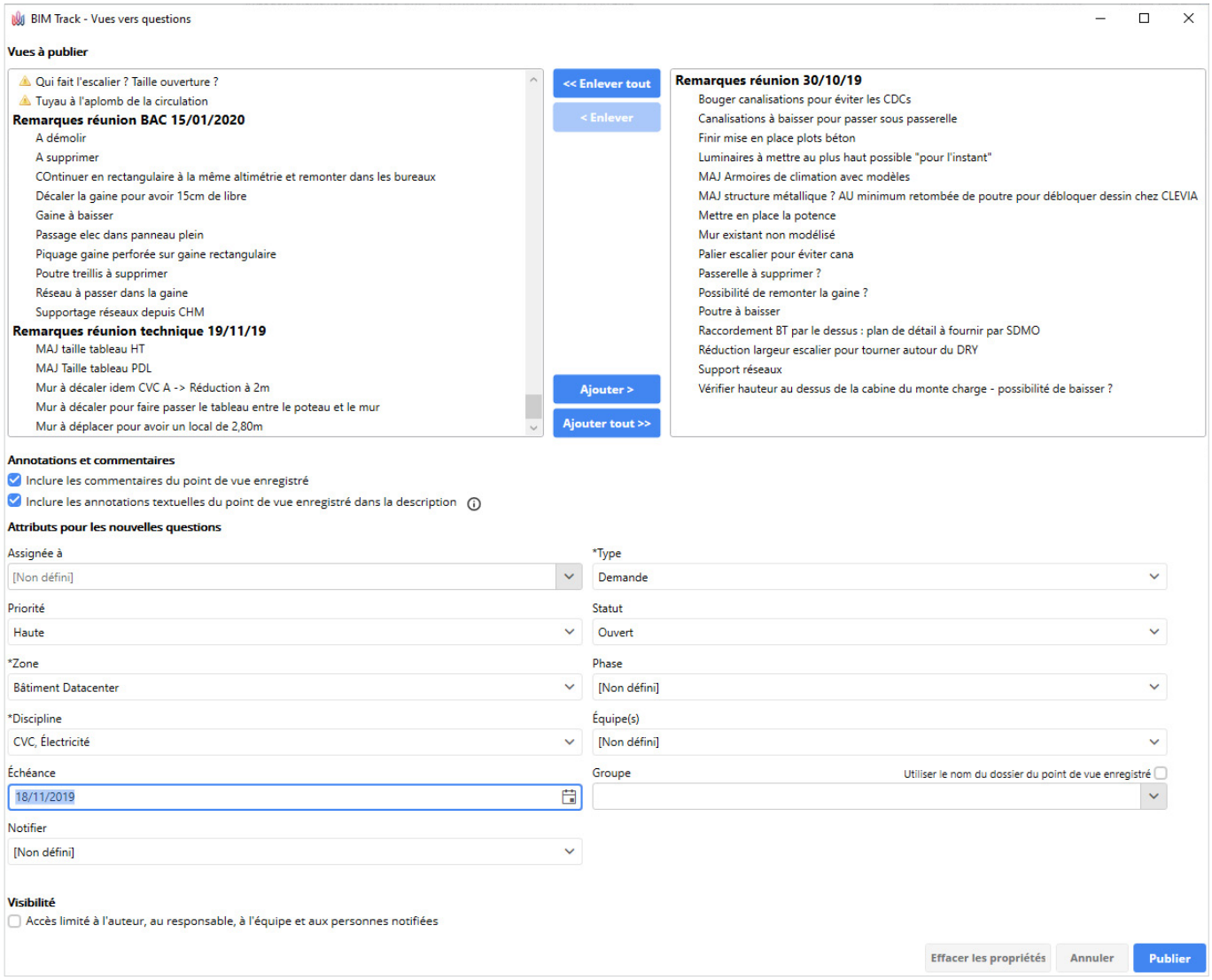

Figure 2: Navisworks viewpoint transfer to BIM Track.

Issues created on BIM Track came with proposed solutions and due dates, which were consulted and applied directly in the Revit and Tekla models by the design offices using the BIM Track add-on. As stakeholders resolved issues in their models, they updated the status of the issues with BIM Track, ready for approval by the Cap Ingelec team. The entire conversation history was saved for each issue coordinated and resolved with BIM Track.

Any contingencies in the existing workflow that arose on-site were documented directly with BIM Track, which allowed the appropriate team to address validated issues in the models.

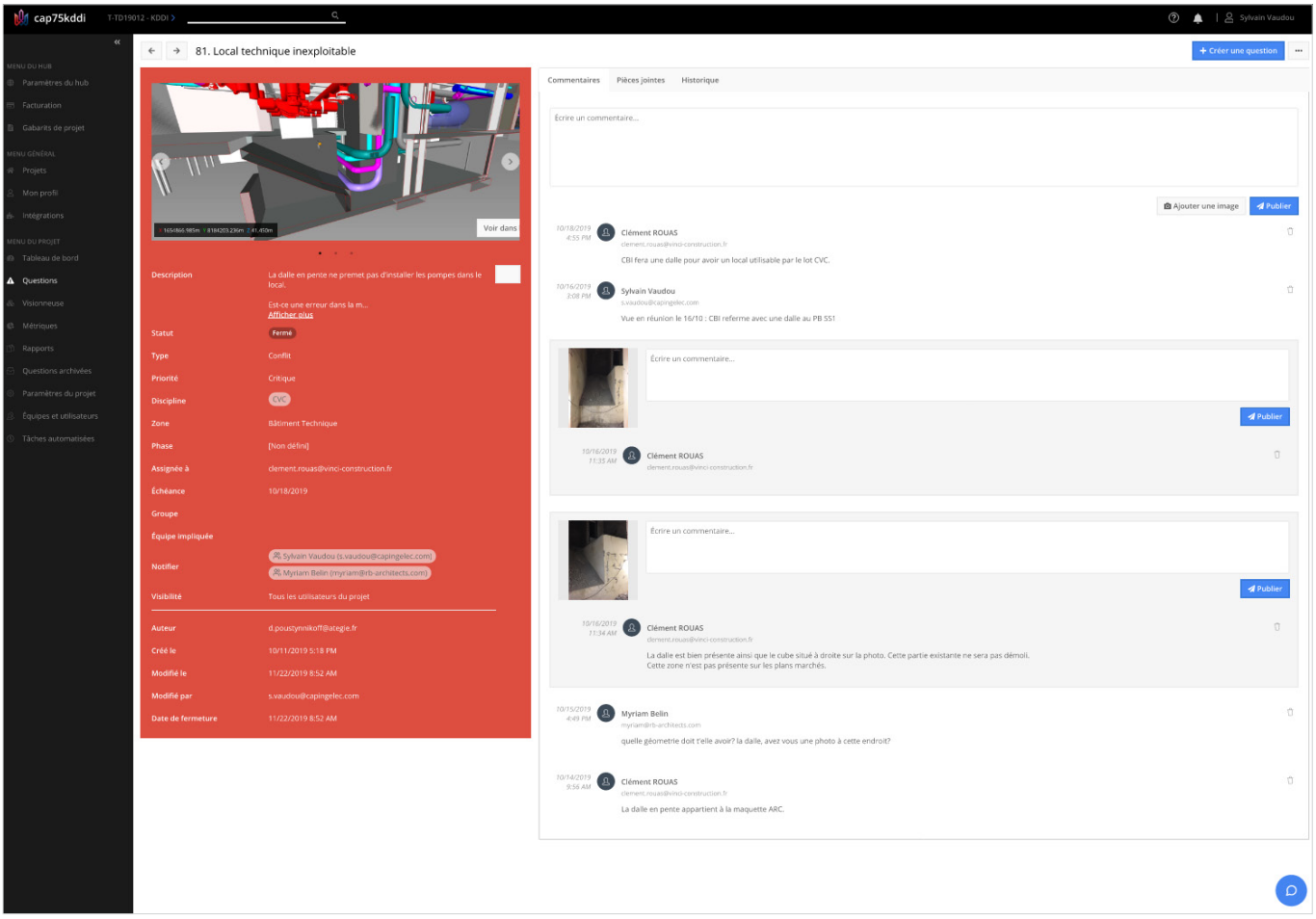

Figure 3: Conversations and comments in BIM Track

Navisworks, Revit and Tekla users quickly and easily adopted the use of BIM Track, because the tool fit naturally into their daily tasks.

As for on-site teams, they appreciated the ability to raise issues in 2D, so they picked up the use of BIM Track, too. The rest of the teams could then view the comments in either 2D or 3D models. The simplicity of BIM Track's design and user interface was the key to its adoption.

The Results

Schedule

BIM Track made it possible to better manage and monitor exchanges during both the design and the execution phases. The platform resolved many challenges as it integrated with the tools that various stakeholders already used, which was much more efficient than if these exchanges had been done by email, SMS, or other independent platforms. By using BIM Track, Cap Ingelec was able to coordinate each member of the AECO family for this project to stick to the schedule.

Moreover, the use of BIM Track reduced the preparation time for meetings by as much as 3 hours per week during the design phase.

Limited Building Space

BIM Track enabled better communication between stakeholders, which made it possible to quickly and efficiently find solutions by collaborating with the project models, while accounting for the limited building space. Once on site, the final adjustments were transferred directly to the models, again via BIM Track.

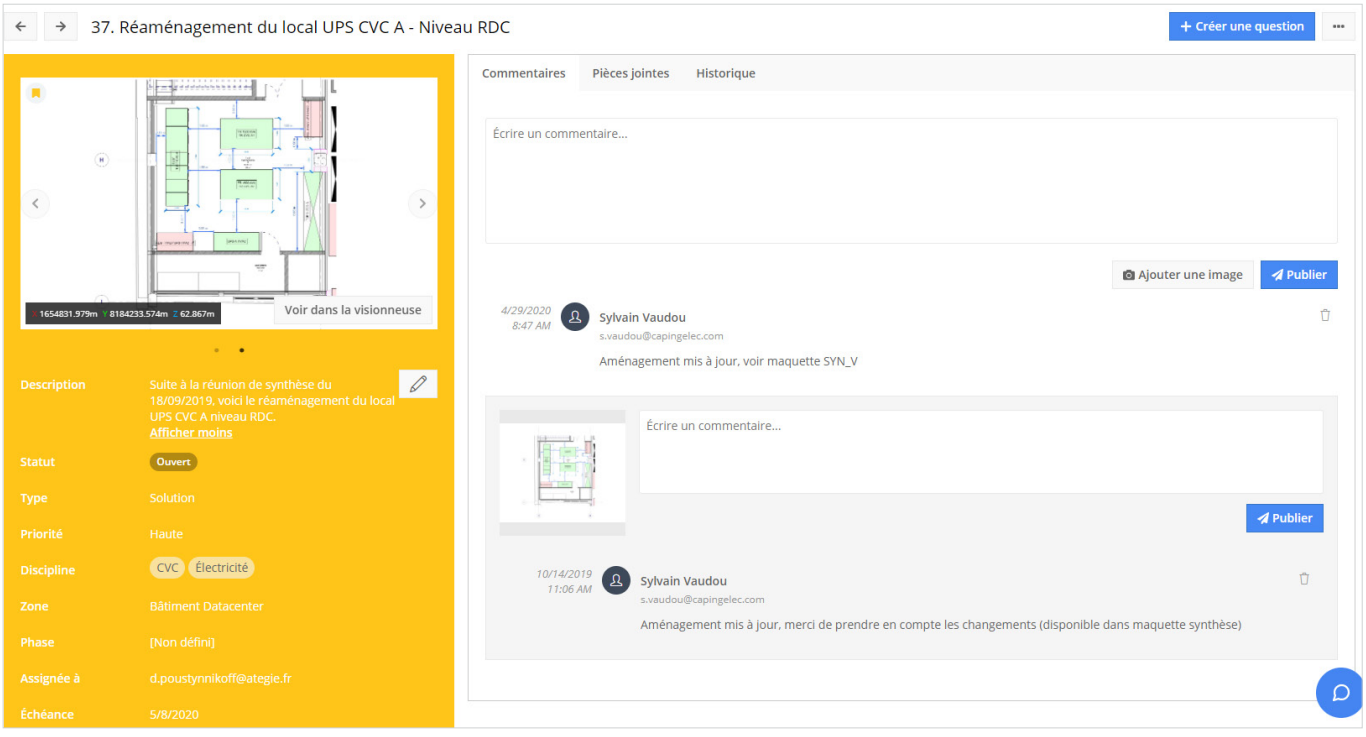

Figure 4: Example of comments on the layout of the premises

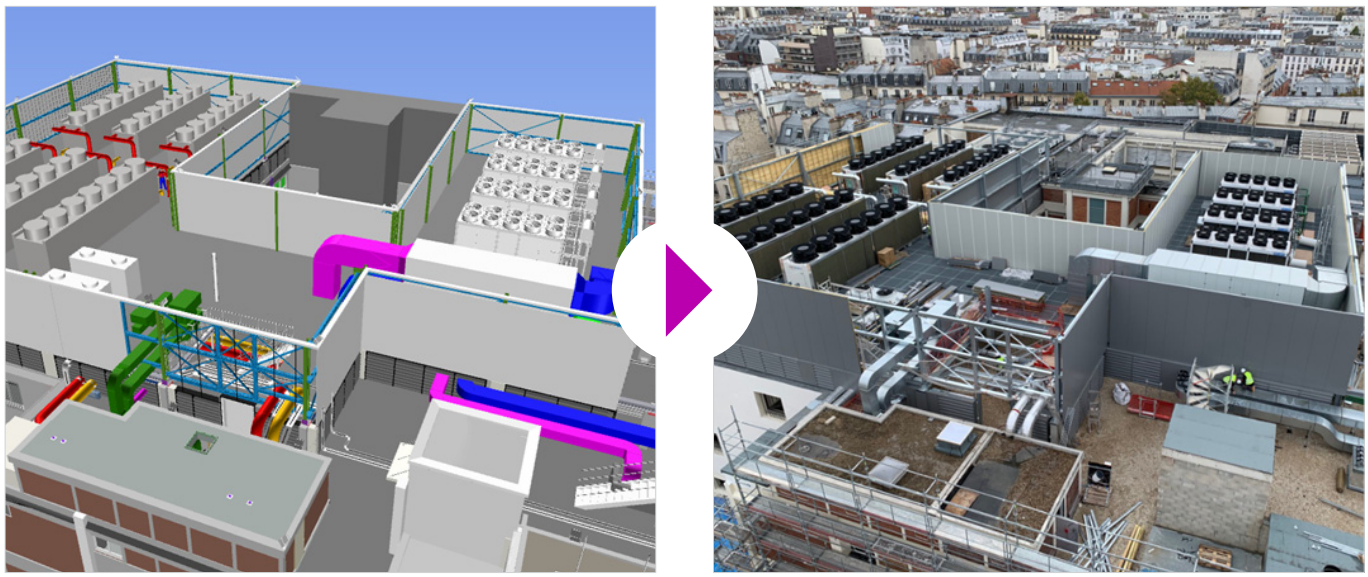

Figure 5: Example 1 of comparison between the models and the final result.

Figure 6: Example 2 of comparison between the models and the final result.

The KDDI France project was the first time that Cap Ingelec used BIM Track in the execution phase. The teams have agreed that without BIM Track, the project would not have been finished in the planned time frame.

About Sylvain Vaudou, BIM consultant at Cap Ingelec

- Mechanical and Industrial Engineering graduate from Arts & Métiers Paristech
- Masters in Applied Engineering from ETS Montreal
- BIM consultant at Cap Ingelec since 2018

About Cap Ingelec

Cap Ingelec is now ranked as one of the top five French engineering companies thanks to our extensive experience, rigorous organization skills, advanced work-methods, and in-depth know-how which it exploits, from design to completion, to ensure the success of every project. Our continuous growth has allowed us to undertake large projects within France and abroad. Our development is founded on independent, family-company values and this has helped to ensure the loyalty of our staff and partners, the satisfaction of our clients and a results-oriented culture based on fundamental cardinal virtues. We invite you to explore the latest version of our interactive website which presents our scope of activities and references as well as our commitment as a responsible company which favors the hiring of young engineers who represent tomorrow's talents . Our signature motto, "engineering that commits", is not a mere promise but a solid guarantee to invest our effective know-how and soft-skills!

About BIM Track

BIM Track. Collaboration. Simplified.

BIM Track is a web-based BIM Model coordination and collaboration platform. With BIM Track, all your stakeholders can track issues, questions, comments, clashes, RFIs, and more, directly in their preferred software.

Modeling software is complex; that is normal. Multidisciplinary communication can quickly become a nightmare which can lead to long delays and higher production costs. BIM Track bridges that gap and makes actual BIM possible. Whether in Navisworks, Revit, Tekla structures, or any construction software, you connect through custom-designed plugins or integration, so nobody needs to leave their everyday environment. You can assign an issue to another person, who gets a notification in their chosen software, with just a click. Because the coordination data is centralized, setting accountability and easy tracking of the evolution of your project is a snap. With the viewer, all your non-BIM stakeholders can also review and comment easily. You're now inspecting each communication in 3D models and from 2D plans and following your coordination performance metrics with precision – anytime, anywhere, and from any device.

BIM Track. Better coordination. Better buildings.