How Integrated Project Delivery (IPD) embraces digital ways of working to support project execution

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Jacobs is a globally recognized professional services firm that provides consulting, technical, scientific and project delivery for the government and private sector.

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We've been working with biopharmaceutical clients for more than 50 years and our Ireland operation is a global leader in the delivery of complex Life Sciences projects. To execute complex projects, Jacobs provides the entire spectrum of services, including engineering, procurement, construction management, commissioning, qualification, and verification (EPCMCQV) under the auspices of the Integrated Project Delivery (IPD) model.

IPD marks a significant shift from the traditional EPCM model: it requires earlier engagement from supply chain and project partners and plays a central role in the delivery of accelerated timelines while attaining the same high-quality engineering, design, construction and safety standards.

In the context of shorter schedules, our project teams recognise the importance of earlier collaboration, co-ordination and 'right first time' within the IPD context. This approach means we are also more closely involved in the delivery of facility design through Basis of Design (BoD) and Detailed Design (DD).

Our team in our Life Sciences business in Ireland approached the development of a digital strategy to support an IPD-led project with these considerations front of mind. As part of this process, the team looked at workflows, tools and capabilities to ensure that any shift in project execution would be balanced and would support a multi-office, multi-organisation approach.

The main question was, how do we ensure that up to 12 organisations engage quickly and efficiently with one another, Jacobs and our client in one central location to deliver coordinated design to construction?

Our team decided to address this challenge by implementing Revizto as the central design coordination tool. Revizto is a cloud-based solution and marks an evolution in the conventional software packages used to support and coordinate 3D project design on our projects.

It offers an array of features including automated model federation, 2D & 3D synchronisation, spatially linked, real-time issue tracking, project metrics, automated issue templates, data extraction. Additionally, the platform provides the capability to use four project tools that previously had to be deployed separately.

Harnessing the power of this digital tool, our team quickly developed standard workflows, templates and training to ensure consistent use from all project stakeholders. With buy-in from our team, partners and client, we generated clear, measurable metrics to gauge progress on the design process. This approach meant that our team could quickly coordinate the 3D design, with all issues resolved before the project entered the construction phase.

Our team also embraced another key Revizto functionality, namely the ability to support a construction verification initiative as part of the IPD approach. Revizto allowed our survey partner to complete 'as-built' surveys, with this data available via the platform to the entire project team.

This approach has yielded significant value and is further enhanced by the fact that we can utilise the power of Revizto to ensure that the 'right first time' approach to on-site installation is achieved. Through ongoing collaboration in the tool, our project team was able to identify in a virtual environment installation errors and future clashes before they happened on site and ensure the right first-time culture continued. Figure 1. Future clash identified before installation commenced on-site, represents one of these future clashes identified.
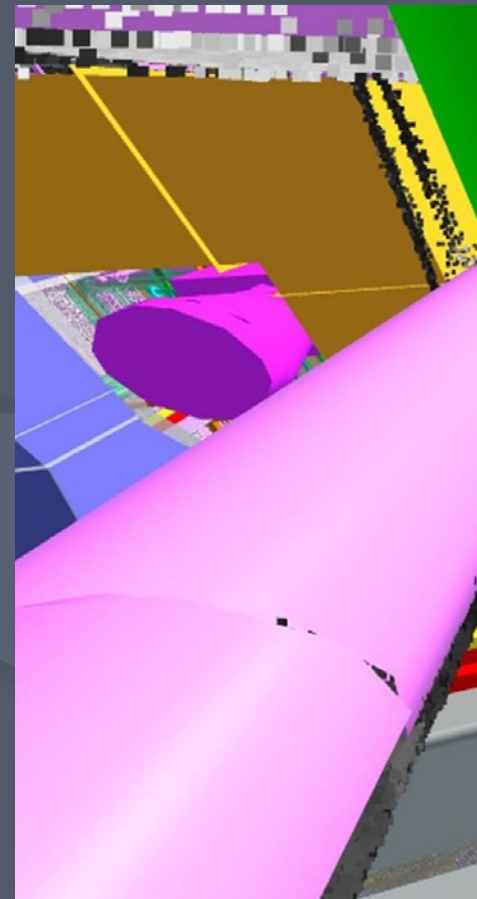
Outcomes of this initiative include:

1. Helps prevent issues occurring on client sites

2. Gets ahead of potential clashes on-site and resolves them before they happen

3. Supports a safe environment for the construction team

4. All contractors can see the effect of their work on other partners

5. Confirms installation complies with quality procedures

6. Avoids claims from contractor interfaces due to incorrect installation, saving our clients cost and schedule impact

7. Provides a one source of truth for our project team from design to construction installation

Our team began implementing Revizto over a year ago and we're using learnings from this project to apply to others. We recognise that implementing a new way of working can be challenging, but thanks to forward-thinking project teams, we were able to successfully implement a positive change in approach to execution.

It marks a significant shift in how our project teams work, and we now have one source of truth to deliver a clash-free model to construction that meets the end users' operational needs. When our team stress-tested the application against our traditional workflow, there was an almost fourfold increase in productivity for our clash coordinators alone.

Project leaders, schedulers and other team members can interact with and self-review the 3D design model. Revizto produces performance metrics within minutes and ensures the project meets deadlines and installation dates.

Furthermore, in the last year, our teams, partners and clients have closed over 92,000 issues across projects in Revizto – an extraordinary achievement that wouldn't be possible without the support of our project partners and clients. 😊

Figure 1. Future clash identified before installation commenced on-site