AUTODESK

3 Ways Digital Project Delivery Improves Building Projects

How connected workflows
can help your firm deliver
on-time and on-budget.

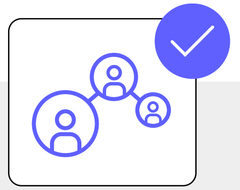
Introduction

The way project data is handled needs to change

Building projects are complex, data-heavy operations. They often have fragmented workflows and unreliable documentation, which can result in errors and delays. Most of these inefficiencies can be traced back to the way teams handle data.

Right now, data is often produced and shared piece-by-piece, from person-to-person. It transmits from planning, to design, to construction in sequence, like an assembly line.

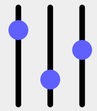
But building projects are more complex than that. They're dynamic and multi-directional, with a collection of disciplines working simultaneously to meet tight deadlines. Architects, building engineers, general contractors, and owners are constantly faced with unpredictable changes, communication barriers, and lack of project visibility.



AECO handles **149%** more files than other industries[1]

Construction leaders spend **11.5** hours reviewing data per week[2]

Poor-quality data costs the industry **US$88.69B** in rework[3]



[1]https://venturebeat.com/data-infrastructure/skyrocketing-aec-data-pushes-need-for-data-governance-best-practices/
[2]https://www.autodesk.com/blogs/construction/state-of-data-capabilities-in-construction/
[3]https://constructioncloud.autodesk.com/rs/572-JSV-775/images/harnessing_the_data_advantage_in_construction_fmi_apac.pdf

The stop-start methods currently used to handle data—manual changes, piecemeal communication, isolated tools—contradict the seamless way projects need to flow. There is a better way to manage data.

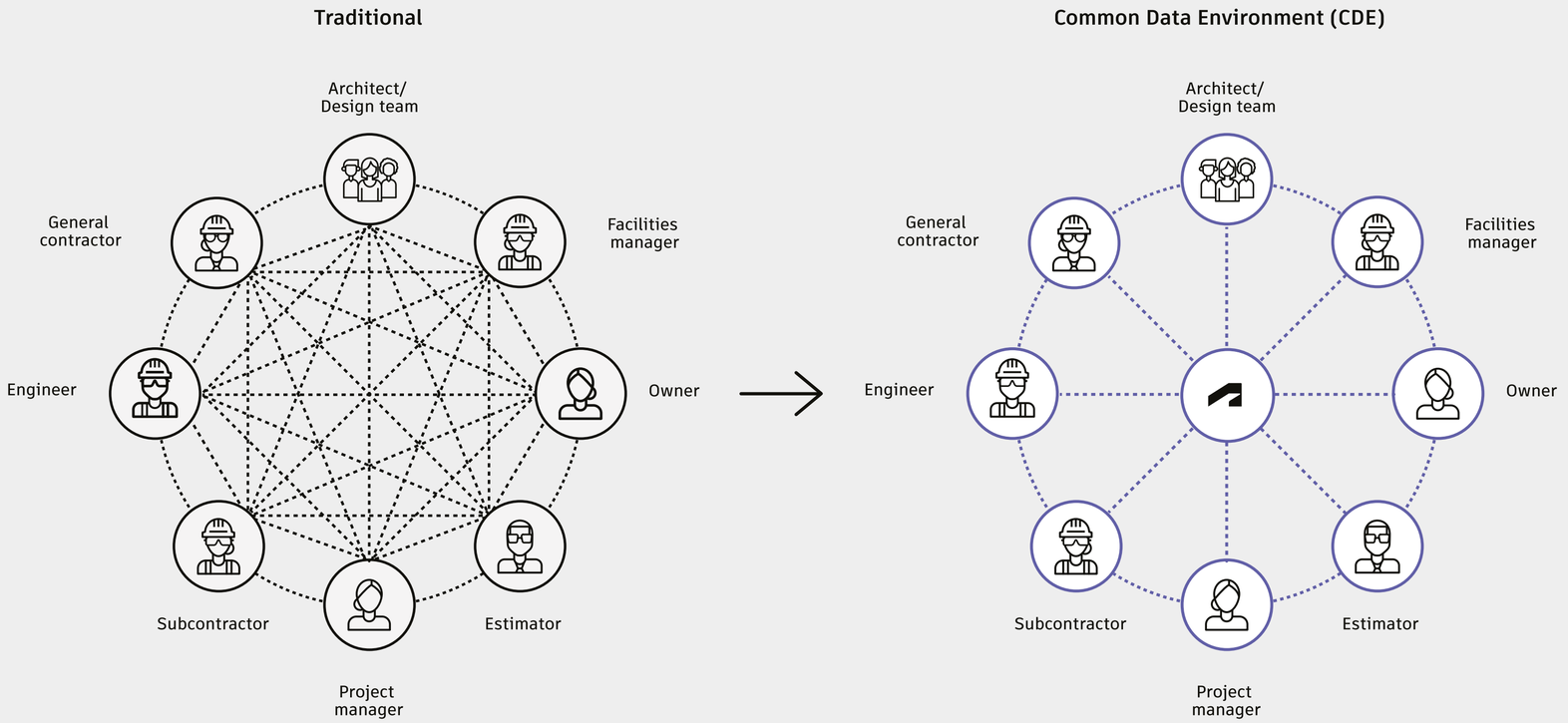
All teams on a project should be able to sync with each other at any time and access the information they need. And for that to happen, project data must be united into a centralized source of truth.

Digital project delivery brings data, tools, and teams together

Data access should be a way to unite teams, not divide them. But how do you organize data from so many teams and sources, and improve collaboration?

Enter digital project delivery (DPD). It's not a tool, but rather a cloud-based collaboration process that connects people, data, and workflows across the project lifecycle in a common data environment. DPD allows data to flow from the cloud with all updates and actions visible in real time, bringing teams together in a centralized source of truth.

For example, reviews and approvals processes can take place in real time, with all approved collaborators able to view and make updates to the same live model. Data is safely stored in a single location, removing the need for email chains with different copies of files flying around. You have one central reference version with a full, clear edit history.



With DPD, teams can stay connected to the most accurate, up-to-date information at all times. Every professional has exactly what they need to deliver quality work, at each phase of the project lifecycle—without worrying about unnecessary delays or data inconsistencies.

Let's take a closer look at how DPD works, and the benefits for building project teams.

Chapter 1

Improved collaboration through connected workflows

AUTODESK

Chapter 1

Improved collaboration through connected workflows

Every building project relies on a highly interconnected network of professionals, who despite this, often rely on a highly disconnected set of tools and data. These gaps lead to missing or inaccurate details—and ultimately errors downstream.

Implementing digital project delivery (DPD) enables teams to get the right data to the right people, at the right time. Using a cloud-connected common data environment (CDE), collaborators can work on designs, run analyses, and prepare documentation with full context—no matter where they are.

Architects

Architects can bring every collaborator into a centralized source of truth and implement data standards such as ISO-19650. They can share models and permissions with relevant collaborators, helping streamline collaboration and maintain model quality while protecting their IP.

On site visits, architects can capture notes and images in the CDE, linking action items directly to the model and tagging relevant collaborators—all without trading versions and emails. RFIs, issues, meeting minutes, and submittals are managed in a centralized location where they can track correspondence and action items. Plus, any rework and issues can be traced to their root cause.

The 3D model becomes the foundation of a future digital twin and provides operational readiness from day one, with easy access to as-built drawings, equipment manuals, and maintenance schedules.

Engineers

Engineers can start and stay in the CDE, for greater efficiency in creating and sharing feasibility and early design documents.

They can build and manage models while working in parallel with other disciplines, referencing a shared live architectural model and gaining instant access to changes. RFIs, issues, and submittals are handled from a centralized location where engineers can track correspondence with other disciplines, speeding up collaboration and resolution. Engineers can address any late-stage changes in the centralized model, and automatically update collaborators without trading versions or emails.

And by centralizing data and models from the start of a project, engineers can retain an accurate digital record of their work. They can use that record to identify process opportunities, gaps, and other valuable learnings to take forward into future projects.

General contractors

General contractors (GCs) can access a traceable history of design concepts, site considerations, and engineering analyses through the CDE, offering them detailed insights at any point of entry to the process. And they can provide early input on constructability, materials, and timeline—letting them maximize quality, cost, and schedule.

Early project access also helps GCs collaborate with specialty trade contractors, assess progress, and jumpstart work package delivery, installation, and commissioning. Plus, it enables smart construction practices like Design for Manufacturing and Assembly (DfMA), modern methods of construction (MMC), design-build, and design-assist workflows.

When they receive the model, they can enhance it with relevant construction data that can be used in different workflows, from takeoffs to asset management. They can then share relevant information with subs without sharing the entire model.

Owners

Owners become key stakeholders in the CDE, allowing them to view site analyses, feasibility studies, and early design concepts. They can track progress, provide feedback, and respond to budget and schedule considerations with greater context. Implementing data standards like ISO-19650 gives owners assurance of data quality and collection over the project lifecycle.

Data-rich models offer owners visual and digestible views of the project for more informed decision-making. Owners can also provide feedback directly in the CDE, giving architects and general contractors clear, actionable direction and retaining a traceable project history in one location.

Centralized documentation at every project stage ensures accurate as-builts and project data at handover. The model and its associated data can be easily converted into a digital handover that's contextualized and organized, offering the facilities team operational readiness on day one.

When all project data is connected, no collaborator risks missing changes, compromising their intellectual property, or losing time to software incompatibilities. Data can flow as it needs to through every stage of the project, and every collaborator can work in parallel with other disciplines for greater quality and productivity.

Boosting productivity with digital collaboration

MultiGreen Properties centralizes data and teams with a single cloud-based source of truth to build 40,000 homes on a tight schedule.

"Everybody can see if there's an issue. It's all about transparency and having everybody working together to create the necessary solution to keep the project on schedule."

– **Levi Naas, Director of Development, MultiGreen Properties**

Chapter 2

Better decision-making with data-driven insights

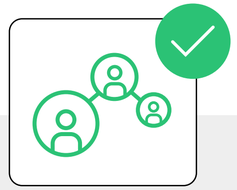
Chapter 2

Better decision-making with data-driven insights

Disjointed workflows are one of the biggest barriers to effective decision-making.

Vital information like materials, dimensions, and design intent gets lost in translation when architects flatten models into PDFs for review—leading owners to make uninformed decisions that can affect a building's asset value, and preventing them from giving clear feedback to architects. On top of that, feedback is scattered across emails and meeting notes, making it difficult to track.

And without an up-to-date record of changes, professionals must painstakingly retrace their steps to deal with rework, causing friction between teams and preventing buildings from being operationally ready at handover.



50%

Reducing mistakes and review time by 50%

By connecting its team and clients in the cloud, POLO Architects can keep design quality up and costly delays down.

Digital project delivery (DPD) helps counter these challenges by providing a comprehensive view of connected data that spans the project lifecycle, unlocking data-backed insights that allow for better project decisions. By using cloud-connected workflows, collaborators gain the visibility they need to design and build with confidence.

Architects can make design intent clear from start to finish by sharing data-rich models with other teams. Engineers can work without having to make assumptions and can provide input on designs early to avoid costly rework, while contractors can build with full context and owners can stay informed on progress through each phase.

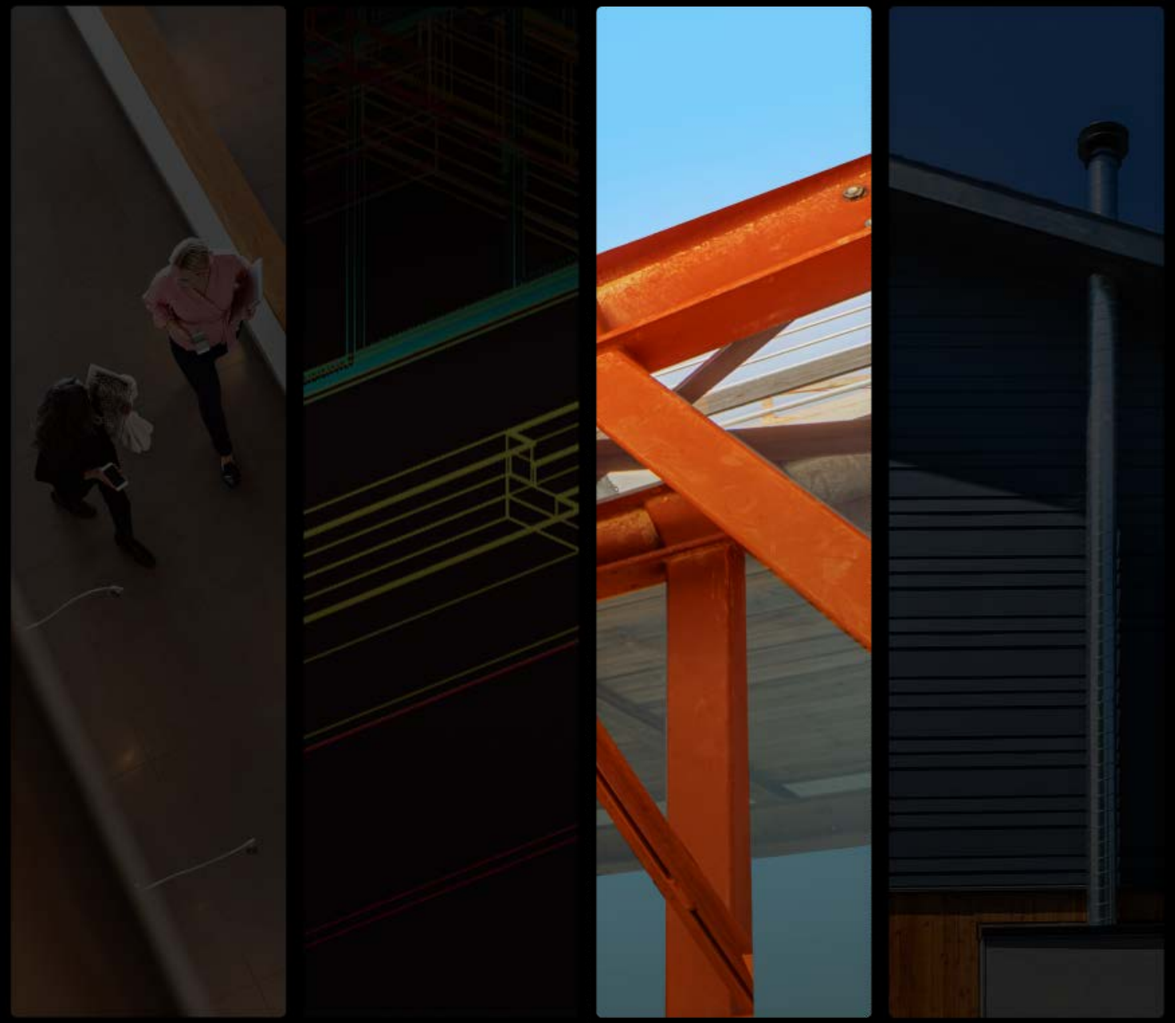
Plus, with DPD, teams can store files in a cloud-based central location in full fidelity, keeping a clear record of changes for handover.

Professionals can make informed, proactive decisions throughout each project, and deliver buildings to the highest standard that are operationally ready from day one.

> "The time we used to lose waiting for other modelers, for issue management—it's all gone. Everything is in one overview. No more emails, no more uploading and downloading."
>
> – Laura Rombaut, Architect and BIM Model Manager, POLO Architects

Chapter 3

A strong foundation



AUTODESK

Chapter 3

A strong foundation for future growth

Today, the average AECO firm uses over 25TB of storage—compared to 3TB in 2018.[4]

With so much data to manage, professionals often struggle with file incompatibilities and must edit data manually, allowing issues to creep in and affect profitability. At the same time, firms often miss opportunities to improve performance hidden in their data, denying them insights that could add value to future projects.

Adopting digital project delivery (DPD) enables firms to harness data effectively and prepare for the future, with transparent data exchange and open standards across every stage.

Opening up new revenue opportunities with a digital framework

Windover Construction provides digital twins at every handover, putting owners in full control of their buildings and winning the firm more work.

[4]https://www.egnyte.com/press-releases/new-study-finds-architecture-engineering-and-construction-firms-cloud-storage-needs-have-increased-by-over-fifty-percent-compounded-annually

Architects and engineers can use models built on multi-disciplinary data to track each build's progress, cost, and schedule, while staying in full control of their intellectual property with role-based permissions. With consistent, accessible data they can automate repetitive tasks and speed up processes with project templates, freeing up time to focus on more valuable work.

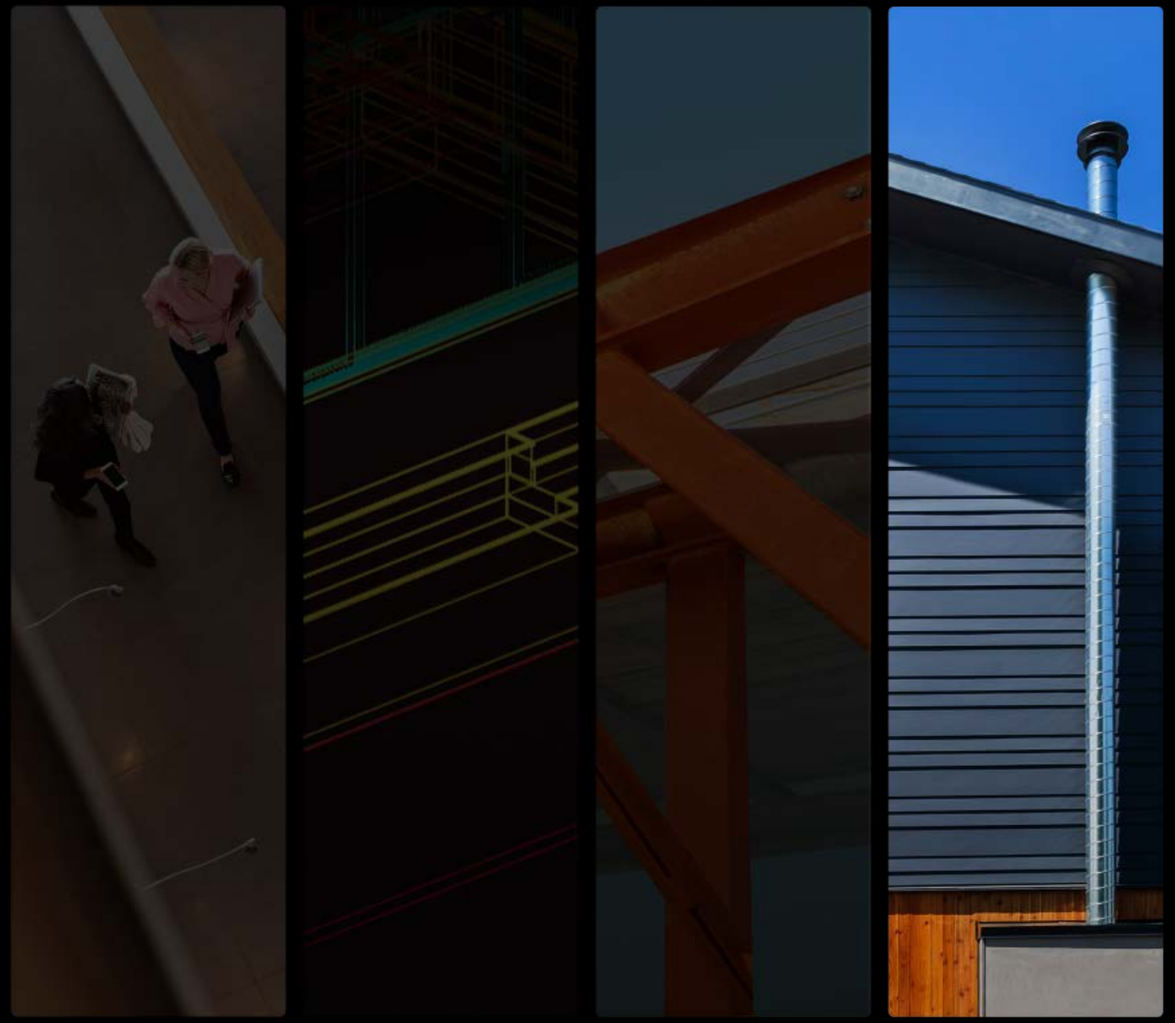
Firms can also improve project margins and win more work through implementing DPD, using standardized data to unlock capabilities that increase visibility and efficiency—like AI-powered asset management, or predictive analytics. And with the asset data and metadata unlocked by DPD, firms can build digital twins and share them as part of each project's handover. These fully contextualized, data-rich models offer owners greater visibility and control over the operational efficiency of their assets from day one—turning previously unused data into a source of value and informing ongoing maintenance programs.

Lastly, firms that practice DPD are more likely to attract and retain talent. Prioritizing effective collaboration will help grow a firm's reputation for innovation, and establish it as a place where experts can build their knowledge and skills.

> "Having a digital twin of a building is a real benefit to us. Not only can I identify the assets in the space, but those assets have operations manuals directly attached."
>
> – Curtis Boivin, Technical Planner, Philips Exeter Academy (client of Windover Construction)

Chapter 4

The outcomes



AUTODESK

Chapter 4

The outcomes

AECO is valued at US$12T and growing fast.[5] Firms who adopt digital project delivery and build their workflows on high-quality, well-managed data reap major benefits and are best positioned to be a part of the industry's growth.

- **Improved collaboration.** Connect every discipline's workflows and get the right data to the right people, at the right time.

- **Informed decision-making.** Keep stakeholders aligned with up-to-date records of changes and drive projects toward better outcomes.

- **A future-proofed firm.** Deliver building projects to the highest standard, win more work, and carry valuable learnings into future projects.

[5] https://www.mckinsey.com/industries/private-capital/our-insights/from-start-up-to-scale-up-accelerating-growth-in-construction-technology

Do it with specialist support from Autodesk

We’re here to help you find the right formula for digital project delivery and grow your firm, with steps for success proven to empower teams like yours.

Click the button below to set up a call.

Speak with a specialist

AUTODESK