

NINE REASONS SEAMLESS DESIGN COLLABORATION CAN INCREASE YOUR PROFIT MARGINS



Image courtesy of Glumac

THE BENEFITS TO A CLOUD-CONNECTED BIM PROJECT TEAM ARE QUANTIFIABLE. HERE ARE NINE REASONS WHY SEAMLESS DESIGN COLLABORATION CAN INCREASE YOUR PROFIT MARGINS:

BENEFIT 1

Reduce project errors and minimize data friction

With the cost of rework at the construction phase ranging from 5% to 15% of a project’s total cost, reducing errors in the building design environment is a goal of all AEC firms¹. The use of BIM itself reduces project errors, and improved collaborative processes help amplify this benefit. McGraw Hill’s SmartMarket report on the “Business Value of BIM in North America” reported that 57% of architects surveyed rated reduced document errors and omissions as a top benefit of BIM. The avoidance of rework by reducing errors and omissions early on through the use of BIM is one way to significantly cut costs and boost earnings. According to the McGraw Hill report, “reducing rework is a tangible outcome of the top-ranked benefit [of BIM] of reduced errors and omissions in documents”, with 45% of architects citing it as a top BIM benefit.

However, in the new reality of distributed teams and joint venture projects, it can be harder for project teams to fully realize every benefit of BIM. With multiple team

members spread across different locations, a cloud-based collaboration solution can be the differentiator that helps teams reap the benefits of BIM by facilitating the necessary real-time communication and data sharing.

33% percent of AEC professionals have found that accessing the latest set of documents, and having the most current information is a challenge in completing a project, and 32% worry that someone will use the wrong revision². With a cloud solution that has a project communication log and version history tracking, that exact revision is flagged to all parties, as well as being updated in the master model that everyone is working with.

Contractors can take advantage of access to the model to run clash detections earlier in the process. Detecting a clash or error costs thirteen times more in the construction phase than identifying a potential issue in the design phase of a BIM project³. Solving a clash in BIM is much cheaper than on-site, costing approximately \$90 versus \$1100⁴.

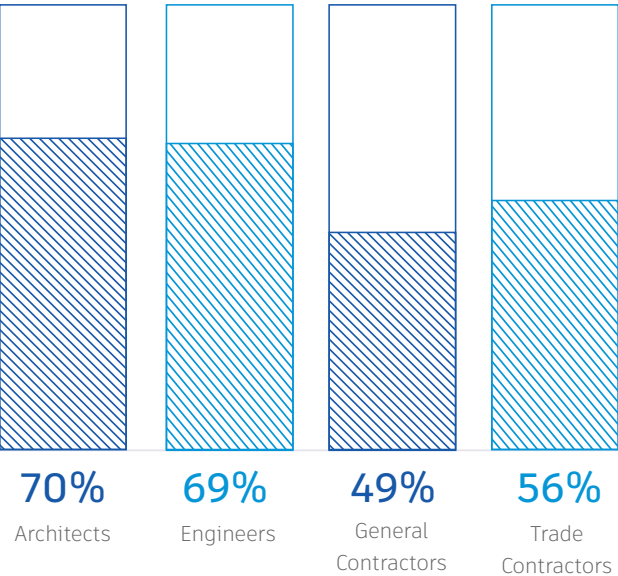
Project delays and cost overruns are often due to human error, caused by a lack of communication and poor project, data, and documentation management⁵. Poor project data management is greatly reduced by using one collaborative building design solution, where analysis can be run frequently and accurately. Collaborative BIM technology reduces CAD drawings rework from 48% down to 2%⁶.

“In a traditional project, it is typical to see dozens, if not hundreds of change orders come back to design firms. On the Brown University New Engineering Research Center, BuroHappold received them in single figures.”

Paul McGilly, BuroHappold

Project outcome improvements from using a collaboration solution on BIM projects

Reduce project errors and data friction^{7*}



BENEFIT 2

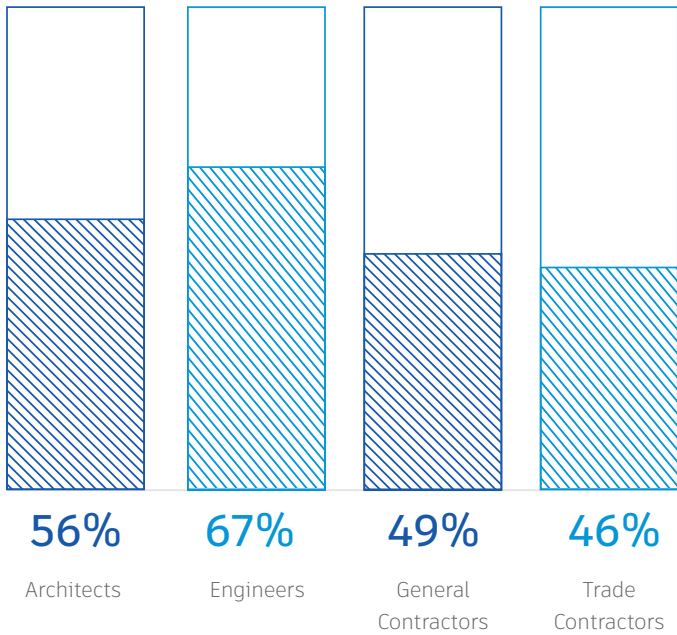
Finish projects faster

Over 60% of major capital projects fail to meet cost and schedule targets.⁸ Inefficiencies built into traditional project delivery processes can incur significant costs and time requirements. A more efficient BIM workflow can streamline project timelines and reduce overall costs, benefiting all project participants. BIM, coupled with a cloud-enabled collaboration solution, can save a project team time across the whole building design process. Designers can quickly iterate design elements to evaluate and optimize building performance, reply to client requests, or conduct analyses and simulations in the early design phase, editing out potential issues much earlier in the process. Cloud-based collaboration solutions that enable all team members to participate in real-time - whether they are working directly in BIM or viewing and approving the outcome of design changes - can dramatically speed workflows.

With routine design updates communicated to the team continuously via the cloud, in-person meetings can be dedicated to important forward-looking discussions rather than to every day logistics. You keep the benefits of collaboration, but move the day-to-day into the cloud. The cloud is just an evolution of traditional methods.

Project process improvements from using a collaboration solution on BIM projects

Reduce time required for communication, workflows and decisions ⁹



“BIM 360 Design is the ultimate communication tool. It enhances the flow of information in a way we’ve never experienced before and helps us get the job done faster. For example, on this project we **reduced our turnaround time for models and drawings by more than 35%.**”

Enrique Sarmiento, VDC Manager, McCarthy Building Companies

“A project with this level of sophistication requires bringing together the best talent from across the world. We have team members collaborating across San Francisco, New York, Melbourne, New Delhi, and Dubai, who are able to see the design updating live.”

Pardis Mirmalek, Design Technology Leader, Woods Bagot

BENEFIT 3

Work from anywhere to boost productivity

The ability to draw on vast amounts of remotely stored data from cloud services, and the proliferation of mobile devices and feature-rich mobile applications, mean that the project team can access project data wherever they are. Communication features that push instant updates to all members working on a project are revolutionizing the BIM process to ease communication with stakeholders who need to be aware of or approve project updates real-time, and enable the extended project team to work in a truly collaborative way.

By enabling the team to stay productive even when they are not together or in the office, efficiency gains can be realized that can positively impact the bottom line. Almost four out of ten AEC professionals say that online access to all documents on any device is one of the most important factors in increasing their company’s productivity, or in reducing costs.¹⁰ People want to be able to work from anywhere, and that requires apps that are optimized for mobile working.

BENEFIT 4


Spend less on IT

Cloud solutions get users up and running more quickly and offer multiple advantages over on-premise IT system options that take time to set up. On-premise systems also require upfront capital investments, and carry operating expenses to cover IT personnel to manage them. Workarounds, such as using an FTP, can result in heavy traffic on your network, as well as duplicate data on your servers. Nearly a third of AEC professionals said using multiple software tools during a construction or design project caused duplication of data.¹¹

Cloud collaboration solutions can be deployed almost instantly, and can be scaled up or down depending on the size of the project and the associated team. Hosting the workspace in the cloud makes real-time, synchronized design possible for your next or current project.

BIM projects that run solely on on-premise solutions can face challenges when it comes to making joint edits, because team members who are not on site struggle to access the model. Architects, engineers, and contractors may all use their own servers, but it has to be decided who will host the central model, assume responsibility for the database, and how the associated costs will be split. Poor synchronization of the 3D model across servers and workstations can waste time and money.

Providing access to a model hosted on an on-premise solution is not an ideal solution for sharing with a project owner or stakeholders who don't work directly in BIM, and who may not be trained to use the software to read a technical plan. This set up can delay feedback. With a cloud collaboration solution, however, these extended team members can log in and view the 3D model in a more accessible viewer, improving the speed and accuracy of their feedback.

A photograph showing a person from the side, looking at a large computer monitor. The monitor displays a 3D architectural rendering of a modern building interior with a curved desk and chairs. The person is wearing a light-colored jacket. The background is a dark, textured wall.

“What we really needed was a scalable solution that would not pose an undue load on our own IT resources, and would satisfy the financial constraints of management as well as the performance needs of our project.”

Leo Gonzales, Architect and BIM manager, Newman Architects

BENEFIT 5

Reduce costs by co-locating project teams virtually

A core benefit of BIM is the ability for multiple contributors to simultaneously work in the same model. Hosting the shared model in the cloud is one way to enable cloud BIM worksharing. A cloud collaboration solution with mobile access to the shared model provides a critical access point for those within or outside of the Revit environment.

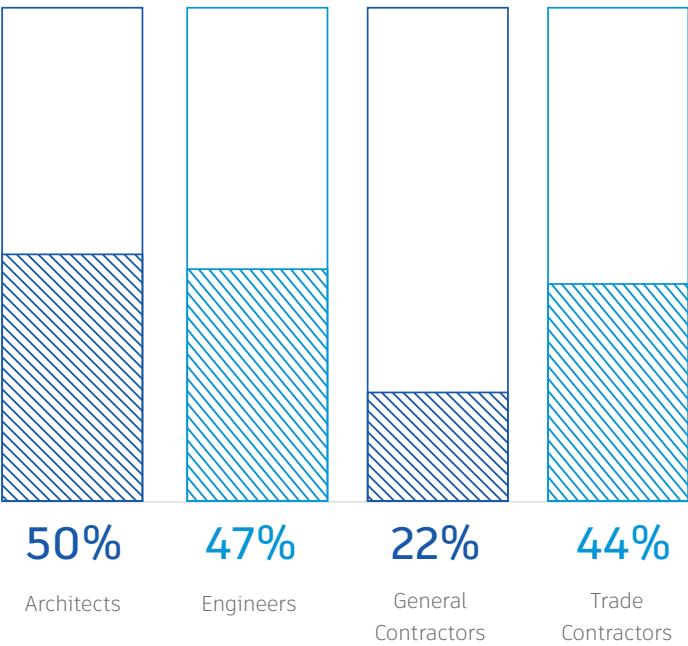
The physical co-location of project teams sometimes required by clients or public agencies can be extremely expensive. Often travel costs associated with co-location have to be declared upfront in the tender process, meaning that the project team can end up footing the bill if these run over.¹² Firms have to dedicate full-time employees (usually co-located on a project site) for the duration of the project. Co-location can require an investment in hardware and IT infrastructure, along with the design and fit-out of office space for the team. A digital solution for virtual co-location, therefore, can be a huge financial benefit to the project as an alternative solution.

With cloud-based collaboration, teams can simulate ‘war rooms’ to allow everyone - the mechanical, electrical, and plumbing engineer (MEP), architect, contractor, and structural engineer - to work through project checkpoints effectively. This alternative eliminates the need to fund physical location, food, and travel for an entire project team.

In a recent Smart Market Brief,¹³ 41% of respondents said that using a project collaboration solution reduced the need for co-location and associated costs.

Project process improvements from using a collaboration solution on BIM projects

Reduce need for co-location and associated costs ¹⁴



“Through the technology that we have put in place on our project, BIM 360 Design, we’ve been able to essentially virtually co-locate the offices, instead of physically co-locating the offices.”

Michelle Vo, Principal, Hennebery Eddy Architects



BENEFIT 6

Spend less time coordinating, more time designing

Building design professionals are most effective when they can concentrate on their area of expertise. With traditional design processes time is wasted figuring out how to get updates into the 3D model, or waiting for the latest file version from other parties. Nearly one in three AEC professionals say that cloud technology tools that are not specifically designed for the AEC market can make completing a project on schedule a challenge, and using multiple software programs causes IT redundancy and wasted staff time.¹⁵

A real-time collaboration environment reduces employee downtime by ensuring that everyone always has access to and is working with the latest version of the design. Teams are better able to work effectively, and deliver cutting edge, award winning, trend-setting buildings, when they can concentrate on the design rather than worrying about versions or updates.

In fact, 64% of architects and 61% of engineers reported that using a project collaboration solution helped them deliver higher quality, more creative designs/projects.¹⁶

“By coordinating with BIM 360 Design, AECOM saw an 18% reduction in design time for its design teams.”

Chris Crowe, AECOM

BENEFIT 7

Win more work

Improved collaboration technology is driving international partnerships, and the increased internationalization of building design is driving further technology innovation. The advent of improved collaboration processes has made it easier to work with specialist partners based anywhere in the world. It is simply not feasible to get everyone in the same room on a regular basis if they are spread across the world. This tendency for AEC players to be more global in their project outlook has driven the development of cloud technology designed specifically for this purpose. With cloud collaboration solutions for BIM, physical location is no longer a barrier to participating in a project, no matter where it is located.

New collaboration technologies are opening up opportunities for partners who otherwise may have been too small to participate in projects.¹⁷ In the past, they might not have been able to justify the investment in the IT infrastructure necessary to collaborate with larger partners on the model, but with the low capital expenditure of cloud solutions there is a lower barrier to entry. Cloud collaboration for design is an equalizer.

Smaller firms can be more competitive because they can access the same high-quality solutions as their larger competitors, on scale that suits, to grow the business by bidding on joint ventures with larger partners.

BENEFIT 8

Improve communication with extended project stakeholders

With conventional communication tools, sharing a 3D model with the building owner and nontechnical stakeholders for review or approval is complicated and time-consuming. Exporting a model as a 3D PDF rendering and uploading to an FTP is inefficient and sending 3D PDF renderings often causes confusion with non-designers. This time-consuming process often causes versioning issues and can delay approvals or sign-offs.

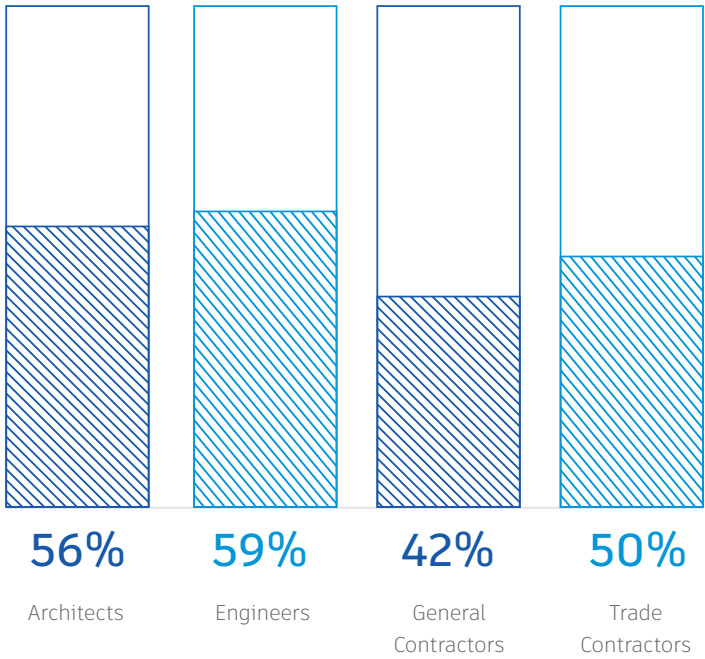
The poor application of building design data coupled with the rise in highly fragmented teams costs the US capital facilities industry \$15.8 billion annually, and the owner’s burden is about two-thirds of those costs during ongoing operations.¹⁸ And nearly one in four AEC professionals say that the use of multiple technology tools without streamlined integration negatively impacts project efficiency.¹⁹

With cloud-enabled design collaboration the speed of project approval can dramatically increase by providing real-time access to the 3D model as it is updated. The building owner can log in and check progress anytime.

Cloud sharing removes a time-consuming administrative task on both sides, and helps improve the flow of communication, as well as increasing trust.

Project outcome improvements from using a collaboration solution on BIM projects

Increase client satisfaction with greater project visibility and input ²⁰



BENEFIT 9

Recruitment – attract and retain the best talent

Attracting and keeping the best talent can be a real differentiator in your ability to compete. Working from anywhere means that you can hire the most qualified people for a project, rather than being limited to local resources. Cloud-based design collaboration is a great way of enabling distributed teams to function as a cohesive unit, even if they aren't in the same office.

Top professionals increasingly demand positions with companies that offer a good work-life balance. In building design this means giving your team the bandwidth to concentrate on the actual design, and the creative and problem-solving challenges around it, while offering flexible work options.

Flexible hours may seem less possible in an industry with tight deadlines. However, with cloud collaboration solutions, team members are able to participate from wherever they are, even 'on the go' thanks to mobile apps. This opens the door to employees who are parents and carers, especially women, who are underrepresented in the industry.

“Our employees are based all over the country. BIM 360 Design gives us the flexibility to recruit the best talent regardless of location.”

Anthony Woodsford, Associate/BIM Manager, Corstorphine + Wright

Seamless design collaboration benefits any project delivery type

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AUTODESK® BIM 360® DESIGN

BIM 360 Design enables design collaboration and data management across the project lifecycle. It allows teams to securely co-author a Revit model within one firm or across multiple firms and control the exchange of data. Streamline deliverable coordination, visualize changes, track project progress, and manage issues to help improve project outcomes.

BIM 360 Design trial

[TRY NOW >](#)

AUTODESK® BIM 360® DOCS

BIM 360 Docs is a cloud-based document management solution that provides teams with the ability to find, publish, manage, review and approve project information on a common data platform with unlimited storage. With anytime, anywhere access to the latest information, teams can reduce errors, make informed decisions, and improve project outcomes.

BIM 360 Docs trial

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2. CLOUD COMPUTING – THE NEW FACE OF BIM AND REAL-TIME DESIGN, CLOUDALIZE 2016
3. CLOUD COMPUTING – THE NEW FACE OF BIM AND REAL-TIME DESIGN, CLOUDALIZE 2016
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* DATA IN BAR GRAPHS IN THIS EBOOK IS ILLUSTRATIVE OF RESULTS FROM "DODGE DATA & ANALYTICS" SMARTMAKRET BRIEF THAT SURVEYED US ARCHITECTS, ENGINEERS, GENERAL CONTRACTORS AND TRADE CONTRACTORS, AND BIM AND/OR IT MANAGERS TO DETERMINE THE EXTENT AND VALUE OF THEIR USE OF CLOUD-BASED COLLABORATION SOLUTIONS FOR BIM