MAXIMIZE YOUR PROFIT MARGINS WITH DESIGN COLLABORATION

How to extract maximum value from your BIM investment

AUTODESK.

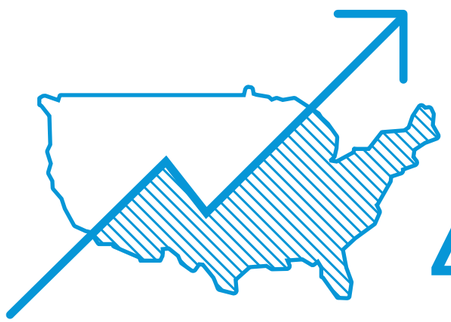
TABLE OF CONTENTS:

The state of BIM in North America

BIM (Building Information Modeling) is a given. Even architects, engineers, and associated stakeholders not working in BIM now will be impacted by the BIM process in the near future as adoption grows worldwide. The building industry has supported a move to BIM processes in order to improve accuracy and efficiency in the design phase, increase productivity, and combat shrinking margins on projects.

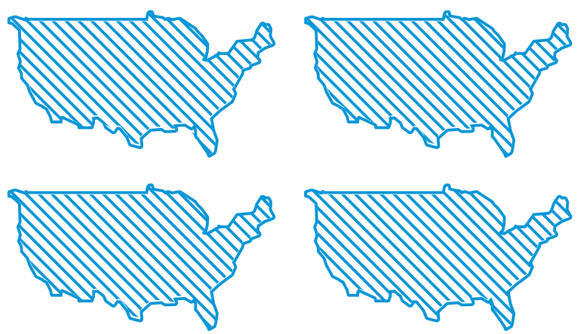
At the same time, building design professionals may find themselves challenged to make the most of their investment in BIM not only to realize a positive Return on Investment (ROI), but also to improve their bottom line.

BIM Adoption Rate in USA[1]



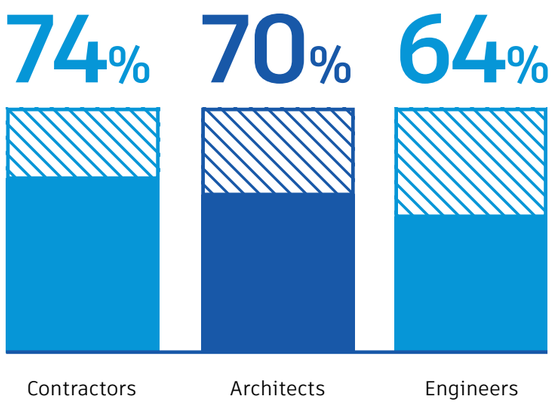
last
3
years

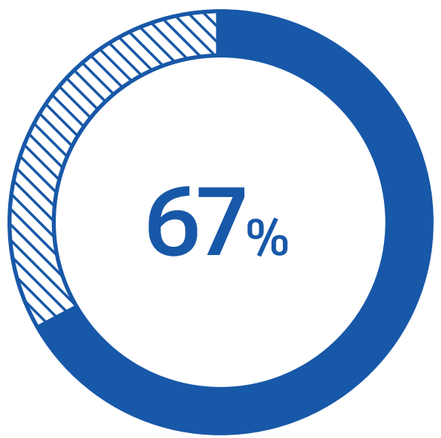
45%
growth



400%
growth

5
last years



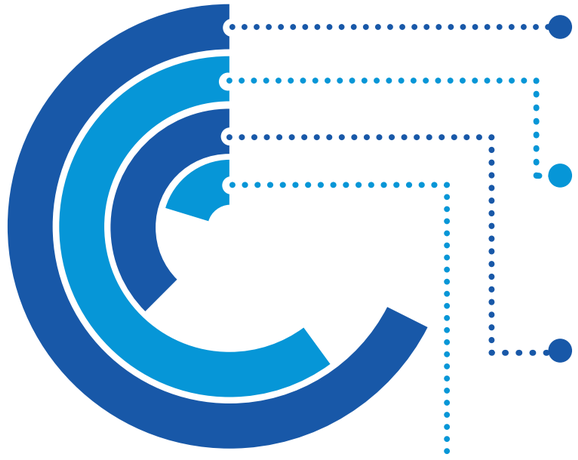


contractors who have very high levels of engagement with BIM in the USA report an ROI of over 25%[2]

Investment in design collaboration

BIM is much more than a technology and a process. It is a sociotechnical system, the "combination of man-made technology and the social institutional consequences of its implementation in society".[3] The technical core of BIM can on its own facilitate collaboration between practitioners, but it's the addition of the social parts of BIM - the coordinated work practices and the institutional and cultural frameworks - that comprise its full value.
Three quarters of design professionals report a positive ROI on their BIM investment, with a higher return correlated to a higher level of BIM adoption.[4] And research shows that BIM saves more money as the team gets more collaborative. It's the difference between lonely and social BIM.

The level of investment in design collaboration is directly correlated to successfully delivering a project [5]



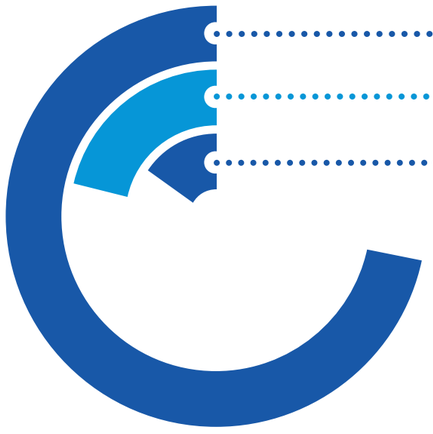
69%
Of organizations have used online inter-organizational project collaboration tools

59%
Consider themselves an "early adopter" of new technologies that can improve productivity

37%
Say a more rapid uptake of emerging technologies by contractors, suppliers and clients offers the greatest potential for improving productivity in the construction sector

19%
Say online inter-organizational project collaboration tools are used routinely throughout the organization

But there are barriers to overcome in order to achieve this[5]



73%
Say that there is room for productivity improvement in the design-bid-build stage

20%
Say the biggest hurdle is barriers to collaboration and information sharing with partners and suppliers

14%
Say that outdated technology and tools are the biggest challenges to increasing productivity

THE FOUR TRENDS DRIVING COLLABORATION IN THE AEC INDUSTRY

HOW DO YOU ENSURE YOU ARE MAXIMIZING YOUR INVESTMENT IN BIM? START WITH UNDERSTANDING FOUR TRENDS AFFECTING THE AEC INDUSTRY

TREND 1

The AEC industry is embracing connected BIM

Historically the focus has been on the 'M' part of BIM ('modeling'). There is now a rapid shift to focus on the 'I': 'information'. This concentration on information, and the effective sharing of that information, is enabling project teams to work together in ways never before possible.

The era of connected BIM is characterized by a holistic project-centric process. The project is at the center from the start, not the individual files and applications. Technology is enabling architecture, engineering, and construction teams to become more connected and have access to a wealth of information from anywhere.

The cloud for instance connects data, systems, projects, and teams, so that everything and everyone can be in constant communication, with instant access to the latest files, designs and project activity. In the 'always on' era of connected BIM, project collaboration can occur in real-time and international teams can 'follow the sun', with a part of the project team always working.

"Using Autodesk BIM 360 Design to collaborate with teams anywhere we are seeing productivity increases of up to 25% on cloud-based BIM projects."

Anthony Woodsford, Associate/BIM Manager, Corstorphine + Wright

TREND 2

Project delivery has become more collaborative

With increasing demand, collaborative project delivery types such as Design-Build, Joint Ventures, Integrated Project Delivery (IPD), and Public-Private Partnerships (PPP) are gaining traction. Beyond the design phase, building product supply chains are more likely to be international, and potentially global.[6] As a result, design firms in AEC are facing requirements for joint venture arrangements, the need to co-locate, shared server requirements, version control, and centralized feedback systems.

This sort of collaborative project delivery in the design phase requires architecture and engineering firms to communicate and share data easily to support efficient decision-making. As collaborative project delivery types become standard practice, technology solutions to support this way of working are being developed to help AEC professionals deliver.

"Collaboration in BIM 360 Design gave us a time saving of 20% and a cost reduction of 90% on the Brown University New Engineering Research Center (IPD) project."

Paul McGilly, BuroHappold

TREND 3

Cloud-based collaboration is increasingly enabling BIM processes, new project delivery models, and the desire for connectivity

Collaboration in BIM is about more than information. It includes the people who comprise project teams and their need to work in a shared space in real-time, so that decisions, updates and communications are simultaneously and instantly applied, flagged, and tracked. Reflecting a trend towards a more integrated approach to design and construction, the industry is prioritising the development of collaborative processes with external parties and investing in communications infrastructure. A solution which takes communication beyond email trails and creates a unified space and record can optimise BIM's collaboration capabilities. Using the right cloud solution means workflows are integrated across the project lifecycle of planning, design, construction and operation, and barriers to communication are removed so project collaboration can occur in real-time. Cloud-based collaboration tools can help minimise design downtime and rework.

"Seamless information sharing between joint ventures and project partners is the future of doing business. BIM 360 Design gives us that future, today"

Leo Gonzales, Newman Architects

TREND 4

The cloud has come of age

The AEC industry is embracing the benefits of cloud technology, the use of collaboration and data management solutions. The cloud has become ubiquitous in all aspects of our lives. It's second nature to us to be in constant communication, and to have constant access to information and data from wherever we are. Cloud solutions enable us to work from wherever inspiration strikes us.

"Whether I'm five feet from somebody or 2,000 miles away, the interaction is the same. We are able come up with more design, weed out issues, and continue forward (with the design)."

Corey Ochsner, Fentress Architects

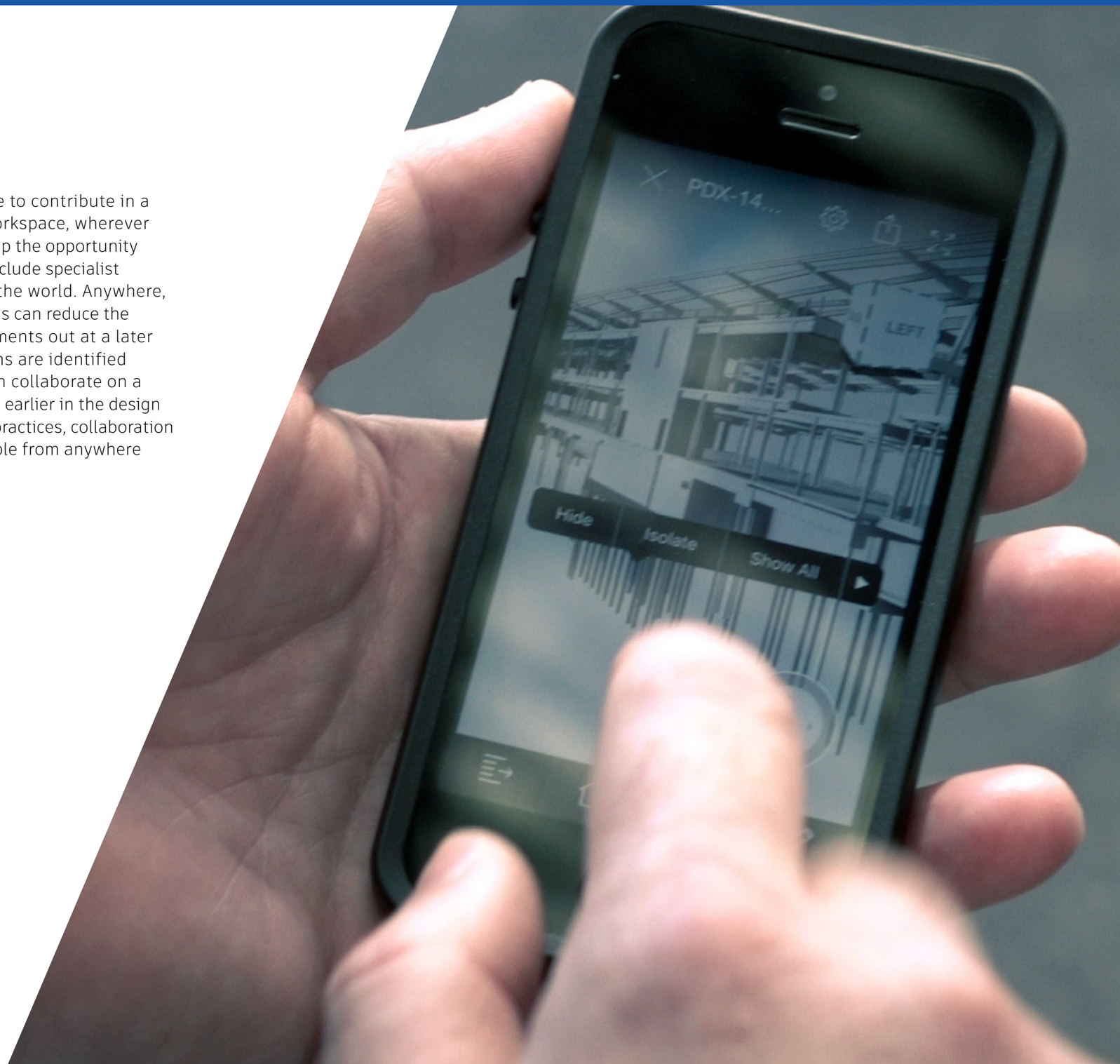
How connectivity, collaboration, and cloud impact design professionals

The four trends are clear to the AEC industry, but the impact on the way design professionals carry out their work and take advantage of these trends is still evolving.

Collaborative design models need a different work style. No longer are professionals tied to a workstation, studio or desk. Untethered by technologies that enable access to data and information from anywhere, more AEC teams are working together remotely, whether from multiple offices of the same firm, home, or the local coffee shop. Not requiring teams to be located in the same physical space can help bring together integrated project teams, incorporating all the disciplines needed for the building design process. However, virtual teams need a centralized collaboration solution to work most effectively in a way that includes remote contributors.

Leaders in the AEC industry are embracing cloud technologies which make remote data management processes possible. The modern design environment centers on real-time information that can be shared, tracked and archived in the cloud - everything, from 3D model data to project communications (emails and annotations). It is essential that team members can access this information anywhere, on any device. Collaboration needs to occur between all project team members: the prime architecture or engineering firm, their consultants and sub disciplines, and their project stakeholders including owners, public agencies and client representatives.

Every member must be able to contribute in a design-agnostic, shared workspace, wherever they are based. This opens up the opportunity for collaborative teams to include specialist partners from anywhere in the world. Anywhere, anytime access means teams can reduce the need to value-engineer elements out at a later stage, because data frictions are identified earlier on, and the team can collaborate on a mutually approved solution earlier in the design process. By enabling these practices, collaboration solutions which are accessible from anywhere facilitate cost savings.



How collaboration technology enables new ways of working

Effective collaboration is key to realizing BIM's full potential. Autodesk's core authoring software for BIM, Revit® has a worksharing feature that enables simultaneous access to shared models by multiple contributors. Worksharing provides a complete range of collaboration modes from entirely on-the-fly, simultaneous access to the shared model, through the formal division of the project into discrete shared units, to complete separation of project elements or systems into individually managed linked models. This allows the team to choose the best way to collaborate and interact based on their workflow and the project requirements.

This collaboration at the model level is central to BIM, but requires that participants be connected via a shared server. Building project teams need more flexibility to include project participants, including multiple site access, multiple company access and more mobility.

A true collaboration for design solution eliminates these hardware requirements and obstructions caused by firewalls, meaning that worksharing can happen remotely, across independent networks.

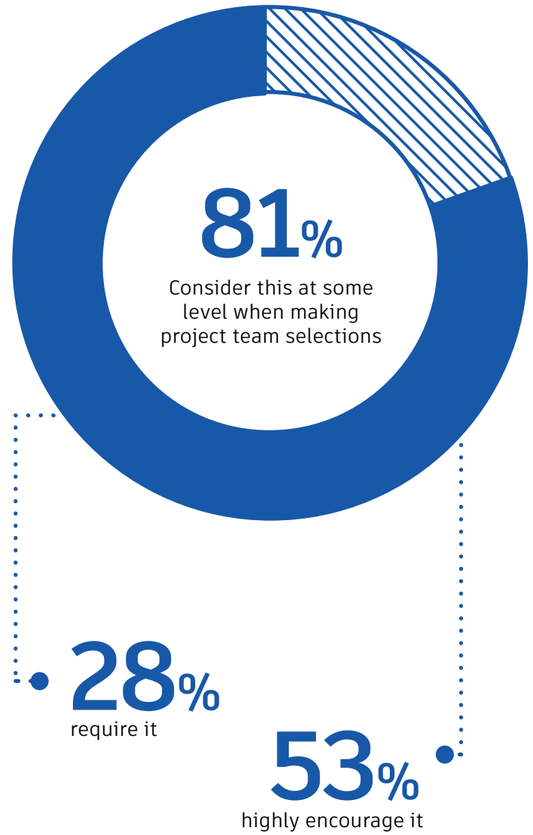
AEC has become more outward looking, with a focus on true collaboration with external parties, and on implementing the required technology infrastructure. Developing collaborative BIM procedures with external parties has been an investment priority for AEC for some years, and more companies are now seeing the benefits of better project team collaboration. In a recent study, the number of those who said they saw these benefits rose from 31% in 2012 to 49% in 2014[7]. Developing collaborative BIM procedures with external parties was a significant investment area, growing from 33% in 2012 to 54% in 2014[8]. 'Lonely BIM' does not deliver the same ROI as a truly collaborative BIM process. Investment in data management infrastructure to improve model sharing, optimizing collaborative modeling workflows and practices, and making them available anywhere, anytime is happening alongside BIM implementation itself.

"Despite being a later adopter of BIM, the USA has been an early adopter of the technology to enable 'social', collaborative BIM. This is partly driven by the geographical challenges of a large country. The desire for constant connection to the project exists, but in the southern states, BIM adoption is lagging a little. The role of collaboration technology in delivering BIM is high, although BIM in general is not as widespread as it is in Europe.

"We are starting to see a trend towards considering the lifecycle of the building, with the design keeping the 'end' in mind. For example, limiting the toll of energy consumption, or thinking about making it semi-smart. The eventual aim is to use the intelligence that can be gathered from the building itself to conduct analyses and adapt the maintenance to optimize performance."

Joe Gould, Senior Technical Sales Specialist AEC at Autodesk USA

The ability to work in a collaborative cloud environment makes you an attractive partner to other AEC organizations[9]



NINE REASONS SEAMLESS DESIGN COLLABORATION CAN INCREASE YOUR PROFIT MARGINS

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 firms[10]. 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 revision[11]. 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 project[12]. Solving a clash in BIM is much cheaper than on-site, costing approximately $90 versus $1100[13].

Project delays and cost overruns are often due to human error, caused by a lack of communication and poor project, data, and documentation management[14]. Human error 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%[15].

"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

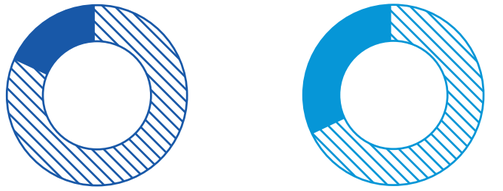
BENEFIT 2

Finish projects faster

Over 60% of major capital programmes fail to meet cost and schedule targets.[18] 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, for example, evaluate and optimise 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.

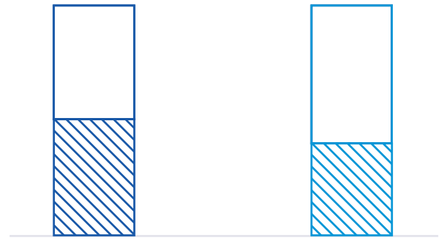
Projects completed on time[19]



20.5%
Public Sector

33.35%
Private Sector

Projects completed within cost[19]



46.8%
Public Sector

37.2%
Private Sector

"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 all project data wherever they are. Communication features that push instant updates to all members working on a project are revolutionising 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 realised that can positively impact the bottom line. Almost four out of ten AEC professionals say that online access to all documents on any device platform is one of the most important factors in increasing their company's productivity, or in reducing costs.[20] People want to be able to work from anywhere, and that requires apps that are optimised 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.[19]

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.

Newman Architects found that its VPN workaround was slow and expensive, creating a frustrating experience for designers, and causing a significant strain on IT resources.

"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

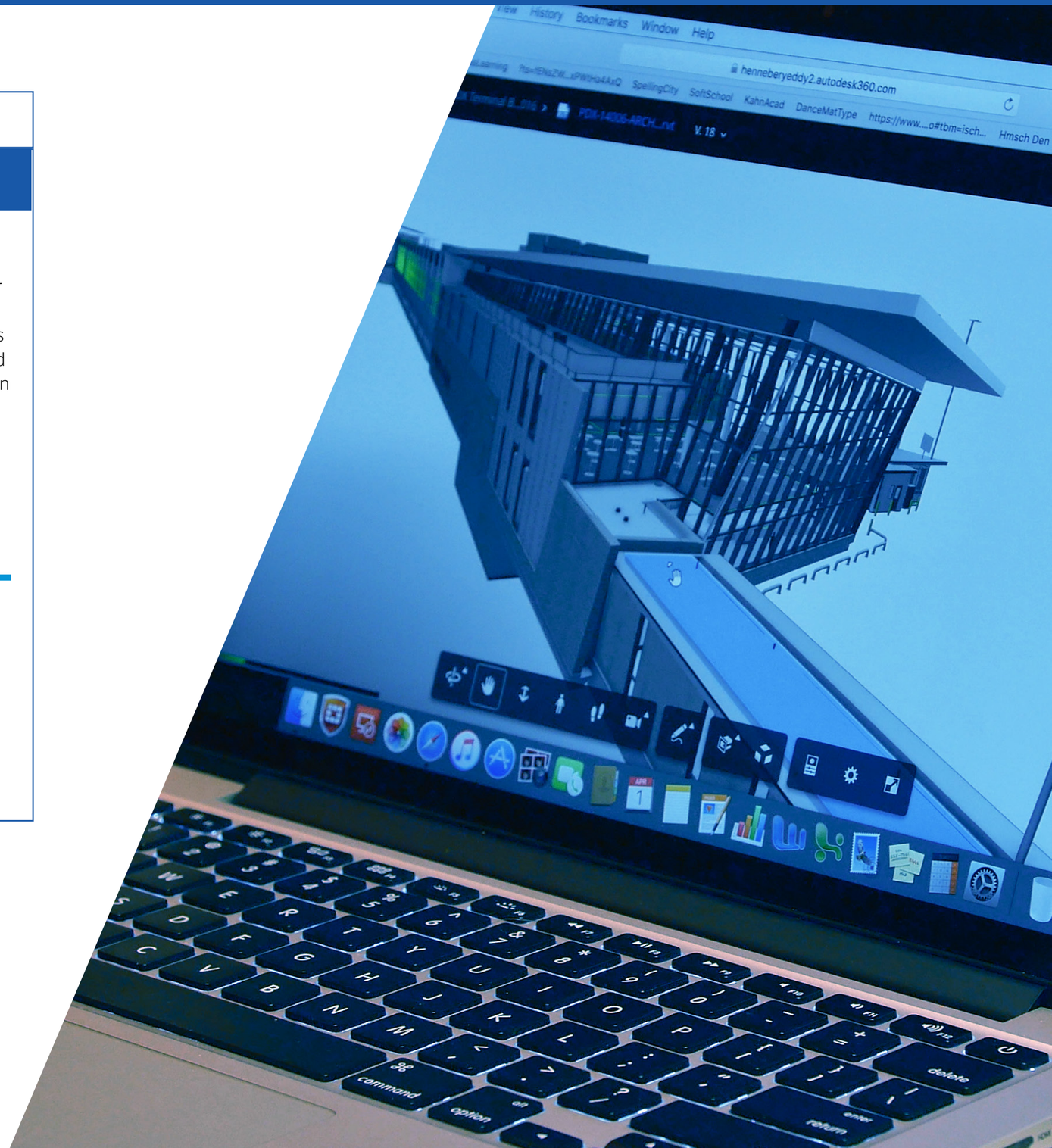
A core benefit of BIM is the ability for multiple contributors to simultaneously work in the same model. Hosting the shared model in the cloud is one way to enable virtual, cloud BIM worksharing. A cloud collaboration solution with mobile access to the shared model provides a critical access point for 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[20]. 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.

"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



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

Chris Crowe, AECOM

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.[21]

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.

BENEFIT 7

Win more work

Improved collaboration technology is driving international partnerships, and the increased internationalisation 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.[24] 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 equaliser. 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.[27] And nearly one in four AEC professionals say that the use of multiple technology tools without streamlined integration negatively impacts project efficiency.[28]

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.

"With BIM 360 Design, our projects are transparent and we are sharing that information with all people who should have access to it. We can't live without it."

Marin Pastar, Director of Innovations, Bates Architects

Technologies and Management Strategies that have the Greatest Impact on Improving Productivity[26]

BIM

Online inter-organisational project collaboration tools

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. Making working from anywhere truly possible means that you can hire the best qualified person for a project, rather than be 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, and offering flexible working options. They want to spend less time on admin and sorting through file versions, and more on design, including seeking inspiration out in the field.

Flexible hours may seem less possible in an industry with tight deadlines but, 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 doors to employees who are parents and carers, especially women, who are underrepresented in the industry.

AEC designers in the USA suffer from the lack of work-life balance just as much as those in other industries. A study by the Washington Center for Equitable Growth found that Americans consistently work such long hours that it is detrimental to their health.

The study defined overwork as more than 40 hours a week, and found that those working in higher paid professions were more likely to clock up longer hours.

17.1% of architects and engineers questioned indicated that these long hours were the norm[28]. The study highlighted the USA's overtime laws, which do little to protect white collar workers, as a discouraging factor for employees looking to work smart, not long hours. But the focus should be on productivity and quality of work. Tired designers are more likely to make mistakes, and less likely to produce masterpieces, so need the right tools to work from anywhere and focus on output, not 'presenteeism'.

"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

Employers planning to hire engineers in 2016[27]

SEAMLESS DESIGN COLLABORATION BENEFITS ANY PROJECT DELIVERY TYPE

Which delivery models apply to your sector?

The way that building projects are tendered, won and completed is changing. There is an increased emphasis on collaboration between multiple specialists to deliver the best possible result for the owner, including post-construction and into the lifecycle of the building. Unfortunately, a design contract doesn't solve the problem of communications between all parties. You need a communications plan beyond a legal agreement if you are going to work together effectively. A collaboration solution for design can help solve the practical issues around how you put your project communications plan into action. In practice the building owner will select the collaborative delivery model they desire, so design firms must understand how the models vary, and be prepared to adapt to work within the owner's desired framework.

Integrated Project Delivery

Integrated Project Delivery, or IPD, is a project delivery method distinguished by early collaboration between cross-functional teams through all phases of design, fabrication, and construction. By entering this type of contractual agreement, teams are able to collaboratively harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste, and maximize efficiency through all phases of design, fabrication, and construction. It offers the chance for all partners to adopt a share of the risk, so that all can benefit from the reward. It requires great collaboration to be successful.

"AECOM has leveraged BIM 360 Design to connect more than 135 global offices. Allowing it to facilitate its integrated project delivery approach and utilize its global teams to contribute to key international projects, further reducing delivery costs."

Chris Crowe, AECOM

Design-build

A design-build project is comprised of two or more teams working together by enabling one team to focus on design, and the other on the building process. In contrast to a traditional design-bid-build project in which the design and building team bid on a project separately, a design-build project requires that both the design and building teams bid on a project together.

Joint-venture partnership (JV)

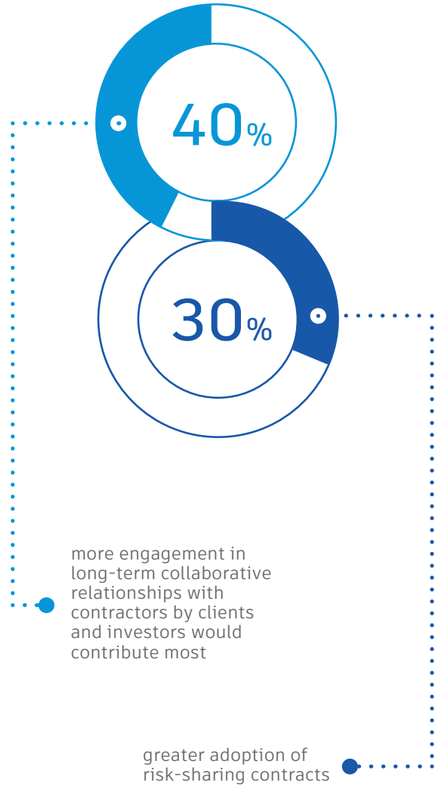
A joint-venture partnership, or JV, is a project partnership that creates a new legal entity made up of two or more separate firms. Many times, two companies will form a JV partnership when pursuing a contract in order to benefit from shared skills and resources, allowing them to collectively win larger or more complex projects than they would have been able to win alone.

Joint-venture agreements enable small and medium firms, or firms with complementary expertise, to combine their efforts to bid on a project as a single, unified entity. Joint-venture project delivery style not only requires a high-level of collaboration between these two teaming partners, but often times across multiple disciplines who may be located in multiple cities, states or countries.

"We have teams collaborating who can see the design updating live. BIM 360 Design helped bridge the gap between the four design Joint Venture firms, with one common model in the cloud."

William Wallace, Woods Bagot

Ways to improve productivity over the next three years according to AEC professionals[35]



Teaming Agreements

In a Teaming Agreement (TA) firms with different expertise form a partnership to create a combined team that can more effectively compete in requests for proposals and design competitions. They align with collaborative design in that they focus on bringing together the best specialists for a project, and building the project around the key skills of the contracted parties.

The main benefit of the TA is to be able to win more work immediately, but it also gives your organization exposure to more complex projects, and the chance to 'upskill' to become the prime contractor in the future, as well as sourcing partners who may funnel more business your way.

Teaming Agreements are more popular than IPD in the USA. The collaboration between architects, MEPs and structural engineers is fairly advanced.

When it comes to design collaboration in the cloud, designers face a conundrum. They want collaboration, and the legislation surrounding all cloud data in the USA is a factor in their solution decisions. Choosing a solution in which you can be confident about the lifetime safety of that data, to comply with the twelve-year statute of limitation on building projects, is a must.

Public-Private Partnership

A public-private partnership project, or PPP, P3, or PF2, is a project delivery method that includes at least one public sector authority and one or more private sector parties. This type of contract enables the public sector to effectively utilize a private sector skillset and minimize their risk simultaneously. A typical PPP project will include an integrated project team responsible for delivering across the full project lifecycle, from design through construction and ongoing operations.

Autodesk solutions for better design team collaboration

Tools like Autodesk® BIM 360® Design are helping to provide design teams with a cloud enabled, collaborative BIM environment.

Autodesk BIM 360 Docs is a cloud-based collaboration solution that allows multiple design partners to collaborate as if they were one design team (without the need for co-location or physical file storage). The platform connects all team members (via web or mobile device) to the latest project information - 2D drawings and 3D models, design mark-ups, activity feeds and version history.

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 work-in progress data. Design teams are freed from the requirement to physically co-locate or share a server. This is a major time and money saver since feedback is shared in real-time, and teams are able to resolve issues together quickly within the model, a process that may have previously taken weeks.

BIM 360 Design saves the model up to 'central' in BIM 360 Docs, while creating a local cache file. If your internet connection goes down you can still work locally, and then upload it back into the joint project to ensure all changes are synced for the extended design team. The change visualization tool allows the team to review contents of incoming sets and packages and easily visualize changes from past versions. Comparing differences between phases, building levels, and design teams can help identify how the project has progressed. Communication really is the key to effective collaborative design, and reliable data exchange is critical.

"BIM 360 Design was like a dream come true. As soon as we began using it, we knew it was going to revolutionize our collaborative design process."

Kal Houhou, Director of Technology,
Martinez + Johnson Architecture

LEARN MORE ABOUT THE AUTODESK SOLUTION FOR SEAMLESS DESIGN COLLABORATION

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.

AUTODESK®
BIM 360® DOCS

BIM 360® Docs provides team members with project data management. Share, view, markup and manage your project files on a central data platform with unlimited storage and anytime, anywhere access to the latest information. Reduce errors, make more confident decisions, and improve project outcomes.

HAVE ANY QUESTIONS?
TALK TO OUR EXPERTS

GET IN TOUCH >

1. BIM, trends from all around the world, Autodesk at European BIM Summit 2015
2. The Business Value of BIM for Construction in Major Global Markets, SmartMarket Report, 2014
3. WHAT IS BIM? WSP and Parsons Brinckerhoff, 2013
4. A Review Of Cloud-Based BIM Technology In The Construction Sector, Journal of Information Technology in Construction 2014
5. Rethinking productivity across the construction industry: The challenge of change, Economist Intelligence Unit, 2015
6. Improving Building Industry Results through Integrated Project Delivery and Building Information Modeling, Autodesk, 2008
7. The Business Value of BIM for Owners, SmartMarket Report, 2014
8. The Business Value of BIM for Owners, SmartMarket Report, 2014
9. The Business Value of BIM for Owners, SmartMarket Report, 2014
10. Cloud Computing – The New Face of BIM and Real-Time Design, Cloudalize 2016
11. Cloud Computing – The New Face of BIM and Real-Time Design, Cloudalize 2016
12. Cloud Computing – The New Face of BIM and Real-Time Design, Cloudalize 2016
13. Status Report 2016, Besix Group 2016
14. BIM helps in cost reduction and project delivery time, Muhammad Izzat Syakir Ishak, University of Nottingham, Department of Civil Engineering
15. Cloud Computing – The New Face of BIM and Real-Time Design, Cloudalize 2016
16. The Value of BIM for Owners: Save Time and Money During the Building Lifecycle, Autodesk 2014
17. BIM helps in cost reduction and project delivery time, Muhammad Izzat Syakir Ishak, University of Nottingham, Department of Civil Engineering
18. The Need for Industry Cloud Solutions in the AEC Industry, SkySite 2015
19. The Need for Industry Cloud Solutions in the AEC Industry, SkySite 2015
20. Schedule of rates for construction, Institution of Civil Engineers, 2016
21. The Need for Industry Cloud Solutions in the AEC Industry, SkySite 2015
22. Joint Venture for Construction, Institution of Civil Engineers 2016
23. Rethinking productivity across the construction industry: The challenge of change, The Economist Intelligence Unit, 2015
24. Rethinking productivity across the construction industry: The challenge of change, The Economist Intelligence Unit, 2015
25. The Value of BIM for Owners: Save Time and Money During the Building Lifecycle, Autodesk 2014
26. The Need for Industry Cloud Solutions in the AEC Industry, SkySite 2015
27. Focus On Engineering, Experis Engineering, 2016
28. Overworked America, Washington Center for Equitable Growth, 2016
29. Diversity in the Profession of Architecture, The American Institute of Architects, 2016
30. Women in STEM: A Gender Gap to Innovation, U.S. Department of Commerce, 2011
31. Solving the Equation: The Variables for Women's Success in Engineering and Computing, American Association of University Women, 2015
32. Diversity in the Profession of Architecture, The American Institute of Architects, 2016
33. Rethinking productivity across the construction industry: The challenge of change, Economist Intelligence Unit, 2015
34. The Business Value of BIM in North America, SmartMarket Report, 2012