CS20320

BIM 360 Docs: Indistinguishable Evidence of the Situation

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Learning Objectives

- Understand BIM 360 Docs and the Common Data Environment
- Learn how to make decisions on where BIM 360 Docs fits into current workflows
- Learn how to prepare for the future of BIM 360
- Have fun

Description

Many a building or construction project has used some form of document library. Whether it is used in the design, build or operate phase, it is probably a document management tool that is not designed as a common data environment but rather a document repository. A lot of the time it sits on a private server and requires IT departments to perform miracles to assign rights and privileges.   What building and construction projects need, is something that is easy to use, easy to access and easy to maintain. This is what BIM 360 Docs delivers. A tool that can be set up on a per project basis that all stakeholders have access to and where the latest documents and building information reside. All that is required is a web browser and an iPad or iPhone. View and manage your drawings via a simple web and/or mobile interface that are accessed by a simple login.

But we will also put a twist on things. After all it is Vegas and what's better than a little bit of fun to make things more interesting. We will discuss the 'Current of Making Things' [COMT] just to add a new perspective on the 'Future of Making Things' [FOMT]. We'll have a look at the possible uses of BIM 360 Docs without a spade or a brick or a piece of steel in sight. Then, we look into the crystal ball and have a thought or two on what happens next.

There are no pre requisites for this course but some knowledge of BIM 360 Docs would be beneficial.

Your AU Expert

A Technical Consultant for Graitec in the UK, this will be Grant's eighth Autodesk University and third as a speaker. For the past three years his focus has been on BIM 360 technologies. Whether it is presenting, implementing or just having a chat, Grant's experiences in this field are full of entertaining anecdotes that fit in well with his light hearted presentation style.

In past lives, he has been a software developer and an IT/Technical Manager. He has been working with Autodesk products for nearly 30 years and hasn't aged a bit. His understanding of Autodesk APIs gives him a unique perspective on the BIM 360 box set. He is a regular blogger on the Graitec website and has been recently giving presentations about BIM 360 throughout the UK and Europe.

A message from Grant

Thank you for choosing my presentation as one of your AU 2016 classes. The examples I have decided to use are from my day to day discussions with customers and represent ways in which BIM 360 Docs [here after referred to as B3D] is either being used or is under consideration. My intention is to bring the current functionality of B3D to the forefront. What can B3D do for me now, today and what can I possibly expect further down the line? I look forward to learning how B3D is being used in your organisations and what you have done to 'fit it in'. We are all here at AU 2016 to learn from each other and I hope I can jump start your creativity and get the ball rolling.

Thanks
Grant

Let's Review the Intention

It (B3D) was always something that everyone thought was necessary to complete the BIM 360 circuit at Autodesk. A Common Data Environment designed for the construction industry, so that contractors, engineers, architects and owners could share the same information. And, make it easy to do so.

No, No, No, not 'Drop Box'

So every company has a server somewhere with 'The Project Files' on it. Let's hope that the method of receiving and sending these files between parties is not done with an 'over the counter' app. Security is important. Just who are we giving access to our valuable information? There has got to be a better way?

The Ups and Downs and the bit in the middle

Besides the administrative tasks there are some functional instructions for B3D.

Publish

This is the Up!
Drawings and/or documents are uploaded to the designated folder, easy peasy!
'No wait!'
'What about 'Attributes'?'

What's Not in a Title Block – Huh?

'Attributes you say? Look No more.'
One of the more interesting pieces of technology inside B3D is the Optical Character Recognition that allows B3D to read text from a designated part of the drawing. Notice I did not say 'Title Block'. There is good reason to create your own data blocks within the drawing. Possibly nothing more than a table in a word doc that has details you would like visible in B3D to aid in the searching for a particular file.

The OCR mechanism is a bit cumbersome and is not always accurate (but getting better). By creating a separate area in each drawing with data required for extraction to an attribute makes the task of OCRing a bit easier.

Share, View and Markup(Issues)

These are some of the bits in the middle. Permissions can be given for fellow project stakeholders to view and therefore share drawings and docs within a given folder. Thoughts and ideas can be shared by using markup features and creating Issues (observations). Downloading of documents is also part of the middle.

Swim along with BIM 360 Docs

Let's examine where BIM 360 Docs fits in……
From procurement to design and onward to handover.
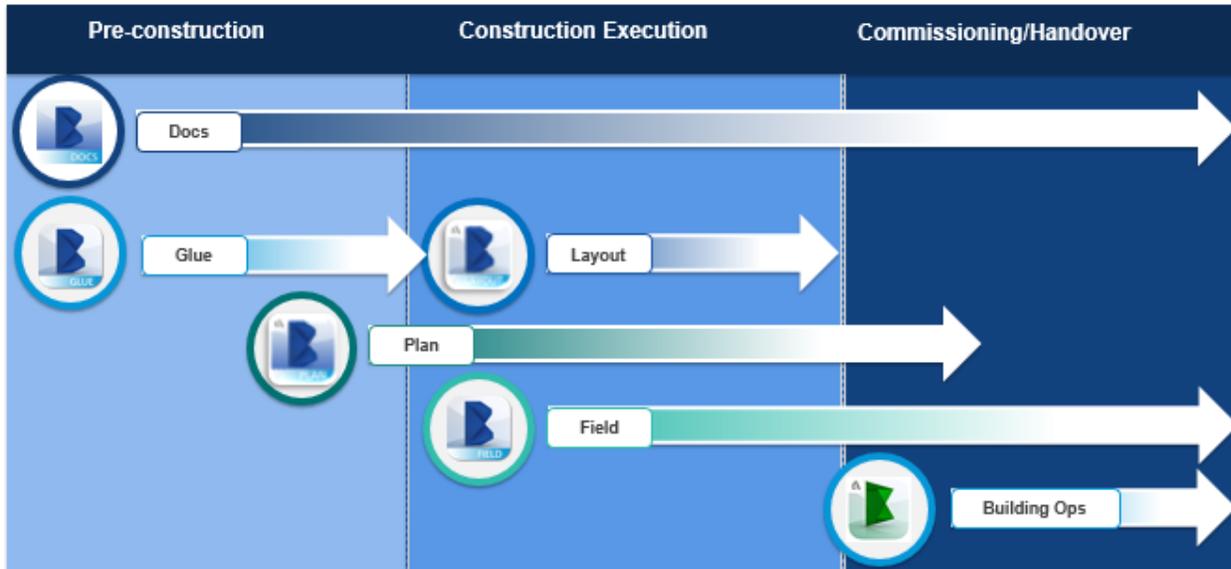
THE MEANING OF LIFE – WHERE TO FIT IN?

Pre-construction – Every project starts with some type of bidding process.
So we are going to bid on a project, woohoo! First thing is to get some design documents and start doing some calculations. Cool, we are off to the races. 'But wait, we have some questions with some of the design, so let's just print out this drawing, mark it up and email back to the owner so we can get some clarification.' The owner will then perhaps make some changes, update the design and issue a new set of drawings affected by the change.

We haven't even dug a single hole in the ground and already we are creating a document jungle. Oh, and what about the model? Does that also need updating and re-issuing? Can you see where I am going here?

Luckily we have an application that can helps us sort all of this out and keep records of changes and updates and never shall a drawing be plotted (that's the theory anyway). We could use B3G [BIM 360 Glue] for model review but that doesn't do much for the other documentation. B3D gives us our first glimpse to a resolution of a common workflow problem. We can get drawings, design documents and a 3D model (use Revit please, we are at AU) and all are available to review, make comments and keep control of versioning.

Construction Execution – Paper, Paper, Everywhere
We won the project, woohoo! The story goes:
'Please send two copies of every construction drawing to the site manager so he has something to use to build this fabulous facility. He needs the drawings so he has something to mark up when he decides the design is wrong. And remember to send him two more copies of each drawing and any affected document when we update the design'.

I see a pattern here. We hope that the General Contractor is using B3F [BIM 360 Field] to manage the building site and its day to day activities. We hope that the General Contractor is aware that the mounds of documentation he requires all exists in B3D. The mobile interface is perfect to bring design documents on site for inspections and general queries.

I look forward to the day when I visit a jobsite and I do not see mounds of paper occupying every flat surface in the office. Well OK, maybe one or two pieces but that's all.

Commissioning and Handover – You want some documents with that?
The project is complete, woohoo! The story continues:
'Hey, do you think we could use B3D to deliver the O&M manuals? Sounds like a great idea. In fact, perhaps the owner can take control of the B3D project site and he/she would have a complete record of the building lifecycle, from the time they asked for bids to the day they got the keys'.

Sounds like a plan to me. One set of data used through the lifecycle of the project.

To Construct or Not to Construct – Work the Flow!

Although built with the construction industry in mind, what specifically ties B3D to the construction industry?   Let's consider some other options for use of B3D.

Construction - The 'Bread and Butter' industry that called out for help.

Being able to have all of the drawings, details, schedules and information necessary to build something all in one place, where anyone who needed it could get it, is indeed the 'Holy Grail'. Subbies no longer need to request information because they can just go and get it. If an issue arises, they have the means to communicate their thoughts and have a record of it.

If the General or Principal Contractor is also using B3F, they can then turn the subbie's thoughts into an Issue and get a resolution. (SCs can't create issues in B3F)

Speciality Sub Contractor

Consider a steel manufacturer who was also contracted to build the giant mechano set who encounters a problem with a join? They can now communicate the problem back to their shop, complete with marked up drawings and a photo. In turn, a new part can be manufactured and issued to site the same day.

Manufacturing/Industrial

I am particularly interested in the use of B3D within the manufacturing sector. This is a good way for the manufacturers to get their foot in the door of the BIM food chain.

If manufacturers can create areas within B3D which contains the installation data or BIM data such as the Revit Families, then they become more inviting to Architects, Engineers and Contractors. The less work that needs to be done in the B3F operations to get equipment crossed over from Revit is indeed a big win for the manufacturers.

Retail – 'What are you talking about Grant?'

Haha, it's true. Step back from the construction and building sectors and consider maintenance operations. Retail space planning, whether it be macro (departments) or micro (shelf) to a grocery store is what makes money. Getting your product placements and visibility right could make or break a promotion.

Retailers can now use B3D to view the profiles that make up the shelving units and assemble them accordingly. Product diagrams, known as planograms, can be distributed via B3D on an ever changing basis. The mobile app can be used to verify the current planogram with a promotion and change the product placement to suit. Mark ups and issues can point out misplaced products and highlight where the shelving profiles need changing because of product size. No pictures of goods and printouts of 'what goes where'. Merchandisers can simply swipe through the app to get the right information for the day.

BIM 360 'Office' Docs

As a former IT Manager, I used to get shivers when servers were being clogged with emails (lots of them) with attachments. Then those emails get 'replied to all' with another version of the attachment and so on and so on. We used to give our employees space to put these attachments and then refer to where they were on the server for anyone interested to retrieve because not everyone is interested in the mass email.

So where does B3D fit in, you ask. Well the kinds of emails that have these attachments are nearly always part of a project or an endeavor whether it be personal or corporate. B3D could be set up as usual to allow these projects to maintain a bit of documentation order. Not only that but the documents could be retrieved while outside the office without the use of a VPN or similar IT nightmare.

FORGEing Ahead and into the Lead

'The BIM 360 API (Forge) allows developers to develop apps that integrate with the Autodesk BIM 360 platform to extend its capabilities in the construction ecosystem.'

SAAS vs. PAAS
Software vs. Platform, [As a System]
Silo vs. Team
Single vs. Group

If we took all the bits, from the single applications, that let us integrate between the single applications, then we could create a platform. Something that could control the communication between the single applications.

We would only need to write one piece of code (the platform) that talked between the apps and moved data between the apps. If B3D were to host this platform, then we could have something like the '90-degree Turn.'

The 90-degree Turn
Not only could B3D control the communications between the apps, it could also provide data to the apps in the ways of documents and any data captured in attributes.
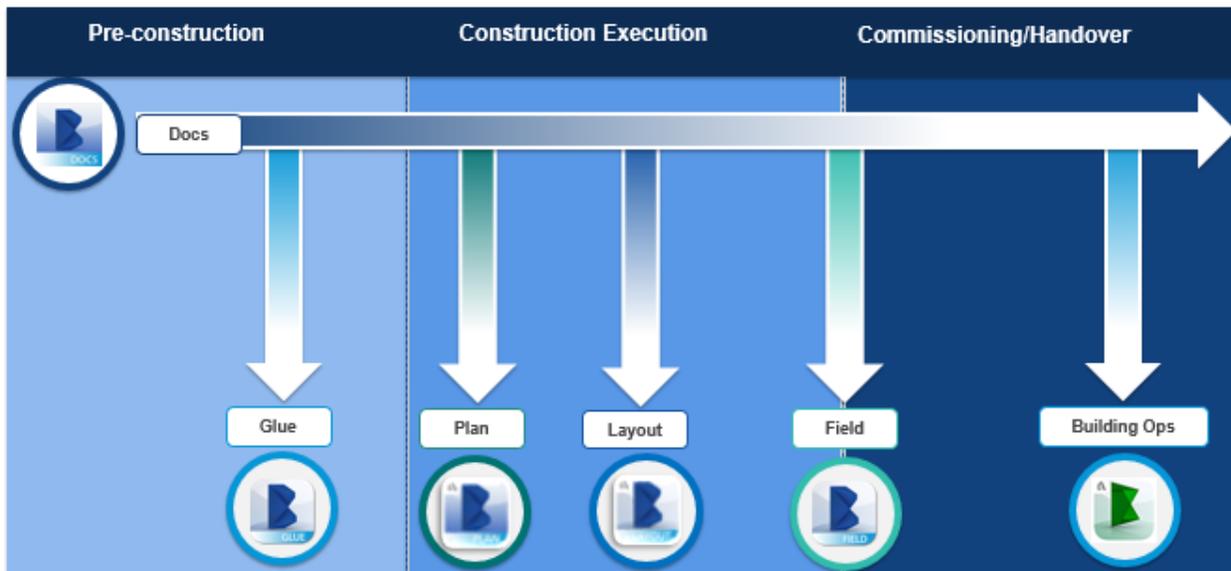
A VISION TO CONSIDER

Consider the value of being able to use data available not only in B3D but in any other Autodesk product, in application outside of the Autodesk world.

ERP/MRP
FEA
GIS
Energy applications
And countless others…This is what FORGE will be able to provide.

And now for some fancy programming…

Unfortunately, (at the time of this writing), Forge is limited to what it can do for B3D at this time. But there are other things going on.

BIM 360 – The Big Question??? And we don't need Forge

For any followers of B3F [BIM 360 Field], you may be aware that the reporting features are not very robust when reporting across multiple projects.

But the existing API does give us some good functionality as a 'COMT'. 'How can I compare Sub Contractor activity across multiple projects?'

SELECT THE PROJECT OR SUBBIE

AND ASK

Some refinement is needed but as you can see we can create information and by using the current API alongside of Forge, we can start to evolve the COMT into the FOMT.

And on to Vegas!

Thanks again for being part of my presentation. I look forward to elaborating on the topics I have presented and encourage your participation in our discovery of B3D.