Simple steps to bring
the right tech into your projects

Roadmap to New Technology

HingePoint®

2016 Autodesk University Class
How BIM 360 Docs Leap Frogged a Developer

A Roadmap to BIM

Building Information Modeling (BIM) is an emerging way to design buildings in 3D and provide information for everything in the design, build and operate process.

BIM is becoming standard for builders and designers across the world. BIM saves time and money while the architecture, engineering and construction sector faces challenges to keep up with client demands.

HingePoint is an expert at helping clients migrate their business from paper-based processes to mobile, cloud-based 3D BIM models.

We have identified some general steps each client faces depending on where they are on the roadmap. We'd like to share this roadmap to help you see where you can transform your design work.

How to implement this roadmap

We encourage you to use our five-step implementation process when implementing any of these steps in the roadmap:

1. Assess where you are now.
2. Design an end-to-end workflow.
3. Prototype little pieces.
4. Pilot in the real world.
5. Test collaboration with partners.

If you follow these five steps, you will be in a position to better migrate to a full BIM model. The thought is to constantly learn and optimize until your process is shareable.

If you try to share your process before you are ready, you could lose business or be perceived as incompetent. Once you've tested the five-step process, you will be ready to scale to all clients and projects where applicable.

Moving From Paper

To truly use BIM, you need to stop relying on paper. If you still have tons of paperwork in your workflow, you're missing huge opportunities to be more efficient.

HingePoint has worked with head architects at well-respected firms who are overworked because they still deal with paperwork. If you are manually creating takeoffs, or relying on paper copies to share information, the time is now to move to digital.

Here are some key questions to answer to determine if you are relaying on paper too much:

- Do you require printing for your workflow?
- Are there printers around?
- Is there paper on your desk?
- Do you FedEx drawing sets?
- Ever jump on a plane with a set of drawings under your arm?

If you answered yes to more than one of these questions, it's safe to bet you can improve with a digital workflow and process.

Be Digital

The solution to go digital is extremely easy, but making it work requires some planning and organization.

At the very least you can scan all your paper documents. But if you're looking at hundreds or thousands of scans, then simply going digital will not help. That's because your data is unstructured, or it's not organized or searchable.

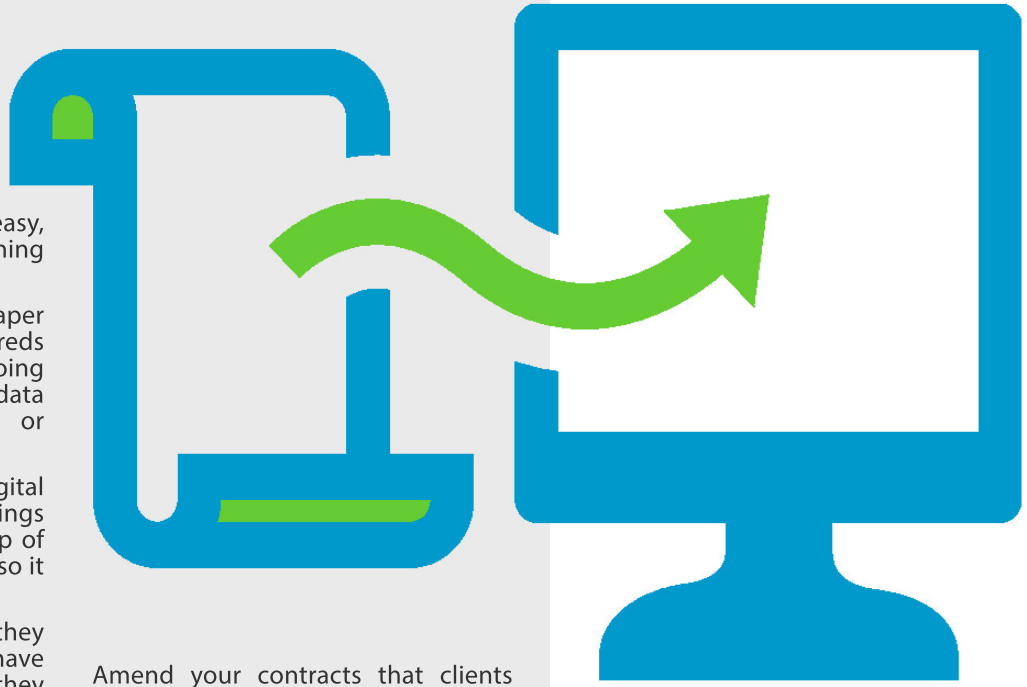
Those who have tried moving to a digital workflow and did not think it made things easier probably missed an important step of labeling. You need to structure your data so it is easily findable.

Many firms have gone digital, but they skipped the labeling process. They have terabytes of information on servers. Yet they don't have the time or can't afford to re-categorize all their files to make them easily searchable.

Here are some quick tips to help you transition to structured digital data more quickly and effectively.

Collect digital files

Step One: Collect the source digital files the document was printed from. If you get a paper copy of a CAD file from a client, you know that copy was created on a computer. In other words, these paper copies were once digital documents. Start asking for these digital documents from clients and partners.



Amend your contracts that clients need to transmit their digital documents to you or your firm. There are simple tools to let clients easily post and send digitally rather than send paper in the mail.

Scan Documents - If you cannot find a source file, then scan the document. However, when you simply scan a document it can create unstructured data. In most cases, computers cannot search the content of those documents. This can be a problem. Simply scanning documents is not the answer!

Categorize your Digital Assets

It's critical to come up with an organizational structure of folders and file names. If you're going to scan in thousands of drawings you need some type of unique identifier like a project-numbering scheme or file documents by permit number. Some firms organize by client, time, and geography. Ideally they can search for client names in a specific city in a specific timeframe. Common name conventions include: Type of documents, statement of work, schematic architectural drawing, scope, etc.

Go Digital

Get Document Management Software

Another solution is to purchase software that will let you search the content of documents. Document management software has robust tools that will search the content. Some even have a preview so you can glance quickly without opening large files. There are also optical character readers that convert scans to text and data. These tools will read the characters in the document that you scan and tell you what they say. Then you can store that data as metadata so you know what's inside the file.

Use PDFs

Create your digital workflows in PDF format. It's cheap and easy. PDFs hold electronic signatures, forms, contracts, CAD data, raster data. It's one of the best choices for printing because they hold all the meta data required for printing. They are also lightweight and secure.

Print On Demand

Finally, print on demand. Don't require everything to be printed. If you need a copy here and there, then that is fine. But don't print everything.

Use the Cloud

Next… you need to place everything in the cloud.

Cloud computing is Internet-based computing where you can access shared resources, data and information on-demand. This information is stored on a computer or server that you can access through the Internet.

Inside the AEC sector, information is fragmented. Different professions such as architects and engineers must communicate with one another and often they use different systems to store information.

But imagine if they used the same web-based, document-management system? Imagine if those documents were accessible anywhere you have an Internet connection?

Suddenly architects can work with and share the same files and collaborate with anyone. There are no more silos. And with a good digital structured data approach, everyone will be able to find the information quickly and easily.

We are also no longer constrained to our personal servers. "I filled up my drive" or "My server is full" will never be spoken again.

Using cloud services will only charge you for the computing power you use. It is also a lot cheaper than having your IT guys build another server that no one can access.

Also, using the cloud—which are servers stored in a data center—you're data is very secure

And now entrepreneurs are starting to sell servers, which ultimately drives down prices.

Here are some tools you can use to get into the cloud:
- Autodesk Apps, Autodesk 360 Account, AutoCAD for iPad
- BIM 360
- Digital Workflow and mark up
- Mobile models in the field

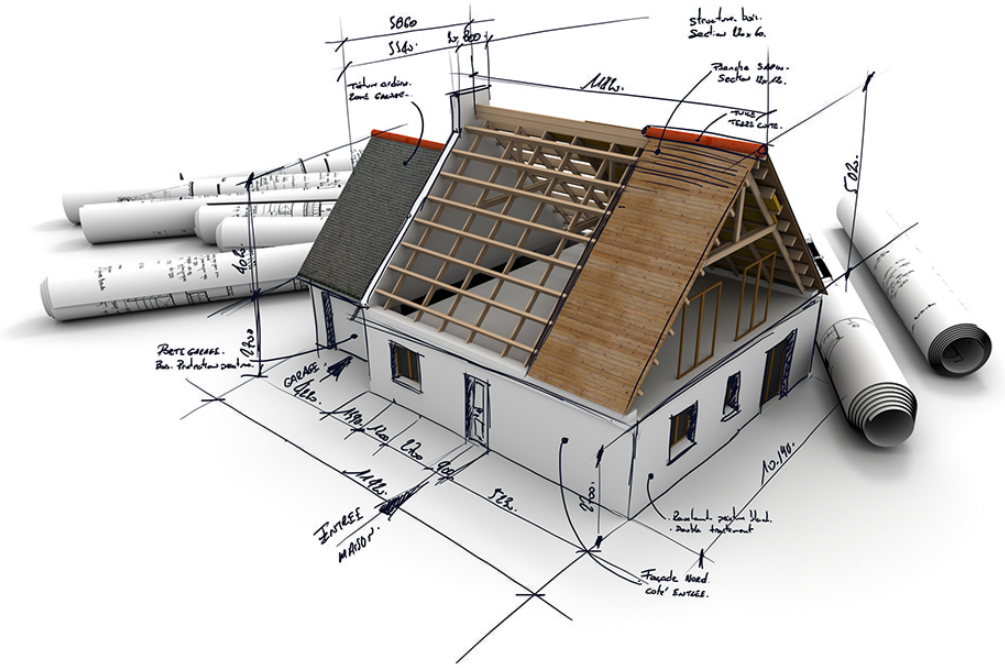
2D to 3D

After you reduce your dependency on paper and begin collaborating in the cloud, you're ready to start moving to 3D!

Believe it or not, you can build an entire 3D model in CAD. HingePoint prefers using Revit. However, we're not here to state which one is better, because it depends on the needs of your firm and clients.

Instead, we encourage you to make the leap from 2D to 3D by answering a fundamental question: "Do you know where you are on the planet?"

For collaboration and data sharing we need to know where we are on earth. We need to have an accurate survey or location of the parcel and buildings on the site. We need to know what piece of dirt we are working with and where the buildings are located on it.



Survey

Get the existing survey on the property and Geo-register the base map and calibrate the coordinates. If you don't trust the existing survey have a new survey done. Amend your contracts to state that surveyors are now responsible for the base map. Surveyors take great pride in their work and take all the responsibility. Based on this survey you need to create a grid and map out your parcel and put it in 3D x,y, z coordinates.

Site verify and calibrate

If you don't trust CAD drawings, you can go out in the field and measure yourself. Any data missing from the artifacts you were given… you go out and verify. You have access to all kinds of tools that capture data: photography, laser scanners, hand held for on-site verification.

Geo Register CAD Files

Then geo register the CAD files, the pdfs, the images, the scans, you have to figure out where they are on the grid. Companies like HingePoint can do this as a service.

Scan to BIM

It's not good enough to have a CAD drawing, especially if your building is old or if you are planning on selling a building. You want As-Builts that record the actual building data to prove what condition the building is in. Many facility management companies or institutes like universities that have a lot of assets will decide they want a BIM model. To get a BIM model on so many assets, they will scan all the buildings. They send a ground survey crew to scan all the rooms and then fly a drone over the property. If you own a ton of property you can use a mixture of aerial photography and LIDAR.

3D to BIM

BIM models provide all the information, data and visualization required to support an efficient end-to-end process for your firm. The goal is to have an enriched BIM model.

Reverse Engineer

One size does not fit all. You need to reverse engineer what is necessary to include in your BIM model. Look at all your job functions in your company's workflow. If someone is collaborating with you, figure out what they want, whether they are your clients, partners or suppliers. Capture what they need and build it into the BIM model: data, specs, takeoffs. So now you can automate how you report on that information to your clients and partners, thus eliminating busy work.

Content Libraries

Start building your firm's BIM content library. For example, a doors library. You might not need all the doors in your building, but you should still create a nice doors library to streamline future projects. Start collecting the data from all your jobs and the library will build itself

Overlay

Collaborate and ask for data and 3D content for efficient design. You can get all the 3D data from other entities and place it in your 3D model. For example, if an interior design firm is doing all the furniture and material selection, you can get all the 3D data from the interior designer and place it in your 3D model. You can essentially do this with anyone you work with like civil engineers and structural engineers.

Renderings and Photorealism

Finally, get high-resolution finishes of materials and textures to make renderings look realistic. High-resolution photos of carpet, paint, wood finishes can be used to make photos look realistic. Build your materials library to share at your firm.

HingePoint®

"Before working with HingePoint, we were just another commercial real estate company trying to get deals done.

Now, we're one of the most innovative firms in the industry.

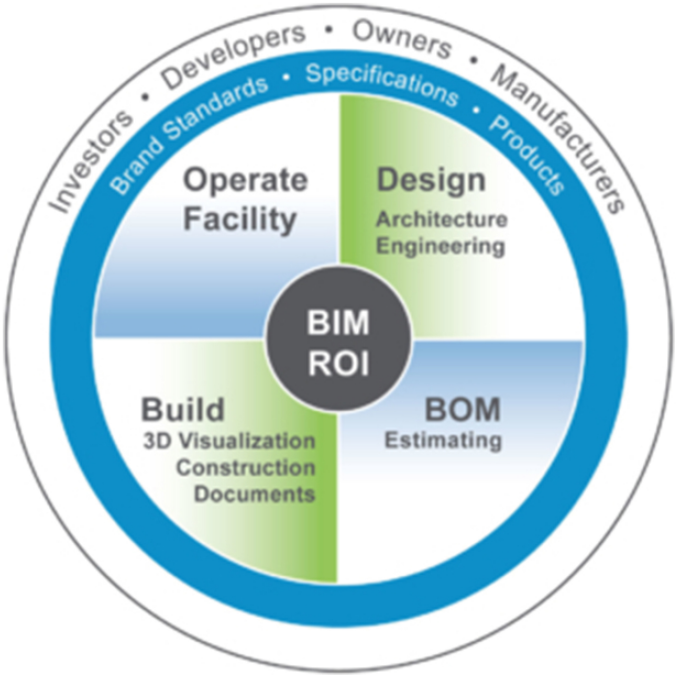
HingePoint's knowledge, insight and guidance has allowed us to manage risk systematically better, affording us the opportunity to scale efficiently while also generating increased profits at both the property and company level"

Victor R. Mendiola, Jr. Promesa Investments

HingePoint is a consulting firm based out of Dallas, Texas providing results based BIM (Building Information Modeling) outsourcing, BIM Systems and Autodesk consulting and development. Helping transform the AEC industry, HingePoint leads systems integration services for clients across the globe with specific focus on the Architecture, Engineering, and Construction (AEC) industry.

www.hingepoint.com

THE HINGEPOINT WAY



About this Roadmap

This HingePoint Roadmap was provided to participants at the Autodesk University 2016 class, "How BIM 360 Docs Leap Frogged a Developer from Old to New School" by Bryce Finnerty, CEO and Founder of HingePoint. Class ID is CS22087.

Our BIM Services Include:

- Building Design
- Construction Documents • 3D Visualization
- BOM and FF&E
- Quantity Take-Offs
- Areas and Rooms
- Materials
- Specifications
- Photorealistic Renderings

Return on Investment

There are many benefits to BIM, and HingePoint guarantees you get the returns you need. Our solutions bring lower cost, faster speed, increased income, and enhanced business intelligence.

We offer several investment options to fit your budget - per room, per square foot, per project, per facility - pick the option that works best for your business!

The BOM To Excel App

HingePoint is also the creator of a new Revit App and Plugin that is backed by a Results Guarantee. The results are Literally Guaranteed or your money back.