

# GETTING STARTED WITH BIM FOR BUILDING DESIGN

A Guide to Your First Project





Moving to BIM can seem like a daunting task. This guide provides a simple framework that helps you get started putting BIM into practice in your organization.

Successful implementation of BIM requires a careful and structured approach that takes into consideration the many integrated components of a firm's business, starting with vision and leadership extending to individuals who will apply BIM in their day-to-day execution of projects.

Pilot projects are one component of a well-thought-out BIM implementation plan. This Guide outlines a framework to assist organizations in planning for deployment of BIM pilot projects.



## OVERVIEW

-  What is BIM?
-  Framework for implementing a BIM pilot project
-  BIM vision
-  Driven BIM leadership
-  Getting started with your BIM pilot project



# 1. What is BIM ?

BIM (Building Information Modeling) is an intelligent 3D model-based process that gives architecture, engineering, and construction (AEC) professionals the insight and tools to more efficiently plan, design, construct, and manage buildings and infrastructure.

With BIM, designers create digital 3D models that include data associated with physical and functional characteristics. The data in a model defines the design elements and establishes behavior and relationships between model components. So, when an element in a model is changed, every view is updated - with the new change appearing in section, elevation, and sheet views. The data can be used in powerful analyses and simulations and to include realistic visualizations.

The power of BIM is how it allows architects, engineers and contractors to collaborate on coordinated models; giving everyone better insight into how their work fits into the overall project - ultimately helping them to work more efficiently.



What is BIM?



BIM Pilot



BIM Vision



BIM Leadership



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What is BIM?

Inevitably, implementing BIM will impact your business and your processes, as well as your technology toolset. As you move to BIM you should be aware of how your organization's business, processes, and technology might change, so you can better position your firm to reap the benefits of BIM.



BIM Pilot



BIM Vision

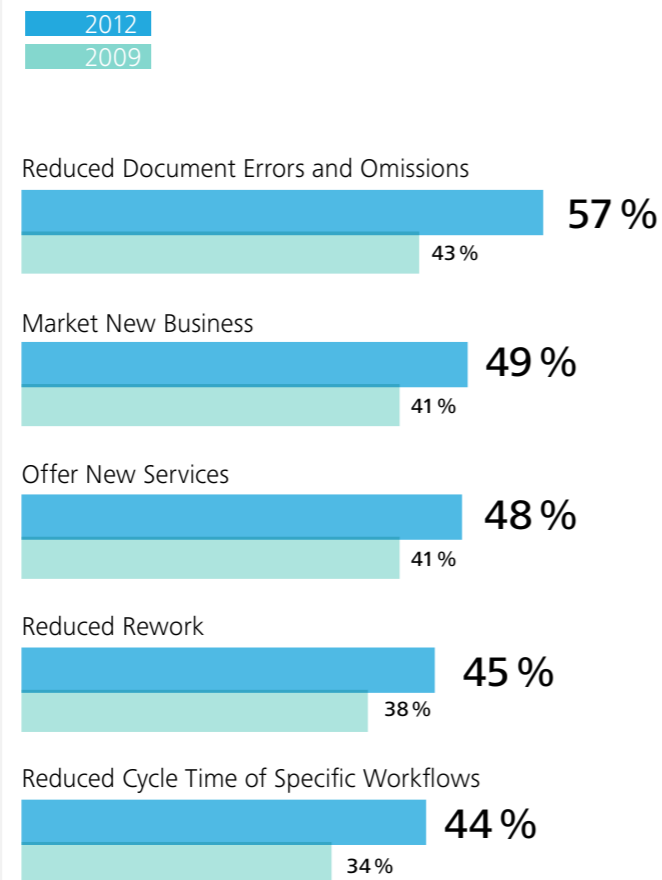


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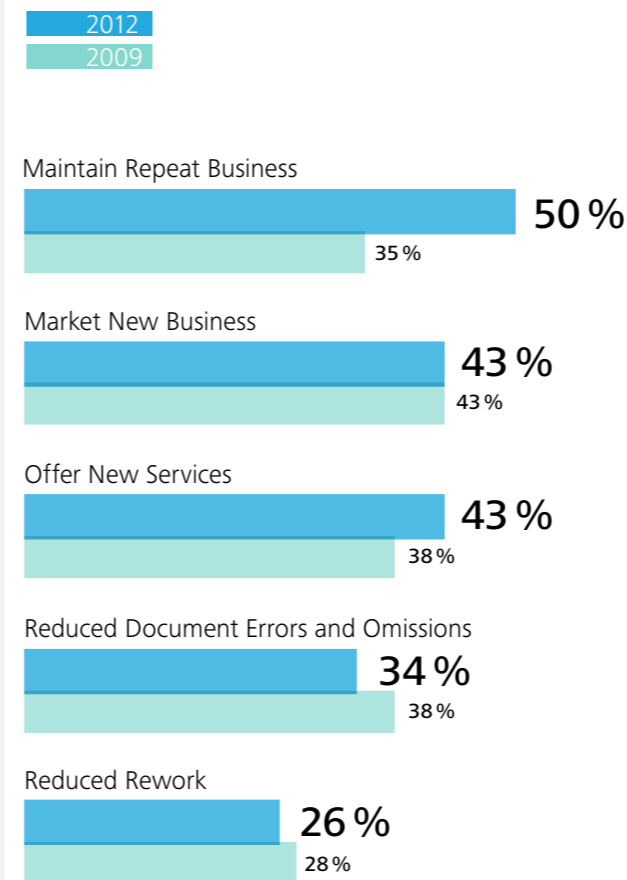


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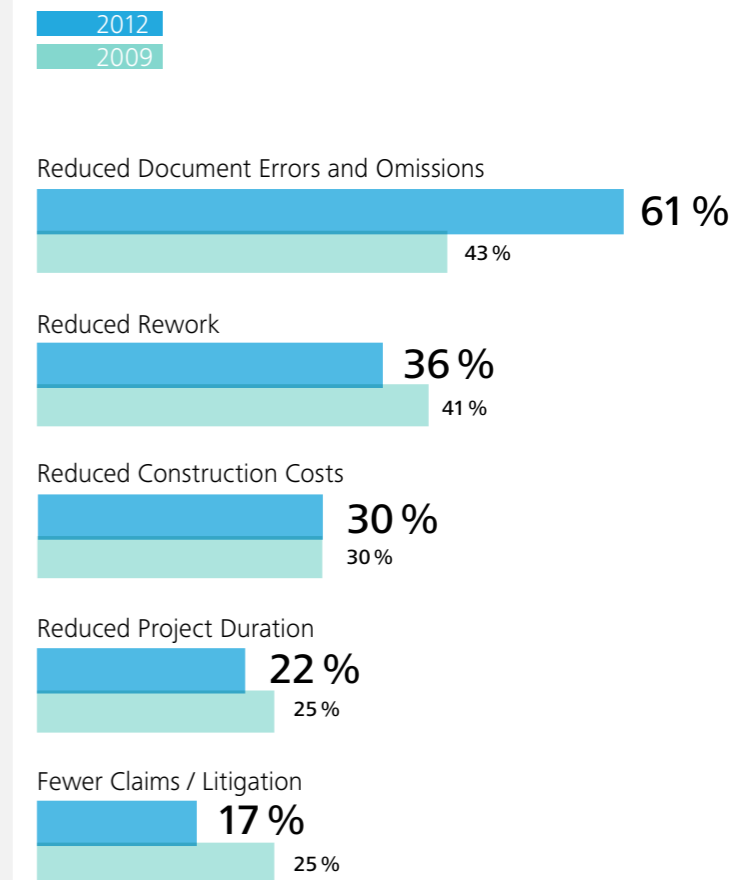
### Top BIM Benefits for **Architects**



### Top BIM Benefits for **Engineers**



### Top BIM Benefits for **Owners**



Source: McGraw-Hill Construction, "SmartMarket Report: The Business Value of BIM in North America", November 2012



## 2. A framework for implementing a BIM pilot project

A BIM implementation must be supported by the business as a whole. It cannot be an IT initiative, or an R&D one, or done solely at a project or disciplinary level.

However, these same teams, when backed by the business's leadership team and supported by experts who are knowledgeable on BIM implementation, can initiate BIM adoption with pilot projects, measure their results, and realize benefits that can later be scaled companywide. No matter how big your project is, single discipline or multi discipline, there is a BIM implementation workflow that you can benefit from.

The implementation framework presented here is based on an organizational transformation that starts with executive vision and sponsorship and is carried out by an organization's leaders and its project workforce.

The framework is based on three essential strategies, each integral to the performance of the others:



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## 3. BIM vision

Essential to the success of implementing BIM is a succinct and well-articulated vision from executive leadership.

The vision must outline what the BIM process adoption will achieve for the organization, what the principle elements of the transformation are, and what this evolution will look like at various stages. This isn't just a vision statement; it is a narrative of where BIM will take the organization.

Using published references and guides for implementing BIM standards and best practices such as these is a good starting point, but there is no established road map that will fit the situation of every organization.



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To be successful at implementing BIM, organizations need a strategy that addresses their specific needs and business values. A relationship with a trusted advisor who can provide guidance on how to best to define and execute on the vision can be integral to the success of a BIM pilot.

To truly reap the advantages of BIM, executive leadership must be capable of positioning BIM within the overarching strategic objectives of the entire organization.

## Global BIM Standards and Guidelines

### US

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U.S. National BIM Standard

**Pennsylvania State University's**  
BIM Project Execution Planning Guide  
and Templates

NYC – DDC BIM Guidelines

### EMEA

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UK – BSi Standard Framework and Guide  
to BS1192

Netherlands – Rgd BIM

**Standard Finland** – Building Smart

### APAC

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Singapore – BIM Guide Version 2





## Considerations for creating an effective BIM vision:

### Be inspirational and aspirational

The vision must be far-reaching and sufficiently aspirational to unite the various elements of the organization. A BIM pilot that is rolled out as a technology implementation exercise will not provide the momentum needed to sustain progress.

### Educate

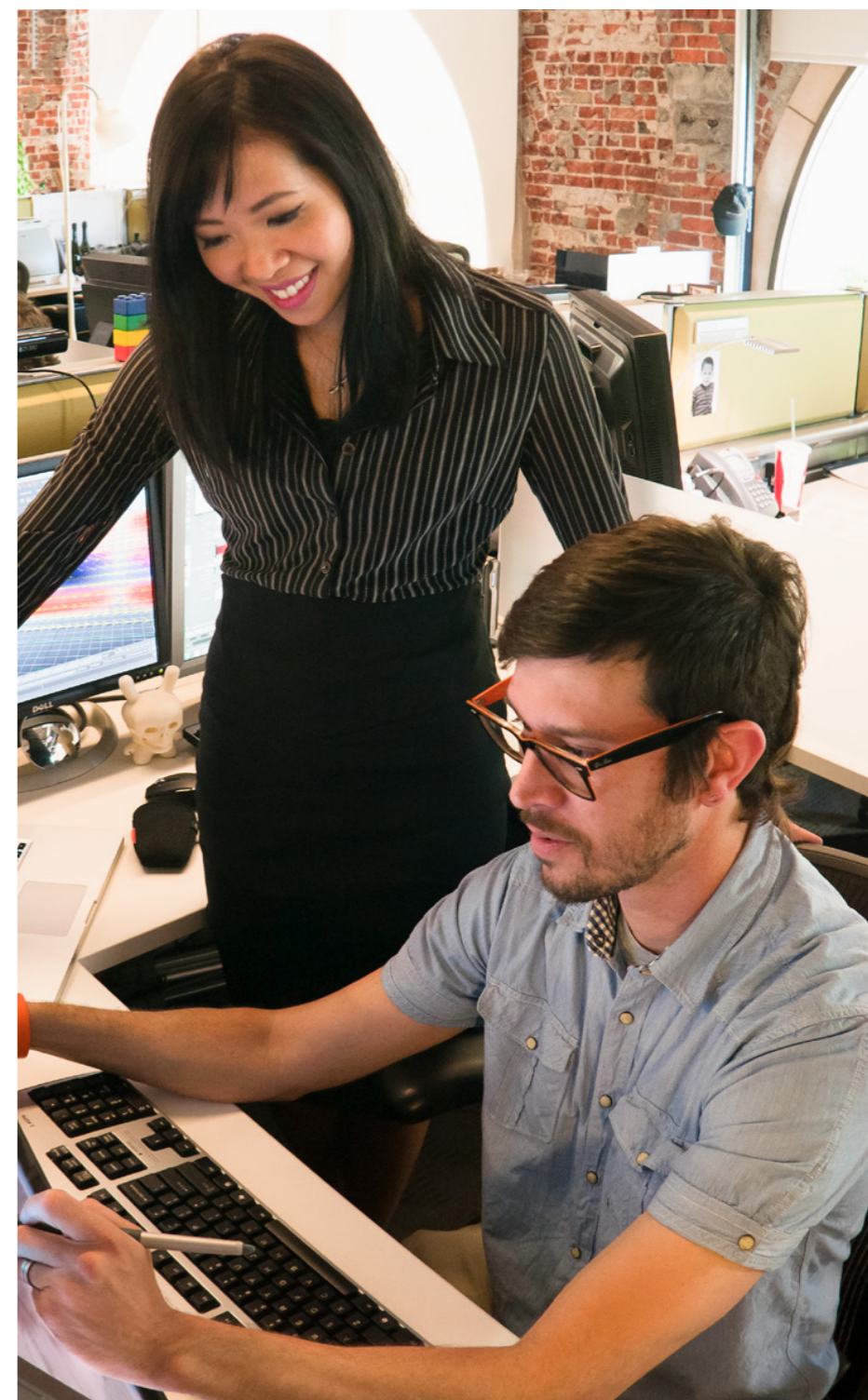
Executive leadership may need to be educated on BIM and consider its impact in setting corporate strategies. A good way to begin is to establish a relationship with a trusted advisor who has had success with BIM pilot implementation.

### Define the five Ws

The *who*, *what*, *where*, *when*, and *why* will give each part of the organization the factual details of the BIM vision it needs. Some of the questions will be challenging to answer and may require executive leadership to take risks.

### Set milestone accomplishments

Staggering starts and creating milestones helps the organization to overcome the initial paralysis of facing what might feel like a monumental task. Meeting those milestones also helps to create short-term “wins” that can generate energy and drive the momentum of the effort toward the vision end-state.



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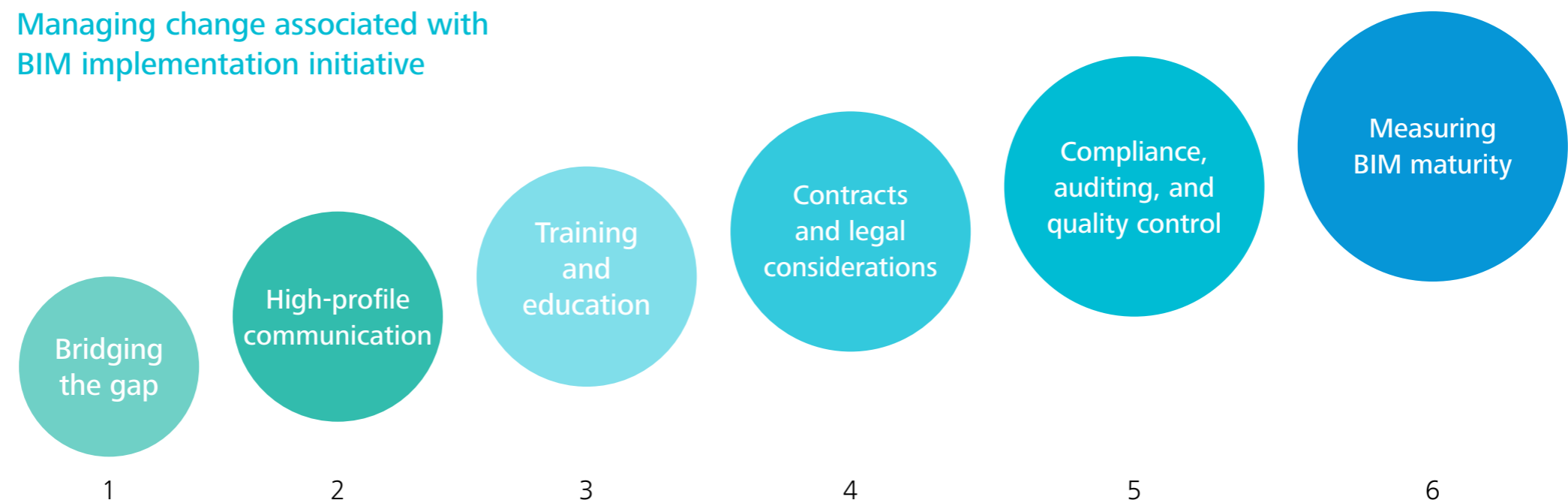
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## 4. Driven BIM leadership

The BIM leadership team must ensure that the BIM vision is translated into actionable tactics to produce the desired outcomes and performance in line with an organization's strategic objectives.

Managing change – lasting, sustainable change – in any organization can be difficult and requires creative strategies tailored to each organization's culture and particularities. Here are some tactics for:

### Managing change associated with BIM implementation initiative



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### 1 Bridging the gap

Action by executives and BIM leadership must be accompanied by bottom-up approaches, such as assessments, education, and change validation through monitoring of milestones.

### 2 High-profile communication

A high-profile communication plan demonstrates to all stakeholders the organization's commitment to BIM, helps to inject energy into the transformation, and bridges the gap from executive theorizing to a daily reality.

### 3 Training and education

Adoption of BIM technology requires new skill sets and new ways of working, and that demands an investment in training to ensure you have the right people on the right project.

### 4 Contracts and legal considerations

BIM tools and their associated processes can impact the contractual relationship between owners and their delivery partners. BIM-enabled collaboration

is a significant change to traditional processes, which should be addressed up-front with project stakeholders.

### 5 Compliance, auditing, and quality control

Project reviews permit BIM leadership teams to evaluate lead measures and the effectiveness of BIM technology, standards, and processes in a pilot project. BIM leadership can catch errors, improve standards and processes, and replicate best practices.

### 6 Measuring BIM maturity

BIM leadership will determine key indicators to measure the organization's progress toward the goals and milestones laid out in the vision. One useful set of measures for BIM can be BIM maturity, which measures an organization's capability to perform BIM within the organization and on projects.





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## 5. Getting started with your BIM pilot project

With the groundwork done, it's time to pick a pilot project. BIM practitioners take a number of approaches that include completing a fictitious project or competition, re-doing a recent project as a comparison, or starting a new live project for a client. All are valid and will depend on the acceptable level of risk and manpower available to undertake your current work.

Any pilot should include measurement at all key stages to really understand how BIM has improved the design and/or construction process. The positive benefits to each stakeholder in the process should also be documented for any return on investment calculation.

Firms find that the more BIM projects they complete, and the faster and better they complete them, the higher return they get. Just like moving from

drawing boards to 2D CAD, moving to BIM may initially lead to some drop in productivity while the system is mastered. To assist with this, it is recommended that the initial pilot project team does not work on traditional 2D CAD projects and BIM projects simultaneously, which could be counterproductive to learning the new system.





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If a live project is an option, it would be ideal to select a client who embraces new technology and has an understanding of what BIM will do for them. BIM models offer many by-products and downstream benefits, such as facilities management and a clearer understanding of the original design intent.

Resistance to change is a common human trait, but so is our ongoing need to make advances in the way we work. Moving to BIM requires the positive support of management and key staff, even more so in larger organizations, together with setting the right expectations at the start of the process, formulating a road map, and ensuring the appropriate level of training for employees. By starting small and building confidence, and increasing core capabilities and experience, the transition to BIM will accelerate with each new project.



Learn more about BIM workflows for your industry.



Architecture



MEP Design  
and Detailing



Structural  
Engineering

