



BIM 2009

The Year of the Contractor

According to McGraw-Hill's SmartMarket Report: Building Information Modeling (BIM), enthusiasm and usage for BIM among architects, engineers, contractors and owners are expected to grow rapidly in 2009, despite the economic recession. Users plan to significantly increase their investment in BIM this year to realize greater productivity, improved communications and a competitive edge.

In 2008, 45 percent of BIM users reported that they utilized BIM tools at moderate levels or higher. This year, 62 percent anticipated using it on more than 30 percent of their projects, and nearly half of all current users will advance to become heavy BIM users, using it on at least 60 percent of projects.

The report showed that companies tracking BIM value metrics are reporting returns on investment (ROI) as high as 300 to 500 percent through improved project outcomes, better communication, enhanced productivity, and a positive impact on winning projects. Across all experience levels and company sizes, training on BIM basics is seen as the most important need.

"BIM is quickly becoming the gold standard by which firms do work," says Stephen A. Jones, Senior Director of Business Development, McGraw-Hill Construction, and a co-author of the report. "It is a notable differentiator among competitors, a time-saver and a cost-reducer. BIM dramatically shifts business' productivity and ROI. This is why we are seeing such rapid growth."

What is BIM?

BIM is defined as the process of creating and using digital models for design, construction or operations of projects. BIM involves digital content such as structural elements, mechanical equipment and building envelope and windows; and software tools for architectural, structural and mechanical modeling — often integrated with energy analysis, scheduling, estimating and other vital functions. Users routinely: tap BIM's 3D visualization capabilities to communicate clearly with all parties; use BIM on the jobsite to guide construction activities; and rely on BIM to spend less time documenting and more time designing.

Changing the Way Firms Do Business

The *BIM SmartMarket Report* shows that the BIM revolution is affecting firms in many ways.

- BIM promotes a more collaborative environment, and users recognize a need to rethink roles and workflow.
- Seventy-two percent of users have at least a moderate impact on their internal project processes, and two-thirds report that BIM has had at least a moderate impact on external project processes.
- Half of users perceive BIM to have had a very positive impact on their companies; only seven percent report a negative impact.
- Most BIM users are at least moderately involved in green building projects and find BIM to be helpful with those projects. For example, BIM tools can be used to analyze the performance of energy efficiency elements and sustainable materials.

"BIM will forever change the way projects are designed, built and operated for everyone." — Stephen A. Jones, Senior Director of Business Development, McGraw-Hill Construction

Strategic Advantage in a Challenging Economy

As recognition of the benefits of BIM grows, the ability of design professionals, contractors, fabricators and suppliers to work effectively in this new environment will increasingly become a competitive differentiator in winning work. In challenging economic times, this kind of edge can be critically important to survival. Also, owners competing for scarce capital resources will find an advantage in being able to demonstrate the ability to more accurately control costs, quality and schedule through BIM implementation.

Expertise Breeds Positive Experience

Use of BIM is changing the way expert firms do business. Experts are three times more likely than beginners to say BIM has had a dramatic impact on their internal processes, and four times more likely to say it has had a dramatic impact on their external processes. The research clearly shows that as users become more expert with BIM, they enjoy proportionately greater benefits and have an increasingly positive experience with BIM.

Top Benefits of BIM

- Easier coordination of different software and project personnel
- Improved productivity
- Improved communication
- Improved quality control

2009 Will be the "Year of the Contractor" in BIM

Contractors are predicting an acceleration of BIM usage that significantly outstrips other groups surveyed, which paves the way for 2009 to be "the year of the contractor" in BIM.

Most contractors using BIM are not waiting to receive BIM files from designers but are doing 2D-to-BIM conversion from whatever CAD files or paper documents they can get their hands on. The tangibility of the benefits that contractors can extract from BIM makes a compelling business case for investing.

This trend mirrors the traditional lifecycle progression of a project, where the architect is initially responsible for the format of information and shares it judiciously with a small group of consultants. Then, contractors assume responsibility using their own tools and processes to interpret, divide and distribute that information broadly for multiple purposes through completion.

BIM has now evolved from a focused tool set for designers to a more comprehensive platform for design and construction integration, driving major changes in the ways all the players interact.

BIM Drives Integrated Project Delivery

As contractors and design professionals continue to accelerate BIM adoption, the benefits of collaboration and integration of information will become increasingly compelling. Efficiencies achieved by firms deploying BIM solely within their own sphere will be multiplied when they begin integrating with other modelers. This will shift the focus of the entire industry from technology adoption to process reinvention, and the tools will adapt to support this perspective.

Discipline-Specific Evolution Path

The path to adoption and implementation is developing unique patterns by discipline. Architects were initially attracted to BIM for its 3D visualization. Contractors are attracted to the clash detection aspects of BIM. Once on board, design professionals advance to aspects of BIM that support their practice needs, such as energy modeling, and contractors move into quantity takeoff, estimating, schedule integration and construction logistics and

sequencing. Each player finds where the value is most tangible and relevant.

Workforce Demographics

Senior management buy-in is reported as the second greatest challenge to adoption, while resistance from junior staff is last on the list of issues. This follows a familiar pattern for technology adoption across United States industries. People in their twenties are ready, willing and able to adopt digital technologies in the workplace.

Top Obstacles to BIM Adoption

- Adequate training
- Senior management buy-in
- Cost of software
- Cost of required hardware upgrades

According to a McGraw-Hill Construction white paper on workforce, the construction industry will need to fill 12 million new jobs by 2012. And an estimated 95,000 new craft workers will be needed each year for the next decade to replace those leaving the industry. For construction, the widespread adoption and implementation of BIM has the potential to help reverse the decline of the industry's image and attract more talented, young people to replace the rapidly retiring ranks of experienced workers. ①

— Compiled by MH

Source: Building Information Modeling (BIM): Transforming the Design & Construction Industry to Achieve Greater Productivity, McGraw-Hill SmartMarket Report, 2008. The report was authored by three McGraw-Hill Construction executives: Norbert W. Young, FAIA, President; Steven A. Jones, Senior Director of Business Development; and Harvey M. Bernstein, FASCE, LEED AP, Vice President of Industry Analytics, Alliances and Strategic Initiatives. To order your copy, go to <http://construction.ecnext.com/coms2/analytics>.

