

JBIM

Fall 2007

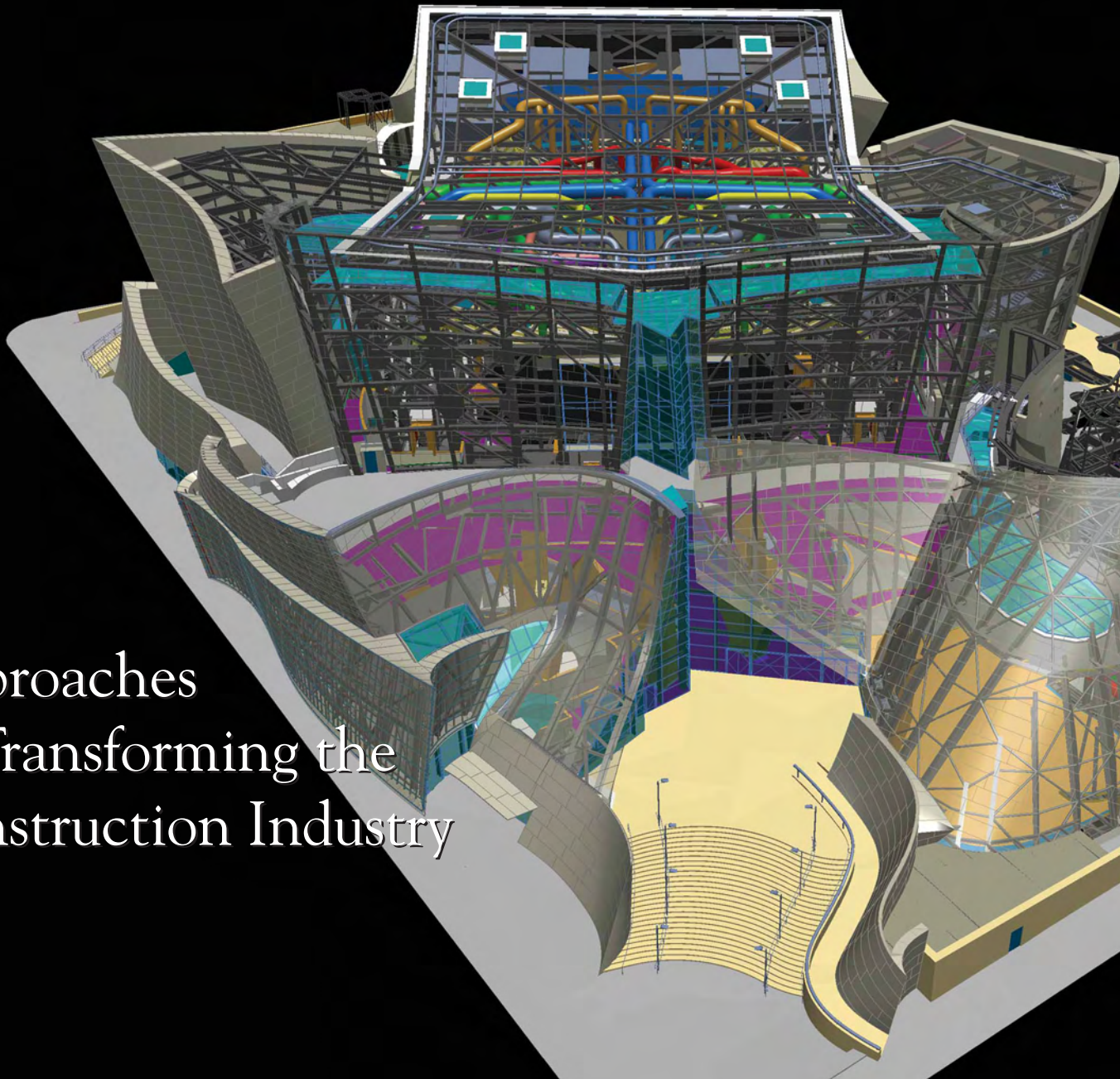
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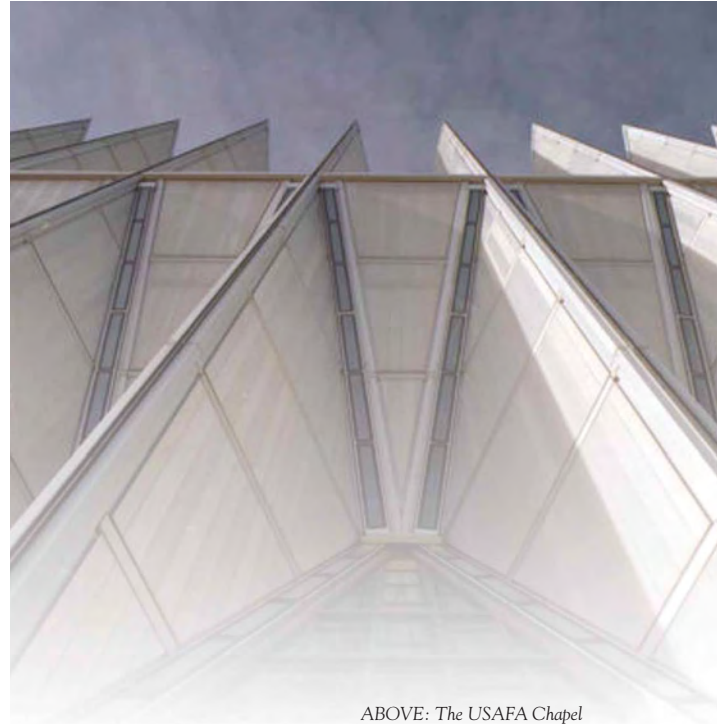
Approaches
to Transforming the
Construction Industry



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BIM Effects on Construction Key Performance Indicators (KPI) Survey

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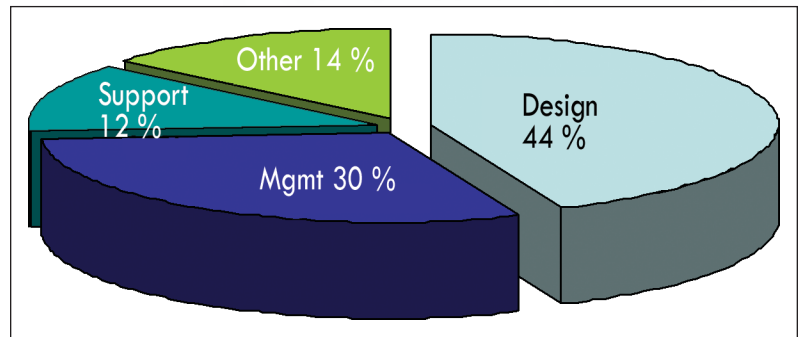


ABOVE: The USAFA Chapel

RECENTLY, RESEARCHERS FROM THE M.E. Rinker, Senior, School of Building Construction from within the College of Design, Construction and Planning at the University of Florida launched a survey with the help of NIBS. The survey's goal was to document experts' *perceived* impact BIM has on the *construction phase* of the facility lifecycle using six commonly used metrics or KPIs in the construction industry. Hopefully, after documenting the experts' opinions, further research can be oriented to adequately focus on the metrics where BIM has the strongest effects. The response rate was overwhelming, and although it was a simple survey, the information below shows tangible and significant evidence about the respondents' perceptions about BIM's effects on the construction phase of the facility lifecycle.

DEMOGRAPHICS

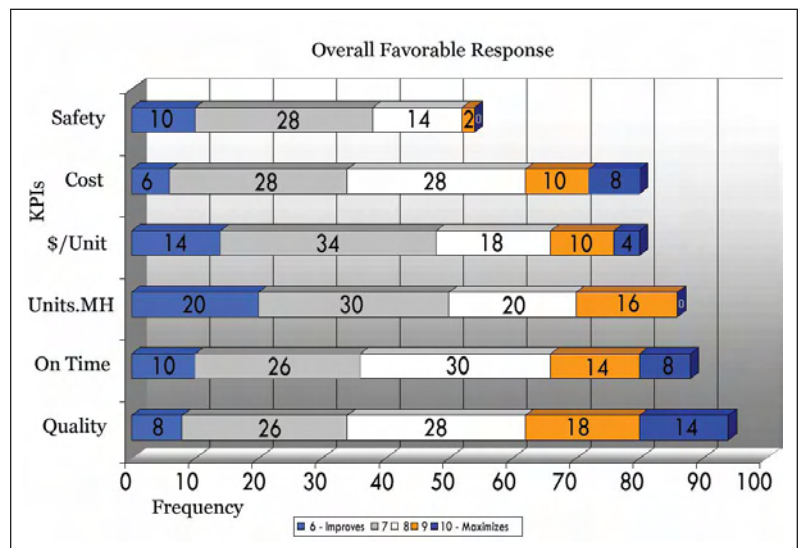
- Number of Respondents
 - 50 completed surveys
 - 50/105 represents 48% of the NBIMS listserv
- Age: Normal distribution
 - Single Largest Group
 - ◆ 45-54 year olds
- Education
 - Single Largest Group
 - ◆ 56% hold graduate degrees
- Organizational Roles
 - Design Roles: 44%
 - Management: 30%
 - Support Roles: 12%
 - Other: 14%



BIM EFFECTS ON KPIs

Percent of responses favorable to BIM (in rank order):

1. Quality Control: 90%
2. On-time Completion: 90%
3. Cost (Overall): 84%
4. Units/Manhour: 76%
5. Dollars/Unit: 70%
6. Safety: 46%



KPIs MOST FAVORABLY AFFECTED BY BIM

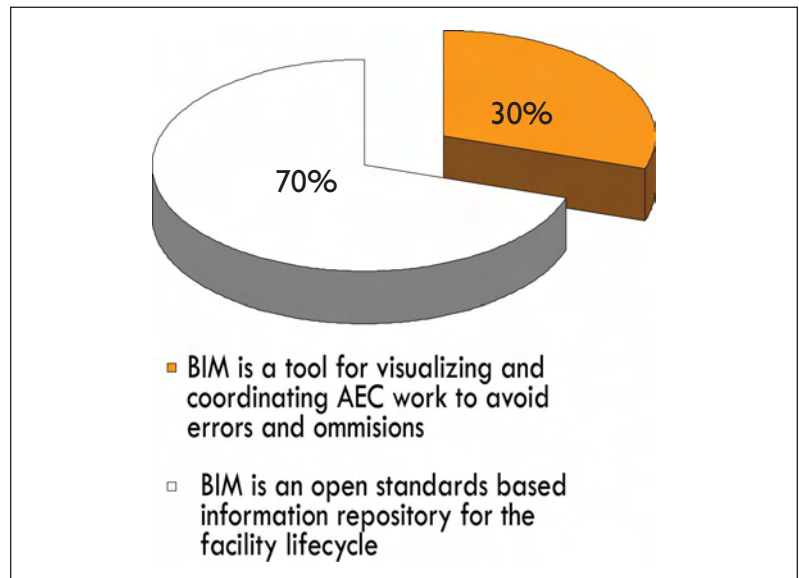
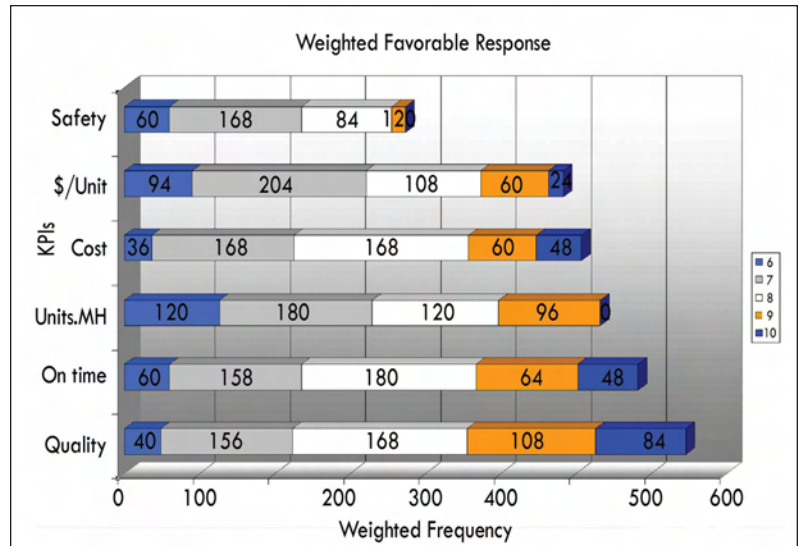
1. Quality
2. On time completion
3. Units/Manhour

RESPONDENTS' OBSERVATIONS:

- "While BIM is a goal to strive for and is relevant to certain projects - the fractured nature of the A/E/C industry means that it will be a long time before BIM has a significant overall effect on the industry."
- "Quantification of reduced O&M costs is essential."
- "More KPIs: Reduction in Claims, Improved public outreach/agency coordination, More sustainable structures."

As the results suggest, the respondents felt that BIM is most likely to positively affect construction KPIs regarding quality control and on time completion. More research needs to be conducted in order to corroborate the BIM-favorable results here. While the respondents are certainly knowledgeable about BIM because of the demographics shown herein and membership on the NBIMS listerv, their affiliation could have also biased the results. Additionally, quantifying the impact of a BIM approach through real world construction case studies will offer a more compelling argument for BIM adoption by AEC firms. ■

The researchers would like to thank NIBS, the NBIMS team, and JBIM for helping to draft, host, and publish the results of this survey. For more information about this survey or future BIM research, please contact the researcher Patrick Suermann, P.E. via email at suermann@ufl.edu or Dr. Raymond Issa at raymond-issa@ufl.edu.



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The Web3D Consortium supports a collaborative environment and drive programs to develop and advance an open standards, royalty free 3D interchange format based on XML, along with tools to represent and communicate 3D scenes and objects between diverse authoring and presentation hardware and software on the web, distributed networks and mobile devices.

Who We Are

The Web 3D Consortium is a non-profit, international standards organization that has spearheaded the development of the VRML 1.0 and 2.0 specifications. Today, the Web3D Consortium is utilizing its broad-based industry support to develop the X3D specification, for communicating 3D on the web, between applications and across distributed networks and web services. Through the well-coordinated efforts with the ISO and W3C, the Web3D Consortium is maintaining and extending its standardization activities.

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