Not Your Parents' Way of Doing Business

Approaches to Transforming the Construction Industry
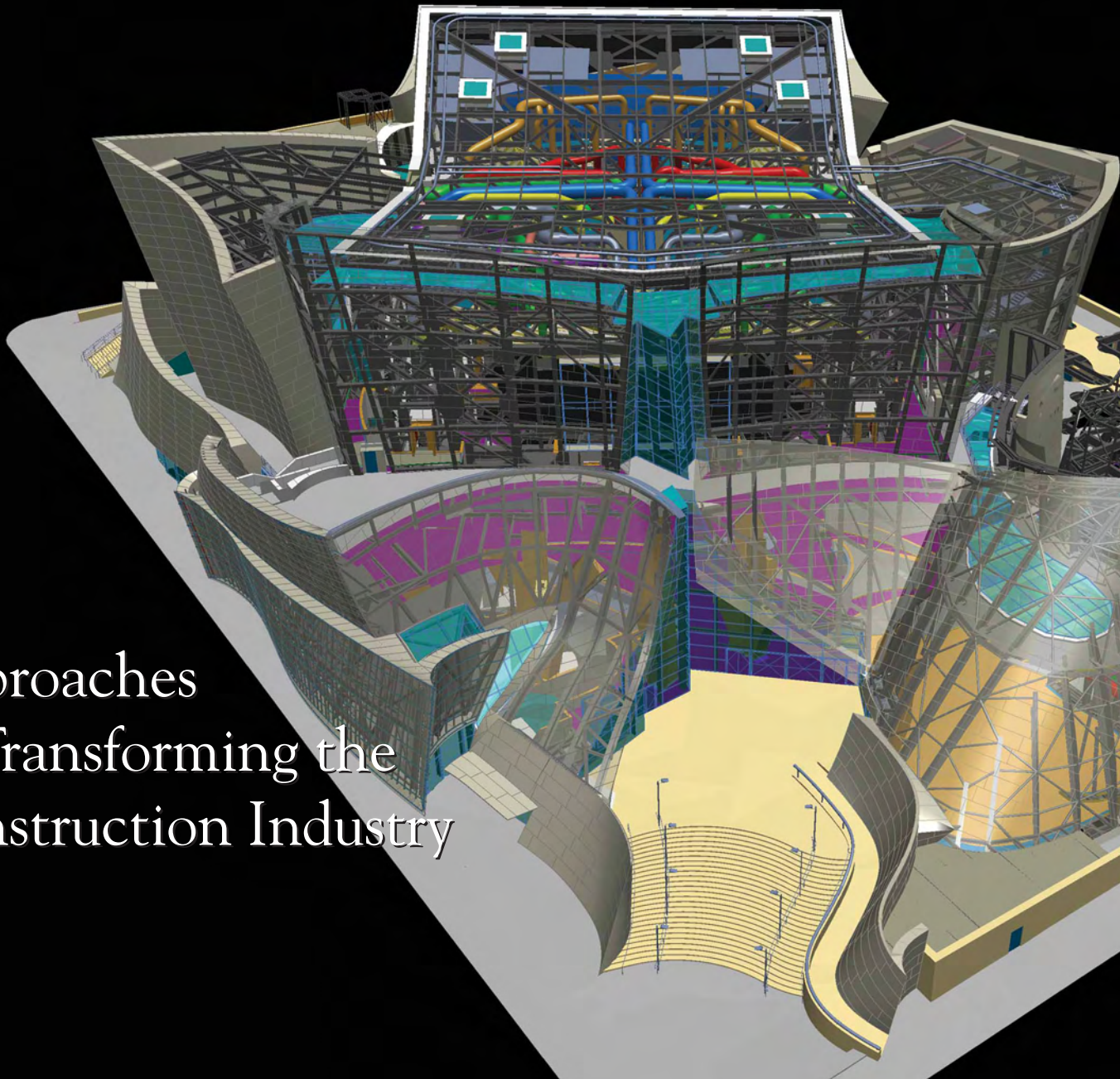
BIM Effects on Construction Key Performance Indicators (KPI) Survey

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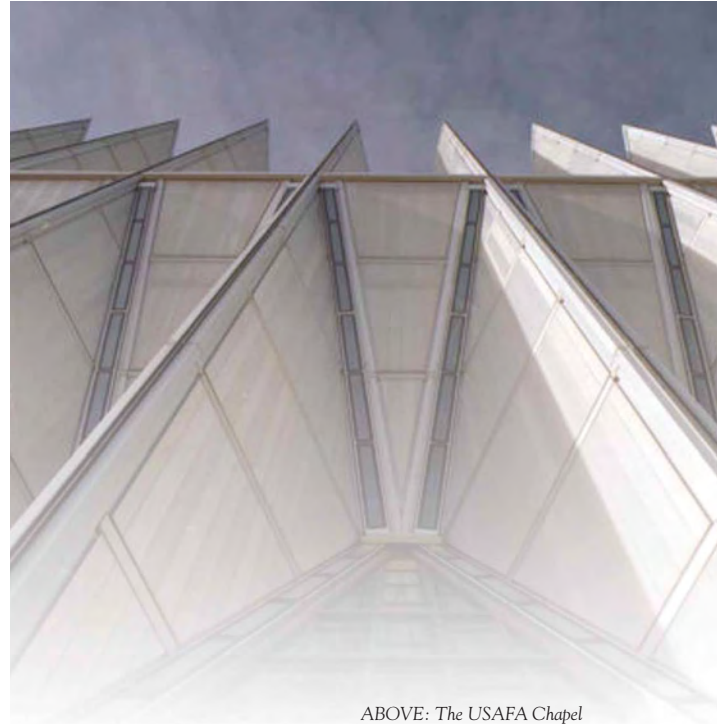
RECENTLY, RESEARCHERS FROM THE M.E. Rinker, Senior, School of Building Construction from within the College of Design, Construction and Planning at the University of Florida launched a survey with the help of NIBS. The survey's goal was to document experts' *perceived* impact BIM has on the *construction 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.

ABOVE: The USAFA Chapel

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%
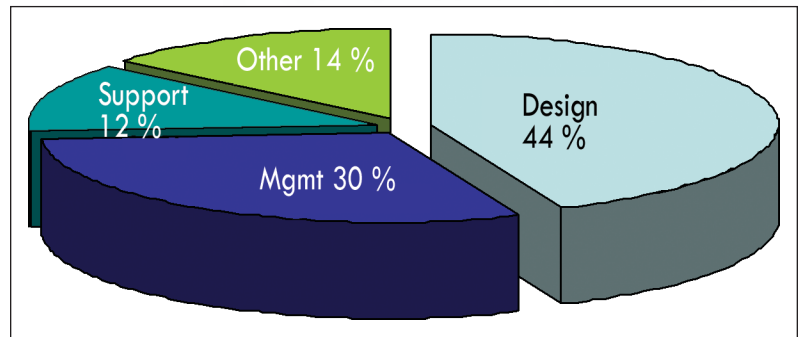
BIM EFFECTS ON KPIs

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%
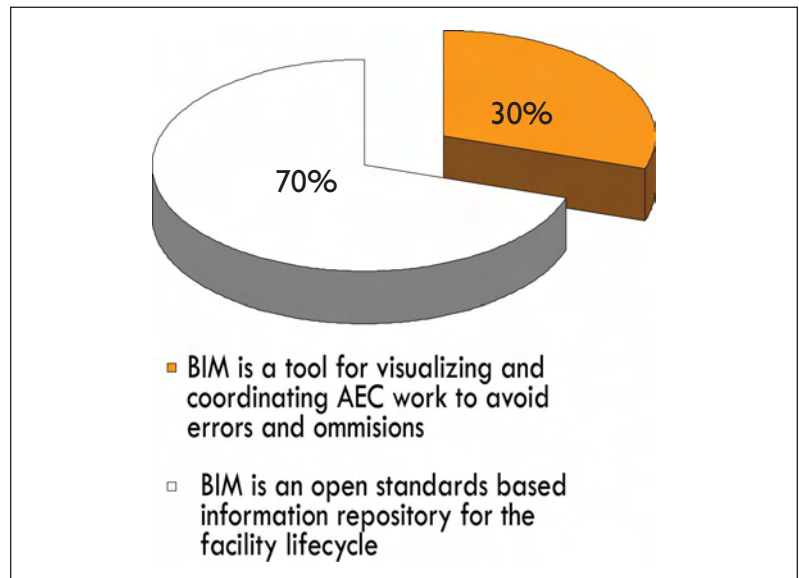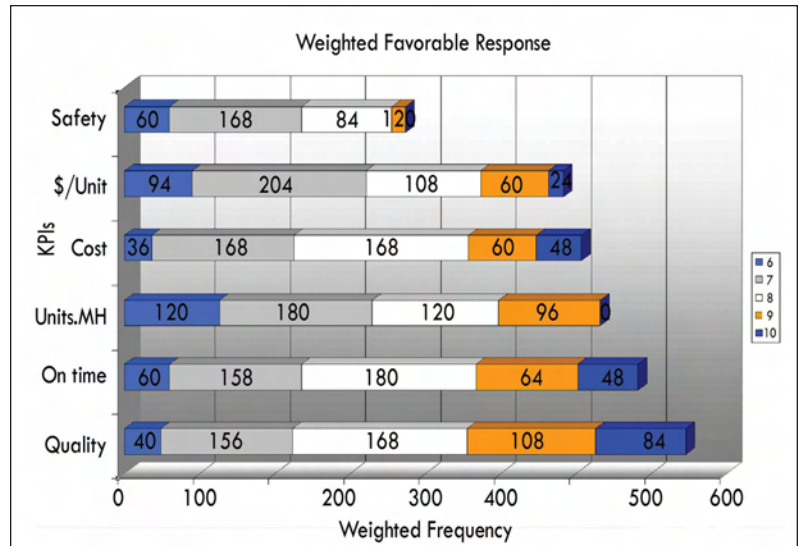6. Safety: 46%
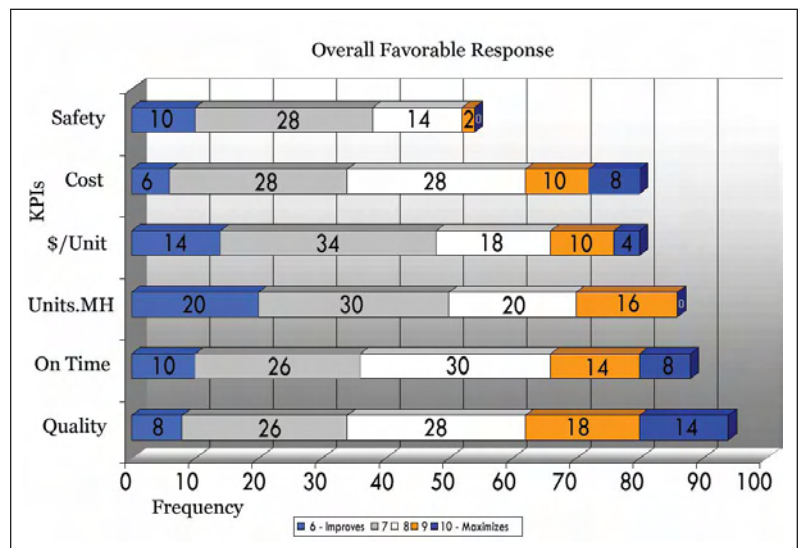
KPIs MOST FAVORABLY AFFECTED BY BIM

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. ∎

Weighted Favorable Response

- BIM is a tool for visualizing and coordinating AEC work to avoid errors and ommisions
- BIM is an open standards based information repository for the facility lifecycle