

JBIM
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buildingSMARTalliance™



There's a
Storm
Brewing in the
Construction Industry...
are you Ready?

Building Value Through Building Information Innovation

By Alan Edgar, NBIMS Project Committee

RESISTANCE TO CHANGE IS a self-protection mechanism ingrained in human behavior such that, even in the face of compelling evidence, complacency, lack of information needed to take action, and seemingly irrational behavior keep people from accepting and acting on the need to change. Whether or not this will be true for stakeholders in the capital facilities industry remains to be seen but information is now available suggesting that innovative project delivery methods offer significant financial and operational benefits.

BIM-BASED PROJECT DELIVERY

Recently, organizations have begun to report metrics associated with the application of BIM-based innovative project delivery methods such as virtual design and construction, lean construction, 3D and 4D methodologies, etc.

From anecdotal evidence it seems reasonable to achieve a reduction in project cost of from 5 to 8 percent due to elimination of change orders, from 15 to 30 percent reduction in project duration, and an overall reduction in project cost of up to 20 percent on projects that use 3D, collaborative design/build methods. Stated another way, for a facility that would otherwise cost \$100 million and generate \$50 million per year in gross revenue this represents \$5 million to \$8 million fewer change orders, \$20 million in overall cost savings and approximately \$19 million in additional gross revenue due to earlier initiation of operations. These are compelling numbers and it is easy to see why project team members are eager to share in some of the benefits their investment in technology, training and changes to process methodologies have made possible for the owner.

VALUE FOR SERIAL BUILDERS

The evidence described so far comes from unique and individual buildings but

the value proposition for serial builders magnifies the effects during initial design and construction and suggests additional benefits associated with ongoing operations. Serial builders are organizations which require buildings to carry out their business strategy; which includes having a physical presence in local market areas. They typically have many facility sites and build and renovate many facilities each year. Serial builder organizations manage building projects, outsource design and construction, then own, occupy and operate their facilities—usually for many years. Examples of business types include ‘big-box’ retailers, health care systems, school systems, governments and banking institutions.

More formal research is called for, but experience suggests that first, many owner organizations are not aware of either the specific results of others’ projects or the estimated value that could be created within their own organizations.

A recent analysis of serial builder organizations using publicly available annual reports shows that benefits for serial builders are striking. For example, a retailer with 1,234 stores has net revenue of \$2.7 billion on \$43.2 billion in sales or \$2.2 million income per store per year. This retailer is building about 150 stores per year. For every week saved in design/construction/start-up time the retailer will net approximately \$43,000 and for all 150 stores built that year the retailer will gain a total of approximately \$6.5 million. Applying a conservative estimate of 10 percent

reduction in total construction cost on the estimated \$6 million base building cost, the company will realize an additional \$60,000 times 150 stores or \$9 million for a total benefit of \$15.5 million per year attributable to implementing 3D collaborative design/build methods. This magnitude of benefit should be a compelling value proposition; even though it doesn’t include additional benefits derived from incorporating the BIM model information into operation, maintenance, repair and remodeling of a very large number of buildings and properties.

BARRIERS TO CHANGE

So, why haven’t more companies needing new and renovated facilities adopted policies and implemented plans to require BIM-based, collaborative project delivery? More formal research is called for, but experience suggests that first, many owner organizations are not aware of either the specific results of others’ projects or the estimated value that could be created within their own organizations. Second, many more design, engineering and construction companies must become capable of competently supplying these types of services. Most importantly though, even if owners become aware, they must also be willing to invest a portion of the future added value in a transition period, to change prohibiting business rules and, perhaps most importantly for the collaborative environment, be willing to share some of the derived value with their new collaborative partners. When these conditions are met the industry will be moving in an appropriate direction toward complete transformation. ■

Alan Edgar, Assoc. AIA, is the Chair of the NBIMS Project Committee, and Workgroup Program Manager for the Open Standards Consortium for Real Estate (OSCRE).

SCOPING TASK TEAM

**Chair: Dianne Davis, AEC
Infosystems, Inc.**

With the publication of the Volume I of NBIMS, the Scoping Task Team is poised to transition from research and strategic organization to focusing on needs for user-facing definition of information exchanges. The Information Exchange website will be the primary tool for use by the community to define needed standard exchanges and the Information Delivery Manual (IDM) team will be responsible for managing content generated by the website as well as advising and facilitating projects in the community wishing to use IDM processes and tools. This group is also responsible for coordinating the use of OmniClass™ and other information classification methods needed to support electronic business transactions in AECOO project delivery.

MODELS AND IMPLEMENTATION GUIDANCE TASK TEAM

Chair: Richard See, Digital Alchemy

The focus in 2007 for the NBIMS Models and Implementation Guidance (MIG) team was design of a development process standardized BIM exchange. The team began by working with other teams in the NBIMS Committee and in Europe to integrate existing processes and tool sets for requirements definition Information Delivery Manual (IDM) Methodology (<http://idm.buildingsmart.com>) and information model definition (Model View Definition (MVD) tools and formats, <http://mvd.buildingsmart.com>). The team then added a third component for data validation that can be used by end users to validate the information content in a BIM as being conformant with a standard definition. The result is the process, tools, and formats described in the NBIMS Volume I Part I document for development of the National BIM Standard. Internationally, this integrated development process—from requirements definition through to end user data validation—will be called the IMV Framework (short for

Information requirements, Model View, and data Validation Framework).

In 2008, the initial focus for MIG will be the significant work remaining to develop the tools and templates to be used in defining the Standard. This work is being coordinated with other teams internationally, but a push will be required to get them ready in time for NBIMS projects in 2008. In the later half of 2008, we can expect to be working on development of Standard Exchange Requirement Models (ERMs) and then Model View Definitions (MVDs). This is fair technical development, so it is our hope to engage all software vendors interested in implementing support for the NBIMS standard in these projects.

TESTING TASK TEAM

**Chair: Patrick C. Suermann, Maj.
USAF, P.E.**

The Testing Task Team has recently completed the first phase of work on the Capability Maturity Model including distributing public information through articles in several e-zines printed publications and public presentations. The team will comment on the recently released Request for Technology by the AECOO Testbed; a joint project of the buildingSMART alliance™ and the Open Geospatial Consortium. Testing members will observe the testbed, characterize results that are pertinent to the NBIMS Committee and help identify and facilitate the introduction of testbed products that require standardization through the NBIM Standard. As the NBIM Standard specifications program becomes operational, the Testing Team will be defining appropriate roles in end-user adoption and certification activities.

DEVELOPMENT TASK TEAM

Chair: Bill East, CERL

The Development Task Team continues to maintain liaison with separately funded projects that wish to deliver products both for standardization and for use in the education, outreach and community adoption activities associated with the NBIMS Committee. Some of the current projects being tracked include the Construction to Operations Building Information Exchange

(COBIE), Code Checking, Specifiers Property Set Definitions, a project to expand IFC objects for structural design and detailing, Early Design information exchanges, second phase of Architectural Precast Concrete design and detailing, GSA Spatial Validation, and agcXML Construction Process forms.

COMMUNICATIONS TASK TEAM

**Chair: Patrick Davis, HNTB
Architecture**

In addition to assisting with completion of NBIMS Version I – Part I: Introduction, Principles and Methodologies, Communications continues to assist NBIMS Committee members to develop and deliver public presentations, articles, webinars and seminars. Communications will be working with buildingSMART alliance™ (www.buildingsmartalliance.org/) and the Whole Building Design Guide (www.wbdg.org/) to streamline content and increase access to BIM knowledge, best practices, allied industry organizations and specifically NBIM Standard content. ■

LET THE BIMSTORM™ SWEEP YOU AWAY!

If you're interested in participated in BIMstorm™ (as described in the article starting on page 14)—you may be in luck! BIMstorm™ may be coming to a city near you (or you can participate virtually).

- New Orleans, LA - April 1, 2008
- Vancouver, BC, Canada - July 21, 2008
- Rotterdam, The Netherlands - November 21, 2007
- Boston, MA - November 15, 2007
- Join the revolution of BIM communication at warp speed.
- Open to all—at varying levels of participation.

For more information go to www.onuma.com/services/BimStorm.php

JOIN THE COMMITTEE!

Participation in any of these task teams is welcomed. Anyone wishing to participate may do so at www.nbims.org.

JOIN the buildingSMART alliance™ and/or JOIN the NBIMS Project Committee

Please complete to apply for membership in the buildingSMART alliance™. All application forms are subject to verification. If you only wish to receive general information please select General buildingSMART alliance™ discussion listserv option below.

Name _____ Title _____
 Organization _____ Address _____
 City _____ State _____ Zip _____ Country _____
 Phone _____ Mobile _____ Fax _____
 Email _____

Complete and submit the following form to apply to the National BIM Standard Project Committee. All application forms are subject to verification.

Level of Participation (check all that apply)

- Listserv - General buildingSMART alliance™ discussion
- Listserv – National BIM Standard discussion
- buildingSMART alliance™ member only announcements
- NBIMS - Consensus-Interested in participating in the Voting Process for the Standard
- NBIMS Committee-Interested in joining the Committee to develop Ballot items

Membership Interest Classification

The purpose of the “interest classifications” is to ensure an appropriate representation of the various interests of the building community in the makeup of the project committee. Please check the one category which is most appropriate for you. Institute members are categorized in one of the following twelve (12) classifications based on their primary trade, occupational or business affiliation. Representatives of trade and professional associations and societies are categorized in the interest classification they primarily represent. Consultants, private attorneys and other similar individuals are classified in categories they predominantly serve. **Please select only one.**

- Consumer and General Interest
- Architects
- Engineers
- Real Estate, Finance or Insurance
- State and Local Government
- Building Construction
- Labor Organizations
- Building Materials, Products or Software
- Housing
- Standards
- Federal Government
- Research, Testing or Other Services

Program areas are more generic and those interested in these areas will be contacted as new projects are formed and be kept updated about work going on in each program area. The buildingSMART alliance™ web site has additional write-ups for each of the programs (www.buildingsmartalliance.org/programs) along with a point of contact on the Board of Direction for more information.

- Economic Issues – Document the waste and enhance economic impact through improved efficiency
- Quality of Life – Improve safety and the quality of life of facility workers, job site and occupants
- Real Property – Support BIM related efforts focusing on the real property community
- Business Process – Optimize work process and business practice to leverage current technology
- Visualization & Simulation – Promote efforts to improve simulation and visualization
- Alliances & User Groups – Increase the productivity of the building industry through alliances and awareness and the establishment of local user groups
- Energy and Environmental – Focus on BIM related efforts to improve the environment and energy efficiency
- Education – Educate and empower practitioners & users
- Technology & Standards – Foster foundational technology and develop standards
- Research & Development – Identify and Promote research & development

Membership Level

Associate:	NIBS MOU Holder, Councils, Committees (Please contact NIBS directly)	
Member:	Student	<input type="checkbox"/> \$25.00
	Individual	<input type="checkbox"/> \$100.00
	State & Local Government	<input type="checkbox"/> \$1,000.00
	Academic Institute	<input type="checkbox"/> \$1,000.00
	Federal Government	<input type="checkbox"/> \$5,000.00
Private Industry:	Gross Annual Income Based	<input type="checkbox"/> \$1,000.00 (<\$10M)
		<input type="checkbox"/> \$2,000.00 (<\$50M)
		<input type="checkbox"/> \$3,000.00 (<\$100M)
		<input type="checkbox"/> \$4,000.00 (<\$250M)
		<input type="checkbox"/> \$5,000.00 (>\$250M)
Sponsor:	Alliance Sponsor	<input type="checkbox"/> \$10,000.00
	Bronze Sponsor	<input type="checkbox"/> \$25,000.00
	Silver Sponsor	<input type="checkbox"/> \$50,000.00
	Gold Sponsor	<input type="checkbox"/> \$100,000.00
	Platinum Sponsor	<input type="checkbox"/> \$250,000.00

The preferred way to join is through the web site. This is in keeping with entering the data only once...

Please send check made out to:
NIBS - buildingSMART alliance™ and send to 1090 Vermont Avenue, NW, Suite 700, Washington, DC 20005-4905.

For more information please contact
Deke Smith, FAIA, Executive Director, buildingSMART alliance™
at dsmith@nibs.org or (202) 289-7800 or (703) 909-9670.