


electroindustry

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Mapping the DNA of Emerging Technologies

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Focusing on the I in Building Information Modeling

Just as researchers have explored the elements in human DNA, work is underway to map the DNA of buildings.



Propelled by cost savings and federal initiatives, Building Information Modeling (BIM) seeks to gather and integrate information on all aspects of a building, combining both visuals and product data for the lifecycle of the building.

The electroindustry is at the forefront of efforts to implement next generation applications for new building construction and retrofit projects.

“BIM is being touted for upfront savings by producing a virtual building before physical construction starts. That’s where the big savings are,” said Marty Brett, marketing manager for Wheatland Tube and chairman of NEMA’s BIM Task Force, citing the expense of actual materials and labor.

BIM is growing in popularity and function as architects, engineers, and building owners—including the U.S. government—recognize its value in reducing waste and improving building construction and maintenance.

As BIM develops and adapts, it offers more value for manufacturers; instead of generic products being specified in a building design, BIM enables a specific manufacturer’s product to be identified by not only make and model, but also by a variety of other attributes, including three-dimensional imagery, color, warranty, energy usage, power requirements, disposal, and replacement.

According to Dana “Deke” Smith, executive director of the buildingSMART alliance, “BIM started out as a visualization tool, but what we’re really focusing on now is the ‘I in BIM,’ the information side, and how that information can be used to improve the way we do business.”

For example, he said, after a building is completed, all the information about products in the building would be captured and delivered to the facility manager.

“A facility manager can point to an object in a 3-D picture and pull up all the information about it, including a parts list and where that part can be ordered,” said Mr. Smith. “This would be a tremendous advantage for a manufacturer to get that information embedded in the model.”

ADDED VALUE

In addition to specifying products, BIM also enables building owners and managers to view the building holistically.

“When building owners can see the efficiency levels of a product and its ability to deliver performance, they will often spend more on an efficient product rather than the cheapest one. BIM brings an opportunity in high performance and green buildings, which is mostly an untapped area from the electrical perspective,” said Jim Pauley, vice president, industry and government relations for Schneider Electric and chairman of the NEMA High Performance Buildings Council.

Once a manufacturer’s product is specified for a job, it’s likely that the same manufacturer will be sought for replacements and upgrades. Other benefits include product usage trends to accurately estimate demand, increased success in global competition, and streamlined customer requests for product information.

Industry Effort

Leaders in the electroindustry recognize the opportunity BIM represents as a competitive tool that would increase market presence and sales.

As a result, NEMA is working with IDEA to create a global BIM-compliant open standard for electroindustry data, in partnership with the buildingSMART alliance, a council of the congressionally- authorized National Institute of Building Sciences (NIBS).

“The customers in the marketplace are going to move in this direction. This is a question of lead, follow, or get out of the way,” said Mr. Pauley.

Bringing together NEMA and IDEA made sense to propel the electroindustry forward in BIM, he said. NEMA can build consensus, and IDEA provides the data system and platform.

The electrical industry already has a leg up on the process, as a result of its investment in IDEA’s data synchronization platform, also called IDW, said Mr. Smith of the buildingSMART alliance.

“Because NEMA members have a centralized product database, most of the information that’s needed for BIM is already populated. Many other industries don’t even have a set of common parameters, so NEMA is way ahead in this process,” he said.

According to Mr. Brett, a gap analysis confirmed this.

“IDEA already had expertise with housing the data and the infrastructure to move the data back and forth, as well as auditing the data. Since many members of NEMA already populate into the IDW, we found that much of the data is already there. Couple that with the strength of NEMA’s industry consensus process, and we achieved our initial objectives,” he said.

According to Jim Lewis, manager of NEMA High Performance Buildings, the NEMA BIM Task Force is leading the effort.

How does BIM standards development work?

The NEMA BIM Task Force and IDEA work with manufacturers and product sections to develop BIM data templates. NEMA members collaborate on and approve templates.

IDEA manages the data, certifies that it is correct, and ultimately makes it accessible to BIM software providers

and the national BIM standards organization, the buildingSMART alliance, a council of the National Institute of Building Sciences (NIBS). The alliance manages the Specifiers Property Sets (SPie), in turn populating the Construction Operations Building Information Exchange (COBie).

The electroindustry BIM data templates will ultimately be part of the Whole Building Design Guide, a resource of NIBS that has more than three million unique downloads and over 400,000 users a month.

“We have taken this a step further with the NEMA/IDEA solution. The heart of this next generation application is making available actual manufacturer’s data on all aspects of their products. This will enable more exact matching of needs to products in a building, ultimately saving owners money over the lifecycle of a building,” he said.

As a result of its ongoing investment in data, the electroindustry unveiled a proof of concept for its BIM open data standard and hosting solution at the recent NIBS annual meeting, held in conjunction with the Ecobuild America conference in Washington, D.C. This prepared the way for manufacturers and application providers to work with NEMA and IDEA to populate data and further develop a next-generation BIM solution.

Designers, building managers, or owners can easily get the information they need about a company’s specific products so those components can be easily included into the building design through any BIM open standard-compliant application,” said Mr. Lewis. “This creates a new dimension of presence for manufacturers in the substantial market for new construction and retrofits, encompassing commercial, industrial, and residential sectors.”

ON THE HORIZON

So how far away is BIM from becoming an everyday force?

Most manufacturers and industry leaders expect to see BIM grow exponentially over the next decade. Federal entities like the U.S. Army Corps of Engineers and the General Services Administration have already indicated support for open BIM standards in their projects. Some states have passed legislation mandating BIM in multi-million dollar government building projects.

“BIM is picking up with the architectural and engineering firms; as soon as the economy permits, we will see this skyrocket. The only real holdback is the quality of the BIM objects,” said Mr. Brett.

“Right now, we have some time to plan out a strategy, but once big owners, like GSA, mandate this, it will be the ‘doing time,’ so you’d better be ready and be good at it, because it may ultimately become a selection criteria,” Mr. Smith said.

He also pointed out that BIM is a worldwide effort with competitors moving quickly, with dramatic efficiencies. “A 300 percent improvement is a profound change in the way you do business,” he said.

Although the next-generation BIM will take several years to implement, the NEMA/IDEA solution is actually leapfrogging many industries and may potentially drive the market toward earlier adoption.

GETTING INVOLVED

According to Mr. Brett, manufacturers can work within their individual NEMA product sections and groups to develop common BIM templates.

“We’re stronger as an industry if we all pull together. We’re asking manufacturers with more experience to join the BIM task force or serve as mentors within their product section task groups,” he said. “NEMA represents approximately 450 members and \$120 billion in sales, so it’s important that we come to NEMA to work through the consensus process on these documents.”

Mr. Brett explained that as manufacturers begin their efforts, the BIM task force can provide guidance.

Mr. Pauley encourages manufacturers to take action.

“Getting involved upfront is better than trying to come in at the tail end. If manufacturers pay no attention to BIM now, they will be behind the curve. They will have to live with the results of what’s being decided, whether they are happy with those requirements or not. BIM is going to move forward. The market is going to move that direction, so it’s important not to be left behind,” he said.

Mr. Smith agrees that now is the time. “A lot of people say, ‘Oh my gosh, I’m late getting to the party.’ You’re not too late, but now is the time to start. It is a journey, and it’s going to continue to improve as we build this information infrastructure. No question about it—BIM is not something that is going to go away. It’s not a fad. We’re basically moving our industry into the information age.”

To get involved or participate in populating the BIM profile data template, contact Jim Lewis at 703-841-3244 or jim.lewis@nema.org.

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