

A Darwinian Shake-out in the Building Industry

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In October 2003, I spoke at the AIA conference in San Francisco. The conference was dedicated to the subject of Building Information Modeling (BIM). The topic was especially relevant to large projects, where many disparate disciplines are creating and merging model information together. The big issue was, "How is the architect going to embrace the trend of building models?" The fear is, of course, that if the architect does not take a different and more proactive role in creating and coordinating building model information, the profession will be marginalized in the long run.

To me, a clear conclusion of the conference was that building modeling has gone from "if it will happen" to "when it will happen." An unusual thing about the conference was that there seemed to be as many construction companies present as architects. Why was that? The answer is simple: construction companies have a huge amount to gain by employing a building model. The model helps construction companies win business; makes cost estimation faster, easier and more accurate; makes construction planning and work task sequencing easier; and helps identify interferences before the actual construction process. The result is significant improvements in project predictability and huge savings in cost and time.

I also participated in a vendor panel at the conference. What came out loud and clear from the audience Q&A was that interoperability between the different types of data in the design and build process is still an incredible pain point. Users were almost emotional about the need for vendors to offer open systems where data is not "locked up" in the design tool. I recall, 20 years ago, being on a panel in New York City where users were similarly as emotional about the fact that their data was locked up in the design authoring tool they were using. It really has taken the industry the past 20 years to finally agree on a means to unlock the data. This has been done through the International Alliance for Interoperability's (IAI) Industry Foundation Classes (IFC). Today, the IFCs work and they are producing the seamless integration benefits that everyone has been hoping for.

There were eight case studies presented by various groups regarding building modeling. Six of these found ArchiCAD at the center of the process. ArchiCAD data became the foundation of energy analysis, structural and mechanical discipline integration, clash detection, and cost estimation. The IFC data exchange format helped facilitate the interoperability. One case study was the use of ArchiCAD and NavisWorks to model and check interferences on the George Lucas Studios' new \$300M campus in beautiful Presidio at the foot of the Golden Gate Bridge. This process of using the building model saved the construction company hundreds of thousands of dollars in cost by catching design errors "before building."

My prediction is that, eventually, all project team members will benefit from BIM. BIM is about planning more effectively than is feasible using today's methodologies. With better planning, construction predictability will increase while cost and cycle time will decrease. Ultimately, the economic beneficiary of better planning will be the building owner. Even though the building owners will gain the most from BIM, all other project team members will benefit-except the construction litigators! Architects, engineers, and GC/CMs, the companies that will perform the additional planning, all will benefit from additional fees and reduced risk. Subcontractors and fabricators will improve their bottom line profitability even though they will be able to reduce their fees. This improvement will be due to the reduced need to pad their bids to deal with the many problems that occur using today's process.

Even though each type of project team member will benefit from the new process, the effect on individual companies will not always be positive. Some companies will lead the way and become more successful, others won't change until forced. Of the latter group, some

companies will not be able to compete against the leaders long enough to adapt to the new environment. In Darwinian terms, any significant change within an industry forces a process of natural selection, and those not able to adapt and compete will simply cease to exist.