

Blind Men, Flat World

Peter Baston

In the famous fable of the men and an elephant¹, each described the pachyderm differently depending on which part he had touched and they quarreled about what an elephant **really** is like. But what if the blind men had tried the same exercise with marks on the ground or a piece of paper? Silly, you say? Well that's exactly what most of our architectural and engineering professionals normally do today.

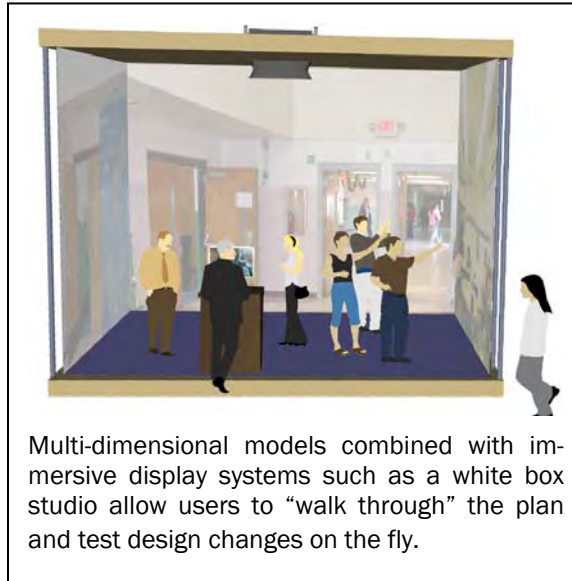
Their objectives are: 1) to establish that they own all the information the customer needs to make the project move forward; and, 2) to convince the customer that the information is necessarily really complex and difficult to get at, justifying their ridiculously high fees. In fact, today the opposite is true: most, if not all, the needed information is available to everyone through component parametric modeling, which can simplify and expand access to information — and reduce the percentage of project cost consumed by fees.

An illustration: On a recent project, we developed a multi-dimensional model of a development that will be sited in stupendous terrain around a new dam. Our work was focused on the dam, but we included 3D fly-throughs with sun and wind patterns, together with outward-looking views from within the adjacent houses in the simulated development, combining actual photographic sections in the model to make it as realistic as possible for architect, engineer, our customer and his clients. We also completed a small usability study with potential buyers, who could not wait to place orders after seeing the great views from “their” future kitchen and bedroom windows in a white box simulation. The development architect, based 900 miles away, far from being supportive, was furious. “I am going to flatten the whole terrain,” he screamed, “and punch in as many plots as I can. Why are you showing people this crazy stuff?” After much dialog, it became apparent that he had not visited the site and saw no need to, as all the information he needed was contained in his flat AutoCAD plot. To him, the real world was an impediment to lining up his boxes on a plate.

Coincidentally, we were involved in some *pro bono* work at the local high school, which is located right on top of the project. When the architect panned our plans, we gave the

whole kit and caboodle to a team of high school and university students as a class exercise. What this team of game players produced was totally awesome and would have won any major design competition hands down. And when you worked out the ROI, the “unskilled” gamers who built SimCity on Google Earth had twice the return that Mr. Flatland Architect had.

The point is simple: most of our architects and engineers are trained in flat 2D projections, with the mantra “Plan/Elevation” and — if you are really, really lucky — a bare isometric. This is fundamentally left brain linear thinking, and they have no training whatsoever in right-brain-dependent multi-dimensional conceptualization. Despite lots of press about three-dimensional modeling, my estimate is it's only really been accepted by around 25% of architects and engineers — never mind acceptance of multi/6-dimensional models, or how project management systems should interlink online in real time with a true world interface.



Multi-dimensional models combined with immersive display systems such as a white box studio allow users to “walk through” the plan and test design changes on the fly.

Instead of living and creating with multi-dimensional tools in the real world, as great architects like Calatrava, Gehry, Hundertwasser and Gaudi did, the plan/elevation people call a static artist's sketch dotted with faceless people a “3D rendering.” The immediate result is a world of mediocre project work, with cost overruns and under-performance created by the inevitable discrepancies between paper plan and real-world implementation seen as normal.

What's the alternative? Multi-dimensional modeling incorporating user-defined parameters and simulation allows all the stakeholders to see virtual models of proposed structures and simulate their performance. These multi-purpose tools can support the design and decision-making process by applying the principles of usability engineering to the design of structures. They can then support the implementation phase with integrated project management and reporting. They allow all users — those who will ultimately have to live and work within the structure— to see the whole elephant at every stage of its development. Ultimately, committing to the use of these tools yields projects that perform beyond expectations, come in at or under budget and are universally acclaimed as successful.



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¹ The fable seems to have originated in India. There is an excellent discussion of the different versions and re-tellings at http://en.wikipedia.org/wiki/Blind_Men_and_an_Elephant.