

3D VISUALIZATION TOOLS

Successful companies and organizations appreciate the value of presenting their value-added services to their customers. To this end, marketing departments employ graphic designers, marketing personal and others to present their products and services to the world. Traditional media for such presentations include product renderings, written copy and illustrations. Also a part of this mix today, interactive computer demonstrations and presentations, and three dimensional models of the product are commonly used. For some industries, like architecture 3D presentation work has been around for many years. In others, such as the automotive and aerospace industries, full scale models and prototypes have been commonplace. For innovative organizations today and in the future, the use of 3D media is increasingly important. There are a variety of tools the innovative organization can employ to maximize their customers' understanding and enthusiasm for new products. Furthermore the ubiquity and ease of use of the technologies available mean that the use of these tools can be widespread.



For engineers, designers and other professionals, the emergence of 3D CAD visualization tools that do not require an expert operator mean that communication between the developer and the customer can be more open.

In the not-so-distant past, engineers and designers had to employ illustrators, model makers and professional renderers to communicate their concepts to clients and other people in their organization. This process was often time-consuming, expensive and risked incomplete or inaccurate interpretation being part of the process. Potential consequences of the later case could mean improper product decisions and expensive fixes for the project.

With the advent of computer-driven CAD (Computer Aided Design) applications, designers are now able to fully realize their projects and generate innovative solutions. Engineering and shop-floor drawings can now be generated directly from such CAD models, and in many cases production can precede directly to machining via CAM (Computer Aided Manufacturing) conversion on the computer.

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From the client's perspective, and for internal communication within the product development team, there is also a host of visualization and communication features that 3D CAD models offer.

3D Interactive Viewers

For communication exchange between the product development team, and between the designer and the client, there are a great variety of tools available. Most CAD systems now have free or low-cost viewer applications that let users without the full CAD system open and view 3D models interactively. In many cases, these viewers can also be web-based.

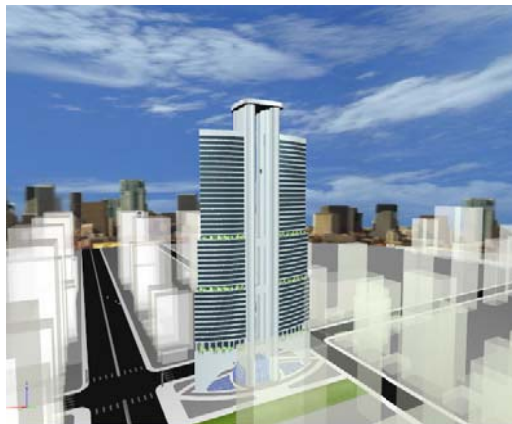


Image courtesy of <ftp://ftp2.bentley.com/dist/collateral/Web/Building.pdf>

3D PDF is a new format that brings the open file exchange flexibility of the Portable Document Format people have enjoyed for text and graphics to the 3D file. Users opening a 3D PDF file can open the 3D model directly in the Adobe Acrobat program. Adobe PDF animations make it the best format for sharing walkthroughs and flyovers, developing proposals for review, or communicating construction sequencing.

Rapid Prototype Models

Product design, engineering and architecture firms can use rapid prototyping technology to present ideas and concepts very effectively. Rapid prototype models put your ideas literally into your hands. There are a variety of rapid prototyping technologies available, with some being more suitable for specific applications.

Depending on how the 3D CAD model has been created, porting the data into physical models is quite straightforward. Rapid prototypes are ideal in situations where a product has to be fit into another component, or for scale models.

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In focus group data collection, physical rapid prototypes help to generate constructive customer feedback that would not necessarily arise from renderings, writing and video. Industrial design, product design, concept design and product styling applications can all use the rapid prototyping service bureaus, or in-house technology to communicate and test their ideas.

There are even rapid prototype technologies available now that generate full color physical models directly. Whether for internal use, or to communicate between organizations, nothing captures design intent more than a physical model. The effectiveness of physical models can lead to earlier consensus, and potentially reduce design development time and cost.

Rendering

Renderings of products, buildings and other projects used to be exclusively undertaken by specialist illustrators and drafters. Today the task of photo-realistic rendering can still be done by specialists, however much of the technology is simple enough for basic rendering within the CAD package.



Image courtesy of <http://www.3dhh.de/3d-PDF/Dubai-MinaESalam/3dHH-Dubai-MinaSalam-180x130.pdf>

In most cases product development managers need to choose the visualization and communication aides that best work for their project. The right mix is usually a combination of what is available. ■