



Multimedia tools help share design ideas

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For the past several years I've been experimenting with multimedia products as an engineering tool.

You might wonder what video has to do with engineering. It's now a connected world and email, instant messaging, and even video conferencing are taking hold. Engineering, for all of its mathematical underpinnings, is a visual world that has only scratched the surface of information technology and processing.

Today, most of the visual information engineering and designers are focused upon are the static graphics encoded in our CAD/CAM systems. Occasionally we send these vector descriptions of products off to FEM analysis to see stress loads or kinematics to see a slide show of a linkage through its range of motion. We might even create a graphic animation of an assembly for interference fit checking.

Many of the issues today, however, are no longer about static geometry creation. The problems designers face are more subtle and complex. Parts are components, and components are parts of systems. Many of the issues designers face are focused around integration and interaction. How does a part fit into the total system picture; aesthetically, functionally, and structurally?

Need more dynamic information

Additionally, the concept of user-driven design and extending engineering information beyond into production and service departments is being incorporated in many of the large corporations like IBM, Boeing and General Motors. If you are a government supplier, it is nothing new if you're being asked to provide more documentation, maintenance documentation, instruction, and in some cases create a maintenance system with your products.

So where do multimedia tools fit into this emerging picture? Consider the old adage "One picture is worth a thousand words." Imagine what several thousand pictures — a video or animation — are worth? If you aren't using these tools, you might be missing out on a competitive advantage, especially if your competition is starting to leverage multimedia.

Lights, camera, action!

Suppose we put together a simple animated short video or cartoon on how a product fits or operates from a customer's perspective and show our concept to a

potential customer or development partner. What do you think would happen? They might chuckle at the movie for a minute. But then you might find after a moment they would be correcting any misconceptions you had on how the product is to be used and adapted over time. This can save you hours of redesign and hundreds, thousands of hours in rework and scrap.

Next, if you really listen to your customers, you might discover new requirements that give you a competitive advantage because your competition doesn't know about these developments.

I've been advising and training my corporate clients the past several years to use these new communications tools.

Lots of tools available

You might think that you don't know how to use these tools because you aren't a Hollywood producer. But I'm fairly sure you can master entry level multimedia.

I started out using Microsoft PowerPoint and all those cute transitions and special effects to blend slide changes. I used these and still use them today for quick interactive sessions with clients when we discuss requirements or product usage. It's not glamorous but it is effective. When I start getting more formal or in a training mode, I add MSProducer, a free add-on from Microsoft that enables you to make laptop, Web or CD-based slideshows with narration. Microsoft used MSProducer for much of its internal training materials.

With this approach, you don't have to invest any additional money, just a little time to learn how to use the tools you already have on your desktop. If, however, you want to go a little further; possibly showing the kinematics of FEM simulation in your presentation, you'll need to invest in a little more software like a screen capture program like Camtasia Studio. These programs help you capture, narrate and create a video from the various programs you're running on your workstation. Once you've created the video it is a simple matter to import it into MSProducer.

Want to go further? Then you can invest in video software and equipment. Most computers today come with Firewire connections, so I would recommend getting a MiniDV camcorder that can connect via Firewire and some entry level video software from ULEAD, Pinnacle Systems, Adobe, etc. You can buy some of these software packages for less than \$100 dollars from your computer retail mega-store.

If you're really bitten, you can invest more money to pick up "Prosumer" packages like ULEAD Quartet, Adobe Creative Production Studio (Premiere Pro, After Effects, etc.) or Pinnacle Liquid. Maybe you want to do virtual studio interviews? You can get a serious

package like Serious Magic Ultra. If fancy video / graphic and title effects is your fancy, then something like Boris RED will be on the shopping list.

The point I'm making is that these technologies are now widely available and easy to use. Sending moving visuals is even more informative. We are in an age where "time is money" has never been more true.

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