

# TECHNOLOGY

## Demonstrative evidence is art

In complex litigation, reinforcing expert analysis with visual aids can help decipher data.

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A graphic can be developed to show anything you want it to show. If the science isn't there to back it up, however, it won't be worth the DVD or display board used to present it.

Understanding admissibility requirements for the use of demonstrative evidence in litigation is vital to ensuring that the exhibit serves its intended purpose in court. Just as an expert witness has to have a legitimate, scientific basis for his opinions, the demonstrative evidence used to visualize those opinions needs to be developed using the same basis, said Timothy Maher. He's a specialist in demonstrative evidence development with Indianapolis-based Wolf Technical Services.

Demonstrative exhibits ranging from bullet points on poster boards to advanced Hypervideo techniques are used in trials today to communicate complex and technical information to decision makers who many times do not have a background in the subject area. When polled by the American Bar Association, more than 80 percent of responding judges said that they had presided over cases they believed were too complex for a jury to render a fair verdict.

### Seeing is believing

While incidents being litigated often involve automobile accidents, a workplace injury, or product liability claims — issues we all become familiar with in our daily lives — the science behind the way a machine functions or the law of physics at work when specific factors came together to create a hazardous situation must be clarified.

Complex litigation typically deals with subjects



Reproducing a truck in its actual size enhanced jurors' ability to determine whether another driver involved in an accident should have been able to see it. Members of the Wolf Technical Services demonstrative evidence team include (from left) Timothy Maher, John Devers, Joseph Hubert, and Joseph Weber.

beyond the average decision maker's knowledge and experience. The "clean slate" that this situation creates, Maher explained in his recently published book, "Demonstrative Evidence for Complex Litigation: A Practical Guide," presents the litigation team with the opportunity and the challenge of providing the information the decision maker needs to reach the informed, sensible decision that the lawyers are advocating.

Video recreations and simulations are often used in

vehicle collision cases to visualize for jurors what an expert is testifying occurred. If a car goes off the side of the road and overcorrects, for example, entering the path of oncoming traffic, jurors can watch that occur. Combined with the expert's testimony explaining how the pattern of marks on the road, and wear on the tires, and other factors involved support what they've seen, the evidence can be compelling, Maher said.

"What if" or alternative scenarios also provide a

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A Hypervideo recreating an intersection collision helped to clarify the timing of traffic lights. The video showed the positioning of witnesses to the collision, revealing who had a credible view.

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powerful way to tell a story. This approach demonstrates both what happened and how it could have been avoided. Judges or jurors can see for themselves what might have occurred if a car had not been speeding, if a train had timed its whistle blow differently, or if a piece of machinery had been manipulated in another way.

Demonstrative evidence techniques like this can also be used to demonstrate that a series of events did not play out as the opposition alleges.

A defendant was being charged with first-degree murder, Maher recalls, for committing an alleged execution-style killing. The prosecution had graphics showing the defendant standing over the victim, who was on his hands and knees, and shooting him.

Using scientific analysis of the autopsy report, Maher established that the bullet angle did not support this depiction. The defense argued that the defendant entered with the intent to rob, but not kill, the individual, and a gunfight ensued. The defendant received life in prison rather than the death penalty.

Hypervideo, one of the newest tools being used in demonstrative exhibit development, combines actual scene video footage with computer-generated objects.

A camera may be mounted on the

dashboard of a vehicle, for instance, and computer-simulated action such as a child running in front of the car or another vehicle swerving can be inserted. Providing a perspective from the driver's point of view makes the juror, in effect, a secondary witness to the event, increasing the degree of realism and credibility, Maher added.

"This has been used in Hollywood for years, but it is pretty new in this field," Maher explained. "You have to make it both believable and admissible. To do that takes a lot of hard work."

Demonstrative exhibits can also be used to reconcile discrepancies in the testimony of multiple witnesses. Four people may witness the same automobile collision, but see things differently. Using the law of physics and computer-generated graphics, demonstrative evidence developers can place jurors at the location of the respective witnesses, showing why the perspective of one may have been out of sync with others. It can be explained how time, distance, light patterns, visibility, and other factors come into play.

"People often know what happened, but not why," said Mike Pepe, a Wolf Technical Services accident reconstruction scientist. "That is what we find out." Maher refers to demonstrative evidence developers as engineering detectives.

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A question at trial was whether movement of water in the truck's tank or the actions of the driver caused the truck to roll. The simulation helped to show that tank design was not a factor.

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"There are a lot of clues that people who know what to look for can discover," Maher added. "It is the pursuit of truth through scientific analysis."

Lawyers who have successfully used it point out that demonstrative evidence does not have to be high-tech to have a powerful effect.

Ice Miller attorney Jim Petersen called Maher when representing the manufacturer of a truck used to push small airplanes at airports. It was alleged that deficiencies in the design of the truck made it impossible for the driver to see a vehicle parked behind him, leading the driver to back the truck into a person, pinning the individual.

Short of bringing a truck into the Chicago courtroom, Petersen wanted to show jurors that even with limited vision, the driver should have been able to see the truck parked behind him. Using engineering drawings, Wolf created a cutout of the truck.

"We used this to illustrate to jurors the size of the truck that the driver said he could not see," Petersen said. "It provided a dramatic illustration of the real size without getting the vehicle in here."

Feedback from the jury indicated that seeing the size of the truck made an impression, Petersen added.

"In today's society we get a lot of jurors who grew up with video, and for many their best source of learning is visual," Petersen said. "You want to present evidence in a format they are used to using."

Today, he said he uses some form of demonstrative evidence in almost every litigation or arbitration. No matter how seemingly simple or complex an exhibit might be, it is important to lay the foundation and carefully consider exhibit development, Petersen said. Because Wolf worked closely with the expert witness and took their direction from him, the expert could testify that this was his exhibit prepared with Wolf's assistance and verify it was created with the information he provided.

### Just the facts

While some demonstrative evidence developers are recognized experts in scientific fields, they do not have to be. Like an expert witness, however, to remain credible the demonstrative evidence developer must be impartial and avoid advocacy, Maher explains.

Jim Sobek, a Wolf visibility expert, said lawyers will occasionally ask that an exhibit be developed to "show their side" of a case. If scientific evidence backs the lawyer's argument, the request can typically be fulfilled, he said. If not, he tells them that.

While they aren't always happy with the news, Sobek said, he has been told by lawyers that hearing from a qualified source that an argument doesn't hold up to science is helpful in determining whether to revise strategy or settle a case.

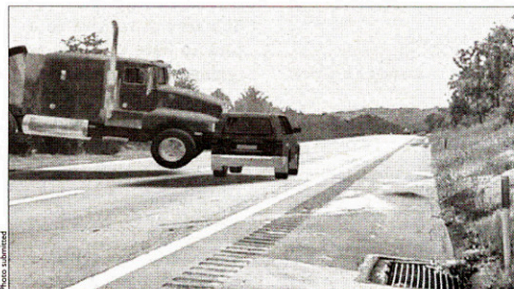
"We won't 'prove' something for someone," Maher said. "We show what is scientifically true."

When using demonstrative evidence in court, it is important to remember, Maher

advised, that it should support an expert's testimony, not overshadow it. It should reinforce the expert's key points while holding the decision maker's interest.

Demonstrative evidence is developed based on the work of the testifying expert, and data must be available to prove that. If the evidence is not consistent with the expert's analysis, the litigation team runs the risk of the evidence being kept out of trial.

"What if" scenarios provided by Wolf Technology Services demonstrated how evasive maneuvering could have helped the truck driver avoid this accident.



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