# Admissibility of Digital Exhibits in Litigation

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# Admissibility of Digital Exhibits in Litigation

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## I. INTRODUCTION

As computer technology advances rapidly, so do the techniques for creating and using computer-generated exhibits in litigation. Litigators and forensic experts use computers to generate animated PowerPoint presentations, three-dimensional computer simulations, digitally enhanced photography, and remote testimony via videoconferencing, just to name a few of the sophisticated and often dazzling kinds of exhibits now featured in courtrooms across the country.

The emergence of laws governing the admissibility of digital exhibits lags behind the technology itself, as you would expect. A definitive or consistent body of case law regarding the admissibility of computer-generated exhibits has yet to develop.

However, courts are gradually learning to appreciate the benefits of digital demonstrative evidence – evidence whose primary purpose is to illustrate the testimony of a witness or to help the jurors understand difficult factual issues[1]. These visuals promote justice by helping to summarize voluminous data, clarify complex relationships, simplify highly technical information, and graphically represent amorphous concepts presented by experts. While still cautious about the trustworthiness and reliability of electronic courtroom displays, judges generally – but certainly not unanimously – are indicating an increased comfort level with their use.

One of the most significant examples of this growing, but careful, acceptance is the May 3, 2004, decision in *State of Connecticut v. Alfred Swinton* (SC 16548). In *Swinton*, the Connecticut Supreme Court considered whether computer enhanced photographs and computer generated exhibits had been properly admitted during the course of a murder trial. Despite the high-tech nature of the exhibits, the court's ruling ultimately depended on traditional notions of evidentiary reliability. As to the enhanced photographs – of bite marks – the court was satisfied that an adequate foundation had been established by a witness who was well-versed in the program used to create the enhancements. On the other hand, the witness who testified about the computer generated exhibits – dentition overlays on bite-mark photos – lacked the computer

[1] See Kathleen G. Fadely, *Use of Computer Generated Visual Evidence in Aviation Litigation: Interactive Video Comes to Court,* (Air L. Com 839, 1990)

expertise to satisfactorily explain the image before the jury. As a result, the court held that the overlays were improperly admitted.

Our purpose here is to explore both the rules of evidence and the recent cases that consider digital exhibits.

## II. ADMISSIBILITY OF "UNDERLYING" COMPUTER RECORDS

Most demonstrative evidence serves to either (a) summarize voluminous underlying evidence, or (b) clarify or explain complex underlying evidence. In the case of computer-generated records, the guidelines for the admissibility of such underlying evidence – involving, for example, the hearsay exception, authentication, and the best-evidence rule – are fairly well established.

With respect to computer records as potential hearsay, most courts will generally admit such records upon a showing that they fall within the business records exception, as defined by Fed. R. Evid. 803(6). That is, the records must be kept pursuant to a routine procedure for motives that tend to assure their accuracy.

The authentication standard for computer records is the same as for any other kind of evidence, and in federal cases, is governed by Fed. R.. Evid. 901(a):

> The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims.

See U.S. v. Simpson, 152 F.3d 1241, 1249 (10th Cir. 1998).

Thus a witness who testifies to the authenticity of computer records need not have programmed the computer or even understand the technical operation of the computer. The witness must simply have first-hand knowledge of the relevant facts to which he or she testifies.

A distinction should be made between (a) records that were created by humans on a computer, which are then stored on the same computer and/or other computers, and (b) records that were generated automatically by a computer, such as log-in records from ISPs, telephone records, and ATM receipts. Records in the first category are created by a human and are subject to the hearsay rule, which protects against false and inaccurate out-of-court statements. Arguably, records created by a computer raise a different evidentiary issue, that of authenticity. A proper foundation for these records should thus include evidence that the computer program that generated the record was functioning properly at the critical time.

With respect to the best evidence rule, Fed. R. Evid. 1001(3) specifically states: "If data are stored in a computer or similar device, any printout or other output readable by sight, shown to reflect the data accurately, is an 'original'."

## III. ADMISSIBILITY OF "OVERLYING" DIGITAL EXHIBITS

For the purposes of admissibility, we can divide digital demonstrative evidence into two categories:

(a) Evidence that summarizes voluminous underlying evidence, i.e., in the form of charts, lists, graphical models, calculations, etc. This category falls under Fed. R. Evid. 1006, which states:

> The contents of voluminous writings, recordings, or photographs which cannot conveniently be examined in court may be presented in the form of a chart, summary, or calculation. The originals, or duplicates, shall be made available for examination or copying, or both, by other parties at reasonable time and place. The court may order that they be produced in court.

(b) Evidence that explains or clarifies complex underlying evidence, i.e., in the form of animations, simulations, enhancements, and models that involve interpretation or manipulation of the underlying data. This category falls under Fed. R. Evid. 611(a), which states:

> The court shall exercise reasonable control over the mode and order of interrogating witnesses and presenting evidence so as to (1) make the interrogation and presentation effective for the ascertainment of the truth, (2) avoid needless consumption of time, and (3) protect witnesses from harassment or undue embarrassment.

Much of the work of authenticating Rule 1006 evidence is best accomplished before trial, because it may be quite time-consuming. Attorneys should ask the court to make determinations about the parties' offered summaries after hearing arguments based on prejudice and accuracy. A pre-trial stipulation regarding these exhibits will hasten the proceedings by making authentication from the witness stand unnecessary.

When authentication by a witness is required for either a Rule 1006 or Rule 611(a) exhibit, courts may distinguish between digital exhibits prepared by an expert witness and those prepared by counsel and their agents and employees. Where an exhibit is prepared by an expert, that witness may explain how the exhibit was created on direct examination and may be cross-examined. If the person who actually created the exhibit is unable to testify, or if the exhibit was prepared by many individuals – or possibly by computers alone – then "courts…allow supervisory personnel to attest to the authenticity

and accuracy of charts, summaries, or calculations." *Weinstein's Federal Evidence* §1006.05[3]. See *also United States v. Bray*, 139 F.3d 1104, 1110 (6th Cir. 1998).

Digital exhibits prepared by counsel may be more problematic. At least one Circuit Court opinion held explicitly that Rule 1006 summaries prepared by counsel are not admissible. In *United States v. Grajales-Montoya* (117 F.3rd 356, 361 (8th Cir. 1997)), the court held that Rule 1006 "appears to contemplate…that a summary…will have been prepared by a witness available for cross-examination, not by the lawyers trying the case. …[W]e believe that…a summary [prepared by counsel] is a written argument."

## IV. THE CASE LAW: DIGITAL EXHIBITS

Following are cases and comments regarding digital exhibits, including PowerPoint presentations, computer animations and simulations, digitally enhanced photos, and remote testimony by videoconferencing.

### *A. PowerPoint Presentations*

In *United States v. Burns*, 298 F.3d 523 (6th Cir. 2002), the government used a PowerPoint slide presentation, consisting of various drawings, photographs, icons, and text, during its opening statement. Among the images shown was a photograph of large amounts of crack cocaine and fistfuls of cash. The trial judge gave the jury limiting instructions both before opening statements and in its final instructions that presentations made during opening statements should not be considered evidence. After the defendants were convicted of crimes related to the possession and distribution of crack cocaine they claimed on appeal that the district court had erred in permitting the use of the PowerPoint in the U.S. Attorney's opening statement presentation because the slides may have confused the jury as to the actual amounts of crack cocaine and cash at issue in the case. The Sixth Circuit found no error, presuming that the district court's instructions had cured any potential harm.

Authorities regarding the use of PowerPoint in closing arguments include the following:

*State v. Robinson*, 110 Wash. App. 1040 (2002), held that the government should not have been permitted to use in closing argument a PowerPoint slide showing images of flaming curtains next to text listing elements of the arson charges.

*Milson v. State*, 832 So.2nd 897 (Fla. Dist. Ct. App. 2002), held that the prosecutor's use of a PowerPoint presentation in closing argument to illustrate the verdict form was properly allowed by the trial court.

### *B. Computer Animations*

Experts and trial counsel use animations to show a chronological progression of actual events, as in the recreation of a scene or process – according to the expert's theory of those events. Animations are also used to demonstrate how some physical principal works. These demonstrations typically consist of a series of diagrams or other graphic images exhibited in rapid succession to give the effect of fluid motion.

Many courts are understandably cautious about admitting computer animations, concerned that their very effectiveness as teaching and advocacy tools will overwhelm other evidence. Jurors might assume that leading-edge technology guarantees a higher level of reliability than non-technical evidence. Since an animation will likely create a lasting impression in the minds of the jury, lawyers should expect that it will be carefully examined for accuracy and prejudice at the time it is proffered. *Clark v. Cantrell*, 529 S.E.2d 528, 536 (S.C. 2000) and *Sommervold v. Grevlos*, 518 N.W.2d 733, 738 (S.D. 1994).

In *Clark v. Cantrell*, the jury awarded damages to the plaintiffs for injuries sustained in an automobile accident allegedly caused by the defendant having exceeded the speed limit. At trial, the defendant attempted to introduce a computer-generated video animation that purported to recreate the accident, showing that the defendant was not at fault. On appeal, the Supreme Court of South Carolina expressed concern about the potential of computer animations to distort the facts while creating a lasting impression. The court, upholding the trial judge's refusal to admit the computer animation, suggested that the proponent of the animation should offer opposing counsel ample time before trial to review the animation and the underlying data, to determine whether the animation was a fair and accurate representation of the accident.

In *State v. Farner* 66 S.W.3d 188 (Tenn. 2001), the Supreme Court of Tennessee considered the government's use of a computer animation recreating an auto accident. The defendant in that case faced charges of criminally negligent homicide in connection with the accident. Providing guidance for retrial regarding the admissibility of the computer animation, the Supreme Court said that the computer animation contradicted the testimony of several eyewitnesses concerning the relative positions and speed of the automobiles. The court thus found that the trial court had abused its discretion in admitting the animation as "its probative value was substantially outweighed by the danger of unfair prejudice." The court also found that the trial court had erred in allowing the government to play the animation in full, even though it depicted the accident a total of fifteen times at various speeds.

### *C. Computer Simulations*

Computer-generated simulations are essentially visual representations of how an event would or could occur, based on previously admitted evidence or assumed facts. A simulation may be offered as substantive evidence or as the basis of an expert's opinion.

The trustworthiness and reliability of a computer simulation depends, to a much greater degree than in the case of computer animation, on the software used to produce it, the authentication of which may require an expert opinion. Therefore, courts may tend to be more conservative about what constitutes a proper foundation for presenting computer simulations at trial, at least as long as the nature of the software remains relatively obscure.

If the software is proprietary (the underlying code is protected as a trade secret by the designer of the software), the court may compel production of the codes for scrutiny, unless an independent expert can testify to the reliability of the software based on industry standards, acceptance by the relevant scientific or technical community, general availability, or history of producing accurate results. Problems may arise if the court compels production of the code, but the software designer resists – especially when the designer is an entity unrelated to the litigation – on the basis that the code is intellectual property.

The following cases offer some guidance for establishing a foundation for admission of computer simulations:

In *Commercial Union Insurance Co. v. Boston Edison Co.* 592 N.E.2nd 165 (Mass. 1992), the court found that the proprietary software used to create a simulation was widely accepted by the relevant scientific community, so that it was not necessary for the proponent to establish at trial "whether all the complex, underlying coding is complete and accurate." [at 169.] The court set forth a three-part test to help determine admissibility of a computer-generated exhibit, in which the proponent must demonstrate that:

1. The computer used to create the exhibit functions properly.
2. The underlying data and the equations are sufficiently complete and accurate.
3. The software is generally accepted by the appropriate community of scientists.

Using those criteria laid out in *Commercial Union*, the court in *Bray v. Bi-State Development Corp.,* 949 S.W.2nd 93 (Mo. App. 1997), affirmed the admission of a computer simulation that reproduced lighting conditions in a parking garage, based on testimony by an expert familiar with the software who stated that the software produced accurate results and was relied upon by engineers to design and use lighting. [at 99.]

In *Livingston v. Isuzu Motors, Ltd.,* 910 F. Supp. 1473 (D. Mont. 1995), the court affirmed the admission of a computer-generated accident simulation, based on testimony by the expert witness who prepared the simulation regarding the software's development, peer review, accuracy, use and acceptance by the scientific community. The court conducted a *Daubert* analysis in holding the standards for admissibility had been met.

### *D. Videoconferencing*

The admissibility of remote testimony via videoconferencing depends more on procedural issues than on technological issues, especially in criminal cases where the defendant is incarcerated. Defense counsel generally have concerns about (a) their ability to be present both in the courtroom and with the client at once, (b) the potential dehumanizing effect of defendants appearing on a video screen instead of live before the jury, and (c) possible prejudice due to the appearance of the defendant in a prison setting. Criminal defense counsel are therefore most likely to object to the admission of remote testimony via videoconferencing.

The most common basis for excluding remote testimony via videoconferencing in criminal cases are the rules in various jurisdictions that require the defendant to be present at initial appearances, arraignments, the taking of testimony at trial, and sentencing. (Regarding the latter, for example, see *United States v. Torres-Palma*, 290 F.3d 1244 (10th Cir. 2002), and *United States v. Lawrence*, 248 F.3d 300 (4th Cir. 2001).

The Sixth Amendment to the Constitution, involving defendants' right to confront witnesses in court, is another common basis for excluding remote testimony. In *United States v. Moses*, 137 F.3d 894 (6th Cir. 1998), in which the defendant was charged with sexual abuse, the court held that the trial court erred in allowing a child to testify as a witness via closed-circuit television.

On the other hand, in *State v. Smith*, 730 A.2d 311 (N.J. 1999), where the defendant was charged with aggravated sexual assault of a child, the admissibility of the victim's testimony via closed-circuit television was affirmed. And in *Harrell v. State*, 709 So.2d 1364 (Fla. 1998), the court sustained a criminal conviction from in which the complainants testified by two-way video from Argentina.

Other cases that address the use of remote testimony via videoconferencing in criminal cases include the following:

*United States v. Gigante*, 166 F.3d 75 (2d Cir. 1999), upheld the trial court's admission of testimony, via closed-circuit television of a witness who was both fatally ill and part of a witness protection program. Since the trial judge employed a two-way system in which the witness and the defendant could see each other, the Court of Appeals found that the defendant's constitutional right to confrontation had been satisfied.

## V. Pre-trial Disclosure

As suggested in *Clark v. Cantrell* above, where a digital exhibit is the result of manipulating voluminous underlying data and/or is created using obscure or proprietary software, the proponent should disclose to opposing counsel before trial, and allow ample time to examine the exhibit, the underlying data, and the software. Resolving objections

during discovery, and possibly revising the exhibit if necessary, is much preferable to facing those objections for the first time at trial. Obtaining a concession that the exhibit is fair and accurate before trial will go a long way toward thwarting objections to its admissibility at trial.

## VI. Expert Witness Testimony

If establishing a proper foundation for a computer-generated exhibit depends on the testimony of an expert witness regarding the application of scientific principles, then the *Frye/Daubert* standards for the validity of scientific evidence apply.

Both *Commercial Union Insurance Co. v. Boston Edison Co.* and *Livingston v. Isuzu Motors, Ltd,* both discussed above, involved the admissibility of computer-generated exhibits applying the *Frye/Daubert* standards. In *Livingston,* the court held that a computer-generated simulation of a rollover accident had been properly admitted in a products liability action. Quoting from *Daubert*, the court noted that "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attaching shaky but admissible evidence." [At 1495.]

## VII. CONCLUSION

As the technology behind digital exhibits becomes more commonplace, less mysterious, and more affordable, attorneys will increasingly advocate for their use in court. At the same time, as judges see the benefits, in terms of quicker trials, and more engaged jurors, they are likely to remove any unnecessary hurdles to the admission of computer-generated evidence. The result is likely to be an increasing body of case law to further guide the bar as it explores all the advantages of electronic presentations.

***Writers Biographical Summaries**

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Suzan Flamm, former New York State Assistant Attorney General, joins DOAR's litigation team as a specialist in case management and litigation strategy. Ms. Flamm brings a wealth of knowledge and experience to her consultative position as a result of her experience as an Assistant District Attorney in New York County, Special Prosecutions and Rackets Bureau, and as a Special Assistant United States Attorney, Eastern District of NY. Ms. Flamm interprets legal opinions and decisions as they relate to the use of technology in litigation and guides clients in best practices and strategies.

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Samuel H. Solomon, with over 30 years experience in the legal, financial and information technology industries is a CEO, legal strategist, and prominent speaker. His command of the intricacies of trial strategy, visual persuasion and courtroom presentation technology have led to the formation of DOAR. During the past 5 years, his scope has broadened to include issues facing firms in document and electronic discovery. Founded in 1989, DOAR offers litigation and trial support services to law firms and systems integration technology to courts and corporations representing more than 3,000 clients nationwide.

Sam's unique perspective, eclectic education and varied background make him a much sought-after speaker and consultant. His most recent presentations have covered Trial Presentation Strategy, Courtroom Communication, Jury Psychology, Electronic Evidence and Discovery and The Impact of Information Technology on the American Justice System. He recently co-authored *"What Juries Want to Hear II: Reverse Engineering the Verdic*t" in The Temple Law Review and *PowerPoint for Litigators,* the seminal work on the presentation of evidence using technology, published by NITA Press. In 2002, he contributed to two critically acclaimed works: *Handbook on Courtroom Technology – A Lawyers Guide* and *A Judges Guide* by NITA Press. He is an instructor in the LLM Advocacy program at Temple University Law School, the Hanley Advanced Advocacy Program for NITA and and spoken for the New York State Bar Association.

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