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Merging Technology with Justice: How Electronic Courtrooms Shape Evidentiary Concerns

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MERGING TECHNOLOGY WITH JUSTICE: HOW ELECTRONIC COURTROOMS SHAPE EVIDENTIARY CONCERNS

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The jury watches the flat panel monitors affixed in the jury box to learn why they should find for the plaintiff. As part of the closing argument of a tort case, the plaintiff prepared a power-point presentation, which appears on the jury's monitors through the court's Digital Evidence Presentation System [hereinafter DEPS].¹ The defendant, a police officer, had testified during the trial that he followed the speed limit during the chase, driving at approximately thirty-five miles per hour. Nevertheless, the presentation combines excerpts of expert testimony and a map of the terrain to show, frame by frame, that he covered about 1.2 miles in sixty-nine seconds – revealing that he was traveling at sixty-four miles per hour.

Long after the trial is over, this power-point presentation continues in use – playing over and over again in Akron Courtroom 575 of the United States District Court for the Northern District of Ohio. As part of a pilot program for introducing new technology into the courtroom, the Northern District of Ohio regularly trains lawyers on the equipment before they appear in court. The above presentation is just one of many demonstrations used to show lawyers how they can make use of the Electronic Courtroom. Practitioners are also taught how to impeach witnesses via a document camera that simultaneously projects an image of the deposition to the witness, the judge, the jurors and opposing counsel; how to display three-

¹“The DEPS allows counsel to switch from displaying exhibits, realtime transcripts, video recording or multi-media presentations with the push of a button.” CHIEF JUDGE PAUL R. MATIA, THE UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF OHIO ANNOUNCED ELECTRONIC COURTROOMS AT ITS U.S. COURT HOUSES (pamphlet n.d.) [hereinafter Pamphlet]. *See generally*; Section II.

dimensional objects via this same document camera; how to video-conference with a witness that is unable to travel to court; and how to electronically mark on documents with one's fingertip.

The Northern District of Ohio is a leader in a sweeping trend to employ technology in the courtroom, with seven of its eighteen active district and magistrate judges presiding over Electronic Courtrooms.² As technology races ahead, the Federal Rules of Evidence lag behind, giving judges little guidance in how to handle technological evidentiary issues: "The Federal Rules of Evidence offer only the broadest guidance with respect to the new methods and techniques brought to the courts along with new technology."³ The Federal Judicial Center and the National Institute for Trial Advocacy have published a guide for federal district judges, that explains how the technology functions and gives comprehensive suggestions about how judges ought to rule on various objections to the technology.⁴ A judge's guide to courtroom technology notes: "As the use of illustrative aids grew enormously, the rules remained focused on evidence, not illustrative aids, and the use of the new technology remained committed to the court's broad discretion."⁵

This Note will explore the evidentiary issues raised by the Electronic Courtroom, state how they are presently handled, and highlight the need for the adaptation of the Rules to allow for the smooth integration of such technology into the courtroom. Part I explains why the Administrative Office of the U.S. Courts began funding Electronic Courtrooms and how they have grown in numbers. Part II gives details about the type of equipment typically employed in the Electronic Courtroom, using Courtroom 575 as a case study. The observable impacts of technology on a trial also will be noted. Part III contains an empirical analysis of evidentiary issues commonly raised in Electronic Courtrooms and their standard treatment under the Federal Rules of Evidence. Finally, Part IV discusses the growing discretionary area of illustrative aids, on the rise due to courtroom technology, and the need for new evidentiary procedures to adapt to the technology.

I. THE HISTORY OF THE ELECTRONIC COURTROOM

In response to increasing caseloads, the Administrative Office of the U.S. Courts launched a pilot program in 1998 to publicly fund advanced technology for selected courtrooms—including monitors throughout the courtroom, document cameras to display images of reports or objects, video-conferencing capabilities, and Internet connections.⁶ The courtroom of Judge Kathleen M. O'Malley in the Northern District of Ohio was included in this experiment and, at the time, became "touted as

²E-mail from Christopher Evers, elbow clerk for Judge Gwin, to Nicole De Sario, author (April 22, 2002) (on file with author) [hereinafter Evers e-mail].

³EFFECTIVE USE OF COURTROOM TECHNOLOGY: A JUDGE'S GUIDE TO PRETRIAL AND TRIAL 56 (Federal Judicial Center and National Institute for Trial Advocacy eds., 2001) (on file with author) [hereinafter JUDGE'S GUIDE].

⁴*Id.*

⁵*Id.* at 56-57.

⁶Pamphlet, *supra* note 1; *see infra*, Section II.

the most technologically advanced courtroom in existence.”⁷ The courtroom technology was deemed a success after studies showed that it helped increase expediency,⁸ cut costs,⁹ and improved jury retention.¹⁰ A report by the Judicial Conference of the United States, the judiciary’s policy-making body, found that “[u]se of automation and technology allows the judiciary to handle a continuously growing workload while, at the same time, minimizing overall spending increases and maintaining services to the public.”¹¹ Specifically, the Economy Subcommittee of the Judicial Conference found that the equipment would lower future increases in paper, postage, and travel.¹²

Consequently, in March of 1999, the Judicial Conference, recommended that courtroom technologies must be considered as “*necessary and integral* parts of the courtrooms undergoing construction or major renovation.”¹³ As such, the Administrative Office set aside some of its Congressional funds for technology.¹⁴ The Judicial Conference also declared the importance of retrofitting technologies into existing courtrooms, although such courtrooms would not be given priority with funding.¹⁵

Akron Courtroom 575 was one courtroom that qualified for the funds as a new courtroom being built. By June of 2000,¹⁶ the Electronic Courtroom was complete, leading a national effort to expand the availability of such technology. To date, fifty-three out of ninety-seven U.S. districts have at least one courtroom that with evidence presentation equipment, and sixty-nine districts have at least one courtroom with proper equipment for video-conferencing.¹⁷ These impressive numbers will only continue to grow until Electronic Courtrooms become the norm. The Honorable James S. Gwin, the judge presiding over Akron Courtroom 575, explained: “A lot of courts are going to this technology, so the legal issues that play out will play out all over.”¹⁸

⁷*Id.*

⁸*Id.* (“The landmark project demonstrated the successful integration of technology and justice as the District addressed the challenge of ever-increasing caseloads.” *Id.*)

⁹Report to Congress on the Optimal Utilization of Judicial Resources, “Achieving Savings and Efficiencies through Automation and Technology,” 57-68, (1998), *available at* <http://www.uscourts.gov/library.html> [hereinafter Report to Congress].

¹⁰*Courtroom Technology Draws Positive Response*, THE THIRD BRANCH (Admin. Office of the U.S. Courts), Aug. 1998, at 9.

¹¹Report to Congress, *supra* note 9, at 57.

¹²*Id.*

¹³JUDGE’S GUIDE, *supra* note 3, at 304 (emphasis added).

¹⁴*Id.*

¹⁵*Id.*

¹⁶*See* Evers e-mail, *supra* note 2.

¹⁷JUDGE’S GUIDE, *supra* note 3, at 287-89 (data compilations by author).

¹⁸Interview with Judge James S. Gwin, Federal Judge, Northern District of Ohio in Akron, Ohio (March 27, 2002) [hereinafter Gwin interview].

II. THE ELECTRONIC COURTROOM: CASE STUDY OF COURTROOM 575

A. *Description of the Equipment*

Akron Courtroom 575, located in the heart of a federal district where Electronic Courtrooms began and continue to flourish, is a model of how such courtrooms function. Upon entering the courtroom, the most visible signs of innovative technology are the sixteen flat panel monitors spread throughout the courtroom. The monitors are placed discretely to preserve the decorum of the courtroom. Eight fifteen inch screens are neatly hidden in the jury box. Flat panel video displays are also placed near the seats of the court reporter, deputy clerk, judge, testifying witness, and opposing lawyers (one at each table and a third at the lectern). Meanwhile, one large screen hangs to the left of the jury box, which allows the public to view the display. Touch screen panels appear along the sides of the monitors for the judge, the lawyer at the lectern, and the testifying witness, allowing them to control features of the system. The judge has ultimate control over what is shown on the screens, and has sole access to a “Kill Video” switch, which blanks the screens for the jurors as well as the main screen.¹⁹ The Judge’s Guide notes that judges typically use this control when an objection is interposed.²⁰

Each monitor is connected through the DEPS. “The DEPS allows counsel to switch from displaying exhibits, realtime transcripts, video recording or multi-media presentations with the push of a button.”²¹ One can imagine how the monitor may function as a computer screen for a computerized power-point presentation or a television screen to show a video tape. Nevertheless, more explanation is needed about how the monitors display realtime transcripts and exhibits.

Realtime court reporting describes a computer program that automatically translates the shorthand of the court reporters into readable text and disperses the information to the monitors that subscribe to the service.²² Because Akron Courtroom 575 purchases the service from the courtroom reporters (who are independent contractors), both the judge and the jury have access to the text.²³ If a juror is hearing impaired, the judge, who has control over all of the monitors in the courtroom, can arrange to have the realtime text appear on a monitor in front of the juror.²⁴ Additionally, infrared listening assistance and translation capabilities are available to jurors through the technology.²⁵ Meanwhile, the judge always has access to the realtime transcripts through his monitor, allowing him to read spoken

¹⁹JUDGE’S GUIDE, *supra* note 3, at 17.

²⁰*Id.* at 17. Note: While other judges have made use of this kill video switch, Judge Gwin has not. Instead, he uses the “pink noise system,” which stops the noise of the presentation. *See infra* note 24.

²¹Pamphlet, *supra* note 1.

²²JUDGE’S GUIDE, *supra* note 3, at 29-30.

²³Interview with Christopher Evers, elbow clerk to Judge James S. Gwin, in Akron, Ohio (March 27, 2002) [hereinafter Evers interview].

²⁴Gwin interview, *supra* note 18.

²⁵*Id.*

words just moments after delivery. If an objection is made, the judge can quickly read the statements in dispute. Lawyers are not automatically included in the court's realtime reporting contract, but may choose to subscribe to the service.²⁶

Exhibits can also be displayed on the monitors through the use of the evidence camera (sometimes called the "exhibit camera").²⁷ The evidence camera, resting next to the lectern, is the technological successor to the overhead projector.²⁸ It lights the object placed from below, records the image through a small, cordless video camera from above, and transmits the image to the monitors. With this device, both documents and small objects can be displayed. Furthermore, the camera can be used to zoom in on relevant aspects of objects or photographs.²⁹

The evidence camera is placed on an integrated lectern, which facilitates the lawyer's use of the equipment. This special lectern keeps all of the relevant technology conveniently close to the lawyer, with side wings for holding an evidence camera and a monitor, an Internet connection for a laptop placed on top the lectern, and a storage space below for a VCR.³⁰ With the flick of a hand, the lawyer can place an item on the evidence camera for the court to view and then turn to the monitor and, using a fingertip, draw an arrow to portions of a document, or circle relevant areas.³¹ These markings appear on all of the monitors, effectively superimposed over the original display. This capability can be understood as the electronic equivalent of a dry-erase marker.³² Once the markings are complete, a color video printer, when necessary, keeps a record of the annotated document by printing out a photo-sized copy of the image and annotations on the screen.³³

In addition to the uses described above, the monitors may also facilitate video-conferencing. This function is used when a witness is unable to travel to the courtroom and instead appears on the screens through a video camera. The courtroom screens display a headshot of the witness, while off-location the witness's screen displays an image of the attorney.³⁴ Consequently, the witness participating in the video-conferencing is not given a view of the judge or the jury during the proceedings (although the witness can hear the judge's voice).³⁵ During objections, when the judge does not believe it is appropriate for the jurors to be observing the witness, he may blank the screens using his "Kill Video" switch.³⁶ Such technology

²⁶Evers interview, *supra* note 23.

²⁷JUDGE'S GUIDE, *supra* note 3, at 7.

²⁸*Id.*

²⁹Evers interview, *supra* note 23.

³⁰JUDGE'S GUIDE, *supra* note 3, at 24.

³¹*Id.*

³²Evers interview, *supra* note 23.

³³JUDGE'S GUIDE, *supra* note 3, at 15.

³⁴*Id.*

³⁵Evers interview, *supra* note 23; JUDGE'S GUIDE, *supra* note 3, at 27.

³⁶Evers interview, *supra* note 23.

reduces travel costs³⁷ and facilitates the testimony of individuals who are not physically mobile, such as prisoners. During the recent case of *Austin v. Wilkinson*,³⁸ Judge Gwin used the technology to hear testimony from prisoners on days that he did not set up court in prison.³⁹

Finally, hidden in the panels of the courtroom is the infrastructure for Internet connections and a special sound system – two technological capabilities said to help improve factual and legal accuracy during a trial.⁴⁰ Internet connections are placed at the judge’s bench, at counsel’s tables, and at the lectern. Judge Gwin explains that the Internet capabilities have allowed him, on the spot, to correct lawyers who have mischaracterized cases because he is able to read the case in question via the Internet.⁴¹ Meanwhile, the infrared listening devices allow jurors to use headphones to better hear recordings or witness testimony. Judge Gwin uses this capability up to five times a year when he presides over narcotics cases that require the jury to screen tape recordings of an F.B.I. agent’s wiretap.⁴² The judge notes that there is a marked improvement in sound using the headphones, allowing the jury to better understand what is being said.⁴³

B. Merging Technology with Justice: How the Equipment Affects the Trial

In addition to the impacts mentioned above, Judge Gwin has observed three ways in which technology has affected trials in his courtroom: (1) it has helped him proceed on an expedited schedule that has reduced his caseload to one third of its original size; (2) it tends to improve the jury’s ability to understand and retain information, and (3) it has evened the playing field for counsel, who once utilized such technology only if their client had very deep pockets.⁴⁴

Before becoming a federal judge, Judge Gwin served for nine years as an Ohio general division judge and presided over approximately 450 jury trials.⁴⁵ This experience, coupled with his five years serving as a federal judge, has allowed Judge Gwin to make observations about the impact of the technology on a trial. “After all those trials, I have some fairly strong opinions about what works and what does not

³⁷Report to Congress, *supra* note 9, at 57.

³⁸189 F. Supp. 2d 719 (N.D. Ohio 2002).

³⁹Gwin interview, *supra* note 18.

⁴⁰*Id.*

⁴¹*Id.*

⁴²E-mail from Judge James S. Gwin, Federal Judge, Northern District of Ohio, to Nicole De Sario, author (Sept. 16, 2002) (on file with author) [hereinafter Gwin e-mail Sept. 16].

⁴³*Id.*

⁴⁴*Id.*

⁴⁵*Id.*

work.”⁴⁶ From the judge’s perspective, this technology is a success, justifying the investment made by the Administrative Office.⁴⁷

Judge Gwin explains that the technology “makes the case significantly faster.”⁴⁸ There is no shuffling of papers.⁴⁹ Lawyers can impeach from the lectern (using the evidence camera), and jurors can simultaneously observe evidence through their monitors.⁵⁰ The Electronic Courtroom reduces timely set-ups, such as rolling in a VCR or fumbling with a three-legged easel.⁵¹ The use of the equipment is not mandatory, although some judges use their discretion to require use of the technology in cases involving many exhibits and documents.⁵² In Judge Gwin’s courtroom, the lawyers choose to use the equipment.⁵³ Even a lawyer who is not already familiar with the equipment quickly becomes adept by attending a training session.⁵⁴ Judge Gwin’s former clerk, Christopher Evers, who used to conduct the trainings, explained that even lawyers, who initially announced to the jury that they would give a simple presentation without many gadgets, soon found themselves making use of the equipment due to its convenience.⁵⁵

Lawyers have incentives to use the technology given favorable jury reactions. After trials are over, jurors often tell Judge Gwin that the visual displays on the monitors makes it easier to remember what transpired during the trial.⁵⁶ Such reactions are in accord with scientific studies about how sensory perceptions function:

Research shows that the use of visual aids to assist with an oral presentation can facilitate comprehension, increase understanding and retention levels by as much as sixty-five percent. Additionally, information which is perceived by the individual from a variety of methods (aural, visual, and written) is retained and understood at a substantially higher level.⁵⁷

⁴⁶E-mail from Judge James S. Gwin, Federal Judge, Northern District of Ohio, to Nicole De Sario, author (Apr. 25, 2002) (on file with author) [hereinafter Gwin e-mail Apr. 25].

⁴⁷*Id.*

⁴⁸Gwin interview, *supra* note 18.

⁴⁹*Id.*

⁵⁰*Id.*

⁵¹*Id.*

⁵²JUDGE’S GUIDE, *supra* note 3, at 15.

⁵³*Id.*

⁵⁴Evers interview, *supra* note 23.

⁵⁵*Id.*

⁵⁶Gwin interview, *supra* note 18.

⁵⁷Karen D. Butera, *Seeing is Believing: A Practitioner’s Guide to the Admissibility of Demonstrative Computer Evidence*, 46 CLEV. ST. L. REV. 511, 513 (1998).

The Administrative Office of the U.S Courts tested this theory in the Electronic Courtroom by presenting the same trial to two panels; one that used the technology, and another that did not.⁵⁸ The jurors were tested for their recollection of testimony several weeks later.⁵⁹ These jurors recalled more when they had the materials presented through the technologically wired courtroom.⁶⁰ Judge Gwin explained that “[j]urors who are able to see the exhibit being referred to are much better at following the evidence. And the case moves much faster without the shuffling of papers between examining attorney and witness. Much crisper presentations.”⁶¹ Judge Gwin is currently in the process of planning a similar experiment within Akron Courtroom 575.⁶²

As trial matters become more complex, courtroom technology may be an effective tool for communicating difficult concepts:

Over the last few decades, courts have dealt with injuries and infringements stemming from intricate, complex products such as artificial heart valves and their parts, pesticides, asbestos, breast implants, and computer chips . . . [Technological exhibits] are not solely being introduced to add “sparkle” to cases, or “entertain” or even “dazzle” easily-bored jurors, as much as they are simply necessary to explain the complexities of the case so that the jury can understand the factual issues involved before they attempt the more difficult task of determining how to resolve the challenging factual disputes.⁶³

If technology can result in increased jury retention and comprehension, one must question the fairness of concentrating these benefits among only the wealthiest of clients. “As technology began to appear in more and more courtrooms, many lawyers and judges were concerned about the David vs. Goliath situation in which the financial resources of one side might weigh too heavily on the outcome of the trial.”⁶⁴ Electronic Courtrooms address this problem by evenly distributing access to technology. The end result is that wealth disparities among parties are less likely to have an unfair impact in an Electronic Courtroom

III. THE FEDERAL RULES OF EVIDENCE IN THE ELECTRONIC COURTROOM

The proliferation of courtroom technology, in turn, has resulted in a plethora of electronically-altered exhibits – raising technologically-specific questions under the Federal Rules of Evidence. These evidentiary issues can be broken down into three

⁵⁸See Gwin interview *supra* note 18.

⁵⁹*Id.*

⁶⁰*Id.*

⁶¹Gwin e-mail Sept. 16, *supra* note 42.

⁶²Gwin interview, *supra* note 18.

⁶³Fred Galves, *Where the Not-So-Wild Things Are: Computers in the Courtroom, the Federal Rules of Evidence, and the Need for Institutional Reform and More Judicial Acceptance*, 13 HARV. J. LAW & TEC 161, 168-69 (2000).

⁶⁴JUDGE’S GUIDE, *supra* note 3, at 49.

categories: (1) substantive determinations if the technology violates the Federal Rules of Evidence; (2) procedural determinations, classifying a technologically-altered exhibit as evidence or as an illustrative aid; and (3) discretionary determinations if technologically-altered illustrative aids should be excluded, even if they do not conflict with the Federal Rules of Evidence.⁶⁵ Given that courtroom technology has caused a proliferation of illustrative aids, the admission of most exhibits in the Electronic Courtroom will be left to the discretion of the presiding judge, creating a space for new policies and procedures to be enacted.

Although “relatively little case law exists,”⁶⁶ the *Judge’s Guide* lists common objections that courtroom technology has raised thus far. Most of the objections that are interposed pertain to the method of using the technology, and not the technology itself, indicating that proper use of the equipment will allow for its successful integration in courtrooms all over the country.⁶⁷ Practitioners who become familiar with these common objections can learn the proper use of courtroom technology and potentially avoid violating the Federal Rules of Evidence altogether.

A. Completeness

Completeness objections are raised when one side believes they ought to be able to supplement a document with other material, “which under Federal Evidence Rule 106, ought in fairness to be considered contemporaneously with it.”⁶⁸ Traditionally, completeness objections applied only to “writings and recorded statements, including audio and videotapes in lieu of transcriptions.”⁶⁹ Yet, Federal Evidence Rule 611 has been used to apply similar objections to photographs and videotape recordings.⁷⁰ Rule 611(a)(1) states that the court has broad discretion to control interrogations of witnesses to “make the interrogation and presentation effective for the ascertainment of truth.”⁷¹ Objections are often raised under this Rule either: (1) when non-written evidence is unfairly edited (the corollary to the 106 completeness objection for writings); or (2) when one could argue that the limited scope of the material on direct examination will unfairly limit cross examination (used for both written and non-written material).

Completeness objections are often raised by courtroom technology because digital exhibits facilitate editing written documents, using text graphics such as

⁶⁵*Id.* at 3. (“Although various forms of courtroom technology have been around since the 1970s, and model courtrooms equipped with technology began appearing in law schools in 1990, little scientific research has been done in the field and relatively little case law exists.” *Id.*).

⁶⁶*Id.*

⁶⁷FED. R. EVID. 106.

⁶⁸FED. R. EVID. 106; *see also* Judge’s Guide, *supra* note 3, at 182.

⁶⁹JUDGE’S GUIDE, *supra* note 3, at 182.

⁷⁰FED. R. EVID. 611(a)(1).

⁷¹JUDGE’S GUIDE, *supra* note 3, at 185.

pulled quotes, cropping photos, or presenting carefully edited videotapes in court.⁷² While such forms of editing preceded the introduction of new forms of technology into the courtroom, the digital equipment facilitates the presentation of computer-edited documents, which can be directly displayed on the court's monitors. Judges generally respond to such objections by considering if the editing would be admissible in non-digital form.⁷³ For example, when responding to an objection over a pulled quote, the judge could consider that "in direct examination counsel would not normally be allowed to approach the witness with a scissored up portion of a paper copy of a document."⁷⁴ Often, the technology is the solution to the problem: counsel is generally permitted to focus in on portions of a writing or photograph by using the evidence camera, so long as they first display the complete item.⁷⁵ Similarly, counsel may use the evidence camera to focus on aspects of three-dimensional objects, after displaying the full object, without causing evidentiary problems.

B. Unfairness

Unfairness concerns (Federal Evidence Rule 403) occur when an item used in court, such as a document or photograph, has been materially altered, affecting its message.⁷⁶ While such objections may be raised simultaneously with completeness objections, unfairness objections for digital displays generally are raised when the content of the document is altered, as opposed to a portion of it being removed. This objection is commonly interposed against four types of digital media in the Electronic Courtroom.⁷⁷

First, videos that can be shown with ease in an Electronic Courtroom may raise unfairness objections. Lawyers should be aware that judges generally do not allow the video to be played at a different speed.⁷⁸ Further, lawyers should be careful about using still frames that might unfairly characterize the video; judges are on the alert for still frames that might be taken out of context.⁷⁹

Second, unfairness objections are often raised with respect to altered margins for documents. Although the monitors in an Electronic Courtroom have a height/width ratio of 3:4 while most documents are 8.5" x 11, lawyers should not alter the white spaces on the document to better fit it in the screen. Doing so could raise unfairness concerns, for example, by making a contract look denser.⁸⁰

⁷²*Id.* at 186. ("Cropping has always been possible during the enlargement process with regular photos, but digital photos are very easy to change.")

⁷³JUDGE'S GUIDE, *supra* note 3, at 185.

⁷⁴*Id.*

⁷⁵*Id.*

⁷⁶FED. R. EVID. 403.

⁷⁷JUDGE'S GUIDE, *supra* note 3, at 188-196.

⁷⁸*Id.* at 191-92.

⁷⁹*Id.* at 191.

⁸⁰*Id.* at 188.

Third, while digital photos are easy to work with, counsel should never use the reshaping tool (stretching images), as judges find that this is inherently unfair.⁸¹ Further, when placing a photo on the evidence camera, lawyers should be familiar with how to fairly adjust the iris setting and contrast. Presenting a night time photo with the iris wide open (allowing in more light) and a high contrast can make night images look more visible than they actually would appear at night.⁸² It is especially important that opposing counsel be familiar with this effect, so they can interpose objections. Judges are informed about this potential misuse of the evidence camera through the aforementioned Judge's Guide.⁸³

Finally, lawyers may be tempted to object to fancy visual displays on fairness grounds. Some software presentations include sounds, such as a "whoosh" when a text graphic becomes enlarged on the screen, and visuals such as blinking lights to highlight what is being emphasized. Nevertheless, unless the effect has a material impact on the presentation, which is rare, a judge is unlikely to exclude the presentation.⁸⁴

C. Technology Giving Objectionable Testimony

Computerized exhibits, used in direct examination, may testify on behalf of the witness in a way that is objectionable⁸⁵ (i.e., by being leading or presenting evidence that does not have the proper foundation). Lawyers must be careful not to display exhibits on the monitors that have "content or markings that will lead the witness in reciting testimony."⁸⁶ Yet, if an expert witness prepared the content of the slides to help the jury understand the testimony, this would generally be acceptable.⁸⁷ The directing attorney must also be careful not to prematurely place a photo or document on the evidence camera, because it may present a fact that either has not been admitted into evidence or is not within the range of matter that the witness may testify.⁸⁸

While these are common objections to exhibits in all courtrooms, they have heightened importance in an Electronic Courtroom, where exhibits are simultaneously shown to the witness and the jury. As exhibits change with the press of a button, the opposing counsel is given less time to object. Thus, it is extremely important that the directing attorney ask the proper foundation questions, giving the opposing attorney notice of objectionable material. Fred Galves, a scholar on the matter, explains that when computerized exhibits are used correctly, the technology

⁸¹JUDGE'S GUIDE, *supra* note 3, at 190.

⁸²*Id.*

⁸³*Id.* at 191.

⁸⁴*Id.* at 196.

⁸⁵*Id.*

⁸⁶JUDGE'S GUIDE, *supra* note 3, at 199. FED. R. EVID. 611.

⁸⁷*Id.*

⁸⁸FED. R. EVID. 602, 703.

can minimize such objections.⁸⁹ For example, instead of presenting the entirety of exhibits, digital exhibits enable attorneys to reveal only segments of the exhibit at a time, as they are needed, unlike the traditional easel presentations.⁹⁰

IV. ILLUSTRATIVE AIDS: DISCRETION & COURTROOM TECHNOLOGY

The birth of the evidentiary issues in Electronic Courtrooms arise within the discretionary area of illustrative aids. Courtroom technology has resulted in a proliferation of digital, illustrative aids,⁹¹ due to the ease with which attorneys can electronically mark, alter, and merge documents. Nevertheless, the Federal Rules of Evidence remain centered on evidentiary material, leaving the future treatment of courtroom technology largely to the discretion of the judge.⁹² While historically it may have made sense not to promulgate standards for illustrative aids, the lack of coherence in this area is alarming given the increasingly strong presence of illustrative aids; they currently comprise more than half of the items shown to the jury during the trial.⁹³ These numbers promise to increase within Electronic Courtrooms across the nation.⁹⁴

With the shift from using chalk boards and easels to laptops and flat-panel jury monitors, the very nature of illustrative aids has grown and changed. While such aids have been a part of the American trial process for over 100 years, it was not until the 1950s that trial attorneys like Melvin Belli “championed vivid, dramatic models or charts to persuade jurors.”⁹⁵ By the 1970s, the medium of presentation shifted from chalkboards to three-legged easels.⁹⁶ Originally, illustrative aids “rested demurely in one place in the courtroom and attention was directed at them from time to time. The circumstances dictated restraint.”⁹⁷ Nevertheless, “[d]igital technology changed all that. The new digital monitors attract and indeed demand, attention.”⁹⁸

Illustrative aids are visual displays, not offered or admitted into evidence, that assist the jury in understanding the evidence.⁹⁹ The aids, as non-evidentiary material, generally are excluded from the jury room during deliberations.¹⁰⁰ This does not

⁸⁹Galves, *supra* note 63, at 234.

⁹⁰*Id.*

⁹¹JUDGE’S GUIDE, *supra* note 3, at 56.

⁹²*Id.* at 56-57.

⁹³*Id.* at 42.

⁹⁴With the capability to electronically alter documents, there is a proliferation of illustrative aids in electronic courtroom. *See* Gwin interview, *supra* note 18.

⁹⁵Butera, *supra* note 57, at 514.

⁹⁶JUDGE’S GUIDE, *supra* note 3, at 58.

⁹⁷*Id.* at 57.

⁹⁸*Id.* at 57.

⁹⁹*Id.*

¹⁰⁰A judge may use his discretion in allowing the illustrative aid to enter the jury room. *See, e.g.,* United States v. Barefoot, 1991 U.S. App. LEXIS 29757 (4th Cir. 1991); *see also*

mean that all computerized exhibits are kept out of the jury room. In some Electronic Courtrooms, jurors are given a laptop computer and a disk with all of the evidence burned onto it, so they can view the evidence in digital form.¹⁰¹ A touchstone screen allows the jurors to select the evidence they wish to view, but blocks access to illustrative aids. Other Electronic Courtrooms have allowed the jury to return to the courtroom to have the evidence presented to them via the jury monitors.¹⁰²

Two sets of decisions by the judge determines which exhibits will be used as illustrative aids. First, the judge must consider which exhibits can be used at all, even if the exhibit will not be offered as evidence. For example, a judge may bar the use of a power-point presentation in closing argument.¹⁰³ Second, the judge must determine which items to admit into evidence once an offer is made, distinguishing between illustrative aids and demonstrative evidence. With the rise of illustrative aids in the Electronic Courtroom, lawyers are becoming increasingly concerned about the criteria judges invoke to make these determinations.¹⁰⁴ “Considerable importance attaches to the principles applied to deciding what is an evidentiary exhibit and goes to the jury room when the jury retires and what is an illustrative aid that is not ‘evidence’ and does not go to the jury room.”¹⁰⁵ An exploration of this decision-making process will reveal the need for more guidelines in this realm.

First, the Federal Rules of Evidence do not strictly extend to non-evidentiary matters and apply to illustrative aids only by analogy.¹⁰⁶ Thus, in determining which illustrative aids may be used in court, the Rules are used as mere touchstones for the judge’s exercise of discretion. The two rules most referenced, applying their policy requirements to illustrative aids, are Rules 102 and 611(a).¹⁰⁷ Rule 102 invites judges to allow new forms of displays that help develop better juror understanding of the evidence and move trials along more efficiently.¹⁰⁸ Meanwhile, Rule 611(a)(1) applies to compilations or charts that are not admitted into evidence under Rule 1006, requiring that the “presentation [is] effective for the ascertainment of the truth.”¹⁰⁹ These ambiguous Federal Evidence Rules muddy the waters in determining how courts will treat technologically enhanced displays. For example, the Rules give judges few benchmarks on how to apply principles of fairness to

McCORMICK ON EVIDENCE, 5th ed. 347 (Kenneth S. Broun, George E. Dix et al, eds., 1999). (“The question whether a particular exhibit may be taken by the jury is widely viewed as subject to discretionary control by the trial judge”).

¹⁰¹JUDGE’S GUIDE, *supra* note 3, at 212-14.

¹⁰²*Id.*

¹⁰³Gwin interview, *supra* note 18.

¹⁰⁴JUDGE’S GUIDE, *supra* note 3, at 42.

¹⁰⁵*Id.*

¹⁰⁶*Id.*

¹⁰⁷*Id.*

¹⁰⁸*Id.*

¹⁰⁹JUDGE’S GUIDE, *supra* note 3, at 42.

labels, text treatments, colors, motion, sound, positioning, intervals, and repetition in illustrative aids.¹¹⁰

Courts may use the weighing test under Federal Evidence Rule 403 to assess the appropriateness of an illustrative aid, although not adhering strictly to its methodology. The Eastern District of Pennsylvania referred to Rule 403 when it found that a chart containing various adjectives and adverbs of culpability in different sizes and colors was confusing and misleading.¹¹¹ Nevertheless, the *Judge's Guide* notes that

illustrative aids can be excluded even if the prejudicial effect is not so substantial as to reach the traditional threshold of Rule 403, because they are supposed to be useful and cannot serve that purpose if they do not convey information clearly without attendant distraction, unnecessary emphasis, or needless cumulative display.¹¹²

The Sixth Circuit explained in *United States v. Bray*,¹¹³ that trial courts have “discretionary authority” to exclude illustrative aids because they fail to “clarify and simplify complex testimony or other information and evidence or to assist counsel in the presentation of argument to the court or jury.”¹¹⁴

Judicial discretion extends to a second arena, determining if the illustrative aid will be admitted into evidence and entered into the record as “demonstrative evidence.” Demonstrative evidence is a broad category that includes all evidence apart from tangible items that played a role in the incident in question.¹¹⁵ While “substantive” or “real” evidence tends to allow jurors to rely on first-hand sensory perceptions to assess the facts in controversy, “demonstrative evidence” gives indirect sense impressions about what occurred.¹¹⁶ “The principal distinction between the two types of evidence is that real evidence . . . is evidence that is collected or developed during the pendency of the case. Demonstrative evidence generally attempts to recreate or show a situation similar to facts in the case: It illustrates the witness’s testimony.”¹¹⁷ Thus, demonstrative evidence includes a photo that accurately reflects a witness’s recollection, maps relevant to establish a geographical feature, or summary charts and diagrams to help make evidence more understandable.¹¹⁸

¹¹⁰*Id.* at 192.

¹¹¹*United States v. McDade*, 83 F.3d 153 (6th Cir. 1996).

¹¹²JUDGE’S GUIDE, *supra* note 3, at 58.

¹¹³139 F.3d 1104 (6th Cir. 1998)

¹¹⁴*Id.* at 1111.

¹¹⁵MCCORMICK ON EVIDENCE, *supra* note 100, at 339.

¹¹⁶Don Howarth, Suzelle M. Smith, and Mary La Cesa, *Rules Governing Demonstrative Evidence at Trial: A Practitioner’s Guide*, 20 W. ST. U. L. REV. 157, 158 (1992).

¹¹⁷*Id.*

¹¹⁸MCCORMICK ON EVIDENCE, *supra* note 100, at 338-39; FED. R. EVID. 1006.

The foundation requirements for admitting demonstrative evidence are different from those applied to real evidence. Because demonstrative evidence was not a part of the incident in question (such as a murder weapon), there is no need for detailed authentication, proving that the object in court was actually the object involved in the matter.¹¹⁹ Instead, the foundation is simply based on the evidence's helpfulness in aiding the trier of fact to better understand or evaluate the substantive evidence.¹²⁰ While helpfulness to the witness may be a relevant factor in determining if the exhibit may be used in court as an illustrative aid, only helpfulness to the jury is relevant in determining if the aid should be admitted as evidence.¹²¹ There are three criteria which set the floor, but not the ceiling, for determining if an item may be admitted as demonstrative evidence.¹²² First, if the proffered evidence is to illustrate witness testimony, the witness must be familiar with it.¹²³ Second, the evidence must fairly and accurately reflect the other evidence to which it relates.¹²⁴ Third, the evidence must be relevant.¹²⁵ These criteria create the *per se* rule that, if one of these factors is not met, the evidence would not be helpful to the trier of fact.¹²⁶ Nevertheless, judges may use their discretion to rule, on other grounds, that the display should not be admitted as demonstrative evidence because it will not sufficiently aid the trier of fact.¹²⁷

In the Electronic Courtroom, judicial discretion is often exercised to determine if the use of the equipment results in an acceptable illustrative aid or demonstrative evidence. Such questions are presented when considering a power point presentation used in summation and the images printed on the court's color video printers (which print a copy of the display on the monitor along with the lawyer's colored

¹¹⁹MCCORMICK ON EVIDENCE, *supra* note 100, at 338-39.

¹²⁰Howarth, *supra* note 116, at 158.

¹²¹*Id.*

¹²²*See* Howarth, *supra* note 116, at 157.

¹²³*Id.*

¹²⁴*See, e.g.,* Sanchez v. Denver & Rio Grande W. R.R. Co., 538 F.2d 304, 306 n.1 (10th Cir. 1976) (noting that party must lay foundation of accuracy and fairness for motion picture exhibit); *see also* United States v. Myers, 972 F.2d 1566, 1579 (11th Cir. 1992) (noting that admissibility turns on whether there is foundation testimony that demonstrative evidence is a "fair" and "accurate" depiction of original).

¹²⁵These criteria are listed in much of scholarly literature as four separate prongs: (1) usefulness to the trier of fact; (2) witness familiarity with the evidence; (3) relevance; and (4) accuracy. *See, e.g.,* Howarth, *supra* note 116, at 157; Butera, *supra* note 57, at 515. The first one is listed separately given that the other three factors are all methods of assessing the usefulness of the evidence.

¹²⁶*Id.*

¹²⁷"A district court has broad discretion in deciding evidentiary matters including the admissibility of experiments. Accordingly, we will not disturb the court's decision unless we have a definite and firm conviction it made a clear error of judgment or exceeded the bounds of permissible choice in the circumstances." *Pandit v. Am. Honda Motor Co.*, 82 F.3d 376, 381 (10th Cir. 1996) (citations omitted).

annotations). As courtroom technology becomes more prevalent, one can only marvel at its potential uses. Nevertheless, it is unlikely that such technology will be integrated smoothly into the judicial arena when each individual judge serves as an idiosyncratic referee, determining which uses of the technology will be acceptable and which will not. With the Judicial Conference lobbying for the increased funding of Electronic Courtrooms,¹²⁸ in addition to studies that have shown its benefits,¹²⁹ the stage is set for more developed evidentiary standards. Legal scholars ought to work to introduce rules that clarify the permissible uses of technology, making predictable the types of uses that create acceptable illustrative aids and, in turn, the types of technological aids that will be admitted into the record.

V. CONCLUSION: THE FUTURE OF COURTROOM TECHNOLOGY

In the upcoming years, many jurors will share in the technological experience of those who sit in Akron Courtroom 575. The trial will unfold on the monitors in the jury box and, during summation, the jurors will learn by watching a power point presentation why they should hand down a certain verdict. With nearly half of the United States District Courts employing such technology in one of its courtrooms¹³⁰ and with funding for outfitting new courtrooms,¹³¹ legal discourse must focus on how to prepare for the era of Electronic Courtrooms. Given the benefits of expediency, accuracy and jury retention,¹³² legal uncertainty in this area should not be allowed to chill the use of these innovations. The area of law most affected by this technological development is the Federal Rules of Evidence. Through continued discourse and studies, the Rules must be expanded to address the Electronic Courtroom and the rising importance of illustrative.

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¹²⁸Report to Congress, *supra* note 9, at 304.

¹²⁹*See, e.g.*, Butera, *supra* note 57.

¹³⁰JUDGE'S GUIDE, *supra* note 3, at 287-89; *see also supra*, Section I.

¹³¹JUDGE'S GUIDE, *supra* note 3, at 304; *see also supra*, Section I.

¹³²*See supra*, Section II.

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