Litigation and trial practice today reflect the same increasing use of and dependence on digital, screen-based, multimedia communication that characterizes our culture as a whole. We already see the early stages of two convergent trends. More evidence and more arguments in bricks-and-mortar courtrooms are being presented digitally, on screens. At the same time, dispute resolution is moving online and hence being conducted through screen-based interfaces. We can expect this convergence to accelerate in coming years. Trials will increasingly depend on digitally mediated communication, and proceedings may gradually be decentered from the traditional bricks-and-mortar courtroom so that not only witnesses but advocates and decision makers will be physically distant from one another but connected online.

Most jurors, perhaps more so than most judges and lawyers, are likely to find in the courtroom of the future a more, not less, familiar environment. Based on their everyday experiences using new media, jurors have changing expectations about what information looks like, where they should look for it, and how quickly they should be able to get it. Their new media habits of freely seeking and exchanging information already test the boundaries of rules governing trial conduct. As legal proceedings increasingly move on screen and online, accommodating jurors’ cognitive habits and their expectations about evidentiary rules and norms of trial process will pose an ever greater challenge.

We begin the chapter by briefly describing several new digital forms of demonstrative evidence and discussing some of the evidentiary and rhetorical
issues they raise. We then trace the movement from screens in court to courts on the screen, from video trials and videoconferencing to trials in virtual reality. We flag practical as well as evidentiary and other legal concerns, with an emphasis on the historical and technological contexts of the possible courtroom of the future. Finally, we sketch a portrait of jurors in the digital and Internet age, whether they sit in bricks-and-mortar courtrooms or as cyberjurors, and explain how the law is addressing—and should address—their changing needs and demands.1

EVIDENCE OF THE FUTURE: NEW MEDIA AND NEW PRESENTATION SYSTEMS

Another chapter in this book discusses digital technologies commonly used to present evidence today, including digital photography and video, computer animations, and various forms of multimedia.2 Here we project a very short distance into the future to identify a few cutting-edge visual and multimedia technologies that may soon be adapted for courtroom use.

Augmented Reality

With augmented reality technologies, data feeds from various sources are combined and displayed to people while they are viewing the actual world. During the Iraq war, for example, select troops used helmet-mounted monoculars that let them know their locations on a satellite-powered digital map.3 Augmented reality users see words, graphics, numbers, and other pictures superimposed on views and sounds of the real environment. This technology

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could be used to generate new kinds of demonstrative evidence, dynamically combining information about the scene with pictures of it. A video walkthrough of a crime scene, for example, could feature not just time codes but information about persons known to have been present and, if relevant, a map of the neighborhood. The whole information flow would then be projected onto a courtroom screen during trial.

Determining the admissibility of an augmented reality demonstrative would require the trial judge to apply the basic rule governing relevance (Federal Rule of Evidence (FRE) 401) and to balance the probative value of the display against any risks it poses of unfair prejudice, confusion, or other threats to good judgment (FRE 403). In addition, to the extent the augmented reality display is offered as substantive proof, the judge would need to consider whether the jury could reasonably find that all of the information presented had been properly authenticated (FREs 901(a) and 901(b)(9)) and whether it exposed jurors to otherwise inadmissible hearsay (FREs 801 through 807), as well as any other applicable rules governing the content or presentation of evidence. The novel rhetorical and psychological effects of this form of evidence are likely to make the application of FRE 403 the judge’s most challenging task. For instance, augmented reality displays require their audiences to decode a mass of visual information—numerical readouts, icons, maps, and so on—very rapidly, and the sheer amount of information might be overwhelming. The dynamic nature of augmented reality, responding as it does to its users’ immediate needs, may make it harder for jurors to view the superimposed data critically, because these data (which bear the authoritative air of computer-generated notations) may seem to arise from the depicted reality itself and not from a database whose origin and limitations may remain opaque. And if jurors assume the point of view of the wearer of the equipment, their virtual participation in the depicted events may further bias their judgment.

Augmented Virtuality

Augmented virtuality embeds photographic or other familiar and realistic representations of reality in a computer-generated, two-dimensional display. Augmented virtuality was used to great effect in the second Bloody Sunday Tribunal. On January 30, 1972, British forces killed thirteen people in the

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4. This description is based on the account by Darius Whelan, *The Bloody Sunday Tribunal Video Simulation*, in *Visual Practices Across the University* 100–03 (James Elkins ed., 2007); see also Damian Schofield & Lorna Goodwin, *Using Graphical Technology to Present Evidence*, in

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Northern Ireland city of Derry. The first tribunal of inquiry, although it used a great many pictures (maps, photographs, and a three-dimensional architectural model) failed to satisfy the public that the truth had been told. In 1998, a second tribunal was called to reassess the facts and provide a new report. To help witnesses testify now that more than a quarter century had passed since the events, an interactive “virtual reality system” was created. The system allowed witnesses to walk virtually around the neighborhood in Derry where the events unfolded and, through touch-screen navigation, to show where they had been and what they would have been able to see from their locations. Where the urban environment had changed significantly since 1972 (buildings torn down or put up, for instance), contemporary photographs and maps augmented the virtual environment to recreate the past, inviting memories while anchoring the display in the present. Witnesses and lawyers could also mark up the screen with arrows to show where the witnesses had been, enhancing both the witnesses’ and the audience’s feeling of participation in the fact finding.

This interactive augmented virtuality system helped the tribunal’s lawyers to prepare, organize, and deploy a vast amount of visual evidence. Yet as with augmented reality, augmented virtuality displays must be carefully scrutinized to ensure that all the information they contain is sufficiently relevant, properly authenticated, and not misleading. Each new technology poses peculiar risks that are especially germane to FRE 403 analysis. For instance, the virtual walk-throughs and 360-degree views in the Bloody Sunday Tribunal system may appear to distort relative distances between objects compared to what an eyewitness observer would see. Furthermore, although being able to touch and move pictures may indeed have helped witnesses to correct mistaken memories of a previous experience, other witnesses may have substituted for their dim but perhaps more accurate memories ones that are newer and more powerful (but less accurate).5

**Immersive Virtual Reality**

Immersive virtual environments (IVEs) give users the sensation of “being there” in a digitally created environment.6 They differ from even the most so-
phisticated screen-based simulations available in video and computer games and other media in that they can convincingly simulate a three-dimensional experience for the user. The sense of presence IVEs convey means they may have the power to elicit from users cognitive and emotional responses approaching those that users would have to corresponding real-life phenomena, which is why the technology is being used in a variety of contexts, including cognitive science and social psychology experiments, pilot training, and clinical psychology treatments to help people overcome phobias.7

One can readily imagine legal uses for IVEs: for instance, to provide a “virtual jury view,” a good way for jurors to “visit” a crime or accident scene without leaving the courtroom.8 Legal scholar Fredric Lederer9 has described using an IVE to determine what a witness could have seen in an operating room in a hypothetical torts case involving a medical device malfunction. The witness was able to move around the virtual operating room while observers in the courtroom could see on a large screen what the witness was seeing.

However, the possible courtroom use of IVEs raises a number of evidentiary and other issues. As with non-immersive, screen-based simulations and other high-tech demonstratives, the court would have to be assured that the IVE represents the legally relevant portions of the real world accurately enough and, to the extent that it is treated as substantive evidence, that it is based on reliable data. The court would also need to consider whether the IVE adds or subtracts information in a way that improperly influences judgment. That is, IVEs raise FRE 403 and other evidentiary issues similar to those presented by two-dimensional simulations.10 The virtual operating room described above, for instance, was constructed to avoid irrelevant and possibly prejudicial features; the same could be true of a virtual jury view. But courts would need to be alert to the risk, and would be well advised to de-

7. For cognitive and social psychology experiments, see, e.g., Jim Blascovich et al., Immersive Virtual Environment Technology as a Methodological Tool for Social Psychology, 13 Psychological Inquiry 103–24 (2002); for clinical psychology (where IVEs are being used in therapy to treat acrophobia and many other conditions), see, e.g., Jay David Bolter & Richard Grusin, Remediation (1999). For instance IVEs are being used to treat Iraq war veterans for post-traumatic stress disorder; see, e.g., Virtual Iraq: VR Based Therapy for Post-Traumatic Stress Disorder, http://defense-update.com/products/v/VRTSD.htm (last visited Jan. 25, 2010).
10. For a more thorough discussion, see Feigenson, supra note 8, at 271–93.
mand that the IVE display be carefully authenticated to minimize the chance that extraneous and potentially prejudicial information is included. In addition, if judge, jurors, and parties have to take turns using the equipment to visit the virtual world, would some essential element of common experience be lost? And how would what transpires in the IVE have to be documented to create a complete trial record? The novelty and complexity of IVE technology will for the foreseeable future make these challenging questions.

**New Ways of Presenting Pictures**

Just as there are new methods for generating pictures, so too are there new devices for displaying them. Light Space Technologies offers the DepthCube, a display consisting of twenty data slices projected onto a four-inch-deep screen inside a large box,\(^1\) which creates a strong illusion of three-dimensional solidity. With this technology, viewers do not have the data loss associated with the conversion of 3-D objects to 2-D pictures. However, using the Depth-Cube to display fMRI brain scan data, for example, might seem to give those data even more of the appearance of an actual brain, which could be misleading (because an fMRI is merely a data map, not an X-ray-like “picture” of the brain\(^2\)), and thus make it even more difficult for lay decision makers to view the images critically (i.e., to remember the images do not give them direct visual access to what is going on in the subject’s mind, but only quantitative information from which various inferences about the subject’s brain activity may or may not be drawn).

Toward the opposite end of the spectrum is technology that literally puts information at the user’s fingertips, allowing the user to manipulate the data freely and directly. In movies such as *Minority Report*\(^3\) or *Iron Man*,\(^4\) characters maneuver data seemingly located in midair. This kind of technology is already ubiquitous in screen form on touch-screen iPhones and multitouch whiteboards,\(^5\) and the Kinect game system now enables consumers to control games using only their natural bodily move-

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3. (Twentieth Century Fox, 2002) (directed by Steven Spielberg).
ments, without the need for any joystick or other device.16 If and when lawyers start to deploy these new kinds of display technologies in court, the effects will be hard to predict. By freeing trial lawyers from the laptop, mouse, and other paraphernalia, the technology would allow them to call up and display their pictures while maintaining a very direct relationship with their audience. It would also let the audience watch the lawyer command the information—perhaps seeming to turn the lawyer into a kind of magician.

Summary

When evaluating courtroom displays using these and other new technologies, trial judges should consider at least the following issues:

- Is the display relevant (FRE 401)?
- Is its probative value or value in helping jurors to understand the facts substantially outweighed by any risk it poses of unfair prejudice or misleading or confusing jurors (FRE 403)?
- If the display is offered as substantive proof, has it been properly authenticated (FRE 901)? In particular, if it is the output of a new or unfamiliar process or system, is there evidence sufficient to show that the process or system produces an accurate and reliable result (FRE 901(b)(9))?17
- Does any assertive content in the display conform to the rules governing hearsay (FREs 801 and 802) or fit within an exception to those rules (FREs 803, 804, and 807)?
- If the display contains hearsay and it is offered against a criminal defendant, does its use comply with the Sixth Amendment’s Confrontation Clause as interpreted in Crawford v. Washington18 and its progeny?
- Does the display conform to the rules governing expert testimony (FREs 702 through 705), if applicable?
- Is showing the display consistent with other rules governing the presentation of evidence (e.g., FREs 102, 106, and 611)?

17. The opinion of the Connecticut Supreme Court in State v. Swinton, 268 Conn. 781 (2004) contains an especially helpful analysis, based on scholarly commentary on FRE 901(b)(9), of how courts should ascertain the reliability of digitally produced images.
Has the party against whom the display is offered had an adequate opportunity to examine the display (where consistent with other rules and goals of trial procedure), and will that party have an adequate opportunity to respond to it?\textsuperscript{19}

We expect that the judicial reception of these new courtroom technologies may follow the arc of previously novel but now commonplace technologies such as computer-animated displays—that is, initial suspicion and rejection, followed by cautious acceptance and admission in particular instances where warranted by the basic evidentiary rules outlined above. The more widespread the use of each technology becomes in the culture at large, the less likely judges will be to dismiss outright its use in court, and the more likely they will be to listen to the arguments of counsel for and against admissibility. And judges will not lack opportunities to make such rulings. Lawyers will want to take advantage of new media because of their rhetorical power and/or because they fear being “out-technologized” by their adversaries; technology firms will want to promote their products, and affluent clients are likely to demand them. The more that judges can learn about each type of courtroom technology—how the hardware and software shapes the kind of pictures that jurors see and with what likely effects on their judgment—the more informed their decisions regarding admissibility will be.

**COURTROOM OF THE FUTURE: FROM VIDEO TO VIRTUAL REALITY**

For many years, legal policy makers and the public have looked to audiovisual technologies to make justice easier to achieve and more accessible to more people. This quest to improve justice via technology begins with video: prerecorded video trials, cameras in court, and remote testimony. Recently settlement negotiations, mediation, and even aspects of adjudication have begun to move online. The common thread is the screen: first courtroom screens on which witnesses or other evidence appears, and now the computer

\textsuperscript{19} One court has suggested with regard to computer animations that “the relative monetary positions of the parties are relevant for the trial court to consider when ruling on whether or not to admit [a computer-generated display] into evidence” and that a disparity of resources that prevents a criminal defendant from countering the prosecution’s animation with one of his own could lead the court not to allow the prosecution’s animation to be shown (Commonwealth v. Serge, 586 Pa. 671, 696 (2006)).
screens through which disputants, cyberjurors, and perhaps someday all participants in the proceedings will interact.

**Video in the Justice System**

In 1971, Judge James L. McCrystal of the Court of Common Pleas in Sandusky, Ohio, decided “significant time savings could be had with no loss of procedural justice” by allowing videotaped depositions to be introduced at trial in lieu of all live witness testimony. The result was the prerecorded video trial (PRVT), of which over two hundred were conducted before the practice was abandoned. Not only could the entire evidentiary phase of trial (i.e., all testimony, but not opening statements or closing arguments) be prerecorded, but so could all demonstrative evidence, including demonstrations and jury views. Among other things, this permitted judges to acquire greater control over the trial: they could consider ruling on objections for as long as they liked, never needing to interrupt witness examination, and they never had to advise the jury to disregard a lawyer’s question or a witness’s response.

Subsequent research inspired in part by the PRVT phenomenon showed that jurors were not unduly influenced by videotaped as opposed to live testimony; their judgments of witnesses’ truthfulness, for instance, were largely unaffected. But juries may well have watched more passively than they would have a fully live trial. They did not observe and participate in a live event (with all of its fits, starts, and distractions) as opposed to canned entertainment. And they were certainly deprived of the chance to be a part of a more completely public performance of justice.

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21. Philip Auslander, *Liveness: Performance in a Mediatized Culture* 116–20 (1999). Although it is not clear why the PRVT experiment, after spreading to a few other states, was abandoned, Auslander argues that it was because PRVTs “challenged some of the most basic assumptions underlying American jurisprudence” (id. at 120), specifically, the law’s strong preference for live witnesses and the presumption that truth emerges in the theatrics of the live performance. See also Robert P. Burns, *A Theory of the Trial* (1999) (analyzing the trial as a multifaceted live and public event in which jurors’ moral judgments are situated).


Prerecorded video trials, promoted by some legal scholars, 24 have fallen from fashion, but videotape has become an integral part of legal practice. Video thins the courtroom walls in three ways. First, it augments or replaces stenography as the record of proceedings. About half of the states make videorecordings of trial court proceedings, 25 although at present many do not preserve the video and simply convert it to a transcript. 26 We might expect video records of trial proceedings to become increasingly common as the cost of creating and storing multimedia decreases. A video record allows appellate judges to consider much more information than they could obtain from a paper record; for example, they can observe witnesses’ demeanor. But anyone reviewing the video record of the trial must be mindful of how their expanded access is framed by the medium: whatever they see is shaped by where the courtroom camera is placed, and hence the angle and distance from which trial participants are viewed. Viewers’ perceptions are also shaped by the way the camera frames the view and thus determines who is in the picture and who is left out, as well as the relationships between the persons seen and unseen. 27 The likely impact of recording trials audiovisually on the standards and practices of appellate review is therefore unclear. It has been argued, for instance, that considerations of finality and judicial economy will continue to support appellate deference to trial court fact finding in most situations even if technology makes it possible for appellate judges to see and hear more or less what the trial judge was able to. 28

Video also makes courtroom walls more penetrable when proceedings are taped and made available to a broader viewing audience. Broadcasting trials serves the important public function of making the justice system more transparent to the citizens it is supposed to serve. All fifty states allow electronic media recording of at least some judicial proceedings, and thirty-five allow trial court coverage, generally by permission of the trial judge and sub-

24. Carrington, supra note 1; Perritt, supra note 22.
ject to prohibitions in certain kinds of cases.29 However, audiovisual recording of federal court proceedings is still largely prohibited.30

Public access to what happens in court is further enhanced when proceedings are made available online.31 Although several states stream audiovisual recordings of oral arguments before their supreme courts, streaming of trial proceedings remains rare.32 In a recent controversial case, the federal trial court overseeing the constitutional challenge to California’s Proposition 8 (which outlawed same-sex marriage) issued an order, pursuant to a recently adopted Ninth Circuit pilot program allowing for limited use of cameras in federal civil trials within the circuit, that permitted coverage of the trial to be streamed live to courthouses in other cities and uploaded later in the day for posting on the Internet. However, the U.S. Supreme Court blocked the broadcast and the posting.33 Despite this, in general we expect more video recordings of more trials and other proceedings to be made available online, especially regarding state courts, as the use of the Internet as a primary means for learning about the world becomes ever more entrenched in our culture. Federal courts may be slower to adapt, especially given the Supreme Court’s record of resistance to the video recording of its own hearings.34 But even the Supreme Court recognized the value of the Internet as a means for disseminating audiovisual information about legal proceedings when, in April 2007, it posted on its website the crucial videotape evidence in a case involving the police’s right to use deadly force to terminate a car chase.35

The third way in which video thins the courtroom walls is by enabling persons not present in the courtroom at all to participate—for example, through the use of closed-circuit television for arraignments and other pretrial

31. The streaming or posting of video is not the only way that courts can use the Internet to increase public access to proceedings. In 2009, one federal judge allowed reporters to send Twitter messages, and another allowed them to blog from the courtroom. Lynne Marek, Twittering in Federal Court, Internet Law & Strategy (May 1, 2009), http://find.galegroup.com/gtx/start.do?prodId=AONE&userGroupName=a13qu.
32. Stepniak, supra note 30, at 123 (citing two trial courts).
33. Hollingsworth v. Perry, 130 S. Ct. 705 (2010) (per curiam). Interestingly, the trial judge issued his order after putting the matter to a kind of public referendum online and receiving nearly 140,000 messages in support of recording the trial coverage and posting it online.
34. See Stepniak, supra note 30, at 142–46.
events involving incarcerated defendants, through videotaped witness depositions, or through videoconferencing with remote witnesses. Video was first used in an arraignment in 1972, the same year prerecorded video trials were first employed.36 The advent of digital video ushered in videoconferencing, enabled by better software compression of video and audio data in real time and delivered along data lines like all other telephony.37 Videoconferencing, unlike videotaping, is most often a real-time, present-moment, generally unedited experience, making it closer to direct physical presence.

However, videoconferencing also raises many practical and legal issues. Its adequacy as a medium of communication depends on the quality of the audio-visual data, and in particular, its resolution and the fluidity of its transmission. The meaning of what is transmitted via videoconferencing is shaped by all of the perceptual effects created by camera angle, distance, and other matters mentioned above in connection with videorecording of trials. Videoconferencing can also create social effects. For instance, although multiple cameras may succeed in showing all of the participants in a proceeding, they do not show them all together; the entire group is effectively disaggregated into smaller units, so that distant viewers may perceive persons on the same screen to be allied—and alliances may in fact form between people who are together in the same room.38 In related matters, when videoconferencing is used in appearances and arraignments in criminal proceedings, defense lawyers must choose whether to join their client in a remote location (making possible consultation, advice, and support) or to remain in the courtroom, where the client may see the lawyer as part of the court and not as advocate, but where presence in the court enables the defense lawyer to confer with the judge.39

Perhaps the most important legal issue raised by increased recourse to videoconferencing is whether even advanced technology would permit a remote witness to be present and available for confrontation so as to satisfy a criminal defendant’s Sixth Amendment rights. Apart from limited exceptions (mainly for child abuse victims), federal courts tend to follow the position declared by the Eleventh Circuit in United States v. Yates: “The simple truth is that confrontation through a video monitor is not the same as physical face-
to-face confrontation.” A dissenting opinion, however, argued that live, two-way videoconferencing offers “[e]very core element of confrontation” and that the trial judge in that case ought to have been allowed to exercise his discretion and admit the remote testimony. The dissent’s position merits serious consideration. Under current Confrontation Clause doctrine, the prior testimony of a truly unavailable witness against the criminal defendant is admissible if the defendant previously had the opportunity to cross-examine the witness. Evidentiary rules contemplate that a deposition or a preliminary hearing provides an adequate prior opportunity for cross-examination of the now unavailable witness, even though the fact finders were not then present. Why should not live, two-way videoconferencing, in which cross-examination occurs as the fact finders watch and listen to the witness, be at least as good a substitute for the constitutional ideal of in-person, contemporaneous confrontation? Of course, the use of videoconferenced testimony in civil cases faces no such constitutional hurdle; in federal courts, remote testimony is permitted “[f]or good cause in compelling

40. United States v. Yates, 438 F.3d 1307, 1315 (11th Cir. 2006) (en banc) (allowing witnesses residing in Australia to testify and be cross-examined via live, two-way videoconference violated defendant’s Confrontation Clause rights where circumstances would have permitted remote witnesses to be deposed pursuant to Fed. R. Crim. P. 15 and trial court did not find special circumstances allowing exception to Fed. R. Crim. P. 15 procedure). The Advisory Committee for the Federal Rules of Criminal Procedure proposed revising Fed. R. Crim. P. 26 to permit live videoconferenced testimony on the same terms as the videotaped depositions allowed under Fed. R. Crim. P. 15, but the Supreme Court rejected the proposal (207 F.R.D. 89; see Yates, 438 F.3d at 1314–15). But see United States v. Abu Ali, 528 F.3d 210 (2008) (permitting Rule 15 depositions to be taken without the defendant’s presence where witnesses could not be compelled to travel from Saudi Arabia to U.S. to be deposed, nor could defendant travel to Saudi Arabia to be present at deposition; deposition transmitted by live, two-way video link to U.S. courtroom, where judge presided and where defendant could confer directly with his attorney and confer by cell phone with his other attorneys who were conducting the deposition).
41. Id. at 1335–36 (Marcus, J., dissenting).
43. That is, when prior testimony is admitted, the law tolerates at least two divergences from the ideal of live, in-person confrontation before the trier of fact: although the prior confrontation was live, and not mediated through screens, it did not occur while the trier was watching and listening, and it may well have been limited by strategic or other concerns applicable to cross-examination at depositions or preliminary proceedings but not at full trials. To permit confrontation via live two-way videoconferencing before the trier remedies the problems raised by the timing and scope of the prior cross-examination, at the cost of substituting a mediated for an in-person exchange. Whether live two-way videoconferencing should be considered the equivalent of live, in-person confrontation so as to make the remote witness “available” for constitutional purposes is a separate question, although certainly one that will be on the horizon if the Yates dissent’s position is adopted. For an insightful discussion of the concerns raised by videoconferenced testimony and a call to wait for further empirical research before welcoming its use in criminal trials, see Nancy Gertner, Videoconferencing: Learning through Screens, 12 William & Mary Bill of Rights J. 769–89 (2004).
circumstances and with appropriate safeguards.”

To the extent two-way videoconferencing achieves wider use, the perceptual and psychological concerns noted above will become that much more important.

In sum, trial judges deciding whether and to what extent to allow remote testimony via videoconferencing should consider at least the following issues:

• Is all of the video, audio, and transmission equipment required for the recording, transmission, and display of videoconferenced testimony of sufficiently good quality and in good working order?

• Does the transmission of the remote witness’s testimony (taking into account camera angle, distance, lighting, synchronization of audio with video, data line capacity, etc.) fairly and completely present that testimony in a way that avoids undue prejudice to the witness or any party (e.g., by allowing for proper eye contact and a dignified viewing angle and distance, avoiding threatening shadows, and maintaining clear audio so that the witness does not seem to mumble)?

• Is a competent technician available to help with any technological problems that may arise?

• Have any concerns regarding the locations of lawyers and their respective clients (i.e., at the remote site or in the courtroom) been satisfactorily resolved?

• Does allowing the remote testimony comply with applicable rules of civil or criminal procedure (as the case may be) and, if the testimony is offered against a criminal defendant, with the Sixth Amendment’s Confrontation Clause?


46. Fredric I. Lederer, Technology-Augmented Courtrooms: Progress amid a Few Complications, or the Problematic Interrelationship between Court and Counsel, 60 N.Y.U. ANN. SURV. AM. L. 675 (2005), discussing the Courtroom 21 Court Affiliate Protocols regarding the use of courtroom technology, proposes that courts should be under no obligation to provide evidence presentation technology for lawyers, and that even if they do, counsel should have primary responsibility for resolving any technical problems. Videoconferencing technology would seem to be a different matter. We believe that to the extent consistent with the court’s resources, the court and not counsel should be primarily responsible for dealing with technical difficulties. If competent staff are not available, however, the court should ensure that at least one of the parties has adequate technical expertise on hand, and that this expertise be freely available to both parties as the court directs.
Justice Moves Online

As video has thinned the walls of the traditional courtroom, permitting screen-mediated contacts to take the place of live, in-person ones, so the advent of the Internet has made it easier for distant disputants to communicate through their computer screens. Online dispute resolution (ODR) extends the capacity of traditional alternative dispute resolution to give people an efficient way to settle their differences. This is especially important in a global economy. Currently, online dispute resolution takes many forms. Various sites on the World Wide Web that offer dispute resolution can be viewed as portals for a variety of services, which run from simply bringing parties together to negotiate to mediation and to arbitration resulting in legally binding decisions. One site may offer all of these services under different fee arrangements; the prices increase as humans replace software in the transaction. Leading examples include CyberSettle, founded in 1998 by a group of lawyers who wanted to speed up the settlement of insurance liability cases, and MARS (Mediation Arbitration Resolution Services), which offers an online version of traditional mediation or arbitration conferences using videoconferencing technology combined with a computerized case management system for uploading and sharing documents.

Online Courts

Could adjudication itself go online? In November 2001, the Michigan state legislature passed a bill establishing the first fully virtual court in the nation. Then-governor John Engler and the legislature hoped that a court specialized for business and served by judges rather than juries would be attractive to start-ups and companies doing global business involving the Internet. However, the Michigan Cyber Court was never realized, as the legislature chose not to fund the plan. Nevertheless, what was envisioned is instructive because, on paper at least, it looks a lot like a bricks-and-mortar court put online.

This cyberspace-based court was to have all of the technology needed for fully electronic hearings, including videoconferencing screens and equipment, CD-ROMs for storing evidence, an automated court reporter, a voice-recognition system making real-time transcripts, and a digital audio and video recording system. All proceedings were to be carried out via audio, video,

48. The official site for MARS is www.resolvemydispute.com (last visited Jan. 25, 2010).
or Internet conferencing, whenever it might be convenient. The judge could sit anywhere the technology permitted, with lawyers, witnesses, and parties appearing from remote locations. All of the proceedings, pictures and words, were to be publicly available on the Internet.  

A real online court now exists—in virtual reality. Second Life is a virtual world accessed through the Internet. It is the co-creation of Linden Research, Inc. (aka Linden Labs), its originator and owner, and its many thousands of “residents,” who are the users/members of the site. Slowly but surely, Second Life is getting lawyered up—with virtual law practices, adventuresome law schools holding courses and seminars, and even a branch of the American Bar Association. An International Justice Center was founded in Second Life in March 2008 to increase public awareness of the International Criminal Court; its opening was celebrated online by an avatar of the court’s chief prosecutor, Luis Moreno-Ocampo.

As of July 2007, Second Life became home to the virtual E-Justice Center, founded by the Portuguese Ministry of Justice and the Lisbon Law School. This court was created to deal with contractual disputes that arise in the virtual world. Although at present the financial stakes in these disputes are low, every effort is being made to encourage participants to take the process seriously and to increase the likelihood of compliance with court decisions; the E-Justice Center requires the deposit of real money (as opposed to “Linden dollars,” the currency in Second Life) for the proceedings to go forward. If, however, Second Life grows as many expect it will, and as residents become accustomed to solving problems that arise there online, they will no doubt bring more compelling disputes to the E-Justice Center. And as people in general spend more and more of their lives online, virtual courts that evolve to deal with serious online disputes may become a more plausible model for virtual courts in the real world.

Whatever the ultimate attractiveness of the virtual court as a way of attracting business to the jurisdiction (apparently a motivation for the Michigan online court) and of making proceedings more efficient in an age when...
travel is becoming more expensive and even dangerous, many issues must be addressed. For example, if trial participants, like anyone else in a virtual world, are represented by their avatars, what if any limits should be imposed on the form that those avatars may take? Perhaps the online equivalents of the proper dress and decorum expected in bricks-and-mortar courts should be adapted to ensure the dignity of proceedings and avoid unfair prejudice to any party. More importantly, consideration must be given to what should be public in a trial in the digital age and what should remain private. Public on a searchable world stage means that anyone, anywhere, can access any trial information, and republish it nearly instantaneously in contexts that neither the court nor the parties can control. The Michigan online court’s plan to make all proceedings publicly available on the Web (while allowing parties to request that certain information be kept private) arguably failed to appreciate how easily information spreads in cyberspace. Plans for online courts in the future must give this more thought.

Even if bricks-and-mortar courtrooms are not replaced by virtual courtrooms of the future, the jurors of the future are already here. In the final section of the chapter, we briefly describe those jurors and outline the challenges they pose for the management of trials as traditionally conceived. We conclude by returning to the Internet and discussing the phenomenon of cyber-jurors.

JURORS OF THE FUTURE

New Habits of Thought and Judgment

Contemporary jurors diverge in three main ways from the conception implicit in traditional trial practice. The first is well recognized: jurors are not mere passive receptacles for testimony, other evidence, and argument presented at trial. Rather, they are active information processors who continuously draw on their habits of thought and feeling to reconfigure what they see and hear at trial into comprehensible patterns on which they can base their verdicts. In

55. E.g., Marder, supra note 1.
2005, the ABA promulgated *Principles for Juries and Jury Trials*, grounded in extensive empirical research, which recommended reforming jury practices to accommodate and encourage this active information processing. Among other reforms, the ABA suggested that trial judges allow jurors to take notes during trial and to submit written questions to be asked of witnesses, to supply jurors with trial notebooks to help them better follow the proceedings, and to provide them with written copies of instructions.\(^{57}\) A subsequent survey indicated that these reforms are being implemented to varying extents.\(^{58}\) Other proposed steps include instructing jurors on the substantive law before the case begins and allowing attorneys to present not only opening and closing statements, but interim statements.\(^{59}\) As further empirical research and the firsthand experience of presiding judges test (and, in many instances, confirm) the efficacy of these kinds of innovations, we expect they will be more widely adopted.

Second, the habits of thought and feeling that jurors employ as they actively process information are increasingly the ones they have developed through their everyday experiences not only watching and listening to but making media, whether it is Photoshopping digital pictures, creating mash-ups of others’ material and posting it to YouTube, or building and playing in online environments. How do jurors who routinely use digital data respond to new courtroom media—and what are the effects on their decisions? Consider the jury that sat in Soham, England, in 2003 to deliberate on the guilt or innocence of Ian Huntley and his girlfriend, Maxine Carr, for the murder of two young girls. The prosecution’s case was entirely circumstantial; at trial the defendant confessed that the girls had died while they were with him, but claimed that the deaths were accidental. Before the jurors retired to deliberate, they were given a DVD containing all the demonstrative evidence to

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take with them into the jury room. The evidence disk opened onto a menu featuring a central image as an icon for the whole case: a picture of a little girl’s sweater. Red ribbons connected this icon to folders, providing a visualization of links to various categories of circumstantial evidence (a room, articles of clothing, fiber evidence, and so on); the ribbons met in a kind of red pool over the belly of the implied body. Jurors were able to explore the material on the disk at will, just as when sitting at home they might select chapters or features of a movie on DVD or enter a video game. Ultimately the jury found the defendants guilty of murder. We can only speculate that the jurors’ active relationship with the evidentiary materials and their exposure to any implicit arguments the materials presented (e.g., the suggestion by the arrangement of red ribbons over the belly of the red sweater that blood had been spilled) may have influenced their judgment.

As multimediated adjudication becomes the norm, lawyers will have to factor these new ways of thinking into how they strategize and present their cases. Trial judges and others responsible for the management of jury trials will also need to decide how far to accommodate these new media habits. For instance, the most common rule today is to admit as full evidentiary exhibits and send to the jury room only those visual and multimedia displays characterized as substantive evidence; merely illustrative exhibits may be shown during trial, but do not go to the jury room.60 However, many judges do allow the jury to review some illustrative or demonstrative evidence during deliberations.61 We think the best practice would be to presume that jurors should have access during deliberations to all displays shown during the evidentiary phase of trial, and that where the displays are interactive, jurors should be able to engage with the data themselves, as did those in Soham.62 Giving jurors the opportunity to discuss with each other what they see and hear while or immediately after they see and hear it will tend to make them more aware of their varying responses to the displays and may reduce any undesirable subconscious influences those displays may have on their judgment.63

In addition, much of the benefit to be derived from giving jurors freer access to visual and multimedia displays depends on enhancing the visual and

62. One of us once thought otherwise; see Brian Carney & Neal Feigenson, Visual Persuasion in the Michael Skakel Trial: Enhancing Advocacy through Interactive Media Presentations, 19(1) Crim. Just. 29 (2004) (arguing that the risk of jurors mishandling digital evidence or uncovering computer files meant to remain private warrants not sending interactive displays to jury room).
63. For a more thorough discussion, see Feigenson & Spiesel, supra note 1, at 205–07.
media literacy of both judges and lawyers. The better that judges understand the technological capabilities and probable psychological effects of new media, the more able they will be to minimize any prejudicial effects the displays may pose and to craft instructions to guide jurors’ evaluation of the evidence. The better that lawyers understand digital demonstratives and jurors’ habits in using them, the more searching and informative their witness examinations will be, thereby better educating jurors as to the probative value and meanings of the evidence.

Third, and perhaps most notoriously, jurors today increasingly chafe at the constraints the law places on the flow of information. They want to find out for themselves the information they think they need. The consequence has been a number of cases in which jurors have conducted their own Internet research to learn more about the factual issues presented at trial, sometimes leading to mistrials.64 Courts have responded with a variety of policies regarding juror use of cell phones and other electronic devices in court, ranging from banning them outright to permitting them in the jury assembly room but not in the courtroom, and explaining to jurors why doing their own Internet research is inconsistent with the goal of providing litigants with a fair trial.65 By raising the issue during voir dire and engaging jurors in a dialogue about it, as well as by giving jurors clear and comprehensive instructions, trial judges will increase the likelihood of compliance because jurors will not only be better able to appreciate the constraints on their usual search habits, but be less likely to respond with what psychologists call reactance (“Who are you to tell me not to do what I naturally do?”) and more likely to police their fellow jurors’ adherence to the restrictions.66

Jurors who are accustomed to communicating with others via Facebook, Twitter, and other social media may also be more inclined to breach standard rules barring communications among jurors and between jurors and outsiders.67 One way to defuse at least the first risk may be to allow communications among jurors during trial recesses when all jurors are present, as the ABA has


67. Keene & Handrich, supra note 63; Schwartz, supra note 64.
recommended.68 Like jurors performing their own Internet research, however, jurors using the Internet to communicate with others about the trial or deliberations will continue to be an ongoing trial management issue, probably best addressed through thoughtful voir dire and instructions (as already mentioned).

**Cyberjuries**69

Beginning in the late 1990s, various for-profit dispute resolution websites offered forums in which anyone could sign up to be a “juror” and comment on cases posted by attorneys. The leading model of the cyberjury as “online opinion poll” is iCourthouse.70 Anyone can post a case on the iCourthouse site; a lawyer who does so can, for a fee, receive a written report “certifying the official results, including verdicts, comments, juror questions, and a jury profile.”71 Lawyers can thus use iCourthouse as a way of obtaining an anonymous focus group for their cases.72 But unlike traditional juries, the lawyers do not help to choose the cyberjurors. The number of respondents (which can be in the hundreds) varies from case to case and moment to moment. Like deliberating jurors in bricks-and-mortar courts, iCourthouse “jurors” can exchange views, but unlike traditional juries, they are not bound to come to a decision as a group; all each does is to offer an opinion. The software offers no way of reducing juror bias—for instance, the nature of the case may disproportionately attract certain kinds of people, and those with predispositions toward one side or the other are as free to register their comments as anyone else.

A different model of cyberjury, the “online mock jury,” is presented by websites such as Virtual Jury73 and eJury.74 Virtual Jury, for instance, provides an evidence window, a chat window in which the panel can interact, and a window for voting a yes or no “verdict.” The site claims that this allows lawyers to forecast verdicts, uncover biases, test their evidence, and gauge the

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68. **Principles for Juries**, supra note 57, Principle 13.F.
value of the case. On eJury, lawyers provide a list of questions to which online participants respond, and the case is closed after fifty “jurors” have responded. Unlike Virtual Jury, there is no chat or other common conversation between jurors. Both differ from iCourthouse in that the services provide the cyberjurors from their own databases of candidates, seeking to match the online jurors’ demographics to those of the actual trial venue. Software and databases could also facilitate the creation of specialized cyberjuries appropriate to the case (as in pre-modern England)—for instance, financial experts to resolve complex commercial disputes—if that is what the disputants prefer.

Cyberjuries offer both litigants and jurors advantages of efficiency and convenience over traditional juries. Of course, cyberjuries as currently conceived diverge in several ways from the ideal of fair and impartial decision making to which the traditional jury system aspires. Among other things, juror biases of the sort most obviously presented by the cyberjury-as-online opinion poll would undermine the legitimacy of any actual adjudication, especially to the extent that the litigants cannot reduce biases via the online equivalent of voir dire. The seemingly desirable prospect of “designer juries” in cyberspace (or bricks-and-mortar courtrooms, for that matter) would also tend to undermine the popular notion of legal justice as an aspect and activity of the community as a whole, even as the Internet makes (cyber)jury service more widely available—and with it an expansion of civic education. Finally, again as the process is currently conducted, cyberjurors do not have the benefit of group deliberation, a crucial aspect of jury-based justice.

However, assuming economic and security concerns make cyberjuries increasingly attractive, and that technological advances make wide-bandwidth interactions between cyberjurors routine, cyberjuries may someday become a part of binding adjudication (especially as online courts gain traction). Many issues will still remain. Perhaps more people will be willing to serve as jurors when service is made so convenient that they can participate from their homes (and do so anonymously), but they may not participate with the same seriousness when the ceremony and formality of courthouse spaces are missing. And when they deliberate, cyberjurors will lack the group identity forged by having watched the trial in a shared space and then being confined to a small room to talk their way to a verdict. Dispersed in their various homes and offices, they will also be subject to the distraction of other household or office members and the temptation to discuss the case with them. How will the fact that serving on

75. Marder, Cyberjuries: A New Role, supra note 69, at 249.
a cyberjury means working with just another open window on a multitasked computer desktop affect jurors’ perceptions, attention, and judgment—and thus the quality of the justice they render? When decoding visual evidence (say, a virtual reality display) presented in a window on their computer screens, or perhaps appearing “inside” a virtual courtroom in that window (i.e., seeing evidence on a screen within a screen within a screen), cyberjurors will be confronted with new perceptual and conceptual challenges. And the problem posed by Googling and Twittering jurors in bricks-and-mortar courts will only be more pressing in the case of dispersed cyberjurors less subject to direct physical control and supervision.77

Any use of cyberjuries to decide real cases will have to deal with these and other questions about community, security, and privacy that become far more salient in the digital world. The law has traditionally respected the secrecy of jury deliberations, allowing them to be recorded on only a few occasions78 and generally forbidding post-verdict impeachment by jurors of their own verdicts.79 The need to back up cyberjury communications may threaten that privacy because the backup data must be preserved on a server somewhere. Conversely, if the deliberations are not backed up, or are kept only as long as the deliberations are taking place, all jurors will have to be present for all of the discussions, and some of the advantages of asynchronicity offered by the Internet courthouse (open all the time every day) would be lost.

SUMMARY

The constant expansion of screen-based digital communication and the Internet into people’s lives will not stop at the door of the bricks-and-mortar

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77. Furthermore, both privacy and copyright implications may arise when evidence files and PowerPoint arguments are posted to a cybercourt’s website, because all of the picturing used in the cyber trial will be vulnerable to downloading and/or copying.

78. Since the taping of some Kansas juries as part of a research project in the early 1950s, taping of jury deliberations has generally been proscribed. See Valerie P. Hans & Neil Vidmar, Judging the Jury 99 (1986); Saul M. Kassin & Lawrence S. Wrightsman, The American Jury on Trial 13–14 (1988). Exceptions include a PBS Frontline program featuring deliberations in a Wisconsin criminal case (Alan M. Levin & Stephen J. Herzberg, Inside the Jury Room (PBS television broadcast Apr. 8, 1986) and a CBS program featuring excerpts from several Arizona trials and jury deliberations (Linda Mason, Enter the Jury Room (CBS television broadcast Apr. 16, 1997)). More recently, Shari Diamond, Neil Vidmar, and others have conducted extensive jury research based on videotapes of deliberations in fifty-five civil trials in Arizona; for a report, see Neil Vidmar & Valerie Hans, American Juries: The Verdict 137–45 (2007).

79. FRE 606(b).
courthouse. Although not all of the possible futures imagined in this brief chapter may come to pass, some will, and all participants in the legal system should be prepared for innovations in evidence presentation, jury practice, and the nature of adjudication itself. Anticipating new developments and acquiring the necessary knowledge about both the underlying technologies and the likely effects on decision makers’ thinking and judgment will enable judges, lawyers, and others to do the best possible job of adapting traditional rules and practices to the new digital tools and new habits of thought.