

# Courtroom Technology from the Judge's Perspective - a 2022-23 Update

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In 1998, *Court Review* published my article, *Courtroom Technology from the Judge's Perspective*. After some introductory material, the article began: "We live in a technological age, and the technology of everyday life is affecting case dispositions increasingly quickly."<sup>1</sup> Time has proven that to be true. What I did not foresee, of course, was the COVID-19 pandemic, and the ways in which we would use technology as a primary coping device. General technological and cultural change have combined with the pandemic to make court hearings of all types ever more technologically assisted or centric. In 1998 I wrote:

In an ideal world, adjudicative changes would improve the administration of justice by making it more certain, more accurate, faster, and less expensive. Before we can reasonably ask judges to sign on for what some reasonably fear to be a distracting high technology roller coaster ride, we ought to briefly examine some of the courtroom technologies now in use and ask fundamentally whether they can help the judge.<sup>2</sup>

That remains the central question: Does courtroom technology help the judge? Answering it requires an examination of the courtroom technology now available to judges.

At the outset, it's useful to try to define "courtroom technology." As I use the expression, I refer to the technology available to judges, counsel, and self-represented litigants to try and decide matters before a trial or appellate court during a trial or hearing in the courtroom or hearing room (or remote location). Accordingly, I distinguish "courtroom technology" from matters such as case management systems and substantive technology-based evidence.<sup>3</sup> And, even having said that, it is apparent that "courtroom technology" is now vastly different from when we concentrated on the simple visual display of evidence and information at a trial or hearing.

## DATA AND PREDICTIVE DATA ANALYTICS

### *In General*

Today's combination of high-power computing hardware and sophisticated algorithms (software), increasingly using artificial intelligence technology, provides the means to search vast amounts of data quickly, find correlations, and to even predict future occurrences. Although this technology holds great promise for pretrial matters, it has potential use at trial as well. Imagine jury selection informed by analysis of vast amounts of public data, including social media data.<sup>4</sup> Subject to major privacy concerns, most judges might think the ability to find otherwise unknown bias in potential jurors to be a major improvement. But, given sufficient data, the same technology could permit counsel to shape openings, evidence presentation, and closing argument to the specific jurors in the case. What happens when the data search is directed by counsel at the *trial judge* and is intended to help counsel win the case? This is now possible as an outgrowth of electronic legal research.

The use of electronic research during a trial or hearing constitutes "courtroom technology," especially if during a proceeding counsel or judge visibly displays legal authority to the other participants to argue or resolve a legal issue.<sup>5</sup> Today's electronic legal research, however, also permits the type of data analysis and prediction noted above. Both LexisNexis and Thompson Reuters now augment their research products with Artificial Intelligence (AI),<sup>6</sup> which permits predictions of future case results and judicial behavior. Pretrial, some companies claim that they can predict which cases will succeed,<sup>7</sup> potentially weeding out of court dockets cases that would better be settled or abandoned, which most judges should applaud. AI prediction of judicial decisions using data such as past judicial opinions also has been demonstrated.<sup>8</sup> Lawyers have long sought to learn from colleagues and others the best ways to approach a given judge—whether that

## Footnotes

1. Fredric I. Lederer, *Courtroom Technology from the Judge's Perspective*, 35 CT. REV. 20, 20 (1998).
2. *Id.*
3. See, e.g., Paul W. Grimm, Maura R. Grossman & Gordon V. Cormack, *Artificial Intelligence as Evidence*, 19 N.W. J. TECH. & INTELL. PROP. 9 (2021); Sabine Gless, *AI in the Courtroom: A Comparative Analysis of Machine Evidence in Criminal Trials*, 51 GEORGETOWN J. INT'L L. 195 (2020).
4. This raises innumerable issues ranging from fundamental questions of personal privacy to possible violation of social media platform use. See, e.g., Joe Warminsky, *Clearview AI Agrees to Block US Commercial Access to its Facial Identification Database*, THE RECORD (May 9, 2022), <https://therecord.media/clearview-ai-settlement-aclu/>.

5. In CLCT experiments, this can work well, whether at trial or on appeal.
6. ARTIFICIAL INTELLIGENCE, <https://www.thomsonreuters.com/en/artificial-intelligence.html>, (last visited Aug. 28, 2022); THE POWER OF ARTIFICIAL INTELLIGENCE IN LEGAL RESEARCH, <https://www.lexisnexis.com/community/insights/legal/b/thought-leadership/posts/the-power-of-artificial-intelligence-in-legal-research> (last visited Aug. 28, 2022).
7. See generally Kyle Wiggins, *The Pitfalls of AI that Could Predict the Outcome of Court Cases*, VENTUREBEAT (Mar. 1, 2022, 6:30 AM), <https://venturebeat.com/business/the-pitfalls-of-ai-that-could-predict-the-outcome-of-court-cases/>.
8. See, e.g., Masha Medvedeva, Michel Vols, & Martijn Wieling, *Using Machine Learning to Predict Decisions of the European Court of Human Rights*, 28 ARTIFICIAL INTELL. L. 237 (2020).

means legal theories that are attractive to the judge or human factors that might make the judge more sympathetic to counsel, client, or the case. Does the use of technology for the same purpose, even to refine trial tactics, create a qualitative difference? The French found this use of “legal analytics” so disturbing that France outlawed use of personal judicial data for this purpose.<sup>9</sup> Judges should be aware that as the amount of their available personal and professional data increases, the higher the probability that some counsel will attempt to use data analytics. Most judges likely will find this to be distressing.

In addition to this use of data analytics, various sources allege that they can determine emotional state<sup>10</sup> and perhaps determine the impact of given information from analysis of text, audio, or audio-video data. The real-time court record might have uses never before dreamt of.

### **Artificial Intelligence Assistance in Judicial Decision-making**

The best known use of AI in American courts is in the area of “risk assessment” instruments. Such instruments are used extensively in criminal cases in the United States to help judges make pretrial release decisions and sentencing decisions. Although this is “AI” only by the largest and most expansive definition of “Artificial Intelligence,”<sup>11</sup> there is widespread use of these tools in American courts.<sup>12</sup> Their use has been highly controversial and poses major policy questions.<sup>13</sup> To the degree that a judge uses such a tool in the courtroom or in a remote location during trial, the tool would constitute “courtroom technology,” indicating the ever-expanding nature of courtroom technology.

At present, it appears that AI cannot substitute for the judge in light of the complexity involved in making credibility decisions and interpreting changeable precedents. News reports, however, indicate that China is using AI not only to assist judges but also to generate decisions for them.<sup>14</sup>

### **COURT RECORD**

In the modern era, we have gone from the “court stenographer,” who originally took down the case proceedings by hand, to the world of electronic realtime transcription<sup>15</sup> and digital audio or audio-video recording. Digital audio-video recording has meant that judicial behavior in proceedings is now fully preserved, a matter some judges may find disturbing. Resting one’s eyes may lead to appeal.<sup>16</sup> In addition, the advent of remote hearings has led to the possibility of non-official court record recording of proceedings.

Most jurisdictions still require text transcripts. Critically, a number of firms are now advertising AI-based automated speech to text transcription.<sup>17</sup> Before COVID, CLCT assisted the United States Navy’s Judge Advocate General’s Corps and FTR (For the Record) in determining the effectiveness of such a system.<sup>18</sup> On September 19, 2022, CLCT helped FTR evaluate its now improved system. Not only must a court record system be sufficiently accurate, but it must properly identify speakers and handle situations in which speakers speak over each other. Although speaker identification has been impressive, whether the automated system’s claimed transcript accuracy of up to 95%<sup>19</sup> suffices is subject to discussion, but the AI text is linked to the recorded audio or audio-video data, which provides 100% accuracy should there be a question.<sup>20</sup>

What is clear is that human court reporters and transcribers will be replaced by AI-technology. For many judges, this will eliminate often treasured professionals from the courtroom. At the same time, this may result in a tendency to create verbatim transcripts in non-record courts.

Given the difficulty in obtaining enough court reporters and transcribers,<sup>21</sup> the transition to AI court technology may be just in time. However, the technological unemployment of so many talented persons, many of whom have given years of dedicated service to the courts, will have great personal consequences. For many years, CLCT has suggested that given their technology

9. Michael Livermore & Dan Rockmore, *France Kicks Data Scientists Out of Its Courts*, FUTURETENSE (June 21, 2019, 7:30 AM), <https://slate.com/technology/2019/06/france-has-banned-judicial-analytics-to-analyze-the-courts.html>; see also Dom Galeon, *A New Kind of Judge? AI Lawyer Correctly Predicts Outcomes of Human Rights Cases*, FUTURISM (Oct. 25, 2016), <https://futurism.com/a-new-kind-of-judge-ai-lawyer-correctly-predicts-outcomes-of-human-rights-cases>.

10. See, e.g., SPEECH EMOTION ANALYZER, <https://github.com/Mitesh-Puthran/Speech-Emotion-Analyzer>; EMOTION RECOGNITION USING SPEECH, <https://github.com/x4nth055/emotion-recognition-using-speech> (last accessed Feb. 16, 2023, 8:47 AM).

11. See Fredric I. Lederer, *Problematic AI, When Should We Use It?* HARV. ADVANCED LEADERSHIP INITIATIVE SOCIAL IMPACT REV. (2022), <https://www.sir.advancedleadership.harvard.edu/articles/problematic-ai-when-should-we-use-it> (quoting Dr. Karl Branting of Mitre for a broad definition of AI that includes machine learning).

12. See, e.g., *State v. Loomis*, 881 N.W.2d 749 (Wis. 2016).

13. *Id.*

14. Ben Wodecki, *AI Helps Judges Decide Court Cases in China*, AI BUSINESS (July 18, 2022), <https://aibusiness.com/verticals/ai-helps-judges-decide-court-cases-in-china>.

15. Supplied by either realtime stenographic reporters or realtime

voicewriters (using voice recognition software trained to the reporter who would repeat what was being said).

16. In a CLCT demonstration many years ago, counsel challenged the judge for sleeping during the proceeding. The text transcript reported only the judge’s statement, “I was only resting my eyes.” The audio-video recording showed him deep in sleep, waking suddenly to the objection, and then falling back into a doze.

17. See, e.g., *Speech Recognition*, COURTSMART, <https://www.court-smart.com/technology/speech-recognition/>.

18. Like two of its competitors, CourtCall and Court Scribes, FTR (For the Record) is both a CLCT Participating Company and a CLCT Court Affiliates Sponsor. CLCT also has a consulting arrangement with FTR to assist FTR in improving its services.

19. Email from Jessica Oey, FTR Vice President, Partnerships & Customer Success, to Fredric I. Lederer (Aug. 8, 2022) (on file with author).

20. It should be noted that any system using human reporters or transcribers is also subject to error.

21. See, e.g., Steven Lerner, *A Dire Court Reporter Shortage, Depends on Who You Ask*, LAW360PULSE (January 21, 2022, 4:28 PM), <https://www.law360.com/pulse/articles/1457442/a-dire-court-reporter-shortage-depends-on-who-you-ask>.

knowledge and dedication, many court reporters would be natural courtroom technologists (technology experts resident in the courtroom to operate the technology pursuant to the judge's direction) if given adequate training. The move to automated transcription may benefit many judges by increasing the number of highly focused courtroom technologists.

The move to visually displayed information, especially evidentiary exhibits, linked to the increasing customary use of Smartphones and other audio-video evidence has created a major court record issue that has not yet been adequately dealt with. When counsel present visual material during opening statements, evidence presentation, and closing argument, who should preserve that content and how? That information often is part of the formal court record and will be necessary in any appeal. Further, the media and others may want access to the data. Digital audio-video data file size is very large, and storing such information for long periods of time in potentially vulnerable court servers is likely undesirable from a court's perspective. On the other hand, storing it on a commercial third-party server would mean it would be outside court control and in the hands of an entity that may not understand the special importance of a court record.

### STREAMING

Trial and appeals ordinarily are open to the public, of course. Even before the COVID-19 pandemic, in the interest of transparency a number of courts, especially appellate courts, streamed their proceedings via the Internet. When COVID struck and attendance at even in-person proceedings plummeted, an alternative to physical viewing of cases was necessary. The move to remote proceedings of all types created a critical need for an electronic means of viewing electronic proceedings. Audio-video streaming was the answer.

A perhaps unexpected aspect of Internet streaming of proceedings was *what* was streamed. One of the hallmarks of cases in which evidence is displayed visually is the ability of those in the courtroom, including the media, to see evidentiary exhibits and to better understand the proceedings. When the pandemic arrived and courts turned to streaming the proceedings, many also streamed the evidentiary exhibits. In one especially well-done case, which I viewed, CourtScribes streamed a Florida case, *Bergeron v. Waste Management*.<sup>22</sup> The video included not only counsels' examinations and resulting witness testimony, but also the evidentiary exhibits.

Ordinarily, video streaming of cases does not display the jury if there is one.

### VISUAL DISPLAY OF CASE INFORMATION

The defining element of courtroom technology has been the use of technology to display to the judge and, when present, jurors, information that normally would either be oral or exist in

the form of tangible evidentiary exhibits. When in a properly equipped courtroom or hearing room, counsel or a self-represented litigant can display tangible physical exhibits, documentary or real evidence, and digital data. Counsel customarily does this by connecting a notebook, tablet, or even a smartphone to the courtroom's audio-video distribution system, which then transmits the image to displays in the courtroom. Originally, the key piece of equipment was a document camera, which could be used to display anything that was placed under its downward facing camera. Such devices remain standard in technology-augmented courtrooms.<sup>23</sup>

Electronic presentation of evidence has become increasingly important as smartphone audio-video recordings and email and text message evidence are introduced. Although it is customary to refer to this as visual evidence display, it often extends to display of information, including text material in PowerPoint form, in openings and closings. This has led on occasion to unfairly prejudicial use of the technology, especially on closing argu-



Illustration of smartphone evidence from experimental 2019 CLCT Trial for Navy JAGC.

ment<sup>24</sup> presenting yet another area for judicial concern.

Although there is little court-specific data to confirm it, the working assumption has been that visual display of information enhances understanding and memory while saving time. In CLCT's experience, there seems to be a consensus that use of electronically visual presentation saves 1/4 to 1/3 of the time needed for a traditional, pure paper case. Years ago, after multiple repetitions of an experimental civil case, CLCT was able to find a 10% savings in a six-exhibit one-hour jury trial case.

From the judge's perspective, visual presentation of evidence has few if any drawbacks or concerns—if counsel has the requisite knowledge and skill.<sup>25</sup> In the experimental work referred to above in which CLCT determined a 10% time savings in a sample case, CLCT did discover an important and unanticipated problem. Lawyers, especially those using powerful trial presentation software such as Trial Director 360, CLCT's default presentation software, often use "call-outs," enlargements of key text or

22. See, e.g., Dan Christensen, *Blockbuster Civil Trial of Bergeron vs Waste Management Finally Gets Underway – Six Years After Case Was Filed*, FLORIDA BULLDOG (Apr. 5, 2022, 5:23 AM), <https://www.floridabulldog.org/2022/04/blockbuster-civil-trial-bergeron-vs-waste-management-finally-gets-underway-six-years-after-case-was-filed/>.

23. CLCT uses document cameras from multiple manufacturers but largely from WolfVision.

24. See, e.g., *In re Glasmann*, 286.P.3d 673 (Wash. 2012).

25. Unfortunately, this cannot be assumed. In one trial, counsel did not know that he had to press a computer key combination for his laptop to display through the courtroom video distribution system. He complained to the judge that the court's equipment had failed—until the bailiff corrected the problem on counsel's laptop.

other parts of a document. Our experimental jurors believed that counsel was doing so intentionally to prevent jurors from reading the rest of the page of the document. We verified that this problem was occurring in at least one federal district court and have since recommended that at the beginning of a trial using electronically presented visual information that the judge as part of preliminary instructions advise the jurors that during deliberations, they will be able to see the entire page or document.

Electronic display also offers judges the ability to visibly display jury instructions in text form when instructing the jury. CLCT has used this procedure in its periodic experimental Laboratory Trials and found it to work well.

As noted above, preserving the electronic image and audio-video as part of the court record remains a problem for courts.

**REMOTE APPEARANCES**

Before the COVID-19 Pandemic, “remote appearances” customarily referred to the use of commercial quality purpose-built video-conferencing equipment for remote testimony of a witness, especially from another nation.<sup>26</sup> All of that changed, of course, when the COVID-19 Pandemic made it impossible for courts to safely hold trials and hearings. Many courts and adjudicatory agencies quickly turned to audio-video “apps” such as Zoom, Teams, and Webex to move matters entirely onto the Internet. Bench trials and even some jury trials took place in cyberspace. I have addressed this in a more comprehensive fashion elsewhere,<sup>27</sup> but on balance it appears that this emergency move was highly successful and likely has had massive long-term consequences. There are limits to this move to cyberspace, of course. It should be noted that the constitutionality of remote prosecution testimony in criminal cases in light of the Confrontation Clause is unclear.<sup>28</sup> Similarly remote jury trials, whether civil or criminal, may be unconstitutional absent consent by all parties given that a disparate group of jurors appearing from locations such as their homes can hardly be considered the same as the classic jury forced to deal in-person with each other for extended periods.

At the request of the Administrative Conference of the United States, CLCT studied the use of remote hearings by twelve major federal adjudicatory agencies.<sup>29</sup> In 2020 and 2021, CLCT’s annual Court Affiliate Conferences<sup>30</sup> emphasized remote hearings, and CLCT is conducting in 2022 a major study of the reactions of counsel, self-represented litigants, and witnesses to their participation in remote proceedings.<sup>31</sup> What we have learned is surprisingly uniform:

1. Despite ongoing issues such as internet bandwidth “glitches” and occasional user error,<sup>32</sup> remote hearings, to include entire

trials, have been highly successful;

2. Notwithstanding years of judicial visitors to CLCT’s McGlothlin Courtroom in W&M Law School who expressed concerned about determining the truth of remote witnesses, there were no concerns about demeanor-based truth-telling;
3. Most frequently, evidentiary exhibits and other digital information to be viewed at the presentation were submitted in advance of the hearing;
4. In some cases, there was reason to believe that parties and/or witnesses were more comfortable appearing remotely than coming to a courtroom or hearing room.
5. Although, proceedings were usually very successful, this was often because of pre-hearing preparation and technology and protocol testing, which placed a substantial burden on court or agency staff.

Although other issues have been voiced, including “Zoom fatigue” (difficulty in maintaining attention), judges have voiced one consistent concern: how to impress upon remote participants the importance of the proceedings absent presence in an



2023 remote holographic witness appearing in a Proto Epic.

actual courtroom or hearing room. For some, the presence of an adequate courtroom photo backdrop has been sufficient. Others have doubts.

As courts (meaning in most cases, judges) now consider whether and when to continue to conduct remote proceedings,<sup>33</sup> they and our court administrators are doing so against a background of years of successful emergency use. The very judges who pre-pandemic expressed deep concerns about the utility of technology and its ease of use now know that despite occasional issues it is normally reliable and straightforward in its use.

As we leave concerns about COVID-19 as a major health risk, the courtroom technology issue that is central for many courts and agencies is when and how best to conduct “hybrid” hearings, hearings, which may occur in the courtroom or hearing room but

26. See, e.g., State v. Harrell, 709 So.2d 1364 (Fl. 1998).  
 27. Fredric I. Lederer, *The Evolving Technology-Augmented Courtroom Before, During, and After the Pandemic*, 23 VAND. J. ENT. & TECH. L. 301 (2021).  
 28. *Id.* at 320-21.  
 29. Fredric I. Lederer & the Center for Legal & Court Technology, *Analysis of Administrative Agency Adjudicatory Hearing Use of Remote Appearances and Virtual Hearings* (JUNE 3, 2021), <https://www.acus.gov/sites/default/files/documents/virtual-hearings-final-report.pdf>.  
 30. Federal, state, Native American, and Canadian courts supported by

CLCT and each other. See *Court Affiliates*, <https://legaltechcenter.net/court-affiliates/>.  
 31. With the assistance of the CLCT Court Affiliates. That study is in progress and this article does not reflect the data we will obtain from it.  
 32. Such as the infamous “I am not a cat, your honor,” as a result of the accidental use of a Zoom filter. See, e.g., Bloomberg Quicktake, “I’m Not a Cat.” Filter Turns Texas Attorney into a Cat During Zoom Hearing, YOUTUBE (Feb. 10, 2021), <https://www.youtube.com/watch?v=s-frHneo95k>.  
 33. For considerations, see generally California Commission on Access to Justice, *Remote Hearings and Access to Justice*, COSCA (July, 2021).

in which at least one person is remote. The National Center for State Courts is conducting a major study of differing approaches<sup>34</sup> and CLCT will experiment in 2022-23 with different approaches in the McGlothlin Court.

We also may be on the cusp of a fundamental change in the nature of remote testimony. In November of 2022, CLCT installed in W&M's McGlothlin Courtroom a Proto Epic, making the McGlothlin Courtroom the first courtroom in the world with remote holographic (3D) testimony capability. CLCT can now take holographic testimony from anywhere in the world as long as the originator has a smartphone or camera, a computer, and connection to the Internet and sufficient light. The resulting image is amazingly life-like. Holographic transmission may reopen the 6th Amendment Confrontation question.

### ASSISTIVE TECHNOLOGY

"Courtroom technology" extends to technology used in the courtroom or hearing room for those with special needs, customarily judges, counsel, witnesses, parties, or jurors. In addition to providing for those with mobility concerns, such as wheelchair or stroller users, assistive technology can help those with conditions such as limited or no hearing, vision, and speech. The McGlothlin Courtroom, for example contains equipment for those with limited vision, especially macular degeneration, and hearing. In one experimental Laboratory Trial CLCT provided the trial judge, who suffered from macular degeneration, a dedicated court "explicator," who gave him a running verbal commentary to augment his limited vision.<sup>35</sup>

### COURTROOM TECHNOLOGY CONCERNS

Generally speaking, with the arguable exception of problems inherent in AI-based technology, courtroom technology is highly functional, reliable, and easy to use. The question then is what are the problems with courtroom technology, especially from the judge's perspective? Unavoidably, the first concern is cost, concededly not a direct judicial concern except when planning for construction or renovation. A highly capable technology-augmented courtroom is technically sophisticated, ought to use high bandwidth cabling (even in the WiFi age), and is expensive. The good news here is that cost keeps declining while the technological capabilities improve. According to Martin Gruen, CLCT's former Deputy Director, in 1990 a technology-augmented courtroom could cost \$250,000; the same courtroom would cost \$100,000 today and be more capable. Because of WiFi, a more basic technology-augmented courtroom can be created for far less money and could even be portable.

A number of companies, including CourtCall, Court Scribes, and FTR have indicated to the author that they are not only able to create and update technology augmented courtrooms but potentially are willing to do so for even a single trial or proceeding.

The primary problem with courtroom technology from the judge's perspective likely will be reliable operation of the technology. In turn, that implicates two different concerns: adequate

technical support so that the technology is capable of proper operation and adequate operation during the proceeding.

As nearly everyone living in the modern world is aware, technology malfunctions or fails entirely. This is highly undesirable during a legal proceeding, to say the least. Given that all technology will eventually fail, proper court maintenance and replacement as necessary is essential. Of course, this creates a burden on court personnel. For those courts that must rely on off-site county or other support, this can be a major issue. Technology-augmented courtrooms should be designed and installed with emergency backup options, but even when done so properly, that may require an informed technologist's help.

Successful operation of courtroom technology usually requires technology use by counsel with some equipment operation or support by one or more court personnel. In the latter case, it can be the judge or, especially in important or complicated cases, a member of the court staff. CLCT refers to the person usually assigned such duties as the "courtroom technologist." Technology errors by counsel can be awkward and time wasting. Apparent failures of the courtroom technology itself can be "showstoppers" and usually require a skilled courtroom technologist to diagnose and, when possible, fix the error. In any event, it is apparent that these problems can stall a proceeding and even disrupt it. However, while conceding that point, it's important to remember that we may have the same or worse problems if a judge, counsel, witness, or juror is delayed in arrival to the courthouse due to an automobile problem or, in the current world, suddenly develops COVID-19 or another medical condition.

And given the degree to which modern courtroom technology is dependent on computers and the Internet, it is imperative to note the importance of adequate cybersecurity precautions.

### CONCLUSION

Especially in light of the COVID-19 Pandemic experience, courtroom technology has become a fundamental component of many courtrooms and hearing rooms. Artificial Intelligence and allied forms of technology hold significant promise for assisting judges outside of and in the courtroom. The COVID-19 Pandemic emphasized the need for useful technology that is both reliable and easy to operate, and technologists and commercial concerns largely recognized those needs. As a result, from a judge's perspective judges ordinarily should find the technology they choose to use to be helpful and supportive.



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34. *NCSC Launches Hybrid Hearings Initiative to Help Identify Best Practices*, NAT'L CTR. FOR STATE COURTS (June 30, 2022), <https://www.ncsc.org/newsroom/at-the-center/2022/ncsc-launches-hybrid-hearings-initiative>. [<https://web.archive.org/web/202207>

06134933/<https://www.ncsc.org/newsroom/at-the-center/2022/ncsc-launches-hybrid-hearings-initiative>].

35. All preserved electronically in the event of an appeal.