Technology Augmented Litigation--systemic revolution

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ABSTRACT This article reviews key aspects of high technology litigation, including technology augmented court records, two-way video arraignment and testimony, and technology based evidence display, and posits some of the critical jurisprudential and pragmatic issues posed by the use of such technologies.

Justice must always question itself, just as society can exist only by means of the work it does on itself and on its institutions.
(Foucault, 1983)

Introduction
As administered by modern nations, ‘justice’ has meant for most people formal adjudication at trial. Although legal systems differ sharply, the fundamental nature of trial has largely remained unchanged. Information is presented orally or in writing before a fact-finder who applies the law to the applicable facts and determines the result. Our comfortable procedures are now in the process of change, even sudden change. As technology, particularly computer and video technology, permeates our world, there is every reason to believe that the effects of that adoption on many of the world’s legal systems may have such impact that they might best be called truly revolutionary. Technological progress is likely to force us to re-evaluate the procedural aspects that make up our functional definition of justice determination and administration. Indeed, someday in the future we may well be using artificial intelligence to at least enhance adjudicative fact-finding and application of law. Will that disturb our understanding of what it means to ‘do justice’? Although we are not as yet confronted with that particular question we have surely begun our stroll down the technological path.

Legal systems are often inherently conservative and have been slow to adapt to technology. Budget constraint, increasing workload and the need for increased efficiency are, however, increasingly impelling technology adoption. This has certainly been true of lawyers and law firms in the US and is increasingly true of the courts. It has only been comparatively recently, however,
that technology has begun to be used in the actual adjudication process—at trial. Consider:

The expert witness pauses so that he may review the computer animation that is being played for his comment. In answer to counsel’s subsequent probing questions, displayed for counsel on her computer display, the expert, located 3900 kilometres away and testifying by high quality two-way T1 based video, gives his opinion. Every word is taken down by the court reporter whose computer based equipment not only records it for the court record but also flashes it to judge and counsel monitors for their annotation and later retrieval, as well as to any trial participant who can not hear. Should the witness be unable to speak in the court’s language, consecutive translation is supplied by telephone communication with an on-call interpreting service capable of handling 140 languages. Meanwhile, the court record is augmented by real-time audio-video recording and, if desired, digitally recorded audio. Documents not already in electronic format are scanned into the court’s system as appropriate.

This, and much more, is available now and demonstrated at least weekly in Courtroom 21, ‘The Courtroom of the 21st Century Today’. A joint project of the College of William & Mary in Virginia$^1$ and the National Center for State Courts,$^2$ Courtroom 21 is believed to be the most technologically advanced courtroom in the world.$^3$ An international demonstration and experimental$^4$ courtroom that is continually upgraded, Courtroom 21 uses commercially available technology to determine how technology can best be used to improve the different components of the legal system, given that that system is entirely dependent upon human beings. The Courtroom 21 Project seeks to serve as a central location for the international exchange of information concerning the use and consequences of legal technology, particularly technology affecting litigation and the courts. Courtroom 21 proper can function as either a high technology trial courtroom or an appellate courtroom.

Although Courtroom 21 includes a large variety of different technologies, its primary components could be said to consist of the following broad overlapping categories: electronic information receipt, storage, and retrieval; high technology court records; electronic access to pleadings, briefs, and electronic legal materials; communications, including language translation and inexpensive two way T1 video conferencing for remote chambers hearings, court testimony, and appeals; and electronic multi-media display systems.

This paper will concentrate on three of these areas: the court record, the use of two-way video and courtroom display systems.

**Court record**

In the US, all major trials must have verbatim court records in order to assure a proper appeal. This in itself of course embodies substantial policy decisions, rejecting, for example, reliance on the judge’s notes. At present, most records are made via the use of a court reporter-operated stenotype machine, video tape,
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audiotape, or court reporter dictation into an audio recorder. With the exception of Kentucky, which extensively uses videotape records, all state and federal appellate courts require that trial records be transcribed prior to their submission.

The development of computer assisted transcription (CAT) has greatly reduced the time necessary for stenographic reporters to create verbatim records, and many reporters are now producing ‘real-time’ records in which every word said is instantly available to judge and counsel on computer monitors. Audio recording is being enhanced via Australian-developed digital audio systems which record audio on computer hard disk with text annotation-based retrieval. It is unlikely that an adequate automated continuous speech computerized voice to transcription system will be developed within the next 3 years. Such a system may emerge, however, at any point thereafter.

The technologically-based court record system companies appear to be working towards an ever more inclusive record. The Stenograph Company, for example, now markets ‘Caselmage™ which allows court reporters to combine scanned document images with the digital transcript so that judges and counsel can view evidence along with the transcript. Court reporting firms are now providing their customers the option of adding separately made videotape recordings of depositions to computer assisted transcripts so that counsel at trial may present testimony, especially impeachment testimony, in which the fact-finder can read the text while viewing and hearing the recorded witness. We anticipate that within a relatively short time, a court record will be available that can consist of a real-time digital transcript, audio and video (with viewer selection of camera view), and a full copy of every document, image and computer animation made during trial. This record will be made on hard disk with backup to high capacity CR-Rom or magnetic/optical media.

The availability of nearly perfect records of trials presents a number of policy questions. Some of these are peculiar to jury-based legal systems; others need not be. Subject to the judge’s discretion, juries in the USA can have portions of the record read to them upon request, and juries often take evidentiary exhibits with them into the jury room during deliberations. Creation of a ‘jury’ disk with the subset of the record that the jury is permitted to review is technologically feasible, but whether the jury should be given access to that record is unclear, even if one assumes that playback can be designed for those with no computer knowledge whatsoever. Access might greatly lengthen trials as jurors delve into matters of interest. Of greater consequence is the possibility of unforeseen jury use. If counsel should present as part of the case a virtual reality image, for example, full jury access might result in jury perception from a perspective not used in open court. Given an accurate image, this may not be troublesome but it may present the risk of unforeseen consequences.

Of greater concern is the potential impact on the scope of appeals. In the US because trial judges have the opportunity to perceive and weigh demeanour evidence, appellate courts defer to trial court factual findings unless those findings are so erroneous as to constitute legal error. A comprehensive multimedia record, however, would permit the appellate court to review testimony in much the same fashion as does the trial judge, permitting the appellate court to try cases de novo. Would this improve the administration of justice or further delay completion of the process? A cynic could reasonably suggest that the time required to review cases de novo would be so enormous that given foreseeable
budget constraints such a review for more than a few cases would be impossible, and that the availability of a full review in selected cases might be desirable in the interests of individual justice.

Inasmuch as accuracy is concerned, in the only study of its type known, the National Center for State Courts determined that Kentucky appellate courts using video records of trials were more likely to affirm decisions than when using traditional transcriptions (Maher, 1990). Assuming that trial judges are conducting themselves properly, this is a predictable and logical consequence as bald text statements suggestive of improper comment or action which reflect acceptable conduct can more readily be interpreted when the proceedings can be both seen and heard. Of course such a record also easily highlights improper conduct which may be invisible from a transcript—such as a dozing judge.

Two way video

Courtroom video often can be divided into two categories: playback and production. Until comparatively recently, courtroom video production was restricted to video court records and occasional media trial coverage. Playback was characterized by the use of television for evidence display, including playback of videotaped depositions (Perritt, 1994; Hewitt, 1990), and, rarely, the use of previously made and edited videotape testimony shown in lieu of live testimony. Something new has been added: remote two way hearings and testimony.

Under US law, arrested persons must be taken speedily before a magistrate and advised of the right to counsel and the conditions, if any, that must be met for that person's release from custody. As jurisdictions have increasingly constructed distant detention facilities and labour costs have increased, transportation of offenders has become a substantial expense. Two way television hook-ups, often termed 'remote arraignment', have become tremendously popular as cost-saving measures. These connections have used various forms of technology, some state of the art fibre based, and some rather antiquated early black and white video phones. Although the federal courts have thus far mostly failed to adopt or permit such remote use, states are proceeding to adopt them and have often legislated express statutory authorization. A recent survey found that 'authority to implement interactive video exists in at least 29 of the forty nine jurisdictions' responding (LIS, Inc., 1995). Interestingly, 'Half of the states that are using interactive video reported the existence of no authorizing legislation, rules, or caselaw' and, 'Few states reported caselaw relating to interactive video, and no state reported a legal challenge that has deterred agencies from using it'. Given adequate hardware, some jurisdictions are attempting to get maximum utility by using them for other purposes such as parole revocation hearings and hearing civil rights complaints from prisoners. Various forms of video testimony have been used in arrest warrant proceedings (Marshall, 1995), child abuse cases, situations in which disruptive defendants have had to be forcibly removed from the courtroom and, very rarely, in satellite-based witness testimony scenarios. In large measure, the constraint on television use has been the unavailability of adequate technology at an adequate cost. The advent of digital line television transmission represents an extraordinary breakthrough. One hour of quality 384kbs (six channel) 1/4 of a T1 line US coast to coast video costs about US$36.00 in transmission costs. Despite
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high end equipment costs in the range of US$30,000.00 each, this is highly feasible for courts and large law firms and permits the current development of an increasing number of local video conference centres. Lower quality PC-based video conferencing is also available at costs from US$1000.00 to $3000.00 per unit, a highly usable option for certain types of legal communications, potentially including lawyer to judge docketing and basic motion practice.

The true scope of potential video use was exhibited recently in a major courtroom demonstration that followed a simulated case that began as a civil lawsuit and ripened into a criminal prosecution. Counsel in Williamsburg, Virginia, first deposed a witness in Chicago. A court hearing followed in which counsel in Atlanta and New York City argued a motion before the judge in chambers in Williamsburg. Defence counsel subsequently settled the civil case via a video conference with opposing counsel, now in Milford, Connecticut. The ensuing criminal case began with a remote first appearance and arraignment using courtroom 21 cellblock’s remote equipment. Trial was noteworthy as the government called an expert who appeared via video from Seattle, a continent away. The expert watched a computer animation and then was examined and cross-examined via counsel in the Williamsburg courtroom. A conviction having resulted, the defendant then appealed alleging that the US Constitution’s Bill of Rights guarantee prohibited the use of testimony from a witness who was not physically present. Of the three judges, two appeared remotely, one in each of two televisions surrounding the physically present judge. Each of the remote judges could see and hear counsel and could and did question counsel.

Television-based appearances and testimony is hardly new. The Federal Court of Australia, for example, has been successfully using remote testimony in civil cases for over 8 years, and has experienced an increased rate of settlement as counsel can no longer use Australia’s extensive travel times as an excuse for case delays. What is new is the combination of high quality and inexpensive connections coupled with an ever increasing number of video conferencing sites. As of about a year ago, every federal prosecutor’s office in the USA was to have had video conferencing installed within 2 years. As the public becomes more used to video conferencing, a novel concept for most but increasingly a routine matter in our corporate world, and the number of sites expands, we should soon achieve a sufficient critical mass that will encourage lawyers and courts to utilize the technology fully.

Technological feasibility is hardly the same as systemic desirability, as L. Henderson’s article indicates (Henderson, 1996). Myriad legal, practical and policy questions abound, the extent of which indicate the revolutionary nature of the change that is likely to affect the litigation/adjudication system. These include

(a) Will a remote witness testify as least as truthfully as a witness in the actual courtroom?
(b) Will judge or jury find a remote witness more or less credible than a similar witness physically present in court? To what extent do credibility determinations legitimately rely upon perceptions that cannot be currently replicated by television?
(c) Will judge or jury find a remote witness less ‘vital’ and important than a physically present witness?
(d) To the extent that a defendant, administrative claimant, or plaintiff/complainant appears remotely, will the fact-finder view the case with less interest or treat it as of lesser importance than it would with a physically present party?

(e) How should remote witnesses view and authenticate documentary and real evidence? What technologies should best be employed for remote signatures and certifications? How many cases require touch, smell, taste, or perception that can not adequately be duplicated by current technology?

(f) To what extent must existing court rules and statutes be revised to permit remote appearances and testimony?

(g) Would prosecution testimony in criminal cases in the USA violate the constitutional right of confrontation?

(h) Given that a virtual courtroom is now possible in which all parties to adjudication could be in different locations, to what extent is such a substitute of physical presence acceptable or desirable—particularly given the nature of US and UK jury deliberations?

(i) To what extent, if any, does remote testimony dehumanize the process (Jeffrey et al., 1984) or suggest to the public a less substantial interest in the administration of justice?

(j) Would certain types of remote appearances, notably remote arraignments, probably result in television appearances primarily by economically disadvantaged minority groups and, if so, would such a result be adverse to either the reality or perception of the fair administration of justice?

(k) If costs savings are effected, who will benefit from those savings?

The potential interplay between video use and the hearsay rule is instructive. Non-dossier legal systems have had to determine the degree to which hearsay evidence can be used in adjudications. The hearsay rule is an often hyper-technical doctrine that creates a normative standard requiring that declarants testify in open court under oath and subject to cross-examination. Because one of the primary reasons for hearsay evidence is declarant unavailability or the inconvenience or expense in securing the live testimony of a declarant, two way video supplies a method by which live testimony subject to cross-examination by counsel or judge is easily possible. At the very least, one would expect video to be acceptable under circumstances in which a declarant’s hearsay statement would be admissible in court when presented in paper form. Assuming that cross-examination is truly a useful mechanism for testing testimonial accuracy, ready and inexpensive use of video might moot the need for some current forms of hearsay and improve litigation accuracy.

Although we lack any known data that might answer the truth-telling and truth perception questions raised above, deep concern about those matters coupled with the conviction that legal testimony ought to be perceived as a matter of both social and personal importance, impels the conclusion that excepting emergency circumstances, testimony ought to be presented from juridical surroundings, particularly courthouses. Ideally new courthouses will have small transmission courtrooms in which a witness may testify. Such a room would have at least two cameras so that the fact-finder could view a multi-image picture showing both the witness and the surrounding room so as to be confident that the witness is not being prompted or threatened off camera. The
witness in turn should be able to see a multi-camera view of the courtroom so that all participants are on screen at the same time and so that the witness is assured and required to have video confrontation with the parties in the case. Because the courtroom is the heart of adjudication in many of our legal systems, the use of remote testimony, counsel presentations and even judging holds the potential for not only affecting the public perception that justice is done at trial but also the very nature of the adjudication process. Accordingly, it is imperative that these matters be delved into as deeply as possible before general adoption takes place for reasons of expense and efficiency.

Display technology

Lawyers are increasingly using technology to display to fact-finders visual information: documents, charts, photographs, computer-created images and computer-produced animations.

Their underlying rationale is simple—visual information can be highly comprehensible and highly persuasive. In the US counsel are using visual information not only for the presentation of video taped or computer media-based evidence, but also to augment opening statements and closing arguments. Insofar as evidence admissibility is concerned, The basic evidentiary requirement for the admission of evidence is relevance. So, long as evidence is relevant, not unfairly prejudicial, and doesn’t violate any other exclusionary evidence rule, the evidence is admissible for the purpose for which it is offered. Whether computer based graphics and animations are admissible over objection is problematical. When such a presentation is used only as a summary of the testimony of the witness, whether of fact or of scientific, engineering or medical principles, and the display fairly reflects the factual content of the testimony without the addition of significant other data, there ought not to be difficulty—any more than we currently have when counsel shows to the testifying witness a photograph embodying her testimony and the witness then verifies the accuracy of the photograph. An animation could thus be used in conjunction with an expert to illustrate the testimony of the expert. When, however, an animation is used itself as admissible evidence, as in an alleged reconstruction in which a scientific computer model has been created, turned into a computer program, and then used to display the results of imputed facts, the rules are far more demanding.

(Lederer, 1994)

One of the critical and largely unanswered questions posed by courtroom display technology use is its impact on fact-finders. To what extent is a well done animation, with high production values, potentially unduly prejudicial because of a risk that the perceiver will subconsciously take it as true. During media coverage of the infamous O. J. Simpson case, a number of companies produced extraordinarily realistic animations—often based in part on live actors. Concern was often voiced that these animations should be inadmissible, not only because they were based upon one interpretation of the available evidence, but because they presented a theory of the case that was unduly persuasive. To what extent is there a realistic concern that imagery that is fully explained by advocate
or judge may have an improper subconscious effect? To the extent that this is a real problem, it may be further complicated by the technology used for display purposes. Courtroom 21 has three primary display media: computer monitors that can also function as televisions; two large wall mounted televisions/monitors; and a front projection TV able to display a 10 foot diagonal picture. Individual jury monitors create a more personal relationship with the juror viewing the displayed information, but the front projection TV creates an enormous centralized image. Is one method improper or less desirable? When displaying remote witness testimony it is courtroom practice to use the front projection TV. Does that give such testimony an improper emphasis? If so, would it be preferable to use a rear projection TV that rises out of the witness box to present a scrupulously life size witness image?

Technology display presents other concerns. Perhaps the most often voiced concern is that disparity of wealth among parties will probably create unequal trial presentations. It is ironic that in an American adversary system often characterized by sharp resource disparities in both civil and criminal cases, especially in many death penalty cases, it is technology disparity that troubles so many judges and lawyers. Technological disparity is only one aspect of a much greater problem. That is not, of course, to deny its reality and importance, just to ponder why the use of a computer or display screen worries individuals unconcerned about far more fundamental disparities.

**Conclusion**

Litigation in the mid-term future is likely to be characterized by the extensive use of computer-based information, both in terms of the underlying evidence and in the form of computer-presented information display. The availability via live video of witnesses will permit easier and cheaper witness testimony than at present as well as remote counsel and judicial appearances. Comprehensive trial records will permit exacting appellate scrutiny. Viewed systematically, these technologically-based changes could vastly improve litigation and adjudication, but they also put at risk fundamental, human, aspects of adjudication.

Our legal systems do not exist in isolation from our societies. The same technologies that are substantially altering our day-to-day lives are likely to alter the process of litigation and basic adjudication as well. Although people often complain of the conservatism inherent in the legal system, that very conservative attitude arguably contributes to social acceptance of the propriety and accuracy of our adjudicative system. As technological change sweeps the administration of justice in general, and litigation in particular, that very change will spawn a revolution in procedure and practice. Revolutions are inherently neither good nor bad. The effects of the one we are now beginning to experience are very unclear. The changes we are now beginning to undergo ought to compel us to come to grips with the numerous questions of law and human behaviour that are presently unanswered. Improved adjudicative efficiency and accuracy through technology are possible and, one hopes, probable. But will our peoples conceive the results as justice? Perhaps we ought to start answering those technology-based human questions. If justice does not question itself in order to ensure that it remains justice, who would fault the citizenry for questioning the very existence of justice?
Notes

1. The College of William & Mary in Virginia, a distinguished state university, celebrated its tricentennial in 1993 and is the nation's second oldest institution of higher learning. The William & Mary School of Law is the contemporary incarnation of the nation's first chair of law and the institution that educated Thomas Jefferson and awarded the nation's first law degree.

2. Founded in 1971, the National Centre for State Courts supports state and local courts throughout the US with research, educational and training programmes, and direct assistance. The Centre's Court Technology Laboratory assists courts in reviewing and locating hardware and software. The laboratory includes: court applications systems, including case management systems; data and text database systems; imaging components; and network and communications systems. The National Centre for State Courts is the nation's pre-eminent institution for the support and assistance of the nation's state courts, as well as the nation's major adviser to courts in other nations. Because of this and because of the Centre's role in managing and supporting the Conference of State Court Administrators, the Conference of Chief Justices, and the national Court Technology Conference, an extraordinary variety of distinguished visitors regularly visit the Centre, its Court Technology Laboratory, and courtroom 21. These visitors, justices, judges, court administrators, or court technology experts, are those interested in the technological upgrading of their courts.

3. Courtroom 21 is, however, only the harbinger of what is to come. Numerous courts are planning to create technology augmented courtrooms. See, e.g. Administrative Office of the United States Courts, Electronic Courtroom/Chambers, An Interim Guide to Courtroom Technologies (December 1995). Australia has such a facility in current use in the form of the Royal Commission into the New South Wales Police Service Hearing Room.

4. In addition to hosting numerous distinguished jurists from other nations visiting Williamsburg, Courtroom 21 demonstrations can be conducted abroad via the Courtroom's multi-camera video conferencing systems. Indeed such a demonstration was part of the 1995 Asia-Pacific Intermediate Courts Conference held in Singapore.

5. Phillips has made some impressive public progress in this area.

6. The US adversary system may be based to a large degree on the jury system—although most trials are trials with only a judge—but the system is equally characterized by a systemic distrust of jury inability to ignore potentially prejudicial information. Accordingly, juries are shielded from much that happens at trial, including counsel offers of potentially prejudicial evidence that may be inadmissible.

7. The appearance of witnesses while testifying.

8. See, e.g. Fed. R. Civil, p. 52.

9. See Junda Woo (1992) Bl, BIO. Of course, such an assertion is open either to the complaint that audio and video recording are insufficient substitutes for the multiple sensory impressions available in open court—or that demeanour evidence is inherently unreliable or non-meaningful and thus irrelevant, either approach mooting the importance of the issue.

10. Judge McCrystal of Ohio was a strong supporter of this technique and often used them. See, e.g. Perritt (1994).

11. A first appearance is an arrested person's first appearance before a magistrate. It is ordinarily characterized by advising the person of the right to counsel and setting any conditions for release from detention. 'Arraignment', is the formal request for the defendant to enter a plea to the accusation. Although first appearances and arraignments can be combined they are ordinarily separate procedural stages. Remote arraignments have existed since at least 1982 when Dade County, Florida, began to use two way television for misdemeanour cases (Silbert et al., 1984, p. 657).

12. For example, Virginia Code § 19.2-3.1 §2(b) of a proposed uniform law, The Remote Video Court Appearance Act, prepared by the American Legislative Exchange Council provides:

"Electronic appearance" means an appearance in which various participants, including the defendant, are not present in the court, but in which, by means of an independent audio-visual system.

(1) all of the participants are simultaneously able to see and hear reproductions of the voices and images of the judge, counsel, defendant, police officer, and any other appropriate participant as well as appropriate visual evidence and or pre-trial information; and

(2) counsel is present with the defendant, or if the defendant waives the presence of counsel on the record, the defendant and their counsel are able to see and hear each other and engage in private conversation via a private telephone line.
13. See note 2.
15. 22 September 1995 Memorandum from the Administrative Office of the United States Courts to the Honorable D. Lowell Jensen and Prof. D. A. Schlueter. Subject: Videoconferencing in Criminal Proceedings reporting extensions of federal programmes in Louisiana, Missouri and Texas, and the addition of five more programmes. The Court Administration and Case Management Committee was also considering a videoconferencing programme in Texas that would permit remote bankruptcy proceedings.
17. For example, Luisa Yanez (1995) Video Trial Puts Foreign Witness in Miami Court, Ft Lauderdale Sun-Sentinel, 29 March (Argentine robbery victims testified by satellite from Buenos Aires in Miami, Florida trial). See also Director of Public Prosecutions v X (Victoria Supreme Court, Australia, 28 March 1994).
18. Although this band width is inferior to broadcast television, the American corporate standard is highly satisfactory for testimony unless a witness is required to make rapid body movements.
19. EXECUTONE Information Systems, Inc. tariff.
20. Prices are dropping while capabilities improve.
21. The defendant, a police officer, shot and killed a motorist who was resisting a stop and arrest. Initially the next of kin sued for wrongful death. Subsequently, a grand jury indicted the defendant for murder.
22. The US Court of Appeals for the Armed Forces has heard an appeal at courtroom 21 with two of its five judges sitting remotely. Although a number of courts have used remote appeals, this was probably the most technologically sophisticated appeal actually conducted.
23. This is likely delayed due to recent federal budget difficulties.
24. Hearsay is defined in the USA as an out-of-court statement offered for the truth of the matter asserted.
25. Written affidavits provided prior to trial are thus hearsay and in the USA almost always inadmissible.
27. As distinguished from counsel arguments to judge or depositions.
28. See Sherman (1993) p. 1. (Closing argument includes scenes from 'A night to remember', the movie about the sinking of the Titanic.)

References


