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AND PROCESS

ARTICLES

AMERICAN STATE APPELLATE COURT TECHNOLOGY DIFFUSION

Roger A. Hanson*

I. OVERVIEW

This Article highlights essential aspects of the past and current adoption of key technologies by state appellate courts and suggests what further developments lie ahead. This stock-taking effort provides three basic contributions to what we know

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and do not know about technology applications in state appellate courts.

One positive result is the value we gain from a description of the "what," "where," and "when" of technological adoptions. A systematic account of the past and present informs the setting of future agendas and priorities.

A second benefit is to document the diffusion of innovations. While particular courts have adopted particular technologies, the only innovations to saturate the appellate court community are automated recordkeeping and the sharing of information through websites, leaving room for ambition and development of new ideas.

The third contribution is to identify acute limitations present in the near-universal adoption of automated docketing systems. Such systems provide access to individual cases, generate exception reports, and produce standardized reports on case processing, but the platforms on which these systems rest do not support the management of data elements. Essential questions of performance, requiring different measures—and possibly different combinations of data elements than those used in fixed-format reports—cannot be addressed adequately, if at all. A court's desire to adopt a management information system and to train users to use such a system is essential to overcoming these limitations.

II. INTRODUCTION

Appellate court technology includes not only technical processes and consumers'[1] expectations in how these processes are to be applied, but also consumers' abilities to manipulate the processes available to them and the benefits derived from products generated by applications. Without incorporating consumers' understanding and expertise, technology is a state of

1. This Article defines "consumers" (or "knowledge users," or "end users") as individuals and groups of individuals interested in the institutional performance of courts. They include consumers inside and outside the courthouse: not only judges and staff, but also litigants, bar associations, public interest groups, educators and court scholars, policy making bodies, and business organizations. Both sets of consumers drive the agenda of what counts as measures of performance, although judges and staff have the most direct and daily responsibilities in putting appropriate technologies into place.

what is possible, bereft of a connection to what is desirable. Absent this linkage, technology's spread will be spotty, with spectacular successes in some instances yet limited inroads elsewhere. Hence, understanding diffusion in appellate court technology requires more than just an account of available processes and their purported advantages; it requires the sense and sensibility of consumers.

Comprehending appellate court technology diffusion is enhanced by placing this topic within the framework of "innovation diffusion."[2] Generally, an innovation starts with an innovator, often a single court with a new idea. "New" means an idea relatively unknown to the court community, even if the idea is old to business or other communities. After its initial introduction and implementation, an innovation spreads slowly at first—usually by the efforts of "change agents" (court leaders and court technology experts)—then picks up steam as more courts adopt it. Eventually, a saturation point is reached, at which virtually all courts who are going to adopt the technology have embraced it, as shown in Figure 1 below.

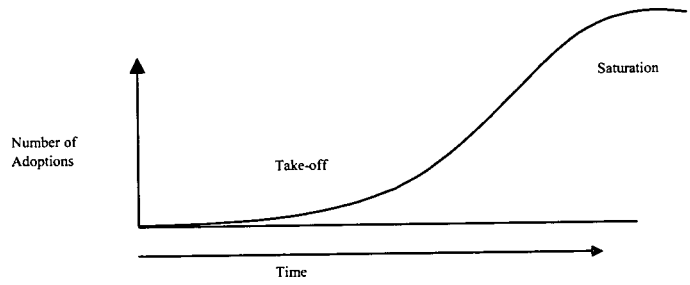

Figure 1. The Innovation Diffusion Curve.

For courts, a basic implication flows from this process. The spread of an innovation depends on early adopters to reach a critical mass (three to five courts), who then communicate the appropriateness of the innovation to other courts. When such a

2. The pattern of innovation diffusion was developed by Everett M. Rogers, *Diffusion of Innovations* (Free Press 1962) (now in fifth edition). For an application of Rogers's ideas in a legal setting, see Bradley C. Canon & Lawrence Baum, *Patterns of Tort Law Innovations: An Application of Diffusion Theory to Judicial Doctrines*, 75 Am. Pol. Sci. Rev. 975 (1981).

mass is achieved, the innovation takes off with the momentum propelling diffusion as other courts try the initiative. Hence, the appellate court community need not change how business is conducted all at once. If an innovation is sound and advantageous to consumers, the focus of attention should be on achieving the critical mass and then promoting the benefits gained and the experiences of early innovators. However, technological diffusion will be slow, if not impossible, until and unless there exists a threshold of court leaders who have real-world advantages to promote.

A discussion of appellate court technology diffusion also is informed by placing it within the broader context of appellate court development. In the modern era, the major development in the appellate court world has been organizational. Today's two-tiered systems of appellate review are quite recent. As of 1957, only thirteen states had permanent intermediate appellate bodies.[3] Several two-tiered systems of review are very new phenomena, with some states moving in that direction only in the 1980s (e.g., Alaska, Hawaii, Idaho, Minnesota, Virginia) or 1990s (e.g., Nebraska, Mississippi). As a result, appellate courts were overwhelmed in the 1960s to early 1990s with adjusting to new institutional roles, new jurisdictions, and changing sizes in the number of judges, court staff, and even courthouse locations, as more intermediate courts were created, more intermediate appellate court judges were added, and regional district intermediate appellate courts were created and expanded.[4] So while a popular image of appellate courts is that they are very old institutions and are doing business the same way now as they did many years ago, this outlook overlooks the fact that the overwhelming majority of two-tiered systems are first-generation institutions. For this reason, the 1970s are offered as a starting point for identifying past diffusion in appellate court technology.

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3. *See Examining the Work of State Courts, 1999-2000: A National Perspective from the Court Statistics Project* 90 (Brian J. Ostrom, Neal B. Kauder & Robert C. LaFountain, eds., Natl. Ctr. for State Cts. 2001), also available at http://www.ncsconline.org/D_Research/csp/1999-2000_Files/1999-2000_Part_II_Section.pdf.

4. *See generally* Robert A. Kagan, Bliss Cartwright, Lawrence M. Friedman, & Stanton Wheeler, *The Evolution of State Supreme Courts*, 76 Mich. L. Rev. 961 (1978).

III. PAST TRENDS (1970-1993)

Beginning in the 1970s, two initiatives were advanced to gain greater control over the caseflow process and greater efficiency in the conduct of selected proceedings. The first and major foray was the development of automated docketing systems to improve the integrity and efficiency of court record-keeping functions. This technological innovation replaced strictly manual systems with ledgers and paper-and-pen entries, word processing systems limited to generating notices and orders, and mainframe systems part of larger county- or state-wide proprietary arrangements with fixed-report production generation capabilities. These mainframe-based systems were often designed to meet the needs of executive agencies, who controlled the configuration of software design.

This movement was not a sweeping transformation made in all appellate systems in the same way at the same time. Some courts went from manual docketing to word processing to automated systems without participating in the executive-dominated arrangements. In some two-tiered systems, intermediate appellate courts outpaced their companion supreme courts and put an automated system in place while the higher body remained in a manual mode, perhaps even until the 1990s. As a result, the spread and refinement of automated docketing systems continued to dominate the technological agenda in the 1980s and early 1990s. Some appellate courts saw the implementation of first-generation systems in these decades while the 1970s "pioneers" implemented second- and third-generation systems.[5]

To a great extent, the chief consumers of these systems were the clerks of court, especially those in high-volume intermediate appellate courts and in courts of last resort without an intermediate appellate court. They essentially defined case

5. Universal diffusion of automated docketing systems was not achieved in the 1980s, as evidenced by the need for three comparative field studies to rely on closed case files and ledgers to gather information on the dates of key procedural events in determining the timeliness of appellate courts. *See* Joy A. Chapper & Roger A. Hanson, *Intermediate Appellate Courts: Improving Case Processing* (Natl. Ctr. for State Cts. 1990); Joy A. Chapper & Roger A. Hanson, *Managing the Criminal Appeals Process,* 12 State Ct. J. 4 (1988); John A. Martin & Elizabeth A. Prescott, *Appellate Court Delay* (Natl. Ctr. for State Cts. 1981).

management to cover the time from the filing of a notice of appeal to the submission of a case to a panel. The docketing systems recorded all key procedural events and corresponding dates, as well as related case information (e.g., attorneys' names and addresses). Producing valuable information (e.g., exception reports) useful to clerks in identifying which cases were taking more time to complete stages of the process (e.g., submission of transcripts, briefs) than the court rules and time standards prescribed, the automated systems also permitted clerks to track an individual case and determine its status in the legal process.

Finally, in the 1980s and early 1990s, with participation of information technology specialists, some courts configured automated systems to permit judges, law clerks, and others outside the clerk's office to access case information through the development of local-area or wide-area networks of personal computers.

A second past development in appellate court technology was the use of telephone conferencing as an alternative to in-person hearings. Telephone-conferenced hearings permitted judges and attorneys to be in different locations to conduct court business instead of everyone traveling to assemble at the courthouse. These hearings generally had the convenience of being scheduled for definite time periods instead of being placed on a general calendar. Finally, both attorneys and judges had the benefit of "free hands" to consult materials (e.g., statutes) much more easily than in a courtroom setting.

Promoted by the efforts of the American Bar Association Action Commission to Reduce Court Cost and Delay (the "Commission") and the Institute for Court Management, with the support of the National Science Foundation and the National Institute of Justice, the primary objective of the innovation was to reduce attorney travel time and costs in trial court proceedings, in administrative hearings, and in appellate court business—without sacrificing quality. In civil cases, telephone conferencing was primarily used for pretrial motions, but was also used for post-trial motions, pretrial conferences, and settlement conferences. In criminal cases, telephone conferencing was used in municipal court appeals, arraignments, plea entries, sentencing, non-evidentiary motions, show-cause

hearings on bond forfeiture, and bail review hearings.[6] Administrative law judges and hearing officers embraced telephone conferencing for fair hearings in cases of unemployment compensation, food stamps, and so forth, as a way for them, as well as claimants, to avoid traveling to locations different from their home offices or residences, which, in the case of the latter, might have changed prior to the scheduled hearing date.[7]

Appellate courts introduced telephone conferencing to conduct a variety of business. The Commission found varied use of this technology in appellate courts:

> For example, attorneys presenting petitions for appeal to the Virginia Supreme Court may make their arguments by telephone to a three-judge panel. Motions may be argued by telephone to the intermediate appellate courts in New Mexico and Washington. Prehearing conferences have been held by telephone in the Colorado Court of Appeals and the California First District Court of Appeal. On several occasions, arguments on the merits have also been conducted by telephone in some appellate courts.[8]

Hence, the two primary past technological developments were automated docketing systems and telephone conferencing. Considering that most of today's two-tiered systems were not in existence before 1970, the past trends suggest that appellate courts did move with some alacrity to basic uses of technology.

IV. CURRENT TRENDS (1994-2005)

A convenient and meaningful way to demarcate current technological trends is to use the *ABA Standards Relating to Appellate Courts*[9] as a starting point. The American Bar Association's adoption of standards has been an ongoing endeavor, with the most recent version of appellate court

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6. *Attacking Litigation Costs and Delay: Final Report of the Action Commission to Reduce Court Costs and Delay* 45-48 (Am. Bar Assn. 1984).

7. *See generally* Jerome R. Corsi & Thomas L. Hurley, *Pilot Study on the Use of the Telephone in Administrative Fair Hearings*, 31 Admin. L. Rev. 485 (1979).

8. *Attacking Litigation Costs and Delay*, *supra* n. 6, at 56.

9. Am. Bar Assn., *Standards of Judicial Administration, Vol. III: Standards Relating to Appellate Courts* (1994).

standards being promulgated in 1994. In that year, the ABA first stipulated a set of black-letter standards on technology: Standards 3.90, 3.91, 3.92, and 3.93. The ABA criteria not only serve to define the beginning of the current trends, but deserve attention themselves for the way they frame the nature and significance of appellate court technology. Some selected passages are as follows:

> Section 3.90 Appellate Court Technology: General Principle:
>
> . . . Appellate courts should be part of . . . [a] statewide court automated system . . . . The automated information system and other state-of-the-art technology should be available for all appellate court operations, all judges and their staffs, administrative and support staff, and all ancillary services staff, as applicable.[10]
>
> . . . . .
>
> Section 3.91 Technical Support for Appellate Judges and Their Staffs.
>
> Appellate judges and their staffs should have available, as appropriate:
> (a) Chambers computer hardware and software to provide:
> (i) Secure chambers and networked . . . . word processing capability;
> (ii) Access to comprehensive automated legal research;
> (iii) Access to . . . various knowledge databases . . . ;
> (iv) Access to the appellate . . . case tracking and management information system[s];
> (v) Access to a comprehensive . . . attorney database;
> (vi) Electronic mail;
> (b) High speed and high quality printing capability;
> (c) Portable computer equipment . . . ;
> (d) Training in computer use;
> (e) Fax capability; and
> (f) Other state-of the-art technology. . . .[11]
>
> . . . . .

10. *Id.* at 128-29.
11. *Id.* at 130.

Section 3.92 Appellate Court Information Support.

A comprehensive appellate court automated information system. . . [is] . . . . essential to the effective operation of the appellate system. . . . The appellate support organization must maintain [a system of] automated support for: . . .
(a) Case processing . . . ;
(b) Ordering and monitoring the delivery of the record . . . ;
(c) Noticing for and monitoring of the submission of briefs;
(d) Records control and management . . . ;
(e) On-line case information inquiry access for appellate chambers and remote case information inquiry for attorneys and the public;
(f) Caseflow management, monitoring, and statistics; . . .
[and]
(j) Opinion publication and electronic dissemination . . . .[12]

. . . . .

Standard 3.93 Appellate Court Use of Other Technology.

. . . . [A]ppellate courts should use other state-of-the-art technology, such as audio and video conferencing . . . .[13]

Four motifs emerge from these prescriptions. One is the stress on automated docketing systems, which affirms and reinforces a past trend. The multiple aspects of automated systems introduced in the 1980s comport well with the services that the ABA suggested, in 1994, be made available to appellate courts. Second, the modest emphasis placed on other technologies squares with the selected past use of telephone conferencing.[14] Moreover, Standard 3.93 calls for a limited expansion of past experience. Third, the Standards appear geared for "internal" consumers, i.e., judges and staff, rather than an expansive range of consumers. Fourth, the ABA criteria

12. *Id.* at 132.

13. *Id.* at 133-34.

14. The successful past use of telephone conferencing provided the widespread adoption of this tool by many appellate mediation programs established in 1994 or later (e.g., the West Virginia Supreme Court and the New Mexico Court of Appeals). Telephone conferencing enables mediators to conduct brief hearings after an initial session, which has been found to increase the likelihood of settled appeals.

do not seem to distinguish between an automated docketing system functioning to store information primarily for the purpose of tracking events in the life of a case (i.e., record-keeping) and a management information system functioning to discern case processing patterns for the purposes of improving institutional performance. To the extent these functions are distinct, the platforms to support each function should be different. Hence, confusion over these two functions inhibits the development of automated management information systems to respond to the developing expectations of consumers. Yet, despite this limitation,[15] the ABA Standards serve well as the impetus for current trends.

Since 1994, three important technological developments highlight the current trends: (1) electronic filing, (2) videoconferencing, and (3) Web-based services. The manner in which some courts have applied these technologies is outlined below. Because initial adoptions of innovations are often tailored to fit particular circumstances, other courts should expect to refine the applications of "early" adopters to meet their own needs and aspirations.

A. Electronic Filing

Electronic filing revolves around the use of the Internet and appropriate software to permit documents (pleadings, motions, transcripts, trial court records, and briefs) to be sent to an appellate court. Because the documents are communicated electronically instead of in paper format, the innovation is called "e-filing."[16]

Among the benefits of e-filing is elimination of the costs of hand delivery, messenger service, printing, photocopying, envelope, postage, and communication management. Cost

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15. *See also* Roger A. Hanson, *Note on the Impact of Technology on Appellate Caseflow Management*, 35 Ind. L. Rev. 527 (2002).

16. The Article's discussion of electronic filing in appellate courts draws heavily on several publications. *See* James E. McMillan, J. Douglas Walker, & Lawrence P. Webster, *A Guidebook for Electronic Court Filing* (West Group Inc. & Natl. Ctr. for State Cts. 1999), also available at http://www.ncsconline.org/D_Tech/archive/guidebook/efilewest.htm; Hanson, *Note on the Impact of Technology on Appellate Caseflow Management*, *supra* n. 16; Deborah Leonard Parker, *Electronic Filing in North Carolina: Using the Internet Instead of the Interstate*, 2 J. App. Prac. & Process 351 (2000).

savings to appellate courts include the avoidance of both printing costs to make multiple copies—to the extent that judges and staff are willing to read a document on a computer screen—and paper storage costs, with documents stored on a server accessible through an e-filing website. Benefits to appellate courts include the efficiency gains by judges and staff being able to retrieve documents more quickly and easily when they are stored electronically.[17] Similar benefits arise from an automated search capacity in electronic systems to locate topics of specific interest in lengthy documents.[18] For attorneys, capability for instantaneous electronic communication avoids the inconvenience of late delivery and the anxiety of missed deadlines.

E-filing's profound significance cannot and should not be underestimated. This application of technology alters the manner and speed of communicating, recording, accessing, and storing of court notices, decisions, orders, and documents filed by attorneys,. A select group of courts has demonstrated that the "paperless court" is not just a theoretical possibility.

Consider first the Arizona Court of Appeals, Division Two at Tucson, a regional district intermediate appellate court. Beginning in 1998, in the first phase of a multiphased project, Division Two agreed with the Pima County Public Defender's office and the Tucson office of the Attorney General's Office to permit counsel to electronically transmit motions and briefs, which automatically were docketed on a case management

17. The benefits of electronic processing do not necessarily arise from the handling of a large volume of cases electronically. "Blockbuster" cases offer opportunities for substantial gains if they are communicated electronically. Former Justice Phillip Talmadge of the Washington Supreme Court has noted how the use of CD-ROM disks in a case involving over a 12,000-page transcript made handling of the record "immeasurably more convenient." Philip A. Talmadge, *New Technologies and Appellate Practice*, 2 J. App. Prac. & Process 363, 368 (2000).

18. Justice Talmadge notes the benefits of electronic communications of appellate documents even if a court chooses not to develop a Web-based e-filing system for all documents. Again, he draws attention to a blockbuster case where the ability to hyperlink to the record or key portion of the case cited by the parties straight from the briefs was unquestionably more efficient than scouring through boxes of the paper record. *Id.* at 370. In fact, he contends all briefs should be submitted electronically, noting several courts who permit or require the filing of electronic versions of briefs (e.g., North Dakota). *Id.* at 371 n. 10. Another court which requires electronic versions of briefs is the Florida Supreme Court. *See* Fla. Admin. Order 04-84, *In re*: Mandatory Submission of Electronic Copies of Documents (Sept. 13, 2004).

system maintained on Division Two's server. After this effort proved feasible, counsel in other government agencies and private counsel were permitted to participate.[19]

The next major phase, begun in 2001 with funding from the Arizona Supreme Court, permitted electronic transmission of trial court records in criminal cases from Pima County Superior Court, the largest-volume trial court in Division Two's jurisdiction. Prior to their transmission, a superior court clerk converts imaged (scanned) documents into standard TIF format with software provided by Division Two. After receipt, the record and index are incorporated into Division Two's case management system for viewing by all personnel at their personal computers (PCs).[20] Three other counties are in the process of developing this same capacity for submitting the record. Additionally, in 2004, Division Two began accepting transcripts electronically from court reporters. However, the reporters' role is limited to filing; they cannot view documents in the case management system as can counsel.

The third phase of Division Two's initiative involved establishing the Arizona Supreme Court's access, via an electronic link, to an entire case file, in instances where review by that body has been requested. Currently, the petition for review, which is filed in Division Two, must be filed in paper, but in 2006 the Supreme Court will permit this document to be filed electronically.

Workload measures of performance suggest that e-filing has established Division Two as a success in providing consumers with electronic-supported service delivery. Significant data include the following:

- Participation by over 1,500 attorneys choosing to register as "e-filers" (although pro se litigants and counsel not licensed in Arizona cannot register).
- Electronic filing by attorneys of sixty percent of cases, with eighty percent of court-based communications being electronic (acknowledging that some counsel register, but choose not to file

19. Documents in *Anders* cases and *habeas corpus* petitions have been excluded from e-filing to ensure that litigants in those sensitive matters will know by a court's stamp that they were considered.

20. In 2004, this process was extended to civil cases.

electronically, although agreeing to receive court rulings electronically).

- Electronic receipt of one hundred percent of all records and transcripts in cases appealed from the largest trial court.
- Internet access to all documents filed in a case by counsel associated with the case (noting that any paper copies filed in Division Two are scanned into the case management system).

A parallel experience exists in the North Carolina Supreme Court and Court of Appeals. The North Carolina Supreme Court began an initiative in 1999 with the support of the State Justice Institute and a partnership with IBM. Institutional law offices, private attorneys, and pro se litigants can transmit a broad range of documents to the Court. Potential users need a PC, access to the Internet, and the full version of Adobe® Acrobat® software, which converts a word processing document or scanned image into a single PDF file that the e-filing system can accept. Electronically generated documents such as motions, petitions for review, and briefs are the customary documents transmitted, although the trial record can also be transmitted if scanned into electronic form. Court personnel scan into the system any record or brief submitted on paper, making all records and briefs filed since 1999 available on the Web at no cost. Consumers wishing to view a document simply access the site[21] and click "Search."

Individuals desiring to file a document must first register on the Web page and establish usernames and passwords. Actual use of the system is accomplished through a link on the Web page to a set of step-by-step instructions. Documents transmitted from a user's PC to the form a user has entered are then imported from the server into the court's case management system (via Microsoft® FoxPro® database management software using a home-grown XML file). As soon as the data have been transmitted, a new screen informs the user that a document has been received. This screen can be printed out and can serve as a proof of timely filing. Additionally, users receive an electronic mail message verifying the website's receipt of a document. Finally, upon receiving a document, a staff member in the

21. *See* http://www.ncappellatecourts.org/nc_main_1.nsf (accessed Dec. 19, 2005; copy on file with Journal of Appellate Practice and Process).

clerk's office opens it and reviews it for completeness and correctness. Any problems are communicated by the clerk's office to the registered user by telephone. The Web page was established and is maintained by the Court's Information Technology Department, and IBM is called in only when particular problems are encountered.

The North Carolina electronic filing initiative expanded to include the Court of Appeals in 2001, when that court began accepting briefs through the same system. Plans are underway to permit the Court of Appeals to receive other types of documents in the future.

For both North Carolina courts, e-filing saves time for personnel in the clerk of court's office. Staff members no longer have to handle or scan the in-coming material of e-filed documents, and the imported data in the case management system increase efficiency even further. The courts' law clerks have experienced parallel benefits by accessing documents on the Web. Word-processed components of electronically filed documents are "ready-to-use" for copying and pasting. Scanned documents can be "converted" to text using the "Paper Capture" function found in full-version Adobe Acrobat, which has a virtually one-hundred-percent-accurate conversion rate.

Whereas initial users were primarily the criminal appellate defense attorneys and the Attorney General's Office, the system now services private and public sector attorneys in both criminal and civil cases. Pro se litigants also have used the system. North Carolina trial courts are now investigating the use of electronic filing. To the extent that they translate this possibility into practice, the North Carolina appellate courts hope to see one hundred percent of the "records on appeal" filed electronically. Currently, approximately twenty-five percent of all briefs are filed electronically, and this figure is increasing over time.

In sum, the experiences in Tucson and in North Carolina demonstrate the feasibility of electronic filing in state appellate courts. Their applications are sufficiently different in scope and court context to indicate that electronic filing is a flexible application of technology. Documentation of the consequences of these two innovative efforts should not only help the two courts refine their systems but should also help clarify the possible net gains that other courts might expect to receive.

Other appellate courts actively planning the introduction of e-filing include the Nevada Supreme Court and the Florida Supreme Court. Future trends in appellate court technology should track the developments in these two courts, which might provide the critical mass for e-filing to take off and be introduced throughout the appellate court community.[22]

B. Videoconferencing

A second development in current appellate technological trends concerns videoconferencing of oral argument to reduce travel time and costs. The "early" innovator is the Texas Eighth District Court of Appeals (El Paso), which instituted two-way videoconferencing in 1997. The large geographic jurisdiction of the Eighth District prompted the development of a pilot videoconferencing project, funded by the Texas Legislature. Initially, the Eighth District's system was integrated into an existing university-based videoconferencing arrangement of equipment and remote facilities. However, the evolution of videoconferencing in the Eighth District led the Court to become independent of the university-based system and to select a videoconferencing capacity sufficiently compatible to receive and transmit video and audio from a wide range of remote sites with videoconferencing centers (e.g., FedExKinko's[SM] stores, large law firms, community college classrooms). This move emphasized the importance of permitting the maximum number and kind of remote locations, thereby contributing to the maximum reduction in time travel costs by attorney and parties. In fact, attorneys can participate in videoconference proceedings simply with a Web camera and a PC.

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22. A pilot project in the Colorado Court of Appeals illustrates the manner in which other courts might move to adopt electronic filing, albeit in an incremental manner. In mid-2002, the Court initiated a policy of requiring both paper- and electronic-based records, transcripts, and briefs on CDs from a single trial court (Arapahoe County). Early into the project, the policy changed to voluntary submission, but the policy of receiving documents electronically was extended to all trial courts. The scope of the project initially, and still, covers both criminal and civil appeals from both privately retained counsel and institutional offices. The Court of Appeals is considering advancing to a true e-filing system, including creation of an electronic record on a server instead of a CD. This move involves negotiations with Lexis-Nexis, which currently administers e-filing systems in the State's trial courts. Hence, the project eventually contemplates having both the record on appeal and the appellate case file in electronic format.

At approximately the same time videoconferencing was introduced in Texas's Eighth District Court of Appeals, the California Fourth District Court of Appeal implemented the same innovation. This second "early adopter" also was motivated by the desire of consumers to save travel time. In the Fourth District Court of Appeal, which sits in three locations, both the Attorney General's Office and many of its counterpart of contract attorneys for convicted criminal defendants are based in San Diego. Everyone wanted to reduce the time wasted by attorneys driving two hours each way to appear before the Court in Santa Ana. In response, the Court established videoconferencing equipment in the two locations. Since 1997, oral argument in selected criminal cases has been part of the Court's calendar when San Diego-based attorneys appear before appellate panels sitting in Santa Ana.

Subsequent applications have been made by the Minnesota Court of Appeals in 1998, the Georgia Supreme Court in 2002, and the Florida First District Court of Appeals (Tallahassee) in 2003. The exact setup of images seen in videoconferenced oral arguments by the participants and the gallery varies among states and among regional district intermediate courts within a state. For example, justices of the Georgia Supreme Court see attorneys arguing from a remote site on the justices' computer screens. In Florida, the images of remote attorneys appear on a television screen connected to a Polycom® media system. The justices' appearance is similar to that of the attorneys. In Georgia, the justices appear on a computer screen available to each remote attorney, whereas in Florida, the bench appears on a television screen. Both the Georgia and the Florida videoconferencing systems have the option of showing the entire court plus the arguing attorney or restricting the image to only the person speaking, whether a member of the Court or an attorney. Finally, the gallery in Georgia observes the remote attorneys on a drop-down screen, while the gallery in Florida views the remote attorneys on a television screen.

What is striking about all three of the subsequent adoptions is the use of preexisting multiple site locations for attorney appearances, while courts remain in their normal locations. For example, the Minnesota Court of Appeals uses interactive video sites established independently by MNet, an integrated statewide

network with administrative support from the Intertechnologies Group with the Minnesota State Department of Administration.[23] The Georgia Supreme Court relies on the Georgia Statewide Academic and Medical System.[24] Florida's sites include the courthouses for the other four District Courts of Appeal and a trial courthouse in Pensacola, located in the First District. As a result, the three named appellate courts benefit from the opportunity to adapt facilities, equipment, and the experience gained from the use of videoconferencing for other purposes. In the case of Florida, videoconferencing services in the designated courthouses originally were established to facilitate judicial training and education programs. However, some tailoring of the site facilities has occurred. Minnesota's Court of Appeal, for example, has adjusted microphones and cameras at all locations, chosen light-blue colored backgrounds, and prescribed the placement of United States and Minnesota flags in each room for an appropriate sense of decorum.[25]

C. Appellate Court Website Offerings

The third current development is the use of the Internet to communicate resources, information, and news to appellate court consumers. Every appellate court has a website offering an array of materials to be downloaded. In fact, given their widespread availability, several services are almost standard:

- Court rules and administrative orders, including appellate rules of procedure (some highlighting recent rule changes).
- Court forms, including standard documents to be used in the filing of pleadings and motions, and on some sites, model briefs.
- Oral argument calendars, including non-argued cases to be conferenced on the same day as argued

23. For a description of MNet, go to http://www.Intertech.state.mn.us.

24. For a description of GSAMS, go to http://gta.georgia.gov, click on "Services" in the left index, and within the Services page, click on "Georgia Statewide Academic & Medical System (GSAMS)."

25. For details on the Minnesota experience, which should be helpful to other appellate courts considering videoconferencing for use in oral argument proceedings, see Edward Toussaint, *Minnesota Court of Appeal Hears Oral Argument via Interactive Teleconferencing Technology*, 2 J. App. Prac. & Process 395 (2000).

cases (information found primarily in intermediate appellate court websites).

- Publications, including annual court reports and press releases.
- Slip opinions, sortable by term and by key words (with memorandum opinions, judgments and administrative orders also available in some courts).
- Access to online docketing systems by case number (including prominent display of docket entries for high-profile cases on some sites, a less-common service, but found in the overwhelming majority of appellate courts).
- Somewhat less frequently, news feeds on legal cases or related events occurring in-state, nationally, and internationally.

A select group of websites offers audio and video access to oral argument via the Internet.[26] These "Web-casts," which include both live video and audio transmissions and archives of past arguments, are now provided to consumers in the following courts: the Florida Supreme Court and the First District Court of Appeal; the Georgia Supreme Court; the Indiana Supreme Court and Court of Appeals; the Mississippi Supreme Court and Court of Appeals; the New Jersey Supreme Court; the New York Court of Appeal (that state's court of last resort); the Ohio Supreme Court; and the West Virginia Supreme Court. The Louisiana Supreme Court currently broadcasts oral argument proceedings on a closed intranet basis to legal staff, but plans to provide proceedings via the Web later this year. Additionally, the Supreme Courts in Alaska, Idaho, Maryland, Missouri, South Dakota, and Wisconsin provide live audio broadcasts of oral argument via the Web. Texas currently provides audio broadcasts at the end of the day of oral argument, but plans to introduce live video and audio Web-casts in the near future. The Delaware Supreme Court provides audio access to oral argument approximately one week after the day of argument.[27]

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26. *See also* Hope Viner Samborn, *Plenty of Seats in Virtual Courtrooms*, ABA J. 68, 68 (Feb. 2000).

27. Some of the appellate courts mentioned above, as well as the Pennsylvania Superior Court, a statewide intermediate appellate court, televise oral arguments on cable television.

The Indiana Supreme Court's system illustrates some of the basic mechanics of Web-casting. In the fall of 2001, the Indiana Supreme Court installed four Web-cast cameras in its nineteenth-century courtroom. While preserving the historical integrity of the courtroom, the camera installations (two each in the front and rear of the room) permitted technical excellence without disrupting existing decorations or structure. A court staff member operates each camera from a single workstation located at the side of the bench. This workstation is out of view of the justices and attorneys, but is visible to most persons in the gallery observing the proceedings. Using a joystick-style remote control, court staff move each camera either "freehand" or with a series of pre-established moves. With four cameras, a wide variety of shots can be broadcast, including wide-angle shots of the entire Court as the justices enter and exit the bench, close-ups of justices as they pose questions to the attorneys, front and rear views of the attorneys as they argue at the podium (wide-angle and close-up), and shots of counsel tables and the audience.

"Split screens" can feature interchanges between a justice and the arguing attorney. A "mixer" allows the camera operator to preview and set each shot before sending it out "live" through the Internet. A television connected to the courtroom cameras and sound system is placed in the atrium area any time the doors are closed. As result, citizens, tourists, students, and legislators have the opportunity to watch and listen to what is happening inside the courtroom.[28]

See e.g. Stephen J. McEwen, Jr., *TV or Not TV: The Telecast of Appellate Arguments in Pennsylvania*, 2 J. App. Prac. & Process 405 (2000).

28. The Indiana Supreme Court has seized the value of Web-casting as an online educational tool for students, incorporating live and archived arguments. *See* http://www.in.gov/judiciary/webcast/ (accessed Dec. 19, 2005). The Web-cast equipment initially installed in the Indiana Supreme Court chambers to broadcast oral arguments quickly was perceived also as a "mini" video production facility allowing for the Web-casting of a variety of other courtroom events—from swearing-in ceremonies to the re-enactment of historic cases by schoolchildren using scripted trials prepared by the Court's staff. Some oral arguments are chosen as "featured cases." The staff places a variety of information, such as briefs, links to opinions, and lesson materials on the "Courts in the Classroom" section of the Court's website, http://www.in.gov/judiciary/citc/. In addition, "Courts in the Classroom" offers a wide range of materials for Indiana teachers and students related to the special events hosted in the courtroom (e.g., scripted trials). These Web-casting outreaches, focusing on oral arguments, swearing-in ceremonies (most recently of the first certified court interpreters, the clerk of court, and bar admissions),

Weblogs (or "blogs") constitute a third type of information service provided on the Web. Blogs are websites devoted to the publishing and sharing of information at no cost to consumers who avail themselves of the Internet. Blogs use a publishing technology, providing frequently updated sites rich with hyperlinks to relevant materials. Made famous by their reporting of information in the context of recent political campaigns and events, blogs have developed a niche unfulfilled by the mainstream media, which tend to cover topics in a less detailed, documented, or timely manner than do blogs. Blogs provide links to sources on which reported information is based, unlike television and newspapers, which often fail to cite their sources. In the court context, blogs frequently provide direct links to relevant court documents.

Proliferating over the past few years, blogs now are available focusing on specific state appellate courts, as well as on particular types of legal practice, areas of law, and even subfields in constitutional law.[29] These information centers are accessible through the use of search engines and usually are the products of attorneys practicing before the courts that are subjects of the blogs.

In the midst of this multiplicity of Web-based information sources is the official blog of the West Virginia Supreme Court, developed in 2001 and maintained by the Clerk of Court's Office.[30] Integrated as part of the Court's website, this blog provides summaries of all recent Court opinions, organized by subject matter (civil, criminal, and family), combined with lists of cases granted review, schedules and notices in high-profile cases, and upcoming dockets.[31]

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public hearings, educational programs like the state finals of the national *We the People . . . Project Citizen* program, and the reenactment of historic cases through scripted trials help to inform the public about the history and operation of the judicial branch and the appellate courts.

29. For an overview of court-related blogs, see Gary O'Connor & Stephanie Tai, *Legal and Appellate Weblogs: What They Are, Why You Should Read Them, and Why You Should Consider Starting Your Own*, 5 J. App. Prac. & Process 205 (2003).

30. *See* Rory L. Perry II, *Syndication and Weblogs: Publish and Distribute Your Court Information to the Web*, http://www.state.wv.us/wvsca/clerk/rssresources.htm (accessed Dec. 19, 2005; copy on file with Journal of Appellate Practice and Process).

31. The Court's full opinions are available elsewhere on the website.

The official West Virginia blog permits consumers to conduct a Google search on the topic of each Court's decision. Additionally, each entry is available through an information feed to which consumers can subscribe and thereby receive updates continuously and directly without having to visit the Court's website itself. Using this alternative method of publication has increased the amount of traffic to the appellate court website, and it has increased the discoverability of legal information using publicly available tools such as a Google search. For example, in September 2002, when mass asbestos litigation was pending in the West Virginia Supreme Court and the United States Supreme Court, French researchers were able to find the blog content almost immediately, because it was highly ranked in a Google search. This type of content distribution enhances public access to the courts by ensuring that in addition to news accounts, researchers can have direct access to court documents and comments.[32]

Looking ahead, the importance and presence of blogs, including those related specifically to the legal process, are certain. What is not known is what will be the mixture of official and unofficial blogs. While official court blogs cannot be as commentary-driven as unofficial blogs, the official court blogs can be an important source of steady information about the work of courts, thereby contributing to increased public confidence in the judiciary by making the work of the appellate courts more accessible. West Virginia has demonstrated how a blog increases public access and information, but the extent to which other courts will adopt this initiative is difficult to estimate.[33]

V. FUTURE TRENDS (2005 AND BEYOND)

Using the past and current trends in appellate court technology, some estimates can be made about the prospects for and problems of technology diffusion in 2005 and the near future. At the most fundamental level, new technologies will be applied to improve the means and ends of performance goals,

32. *See* http://www.state.wv.us.wvsca.clerk/rssresources.htm for further explanation and links.

33. The Utah appellate courts provide an information feed for new opinions at http://www.utcourts.gov/rss/.

whether they be greater efficiency, expanded access to the legal process, or an increased understanding of the institutional role of appellate courts in state government. An illustrative catalogue of what likely lies ahead includes the following four developments.

One of the most probable developments will be the heightened importance of technology management. Improved technology management will be a response to the elemental fact that this activity consumes the time of court personnel. This situation is seen most clearly in the work of clerks of court. A traditional responsibility, and one which clerks bear to a much greater extent than other court staff, is case management—or handling cases at key procedural events—from screening for jurisdiction to calendaring to proofing mandates. Case management consumes an estimated thirty-eight percent of clerks' time. However, clerks actually spend more time (forty-one percent) on staff training and court management, including technology management.[34] As a result, clerks of court are likely in the future to seek "best practices" in technology coordination and control.[35] Clerks of court in individual courts will strengthen their relationship to their in-house experts, and the National Conference of Appellate Court Clerks will move in closer tandem with the newly created Conference of Appellate Technology Officers. This change will not be left to chance. Clerks of court will likely look for ways to augment their own skills and suggest to the judiciary what organizational modifications are warranted. For example, clerks will seek the assistance and resources of training programs available on technology management.[36]

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34. Roger A. Hanson, Carol R. Flango, & Randall M. Hansen, *The Work of Appellate Court Legal Staff* 42, 44-45 (Natl. Ctr. for State Cts. 2000), also available at http://www.ncsconline.org/WC/Publications/Res_AppSta_AppCtLegalStaffPub.pdf.

35. A brief survey sent to members of the National Conference of Appellate Court Clerks in December 2004 asked them to indicate topics of interest to their courts. Survey respondents rated "best practices in technology management" as high as they rated interest in the technologies themselves. Presumably, clerks of court want answers to some basic managerial questions, such as: What are appropriate criteria of performance for technology professionals? How are those standards to be applied? How should a clerk try to manage technology experts?

36. Currently, the Institute for Court Management at the National Center for State Courts offers a seminar on technology management. Although it is not tailored to appellate court personnel, such a course or program should be quite feasible to assemble.

A second probable development will be a comparative examination of major technological applications by research organizations. Multiple courts have put innovations into place, but to a great extent, these efforts have occurred in relative isolation and have been deemed successful because an innovation "works for us." Applied research will be conducted to sort out best practices and to identify how one court's approach can be transferred to courts operating under different circumstances and with different needs.

A third future development will be an increasing interest in technology and technology management by state supreme courts. They, of course, will see the connection between calls for greater accountability and ways in which multiple technologies increase their accessibility, make them more visible, and enhance the ways consumers communicate with them. Their independent rule-making authority removes some hurdles that trial courts or even intermediate appellate courts have in launching new policies, procedures, and practices. As a result, the pace of future appellate technological innovations will quicken with the growing direct involvement by supreme courts.

A fourth development will occur in the area of automated docketing systems, which are limited to producing standardized, fixed-format reports. In contrast, PCs with appropriate software (e.g., Microsoft® Access®) can be used to address any number of essential questions concerning institutional performance using different combinations of data elements captured by the docketing systems.[37] For example, what aspects of the caseflow process are working as expected, and what aspects are not working? What cases are consuming a disproportionate amount of time to resolve, what is the normal attrition rate, when do cases settle, and is there a role for mediation? Has the introduction of additional staff increased productivity?

37. Access is a relational data base management system that can be connected to a court's server where data elements captured by a docketing system are maintained. This software is an option of Microsoft Office Suite just like Word, Excel®, Publishers, and PowerPoint®. Courts which have chosen to use the Professional set of options likely already have Access available on PCs, although a court also might have selected Access as part of a "Home or Small Business" package. If a court has a legacy system for docketing purposes, the needed data will have to be imported from the docketing system to one or more PCs. Access will have to be purchased if it is not already in place.

The opportunity to address the changing agenda of court performance questions should propel a court to establish a management information system by training court staff to use their computers to analyze the data elements captured by the docketing system. The staff development in the use of software like Access will pay off in institutional performance. Appellate courts will increase their efficiency appreciably (e.g., by thirty percent) by learning more about caseflow patterns than they currently know (or think they know).

VI. CONCLUSION

Inertia is not the greatest force in state appellate courts. Technological changes have occurred in the past, are underway now, and will most certainly arise in the future.

The Louisiana Supreme Court illustrates the multiple ways electronic communication and computer tools are enlarging the opportunities for information sharing and the use of information in decision-making situations. One aspect of an emerging technological environment is the accessibility of the Court's data network when the justices are on the bench during oral argument.

Tablet PCs are in front of the justices, permitting them to have e-mail, note-taking, and instant messaging abilities using a stylus and digital ink platforms, which replicate traditional pen-and-paper note-taking. As a result, the justices communicate in real-time fashion with their respective staffs during oral argument, thereby having access to legal research tools and input from staff members pertinent to questions the justices pose (e.g., what is the exact statutory language being discussed during argument?). This arrangement, which dramatically increases the information base available to justices, is part of a video-streaming system providing a live feed to all court staff during oral argument. Hence, the communication between the justices and staff occurs in a context in which staff are able to view and hear the proceedings. The video-casting of oral argument via PC screens in the Court's network minimizes possible miscommunication between justices and staff. (Currently, the video streaming is limited to the Court's internal network, although plans are to Web-cast oral argument later this year.)

Additionally, the live stream is digitally captured and archived on a server, enabling justices and staff to review oral argument and to listen to an audio version at their convenience.

Expansion of these arrangements is planned for the future, including a Portal environment allowing staff to log into the Court's assets via a simple Web browser. Ultimately, the Portal environment will be the Court's extranet for attorneys and lower courts to access information from a new Web-based case management system under development. Finally, the courtroom itself will undergo a transformation with the introduction of a digital podium and a display screen, allowing for the presentation of digital exhibits during oral argument. The public will see the exhibits on the screen while the justices view them on their Tablet PCs. The Louisiana Supreme Court's multiple, developing innovations provide valuable experiences on which other courts can draw in making their choices of technological refinements.

Therefore, this short history of appellate technological diffusions indicates the outlook is sunny, not gloomy. Greater efficiency, greater public access, and improved performance are ideals that appellate courts will approximate through the continued adoption of a variety of technological applications and an investment in staff development to realize the gains in institutional performance from the management of data elements by knowledge users.