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PERFORMANCE-FOCUSED TECHNOLOGY

INTRODUCTION: ACHIEVING BETTER COURT MANAGEMENT THROUGH BETTER DATA

Roger A. Hanson* and Brian J. Ostrom**

Pure gold is recognized by testing.[1]

I. FUTURE SHOCK

Change management focuses on future actions. Those of a certain age remember this notion forcefully expressed in the cultural phenomenon of "future shock": More than four decades ago, Alvin Toffler contended that rapid technological changes and new discoveries were altering life in non-linear ways, requiring people to adapt by developing new ways of getting things done.[2] Since that time, people have been trying to make sense of escalating and sometime erratic changes in social structures and social relations. A key component in adapting to

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1. *See e.g.* Serge Bramley, *Leonardo: The Artist and the Man* 303 (Penguin Books 1994) (quoting Leonardo's notebooks).

2. Alvin Toffler, *Future Shock* (Random House 1970).

this changing world is a "habit of anticipation,"[3] thinking about the future instead of the past. As Toffler wrote,

> [t]his conditioned ability to look ahead plays a key role in adaptation. Indeed, one of the hidden clues to successful coping may well lie in the individual's sense of the future. The people among us who keep up with change, who manage to adapt well, seem to have a richer, better developed sense of what lies ahead than those who cope poorly. Anticipating the future has become a habit with them.[4]

His clearest and most specific application of these ideas came in a discussion of how higher education needed to adjust to survive. Courses had to shift toward the use of data and their use in problem solving: first in the making of tentative decisions, next in formulating a proximate solution, and then in a willingness to search for new solutions when the evidence indicated that the first solution was no longer effective and called for replacement. Simply stated, students needed to "learn how to learn."[5]

This sound advice remains true in education today, and is equally relevant to the field of judicial administration and its ongoing development. For appellate courts to function well today and stand ready to adapt to the future, judges and managers need information that helps them learn how current procedures are working in practice. Thus, one important application of appellate court technology is the development of more effective case-management systems. In addition to supporting daily operation and scheduling, a case-management system should be able to provide information on such topics as caseload volume and composition, degree of timeliness at different stages of the appellate process, age of pending caseload, and the form of court decisions. Such data are essential ingredients in developing performance indicators that support efforts to better understand and manage court operations.

This paper explores the rationale behind, and potential benefits of, a greater commitment to performance management

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3. *Id.* at 371.
4. *Id.*
5. *Id.* at 367.

in appellate courts.[6] We begin with a short overview of how appellate courts have evolved in terms of structure, resources, and procedure. A relevant and related question is whether changes in the organizational character of appellate courts shape their performance. To address performance, we draw on the High Performance Court Framework[7] to examine progress in appellate court performance measurement and, perhaps more importantly, how this information can be used to enhance performance management.

II. STATE APPELLATE COURTS TODAY

When it comes to innovation, few appellate courts can be called quick-change artists. Yet, the past several decades have seen many important changes emerge and diffuse across the landscape of American appellate legal practice. A continuing jurisdictional transformation begun in the last years of the 1950s was the creation of intermediate appellate courts (IAC) and the subsequent division of those courts into many multiple regional districts as well as specialized statewide IACs dealing with civil cases involving state agencies. Increases in appellate court workload, driven by factors such as population growth, new legislation, and expansion of appellate rights in criminal cases, led the majority of states to adopt two-tier appellate court systems, with IACs providing primarily an appeal of right. Currently, forty states, the District of Columbia, and Puerto Rico have one (or more) intermediate appellate courts with primarily mandatory jurisdiction working in tandem with state supreme courts exercising primarily discretionary jurisdiction.[8] The effects of this adjustment to structure and organization have

6. Performance management focuses on how a court responds to performance results as well as how it adapts to make the best use of results in refining administrative practices. *See* Brian J. Ostrom & Roger A. Hanson, *Achieving High Performance: A Framework for Courts* 51–74 (discussing aspects of performance management) (Natl. Ctr. for St. Cts. 2010). An electronic copy of the report is available at http://cdm16501.contentdm.oclc.org/cdm/ref/collection/ctadmin/id/1874 (accessed Aug. 25, 2014; copy on file with Journal of Appellate Practice & Process).

7. *See generally id*.

8. *Guide to State Politics and Policy* 266–67 (Richard G. Niemi & Joshua J. Dyck eds., CQ Press 2013).

made intermediate appellate courts the final arbiter, in fact, if not in theory, for the vast majority of appeals.

Subsequently in the 1970s, the continued rise in appellate court caseloads, due largely to increasing criminal appeals and associated challenges to sentencing issues, encouraged a human-resource initiative through the emergence and expansion of central staff attorneys and career law clerks in many courts. One consequence of this move is that appellate courts have seasoned staff members who know a great deal about how a court works and how to implement changes in procedures.

Buttressed by earlier changes, appellate courts in the 1970s moved to introduce procedural modifications as a related response to increasing workload and the need to manage available resources. Many courts have experimented with adjustments to the traditional legal process of a complete record, full-written briefs, oral argument, conferencing among the judges, and a written opinion with a statement of the reasons for a court's decision. Simply stated, one or more of the classical stages of the appellate legal process are modified in some way by every appellate court. Because each court has configured its own process, there is noticeable variation in how courts operate. The closest a procedural change comes to a model rule is perhaps the use of mediation (or settlement) conferences.

The specific character of each of these changes over the past sixty years is familiar to courts and to attorneys, at least in the jurisdictions where they practice, and each has the underlying goal of helping appellate court systems better manage their workload and use available resources more efficiently. This view raises the question of how ongoing innovation shapes appellate court performance. It is a common belief that the type of court organizational change described above leads to better performance; in fact, the belief that the problems of courts are best addressed by innovations in their structure and their processes has been called the "conventional wisdom" of judicial administration.[9] The causal link between structures, resources, and processes (inputs) and their immediate products such as the number of cases heard and services

9. Geoff Gallas, *The Conventional Wisdom of State Court Administration: A Critical Assessment and an Alternative Approach*, 2 Just. Sys. J. 35, 35 (1976).

provided (outputs), on the one hand, and court effectiveness and the well-being of those served by the courts (outcomes), on the other, is simply assumed.

Technology advances over the past decade, particularly in the area of improved case-management systems, have greatly boosted an appellate court's ability to test the conventional wisdom and actually measure overall efficiency and effectiveness. Growing interest in the performance of state appellate courts comes from three contemporary trends: (1) more cases involving complex issues, (2) tighter budgets, and (3) expectations among litigants, lawyers, policymakers, and the wider public that appellate courts achieve greater efficiency, effectiveness, and quality review.

III. THE HIGH PERFORMANCE COURT FRAMEWORK

In response to the need for improving court performance, the National Center for State Courts has put together an analytical framework for managing that process. The rationale of the High Performance Court Framework[10] is to encourage court leaders to strive for excellence in the administration of justice and to better communicate their efforts to a wide audience, including members of the public and policymakers. The Framework identifies what it takes to meet key administrative principles defining fair and effective practices in handling cases and treating litigants, to sustain high performance, and to use and communicate performance results.

The gathering of information on performance and usage of results has two distinct, but related, aspects of performance: performance measurement and performance management. Performance measurement focuses on the regular monitoring and reporting of court accomplishments, particularly those that move the court towards pre-established goals. Basic measures of court performance are a necessary ingredient of accountability in the administration of justice and effective governance. Moreover, they provide a structured means for courts to communicate this message to their partners in government.

10. *See generally* Ostrom & Hanson, *supra* n. 6.

Performance management "adds value to measurement results by using them to enhance the efficacy of administrative practices and to strengthen a court's institutional role."[11] A high-performance court responding to performance results

> refines, updates and adopts new practices in light of both its evolving responsibilities and the aspirations of its customers. Performance results are put to good use in pointing out areas of work warranting closer attention, finding the sources of difficulties slowing the achievement of desired objectives, and suggesting what practices call for modifications, large and small.[12]

IV. PERFORMANCE MEASUREMENT IN APPELLATE COURTS

A. Appellate Court Performance

Appellate judges are expected to resolve a wide variety of cases ranging from conflicting interpretations of specific legal issues to broad questions of public policy. The product of their efforts is a body of decisions that helps individual litigants and the wider public understand their rights and obligations. Because these decisions from public institutions have profound consequences, the manner in which appellate courts conduct their business is subject to society's expectations. Appellate courts are called on to achieve basic goals of accountability, productivity, and timeliness as they carry out their work. All appellate courts do not fulfill these objectives in the same way because of environmental, jurisdictional, and organizational differences. However, every appellate court is expected to operate in a manner that serves litigants, the bar, and the wider society.

To determine whether these goals are being met, appellate courts need information about caseload volumes and trends, productivity, caseload composition, case-processing time, and outcomes. Given the hundreds—and in most instances, thousands—of appeals, discretionary petitions, applications for writs, and other matters that come to the appellate courts each

11. *Id.* at 51.
12. *Id.*

year, there is no way for a court to be informed about the resolution of its caseload unless it gathers information in a systematic way. An incomplete and incorrect sense of past and current trends provides an unreliable basis for anticipating future court responsibilities. For this reason, there is a need for appellate courts to develop and use information-management systems that offer a coherent view of their performance.

Supporting this effort is the formulation of performance standards that are directed toward the judges of state courts of last resort and intermediate appellate courts. The Appellate Court Performance Standards identified benchmarks in four basic performance areas: (1) protecting the rule of law, (2) promoting the rule of law, (3) preserving the public trust, and (4) using taxpayer resources efficiently.[13] An examination of the Standards indicates that appellate judges have the responsibility of knowing how well appellate courts are performing.

The Standards specifically urge appellate courts to assemble and disseminate information. For example, the Standards state that appellate courts should know whether case-processing delay exists and should work to eliminate the causes of delay.[14] The vital role of systematic information is also discussed in the Standards, which provide that "[a]ppellate court systems should manage their appeals effectively and use available resources efficiently and productively,"[15] and recommends that appellate courts be aware of caseload composition and strive to stay current with incoming work.[16] Case management is a suggested tool for achieving efficiency: Courts are urged to differentiate cases according to complexity, to monitor case status, and to resolve each case in a timely manner.[17] Thus, a well-functioning court is one in which systematic information on the nature of the court's business, the timeliness with which cases are handled, and the degree of

13. Roger A. Hanson, et al., *Appellate Court Performance Standards* 1–18 (Natl. Ctr. for St. Cts. 1995).

14. *Id.* at 10 (noting, in Standard 2.4, that every appellate court "should adopt a comprehensive delay reduction program").

15. *Id.* at 17 (Standard 4.2).

16. *Id.* cmt.

17. *Id.*

productivity in disposing of cases is gathered, analyzed, disseminated, and applied.

B. Appellate CourTools

Following the development of the Standards, a second step was to develop measures to determine the extent to which a particular court meets a given standard. Appellate courts have long sought just such a set of balanced and realistic administrative performance measures—one that can be readily implemented and used by court leaders and managers. The six Appellate CourTools[18] performance measures are illustrative of a set of indicators that can show how well appellate courts handle cases, treat participants in the legal process, and engage employees. The measures are:

- Constituent Survey: the proportion of appellate lawyers and trial-court judges who believe an appellate court is delivering quality services in its judicial, regulatory, and administrative functions.

- Time to Disposition: percentage of cases disposed or otherwise resolved within established time guidelines.

- Clearance Rate: number of outgoing cases as a percentage of incoming cases.

- Age of Active Pending Caseload: age of cases pending before the court, measured as the number of days from filing until the time of measurement.

- Employee Satisfaction: staff ratings of the quality of the work environment and relations between staff and management.

18. National Center for State Courts, *CourTools—Giving the Courts the Tools to Measure Success*, http://www.courtools.org/ (accessed Aug. 25, 2014; copy of main page on file with Journal of Appellate Practice & Process).

- Reliability and Integrity of Case Files: percentage of case files that meet established standards of completeness and accuracy and can also be retrieved within established time guidelines.[19]

These measures integrate key benchmarks and norms set forth in the Standards, with relevant concepts from successful public- and private-sector performance-measurement systems, including the companion CourTools for trial courts. This refined set of appellate court performance measures provides the judiciary with the tools to demonstrate effective stewardship of public resources, which is critical to maintaining the institutional independence necessary to deliver fair and impartial justice.

C. Performance Management in Appellate Courts

Management is required because performance results by themselves do not improve the handling of cases, the treatment of litigants, or relations with the public and policy makers. In fact, even in the rare instances when performance results seem to speak for themselves, someone has to introduce them into the mix of administrative decision. The Framework offers an approach that condenses the challenge of linking performance results to new practices into the pursuit of three values:

- Responsiveness, or how a court treats performance results;

- Adaptation, or how a court develops its creative capacity to make the best use of performance results once they have been assembled, and

- Information sharing, or how a court circulates performance results throughout the justice system community.

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19. National Center for State Courts, *CourTools—Appellate Court Performance Measures*, http://www.courtools.org/Appellate-Court-Performance-Measures.aspx (linking to a summary brochure and separate discussion of every performance measure) (accessed Aug. 25, 2014; copy of main page on file with Journal of Appellate Practice & Process).

We discuss each of these values separately in the discussion that follows, but a preliminary remark or two will set the stage: Sustaining improvements begins with the sharing of performance results. A court's leadership team can build broader support among members of the justice-system community by circulating results. Because process improvement is a focal point of performance, the sharing of performance results among judges and managers is paralleled by conversations between court leaders and customers, particularly attorneys. This dialogue serves to provide information and a rationale for planned refinements, to gain feedback helpful in interpreting past performance results, and to learn what additional concerns customers have about administrative practices. With that in mind, let us consider the three key values that should undergird any court's effort to link performance results to new practices.

1. Responsiveness

Courts cannot avoid every problem or seize every opportunity, any more than they can right every wrong. On the other hand, courts can try to put themselves in a position to successfully cope in a world subject to limited manipulation. As characterized by the Framework, responsiveness incorporates the initial steps of anticipating potential problems along with an ongoing gauge of readiness to respond. It includes aspects of measurement because the results and their validity affect the manner in which the results can be used. However, responsiveness is more than just the calculation and announcement of a particular performance score. The reaction to performance results actually begins with formulating a rationale for performance measurement and culminates in the presentation of results to intended audiences and gauging their reactions.

As the Framework itself points out,

> [r]esponsiveness begins when performance emerges as a topic for discussion within a courthouse in conjunction with the challenges 'normally' thought to exist and deemed worthy of attention, such as the influx of more complex cases, dwindling resources and the growing need to do much more than adjudicate. In other words, a trajectory toward high performance starts with the recognition that administrative practices do matter and warrant refinement.

> The choice of administrative practices is seen as actually affecting whether a sudden influx of complex cases is anticipated and how they are handled, the extent to which resources are monitored and redistributed in light of changing circumstances, and procedures are differentiated to fit the different types of cases coming through the doors.[20]

Thus, an understanding of past trends and the monitoring of present conditions enable courts to foresee emerging issues even though they might enjoy a current state of stability and harmony. The fact that declining performance is easier to detect when there is a firmer rather than a looser grip on administrative practices means less reliance on assumptions. For example, a nascent increase in the time between the close of briefing and oral argument/conferencing is clearer when actually measured than by casual observation. And the court can then decide whether action is required to keep a small problem from growing.

In every appellate court, some degree of notice is given to the amount of time it seems to take to set cases for oral argument or submission on the briefs alone, and whether the amount of time is increasing or decreasing. Yet, despite awareness of the importance of timely case processing, many courts still depend on more casual inspection and evince surprise when a backlog appears. A more systematic approach would have kept the court current on the actual elapsed time between key events that occur between the date of filing and the issuance of opinion.

A court with a sense of responsiveness knows the linkages between the varying amounts of time it takes to complete each fundamental stage of the appellate process. Does a delay in one stage mean that cases are delayed in all stages? Alternatively, is the amount of time taken to complete briefing uncorrelated with the time taken to produce opinions? Answers to these types of questions are important not only for knowing whether a court is experiencing bottlenecks, but also in designing appropriate procedural changes.

A responsive court wants to know how it is doing and expects judges—with the assistance of staff members—to

20. Ostrom & Hanson, *supra* n. 6, at 53.

regularly monitor the flow of cases through the court. If evidence of emerging backlogs is found, the responsive court takes appropriate steps to understand the cause and determine the actions necessary to regain control over case flow.

Responsiveness means a court questions itself not only in terms of fidelity to the law, but also asks questions that seek to ensure that the court is moving in the direction that its members believe is the right one. A court with a touch of responsiveness wants case management information to contain the most accurate and meaningful data available. And when it is not available, the court tries to determine how appropriate data might be gathered and analyzed.

2. Adaptation

Adaptation focuses on what judges and managers do if responsiveness requires change in a court's practices. The whole point of changing administrative practices is to use what has been learned to improve the way work gets done so as to enhance customer satisfaction. The High Performing Court Framework outlines how adaptation works, because it focuses on what judges and managers do if the response requires change in a court's practices. The whole point of changing administrative practices is to use what has been learned to improve the way work gets done so as to enhance the appellate process. However, because no court knows exactly what the future holds when making changes based on past and current results, grand and detailed strategic plans are avoided. Instead, an adaptive court prudently develops the capacity to anticipate, recognize, and react—adapt—to emerging challenges as they occur. Adapting for high performance includes such actions as helping all employees become actively engaged in finding ways to improve personal and organizational performance, seeking closer collaboration with justice-system partners in identifying and resolving case-management problems, and ensuring appropriate investment in technology and infrastructure.

Once again, the Framework is instructive on this point, noting that

> [a]daptation begins with the sharing of performance results . . . . for the purpose of setting an agenda of policy reform. Topics for discussion among judges and managers revolve

> around both performance scores that are disappointing and those that are signs of solid performance. The former suggest the need to remedy problems and the latter raise questions on how to sustain and enhance quality service delivery. Because customer satisfaction is a focal point of performance, the sharing of performance results is paralleled by conversations between court leaders and customers. This dialogue serves to provide information and a rationale for planned refinements, to gain feedback helpful in interpreting past performance results, and to learn what additional concerns customers have about administrative practices.[21]

Yet, because not even an adaptive court knows exactly what the future holds, why are some more likely to mount effective responses than others? Two different bodies of literature provide some clues.

a. Adaptation: The Network Analysis

First, recent efforts to study court culture demonstrate the existence of quite different types of orientations to carrying out work that are measurable phenomena. Thus, courts can take information about these cultural preferences into account when making decisions on their future preferred culture.[22] Each culture—communal, networked, autonomous, or hierarchical—has a particular orientation toward work in common fields, such as case management, change, management, judge-staff relations, and judicial leadership.

Of special relevance to this discussion of the adaptive court is the networked approach to change, which sees the outside world as a source of ideas and institutional support, not just a threatening environment. The Framework summarizes this approach as one in which judges and managers "seek input from a varied set of individuals [including] . . . attorneys and the public . . . and measure court-user preferences concerning policy

21. *Id.* at 62.

22. *See generally e.g.* Brian J. Ostrom, et al., *Trial Courts as Organizations* (Temple U. Press 2007). Although the analysis in this work is of course focused on trial courts, our years of experience with the work of appellate courts has persuaded us that a similar analysis can also be applied to the study of an appellate court's culture.

changes,"[23] noting as well that the presiding judge of such a court "might direct outreach efforts toward groups believed to warrant special and dedicated attention, such as abused children and drunk-driving victims and their families."[24] In addition, courts that have adopted the networked culture "are more likely to have elder abuse and criminal mediation centers,"[25] and to encourage judges and staff members "to monitor court performance and to recommend necessary adjustments."[26]

Governance in a networked court strives to be inclusive in its collective decision-making and the resulting decisions take on the form of guidelines. The advantage of guidelines is that they direct the court, and are flexible enough that they are adjustable. Procedural differentiation reigns in a networked court: Few, if any, procedures gain an indispensable status. A networked culture creates, nurtures, and spreads an adaptive approach to change. For all those reasons, a networked court considers and alters its reliance on existing technologies and always has its antennae up for new and better ways of doing business, which can make it both more approachable and more responsive to the needs of lawyers, parties, and the interested public.

b. Adaptation: The Rules-and-Restraints Analysis

A second theory underlying the connection between adaptation and culture is a model of institutional change characterized by the application and analysis of society-imposed constraints that include both formal restraints like constitutions, laws, and systems of property rights, and informal restraints like customs, traditions, and taboos.[27] This approach posits that institutional rules govern society, although the process of making and applying rules varies according to the extent that the rules take into account individual values. As a result, the rules

23. *Id.* at 41.

24. Ostrom, et al., *supra* n. 22, at 77.

25. *Id.*

26. *Id.* at 41.

27. *See generally e.g.* Douglass C. North, *Understanding the Process of Change* (Princeton U. Press 2010); John N. Drobak & Douglass C. North, *Understanding Judicial Decision-Making: The Importance of Constraints on Non-Rational Deliberations*, 26 Wash. U. J.L. & Policy 131 (2008).

take on a degree of fairness and affect the viability of compliance, which enables societies to survive over time by introducing innovative responses geared to particular problems that are deemed acceptable by members of society.

This analysis also emphasizes the cognitive nature of adaptation, highlighting the intentional nature of adaptation by positing that individuals choose to adapt and learn how to refine responses over time. At the societal level, the gestation period for learning understandably is lengthy, perhaps generational. In contrast, at the more discrete organization level of courts, alacrity in gaining feedback is possible. As a result, courts are in a position to develop an institutional memory on change management and to build an arsenal of problem-solving approaches. This theory consequently supports the resistance to Band-Aid responses by courts that Dean Pound advocated more than a hundred years ago.[28]

3. Information Sharing

The Framework emphasizes the importance of sharing performance results broadly to sustain planned improvements:

> [S]haring performance results is key to collaboration because it helps confirm their validity and increases their persuasiveness. How well do objective performance results line up with subjective expectations? Seeking the perspective of attorneys, for example, allows the court to obtain direct feedback on how change in business practices affects individual practitioners and whether they see benefits in the change. The point is to see if performance results have face validity with key customers.[29]

For some, performance results might be seen as too subject to misinterpretation or as a source of trouble for the court. These fears are a driving force in too many courts, for "[n]o passion so effectually robs the mind of all its powers of acting and

28. Roscoe Pound, *The Cause of Popular Dissatisfaction with the Administration of Justice* in *The Pound Conference: Perspectives on Justice in the Future* 337, 343 (West Publg. Co. 1979) (reprinting 1906 lecture) (decrying "petty tinkering where comprehensive reform is needed").

29. Ostrom & Hanson, *supra* n. 6, at 82.

reasoning as fear."[30] But judges and senior managers can facilitate sharing results by first having the conversation internally. Reason, not fear, has to guide the discussion about the course a court is on. Because results are subject to interpretation, an opportunity to review and comment on them ensures a fair debate and possible reconciliation of divergent points of view. A minimum standard that all the court's members should support is that released results can withstand scrutiny for clarity, comprehensibility, and accuracy.

V. THE PAPERS THAT FOLLOW

With the preceding analysis as background, we can state with confidence that the helpful information collected and shared in the articles that appear in this section on performance-focused technology describes and explains how technology in the appellate courts actually works and how it uses available tools and techniques to enhance the efficiency and effectiveness of the appellate process. Moreover, the information shared is focused and conclusive enough to give readers sufficient confidence in what they read to consider taking action in light of the information in the articles. Interestingly, each of the four articles in this special section is characterized by a specific and different organizing question that is well addressed:

- How are new communication technologies integrated into existing policies and procedures?
- In what ways does a judge's technological work station look different from what was seen before?
- What are the availability and accessibility of technologies for attorneys?
- Why does the critical element of brief writing and reading change with new technologies?

30. Edmund Burke, *Terror*, in *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* 42 (R. & J. Dodsley 1757).

Simply to state these questions is to demonstrate that each is in fact focused and conclusive enough to make the resulting papers useful to appellate judges and appellate lawyers, and also to academics who study the work of the appellate courts.

The information shared in this special section is also an invitation for contemplation, discussion, and inquiry. The tone throughout is one of openness and humility instead of all-knowing and bristling confidence: There is a clear absence of resort to iron laws of technological adaptation. The authors impart what they know and have experienced as input and advice. A lot has happened in the last ten years in what appellate courts can do and actually do, but the articles in no way claim that technology ensures that everyone has their day in court. In fact, they acknowledge that technology should help uncover problems and clarify issues.

Almost three decades ago, a political scientist writing about innovation in the administration of appellate courts, stressed the importance of documenting reform efforts and describing the steps taken to put the innovations in place.[31] While appellate court have been active since then in looking to adjust procedures to reduce backlogs and delay, few courts publish accounts of their innovative practices or even create those accounts for internal consumption. These practices inhibit the transfer of knowledge, information, and data, and require courts unnecessarily to innovate on a de novo basis. In part, this unfortunate result is the product of courts' overestimating the effort involved in disseminating information and underestimating its value to other courts. Looking at the four articles in this special section, one can see the way they complement one another and simultaneously provide a desired level of detail about innovation and implementation. More papers in the future should build on this collection. Only in that way will we all have answers to the questions that we all want to see addressed.

It bears noting as well that the following articles illustrate what information sharing means in the context of appellate-court technology. Ideally, a project of this type should draw

31. Stephen L. Wasby, *The Study of Appellate Court Administration: The State of the Enterprise*, 12 Just. Sys. J. 119, 129–30 (1987).

contributors with different perspectives and be subject to more than one viewpoint and set of experiences so that a comparative outlook is grasped and areas of common interest are defined organically. And as a result, more individuals will be inclined to contribute their ideas, thereby enriching the existing literature. A quick look at these articles shows just such a rich group of writers. The positions held by these authors span seasoned appellate judge, practicing appellate attorney, director of information technology, and active law professor. And in a nod to the look at future shock with which this introductory essay opened, their papers are also the subject of a brief commentary from a true rocket scientist specializing in computers and future technologies.

VI. CONCLUSION

By definition, technology creates change. One of the potential benefits from technological innovation is efficiency, a state of affairs relevant to an essential element of justice on appeal. Efficiency means a closer approximation of every case receiving individual attention, and if cases receive individual attention, judges have a greater chance of fully understanding the issues in every case. Yet, paradoxically embracing technology effectively works best only under certain conditions.

Based on the High Performance Court Framework, we contend that the more courts exhibits responsiveness, adaptation, and information sharing, the more effective use they will make of new technological applications. What we suggest is that appellate courts engaged in assessing how well they are doing on the basis of systematic evidence will find technological changes more complementary to their overall mission of excellence in making decisions and rendering opinions than will courts that take a more casual look at themselves.

Our thesis is that improved court performance draws deeply from a commitment to responsiveness, adaptation, and information sharing that shapes how a court can best deal with the future and minimize the shock. Judges and administrators can rest easier that they are on a path to improved performance if they first make use of data to evaluate their practices and methods of handling cases and treating litigants.

The High Performance Court Framework provides some guides to enabling courts to be in a strong position to take advantage of technology and better integrate it into day-to-day operations. Technology acquisitions are not no-brainers. Technology needs to be thought through thoroughly and fitted to deal with what is missing or inadequate in the current repertoire. And the collective judgment of the court should support performance and technological assessments in the design of new procedures, the acquisition of new technologies, and the evaluation of how well the changes improve the situation. The sustained interest in performance management and its ingredients of data and intentions is vital.

Judges and court managers know their systems and are fully capable of devising ways to improve them. What they can do once they put their mind to it is illustrated by efforts to upgrade the timeliness of case resolution. Case-management tools achieve this goal when comparing the pace of litigation before and after the introduction of case management. Interestingly, evidence indicates that whereas the introduction and use of case-management techniques works to reduce delay, the pre-implementation period shows an even sharper reduction in case-processing time compared to baseline figures from the past. Before judges apply case-management techniques, they come up with their own ways of digging into backlogs and expediting incoming filings. Judges and managers are therefore in a position to generate many specific ideas on how to adopt technology in a cost-effective manner. No judge should feel left out or believe that an individual view is unimportant. Technology will work best with the informed support of every individual in the court.