

Electronic Case Filing in the Appellate Courts:

Evaluating the Impact of Electronic Case Filing Technology on Clerk's Office Operations in the United States Court of Appeals

by

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Abstract

In 1996, the first federal courts began implementing the new Case Management/Electronic Case Files system, which was designed by the Administrative Office of the United States Courts. As of the end of 2005, 91 of 94 bankruptcy courts and 85 of 91 district courts have made the full conversion to the new system. The next stage of the project is to apply the technology to the federal appellate courts. This paper uses the district and bankruptcy court experience to identify the potential impact of electronic filing on operational aspects of the appellate courts, and specifically on the United States Court of Appeals for the Federal Circuit clerk's office.

An impact assessment of proposed or impending process or organizational change—whether the changes are brought on from new technologies, new policies, or a fundamental shift in business focus—is useful because anticipating these impacts in advance will help in planning and preparing for workload and assignment changes, training needs, management requirements, and organizational or procedural restructuring that can be expected to occur during such periods of change.

The research questions in this study address the impact of the electronic filing technology on the human elements of the clerk's office such as how the roles of supervisors might change, how the technology affects performance, and whether there is any impact on work relationships. Data was gathered for five areas of study, using three sources:

Survey. An opinion survey of federal district and bankruptcy court managers was used to gather data on the impact that electronic case filing has had on:

- Staffing levels;

- Productivity and performance of the operations staff;
- Management issues such as the amount of supervision required and how staff are evaluated;
- Relationships between staff members; and
- Organizational structure and workplace policies.

Document Process Audits. These audits were used to gather data on staff productivity in the appeals court prior to implementation of electronic filing in order to gauge the impact that e-filing will have on the process time and staff productivity.

File Audits. These audits were used to gather data on docket entry and file errors in the appeals court prior to implementation of electronic filing in order to gauge the impact that e-filing will have on staff performance.

The research hypotheses in the study are that productivity and performance are enhanced under e-filing; that fewer operations staff and managers are required to accomplish the same workload; and that electronic filing positively impacts the organization by clarifying roles, improving relationships, streamlining structure, and enabling effective workplace policies.

Based on the data from the opinion survey and from the process and file audits, the paper concludes that the appellate clerk's office can expect to see modest net improvements in staff productivity and performance as a result of using an electronic case filing system. Managers at the trial courts report that ECF has had both positive and negative effects on productivity and performance. Early stages of ECF implementation, as well as other factors such as caseload characteristics or increasing task complexity, may negatively impact productivity and performance, offsetting some—but not all—of the benefits derived from the technology.

The next part of the study looked at ECF's impact on staffing levels. Few court managers in the survey attributed any significant reduction in staffing level to the implementation of ECF, concluding that other environmental factors such as budget reductions, changes in caseload, or scheduled retirements may have a bigger impact on staffing level than does ECF. Responses to the survey also suggest that ECF has changed the nature of the work of the case management staff as well impacting the traditional role of managers. Survey respondents were relatively split when asked whether more or less supervision was required in the electronic filing environment, although many agreed that ECF has changed the way in which they evaluate the performance and productivity of the case management staff. One of the most important new roles for managers is that of being "change agents" to help staff make the transition into ECF and to continue to support them through succeeding application modifications and enhancements.

Finally, the project considered what impact electronic filing has had on organizational policies and structure. Several courts identified impacts on work relationships and changes to the structure of certain jobs or offices within the clerk's office as a result of electronic filing.

This study concludes that the impact of electronic filing on the appellate court clerk's office will not differ significantly from the experience at the trial courts: productivity and performance will likely improve, the positive impacts more than offsetting the negative ones; dramatic changes in staffing levels are not likely to be experienced although longer-term staffing reductions can probably be expected. Electronic filing will impact staff and managerial roles and responsibilities, but not

enough data is available to determine the impact on organizational structure or policies.

Four recommendations are proposed to enable better planning and decision-making for workload/assignments, training, and restructuring in the need to prepare for both the positive and negative effects of electronic filing:

- Increase communication;
- Engage in case management process redesign;
- Identify formal and in-house training that will assist staff members and managers in acquiring (or strengthening) skills they will need; and
- Prepare for a formal examination of clerk's office managerial and organizational structure.

Introduction

In 1996, the first federal courts began implementing the new Case Management/Electronic Case Files (CM/ECF) system which was designed by the Administrative Office of the United States Courts (AOUSC). By 2002, many of the bankruptcy courts around the nation were well on their way to converting their entire caseloads to electronic filing, and the implementation focus was shifted to the U.S. district courts. As of the end of 2005, 91 of 94 bankruptcy courts and 85 of 91 district courts have made the full conversion to the CM/ECF system. In most of the bankruptcy courts, up to 100% of all docket entries are now made via electronic filing, and 70% of those filings are made directly by attorneys onto the court's docket. In the district courts, an average of 60% of all filings are made via electronic filing, and 40% of those are made by attorneys directly onto the docket.¹ The next stage of the AOUSC's CM/ECF project is to apply the technology to the federal appellate courts. This paper examines the potential impact of electronic filing on operational aspects of the appellate courts, and specifically on the United States Court of Appeals for the Federal Circuit clerk's office, in the areas of:

- staff productivity and performance
- staffing level
- management and supervision
- organizational issues

A new technology such as e-filing inevitably impacts the organization and its people—impacts which may be small or large, predictable or surprising, desirable or unwelcomed, or a combination of any of these outcomes. While a traditional impact

¹ CM/ECF Implementation Status, November 9, 2005; and CM/ECF Case Files Survey Results, November 10, 2005. Administrative Office of the United States Courts, Washington, DC.

study may focus on a cost-benefit analysis driven by quantifiable data, this project looks at the impact of the technology on the human elements of the clerk's office such as, for example, how the roles of supervisors might change, how the technology affects performance, and whether there is any impact on work relationships. The purpose in identifying these possible impacts is to anticipate and prepare for potential changes in office and individual function, staffing, and structure in order to ease the individual and organizational transition to the electronic filing environment.

In the AOUSC's discussion draft, *Electronic Case Files in the Federal Courts*², key benefits of electronic filing technology are identified as, among other things, cost savings and efficiencies through increased productivity and more effective utilization of staff, and enhanced accuracy and efficiency in record maintenance. Cultural, policy, and staffing issues are also identified as "key issues" related to ECF. The draft understandably gives little guidance about the potential impact of the new technology on specific areas of the clerk's office such as the productivity or performance of the staff, or on management issues and organizational structure. Project analysis has necessarily focused on the impact that ECF has on court rules, policies, and administrative and legal issues. Yet, the draft acknowledges, individual courts "will...confront a number of other issues as they...effectuate the shift from paper to electronic case files. The resolution of some of these issues may come only through actual experience and experimentation." (p. 23) This paper examines some of these "other issues."

Because electronic filing has not yet been implemented at any of the federal appellate courts, this study looks at the impact that the technology has had on operational aspects of the bankruptcy and district courts and then considers whether the

² Administrative Office of the United States Courts. "Electronic Case Files in the Federal Courts: A Preliminary Examination of Goals, Issues, and the Road Ahead." (discussion draft). March 1997.

same impact can be expected at the appellate level, specifically at the U.S. Court of Appeals for the Federal Circuit in Washington, DC. Managers at the appellate courts can learn from the ECF experience at the bankruptcy and district courts in many ways—not just from the technical, cost, and policy issues that have already been identified and/or resolved during these earlier stages of implementation, but also from the less easily defined and quantified outcomes such as the impact on staff, managers, and the organization. Unlike cost and policy issues, however, the impact of e-filing technology on some other operational aspects of the clerk’s office have not been well-documented at the trial courts.

Research questions and hypotheses. The specific research questions, hypotheses, and measures used in this report are:

How does electronic filing technology affect operational productivity and performance in the clerk’s office? Hypothesis: Productivity and performance are enhanced under e-filing. Measures: Changes in the time-to-perform and docket error rates; survey results (observations of court managers).

How does electronic filing technology affect staffing levels among operational (case management-related) staff? Hypothesis: Fewer operations staff are required to accomplish the same workload in an electronic filing environment. As a result, fewer supervisors are also needed. Measures: Changes in staffing level among supervisors and non-supervisors; survey results (observations of court managers).

How does electronic filing technology affect staff roles and relationships and the policies and structure of the clerk’s office? Hypothesis: Electronic filing positively impacts the organization by clarifying roles, improving relationships, streamlining structure, and enabling effective workplace policies. Measures: changes in the manager/subordinate ratio, observed changes in roles and relationships, changes in organizational structure or policies; survey results (observations of court managers).

Few quantitative measures currently exist that correlate specific changes in any of these factors to the use of ECF. Measuring changes in some of the factors identified

above—and specifically linking those changes to the implementation of ECF—may be difficult because the factors are difficult to quantify and causes are difficult to isolate. Therefore, most elements in this study are measured and evaluated through the use of observations by court managers in their responses to an opinion survey. The survey was conducted among court managers in the bankruptcy and district courts which have been using the technology the longest. It asks managers to rate and describe the impact that electronic filing has had on the performance and productivity of their case management staffs and to identify changes in staffing and managerial ratios that can be attributed to the implementation of electronic filing. Finally, court managers are also asked to describe any observed impact on factors such as work relationships, supervisory roles, workplace policies, and organizational changes. The survey form can be found at Appendix A.

In the next stage of the project—determining the potential impact of ECF at the appellate level—the data and observations from the opinion survey are used to establish whether the same impacts observed at the trial courts will be seen at the appellate court and whether any unique appellate structure, policy, or process could change the outcome at the appellate level. In addition, specific measures of productivity and performance were conducted in the appellate clerk’s office as part of this project in order to establish baselines with which to compare performance and productivity in an electronic filing environment.

This research project does not address other areas which may be impacted by the use of electronic filing technology in the courts such as the cost of equipment; system maintenance, development, training, or software; matters relating to information security and privacy; effects on the bar or the public; or the broader impact on the judicial system as a whole such as the impact, if any, on case disposition times and the timeliness of

justice. While these are all important questions and would be included in a thorough cost-benefit analysis of electronic filing in the court system, they are outside the limited scope of this project.

Obstacles for this project. Many conclusions in this report are based on subjective evaluation of reported observations rather than on an objective evaluation of quantitative data. Due to the nature of this study—predicting impact from actions or events which are to occur in the future—much of the analysis in this report is based on data derived from opinion, perception, and comparisons made to data from non-identical sources. Because the experience of individual courts is frequently unique, due in part to the fact that they do not all start from the same place (staff, process, organization, etc.), comparison of data or experience from one court to another in a qualitative activity such as “management”, for instance, may seem to be of limited value. These factors impede the ability to make generalizations or correlations and to reach firm conclusions on the basis of an opinion survey among a limited number of courts. The findings, although based on some quantitative data, support conclusions which are hypothetical and speculative. However, this does not mean that this project will not be useful for future planning and decision-making in the long process that is the development and implementation of an electronic case filing system. An impact assessment of proposed or impending process or organizational change—whether the changes are brought on from new technologies, new policies, or a fundamental shift in business focus—is useful because anticipating these impacts in advance will help in planning and preparing for workload and assignment changes, training needs, management requirements, and organizational or procedural restructuring that can be expected to occur during such periods of change.

Literature Review

In a search of relevant prior research, no studies were found that focused on the impact of electronic case filing on the internal operations of a court or judicial office. This was anticipated since use of electronic filing technology in the nation's court systems is still relatively new and not yet under widespread use. Studies and reports prepared by the Administrative Office of the United States Courts (AOUSC) tend to focus their impact analysis on costs, technical requirements, administration, and legal and procedural issues, rather than on potential impacts of the technology on the internal court office and its staff and management. Perhaps this is as it should be, since technology misapplied to the court system could have dramatic unintended and harmful effects on the administration of justice if not studied thoroughly and applied with care and consideration. As Walker states in his 1999 study of the Judicial Electronic Document and Data Interchange Technology, "Adoption of JEDDI has profound consequences for the way in which the courts and the entire justice community operate, even though the fundamental legal process is unchanged." (Walker, p. 3).

Due to the lack of court-specific and electronic filing-specific impact studies, the search for research for this project focused on studies evaluating the impact of technology *in general* on worker productivity and performance, levels of staffing, management and supervisory issues, and organizational structure. This broadened focus produced more related prior research. Even so, the empirical data on the effect of technology change on the factors in this project is somewhat limited and is almost entirely focused on business organizations, not government offices. Estimating or measuring impact in a public organization can be difficult, as recognized in the AOUSC's discussion draft on electronic case filing in 1997:

In most service organizations and particularly in the government, the answer to questions about the true costs and measuring improvements from technology go beyond simple quantitative methods but are linked to the policy makers perceptions of the core purposes of the organizations...a comprehensive business case analysis must address the service mission of the courts. (AOUSC, p. F-1).

Kraemer and Dedrick used their 1996 report to examine the productivity claims of information technology in public organizations, measurements made more difficult by the fact that “it is more difficult to calculate the return” on investment in an organization that provides services as opposed to one that provides goods. They conclude that the lack of empirical research on technology’s impact on the organization and on management is a result of a shift in the focus of research “away from serious study of either the impacts of computing or the management of computing and towards the promotion of computing use in all its various forms.” (p. 29). Eason reaches a similar conclusion, writing in 2001: “Much of the impetus of impact research appears to have been lost. We do not have research programs looking at the organizational consequences of the new technologies.” He suggests that the “diversity of outcomes”—the possibility of a variety of organizational results, many unplanned or unwanted, from implementing technology—“has caused researchers to lose interest.” (p. 326). And, finally, according to Woods, “much technology change is justified at least in part based on claims about the impact of technology on human performance...but these claims often go unexamined.” (p. 3).

Despite this general lack of impact studies based on empirical data, the literature reviewed here still provides a valuable basis for making comparisons to the findings in this study. Prior research on the impact of technology on productivity has shown that, in most cases, productivity improves with the application of technology, although there may

be some negative effects that might offset the improvements slightly such as increasing complexity or “new types of error traps” (Woods, p. 3), or the “ratio of winners to losers”, referring to the demotivating effects of change on those who lose position or power in the organization, thus reducing their productivity. (Bertschek and Kaiser, p. 397).

While a substantial part of the literature addresses the impact of technology on productivity, relatively little of it addresses the impact on worker performance. In a 1982 study on office automation, Olson and Lucas concluded that

...streamlining of office activities...[would] reduce the number of ‘transformations’ and errors, resulting in a more accurate final product. Quality of work should improve even where time savings cannot be demonstrated. (p. 841).

Other studies make general claims that performance “should” improve based on a number of factors such as less data entry and paper- or file-handling, or improved reporting capability enabling more efficient management review, however no data is provided to support these conclusions.

One of the biggest claims used to encourage the use of technology in the business sector is the ability to reduce costs, especially those costs related to human resources. But the research reviewed here does not necessary find support for that claim. As Kraemer and Dedrick found in their 1996 study:

The net effect of computing on employment is a matter for debate; effects are extremely difficult to identify...Statistical measures for employment are not precise enough to isolate the effects of one factor such as the use of computers. (p. 22).

Pinsonneault and Kraemer also address the problematic approach of trying to find a causal relationship between organizational downsizing and the implementation of technology. They conclude that the organization’s “environment” and managerial

philosophy may have a more determining effect on downsizing. (p. 192). Eason finds that early hypotheses about the “revolutionary effects” of technology and the impending “collapse of work” have never been realized and that anticipated reductions in staffing levels have not usually been achieved. (p. 324).

Most of the research on the effect that technology has on the skills of office workers supports the observation that technology leads to an “upskilling” of the labor force (Bertschek and Kaiser, p. 397), requiring more education and stronger personal characteristics and work habits (such as problem-solving ability, flexibility, and creativity). Technology tends to change the *nature* of jobs from those that used to be focused on routine or repetitive tasks to positions now requiring more “non-routine cognitive tasks” (Autor, et al., p. 5). “The fear that computers would lead to the deskilling of jobs is generally unfounded, except for certain types of clerical work.” (Kraemer and Dedrick, p. 23).

The research on the remaining factors in this report—the impact of technology on management, work relationships, and the organization—is also generally devoid of empirical data, although there is some research supporting the hypothesis that the implementation of technology leads to a reduction in middle management levels and increasing managerial span of control (i.e., fewer managers with more responsibilities). Factors such as management and relationships and organizational change can be difficult to identify, quantify, and measure, so the lack of empirical data to support various claims in these areas is not too surprising. However, the prior studies reviewed here almost all reach the same, ultimate conclusion about the impact of technology on organizations: technology alone does not cause or create organizational changes—technology is only a tool, a catalyst, or an enabler, of change. It is “an external force...only an instrument” in

facilitating organizational change such as hierarchical flattening or reengineering of work processes, and its impact “depends on the context in which [it] is used and on how it is used.” (Pinsonneault and Kraemer, p. 18, 194). Technology, *if effectively applied*, may (but does not necessarily have to) alter organizational boundaries through changes in communication structures—reducing barriers to communication—including individual and intra- and intergroup interactions, and by altering the nature of work by increasing complexity and changing roles and responsibilities, and even changes in the time and place of the work process.

Methodology

Three methods are used to gather and evaluate data for this study:

- An opinion survey of federal court managers. The survey instrument is found at Appendix A. The cover letter sent to courts chosen to receive the survey is at Appendix B.
- Document Process Audits. These audits are used to gather data on staff productivity. The process audit worksheets are found at Appendix C.
- File Audits. These audits are used to gather data on staff performance. The file audit worksheet is found at Appendix D.

Although this study uses both quantitative and qualitative data, the study design is distinctly qualitative because of the nature of the questions being explored. This study can be divided into four general categories:

- Measuring the impact of e-filing on performance
- Measuring the impact on productivity
- Measuring the impact on staffing
- Measuring the impact on other elements such as management issues and organizational factors.

Performance and productivity were measured and evaluated using both quantitative data gathered through file and document processing audits and qualitative data from an opinion survey conducted among court managers. The quantitative measures (the file and process audits) were conducted on actual court case files of the U.S. Court of Appeals for the Federal Circuit. Data for the other elements of the study—the impact of electronic filing on staffing, management, policies, and organizational structure—were gathered from the opinion survey.

All of the data for this study was collected by the author during December 2005-February 2006.

Measuring Impact of Electronic Case Filing on Performance.

The opinion survey conducted among court managers included questions asking managers to rate the perceived impact of electronic filing on the performance of their case management staff. These were questions 10, 13, and 17 on the survey form. The opinion survey (see Appendix A) is discussed further below.

To evaluate the potential impact of electronic filing on performance of case management staff at the appellate court, a baseline performance measure had to be established in order to be able to compare it later with actual or estimated performance under electronic filing. To establish a baseline performance measure, a study of file integrity and docketing errors was conducted through the use of file audits. The following measures from the Trial Court Performance Standards were selected because they appear to be those that would be most affected by the implementation of electronic filing, and because they were relatively easy to measure:

Docketing accuracy: the rate at which entries on the docket are made correctly (Trial Court Performance Standard 3.6.3, Accuracy, Consistency, and Utility of Case Docket System, and Standard 3.6.5, Reliability of Document Processing).

File content reliability: the rate at which the docket sheet accurately reflects the contents of the file, and the organization of the file is correct and complete (Standard 3.6.4).

Using these standards as a guide, a file audit worksheet was developed and pre-tested on three files to determine the critical elements of the file and to identify the categories of entries for purposes of this study (see Appendix D). The file audit worksheet also establishes a rating system for errors and a code for the type of entry for ease of analysis.

A random sample of 200 files was chosen from among cases which had been opened from October 1, 2004, through September 30, 2005 (3,147 cases). The sample included both closed cases and those that were still active. Of the 200 files chosen for audits, 74 file audits were completed. The results of the file audits are found in Table 14 on page 42.

The biggest obstacle to the collection of the file audit data was the time required to perform each audit, which averaged 28 minutes per file. This amounted to approximately 34 hours devoted to gathering file audit data to establish the baseline performance measure for the appellate court. There were also major limitations to the usefulness of the data gathered relative to the time taken to gather it. First, the audits were performed on entries that may have been made many months prior to the audit. Ideally, a file audit should be performed on a routine basis and on real-time entries. This means that the results of the file audits used here may be overoptimistic because errors which may have appeared on the docket earlier were caught and corrected some time after the initial entry but prior to the audit. Another obstacle was the inability to evaluate the accuracy of setting due dates which in most cases are calculated and entered into the case management system manually by the deputy clerk. The court's current case management system does not track historical scheduling data, therefore, if a due date had been incorrectly calculated by a clerk months ago, no record of that error would exist on the current docket.

More importantly, however, the audit data gathered to measure performance has limited usefulness in this study because there is actually no equivalent data with which to compare it. The best one can do is estimate how performance might change, given what is known about how an electronic filing system has impacted performance in other

courts. Since no court responding to the opinion survey had performed any quantitative performance analysis either prior to or following the implementation of electronic filing, what is known about the impact of ECF on performance in the comparison courts used in this project is limited to the observation of court managers. Even if there *had* been quantitative data to use for comparison, the fact is that processes at the federal district and bankruptcy courts differ widely from processes at the appellate level, so no direct comparison of changes in performance on a task-by-task basis could have been made.

These limitations on the collected data used to measure performance impair the ability to draw firm, scientifically-based conclusions about the impact that electronic filing has had, or will have, on staff performance. In any event, the findings from the file audits still provide a basis for determining where the impact of electronic filing may be felt in regards to performance of case management duties at this particular appellate court.

Measuring Impact of Electronic Case Filing on Productivity.

The opinion survey conducted among court managers included questions asking managers to rate the perceived impact of electronic filing on the productivity of their case management staff. These were questions 3, 4, 5, 6, 8, and 13 on the survey form. The opinion survey is discussed further below.

To evaluate the impact of electronic filing on case processing productivity at the appellate court, a baseline productivity measure was established in order to be able to compare it later with productivity under electronic filing. To establish a baseline productivity measure, time-and-motion process audits were performed on several appellate case management activities considered to be those likely to be most impacted by electronic filing such as the processing of motions, briefs, and petitions. The process

audits were not intended to be a scientific measurement of workload; their purpose was only to establish the major processing requirements (activity and time) of certain types of documents that are likely to be affected by the electronic filing environment.

Process audit worksheets were developed to track the time required for each set of functions in each filing process (see Appendix C). The worksheets were pre-tested on two to four trials of each document type in order to establish the major processing elements and customize the audit worksheets.

Ten to twelve trials of each process were conducted on real documents in active appellate cases in order to establish an average processing time for the document. The results of the document process audits are shown in Table 9 on page 34.

The data collected from process audits in order to measure appellate staff productivity faces limitations similar to that collected for the measure of performance. First, because the process audits were conducted in a controlled environment—documents were processed by an experienced staff member outside of regular business hours, eliminating the normal workday interruptions and distractions—the results are a “best case” scenario. In addition, as with the performance measure, this data is unique and may not be readily compared to the process productivity in the district and bankruptcy courts. A comparison of productivity data was not possible anyway since none of the courts responding to the opinion survey had any objective measure of productivity either pre- or post-electronic filing.

As with the data collected for the performance measure, these drawbacks were recognized prior to the conduct of the research. Despite the obvious limitations in using this data to draw scientific conclusions or make comparisons between courts, the document process audits are still useful in establishing a court-specific baseline for

measuring how and where and at what level productivity may be impacted once electronic filing is established.

Measuring Impact of Electronic Case Filing on Staffing, Management, and the Organization.

Data for the remaining elements of the project—impact of electronic filing on staffing, management and policies, and organizational factors—was gathered from an opinion survey of federal district and bankruptcy court managers.

The survey of 23 questions is attached at Appendix A. The questions were designed to gather data regarding the management of civil cases only. This parameter was established in order to improve the ability to draw conclusions and make comparisons to the Federal Circuit appeals court, which has no criminal caseload. The survey was designed to be completed by a mid-level manager such as a chief deputy clerk or operations manager. The survey form was transmitted to each identified court manager via electronic mail with a cover letter (see Appendix B) explaining the purpose of the survey and the method for its completion.

Eight pretests of the survey were distributed, and six were returned. Among the pretest results were: some questions indicated a bias in favor of electronic filing (two testers) or negativity (two testers); the questions needed to be simplified by allowing a choice selection or scale (three testers); the questions on productivity (question 8) and performance (question 10) were confusing (three testers); the question on work relationships (question 20) was confusing (two testers); and terminology used in some questions was not clearly defined (or subject to misinterpretation) (one tester).

The survey instrument was reconstructed based on the feedback from the pretests. Vague terminology was eliminated or clarified, which also helped to clear up some of the negativity and bias perceived by testers. Some questions were redesigned into a

compound format rather than as stand alone questions. And where possible, an anchored scale or fixed choice format was added to help quantify the response and aid in data analysis.

The survey was distributed to federal district and bankruptcy courts with the most experience in electronic filing. Most of these courts were identified through the implementation status chart prepared and maintained by the AOUSC which identifies each district and bankruptcy court and their date of CM/ECF implementation.³ The pool of courts to survey for this project was determined to be those courts who had implemented CM/ECF in 2003 or earlier, a total of 103 courts.⁴ The research goal was to survey 25% of the 103 federal courts (or 26 courts). Estimating a 75% survey completion rate, 34 courts were selected to receive the survey. This included 28 district courts, 4 bankruptcy courts, and 2 specialized courts. The specialized courts, the bankruptcy courts, and ten of the district courts were selected to be surveyed from the pool of 103 specifically based on the author's prior knowledge of that court and/or its personnel. The remaining 18 district courts surveyed were selected at random from the remaining pool of 87 courts.

Surveys were distributed in January 2006 and responses were received in January and February. In all cases, the respondent had at least two weeks to consider the survey questions prior to responding. Because of the subjective nature of most of the survey questions, an option was provided to each survey participant to complete the survey

³ CM/ECF Implementation Status, November 9, 2005. Administrative Office of the United States Courts, Washington, DC.

⁴ The CM/ECF Implementation Status chart identifies courts which have implemented *at least* the CM portion of the CM/ECF application. The implementation date on this chart does not necessarily identify when the court implemented the ECF portion of the application. Courts have the option of implementing ECF at the same time as CM, at a later date, or not at all. Therefore, the survey form used for this project asked each respondent to specify the date that ECF was implemented in their court (see question 1 on the survey form, Appendix A).

orally rather than in written form. By February 2006, 21 surveys had been completed (20% of the 103 courts; a 62% survey return rate) which included 4 bankruptcy courts and 17 district courts. Of the non-respondents, two recipients indicated that they could not participate and eleven did not respond in any manner. Of the 21 survey respondents, 6 chose to complete the survey either partially or wholly through a phone interview. Phone interviews averaged 51 minutes each.

In addition to the questions on performance and productivity mentioned above, the survey questions address the impact that electronic filing has had on staffing levels (questions 7, 12, and 14); management issues such as the amount of supervision required and the evaluation of staff's performance or productivity (questions 9, 11, 13, 14, and 16); and changes in the relationships between nonsupervisory staffers, managers, supervisors and staff, and operations staff and others in the courthouse (question 20). The survey also inquired whether electronic filing had resulted in any changes to organizational structure or workplace policies (questions 7, 14, 18, and 19). Some survey questions were designed to provide data for more than one factor. For example, questions 7 and 14 relate to both staffing levels and to organizational structure.

Survey participants were asked to provide a copy of their operations staff organizational chart. The charts were to be used to study each court's organizational structure to see if any commonalities existed between the structure and the courts' experience with electronic filing. However, only five of the 21 respondent courts agreed to provide their charts. Therefore, this part of the evaluation could not proceed due to the poor response rate.

Although the survey was long and asked questions which required thoughtful or complex responses, many of the court managers contacted for the survey engaged in it

enthusiastically and with considerable expenditure of their valuable time. Four of the courts made the response to the survey a group effort. The survey return rate, though lower than anticipated, was sufficient for the purposes of this study, and the high quality of most of the surveys which were returned were of enormous value to the project.

Findings (Analysis of Data)

Impact of Electronic Case Filing on Productivity.

The purpose for gathering data on productivity is to estimate how electronic filing in the court system impacts the productivity (i.e., the time to process documents and the number of documents that can be processed within a fixed time) of case management staff. The hypothesis is that ECF improves productivity—that it will take less time to process workload, and that more work will be accomplished in the same amount of time. Data on productivity was gathered from the opinion survey (see Appendix A) in observations made by court managers about the impact that ECF has had on productivity at the district and bankruptcy courts. Questions 3, 4, 5, 6, 8, and 13 from the opinion survey relate to the impact of electronic filing on productivity.

No court responding to the survey had any quantitative measure of productivity either prior to or following the implementation of electronic case filing. Several research studies reviewed for this project examine the oft-repeated claims that technology will make document processing easier, eliminate redundant work, and result in greater productivity, but conclude that new technology alone is insufficient to produce increases in productivity. However, technology can indirectly impact productivity in a positive direction by enabling organizational changes and work process reengineering which improve overall efficiency and effectiveness in the organization. Researchers Pinsonneault and Kraemer found that information technology can “facilitate changes in work by increasing individual efficiency and allowing fewer individuals to perform the same amount of work.”⁵ In addition, because technology enables managers to focus

⁵ Pinsonneault, Alain, and Kraemer, Kenneth L. “Exploring the Role of Information Technology in Organizational Downsizing: A Tale of Two American Cities.” *Organization Science*, Vol. 13, No. 2, Mar-Apr 2002. (p. 193-194).

more on communicating task-relevant information to staff, this can lead to an overall increase in productivity across the organization.

The complete data set from the opinion survey is found at Appendix E.

Survey Findings.

Survey question 8 asked court managers to estimate the impact that electronic filing has had on the productivity of their case management staff using a scale of 1 (significant negative impact) to 9 (significant positive impact). A negative impact was defined as one where more time was required to process filings, and a positive impact was less time required to process filings. Table 1 identifies each court’s rating.

Table 1.

Manager’s Perception of the Impact of ECF on Staff Productivity	
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact	
<u>Court I.D.</u>	<u>Manager’s Productivity Rating</u>
A	7
B	8
C	7
D	5
E	9
F	5
G	1
H	7
I	5
J	5
K	5
L	7
M	6
N	8
O	7
P	7
Q	6
R	4
S	5
T	7
U	6
	Average: 6.0

Responses ranged from 4 to 9, with one court rating the impact at 1. The average⁶ rating was 6, a slight positive impact on productivity observed from the implementation of electronic filing. As the court's experience with ECF increases, one would expect to see an increase in productivity as well. The results of this comparison are in Table 2 which shows that for courts implementing ECF in 2001 or earlier, the manager's average

Table 2.

Manager's Perception of the Impact of ECF on Staff Productivity, by ECF Implementation Date	
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact	
<u>Implementation Date</u>	<u>Manager's Productivity Rating</u>
2000	8
2000	5
2000	8
2001	9
2001	7
2002	5
2002	1
2002	6
2002	7
2003	7
2003	7
2003	7
2003	6
2003	5
2003	6
2004	7
2004	7
2004	5
2004	5
2004	5
2004	5
2004	4
2001 or earlier	Average: 7.4
2002-2003	Average: 5.4
2004 or later	Average: 5.5

⁶ The term "average" used in this report and in all tables refers to the arithmetic mean.

productivity rating is 7.4, a moderately positive impact. For courts implementing in 2004 or later, the average rating is 5.5, meaning ECF has had very little or no impact on productivity in those courts in the opinion of the manager.

Percentage of filings made by attorneys. Electronic case filing as applied in most (but not all) courts, enables some of the workload involved in making entries on the court docket to be shifted from the court's case management clerks to the attorneys, thereby increasing the productivity of the court's staff as they are required to make fewer entries. The percentage of filings made by attorneys is used in the productivity analysis because the research hypothesis is that e-filing technology allows more automation of processes, and so more processes can be performed in a given time period. In addition, as technology takes over more routine, paper-handling functions—including document validation—court staff time can be directed to additional functions so that not only are all of the previous paper-handling case management tasks being performed, but additional tasks are also being performed. Therefore, as the percentage of entries made by attorneys directly on the docket increases (shifting some workload from the court's clerks to the attorneys), productivity (the time to process documents and the number of documents that can be processed in a given time period) among the court's clerks would be expected to increase.

In courts responding to the survey, the percentage of civil filings made by attorneys directly onto the docket by electronic filing ranged from 23% to 97%, with the average being 53% of entries made by attorneys. A reasonable assumption to make here is that this percentage grows as use of and experience with the technology increases, although there may be other determining factors, such as the particular court's local rules of practice that place restrictions on the use of e-filing. A comparison of the court's

implementation date and the percentage of civil filings made on the docket by attorneys is shown in Table 3.

Table 3.

% of Civil Filings by Attorneys via ECF, by ECF Implementation Date	
<u>Court ECF Implementation Date</u>	<u>% of Civil Filings by Attorneys via ECF⁷</u>
2000	80
2000	86
2000	76
2001	97
2001	60
2002	23
2002	84
2002	70
2002	83
2003	45
2003	39
2003	25
2003	26
2003	48
2003	59
2004	35
2004	23
2004	59
2004	45
2004	28
2004	23
2001 or earlier	Average: 80%
2002-2003	Average: 50%
2004 or later	Average: 35%

Based on the average level of attorney docketing, it would appear that the percentage of attorney docketing does increase the longer that a court has been using the ECF application. Given that the research hypothesis suggests that court staff productivity should improve as the percentage of attorney filings via ECF increases,

⁷ Reported by the survey respondents, as of January 2006.

the data here should show a higher productivity rating by the manager correlated to the percentage of the court's attorney filings via ECF. This comparison is shown in Table 4.

Table 4.

% of Civil Filings by Attorneys via ECF and Manager's Perception of the Impact of ECF on Staff Productivity	
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact	
<u>% of Civil Filings by Attorneys via ECF⁸</u>	<u>Manager's Productivity Rating</u>
23	7
23	5
23	4
25	7
26	6
28	5
35	7
39	7
45	5
45	7
48	5
59	5
59	6
60	7
70	6
76	8
80	8
83	7
84	1
86	5
97	9
39% or less	Average rating: 6.0
40% - 75%	Average rating: 5.8
76% or more	Average rating: 6.3

As this analysis reveals, based on the average of the manager's productivity rating, as the percentage of attorney filings via ECF grows, there appears to be little or no effect on the observed level of productivity or, at least, the effects are not entirely clear. This outcome could be explained by the increasing complexity of the clerk's tasks in the

⁸ Reported by the survey respondents, as of January 2006.

electronic filing environment which might decrease productivity, thereby offsetting productivity gains realized by making fewer docket entries. That issue is examined later.

Retention of a paper file. Questions 4, 5, and 6 on the opinion survey relate to the need or desire to retain all or part of a paper file, and the related case management functions that accompany maintenance of a paper file and therefore affect productivity. The hypothesis is that continued maintenance of a paper file while simultaneously using electronic case filing lowers productivity when compared to case management using only electronic filing as its source of case records. The responses to the survey reveal that there is little common procedure among the federal courts so far for the retention of a paper file. Some surveyed courts retain paper filings either because the documents cannot be filed electronically and a waiver has been granted or because e-filing is voluntary, not mandatory, or because some judges prefer to continue using a paper file. Other courts immediately scan and then destroy paper documents after a short holding period. Still other courts (the majority) maintain only sealed or especially voluminous documents in paper form, and the rest of the file is maintained electronically.

The biggest impact on productivity related to maintaining a paper file is likely related to the handling of pro se cases. Most courts (80% of courts responding to the survey) continue to manage pro se case files in paper form only, although some courts are scanning pro se documents to create an electronic file as well as keeping a paper record, and other courts have procedures for pro se parties to participate in the electronic filing system on a voluntary basis.

Courts responding to the survey reported pro se civil cases which comprised anywhere from 5% to 32% of their civil case filings, with the average being 22%. This constitutes a substantial portion of filings still being made and maintained primarily in

paper form and requiring either the court staff's extra time in scanning the document (and sometimes repairing the document prior to scanning) to create an electronic docket and at the same time performing traditional case management activities by hand. A court's percentage of pro se cases, therefore, would seem to have a potentially significant negative impact on productivity of court staff. However, as Table 5 on page 28 shows, the manager's rating of productivity does not vary significantly as the percentage of pro se cases changes. (The averages are slightly skewed by one manager's productivity rating of 1. If that rating is dropped from the analysis, the average productivity rating for courts with a caseload comprised of 30% of pro se cases becomes 6 rather than 4.75). It should be noted that the survey does not specifically ask court managers to rate the impact that pro se cases have on the productivity of the staff. The data here may indicate that if pro se cases *do* have a negative impact on productivity as might be expected, that negative impact may well be offset by improvements in productivity gained elsewhere as a result of ECF. And, again, it is assumed that as use of and experience with the e-filing technology increases, modules will be developed to assist pro se filers in using the e-filing component, further reducing any negative impact on productivity caused by pro se caseload.

In fact, many respondents observed that while productivity had improved in many areas, notably because fewer docket entries need to be made by clerks and the time needed to make the remaining docket entries was decreased due to improvements in the case management application (the "CM" portion of the CM/ECF program), some of those gains in productivity are offset by losses in productivity in other functions. Case managers now are required to expend considerable effort in quality control, correcting errors made by attorneys on the electronic docket, performing additional scanning tasks,

especially related to pro se cases, and performing help desk and training duties. One bankruptcy court manager estimated that 60% to 70% of the time savings realized by having attorneys make entries directly on the docket was offset by the additional time required of court staff to manage the electronic file and perform quality control functions.

Table 5.

% of Pro Se Cases and the Manager's Perception of the Impact of ECF on Staff Productivity	
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact	
<u>% of Civil Cases are Pro Se⁹</u>	<u>Manager's Productivity Rating</u>
5	9
14	5
15	5
16	7
16	8
18	5
18	7
20	6
21	7
22	5
25	8
25	6
25	4
26	7
26	5
28	7
28	7
30	1
30	5
30	6
32	7
19% or less	Average rating: 6.6
20% - 29%	Average rating: 6.2
30% or more	Average rating: 4.75

⁹ Reported by the survey respondents.

Workload quantity and complexity. Forty-eight percent (48%) of court managers perceived that electronic filing has resulted in less “work” for case management and operations activities (24% said there was more work, and 28% said the workload was about the same). See Table 6. When comparing the manager’s rating of ECF’s impact on productivity to their perceptions of the quantity of work, the data reveals an inverse relationship—as the quantity of work increases, the productivity rating decreases. Some respondents to the survey volunteered comments that suggest that the burden of “double-duty” in regard to pro se cases caused by additional scanning tasks and maintaining both an electronic file and at least a partial paper file in other cases is a source of extra work that did not exist prior to the implementation of ECF which lowers overall productivity.

Table 6.

Impact of Electronic Case Filing on the Amount of Work		
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact		
		Average Productivity Rating
More Work:	5 (24%)	4.8
Same Amount of Work:	6 (28%)	5.6
Less Work:	10 (48%)	6.9

Tables 7 and 8 (page 30) show the data from the survey in regard to perceptions about the complexity of work since implementation of ECF. Significantly, but not surprisingly given the prior research on technology’s impact on the nature of work, 86% of survey respondents said that the work of the case management staff was more complex than prior to implementation of electronic filing, although they were relatively split when asked whether the more complex workload took more or less time to process: 38% of

courts who rated the tasks as more complex responded that more time was required with electronic filing, and 33% said that less time was required; 28% stated that the time required to complete workload was about the same.

Table 7.

Task Complexity and Time to Complete Tasks Under Electronic Filing	
Of the courts that think tasks under ECF are <u>more</u> complex:	
Tasks take more time to complete:	8 (38%)
Tasks take the same time to complete:	6 (28%)
Tasks take less time to complete:	7 (33%)

Table 8.

Impact of Electronic Case Filing on Complexity of Work		
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact		
		Average Productivity Rating
More Complex:	18 (86%)	6.1
Same Complexity:	3 (14%)	5.6
Less Complex:	0	

When comparing the manager’s rating of ECF’s impact on productivity to their perceptions of the complexity of tasks, one might expect to see the productivity rating decrease as complexity increases. However, this data shows that the manager’s average productivity rating in courts where tasks are perceived to be more complex actually exceeds the productivity in courts where tasks are perceived to have about the same level of complexity.

A comment made by several respondents to the opinion survey was that ECF has changed the *nature* of the work of case management staff from that of document handling

and examination and data entry, to that of primarily quality control, problem-solving, and electronic data management. These observations are supported by research that suggests that technology alters the concept of office work, making it more complex, and demanding new levels of cognitive and attentional resources,¹⁰ as well as demanding individual attributes such as the ability to adapt to change, and “personal innovativeness, resilience, and tolerance of ambiguity”.¹¹ These factors may have positive or negative effects on productivity depending on the person and his or her education, skills, abilities, and/or motivation. This change in the nature of the work makes a productivity analysis based on a simplistic counting of entries made or documents processed less relevant to the overall evaluation of how productivity is impacted by ECF.

From the survey data, a general conclusion can be reached that while workload under electronic filing may remain the same or decrease, electronic filing is likely to have a moderate positive impact on case management staff productivity, despite the increasing complexity of the work required. Productivity may be expected to continue to improve as use of and expertise with the technology expands.

Applying the Findings to the Appellate Court.

The objective of this project is to use the trial court experience to estimate the impact of electronic filing on appellate clerk’s office operations in the identified areas. Although there are differences in the organization, procedure, and process requirements between the appellate courts and the trial courts, there is nothing to suggest from the data presented here and the prior research on technology’s impact on productivity that those differences are great enough to significantly change the general impact that e-filing

¹⁰ Woods, David D. “Decomposing Automation: Apparent Simplicity, Real Complexity.” *Automation and Human Performance: Theory and Applications*, 1996. (p. 1).

¹¹ Gallivan, Michael J. “Organizational Adoption and Assimilation of Complex Technological Innovations: Development and Application of a New Framework.” *The Data Base for Advances in Information Systems*, Summer 2001, Vol. 32, No. 3. (p. 66).

technology might have on case management productivity. One would expect to see about the same result regardless of court level or structure. Based on the responses to the opinion survey on the questions related to e-filing's impact on the productivity of case management staff, it would appear that the appellate court is likely to experience a similar outcome as has been observed so far at the district and bankruptcy courts: productivity will improve from the reduction of the number of entries made on the docket by the clerks, including productivity gains realized by the redesign of the case management application. At the same time, productivity may be negatively impacted by the new and generally more complex tasks required in the ECF environment such as customer service and help desk duties, quality control and error correction, training outside users, and writing and maintaining user manuals. Another negative impact on productivity at the appellate court may be the continued handling of pro se cases in paper format, or with a combination of paper and electronic documents. However, the appellate court should expect to see a net gain in the productivity of case management staff as the positive impacts offset the negative ones over time.

Document process audit findings. The second element used to estimate the impact of electronic filing on productivity at the appellate court is an estimate of the actual amount of time saved in the document handling process. Document process audits were conducted on several appellate case management functions and the process times were recorded and averaged. The average processing times were then evaluated as to whether they would increase or decrease under electronic filing. As noted before, there were no pre- or post-ECF productivity analyses of case management functions from the surveyed district and bankruptcy courts, and therefore no comparisons of data are possible. Thus, the ability to draw conclusions from the process audit findings is

somewhat limited. However, the findings from the process audits are still useful in identifying the areas of each process which are likely to be most impacted by electronic filing, such as in the routing of documents to other offices of the court.

In the appellate court exercise, the process audits showed, for example, that in order to examine a procedural motion, enter it on the docket, and issue an order, the average time used by the clerk was 22.2 minutes. Under ECF, if an attorney files the motion electronically, the time it takes the clerk to process the motion is reduced by about 14 minutes because several steps in the manual process are either eliminated or reduced such as the retrieving and returning the file folder and copying and mailing the order. This analysis assumes that the clerk—not the attorney—will continue to make all entries onto the docket and that the clerk’s process for examining documents for compliance with rules and procedures will remain relatively stable with no significant time savings realized, at least in the initial stages of ECF implementation. The results of the process audits are in Table 9 on page 34.

The biggest improvement between the paper processing time and the electronic filing time is in the handling of petitions for rehearing. Petitions for rehearing, especially those circulated to the full court, are particularly labor intensive. This analysis shows a considerable savings in the clerk’s time when processing the petition electronically, primarily due to the increased efficiency in preparing the materials with cover sheets and routing them to the judges.

Significant court staff time at the appellate court is also devoted to the circulation of appeal briefs to the merits panel each month in advance of oral arguments. At the Federal Circuit, clerks estimate that it takes up to ten staff hours once a month to prepare and circulate briefs to the merits panel for a full calendar (approximately 84 cases). This

includes manually organizing the briefs by case and by panel (two clerks, approximately 2.25 hours each), double-checking by another set of two clerks (approximately .75 hours each), and physical delivery to the judges (two clerks, approximately two hours each). Much of this time would be eliminated as briefs are delivered electronically to the judges, especially if the case management system is designed to automatically transmit the brief to the judge upon the judge’s assignment to the panel. Elimination of the manual circulation of paper briefs would allow 120 hours of case management staff time each year to be redirected to other activities.

Table 9.

Time to Process Documents in the Clerk’s Office				
	Average Time (in minutes)		#/Year (approx)	Hours Saved/Year
	Current ¹²	E-Filing (est.)		
File and grant a motion	22.2	8	1,490	353
File and circulate a motion	13.9	6.5	1,750	216
Process (file or reject) a brief	21.0	10	2,912	534
File and circulate a rehearing en banc	40.5	16	127	52
Circulate briefs to the merits panels	600	0	12	120
			Total:	1,275 hrs.

From the process audit findings, it appears that productivity of the case management staff at the appellate court would increase through the utilization of electronic filing by 1,275 hours per year for the processes described in Table 9. Much of this time savings is realized in the routing of documents internally or serving them

¹² The current paper processing measurements in Table 9 may be somewhat overstated because they account for the processing of only a single document. In practice, many clerks create their own assembly-line process which is far more efficient—groups of file folders are retrieved and returned at the same time, rather than one at a time; orders are taken in groups to the copier, rather than one at a time; and checklists for several documents in different cases may be completed before the entries are made in the case management system.

externally, in the retrieval and returning of file folders, in the sorting and storing of copies, and in the preparation and copying of documents such as orders and notices.

Not measured in the process audit analysis are factors such as the time documents spend in the mail or any delay from a document's arrival at the courthouse and its delivery to the case management staff. Obviously, electronic filing virtually eliminates delays associated with the delivery of documents.

Impact of Electronic Case Filing on Performance.

The purpose for gathering data on performance is to estimate how electronic filing impacts the performance of staff with case management responsibilities, measured for the purposes of this project by the rate of docket entry and file errors. The hypothesis is that ECF improves performance—that the rate of entry and file errors will decrease. Data on staff performance was gathered from the opinion survey in observations made by court managers about the impact that ECF has had on performance at the district and bankruptcy courts. Questions 10, 13, and 17 from the opinion survey relate to the impact of electronic filing on performance.

No court responding to the survey had any quantitative measure of performance either prior to or following the implementation of electronic case filing. According to Woods, prior research studies of the impact of technology on “the cognition and behavior of human practitioners” have failed repeatedly to demonstrate beneficial performance results from the use of automated systems and have shown instead that the technology “created new complexities and new types of error traps.” (Woods, p. 3). The capability of the technology itself, though, can have an important impact on data entry performance. For example, case management technology that can accommodate the use of “smart documents” which automatically populate the case management system with

document data, thus eliminating the need for a clerk to enter the data by hand, can substantially reduce the incidence of data entry errors.

Survey Findings.

When asked to rate what kind of impact, if any, electronic filing has had on the performance of case management staff using a scale of 1 (significant negative impact) to 9 (significant positive impact), court managers rated the impact anywhere from 5 to 9, with one court rating the impact at 3. The average rating was 6, a slight positive impact. See Table 10 on page 37.

Although no court responding to the survey had an objective measure of performance (such as tracking the number of docket entry errors) either prior to or following e-filing implementation, the perception of most court managers was that performance of court staff has been slightly to moderately improved under the ECF system primarily because there are fewer docket entries made by the court's clerks, which leads to fewer opportunities to make these types of errors. In addition, error rates on docket entries were perceived to improve in part because of the rapid availability of the court's electronic docket to the public and other court users such as judges, and the availability of detailed docket activity reports to court managers. In effect, as one court manager stated, the increased potential for additional—and rapid—scrutiny leads to more accountability which in turn may result in better performance.

Other factors mentioned by survey respondents in improved performance under e-filing include the ability to review more entries on the docket for accuracy. Prior to electronic filing, a small percentage of all entries made on a docket might have undergone a quality review by a supervisor or team member. After ECF implementation, up to 100% of electronic filings made by the attorneys via ECF are quality reviewed by

case managers, and the percentage of court-generated entries undergoing a quality review is substantial as well.¹³

Table 10.

Manager's Perception of the Impact of ECF on Staff Performance	
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact	
<u>Court I.D.</u>	<u>Manager's Performance Rating</u>
A	7
B	8
C	8
D	7
E	9
F	5
G	3
H	5
I	7
J	5
K	5
L	5
M	6
N	8
O	6
P	5
Q	6
R	5
S	6
T	8
U	5
Average: 6.0	

As stated earlier, 86% of the court managers responding to the opinion survey felt that case management tasks under ECF are more complex than pre-ECF tasks, requiring a higher level of skill and competence among employees.

¹³ CM/ECF Case Files Survey Results, November 10, 2005. Of the courts responding to the survey, 91% review 100% of attorney entries; 52% review 100% of clerk's office entries; and 74% review 100% of chambers entries. Administrative Office of the United States Courts.

Table 11 shows how the manager’s perception of task complexity compares to staff performance. Despite the increased complexity, performance was still generally seen by most courts as having improved under ECF.

Table 11.

Impact of Electronic Case Filing on Complexity of Work		
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact		
		Average Performance Rating
More Complex:	18 (86%)	6.2
Same Complexity:	3 (14%)	6.0
Less Complex:	0	

One interviewed court volunteered that a factor involved in their own performance improvements since the implementation of ECF was in part a result of staff attrition caused by the inability (or unwillingness) of some staff members to adjust to the new system. Prior to or shortly after implementation, most marginal performers left the case management team, leaving in place the more skilled and motivated staff members capable of performing the more varied and complex task requirements demanded by the electronic filing environment.

A comparison of the court’s implementation date to the manager’s perception of the impact on performance shows only a modest positive relationship—the performance rating in courts who implemented early is only slightly improved over those courts who implemented later. See Table 12 on page 39.

Table 12.

Manager's Perception of the Impact of ECF on Staff Performance, by ECF Implementation Date	
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact	
<u>Implementation Date</u>	<u>Manager's Performance Rating</u>
2000	8
2000	5
2000	8
2001	9
2001	5
2002	7
2002	3
2002	6
2002	8
2003	5
2003	6
2003	5
2003	6
2003	6
2003	5
2003	6
2003	5
2004	7
2004	8
2004	7
2004	5
2004	5
2004	5
2001 or earlier	Average: 7
2002-2003	Average: 5.7
2004 or later	Average: 6.2

A similar outcome is seen when evaluating the impact that ECF has had on performance compared to the percentage of filings made by attorneys via ECF (see Table 13, page 40). The extent to which docket entries are made by attorneys would appear to have very little impact on the staff's performance according to this data. However, court managers were not asked to make this comparison in the survey. Therefore, a more detailed study might find that while performance would tend to improve as the

percentage of attorney ECF filings increases, improvements could be offset by some of the other factors mentioned earlier.

Table 13.

% of Civil Filings by Attorneys via ECF and Manager's Perception of the Impact of ECF on Staff Performance	
Scale: 9=significant positive impact; 5=no impact; 1=significant negative impact	
<u>% of Civil Filings by Attorneys via ECF¹⁴</u>	<u>Manager's Performance Rating</u>
23	8
23	7
23	5
25	5
26	6
28	5
35	7
39	6
45	5
45	5
48	6
59	7
59	5
60	5
70	6
76	8
80	8
83	8
84	3
86	5
97	9
39% or less	Average rating: 6.3
40% - 75%	Average rating: 5.8
76% or more	Average rating: 6.0

New skills needed. The nature of the work of the case manager since the implementation of electronic case filing is evolving into a multi-dimensional position that requires certain aptitudes and strength in a variety of skills. When asked which skills case management staff need to perform successfully in an e-filing environment, court

¹⁴ Reported by the survey respondents, as of January 2006.

managers mentioned the ability to multi-task, possessing strong computer and browser skills, problem-solving (being able to identify, understand, and resolve problems on the docket), and being able to perform a high level of customer service such as assisting electronic filers with problems and training users.

Early research on the impact of automation in the workplace tended to support the assumption that computerization of common tasks would lead to a “deskilling” of the clerical or administrative workforce. But this was challenged by other studies which foresaw technology’s role—in combination with social, task, and structural factors—in changing the fundamental nature of the work.¹⁵ It appears to be this effect that is being observed at many of the courts responding to this study’s survey. According to recent research, computer technology is now seen as a complement to, rather than a replacement for, the more complex and varied non-routine tasks of the “new” office staffer. As might be expected, the increasing use of technology in the workplace raises the demand for employees who possess a broad range of skills and abilities.¹⁶

Applying the Findings to the Appellate Court.

As with the findings on productivity earlier in this report, there is nothing in the performance data to suggest that differences in organization or procedure between appellate and trial courts are great enough to significantly change the general impact that ECF technology might have on the performance of case management staff. The same factors that have been identified as impacting performance—both positively and negatively—at the trial level can be expected to occur at the appellate level as well. Based on the responses to the opinion survey on the questions related to e-filing’s impact

¹⁵ Olson, Margrethe H. and Lucas, Henry C., Jr. “The Impact of Office Automation on the Organization: Some Implications for Research and Practice.” *Communications of the Association for Computing Machinery*, Vol. 25, No. 11, November 1982. (p. 841).

¹⁶ Autor, David H., Levy, Frank, and Murnane, Richard J. “The Skill Content of Recent Technological Change: An Empirical Exploration.” *Quarterly Journal of Economics*, November 2003. (p. 5, 24).

on performance, it is anticipated that the appellate court is likely to experience an outcome similar that that which has been observed so far at the district and bankruptcy courts: performance will see modest improvements over time, even while the complexity of the work grows.

File audit findings. The second element used to determine the impact of electronic filing on performance at the appellate court is a comparison of the pre- and post-ECF docket entry and file error rate. File audits were performed on 74 active and closed case files in the appeals court in order to establish an average error rate in the current pre-ECF environment. Errors were also classified by entry type and by severity. However, as noted before, there appear to be no pre- or post-ECF performance analyses in regard to docketing functions at the district and bankruptcy courts, and therefore no comparisons of data are possible. Thus, the ability to draw conclusions from the file audit findings is somewhat limited. However, the findings from the file audits are still useful in identifying performance problems which are likely to be most impacted by electronic filing at the appeals court. The results of the file audits are in Table 14.

Table 14.

Docket Entry Performance in the Clerk’s Office	
Distribution of Entry Errors According to Class:	
Type 1 (critical)	2%
Type 2 (significant)	20%
Type 3 (nominal)	78%

The files audited contained an average of 8 errors each, a 26% error rate among the entries being examined. Most of these errors (78%) were Type 3 errors—those of relatively minor significance such as typographical errors or failing to write the entry

number on the paper document. Under ECF, Type 3 errors are likely to be caught early during the enhanced quality control function. In addition, performance in the case management system and its electronic filing component can be greatly enhanced by the use of sophisticated software which performs edit checks, customized spell checks, document validation, and automatic scheduling functions. These application features would help reduce the more serious Type 2 and Type 1 errors noted in the file audits such as prematurely dismissing an appeal for default, dismissing the wrong appeal, or prematurely issuing a mandate. Several respondents in the opinion survey noted that the quality of the court's own docket entries had improved since ECF in part because the case management application is much more efficient and better designed than the legacy system. The new CM/ECF eliminates a significant number of keystrokes and the need for clerks to memorize dozens of codes. Well-designed case management technology can be expected to greatly enhance the accuracy of electronic docket entries made both by the court's own staff and by public users of the system.

Based on the results of the file audits and the responses to the opinion survey on the questions related to e-filing's impact on performance as measured by docket entry and file error rates, it is expected that performance of appellate case management staff will mirror that of the district and bankruptcy courts: there is likely to be a modest improvement in performance due primarily to the improved the case management application linked to the electronic filing system which will enables easier entry and earlier error detection.

Impact of Electronic Case Filing on Staffing.

In order to evaluate the impact that electronic filing may have on staffing levels, the opinion survey asked questions regarding the impact that ECF has had on the level of intake activity (question 7), as well as observed changes in actual staffing levels (question

12), and the manager-to-subordinate ratio among case management-related staff (question 14). Except for question 14, survey respondents were not asked to report actual staffing levels; they were only asked to report their observations. In regard to question 14, only 6 of the 21 courts responding to the survey answered the question completely. Given the low response rate to this question, the data is not used in this analysis.

Prior research has suggested that the impact of technology on staffing levels—in particular, reducing or downsizing staff—is not as clear-cut as might be claimed by some technology advocates. According to Pinsonneault and Kraemer, technology is an “enabler” rather than a determinant of organizational downsizing. Technology’s effects on downsizing “depend on the context in which technology is used and on how it is used.” While technology may “facilitate work redesign and improve efficiency,” which may in turn lead to organizational restructuring, other factors such as environmental conditions and management actions seem to have a greater role in the decision to reduce staffing levels.¹⁷

A productivity study done by the court in Shawnee County, Kansas, in 1997, showed that electronic filing could save about 14 court staff positions per year over the traditional paper filing process.¹⁸ A similar study done by the U.S. Bankruptcy Court for the Western District of Oklahoma in 1997 concluded that electronic filing enabled the reduction of staff time required to search, retrieve, and refile case folders, as well as for data entry and copying tasks, in an amount equivalent to about two staff salary years.¹⁹

¹⁷ Pinsonneault, Alain, and Kraemer, Kenneth L. “Exploring the Role of Information Technology in Organizational Downsizing: A Tale of Two American Cities.” *Organization Science*, Vol. 13, No. 2, Mar-Apr 2002. (p. 194).

¹⁸ Walker, J. Douglas. Electronic Court Documents: An Assessment of Judicial Electronic Document and Data Interchange Technology. National Center for State Courts, 1999. (p. 19).

¹⁹ Administrative Office of the U.S. Courts. “Electronic Case Files in the Federal Courts: A Preliminary Examination of Goals, Issues, and the Road Ahead.” (discussion draft). March 1997. (p. 15).

These studies tend to support the hypothesis that technology leads to efficiencies and work redesign that save staff time. But, rather than reducing levels of staff, that “free” time tends to be redirected to other activities which, as the early data on productivity and performance has indicated, can be more complex and require additional skills. “History has shown that courts do not lay off clerical staff when new technology increases efficiency...”. Instead, “some positions are diverted to other areas...other staff move to a higher level of skills and knowledge to improve the quality of case information and court services.” (Walker, p. 20).

Survey Findings.

Fifty-eight percent (58%) of court managers responding to the survey indicated that their overall level of case management/operations staff had decreased since the implementation of electronic filing, but most respondents indicated that ECF was responsible for very little, if any, of the decrease (see Table 15). Only two courts said that electronic filing was responsible for more than 75% of the reduction in staffing levels. A broader research project including many more courts may find a pattern between staffing levels and other factors related to the implementation of electronic case filing, but there is too little data from this study to draw a conclusion that implementation of electronic case filing is a major factor leading to staff reductions within the clerk’s office.

Table 15.

Impact of ECF on Changes in Case Management Staffing Level							
<u>Chg in Staff Level</u>	<u># of Courts</u>	<u>% of Change Attributable to ECF</u>					
		None	Up to 10%	Up to 25%	Up to 50%	Up to 75%	>75%
Increase	2	1	1				
No change	6						
Decrease	11	5	3	1			2
No response	2						

In contrast, a much higher percentage of courts (81%) reported that decreased traffic at their intake counters could be attributable primarily to ECF. This data appears in Table 16.

Table 16.

Impact of ECF on Customer Traffic at the Intake Counter							
<u>Change in Traffic</u>	<u># of Courts</u>	<u>% of Change Attributable to ECF</u>					
		None	Up to 10%	Up to 25%	Up to 50%	Up to 75%	>75%
Increase	0						
No change	4						
Decrease	17				3	4	10

Several courts reported the reassignment of most intake staff to other duties. Other factors, primarily budget reductions, were identified by a few managers as having a bigger impact on the inability to increase staffing levels or to replace staff lost through attrition. This affirms the research cited earlier that suggests that “environmental” factors may play a bigger role in staffing changes than does the use of technology.

However, even while several respondents claimed that the level of staffing needed to remain the same under ECF in order to perform all of the case management related tasks required, two court managers volunteered that positions lost through attrition were less likely to be filled, depending on the position, since the implementation of ECF—that electronic case filing enables the case management staff to accomplish “more with less.” This issue is returned to in the conclusion of this report.

Applying the Findings to the Appellate Court.

Appellate courts can probably anticipate seeing similar reductions in intake counter traffic, leading to a reassignment of staff members assigned to that task. Likewise, the electronic filing technology will probably lead to an improved ability to do more with less, following the initial implementation period. Like the experience at the

trial courts, the appellate court will eventually be able to delay filling vacancies as they occur or eliminate positions as they become vacant.

Impact of Electronic Case Filing on Management and Organization Issues.

The opinion survey asked a variety of questions designed to establish what impact, if any, electronic filing technology has had on management issues in the courts and on their organizational structure and policies. The management questions focused on the role of managers (question 16), the way managers evaluate performance and productivity (questions 9 and 11), the number of managers relative to the number of subordinates (question 14), and the amount of supervision required (question 13). As explained earlier, question 14 has been excluded from the analysis due to a low response rate.

Research on the impact of technology on management functions seems to support the hypothesis that fewer layers of management as well as fewer numbers of managers are required as the use of technology grows. Most of the research reviewed for this project addressed “middle” managers—a position whose role can sometimes be difficult to define. The research shows that technology allows managers, in general, to “spend less time on routine tasks rendered more efficient by technology, and more time on tasks judged critical such as communicating task-relevant information.” (Pinsonneault and Kraemer, p. 194). As indicated earlier in the productivity analysis, this shifting of managerial focus was also shown to be a factor in increasing the overall productivity of workers. In addition, as technology frees more time for managers to “manage”, this enables an increase in each manager’s span of control—the ability to supervise more individuals. (Olson and Lucas, p. 845).

The survey questions related to organizational issues asked respondents to identify how their organizational structure may have changed as a result of ECF (questions 7, 14,

and 19), changes in work rules or policies (question 18), and the affect that ECF has had on work relationships (question 20).

A repeated theme in the research on how technology impacts organizations—their structure and the various relationships within—is that technology will nearly always affect the organization in a variety of ways. However, once again, technology is not the direct cause or determining factor of organizational change; instead, it is an enabling, facilitating, or contributing factor. It is an “external force that triggers organizational changes...management action is needed to integrate and internalize technology into the organization.” (Pinsonneault and Kraemer, p. 18). According to Eason, when implementing new technology,

the organization’s outcomes depend on the type of technology (does it lead to centralization or decentralization, augment or replace human intellect, etc.), the organization’s goals (if the intention is to use the technology to replace jobs, then that may be the outcome), and the response of users—can stakeholders find interesting ways to exploit the new functionality. The new technical system has to engage with the complex world of tasks, procedures, and culture within the organization.²⁰

Much of the research reviewed here identifies the same organizational factors that are potentially impacted by technology: changing roles of people in the system, lowering communication barriers, altering levels of authority, and changing the relationships between individuals and groups.

It is important to keep in mind that along with beneficial changes from technology improvements, there may be negative consequences attached to organizational changes enabled by technology: “Changes in roles and relationships may have greater and more complex effects resulting in coordination failures and new forms of system failure.”

(Woods, p. 2). In addition, Olson and Lucas question the effect that the loss of verbal or

²⁰ Eason, Ken. “Changing Perspectives on the Organizational Consequences of Information Technology.” *Behavior and Information Technology*, 2001, Vol. 20, No. 5. (p. 324).

face-to-face contact enabled by automation may have on the quality of communication and on a worker’s “feelings of identity with the organizational goals” which could lead to a decrease in organizational commitment. (p. 843).

Survey Findings – Management and Supervision.

Supervision. When court managers were asked about the level of supervision required in their ECF court, 24% indicated that less supervision was required, 38% indicated that the level of supervision required was the same, and 38% that more supervision was required (Table 17). The survey also asked respondents to identify changes in their manager-to-non-manager ratios prior to and following ECF implementation, and to evaluate the extent to which any change could be attributed specifically to ECF, but not enough responses to those survey questions were received to be able to include any analysis for this part of the project.

Table 17.

Impact of Electronic Case Filing on Level of Supervision Required	
More Supervision Required:	8 (38%)
About the Same Supervision Required:	8 (38%)
Less Supervision Required:	5 (24%)

Measuring performance and productivity. When asked in questions 9 and 11 whether the implementation of electronic filing has changed the way that productivity and performance are measured and evaluated, the majority of respondents commented that ECF has made performance and productivity measurement and evaluation easier. In part, this is because the CM/ECF application includes much more extensive reporting and tracking capabilities than the system it replaced. Court managers can, if they choose, track certain aspects of the case management team’s performance and productivity through reports rather than through direct observation and repetitive work reviews. The

improved reporting capabilities also make it much easier to evaluate the accuracy of a clerk's work on the system and their workload. This means that productivity and performance can be routinely and accurately evaluated, and managers are able to provide more timely feedback to staff members.

Several court managers said that electronic filing has changed the way in which they *view* productivity and performance. The multi-faceted aspects of the job that case managers now perform under ECF requires that managers place more emphasis on qualitative measures of performance and productivity, and rely less on numerical measures such as amount of filings processed or docketing error rates in order to develop a comprehensive evaluation of employees. Other critical elements that make up a thorough evaluation of productivity and performance include a case manager's customer service and training skills, their knowledge of and ability to use of the CM/ECF system effectively, and their problem-solving abilities.

These skills can be more difficult to identify and measure than some of the skills traditionally associated with case management such as the ability to type, to work quickly, and to follow established procedures.

The role of managers and supervisors. Respondents to survey question 16 identified a variety of ways in which the role of managers has adjusted to the electronic filing environment. Twenty percent (20%) of court managers said that ECF has made it essential that managers have strong coaching and support skills to make the transition to electronic filing successful and to enable a high level of staff performance in an environment that is continuing to evolve and grow. Supervisors need to be the change agents and the champions for ECF. In addition, managers will need to modify their traditional direct supervisory techniques in order to effectively manage both on-site and

telecommuting staff members. Managers also spend more time testing new components of the application and preparing instructions and manuals and training staff. Because attorneys are now depending more on the court for information and docket correction, managers are also spending more time assisting these attorneys in using the system. In one court's experience, managers devote considerably more time since implementing electronic filing to "developing better practices and technology to better serve the public and address the unique problems [that] e-filing presents."²¹

Survey Findings – Organizational Issues.

Impact on work rules or policies. Only five courts responding to the survey indicated any change in work rules as a function primarily of the transition to electronic filing. Working from a remote location has generally been expanded under e-filing in these courts, and that has led to more staff members becoming eligible for telecommuting at least part of the work week. One court indicated that they had relaxed their dress code policy, enabled by fewer direct contacts with court users at the intake counter. Several courts also have established mandatory staff training for new releases of the application. In one court, budget cuts have required (and electronic filing has enabled) the court to reduce its public hours by one hour a day. The court is now open to the public 9:00-4:00, and the extra hour of non-public time enables the court to conduct more CM/ECF training for staff members on a routine basis.

Impact on organizational structure. Three courts responding to the survey indicated that the most identifiable structural change to their court related to ECF has been the elimination of the intake function as a distinct section within the clerk's office. These courts have folded the intake function into the case management structure so that all team members are performing a variety of functions, including intake. One court

²¹ Jo McKnight, U.S. District Court, Southern District of Indiana. February 2006.

renamed their intake section to “Court Services”, reflecting the combination of the previously separated intake, docketing, and customer service functions of court staff.

Only one court indicated that they were currently examining their management and team structure and attempting to “flatten” their organization by reducing the number of supervisors from four to two. According to this court manager, electronic filing has provided the opportunity and the incentive to make such organizational changes.

Several survey respondents said that they had created a new position within their operations staff for ECF Analyst or CM/ECF Administrator—a staff member who monitors the operation of the system, implements upgrades, and provides support and training to both internal and external users. And another court moved its technology director physically into the clerk’s office to enable a closer working relationship with the operations staff as CM/ECF develops and unique features are designed for the court.

Impact on work relationships. Of the courts responding to the survey, 72% said that electronic filing has required more communication at all levels within the court because of the need to train court employees and judges and chambers staff how to use the system, and to keep all court members updated on changes in the system. In addition, now that court documents can be viewed and filed from any court location, communication between staff located at remote or satellite locations has increased. Several respondents indicated that the use of electronic filing throughout the court had brought the members of the court together as more of a “team”, and in particular noted that the relationship between the clerk’s office and the judges and their staffs had been positively impacted by the increased level of communication and “understanding” of exactly what the clerk’s office does. One court manager believes that this new

understanding has helped inspire more confidence in the clerk's office from the court's judges and other staff.

Some respondents indicated that the relationships between managers—especially between managers at satellite locations—are also improved since ECF implementation because the availability of a standardized operating system means that managers are more interdependent and need to maintain a constant, open dialogue in order to provide procedural and operational consistency between offices. No longer is it possible for managers to isolate themselves or their staffs and operate under a unique set of procedures. Many courts have established weekly meetings and data quality teams or committees to problem-solve CM/ECF issues and develop local practices. As one court manager put it, it is now necessary for the clerk's office to work together as a *whole* team in order to establish an efficient, unified “best practices” approach to problem-solving in the ECF system. As a result, he concluded, “we work better as a district” since the implementation of electronic case filing.

Applying the Findings to the Appellate Court.

It seems likely that the appellate courts will experience some management and organizational changes as a result of implementing electronic case filing, but the types of changes—and their degree—is difficult to estimate. This is probably the area where the appellate court experience will likely differ most from the experience at the district and bankruptcy courts.

Conclusion and Recommendations

Summary of Findings.

The first part of this study explored the impact that electronic case filing has had on productivity and performance at the federal district and bankruptcy courts and considered whether the same impact would be felt at the appellate courts. Based on the data from the opinion survey, it appears that the appellate clerk's office can expect to see modest net improvements in staff productivity and performance as a result of using an electronic case filing system, especially once the initial phases of implementation have been completed. Managers at the trial courts report that ECF has had both positive and negative effects on productivity and performance. Early stages of ECF implementation may negatively impact productivity and performance due to the duplication of work associated with the transition between paper and electronic records, the need to maintain pro se cases in paper form, and the staff's unfamiliarity with the system requirements and capabilities. In addition, other adjustments occurring during the early stages of implementation such as the changing nature of the work, modified team composition and/or authority structures, or other organizational factors may have a negative effect on staff productivity and performance.

The data show, however, that as experience with the system grows, improvements in staff productivity and performance can be realized. Managers responding to the survey linked improvements in productivity and performance to fact that fewer docket entries are being made by the court's clerks and to the CM/ECF application itself which has greatly improved the ease and accuracy with which data can be entered by the clerk. ECF docket entries also receive increased scrutiny either from public viewers of the

docket, the judges and their staffs, or by court managers or team members doing quality reviews.

Although one of the research questions raised the possibility that staff productivity and performance would be impacted by the extent to which docket entries were made by attorneys directly onto the docket and by the percentage of pro se cases that make up a court's caseload, the data did not find any conclusive link between these factors and improved productivity and performance. Neither suggestion that these factors (a higher percentage of attorney entries and a lower percentage of pro se cases) *improved* productivity was proven by the data gathered from the survey. It seems likely that, based on comments made by the survey respondents, some of the benefits expected to be derived from these two factors may be offset by losses in productivity and/or performance (or in the ability to accurately measure these factors) due to other reasons such as the change in the nature of the case manager's job as a result of ECF. Indeed, prior research has found that expected benefits on productivity and/or performance from introducing technology improvements into the workplace are frequently offset by unforeseen negative impacts. One of the most important challenges that appellate court managers will have during the transition to CM/ECF is managing the expectations of their staff and the court as a whole. Appellate courts need to set realistic goals and recognize that early implementation phases will include many accomplishments as well as some setbacks and disappointments. The positive impacts can be maximized and the effect of negative impacts minimized by preparing well, being flexible, and maintaining open communication.

Case managers working in the electronic case filing environment now perform a variety of functions beyond basic document processing and data entry. New tasks such

as correcting entries on the electronic docket, assisting attorneys with filing problems or questions, reviewing entries for quality assurance, and providing training to attorneys and the public can be more complex and require more time and greater skill. There was overwhelming agreement among court managers that the job of the case management team had increased in complexity since the implementation of ECF. In addition, courts who said task complexity had increased had average productivity and performance ratings *higher* than those courts who said that complexity was about the same! This may be due to several factors as yet unexplored but which perhaps include: personal qualities of the staff, more challenging and interesting work, and a higher level of investment and pride in one's job. Or, as was suggested by one respondent in the study, the higher complexity/productivity/performance correlation could also be due to the attrition of marginal performers unable to adapt to the recent changes whose departure may result in an overall group performance improvement.

Finally, one could also conclude that the perceived productivity and performance improvement despite increasing complexity is one of many outcomes expected of a robust, well-designed automated system with adequate technical and cost support, appropriate preparation and planning for implementation, extensive training, and “cheerleading” managers at national and local levels.

The next part of the study looked at ECF's impact on staffing levels. Few court managers in the survey attributed any significant reduction in staffing level to the implementation of ECF. In most courts, staff assigned to intake counter duties have been reassigned elsewhere as intake traffic has decreased dramatically since ECF. But it appears that, in the opinion of the survey respondents, other environmental factors such as budget reductions, changes in caseload, or scheduled retirements may have a bigger

impact on staffing level than does ECF. Courts operating with ECF are likely to be able to accomplish “more with less” not necessarily because the technology has replaced the human component in the case management process, but because technology is “facilitating work redesign and improv[ing] efficiency.” (Pinsonneault and Kraemer, p. 194).

Electronic filing has clearly made the court clerk’s office better able to cope with changes in environmental factors, providing more options in responding beyond the solution of adding or eliminating staff. As an example, bankruptcy courts were overwhelmed with new filings in September and October of 2005 in advance of the Bankruptcy Reform Act. According to the Administrative Office of the U.S. Courts, 603,000 cases were opened in CM/ECF in October 2005 (compared to the average of 125,000 filings per month). And 463,000 (or 77%) of those new cases were opened by attorneys, not by court staff. Concluded Director Mecham: “Without CM/ECF, full implementation of the Act on October 17 would have been extraordinarily burdensome and costly.”²² One bankruptcy court manager interviewed for this project, while discussing the impact of budget, staffing, and caseload pressures on his operations, came to the conclusion that “we could not survive without ECF.”

The study also looked at the impact that electronic filing has had on management issues such as the level of supervision required and the role of managers. Responses to the survey suggest that just as ECF has changed the nature of the work of the case management staff, it has also had an impact on the traditional role of managers. Survey respondents were relatively split when asked whether more or less supervision was required in the electronic filing environment, although many agreed that ECF has

²² Leonidas Ralph Mecham, Director, Administrative Office of the U.S. Courts. Memorandum to the Chief Justice and Members of the Judicial Conference of the United States. November 9, 2005.

changed the way in which they evaluate the performance and productivity of the case management staff. Although ECF makes measuring the quantity and quality of work easier due to the system's reporting capabilities, managers must also develop a more qualitative approach toward evaluation based on activities performed and accomplishments or goals reached rather than piece-by-piece measurement. One of the most important new roles for managers is that of being "change agents" to help staff make the transition into ECF and to continue to support them through succeeding application modifications and enhancements. Now, more than ever, managers in the federal courts need to have strong coaching, training, and support skills.

Finally, the project considered what impact electronic filing has had on organizational policies and structure. Several courts identified improved communication throughout different court offices as an example of how implementation of ECF has impacted work relationships. Some courts have reorganized their intake sections or added new positions specifically for the management of ECF, but only one court volunteered that they were considering a redesign of their management structure primarily as a result of efficiencies and modified work processes introduced through the use of CM/ECF. A few courts indicated that more telecommuting was being made available to employees since the implementation of ECF, but few other changes in the work environment or policies were identified by respondents.

The lack of observable organizational change is perhaps not too surprising since the research cited in this report supports organizational change as a *potential* outcome but not a specific or assured result of new technology, and *only if* there is managerial support for the organizational change. As Pinsonneault and Kraemer found, technology is an "external force that triggers organizational changes...management action is needed to

integrate and internalize the technology into the organization.” (p. 18). It may be that it is still too early to expect significant organizational change in courts that are using electronic case filing, or that there may be other factors actively preventing it.

Applying the Study Findings to the Appellate Court.

This study provides no data to support a general conclusion that the impact of electronic case filing at the appellate court clerk’s office will produce a *different* result than what has been experienced in the trial courts so far. The data support the hypothesis that staff performance and productivity are likely to be enhanced, especially after the initial implementation phases, due to the improvement in the case management technology and the potential for shifting some portion the docket entry work to attorneys, in addition to the change in the nature of job duties and responsibilities of case management staff.

The study data does not support the hypothesis that ECF will lead to significant changes in the level of staffing among either the appellate case management staff or among clerk’s office managers. However, staffing changes can likely be expected over the longer term—as this is one of the cost-reduction goals of electronic filing—but rapid reductions in staff due exclusively to ECF seem unlikely based on the trial court experience.

Not enough data is available from this study to reach any conclusion on the final hypothesis—that electronic filing *positively* impacts the organization by clarifying roles, improving relationships, streamlining structure, and enabling effective workplace policies. Although some anecdotal evidence was provided to suggest that ECF has had a positive impact on work relationships within the court, it is perhaps too early to predict what the final organizational outcomes will be.

Recommendations.

The purpose of this project was to identify potential outcomes resulting from the implementation of electronic case filing technology in order to enable better planning and decision-making for workload/assignments, training, and restructuring in the appellate courts, and specifically at the U.S. Court of Appeals for the Federal Circuit. It is clear that appellate courts need to prepare for both the positive and negative effects of CM/ECF; fortunately, they have the prior experience of the trial courts to serve as a roadmap, and the benefit of well-tested implementation guides, training resources, and mentor courts to ease their transition. The recommendations here revolve around a single theme: preparation. The court needs to take to heart the finding in Eason’s research that “many organizational outcomes are unplanned and unintended by any stakeholder, including senior management...they are the result of an inadequate appreciation that the technical system being constructed would have far reaching implications for the socio-technical work system...” (p. 325). The reality for the court is that the consequences of new technology can have a variety of impacts: some are known, and some are unknown. We can plan for both, enhancing the positive impacts and mitigating the negative ones, by adequately preparing and using the resources available to us.

Recommendation 1: Increase communication. According to Transitioning to CM/ECF: Managing the People Side of Change, court managers need to “create specific conditions to facilitate the transition” for their staff, and one of these conditions is open communications. Among the suggestions is to “protect your communication credibility”²³ by being honest about the benefits and costs of the system and the projected impact of the new system—both positive and negative—on the staff, their work, and their roles. Clerk’s office staff need to be informed of their court’s goals, expectations,

²³ Buchanan, James M. Transitioning to CM/ECF: Managing the People Side of Change (A Guide for Court Managers). Federal Judicial Center, Washington, DC. May 6, 2005. (p. 17).

plans, and schedules, and encouraged to discuss issues and ask questions and participate in planning committees. Open communication should be ongoing—before, during, and after the transition is made to electronic case filing.

Recommendation 2: Engage in case management process redesign. This work can begin immediately by mapping existing processes. The maps can be modified as the new automated system is designed and implemented. Early process redesign is also a good way to get the entire operations staff involved in, invested in, and thinking about how to work better and smarter in service to the court and to the public.

Recommendation 3: Identify formal and in-house training that will assist staff members and managers in acquiring (or strengthening) skills they will need to perform more complex and varied duties. Engage in individual development planning.

Recommendation 4: Prepare for a formal examination of clerk’s office managerial and organizational structure. Research has shown that the full benefits of most technology advancements can be enhanced by organizational modification to fit redesigned processes. Court leaders and managers can begin thinking about how organizational authority structures can be used most effectively to enhance the beneficial effects of electronic filing technology.

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A final note from the author. I learned a lot from doing this project. I readily admit that I approached this topic with a number of pre-conceived ideas and assumptions—and my survey testers were the first ones to catch me at this when they identified bias and negativity in my draft survey. Some of my assumptions proved accurate and some did not. I admit to being one of those people who think that advanced office automation inevitably leads to “deskilling” of the administrative workforce. But I was quickly disabused of that assumption by the prior research that proved otherwise and, more importantly, by the data in this project which showed that there was increased task complexity in the electronic filing environment. Fitting in nicely with the deskilling assumption, another myth that was shattered by the research and the

data was the assumption that ECF would lead to dramatic reductions in staff and managers. Although it is clear that this may indeed be the long-term outcome enabled by electronic filing in the court system, it is certainly not guaranteed; if such reductions do occur, it seems likely that they will take place in a gradual and measured way for the most part.

Finally, although I had heard good things about CM/ECF from a few people here and there, I was unprepared for the overwhelming—practically universal—enthusiasm for the system among the court managers who were interviewed by phone or who filled out the project’s survey form in writing. Many comments were received about how CM/ECF has changed the culture of the court or transformed operations, even while there may have been—or continue to be—transitional difficulties. Of course, one of the weaknesses of this study is that I have no opinions from court staff who are *not* managers, and I do wonder whether non-managers have the same enthusiasm for ECF.

Nevertheless, getting such positive feedback about the experience at the district and bankruptcy courts has increased my confidence that the appeals court will have a similar experience as long as we prepare early and adequately. I am better prepared now to be a “cheerleader” for implementing electronic case filing in my court. The knowledge and insight I have gained from this project will help me to help my court and my colleagues as we prepare to undergo the magnificent experiment that is electronic filing.

If I were going to do a follow-up study on the impact of electronic case filing in the federal courts, I would focus on the organizational impact. This is the area that seems to have the most unknown or difficult to identify outcomes. Perhaps it is still too early to find any measurable outcomes and reach conclusions about organizational impact. But according to Olson and Lucas, “researchers should examine long-term

widespread organizational changes rather than narrowly defined changes in productivity or demonstrable efficiency increases” yet they also recognize that “such research is difficult requiring longitudinal detailed examinations of organizations.” (p. 845).

Examining this particular research question would necessarily require an extensive survey of various courts—perhaps both federal and state or local courts—using site visits and personal interviews or surveys among court managers *and* staff to determine how this new technology has impacted the court’s structure, its policies, and the relationships between its internal members.

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Appendix

Research Study on the Impact of Electronic Case Filing on the Federal Courts

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Survey / Interview Questionnaire

This survey is being conducted in order to identify the potential impact that electronic case filing (ECF or e-filing) may have on appellate Clerk’s Office operations in the areas of staff productivity and performance, staffing level, and management and organizational structures, based on the experience so far in the district and bankruptcy courts.

When responding to the following questions, please consider only the staff involved in civil case management, not your mailroom, financial, human resources, or facilities staff.

Thank you for your participation in this project.

General

1. When did your court implement the ECF component of CM/ECF in civil cases? _____
2. In your court, which civil filings does e-filing apply to? _____

3. Of the civil filings which are made via electronic filing, what percentage are made by attorneys, and what percentage are made by the court’s clerks?

By Attorneys: _____ % By Clerks: _____ %

4. In civil cases, do you still retain the paper file, or part of the paper file? If yes, please specify the type documents retained and the purpose for the retention.

5. How has e-filing affected the way case managers and other operations* staff work with pro se cases?

*To differentiate between staff with the title of “case manager” and other staff, “Operations” in this context would likely include your intake staff, receptionist, the Chief Deputy and/or operations manager and other supervisors, records clerks, etc.

6. What percentage of your civil cases are pro se? _____

7. How has the amount of customer traffic at your intake counter changed since the implementation of ECF? (select one):

Increased

Decreased

About the Same

How much of any increase or decrease identified above do you attribute specifically to the availability of ECF:

- _____ None
- _____ Up to 10%
- _____ Up to 25%
- _____ Up to 50%
- _____ Up to 75%
- _____ Over 75%

Productivity

8. Consider the **productivity** of the case management staff, i.e., the time it takes a staff member to process routine filings or the number of filings a staff member can process during a fixed time period.

Using the scale below, rate the impact that electronic filing has had on the productivity of case management staff (positive impact being less time required to process filings, and negative impact being more time required to process filings):

Positive Impact			No Noticeable			Negative Impact		
Significant	Some			Impact		Some	Significant	
9	8	7	6	5	4	3	2	1

If a positive or negative impact is identified above, describe how e-filing has generated that impact on productivity. Use examples, or summarize the results of a previous productivity analysis, if any.

9. Has the implementation of ECF changed the way you measure and evaluate the productivity of your staff? If yes, how?

Performance

10. Consider the **performance** of staff with case management responsibilities, i.e., the accuracy with which staff process case documents, make or review docket entries, and manage case files.

Using the scale below, rate the impact that e-filing has had on the performance of case management staff (positive impact being improved accuracy, and negative impact being more errors).

Positive Impact			No Noticeable Impact			Negative Impact		
Significant	Some			Some	Significant			
9	8	7	6	5	4	3	2	1

If a positive or negative impact is identified above, describe how e-filing has generated that impact on performance. Use examples, or summarize the results of a previous performance analysis, if any.

11. Has the implementation of ECF changed the way you measure and evaluate the performance of your case management staff? If yes, how?

Staffing and Management

12. How has the number of staff in operations/civil case management changed since your implementation of electronic filing began? (select one):

- Increased Decreased About the Same

How much of any increase or decrease in staffing level identified above do you attribute primarily to the implementation of ECF? (select one):

- _____ None
- _____ Up to 10%
- _____ Up to 25%
- _____ Up to 50%
- _____ Up to 75%
- _____ Over 75%

13. In the operations/case management section(s) of your Clerk’s Office, would you say that ECF has resulted in: (select one for each category):

Amount of work*:	more work	less work	about the same as pre-ECF
Task complexity:	more complex	less complex	about the same as pre-ECF
Time to complete tasks:	more time	less time	about the same as pre-ECF
Supervision required:	more supervision	less supervision	about the same as pre-ECF

* “Work” includes filings to be processed, customers at the intake counter, phone calls from parties, etc.

14. How has your manager-to-subordinate ratio in operations/case management changed since you implemented CM/ECF?

Prior to CM/ECF implementation: _____ #Managers / _____ #Non-managers

At present: _____ #Managers / _____ #Non-managers

How much of any increase or decrease in the manager-to-subordinate ratio identified above do you attribute primarily to the implementation of ECF? (select one):

- _____ None
- _____ Up to 10%
- _____ Up to 25%
- _____ Up to 50%
- _____ Up to 75%
- _____ Over 75%

15. How have job titles and duties changed since you implemented e-filing? Please be specific.

16. How has the role of managers and supervisors changed since implementing e-filing?

17. What new skills do operations/case management staff need to perform successfully in an e-filing environment?

18. Did implementation of ECF change work rules or policies such as the following: (select all that apply; for any item(s) selected, briefly describe the change in the space provided)

_____ dress code _____

_____ overtime/comp time policy _____

_____ training policy _____

_____ compressed work schedules _____

_____ telecommuting _____

Organizational Structure

19. What changes, if any, in the way your office is organized were made to accommodate an e-filing environment? Consider things such as the way your teams are structured and whether there was a fundamental shift in office structure or organization.

20. How has ECF affected work relationships, such as those:

- Between managers;
- Between non-managers;
- Between subordinates and managers;
- Between operations/case management staff and other members of the court (staff attorneys, judges, administrative staff)?

21. Are there any further comments you would like to make about the impact of electronic filing on your case management operations?

22. May I have an organizational chart of your current operations/case management staff?

23. May I identify you by name and court, and your responses to this survey, in my final project report?

Thank you for your time. Anne Tomlinson

Introductory E-Mail to Survey Courts

Dear _____,

I am writing to ask if you would be willing to participate in a survey that I'm conducting for a research project on the impact of electronic filing. I'm doing the research as my Phase III project for completion of the NCSC's Court Executive Development Program. So the project is not an actual assignment from my court; however, I do have permission from my Chief Deputy Clerk to conduct my survey among selected district and bankruptcy courts.

The purpose of my research project is to evaluate the potential impact of CM/ECF (in particular the e-filing component) on the U.S. Court of Appeals Clerk's Office operations. One of the things I am looking at is the impact that e-filing has had at the district and bankruptcy court levels so far and considering whether those impacts may be the same at the appellate level. Specifically, I wish to determine the impact that e-filing has had on:

- Staff performance (such as rate of docketing errors measured before and after e-filing implementation)
- Staff productivity (the time to process case documents before and after implementation)
- Staffing levels
- Management issues and organizational impacts (changes in job structure, team structure, organization of tasks, manager/subordinate roles, changes in work rules, etc.)

If you agree to complete my survey, I would like to send it to you via email and then call you to conduct a phone interview to get your responses. I feel this will save your time as well as mine in that you can see the questions in advance and think about them, but you won't have to laboriously type out your answers. (Of course, if you prefer to respond in writing, I certainly have no objection).

Would you please let me know if you are interested in participating in my project? Thank you very much.

Anne Tomlinson

Document Processing Time – Non-Dispositive Motion

<u>Step</u>	<u>Task</u>	<u>Time to Perform</u>
1	Retrieve file folder	
2	Examine document, complete checklist	
	If document is rejected, skip to Step 5	
	File document, motion granted by clerk:	
3.1	Affix file date stamp to original; discard copies	
3.2	Review proposed order for completeness	
3.3	Prepare order	
3.4	Affix signature stamp, file date stamp, and citation stamp to order	
3.5	Assign document entry number	
3.6	Database entry	
3.7	Print entry labels; place label on docket card and checklist	
3.8	Copy order for parties	
3.9	Place checklist, motion, and original order in file folder; return folder	
3.10	Mail order to parties	
	File document, motion referred to panel:	
4.1	Affix file date stamp to original and copies	
4.2	If confidential, affix labels to front cover of original and copies	
4.3	Assign document entry number	
4.4	Database entry	
4.5	Print entry labels; place label on docket card and checklist	
4.6	Place checklist, motion, and original order in file folder; return folder	
4.7	Prepare routing slip	
4.8	Attach routing slip to motion copies; place in outbox	
	Reject document:	
5.1	Assign document entry number	
5.2	Database entry	
5.3	Print entry labels; place label on docket card and checklist	
5.4	Prepare rejection notice	
5.5	Copy rejection notice for parties	
5.6	Mail notice to parties, with original and copies of motion to filer	
5.7	Place checklist and rejection notice in file folder; return folder	

Document Processing Time – Formal Brief

<u>Step</u>	<u>Task</u>	<u>Time to Perform</u>
1.1	Retrieve file folder and original brief	
1.2	Retrieve brief copies from holding shelf	
2	Examine document, complete checklist	
	If document is rejected, skip to Step 4	
	File document:	
3.1	Affix file date stamp to original and copies	
3.2	If confidential, affix labels to front and back covers of original and copies	
3.3	Assign document entry number	
3.4	Database entry	
3.5	Print entry labels; place label on docket card, brief, and checklist	
3.6	Place checklist in file folder; return folder	
3.7	Place 6 copies in merits panel bin	
3.8	Place original and 4 copies in 1B bin	
3.9	Place public copy in vault	
	Reject document:	
4.1	Assign document entry number	
4.2	Database entry; select/create appropriate rejection bullets	
4.3	Print and sign rejection notice	
4.4	Print entry labels; place label on docket card, brief, and checklist	
4.5	Copy rejection notice for parties	
4.6	Mail notice to parties, with copy of brief to filer	
4.7	Place checklist and rejection notice in file folder; return folder	
4.8	Place briefs on rejection shelf, with identifying label	

Document Processing Time – Petition for Rehearing En Banc

<u>Step</u>	<u>Task</u>	<u>Time to Perform</u>
1	Retrieve file folder and mandate tickler	
2	Examine document, complete checklist	
	If document is rejected, skip to Step 5	
	File and circulate document to panel:	
3.1	Affix file date stamp to original and copies	
3.2	Affix “petition” label to original and copies	
3.3	If confidential, affix labels to front cover of original and copies	
3.4	Assign document entry number	
3.5	Database entry, print circulation sheet and log sheet	
	Print entry labels; place label on docket card and checklist	
3.6	Copy circulation sheet	
3.7	Attach circulation sheet to copies of petition; place in outbox	
3.8	Prepare temporary petition folder	
3.9	Place original petition, circulation sheet, log sheet in temporary folder	
3.10	Attach circulation sheet to mandate tickler; return to tickler file	
3.11	Return temporary folder and extra petition copies to vault	
3.12	Place checklist in file folder; return folder	
	Circulate document en banc:	
4.1	Retrieve file folder, mandate tickler, temporary folder, extra copies of petition	
4.2	Database entry; print en banc circulation sheet and log sheet	
4.3	Copy circulation sheet	
4.4	Attach circulation sheet to copies of petition; place in outbox	
4.5	Attach circulation sheet to mandate tickler; return to tickler file	
4.6	Place circulation sheet and log sheet in temporary folder; return to vault with extra copies of petition	
4.7	Return file folder	

	Reject document:	
5.1	Assign document entry number	
5.2	Database entry	
5.3	Print entry labels; place label on docket card and checklist	
5.4	Prepare rejection notice	
5.5	Copy rejection notice for parties	
5.6	Mail notice to parties	
5.7	Place checklist and rejection notice in file folder; return folder	
5.8	Attach rejection notice to mandate tickler; return to tickler file	
5.9	Place rejected petition on rejection shelf, with copy of notice	
	Order a response:	
6.1	Retrieve file folder, mandate tickler, temporary folder	
6.2	Call parties; complete call documentation	
6.3	Assign document entry number	
6.4	Database entry; print response letter	
6.5	Print entry label; place label on docket card	
6.6	Copy response letter	
6.7	Mail response letter to parties	
6.8	Send copies of response letter to panel/en banc	
6.9	Attach response letter to mandate tickler; return to tickler file	
6.10	Place copy of response letter in file folder; return folder	
6.11	Place copy of response letter and log sheet in temporary folder; return folder to vault	
	Issue Rehearing Order:	
7.1	Retrieve file folder, mandate tickler, temporary folder, extra copies of petition materials	
7.2	Database entry	
7.3	Print entry label; place label on docket card	
	Prepare order; modify the order as required. Affix file date stamp, clerk signature; attach caption cover sheet.	
7.4	Copy order	
7.5	Provide copy of order to the dispositions clerk	
7.6	Mail order to parties	
7.7	Send order to panel/en banc	
7.8	Attach order to mandate tickler; return to tickler file	
7.9	Place original order in file folder; return folder	
7.10	Attach copy of order and log sheet to original rehearing pkg; file in vault. Destroy extra copies.	

File Audit

Case No.: _____ Type of case: _____ Date Audited: _____

Total # of entries: _____ # Entries of Appearance: _____

Motions entries (incl replies, actions): _____

Briefs entries (incl rejected briefs): _____ # Misc. entries: _____

Are all documents in the file numbered correctly? _____

Are entry numbers duplicated or skipped? _____

Do all entries on the docket card belong on the docket card? _____

Are there any typos on the entries made on the docket? _____

Were default dismissals entered timely? _____

Were filing dates for List, 15c, fee updated in CMS? _____

Were the court's orders prepared correctly? _____

Were the court's orders explained fully (to the extent possible) on the docket? _____

Were briefs filed correctly? _____

Were due dates set correctly? _____

Were motions filed correctly? _____

Were entries of appearance filed correctly? _____

Was the case initially docketed correctly? _____

Was the caption prepared correctly? _____

Was the case termination prepared and entered correctly? _____

Complete Data Set

Court I.D.	Date of ECF Implementation	% Civil Filings by Attorneys via ECF	% of Civil Cases are Pro Se	Impact of ECF on Productivity	Impact of ECF on Performance	Change in Intake Traffic Since ECF	% Change Attributed to ECF	Change in Staffing Level Since ECF	% Change Attributed to ECF	ECF Impact on Amount of Work	ECF Impact on Task Complexity	ECF Impact on Time for Tasks	ECF Impact on Supervision Required
A	2004	35	16	7	7	Decrease	76%+	Same		Less	Same	Same	Same
B	2000	80	25	8	8	Decrease	75%	Same		Same	More	More	More
C	2004	23	26	7	8	Decrease	76%+	Decrease	0	Less	More	More	Less
D	2002	23	22	5	7	Same		Increase	10%	More	More	More	More
E	2001	97	5	9	9	Decrease	76%+	Decrease	76%+	Less	More	Less	Less
F	2000	86	18	5	5	Decrease	76%+	Decrease	0	More	More	More	More
G	2002	84	30	1	3	Decrease	75%	Decrease	10%	Same	More	Same	More
H	2001	60	28	7	5	Decrease	50%	Decrease	10%	Less	More	Less	Same
I	2004	59	15	5	7	Decrease	76%+	Decrease	76%+	Less	More	Less	Same
J	2004	45	30	5	5	Decrease	76%+	Same		Same	More	Same	Same
K	2004	28	14	5	5	Decrease	76%+	Decrease	0	More	More	More	More
L	2003	45	32	7	5	Same		Same		Less	More	Same	Same
M	2002	70	25	6	6	Decrease	76%+	Decrease	25%	Less	Same	Same	Same
N	2000	76	16	8	8	Decrease	76%+			Less	More	Less	Less
O	2003	39	18	7	6	Decrease	75%	Decrease	10%	Less	More	More	More
P	2003	25	28	7	5	Same		Same		Same	More	Less	Same
Q	2003	26	30	6	6	Decrease	50%	Increase	0	Same	More	Less	Less
R	2004	23	25	4	5	Decrease	50%	Decrease	0	Same	Same	More	More
S	2003	48	26	5	6	Decrease	75%	Decrease	0	More	More	More	More
T	2002	83	21	7	8	Decrease	76%+			More	More	Less	Less
U	2003	59	20	6	5	Same		Same		Less	More	Same	Same