4

Innovating from the Center in a Decentralized Agency

Electronic Filing in the Federal Judiciary

Ed Gibson

INTRODUCTION

The public sector is less known for innovation than the private sector. Indeed, the originator of the concept of innovation as "creative destruction," Joseph Schumpeter (1942), thought that a bureaucratic structure was incompatible with the capacity to innovate. However, the picture of public agencies as captives of the status quo has evolved in recent years, given the move to e-government that coincided with the rise of the Internet. Especially at the state and local levels, innovative customer service approaches are visible to citizens, who now have access to e-government for driver's license renewal, review of property valuation, and, in an increasing number of jurisdictions, service requests through 311 systems.

Such visibility is rare in the federal government, given that its innovations involve direct provision of services less frequently. However, one fundamental change apparent to the general public is the electronic filing (e-filing) initiative by the Internal Revenue Service (IRS), which recently achieved an 80 percent proportion of individual returns filed electronically, after a 20-year effort (IRS Oversight Board, 2012). Behind the scenes federal banking regulators, including the Office of the Comptroller of the Currency and the Federal Reserve, have instituted e-filing for applications and regulatory reports from banks.

This chapter examines an innovation of great significance to the legal profession, though largely invisible outside the federal Bar. The shift to e-filing within the federal courts has transferred much of the responsibility for docketing (maintenance of the court record) from court administrators to attorneys and their staff. The first part of this account will examine the Federal Judiciary's development and centrally managed implementation of an e-filing system, called Case Management/Electronic Case Files (CM/ECF), which included the capability for attorneys to electronically file and docket their cases. Next, an examination of the system's national rollout to nearly 200 individual courts will focus on the voluntary nature of the courts' acceptance and implementation of the CM/ECF system. The process of e-filing implementation throughout the decentralized federal court system shared crucial similarities with the diffusion

mode of innovation. This account augments the literature on public sector diffusion of innovation, for example, applied to municipalities by Frederickson, Johnson, and Wood (2004).

Notwithstanding the Judiciary's decentralized structure, it is bound by an institutional connection: the integrating norms and concepts of the legal system. The penultimate section will address the institutional requirements that had to be met for the system to be found acceptable in view of judges' and attorneys' commitments to their profession. The final section will provide a reflection to inform other agencies seeking to innovate.

THE FEDERAL JUDICIARY AS AN INNOVATING ORGANIZATION

The Federal Judiciary's place in the U.S. government provided apparent advantages for innovation. As a coequal branch of government, it operates without cabinet oversight and is free from intervention by the Office of Management and Budget—the enforcer of presidential agendas through budgetary and regulatory review. Consistent leadership, both judicial and administrative, presided over the Judiciary during the period when the e-filing capability was being developed and implemented in the majority of courts. The same two figures headed the Judiciary from 1986 until Chief Justice William Rehnquist's death in 2005 and Administrative Office of the U.S. Courts (AO) Director Ralph Mecham's retirement the following year.

However, underlying the superficial advantages of Constitutional structure and continuity of leadership are significant constraints on the Judiciary's capacity to change. In performing their adjudicative mission highly prescriptive procedural mandates bind federal courts, such as the *Federal Rules of Civil Procedure*, *Federal Rules of Criminal Procedure*, and *Federal Rules of Evidence*. For administrative matters the Judiciary is, in fact, run by committee—the Judicial Conference of the United States, which is chaired by the Chief Justice of the Supreme Court—but lacks a chief executive.

Director Mecham and the AO administered policies set by the Judicial Conference and its steering committees. His agency not only facilitated specialized judicial administration, such as procedural rules, but also disseminated and oversaw judiciary-wide policies concerning budgets, personnel, and procurement. The AO's leadership was obvious in the administrative arena, for instance, when devolving financial responsibility—only after copious judiciary-wide stewardship training—through "budget decentralization" (Gibson, 2006), which freed court administrators in hundreds of local units to manage their own budgets. But e-filing went far beyond administration. According to the AO's CM/ECF developers, it "wasn't developed because of any push by top leadership, who were extremely resistant. … We were explicitly warned that it was a 'career-ending opportunity'" (Bockweg & Greenwood, 2013). However, e-filing proponents "had the support of Judge Owen Forrester, who headed the IT [Information Technology] Committee at the time. … He could be called the 'godfather' of CM/ECF" (Bockweg & Greenwood, 2013).

Locating the initial push for electronic filing in a self-described "skunk works" (Bockweg & Greenwood, 2013) places the innovators squarely within the tradition of

"'local heroes' … who do not command large organizations, but who act and lead from within the organization" (Borins, 1998: 38). However, they hardly operated in a vacuum. "The CM/ECF project was strongly supported by judicial officers (trial judges and clerks of court) in the early adoption jurisdictions" (Bockweg & Greenwood, 2013).

Its leaders' initial reticence did not prevent the AO from mounting a robust national implementation, once innovators proved the concept in nine originating ("prototype") courts. And, as the implementation drew to a close, Congressional testimony trumpeted "extensive use of electronic case management and case filing systems to make clerks' offices more efficient." Congress was told that during the preceding four years "aggregate workload increased 21 percent while on-board court staffing levels declined by a net 5 percent" (Gibbons, 2006).

The labor-saving efficiencies attributed to the e-filing capabilities of the CM/ECF system are consistent with a technological innovation (Damanpour, 1987). Yet change went far beyond technology, even extending into the sanctum of federal judges' chambers. U.S. District Judge James Robertson (2011) headed the IT Committee while CM/ECF began its national rollout: "It's kind of like the garage door opener or the remote on a television set. People wouldn't do without it or even know how to do without it." Yet Robertson and the other judges interviewed agreed that the focus of the system was on the administrative processing in clerks' offices.[1] For court administrators change was profound: "This revolutionary shift in the way documents have been filed and maintained for centuries has changed the practice of law and internal workings of the court in ways that could not be fully appreciated when the project began" (Lynch, 2006, p. 1).

Beyond judges and administrators, courts' reliance on the Bar to make the project successful suggests this change as an *ancillary* innovation, distinguished by its reliance on external actors for success (Damanpour, 1987; Walker, 2008). The first decade of CM/ECF's operation required the efforts of more than a half-million attorneys and their staff (AOUSC, 2012). Electronic filing's pervasive reach notwithstanding, the project had modest beginnings. Tracing CM/ECF's progress from experiment to necessity, due to a focused and cohesive, but administratively sidelined, group of developers and their allies in the courts, as well as a newly formed implementation team, occupies the remainder of this section.

Environment for Innovation

Public organizations typically face special environmental challenges. Yet those normally daunting hurdles, including "insufficient funding, short-term pressures associated with politics and reelection, and need for public support" (Damanpour and Schneider, 2009: 499), posed only a limited concern for the Judiciary. Absence of the first constraint is likely to be quite surprising to most observers of the federal government environment of the late 1990s and early 2000s. But implementation manager Howard Grandier (2014) stated, "Money was generally available."

Part of the reason for the organization's slack resources can be traced to Congressional concern about outdated technology in the Judiciary, which resulted in the Judiciary

Automation Fund, with multi-year appropriations conducive to major projects (GAO, 1994). Also, individual courts leveraged the flexibility of the Judiciary's budget decentralization initiative to divert personnel spending to fund technology upgrades and other efficiencies. Lapsed personnel savings accumulated to the extent that courts voluntarily returned nearly $300 million of discretionary funds between 1994 and 2002 (KPMG, 2004). Finally, Congress authorized fees for access to electronic court records "with the requirement that revenue be invested in additional refinements and expansion of public access services and CM/ECF" (Greenwood & Bockweg, 2012, p. 9). Annual fees from access to electronic records increased five-fold during the decade of CM/ECF's national rollout, exceeding $90 million (Lipowicz, 2010; PEC Solutions, 2003).

Nor does the second major category of environmental challenges usually facing public sector innovators, political interference, apply in this case. One key rationale for its low-profile approach to external matters is to avoid political involvement. This carefully nonpartisan stance characterized its dealings with Congress on the budget (Walker & Barrow, 1985). Finally, the long tenure of its leadership during the period that CM/ECF became a reality demonstrates the Judiciary's immunity from election cycles.

Whereas special circumstances and Constitutional protections spared the Judiciary from some of the debilitating obstacles—insufficient funds and excessive politics—often plaguing public sector innovations, important challenges remained: size and complexity. The Judiciary employs nearly 30,000 judges, court staff, and administrators, and is highly decentralized, with myriad independent units, including the AO and self-governing courts in the 94 districts (most having an independent bankruptcy court as well) and 12 geographic circuits.

The Judiciary's decentralization supplies the part of the solution to the quandary of organizational structure that Rogers posed: "Low centralization, high complexity, and low formalization facilitate initiation in the innovation process, but these structural characteristics make it difficult for an organization to implement an innovation" (2003, p. 413). The organizational unit fitting Rogers' prescription for low formalization within the complex and highly decentralized Judiciary was the AO's Technology Enhancement Office (TEO), where Gary Bockweg and Mike Greenwood (2013) "served as managers, but in a very collegial way. … The group had an innovation bent … [and] knew the courts' business and was charged with advising the courts and developing new technologies." They located allies in the courts: "We had done a study in the early 90s. … This document provided an approach for how courts could take advantage of technology and what a solution might look like. We worked closely with judges and clerks and local court IT managers and we co-authored the papers with them" (Bockweg & Greenwood, 2013). The concepts developed at first on paper took form through the emerging capacity of the Internet. "Everything was based on Internet protocols. … We discussed this model with Judge Forrester as a possibility. Then the opportunity came up in Northern Ohio, and we said, 'Let's try it, even if it's high risk.' They had a problem with the volume of filings" (Bockweg & Greenwood, 2013).

At the point when the CM/ECF capability had matured sufficiently to become viable as a Judiciary-wide solution, a fortuitous transition occurred. An organizational evolution

within the AO supplied the solution for Rogers' quandary that organizations spawning innovations seldom are suited for implementation. Howard Grandier, then head of contracting for IT (and ultimately concluding his government service, after appointment by Mecham's successor, as the AO's chief information officer), had sought additional responsibility and been tapped to lead the Year 2000 (Y2K) software remediation. When asked to "take it over … I think my first question probably was, 'What is Y2K?' But I figured that if I didn't take it, they might not ask again" (Grandier, 2014). That success led to the creation of a group charged with deployments, for which Grandier (2014) recognized CM/ECF as the prototypical system rollout: "the first of a number of national implementation projects coming up over the next ten years that my group could take the lead on. So I volunteered to become the Implementation Manager for CM/ECF."

In 2001 he formulated a new (to the courts) approach using formal project management software, which defined "what had to be done, the sequence the tasks had to follow, and who had responsibility" (Grandier, 2014). He subordinated the implementation effort to Bockweg's overall project leadership, but the division of responsibilities worked smoothly.

> The only issue where the two teams really disagreed was that the developers wanted to keep releasing new versions. From an implementation perspective we felt freezing the version was important, with the developers concentrating on bug fixes. My position was… we need to stay with one system. The developers were following a hand-holding approach with the courts that would've taken 10 years to implement nationally. It was fine for a minor release involving a few courts. But when you're replacing hardware and software and doing conversion and training, you have to have a plan to get it done quickly, then move on to the next group of courts (Grandier, 2014).

Using this more systematic approach the first "waves" of bankruptcy courts were implemented and momentum built. "Once other clerks called those early courts and heard, 'The system is fine. We came up on Monday morning and our users are happy,' then the word quickly spread, and the line began to form to go live" (Grandier, 2014).

It would be misleading to imply that the structural innovation represented by the AO's creation of an implementation group solved the riddle of converting inventiveness into innovation. The following paragraphs will address an explanation that goes beyond mere structure to explore the social system necessary for innovation to achieve widespread use.

Federal Judiciary as an Innovative Social System

The theory of innovation applied here, Stinchcombe's (1990) conception of the kind of social system organizations require for innovation to achieve widespread use, emerged from his study of how complex organizations, primarily computer manufacturers, maintained the agility to accomplish innovative change. The explanation goes beyond structural arrangements or other static attributes. Instead, I examine the factors identified by Stinchcombe

(1990) and summarized in Table 4.1 to demonstrate similar fundamentals at work in the Judiciary's e-filing innovation.

What is clear about the factors Stinchcombe associated with the ability for organizations to turn inventions into innovations is that they are dynamic. Processes playing out over time have a role in proper alignment of the relationships between different parts of the organization; development of a venue to work out engineering details; and level and content of knowledge and incentives that apply to staff. None of these factors belongs permanently to an organization, which provides an explanation for why innovators can lose their capacity to sustain innovation (for the example of Microsoft Corporation, see Brass, 2010). One reason for going beyond the static attributes, which Rogers (2003) found insufficient to identify innovative organizations, is because the same attribute (such as decentralization, as noted above) may function as either an aid or a barrier to innovation, depending on when it comes into play. The other reason for focusing on dynamic factors is that organizations exercise more control over them. In research that is pragmatically focused, practitioners' ability to enhance their organizations' capacity to innovate becomes paramount. Small organizations cannot readily become large, nor highly structured organizations less structured. Stinchcombe's research is not purely theoretical, because computer manufacturers served as exemplars. The social system he identified as conducive to innovation definitely can be cultivated.

Focus on Application. Technologists did not dominate CM/ECF's development. An inherently applied approach permeated the TEO organization. "[I]t was not a pure research and

Table 4.1

Contributing Factors in Stinchcombe's Organizational Social System to Support Innovation

Contributing Factors	Rationale for the Criticality of Contributing Factors to Innovation
Focus on application rather than technology	Ownership of the change belongs to functionally oriented innovators. The change appears foreign and irrelevant otherwise. Stinchcombe labeled the opposite of such pragmatism "technological utopianism" (1990, p. 173).
Engagement of resource providers	The organizational distance between innovators and those who authorize resources, holding elevated positions, for example, on investment review boards, must be bridged. Absent this connection, innovation is not funded.
Reciprocity of benefits among stakeholders	Stinchcombe's exemplar was IBM, which maintained regular contact with its clients, leveraging marketing, technical support, and maintenance functions. This ongoing interaction and sensitivity to the external impact of its technology development ensured that an "IBM user would not be trapped with a big investment in an obsolete machine" (1990, p. 169).
Small-scale resolution of engineering details	Refinement of new operational processes requires trial runs. "[T]he theory is likely not to work quite right at first not because crucial details were wrong, but because they were simply left out" (Stinchcombe, 1990, p. 180).
Incentivization of innovators	Incentives compensate for demands that innovators exceed normal duties. Stinchcombe (1990: 188–189) found that public sector innovation failed when benefits accrued externally, without gains for front-line officials.
Technical proficiency of innovators	IBM's client-oriented innovations depended on an organizational structure that put engineers and customer liaisons together, yielding client-oriented engineers and technically savvy marketers (Stinchcombe 1990, 169–170).

development shop. Rick Fennell, who managed the group beginning in the late 80s, called it 'applied research' because there had to be an application for whatever we did." Accordingly, the project's leaders were selected for functional rather than technical capabilities. "Mike and I were 'medium-tech' guys. … Our contribution in systems development projects was that we had good knowledge of how courts ran and how cases went through them" (Bockweg & Greenwood, 2013). The applied nature of their work also prevented premature attention to their activities. "We were lucky in the beginning with CM/ECF because we were operating under the radar. There was a crisis with the court in Northern Ohio because of the large number of filings from the asbestos litigation" (Bockweg & Greenwood, 2013).

Engagement of Resource Providers. Whereas a low profile may be conducive to maintaining freedom of action, it is an obstacle for garnering resources: "There were difficulties when the AO's top management was hesitant" (Bockweg & Greenwood, 2013). Yet maintaining connections with resource providers was possible because of the Judiciary's non-administrative structure. Its IT steering committee was "headed by particularly forward-looking judges for ten years or so during this period. Judge Forrester, Judge Ed Nelson, and Judge James Robertson headed the IT Committee during the time CM/ECF was developed. … The Judicial Conference committees were not just advisory, but set the policy to be implemented by the AO." Support by judges was reinforced by the courts that initially tried the system. "It's important for maintaining support for the system against the naysayers to be able to show that 'it's working in San Diego'" (Bockweg & Greenwood, 2013).

Once the system began its national rollout, the venue for resource provision shifted to the AO, where upper management "was very interested in our budget, resources, and spending." Due to the systematic project planning and formalized responsibilities, Grandier (2014) found that the

> Management structure was very supportive of the implementation effort. … Sometimes concerns were raised over the resource utilization by the project. It was critical to our success that we [were] able to explain/justify our staffing and resource levels to management. This was key to the project's success.

Reciprocity of Benefits. A fundamental aspect of Stinchcombe's framework is his focus beyond the organization. A similar idea underlies the concept of "collaborative innovation" (Sørensen and Torfing, 2012), in which the public and private sectors interact to achieve mutual benefits. The key stakeholders to be engaged in the CM/ECF project were attorneys, who would shoulder much of the work of maintaining the court record through their electronic filing and docketing activities. "It was important that they had incentives to participate and that we identified eager participants. … We went to local Bar Association gatherings set up by the courts. The Bar in many districts had IT committees. That helped us locate attorneys who were progressive" (Bockweg & Greenwood, 2013).

Notwithstanding the active engagement of attorneys, the Judiciary was in a position to require compliance, as occurred in Judge Rich Leonard's (2011) district: "[W]e were going to go to a mandatory electronic filing system. We weren't going to let lawyers give us

documents to scan. This meant working with the Bar, cajoling the Bar, and ultimately making a rule." Whereas the system initially constituted an imposition on law firms, in time, attorneys achieved compensating benefits: "in postage, copying, paper usage, courier services, and travel. … Time advantages include service [serving papers] and delivery efficiencies, document filing, and access to case information" (PEC Solutions, 2003, p. ii).

Crucial constituencies within the Judiciary also were engaged through "advisory groups composed of judges, clerks, and court personnel. They helped to validate the direction and review specifications" (Bockweg & Greenwood, 2013). The implementation team applied the same principle. "The smartest thing we did was to get court personnel involved in the planning":

> We had three months of working group meetings that were just awful, going through the project plan line by line. We broke down the resistance because they were all part of the process. If we hadn't had court involvement to develop the plan, they would never have accepted it. … Especially in the Judiciary, where each court operates mostly independently, you had to get buy in (Grandier, 2014).

Small-scale Resolution of Engineering Details. The initial system development relied on rapid prototyping, entailing an

> extensive and continuous collaborative arrangement between the developers and users [who] … did not formulate a grand design and await the completion of all or most components before implementing the service. … [I]n-house programming staff and court-knowledgeable analysts (five persons) experienced in court automation projects were employed during the early phases" (Greenwood & Bockweg, 2012, p. 8).

TEO's working relationship with the courts mimicked Stinchcombe's (1990, p. 180) prototypical factory floor—"bugs in engineering theories are often in the details … engineers and factory managers need to be got down into the shop"—reducing intervals between trial and production. "[W]e didn't let the systems sit there for a year. The process went much faster, with releases of enhancements every few weeks. … If one of those courts called Mike to say that something in the system wasn't working, then he'd respond right away" (Bockweg & Greenwood, 2013).

Incentives for Innovators. Compensating innovators for heightened responsibilities poses challenges for public sector organizations, which often lack the resources to provide extrinsic motivation. In this case, personal camaraderie, public service motivation (Perry, 1996), and the principals' perceived ownership of the project represented intrinsic rewards.

> We had a very collegial workplace, which was important when you had sleepless weeks. … The positive feedback from the courts was important because we felt what we were doing was valuable. … There were a number of us … who had been there for 15 years [and] if we held out, we would get to do this project eventually.

> Another thing was the high degree of autonomy, until the last few years. The deeper we got into the project, the more we had the feeling of calling the shots (Bockweg & Greenwood, 2013).

Technical Proficiency of Innovators. The other factor required of personnel is technical proficiency. TEO used an experimental approach to avoid the skills gap plaguing federal technology projects. "The tools were new to our programmers. We weren't bound by too many bureaucratic constraints. We had as much, or more, state-of-the-art ability as leading private commercial developers (Bockweg & Greenwood, 2013). Also for the implementation team, long experience played a vital role, not only in proficiency to perform the tasks, but also for acceptance in the field. "We were lucky that the deployment team included the San Antonio group who had been involved in both technical support and training for judges and court personnel for years and were well known in the courts. … That was crucial for acceptance, rather than having someone from Washington in charge of the teams" (Grandier, 2014).

LOCAL COURTS AS ADOPTERS

The exploration of CM/ECF's development in the previous section drew mainly on the perspective of the development and implementation teams within the AO. For the diffusion of this innovation, a different vantage is needed: from the district and bankruptcy courts, which number more than 180. The success of the project depended on independent decisions by these local organizations: "you couldn't make them do it. … The AO is not in a position to tell the courts what to do. We have to convince them that there is value in our products" (Grandier, 2014). So the court-by-court decisions to implement the e-filing system provide an opportunity to examine the progress of this national application through the lens of diffusion.

Local technological autonomy had been manifested in some courts' rejection of the AO-supported Bankruptcy Court Automation Project (BANCAP) application, two decades before CM/ECF replaced it in the bankruptcy courts. A rival, locally developed system spread to 20 percent of the bankruptcy courts. National projects confronted a "tension between the AO and the courts, which tends to slow things down. … Also, there is the big question of centralization versus decentralization. We have such a disparity in size between courts that it is tough to make a standard system. Not only regarding size, but the differences in local culture" (Coar, 2011).

Courts' Adoption as a Diffusion of Innovation

Three important aspects of the way that courts adopted CM/ECF reflect diffusion: the criticality of the situation, the geographic spread of the innovation, and the importance of reputation on the part of early adopters. These selected indicators represent an abridgement of the characteristics associated with adoption in diffusion theory. However, translation of attributes recognized as conducive to adoption from an individual to an organizational frame requires some flexibility in definitions.

The critical nature of the situations faced by two of the early adopting courts illustrates the prominence of environmental stimulus in pushing innovation. The earliest adopting court, the Northern District of Ohio, faced a dramatic caseload increase due to its designation as the sole jurisdiction for maritime asbestos cases. Clerk of Court Geri Smith (in AOUSC, 1996) recalled: "We were committed to a 24-hour turn around on docketing, but we were living with an 8-month backlog of over 250,000 pleadings." The Bankruptcy Court for the Southern District of New York (including Manhattan) faced a periodic rather than one-time caseload surge. The demands of huge bankruptcies with many thousands of parties, such as the Macy's bankruptcy, caused this bankruptcy court to turn to the CM/ECF prototype, along with several commercial alternatives, as a possible solution (Bockweg & Greenwood, 2013).

The tendency to exploit CM/ECF to meet preexisting challenges facing courts went beyond the earliest adopters. One clerk whose court strained under the logistic demands of far-flung divisional offices "embraced … the system and used it to dramatically improve the case management and document management" (McCool in Strandberg, 2007, pp. 38–9). One feature of the system design enabled process variations and enhancements to allow "each jurisdiction to modify and control how and what information is provided … to regulate how CM/ECF performs in accordance with local rules, policies, and preferences" (Greenwood & Bockweg, 2012, p. 5). Flexibility engendered the two-way spread of enhancements, as "local ideas would be pulled into the national system. There were so many centers of invention" (Leonard, 2011).

The tendency of innovation to spread geographically is enhanced in the Judiciary by the circuit structure. Circuit conferences, which TEO members often attended (Bockweg & Greenwood, 2013), offered an opportunity for courts to share information about technology. Judge David Coar (2011) supported an earlier technological outreach by his circuit executive, who "did 'road shows.' He would take [the assistant circuit executive for technology] and me in his van to courts that weren't doing anything." Judge Robertson (2011) recalled how the word spread about the system: "They developed an implementation schedule, and courts vied to be first. There was a train-the-trainer approach, which was like an 'ink blot' system. You put a system into the District of Northern Ohio. Then, they will help train the Southern District of Michigan, the Northern District of Indiana, and so forth. In that way it worked kind of like a virus."

Reputation played a role in nominating the courts that followed the initial adopters in New York and Ohio. "In the other prototype courts clerks [chief administrators] and judges prided themselves on being innovative." But it was not only self-perception that mattered, as shown by Judge Forrester's perspective on the early courts. "The judge said he had doubts about one of the courts. And he was right. That was the only one of the prototype courts that didn't implement in time to contribute to the project" (Bockweg & Greenwood, 2013).

Early and Late Adopters under Diffusion

A source used exclusively in this section is a 2006 survey, conducted by an appellate court manager, of 21 district and bankruptcy courts, which served as the basis of her

report made under the auspices of the National Center for State Courts (Tomlinson, 2006). The court manager undertook the study to inform subsequent implementation in her court. Tomlinson's sample was too small for statistical analysis, but was enhanced by over-sampling of early adopting courts.

The metrics in Table 4.2 are a subset of those collected by Tomlinson and reflect the reclassification for this analysis according to Rogers' diffusion categories. A simple rule placed the courts into categories based on the year they implemented CM/ECF, from innovators, who adopted the system prior to 2001, to late majority adopters, who went live in 2004 and 2005 (AOUSC, 2009). The chief judge (at the time) of one of these late majority courts recalled: "I didn't want the AO to position us at the beginning of the wave. … After it was implemented in other districts and was operating smoothly, there would be less chance of problems here. But I didn't want to be on the back end either."

Interpreting courts' quickness or slowness to adopt as an analog of diffusion categories is an imperfect fit for a variety of reasons. Unlike adoption by independent economic actors in the diffusion model, courts' decisions about when to implement CM/ECF reflected organizational dynamics and were influenced by the implementation team, which assembled "waves" of approximately ten courts at a time (Grandier, 2014).

Table 4.2

Selected Measures from Tomlinson's Court Survey, Classified by Rogers' Adoption Categories

		Order of Adoption (*N* sampled of total)***				
Measure	Values	Total (21 of 184)	Innovators (3 of 9)	Early Adopters (6 of 43)	Early Majority (6 of 51)	Late Majority (6 of 72)
Attorney filings	Mean estimated proportion of e-filings from attorneys	53%	81%	70%	40%	36%
Productivity	Median of courts' responses on 9-point scale, with "9" as significant positive impact and "5" no noticeable impact	6	8	6.5	6.5	5
Complexity*	Proportion of courts reporting greater task complexity	86%	100%	83%	100%	67%
Task time increase**	Proportion of courts reporting task time increases	38%	67%	17%	33%	50%
Task time decrease**	Proportion of courts reporting task time decreases	33%	33%	50%	33%	17%

*Courts also had the option of reporting decreased complexity or no change. Three (3) courts reported no change and none reported decreased complexity.

**Courts also had the option of reporting no change to task time, as six (6) courts reported.

***Total includes all district and bankruptcy courts. Total exceeds the sum of the cells by diffusion category because total includes "laggard" courts not implemented at time of Tomlinson's survey.

The skewed distribution of the adoption categories represented in Table 4.2 may reflect the differences between an ideal-typical diffusion and the sequencing that occurred during the national implementation. Moreover, differences between courts' organizational attributes and the individual characteristics that define adoption categories, such as socio-economic status, limit the theoretical application.

Notwithstanding the theoretical compromises of the adoption categories that Table 4.2 was based on, some interesting results emerge. For example, the steady decline in the levels of electronic filing by attorneys for successively later implementation dates could be anticipated, but was not a given. After all, progress in filings by attorneys marked adoption by the Bar and was not directly controlled by court staff. However, courts were able to employ various methods to increase attorneys' e-filing. Whereas the courts had the authority to mandate e-filing through local rules, prescription was not the only tactic. Courts used a variety of techniques, such as intake windows set aside for electronic filers (in those courts still requiring cases to be opened by initially filing paper documents) and reserved time slots at the beginning of "motions days" exclusively for attorneys filing electronically (Bockweg & Greenwood, 2013).

The next metric in Table 4.2, the court managers' perception of productivity changes in the wake of CM/ECF implementation also follows an unsurprising pattern: declining over time. For the latest adopting courts, all with more than a year of experience with the system, the median response was that the system yielded no productivity improvements. This compared with modest levels of improvement reported in the earlier adopting courts and significant improvement only in the earliest adopting courts, classified in Table 4.2 as innovators. Two of these courts had nearly a decade of experience with electronic filing by the time of the surveys, in 2006. The apparently slow realization of efficiency gains implies that to get the benefits courts had to apply concerted efforts over a significant interval (one small court reported the "process of preparing for and implementing CM/ECF in this district has taken more than three years" [Lynch, 2006, p. 1]). Yet court managers continued to choose to implement the system, even after hearing the inevitable reports about the level of change involved.

The remaining metrics in Table 4.2 deal with task complexity and time requirements. Complexity analysis at the overall level produces the conclusion that virtually all courts experienced more complex tasks. There is a noticeable drop in the level of perceived task complexity among the latest adopting courts, though a majority still reported more complex tasks. Higher proportions of reported task time increases came in the earliest and latest adopting courts. It is possible that these results represent an artifact of measurement. Given the changes to the types of tasks that court staff performed, described in greater detail below, much difficulty would arise in comparing task times required before and after the implementation of the system. In any case, the differences by order of adoption may be illusory, because no statistical significance attaches to the comparisons among categories, due to the small sample size.

One reason for deemphasizing the time of adoption is that more similarities than differences are evident in analyzing Table 4.2. For example, the heightened complexity of task content was noted regardless of time of adoption. Indeed, this task complexity

permeated the federal legal system, as the law firms surveyed by the Judiciary reported the requirement for more qualified staff to accommodate more involved activities (PEC Solutions, 2003).

In reviewing in-depth responses on operational changes, a high degree of consistency marked the types of operations that changed. Courts described an increased emphasis on quality, including new positions devoted to quality assurance, and new outreach-related activities, such as training and help desk functions. Changes appeared most evolved in the earliest adopting courts in Ohio and New York. These courts' surveys described newly created positions, in Ohio the "operations specialist" and in New York the "case manager/editor," whose responsibilities evolved to include quality control and case management rather than strictly throughput. The Ohio court reported it had "opened up communication" and become "much more team oriented than we were prior to CM/ECF." The New York court described "increased communication among all three divisional offices, between chambers staff [who support judges] and employees in the clerk's office, and between our bankruptcy court and other bankruptcy courts."

This communication for the CM/ECF project among courts may be a harbinger of future interdependence, marking a departure from their traditional isolation, "akin to a 'feudal' system" (Bockweg & Greenwood, 2013). One judge reflected on his IT Committee service, where "we were transforming many aspects of how the judiciary worked. … [W]e see the impacts from this centralization throughout the judiciary. It's allowed us to see the benefits of automation in many of our functions. There is now a national approach to filing in the federal courts."

INSTITUTIONAL REQUIREMENTS FOR INNOVATION

Institutional norms of the legal system guided the Judiciary's approach. For example, the adversarial nature of court proceeding dictated a concern for parity. For the development of CM/ECF this concern took the form of guarding against any competitive disadvantage arising for small practitioners, but the opposite turned out to be the case: "The little guys jumped into online filing because there was not a barrier." (Bockweg & Greenwood, 2013). "This democratizes the practice of law. The big firms with huge resources have less advantage when everyone is looking at the same record. You can run a national litigation practice out of Raleigh" (Leonard, 2011).

Knowledge of the way law offices worked underlay strategies for rolling out the system. Attorneys' concerns about electronic access to documents in criminal cases resulted in revisions to national policy (PEC Solutions, 2003, p. iii). Local courts' sensitivity to the needs of their clientele emerged in attention to training, a point of emphasis by nearly all of the judges interviewed. Judge Coar (2011) confirmed: "What we did best was training for the lawyers. The clerk's office did an excellent job there. … The firms made the younger, more technically inclined lawyers deal with it. They were assigned to electronic filing, with the direction: 'Go to the training and figure out how we're going to do it.'" Another court emphasized the training of paralegals and lawyers' assistants. Appreciation of the changes required of law offices persisted after the training: "We were

friendly about it. In the beginning people occasionally attached the wrong document. We would let them pull it back and submit the right one" (Leonard, 2011).

Courts maintained the connections to keep law offices abreast of developments. One judge mentioned "the quarterly luncheons for the Bar. … Our district CM/ECF guru is there to provide updates on the system. She does that in person, in addition to sending out emails, when there are developments with the system." Familiarity with the local Bar also provided the opportunity to motivate recalcitrant attorneys. Judge Leonard (2011) recalled the role of professional peer pressure: "If anyone wanted to be exempt, the lawyer would have to file an 'I'm too dumb motion' (as they were known), which would be put on the calendar for everyone to see. After a couple of those everyone filed electronically."

The organic connection between courts and their local Bars were supplemented by centrally promulgated studies. Four reports on the acceptance of the new system by electronic record retrievers, most of whom were attorneys, informed the Judiciary's progress on the new partnership with its principal clientele. A 2003 study inquired exclusively into the views of attorneys, who reported, "start-up costs were moderate to substantial, but that they have recouped the costs through increased billable hours, expanded competitive advantage and enhanced client goodwill" (PEC Solutions, 2003, p. iv).

Not only were courts mindful of the norms that had to be addressed externally, but they also were sensitive to the requirements of their own judges for deference and collegiality. One IT Committee member used "the paper version for longer documents … [and] preferred to have hard-copy documents provided by the parties. I got a call from … the chief judge at the time, and he said, 'It would be great if you went paperless.' So I did." In another court a "judge who was young enough to use the technology … insisted that the job of a judge was to sign documents in wet ink. He was an Article III judge [lifetime appointment] and could do whatever he wanted, but we basically dealt with it by shaming him" (Robertson, 2011).

REFLECTION

The Judiciary's transition of the federal legal system to an e-filing system, with much of the court record maintained by attorneys and their staff, is a profound change. Concrete evidence of the degree of change abounds. A recent 24 percent reduction in the personnel allocation to bankruptcy courts was attributed in large measure to the efficiencies realized from eliminating paper (McAvoy, 2012, p. 34). Court buildings now accommodate reduced counter traffic, as the *U.S. Courts Design Guide* indicated: "Due to electronic case filing … clerks' offices no longer experience a large volume of public visitors but do require larger spaces for the public to access documents at a computer access station" (AOUSC, 2007, p. 8.2).

Yet, relatively recently, Judiciary would have made a surprising candidate to become an innovator. Chief Justice Rehnquist's predecessor observed: "In the supermarket age we are trying to operate the courts with cracker-barrel corner grocer methods and equipment—vintage 1900" (Burger, 1970, p. 929). The modernization advocated by Chief Justice Burger first emerged administratively, in the Judiciary's budget decentralization

reform. Walker's (2008) research showed complementary effects among different types of innovations.

However, the potential also exists for conflict in the "concurrent development of ancillary and organization innovations … This conflict might reflect the conflict that can arise from seeking to restructure and change the internal organization, while also seeking to put in place a number of boundary-spanning innovations" (2008, pp. 605–6). Because it preceded CM/ECF by a decade, budget decentralization showed how administrative entrepreneurs at the AO could engage with court-based partners (Gibson, 2006). A practical effect of budget decentralization was to enable funds to be directed to local courts' priorities, which included IT investments (Coar, 2011) and technical personnel: "Each court has a very robust IT staff" (Leonard, 2011).

Involvement of the agency's clientele makes CM/ECF an exemplar of the "collaborative innovation" (Sørensen and Torfing, 2012) that public sector organizations are encouraged to undertake. Yet the difficulty of accomplishing this type of change must not be underestimated, and the Judiciary's considerable ability to compel its stakeholders to comply must be taken into account. The remainder of this section describes other facets of the electronic filing innovation and its implementation for would-be innovators to remember.

The first lesson learned from the Judiciary's apparently successful implementation of CM/ECF is that success has been tempered by results that the participants would have preferred to work out differently. Judge Leonard (2011) worried that "the system has become balkanized. That may be the only way it could have been sold." The developers confronted this issue: "Some courts have done changes, which can create a problem for maintenance. If it blew up, you didn't know what configuration you were dealing with" (Bockweg & Greenwood, 2013). The courts' autonomy also accounted for a missed opportunity to have "married the district court and circuit court systems seamlessly. The goal was that the circuit court would automatically have the record from the district court. But the circuit courts wanted their own design" (Robertson, 2011).

Judge Leonard's observation linking the eventual balkanization of the system to how it was "sold" yields a powerful lesson learned. Innovators have to accommodate the organizational traits they find, changing tack to gain and preserve momentum. An innovation is thus influenced by the organization, even as it alters the organization. The prototyping process implied the devolution of control: "As the technology was moving very fast, there were few constraints on the local courts implementing the system. They would figure out their own way to do it" (Leonard, 2011). CM/ECF's origin as a sufficiently flexible system to be implemented nationally persists as local courts still experiment.

Another consideration for would-be innovators comes from transplanting Stinchcombe's ideas about how social systems enable innovation. The manifestations of keeping technological utopianism at bay through hard-headed pragmatism and aligning the resource providers with the innovation advocates will not have the same appearances in agencies that lack direct interaction between headquarters and field, or put their investment approvals to administrators (as opposed to the part-time governance by judges on Judicial Conference committees). But the same factors are likely to apply, even if the ways and means of accomplishing them are different.

Admittedly, agencies drawing lessons from this case must compensate for the Judiciary's structural, financial, and institutional anomalies, and its Constitutional standing as a coequal branch of the federal government. Even considering the built-in advantages that accompanied the Judiciary's adoption of this fundamental change, it was not foreordained. If the group of 20-year veterans of court system development had been disbanded or the new implementation group not been created, the organizational capacity for technological change might have been lacking. If the Ohio and New York courts had gotten manageable caseload levels, the pragmatically focused partnership between developers and system users might never have formed. If the judges who chaired steering committees had been unwilling to commit the Judiciary to an untested path or Congress had not authorized fee collection for electronic court records, the Judiciary might not have marshaled the requisite resources for the major application development and national implementation. Counter-factual analysis is an uncertain and slippery business, but any of the foregoing contingencies had the potential to alter the way e-filing took shape in the U.S. courts or to prevent it altogether.

Notwithstanding its organizational peculiarity and the contingent nature of the special circumstances that propelled the change to a successful conclusion, there is much about the Judiciary's experience that recommends this case to agencies considering innovation. The maintenance of an in-house research and development function, the applied ethos of those developers, the opportunistic and incremental focus of their efforts, the partnerships they built with like-minded court managers and constituents in the legal community, and the farsighted and custodial perspective of the judges who led the decision-making committees are all practices that can be emulated by would-be public sector innovators. A more global consideration is the need for the Judiciary's innovators to have convinced potentially skeptical participants. Lacking the wherewithal to require compliance, due to the decentralized structure, could be seen as a burden on the managers responsible for system development and implementation. In reality, it may have sharpened their persuasive and accommodative skills and raised the bar for their recommended solutions. Perhaps the greatest lesson offered by the Judiciary's experience is the requirement for the proponents of change, their collaborators, and other participants to have dared to undertake a daunting project and risk, albeit prudently, unsatisfactory results in pursuit of the ultimate goal.

KEY POINTS

1) Innovation does not flourish in isolation. Reaching out from deep within a federal bureaucracy, e-filing developers sought out like-minded technologists and administrators in the field (courts) and beyond them to attorneys in the local Bar.
2) Innovators have to be opportunistic. Without the unusually high filing volume in two initial courts, e-filing might have remained an unproven concept. Partners in local courts also seized opportunities: to manage caseload; to exploit technology in a paper-intensive environment; and to leverage the occasion of system implementation to restructure procedures.
3) Innovations require exceptional organizational support and resources. The e-filing project garnered the initial support of judges on steering committees and the

eventual support of the long-tenured executive level. Bringing the capacity of the bureaucracy behind the national rollout tapped the resources and the organizational focus necessary to accomplish a massive project in a manageable period.

4) Innovators must tolerate unaccustomed levels of risk. Not only the developers, but also the implementers—centrally and locally—faced daunting tasks on very ambitious timelines. At every stage—development, prototyping, and rollout—willing participants stepped forward to take up assignments with uncertain outcomes and, almost always, saw them through.

NOTE

1. In addition to Judge Robertson, interviewees included more than a third of the available judges, seven in total, assigned at the beginning of the CM/ECF implementation to two of the main judicial committees involved in the project: the Committee on Information Technology (IT Committee) and the Subcommittee on Privacy and Public Access to Electronic Case Files.

REFERENCES

Administrative Office of the U.S. Courts. (1996, February). Electronic filing system brings order to mountain of documents. *The Third Branch*. Retrieved from www.uscourts.gov/news/TheThirdBranch/96-02-01/Electronic_Filing_System_Brings_Order_to_Mountain_of_Documents.aspx

Administrative Office of the U.S. Courts. (2007). *U.S. Courts design guide*. Retrieved from www.gsa.gov/graphics/pbs/Courts_Design_Guide_07.pdf

Administrative Office of the U.S. Courts. (2009, October). Case management/electronic case files (CM/ECF) implementation schedule. Retrieved from www.pacer.gov/documents/press.pdf

Administrative Office of the U.S. Courts. (2012, February). CM/ECF next gen enters new phase. *The Third Branch*. Retrieved from www.uscourts.gov/news/TheThirdBranch/12-02-01/CM_ECF_Next_Gen_Enters_New_Phase.aspx

Bockweg, G., & Greenwood, J. M. (2013, November 8). Interview by author. Washington, D.C.

Borins, S. (1998). *Innovating with integrity: How local heroes are transforming American government*. Washington, D.C.: Georgetown University Press.

Brass, D. (2010, February 4). Microsoft's creative destruction. *The New York Times*, pp. A27.

Burger, W. E. (1970). The state of the judiciary. *American Bar Association Journal 56*(October), 929–934.

Coar, D. H. (2011, March 3). Interview by author. Telephone.

Damanpour, F. (1987). The adoption of technological, administrative, and ancillary innovations: Impact of organizational factors. *Journal of Management 13*(4): 675–88.

Damanpour, F., & Schneider, M. (2009). Characteristics of innovation and innovation adoption in public organizations: Assessing the role of managers. *Journal of Public Administration Research and Theory 19*(3): 495–522.

Frederickson, H. G., Johnson, G. A. & Wood, C. (2004). The changing structure of American cities: A study of the diffusion of innovation. *Public Administration Review 64*(3): 320–330.

Gibbons, J. S. (2006). *Prepared statement of Honorable Julia S. Gibbons, chair, Committee on the Budget, the Judicial Conference of the United States*. Submitted to United States Senate Committee on Appropriations Subcommittee on the Departments of Transportation, Treasury, the Judiciary, Housing and Urban Development, and Related Agencies Appropriations, 109th Congress.

Gibson, E. (2006). Toward financial freedom: Budgetary reform in the U.S. courts. In H. Frank (Ed.), *Public Financial Management*. Boca Raton, FL: CRC Press.

Government Accountability Office. (1994). *Judiciary automation fund: Reauthorization should be linked to better planning and reporting* (GGD-94-176). Washington, D.C.: Government Printing Office.

Government Accountability Office. (1995). *The federal judiciary: Observations on selected issues* (GGD-95-236BR). Washington, D.C.: Government Printing Office.

Government Accountability Office. (2014). State and local governments' fiscal outlook: 2014 update (GAO-15-224SP). Washington, D.C.: Government Printing Office.

Grandier, Howard J. (2014, February 11). Interview by author. Columbia, MD.

Greenwood, J. M., and Bockweg, Gary (2012) Insights to building a successful e-filing case management service: U.S. federal court experience. *International Journal for Court Administration 4*(2).

IRS Oversight Board. (2012). *Electronic filing 2012: Annual report to Congress*. Retrieved from www.treasury.gov/irsob/reports/2013/IRSOB~E-File%20Report%202012.pdf

KPMG, LLP. (2004). *Assessment of the Judiciary Budget Decentralization Program: Part 2*. Washington, D.C.: Administrative Office of the U.S. Courts.

Leonard, Honorable J. Rich. (2011, June 24). Interview by author. Telephone.

Lipowicz, A. (2010, July 7). Federal judiciary funds IT war chest 8 cents at a time. *Federal Computer Week*. Retrieved from http://fcw.com/articles/2010/07/07/is-the-us-courts-electronic-public-access-system-a-cash-cow.aspx

Lynch, D. J. (2006). Assessing the electronic case filing experience in the District of New Hampshire. *New Hampshire Bar Journal 47*(1). Retrieved from www.nhbar.org/publications/archives/display-journal-issue.asp?id=322

McAvoy, S. F. (2012). The changing face of bankruptcy courts. *American Bankruptcy Institute Journal 31*(10): 34.

PEC Solutions, Inc. (2003). Electronic public access follow-up fee study. In *Advisory Committee on Civil Rules Meeting: October 28–29, 2004*. Retrieved from www.uscourts.gov/uscourts/RulesAndPolicies/rules/Agenda%20Books/Civil/CV2004-10-Vol%20I.pdf

Perry, J. L. (1996). Measuring public service motivation: An assessment of construct reliability and validity. *Journal of Public Administration Research and Theory 6*(1): 5–22.

Robertson, Honorable James. (2011, April 5). Interview by author. Telephone.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press.

Schumpeter, J. A. (1942). *Capitalism, socialism, and democracy*. New York, NY: Harper.

Sørensen, E., & Torfing, J. (2012). Collaborative innovation in the public sector. *The Innovation Journal: The Public Sector Innovation Journal 17*(1): 1–14.

Stinchcombe, A. L. (1990). *Information and organizations*. Berkeley, CA: California University Press.

Strandberg, K. W. (2007). William McCool, Clerk U.S. District Court, Northern District of Florida. *Courts Today 5*(4): 38–40.

Tomlinson, A. M. (2006). 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. *National Center for State Courts*. Retrieved from www.ncsc.org/~/media/files/pdf/education%20and%20careers/cedp%20papers/2006/tomlinsonannecedpfinal0506.ashx

Walker, R. M. (2008). An empirical evaluation of innovation types and organizational and environmental characteristics: Towards a configuration framework. *Journal of Public Administration Research and Theory 18*(3): 591–615.

Walker, T. G. and Barrow, D. J. (1985). Funding the federal judiciary: The congressional connection. *Judicature 69*(1): 43–50.