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Computer-Based Disclosure and Discovery in Civil Litigation

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Abstract

In a world in which information is increasingly created, communicated, manipulated, and stored using computers, it stands to reason that disclosure, document exchange, and discovery in civil litigation would also take digital or electronic form. Surprisingly, paper disclosure and discovery is still the norm. This Commentary looks at the differences between conventional paper documents and computer-based information. While computer-based disclosure and discovery has distinct advantages, it also has costs and dangers which may require different procedures. Research is being conducted in the United States on this issue, which may lead to rules reform, and has certainly led to a recognition of the need for judicial education on information technology and computer-based evidence. In the United Kingdom, there has been little activity in this field, possibly due to differences in existing civil procedure rules or legal culture. The question is whether computer-based discovery, and its associated problems, will surface in the United Kingdom as it has in the United States.

Keywords: Civil Procedure, Civil Justice, Disclosure, Discovery, Evidence, Computer Evidence, Electronic Evidence, Information Technology, Electronic Records Management, Rules Reform, Judicial Management, Judicial Education.

1. Introduction

Last year, researchers at the University of California made a startling announcement. According to their estimates, 93 per cent of all information created during 1999 was in digital form. Only seven per cent was created using non-computerized media, such as paper (Lyman, 2000). Technologists, social scientists, philosophers, politicians and others have been analysing and debating the consequences of this revolutionary development, and will no doubt continue to do so for many years to come. Legal academics, law reform advocates, and a few technologically sophisticated lawyers and judges have joined the discussion, as evidenced by this journal. But the day-to-day practice of law in both the United States and the United Kingdom, particularly civil litigation, still is conducted with paper as the primary medium.

Only a handful of courts accept pleadings in digital form. Digital exchanges between attorneys during the pre-trial stages sometimes occur, but are rare. And while many courtrooms are equipped for the presentation of computer-based evidence, few attorneys or judges are comfortable enough with the technology to do more than project digital images of paper documents during oral testimony. Even functions for which computers are used extensively, such as law office management, word processing, and document assembly, the work product will most likely be printed on paper.

This commentary focuses on one aspect of civil litigation, the processing of investigating, assembling, and exchanging documentary information prior to trial, known as 'disclosure' and 'discovery.' In a world in which 93 per cent of information is created, stored, or utilized in digital form, it stands to reason that when a dispute arises and facts need to be established, 93 per cent of the potential evidence would be disclosed or

discovered in digital form. Even if the dispute involves records, communications, and other documentary evidence from the past decade, one would expect that a large percentage of that potential evidence would be disclosed or discovered in digital form. But this is simply not the case. After giving scores of presentation on this topic before bar associations and other professional groups, and interviewing hundreds of lawyers and judges in the United Kingdom and the United States, I can safely say that disclosure and discovery in the majority of cases is limited to conventional paper documents. When lawyers are investigating the facts of their own clients' cases or investigating documents for disclosure, they seldom ask their clients for anything more than what appears in conventional paper files. When lawyers request information from the other side, their requests and the responses are usually limited to paper documents. Even when computer-based records, such as email, word-processed documents, databases, and spreadsheets are relevant to the facts and known to the lawyers, they are routinely reduced to paper form for disclosure or production.²

Most attorneys and judges do not consider this to be a problem. So long as all parties in a dispute agree to limited disclosure and discovery (or fail to raise any objection), no problem arises. The difficulties surface only when one or both sides decide that the facts in their case are more clearly and accurately established by computer-based evidence. As computers and computer-based communication become ubiquitous, more digital disclosure and discovery will occur. The question is whether for the purposes of disclosure and discovery, digital is really any different? And if we conclude that it is, do those differences necessitate any changes in the rules of civil procedure, strategies of judicial management, or conduct of the lawyers?

2. The Applicable Rules of Civil Procedure

The testimonial and documentary evidence presented at a civil trial is largely the product of disclosure and discovery. While there are procedural and cultural differences between the United States and the United Kingdom in regards to disclosure and discovery, the principal common to both legal systems is that the parties to civil litigation are under an obligation to disclose the relevant facts known to them, and their opponents have the right to conduct an investigation under the rules of civil procedure to discover relevant facts for themselves. Distinct from Continental legal systems, disclosure and discovery in both the United States and United Kingdom are conducted primarily by the lawyers themselves, following the rules of civil procedure. The judge is available to hear disputes that may arise, and may manage the process to make sure that it moves along to trial, but in both legal systems, judges do not become actively involved in this stage of fact-finding and investigation.

2.1 United States

Disclosure and discovery in United States courts is governed by the Federal Rules of Civil Procedure (FRCP), <<http://www.law.cornell.edu/rules/frcp/overview.htm>>. Each state also has an independent court system with its own civil procedure rules, but most of these are modelled closely on the federal rules.

The primary rule governing disclosure and discovery is FRCP 26. The discovery of documents, in particular, is governed by FRCP 34. Since 1970, FRCP 34 has defined 'documents' as including 'data compilations from which information can be obtained, translated, if necessary, by the respondent through detection devices into reasonably useable form.' On December 1, 2000, a set of amendments went into effect that significantly changed the conduct of discovery, bringing it much closer to the British model, but with some significant differences.

Prior to December 1, 2000, 'disclosure' was the exception to the rule, which emphasised 'discovery.' In other words, in most United States courts, lawyers produced no documents to the other side unless the other side first formulated and served a request. The requests, however, could be quite broad, and ask for all documents related to the subject matter of the dispute. The party receiving the request had the duty of interpreting it and producing for inspection or copying those documents that it judges come within the scope of the request. Since 1970, FRCP 34 has defined 'documents' as including 'data compilations from which information can be obtained, translated, if necessary, by the respondent through detection devices into reasonably useable form.'

Starting on December 1, 2000, 'disclosure' was instituted on a nation-wide basis as the necessary first step, prior to discovery. Under the current FRCP 26, the lawyers on both sides, within roughly 90 days of the start of litigation, must disclose 'all documents, data compilations, and tangible things' in their possession, without a request from the other side. The term 'data compilations' was borrowed from FRCP 34, making it clear that computer-based disclosure was expected. However, the scope of required disclosure was narrowed to those 'documents, data compilations, and tangible things' that the lawyer intends to *use* in the litigation, not necessarily all that are relevant.

After disclosure has been exchanged, the opposing party may ask for more information, relevant to the 'claim or defence' of any party raised in the pleadings, using the discovery request process. If it wishes to request discovery beyond that scope, to encompass the broad 'subject matter' of the dispute, it must apply to the Judge, who will weigh factors such as potential benefit to the requesting party against the burden to the producing party, costs, etc.

2.2 United Kingdom

Civil litigation in the courts of England and Wales is governed by the Civil Procedure Rules (CPR), <http://www.open.gov.uk/lcd/civil/procrules_fin/crulesfr.htm>, which went into effect in April of 1999. The primary rules governing disclosure and discovery are found in CPR Part 31.

Rule 31.4 defines a 'document' as 'anything in which information of any description is recorded.' Rule 31.6 requires disclosure of documents on which the party relies or which 'adversely affect his own case.' Under Rule 31.7, the lawyers for each party are required to perform a 'reasonable search', and is provided with four considerations in determining what is 'reasonable,' including 'the ease and expense of retrieval.' The resulting

disclosure must identify any category or class of documents for which the lawyer has determined a search would be ‘unreasonable.’ Under Rule 31.3, the opposing party has the right to inspect and make copies of any disclosed document, unless the disclosing party states that the document is no longer within his or her control, the document is privileged, or disclosure would be ‘disproportionate to the issues in the case.’

It is possible under the Rule 31.12 for a party to ask the court to order ‘specific disclosure,’ a process similar to court-managed discovery in the United States under FRCP 26(b)(1).

2.3 Cultural Differences

The scope of disclosure and discovery in the United Kingdom is both broader and narrower than in the United States. Disclosure in particular is broader in that it requires the lawyer to disclose documents that he or she may not plan to use, and indeed, that may be viewed as detrimental to the case. In the United States, the notion that a lawyer may be under an obligation to disclose documents adverse to his or her client’s interests, absent a specific request under Rule 34 backed by the power of a court to compel production, is considered anathema. Attempts to implement a similar rule in the United States during the 1990’s met with stiff resistance based on the view that an attorney’s primary ethical responsibility is to protect his or her client.

But there is an important way in which British disclosure and discovery has traditionally been narrower than American discovery: it is limited to documents, which has the effect of narrowing the scope of disclosure to matters that are documented. In the United States, discovery has been allowed to take many forms, including on-site inspections of workplaces and depositions of potential witnesses. The scope of discovery has included heretofore-unrecorded conversations on telephone, exchanges in meetings, and even personal thoughts.

In the United Kingdom, extensive American-style discovery is viewed a cultural anomaly and a wasteful extravagance. Computer-based discovery is viewed as particularly obtrusive. One major British newspaper called electronic discovery ‘the latest gold mine for the American legal profession’ and part of ‘a system that allows notes between friends to become public property, meat for every litigious peeping Tom.’³

However, there is nothing in the United Kingdom’s civil procedure rules to prevent electronic disclosure and discovery. And the digital revolution, in which email, digital voice mail, and electronic chat rooms are routinely recorded and documented, has the potential to increase the scope of disclosure and discovery in the United Kingdom dramatically. There are other ways in which the introduction of computer-based information may drive up the scope and cost of disclosure and discovery.

3. Is Digital Different?

Until fairly recently, computers in the office environment were viewed as tools to create

paper documents. Historically, business computers were used to ‘crunch numbers,’ that is, to tabulate financial data, statistics, and other numerical information, which would then be printed out for analysis, for use in the course of business, or for inclusion in a larger printed report.

In the 1970’s the computers emerged out from the corporate finance office. They became much smaller, appeared on millions of desktops, and acquired a far more extensive range of applications. The 1980’s the ‘killer application’ was word processing, which virtually eliminated the typewriter as the principal means of creating documents and communications. Other applications controlled by end users, such as spreadsheets and databases, transformed the routine conduct of business. In the 1990’s, connectivity was added to this revolutionary process. The word processing documents, spreadsheets, and databases could now be cheaply and efficiently communicated and shared without printing. In the United States, email surpassed the telephone as the most common form of business communication.

By the beginning of the 21st century, paper documents were no longer the intended product of computer technology, but an increasingly superfluous by-product. While we are far from the vision of the paperless office, computer-based documentation and communication is now the preferred mode of business operation. But when those documents and communications become the subject of disclosure and discovery in civil litigation, the differences between the conventional, paper-based environment and the new computer-based environment become apparent.

3.1 Volume and Proliferation

To the lawyer getting involved in computer-based disclosure and discovery, the most obvious difference from conventional disclosure is that there are far more digital documents than there ever were paper documents, and they are located in many more places. There are several reasons why this occurs.

- Every time a digital document is shared or exchanged, a copy is created. Paper documents were often copied, especially after the development of cheap plain-paper photocopies, but digital documents are *always* copied when they are communicated, and usually several times. In both the United States and the United Kingdom, copies of documents do not have to be added to disclosure or discovery, but the existence of so many copies makes initial investigation and document management difficult.
- Digital documents are virtually invisible and take up no discernable space. Therefore, few people systematically clean up their virtual office, even if they keep their physical office, file cabinets, and store rooms meticulously clean. As memory becomes cheaper, this problem grows.
- Networked computers are routinely backed up, a process that involves making copies of all the files that exist on an entire network at a given moment. While

backup systems and the retention policies for backup tapes vary from enterprise to enterprise, the total volume of backups held at any given time is typically five to 30 times the volume of active data.

- The advent of the desktop personal computer started a process of decentralization and proliferation of devices that routinely hold documents that may be subject to disclosure and discovery. Fax machines, printers, and other peripheral devices may hold digital files. Floppy disks, recordable CDs, and other removable storage media abound. Portable notebook computers, home computers, and devices such as the Palm Pilot routinely hold business-related files such as email messages, name-and-address files, schedules, and substantive documents.

3.2 Deletion and Preservation

Paper documents are routinely destroyed in the normal course of business, and that destruction is usually quite efficient and complete. Informal notes, drafts of documents, unsolicited mail, shopping lists, and other ephemera are tossed into bins every day, from whence they are carted out and buried or incinerated, with little or no chance of recovery. On a larger scale, routine document management policies authorize the wholesale destruction of files that no longer have a business or legal use. That destruction usually involves shredding or incineration.

Digital documents, on the other hand, are virtually impossible to eliminate entirely. The 'delete' key on a computer does little more than alter the file name and remove it from the computer's list of active files. The file can be recovered using common computer utility programs or off-the-shelf software. Bits and pieces of documents are scattered throughout a typical computer hard disk, and can almost always be recovered. Outside of the originating computer, copies of the file are likely to appear on other computers on the network, removable storage media, portable devices, and backup tapes, frustrating all attempts to destroy a document, or execute a rational document management policy.

While digital documents are difficult or impossible to destroy, they are easy to alter or damage, even inadvertently. In the process of disclosure or discovery, paper documents may be removed from physical files, reviewed, indexed, photocopied, and otherwise handled with common-sense procedures to ensure their evidential integrity. Digital documents, on the other hand, must be handled much more carefully. The process of opening a document in its native format, reviewing it, and copying it onto a disk or segregating it into a separate directory for disclosure or production will likely change characteristics of the document necessary for later authentication, such as the date of last access. Information from other files linked to the document, such as charts, graphs, data from databases or spreadsheets, and related documents, can be lost if the document is taken out of context. Embedded data, discussed below, can be lost or altered. Even the simple act of turning the computer on, without accessing any individual files, has the potential to alter the evidence.

3.3 New ‘Documents’

When a conventional paper document is created, there is very little evidence of its actual creation, absent the document itself. It might be possible to measure the amount of typewriter ribbon or ink used, or the diminution in the paper supply; perhaps the writer left an impression on a blotter. But this is hardly the stuff of disclosure or discovery in civil litigation.

The creation of a computer-based document, on the other hand, leaves an extensive and permanent trail of evidence in the computer’s or network’s internal transaction records. The computer user is seldom aware of this process. When he or she logs onto the computer, a record is often made. When he or she opens an existing document or creates a new one, an independent record is being made. When the document is sent to another computer or a peripheral device, a record is made. When he or she visits a web site, a record is made. These records are ‘documents’ for the purposes of disclosure and discovery, although they were not created consciously by a human being with the intent to record or communicate substantive information. They are just as subject to disclosure and discovery in civil litigation as paper documents used as evidence of other activity, such as a telephone bill, hotel register, or taxi receipt. Unlike such conventional evidence, they lead to more *documents*, as opposed to activities, which are in their turn subject to disclosure or discovery.

3.4 Hidden and Embedded Data

In well-organized conventional files, paper documents may have attachments, which provide information about the document itself, such as an envelope with a return address and postmark, or a cover memo with a routing list. The existence of such ‘metadata,’ or information about information, is much more common with computer-based documents. This metadata takes many forms, mostly invisible to the user.

Word processed documents may have a hidden profile, which records when the document was created, edited, and last accessed. It might identify the author (or the originating computer), and the computers of any subsequent editors. It may contain all the editorial changes and when they were made, so that past versions of the document may be reconstructed.

Computer spreadsheets and databases are valuable because of hidden their information. Each cell of a spreadsheet and field of a database is actually the manifestation of an opaque process, such as a formula or data obtained from a related source. Email messages contain a wealth of routing information, most of which is never seen by the casual user.

Because hidden and embedded data is important to understanding a computer-based document, and it is seldom, if ever, translated onto the printed page, paper copies of computer-based documents do not accurately reflect their originals. Spreadsheet in particular are almost useless when rendered in static printed form. For the sake of economy and simplicity, or out of ignorance, most attorneys who include computer-based

documents in disclosure and discovery have been satisfied with paper copies or with digital images, and fail to take advantage of one of the significant differences between conventional paper documents and computer-based documents.

3.5 Backups

Imagine a conventional, paper-based enterprise in which a decision is made to copy every paper document and place it in storage, as insurance against fire, earthquake, or flood. Imagine further that the copying is repeated every day, and that the resulting redundant copies are kept indefinitely. Now imagine further that each daily set of copies is kept without any index, inventory, or apparent organizational scheme.

While it may seem absurd in the paper content, this is standard procedure in the computer-based environment, and for good reasons. Even into the 21st century, computer systems are notoriously unstable and prone to break down. Since reliable computer networks are the lifeblood of the modern enterprise, the ability to restore the system in the event of failure, and to do so quickly, is essential. But the routine backup is designed for system-wide disaster recovery, and it not designed to be a useable archive from which individual files may be recovered.

Despite the awkwardness of backups and the inability to recover individual documents from them reliably and easily, many enterprises have abandoned conventional records management and archiving procedures in favour of the relatively cheap and fast backup procedure. New enterprises, with no experience in conventional paper-based records management, see no reason to institute it in the computer-based environment. The consequences of the demise of conventional records management, and the general failure to apply records management principles to computer-based documents, are potentially enormous. Faced with disclosure obligations and the prospect of discovery in civil litigation, an enterprise that may have saved some money by not instituting a records management program will quickly sink far more resources into a costly and time-consuming search for, and review of, possibly relevant computer-based documents in hopelessly disorganised backups.

3.6 Legacy Data and Systems

Paper-based documents, regardless of age, can usually be read and understood on sight. The ink may fade, or they may have some water damage, but they are seldom written in a dead language, and seldom is it necessary to hire a classical scholar to translate them into a readable form.

Computer applications, on the other hand, are upgraded constantly. They quickly become obsolete. Operating systems come and go about every three years. Computer hardware is also superseded at an alarming rate. While we can easily read business records from the 18th century, anyone who created a document in a popular word processing program ten years ago and stored it on a standard five-and-a-quarter-inch floppy disk of the period will be hard pressed to find the computer, floppy disk drive, operating system, and application

software necessary to open and read it. In the context of civil litigation, enterprises that have performed backups on a regular basis, perhaps storing one per month for the past twenty years, face the doubly daunting task of having to expend resources to restore the backups to a useable state, and then search the disorganized files, before they can determine whether or not the backups contain any data relevant to the litigation.

3.7 Digital Culture

Perhaps the most significant difference between the conventional paper-based environment and the emerging computer-based environment, for the purposes of disclosure and discovery, is the cultural change that digitisation engenders. The emergence of email as the dominant form of business communication is the clearest example of this cultural change. Messages are exchanged at a rapid pace, using very informal language and a frank, sometime rude, tone. Thoughts that used to be carefully committed to paper, often after several drafts and reviews by several people, are now expressed bluntly with little or no self-censorship. More importantly for disclosure and discovery purposes, thoughts that *never* were committed to paper previously are recorded routinely now by computers and turned into retrievable documents.

The spontaneity of computer-mediated communication is valued highly by many enterprises and encouraged by software marketers. Email and the Internet are credited with much of the prosperity of the last decade. New business applications utilizing computer-mediated communications are introduced on a regular basis. One of the primary selling points of collaborative business applications, which combine databases and word processing with chat rooms, digital teleconferencing, and other forms of communication is that every contribution, no matter how informal, is carefully recorded by the computer system.

What may be a great advantage for the enterprises of the 'new economy' can become a distinct disadvantage in civil litigation. In the United States, Microsoft's defeat in recent antitrust litigation was based in large part on embarrassing email generated by its founder and chief executive officer, Bill Gates.⁴ In the UK, Norwich Union found it necessary to settle rather than face further disclosure of similarly inappropriate email generated by its employees.⁵

The change in business culture, coupled with the use of email and the Internet by employees, created another difficult problem for lawyers attempting later to conduct disclosure or respond to discovery requests. Often with their employers' knowledge or tacit approval, employees have routinely used email to communicate with friends and relatives, and used the Internet for shopping and entertainment. Most of these activities have been benign, and some may be argued are necessary or within an employee's rights. But some activities have surfaced, and been publicized, involving office romances, gambling, harassment, and more.

Prior to the advent of, employees used their employers' resources for personal activities. In conventional paper-based business environments, employees used the telephone, typewriters, and stationary. But these activities did not leave a permanent record, to be

intermingled with the enterprise's routine business documents for later exposure during disclosure and discovery. Although these personal activities are seldom relevant to civil litigation, the existence of sensitive, confidential, and occasionally embarrassing records and communications, intermingled with the routine business documents that an enterprise must disclose, adds another complication to the process. The possibility of inadvertent disclosure or production may become a danger for employee relations or a violation of data protection laws.

3.8 Opportunities for Innovation

The disclosure and discovery of computer-based information is fraught with difficulties, but it also presents some unique advantages over paper. These advantages are often overlooked as lawyers and judges dwell on the costs and dangers, but they should not be discounted entirely.

- Although there is little empirical research on the topic, most lawyers and judges who are involved in legal technology believe that computer-based trial presentation techniques save substantial court time, and therefore money. It stands to reason that computer-based disclosure and discovery, leading to a computer-based trial preparation tools and a computer-based trial, would save even more money by reducing the cost of computer-based trial preparation.
- Documents and business records that are in digital form to begin with, and stay in digital form throughout the litigation, are far cheaper and easier to transport, store, and use than paper documents. By eliminating the paper production stage entirely (and presumably the cumbersome and inefficient scanning and optical character recognition processes as well) litigation support tools which allow for efficient searching, indexing, organisation, and preparation of documents for negotiation and trial can become cost-efficient for even the most routine cases.
- Handled properly, digital documents can become self-authenticating. Technologies are now being employed to digitally time-stamp and 'notarise' computer-based documents to ensure their authenticity, accuracy, and completeness, thus eliminating potentially expensive and time-consuming evidence disputes, and speeding up the process of admitting documents into evidence at trial.
- Some evidence is only available in computer-based form. Email, digital voice mail, chat room transcripts, computer use logs, and telecommunications records simply do not exist in the conventional paper-based environment. Ignoring computer-based disclosure and discovery ignores these potentially rich sources of information.

Computer-based disclosure and discovery is inevitable. While lawyers may be averse to it, and judges may dread having to manage the pre-trial disputes they anticipate arising,

sooner or later it will have to be faced squarely.

4. Future Directions

For the purposes of this Commentary, speculation in regards to future directions must be confined to the American scene. For the past two to three years, a regular review of British case law, rules reform debate, and the legal press by this author has revealed very little discussion of computer-based disclosure and discovery. Even in the United States, until fairly recently, computer-based discovery was limited to the occasional 'big case.' But this is changing.

A recent informal survey of federal magistrate judges conducted by the Federal Judicial Centre indicates that computer-based discovery, although still not the norm, occurs in many types of civil litigation without regard to the 'size' of the case in terms of the resources of the parties or the amount of money at stake. One legal commentator has documented that it is particularly prevalent in employment law cases.⁶

If computer based discovery is necessarily more expensive, time-consuming, and disputatious than conventional discovery, if it is becoming more common, and if it will spread inevitably to all types of cases in which there is disclosure and discovery, a possible conclusion is that the cost of litigation will escalate rapidly in a few years, unless alternatives are found.

On the other hand, if the problems currently associated with computer-based discovery are overstated, self-inflicted, or solved as technology and business practices evolve, and the fruits of computer-based discovery can be used to reduce the costs of trial preparation and presentation, a possible conclusion is that we simply need to brace ourselves for a bumpy transition period.

It is also possible that the truth lies somewhere in between. In that case, the situation needs to be studied closely and the possible responses measured. In the United States, the judicial system has taken a pro-active view of the problem, involving research, judicial education, and some consideration of rules reform.

The Supreme Court of the United States establishes the rules of procedure, evidence, and judicial conduct for the United States Courts, with Congressional approval. The Judicial Conference of the United States, chaired by the Chief Justice, has primary responsibility for monitoring the administration of justice and formulating the rules for recommendation to the Supreme Court. The Judicial Conference appoints many committees made up of judges, leading practitioners, and legal academics. One of these is the Civil Rules Advisory Committee. It, in turn, has established a Discovery Subcommittee.⁷ The Subcommittee, supported by the Federal Judicial Centre's research staff, is beginning to explore computer-based discovery and develop some approaches for consideration.

It must be stressed that the Subcommittee is only beginning its deliberations on this issue and has not come to any conclusions. No particular amendments to the Federal Rules of Civil Procedure have been formally discussed, and indeed, there is no consensus that

amendments to the rules are an appropriate response to the situation, or for that matter, exactly what the situation is.

4.1 Research

The Subcommittee has commissioned the Federal Judicial Centre's research staff to conduct studies of computer-based disclosure and discovery on which the Subcommittee may base recommendations. Two related research projects are underway.

In the United States courts, magistrate judges often have the primary responsibility for presiding over non-dispositive pre-trial proceedings in civil cases, particularly discovery. During the summer of 2000, the Federal Judicial Centre contacted more than 400 magistrate judges and administered a Web or faxed-based survey. The survey was not designed to gather statistically valid data, and the data and analysis are not appropriate for publication, but they helped the FJC researchers and the Subcommittee identify the extent to which computer-based discovery is surfacing as an issue in federal courts, what specific discovery issues are surfacing, and in what types of cases. The survey was also used to solicit specific cases for a second research project.

The second project, which is just getting underway as this Commentary is being written, is a close study of approximately 20 civil cases involving computer-based discovery. The cases have been selected based on logistical criteria as opposed to random selection or representative sampling (e.g., whether the case is closed, whether the court filings are public, whether the lawyers are willing to co-operate in the research), so there may be questions about the validity of the resulting data from a pure social science prospective, but they will serve to educate the Subcommittee about the issues and approaches already taken by some judges and litigants, and perhaps offer some success stories as well as warnings.

The case studies will involve thorough analysis and coding of all relevant court filings, interviews with the lawyers on both sides of each case, and interviews with the judges. The key question to be explored is whether the existing rules of civil procedure facilitated, hindered, or made no difference to the litigants' conduct of disclosure and discovery of computer-based information. A preliminary report is due to be delivered to the Civil Rules Advisory Committee in October of 2001.

4.2 Technological Advances

While the Subcommittee studies the issue, technology marches on, often lead by British computer researchers. New procedures, software, and hardware are being developed to assist investigators in the computer forensics field, and these are being adapted for use in civil litigation.

One of the more significant developments is the speed at which computer hard drives can now be reliably copied to meet evidential standards. While high-speed backups of hard drives have been around for a while, byte-by-byte copies of whole hard drives, checked to

assure the accuracy of every file, and acquired using methodologies that do not alter any of the data, have been time-consuming and expensive to execute. Although such copies, commonly called 'mirror images,' are still costly and require expert assistance, they costs are coming down and the speed of data acquisition is going up. This means that future disclosure and discovery projects will be less obtrusive, and the resulting evidence more reliable.

A second important development is in electronic file analysis. Procedures and technologies are being developed that can quickly reduce large collections of electronic documents (for instance, the hard drive of an email server) by locating individual files or portions of files containing key words, names, dates, or other criteria, exporting them to a litigation support database, and generating images of these data for review by counsel prior to disclosure or production. This eliminates the costly and time-consuming process of printing out entire collections of documents, manually reviewing them for relevance and privilege, and then re-entering them into a litigation support system by scanning or coding.

Other technologies, as well as the constant increase in computer processing speed and data storage capacity, may reduce the costs, delays, and procedural disputes associated with computer-based disclosure and discovery. On the other hand, like a military arms race, these same technologies may simply raise the stakes in litigation, prompting aggressive lawyers and litigants to consider demanding what was previously considered unreasonable.

4.3 Judicial Education

There is almost universal consensus that, at least in the short term, judicial education on computer-based discovery and associated technologies is necessary. The Federal Judicial Centre (FJC) has always played a role in judicial education on scientific and technological issues by producing such publications as the Reference Manual on Scientific Evidence, <<http://air.fjc.gov/public/fjcweb.nsf/pages/16>> and hosting educational conferences for judges and scientific experts. In 1999, the FJC produced a report on the use of digital audio recording for official court proceedings. In 2001, it started airing a six-part television series entitled 'Science in the Courtroom' on its satellite-broadcasting network, which is delivered to the entire federal court system.

During 1999 and 2000, the FJC sponsored a number of educational workshops for federal judges at which procedural rules, case law, technology, and judicial management strategies for computer-based disclosure and discovery were addressed. In the fall of 2000, the Federal Courts Law Review, the online publication of the Federal Magistrate Judges Association, published an article by a member of the FJC staff, 'Computer-based Discovery in Federal Civil Litigation', <<http://www.fclr.org/2000fedctslrev2.htm>>. A forthcoming publication, 'The Civil Litigation Manual,' to be published by the Judicial Conference's Court Administration and Case Management Committee and authored by the FJC and the Administrative Office of the United States Courts, will include a chapter on computer-based discovery.

These judicial education efforts are only the beginning. Several more educational conferences are planned for 2001, and the FJC will be publishing a judicial reference manual on courtroom technology, in co-operation with the National Centre for State Courts, which will include extensive discussion of computer-based disclosure and discovery issues.

4.4 Possible Rules Amendments in the United States

Although research, technological advances, and judicial education may help address many of the concerns that the bench and bar have with computer-based disclosure and discovery, the Subcommittee will still likely need to consider amendments to the Federal Rules of Civil Procedure offered from several quarters.

Judge James Rosenbaum of the District of Minnesota, a member of the Judicial Conference, has weighed in with two short articles expressing his concern over the scope of computer-based discovery, particularly where it touches on personal privacy. He has proposed rules which would limit the recovery of files deleted before a certain 'statute of limitations,' and require employers to give employees notice before investigating their workplace computers.⁸

Judge Shira Scheindlin of the Southern District of New York, a member of the Civil Rules Advisory Committee, published a comprehensive article on computer-based discovery in which she advanced two proposals, one to update and clarify the antiquated 'data compilation' language of Rule 34, and another to establish a presumption that data produced in computer form would be subject to a protective order.⁹

The Discovery Subcommittee has also received correspondence from the public urging consideration of a civil procedure rule recently adopted in the Texas state courts. That rule would limit the scope of discovery, without a specific court order, to computer data 'reasonably available to the responding party in its ordinary course of business,' which presumably excludes deleted files, backup tapes, and legacy data. Further discovery would be ordered by the court only if costs are borne by the requesting party.¹⁰

The Discovery Subcommittee held two public meetings during 2000, one in San Francisco in March, and one in New York in October. Although the Subcommittee took no official position on any proposed amendment, it heard from several judges who expressed the view that the civil procedure rules had only recently been amended, technology was evolving faster than the rules process could anticipate, and that the wisest course of action in the short term would be to avoid any further rules reform and continue to study the situation.

5. Conclusion

Computer-based discovery and disclosure has surfaced as a major issue in American civil litigation. It has the potential to dramatically increase the cost, delay, and contentiousness of civil litigation, although it holds out the promise of streamlining trial preparation and

presentation. In the United Kingdom, the same concerns have not surfaced in case law, professional literature, or rules reform. This may be due to differences in the existing civil procedure rules or differences in the legal culture. But it also may be simply a matter of time before British lawyers and judges begin struggling with the same problems that threaten to bog down American courts. Further research is needed to study the issue as it develops. In the meantime, judicial education on information technology and computer-based evidence may be the best vaccine available.

Footnotes

1. Kenneth J. Withers is a Research Associate at the Federal Judicial Centre in Washington D.C., the research and education agency of the United States Courts, where he concentrates on issues of technology and the administration of justice. Mr. Withers received a Juris Doctorate from Northwestern University in Chicago in 1984 and a Master of Science in Library and Information Science from Simmons College in Boston (US). He was Supervising Attorney for complex litigation at the Boston (US) firm of Conley & Hodge from 1986 to 1996. The opinions expressed in this Commentary are his own, and do not necessarily reflect those of the Federal Judicial Centre or any other agency of the United States Courts.
2. These informal observations are supported by equally non-scientific surveys conducted recently by two sections of the American Bar Association. Smedinghoff, T (1998) 'ANA/ACCA Survey of Electronic Commerce Practices' (Chicago: American Bar Association and American Corporate Counsel Association); PricewaterhouseCoopers/American Bar Association Section of Litigation (2000) 'Digital Discovery and its Importance on the Practice of Litigation' (Chicago: American Bar Association).
3. Carlin, J. 'Lawyers get the message about abusive email,' *Independent*, 20 July 1997, at 14.
4. *United States v. Microsoft Corporation*, 98-1232 (TPJ) (District Court for the District of Columbia, 12 November 1999) (Findings of Fact).
5. Carlin, *supra* note 3.
6. Thumma, S and Jackson, D (1999) 'The History of Electronic Mail in Litigation,' 16 *Santa Clara Computer and High Technology Law Journal* 1.
7. For a summary of the rulemaking process for United States courts, see <<http://www.uscourts.gov/rules/proceduresum.htm>>.
8. Rosenbaum, J (2000) 'In Defense of the Delete Key,' 3 *Green Bag* 2d 393; Rosenbaum, J (2001) 'In Defense of the Hard Drive,' 4 *Green Bag* 2d 157.
9. Scheindlin, S and Rabkin J (2000), 'Electronic Discovery in Federal Civil Litigation: Is Rule 34 Up To the Task?' 41 *Boston College Law Review* 327.

10. Texas Rules of Civil Procedure 196.4 (effective January 1, 1999).