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WHEN TO HIRE A COMPUTER EXPERT WITNESS

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Experts are becoming increasingly important and more involved in litigation. Beyond traditional expert testimony, expert consultation with litigators is now vital in what were once simple phases of litigation, processes now complicated by advances in technology. A prime example is the complexity introduced by electronic discovery. Numerous cases including well-known suits against Qualcomm, Oracle, and Microsoft, demonstrate that the failure of attorneys to grapple with new complications result in severe consequences, ranging from sanctions to adverse inferences and worse.

This CLE session will explain how experts can be used in litigation, both as consultants and for testimony. It will include interactive examples taken from the practice of a forensic computer scientist. The objective is to help practitioners to understand when an expert can be most effective in furthering a case. The presentation will also explain how discovery rules differ when experts are used in various roles.

What Is An Expert?

Experts in both criminal and civil litigation are governed by the applicable rules of evidence. In most cases, this means that the Federal Rules of Evidence (FRE) or similar state provisions control. These rules together with case law define the qualification and role of experts. Procedural rules then determine what discovery may be obtained from an expert and a plethora of smaller issues such as deadlines for disclosure.

Definition & General Admissibility (FRE 702)

The primary rule that defines an expert in Federal court is Fed.R.Evid. 702, which reads:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

There are two important points to glean from this rule. First, an expert is qualified by "knowledge, skill, experience, training, or education." Note the "or" in the list. An expert may be qualified based on education and degrees in relevant areas, or an expert could lack formal education but be qualified on the basis of experience. Qualification is decided for each potential expert on a case by case basis using the five foregoing factors.

The second important aspect of Rule 702 is that an expert provides opinion testimony. Unlike a typical fact witness, experts render opinions about information related to a given case. In fact, the evidence their opinions are based upon may itself be inadmissible. It is the expert's unique knowledge and understanding that allow him to provide an opinion relevant to the case when the underlying information is either too complicated or unclear for a typical trier of fact to comprehend. An expert may even testify the "ultimate issue to be decided by the trier of fact."[1] This ability to render opinion makes experts powerful witnesses. Consequently, the courts serve as gatekeepers, assessing the admissibility of expert testimony.

The criteria for assessing the admissibility of expert testimony comes from *Daubert v. Merrell Dow Pharmaceuticals*,[2] where the

[1] *Fed.R.Evid. 704.* (Note that subpart (b) of this rule precludes experts from testifying directly regarding the issue of whether the mental state of a defendant in a criminal case does or does not fulfill the mental state element of the crime charged or of a defense thereto.)

[2] *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786 (1993)

Supreme Court charged district courts with the responsibility of ensuring that all scientific testimony or evidence admitted is relevant and reliable.[3] The court held that such testimony must pass "a preliminary assessment of whether the reasoning or methodology underlying [it] is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue."[4] The latter point about applicability to facts in issue is essentially a determination of relevance similar to other types of evidence. It is assessing the validity of underlying reasoning or methodology that is more complicated. Upon remand from the Supreme Court, the Nineth Circuit assessed the validity and reliability of expert testimony by looking at the following illustrative factors[5] that have been applied throughout the country:

[3] *Id* at 589.

[4] *Id* at 592, 593.

[5] *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995) (Daubert II); *Daubert*, 509 U.S. at 593.

1. Were the opinions based on prior, independent research, or were the opinions generated solely for use in litigation?
2. If the opinions were generated solely for use in litigation, are the underlying theories generally accepted within the relevant scientific community?
3. If the theories are not generally accepted, were they subjected to peer review and publication?
4. If the theories were not peer reviewed or published, did the expert follow a standard scientific methodology?
5. If the expert did not follow a standard methodology, can the theory be tested, and was it tested?
6. If the theory can be tested, what is the rate of error in the expert's analysis?

Admissibility of Underlying Facts (FRE 703 & 705)

The facts upon which an expert bases his testimony need not be admissible themselves so long as they satisfy certain criteria. Specifically, the "facts or data need not be admissible" if they are "of a type reasonably relied upon by experts in the particular field. . . "[6] Inadmissible facts or data cannot be disclosed by the proponent of the expert testimony, except in special circumstances, preventing the use of experts as a conduit for otherwise inadmissible facts. The exceptional circumstance where underlying, otherwise inadmissible facts may be presented occurs when the court determines that the probative value of the inadmissible facts outweighs their prejudicial effect in assisting the jury to evaluate the expert's opinion.[7]

[6] *Fed.R.Evid. 703*. ("The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted. Facts or data that are otherwise inadmissible shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect.")

[7] *Id*.

The party opposing an expert has far more latitude regarding the admission of facts underlying the expert's opinion. In fact, the expert can be "required to disclose the underlying facts or data on cross-examination."[8] The court may also require an expert to testify to underlying facts before providing opinion testimony, if its so chooses.

[8] *Fed.R.Evid. 705.* ("The expert may testify in terms of opinion or inference and give reasons therefor without first testifying to the underlying facts or data, unless the court requires otherwise. The expert may in any event be required to disclose the underlying facts or data on cross-examination.")

Court Appointed Experts (FRE 706)

The last major *Federal Rule of Evidence* governing experts is straightforward for the most part, and deals with the appointment of experts by the court.[9]

[9] *Fed.R.Evid. 706.*

> (a) Appointment.
>
> The court may on its own motion or on the motion of any party enter an order to show cause why expert witnesses should not be appointed, and may request the parties to submit nominations. The court may appoint any expert witnesses agreed upon by the parties, and may appoint expert witnesses of its own selection. An expert witness shall not be appointed by the court unless the witness consents to act. A witness so appointed shall be informed of the witness' duties by the court in writing, a copy of which shall be filed with the clerk, or at a conference in which the parties shall have opportunity to participate. A witness so appointed shall advise the parties of the witness' findings, if any; the witness' deposition may be taken by any party; and the witness may be called to testify by the court or any party. The witness shall be subject to cross-examination by each party, including a party calling the witness.
>
> (b) Compensation.
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> Expert witnesses so appointed are entitled to reasonable compensation in whatever sum the court may allow. The compensation thus fixed is payable from funds which may be provided by law in criminal cases and civil actions and proceedings involving just compensation under the fifth amendment. In other civil actions and proceedings the compensation shall be paid by the parties in such proportion and at such time as the court directs, and thereafter charged in like manner as other costs.
>
> (c) Disclosure of appointment.
>
> In the exercise of its discretion, the court may authorize disclosure to the jury of the fact that the court appointed the expert witness.
>
> (d) Parties' experts of own selection.
>
> Nothing in this rule limits the parties in calling expert witnesses of their own selection.

In brief, it provides the court with the ability to appoint a neutral expert who can be called upon by any party and by the court itself. It may appoint such an expert upon motion of any party or *sua sponte*.[10] Appointment of a neutral expert does not prevent parties from calling their own experts.[11] From a strategic point of view, attorneys should be careful about the manner in which they question court appointed experts. The court can disclose its appointment of an expert to the jury,[12] and harsh treatment of such

[10] *Fed.R.Evid. 706(a).*

[11] *Fed.R.Evid. 706(d).*

[12] *Fed.R.Evid. 706(c).*

an expert in cross-examination can hurt the examining party's perception in the eyes of the jury.

The final portion of the rule dictates who is responsible for paying the court appointed expert,[13] and adds a fair bit of complication to an otherwise direct rule. Basically, the proportion each party pays and the timing of that payment are in the court's discretion. That apportionment will likely be an even split in cases with one plaintiff and one defendant, but it is much harder to predict when there are more than two parties to the case.

[13] *Fed.R.Evid. 706(b).*

Testifying v. Consulting

Most attorneys are familiar with expert witnesses providing expert testimony, but non-testifying experts are becoming increasingly common. These non-testifying, or consulting experts, have become increasingly important in complex litigation where specialized issues beyond the knowledge of the attorneys involved often arise. The primary difference between consulting and testifying experts is the extent to which they are subject to discovery. Because consulting experts are not subject to special discovery rules as testifying experts are, they are nearly immune from discovery. Generally, the existence of consulting experts need not even be disclosed since a consultant is not a person having knowledge of any discoverable matter by definition. The identification of a non-testifying expert is not discoverable unless exceptional circumstances can be shown.

Mandatory Disclosures (FRCP 26(a)(2))

In contrast to consulting experts, testifying experts must provide mandatory disclosures under *Fed.R.Civ.Proc. 26(a)(2)*. The rule provides that the identify of testifying experts must be disclosed.[14] The expert witness must provide a signed report to the court at the time of identification that includes:

[14] *Fed.R.Civ.Proc. 26(a)(2)(A).*

i. a complete statement of all opinions the witness will express and the basis and reasons for them;

ii. the data or other information considered by the witness in forming them;

iii. any exhibits that will be used to summarize or support them;

iv. the witness's qualifications, including a list of all publications authored in the previous 10 years;

v. a list of all other cases in which, during the previous 4 years, the witness testified as an expert at trial or by deposition; and

vi. a statement of the compensation to be paid for the study and testimony in the case.[15]

[15] *Fed.R.Civ.Proc. 26(a)(2)(B).*

These disclosure must be made at least ninety days before trail or the date when the case must be ready for trial, unless the expert testimony is limited to rebuttal of a subject matter identified by another party.[16]

[16] *Fed.R.Civ.Proc. 26(a)(2)(C).*

Discovery from Experts (FRCP 26(b)(4))

Consulting experts are almost entirely exempted from discovery, being specifically protected by *Federal Rule of Evidence 24(b)(4)(B)*. The rule allows discovery only in limited circumstances, including "upon a showing of exceptional circumstances under which it is impracticable for the party seeking discovery to obtain facts or opinions on the same subject by other means."[17] This is a rare circumstance, but can arise if a consulting expert inspected a piece of evidence that no longer exists or has performed testing that cannot be replicated.

[17] *Fed.R.Civ.Proc. 24(b)(4)(B)(ii).*

Much more can be discovered from a testifying expert. The entire contents of the expert's file are generally fair game. Some jurisdictions provide protection for privileged materials, such as attorney work product, in the expert's file, but many do not provide such protection. As such, attorneys should be watchful of which items are provided to their testifying experts, since those items may well become discoverable through the disclosure. Other parties may also, and generally do, depose testifying experts prior to trial. These depositions provide valuable insight into the expert's likely trial testimony. Finally, the expert report and the expert's deposition carry with them an ongoing duty of supplementation.[18]

[18] *Fed.R.Civ.Proc 26(e).*

Who Pays the Bill (FRCP 26(b)(4)(C))

In general, the retaining party is responsible for paying its expert. Deposition of an expert is the prime exception. The party deposing an expert is responsible for paying the expert's fees during the deposition.[19] The party requesting discovery from an expert, deposition or otherwise, is responsible for that expert's fees in answering the discovery. Depositions are notable because their price tends to exceed greatly that of other discovery forms.

[19] *Fed.R.Civ.P. 26(b)(4)(C).*

> Payment. Unless manifest injustice would result, the court must require that the party seeking discovery:
> (i) pay the expert a reasonable fee for time spent in responding to discovery under Rule 26(b)(4)(A) or (B); and
> (ii) for discovery under (B), also pay the other party a fair portion of the fees and expenses it reasonably incurred in obtaining the expert's facts and opinions.

If an expert's fees are excessive or the party requesting discovery is indigent, courts have methods by which they can set and

apportion an expert's cost in the interest of justice. First of all, courts have become increasingly willing to limit excessive expert witness fees, looking to the following factors:

- the expert's area of expertise,
- prevailing market rates for experts in this area,
- the complexity of the case, and
- whether the same rate is charged to all parties.[20]

When a party is indigent, courts may choose not to require payment of expert fees for a deposition or other discovery under *Fed.R.Civ.P. 26(b)(4)(C)* since it creates a high likelihood that "manifest injustice would result." The ninth circuit has even held that a court may appoint an expert for an indigent party under *Fed.R.Evid. 706*, apportioning all of those expert's fees to the opposing party.[21]

[20] *See e.g. Coley v. Wal-Mart Stores East, LP, 2008 WL 879294* (M.D.Fla. 2008), *Hose v. Chicago and North Western Transportation Co., 154 F.R.D. 222* (S.D.Iowa 1994), *Anthony v. Abbott Laboratories, 106 F.R.D. 461, 1 Fed.R.Serv.3d 1402* (D.R.I. 1985).

[21] *McKinney v. Anderson, 924 F.2d 1500* (9th Cir. 1991), *cert. granted, judgment vacated on other grounds, 502 U.S. 903, 112 S.Ct. 291* (1991) *and judgment reinstated, 959 F.2d 853* (9th Cir. 1992)

What Can (and Can't) an Expert Do?

The primary purpose of testifying experts in a given litigation is to apply scientific or technical expertise to the facts of the case and render relevant opinions that assist the trier of fact in understanding complicated or confusing matters. For instance, a forensic computer scientist will often testify to a sequence of events that took place on a given computer or network of computers. Without the expert's testimony, the system logs, file system time stamps, and other application metadata that reveal this sequence of events, is extremely difficult to compile and present effectively. Furthermore, the expert's special knowledge allows interpretation of the underlying data that would otherwise be inadmissible.

Whereas a forensic computer expert might be able easily to determine a sequence of events that took place on a given computer, it is sometimes much harder to connect those events with a particular individual. What if the computer at issue in a case is accessible by many people? What if the opposing party contends he was not "at the keyboard" when a pertinent event took place? A forensic computer scientist may be able to provide circumstantial evidence regarding the party who appeared to be using the computer. This might be based on the user logged in to the system. It could also be indicated by something like an individual's Web-based email session simultaneously open at the time of other events. Since these events are less tied to the forensic computer scientist's domain of expertise, establishment of the party using

a a computer at a given time may need to be established by other means.

Bringing in a computer expert for consultation early on can be extremely beneficial. For example, consider the issue of preservation. Every case an attorney is involved with carries with it a duty to preserve potentially relevant evidence. When that evidence is stored on a computer, the method of preservation becomes critical. The first issue an expert can guide you through is to explain the different preservation options available for electronically stored information (ESI). The safest option is generally forensic imaging of the storage media on the relevant computers. Forensic images are bit-for-bit copies of an entire storage medium, including space on the medium that may not currently hold any active files. This differs from simply copying all of the files on a given medium, since the inactive sections of the image may contain portions of previously deleted files, files that are still discoverable. So the first thing your expert can do is save you from falling victim to under-preservation by making an inadequate copy.

After the consulting expert has explained the effectiveness of different preservation mechanisms, that expert can then further explain the impact of such preservation on your client's computer systems. For example, large servers may be in near constant use, and require special provisions may need to be made prior to acquiring a forensic image from them. Furthermore, their storage systems may be complicated or very large, which can necessitate a greater time of unavailability. On the other hand, forensic imaging of laptop or desktop computers can often be accomplished in only a few hours, often with little or no interruption to the client's use. These issues are difficult to navigate without a firm grasp of the underlying technology, the specialized knowledge a consulting expert can bring to bear.

Why Use an Expert

An effective attorney knows the facts of the case. That need to grasp the facts of the case is the key reason why an attorney should use an expert. In a trade secret case, the attorney must prove that protected information was unlawfully obtained. How can that be done if the trade secret is a customer list stored in an Excel spreadsheet? An expert can help obtain access to the computing equipment of the opposing party through discovery, and potentially find that the spreadsheet in question was copied to a USB flash drive or burned to a CD-R. Sometimes, the expert can even find that the trade secret spreadsheet was deleted, recover it and provide the time of the deletion. Suffice it to say, discovering

a trade secret document had been deleted just prior to turning it over for discovery would *not* be a first.

A Case in Point: Pharmatrak

The *Pharmatrak*[22] case dealt with application of the Electronic Communications Privacy Act (ECPA) to individual user information transferred to a third party Web site via Web addresses, known as uniform resource locators (URLs). It was a class action in which the users of many pharmaceutical company Web sites sued for the collection of their information in violation of publicly-state policy.

[22] *In Re Pharmatrak, Inc. Privacy Litigation, 329 F.3d. 9* (1st Cir. 2003).

Pharmatrak offered statistical Web site tracking information to pharmaceutical companies, allowing them to see how their Web sites were used, most often accessed, and other useful metrics. What made them unique from the many other Web analytics providers is that they offered customers limited access to information about their competitors' pharmaceutical Web sites. Because of Pharmatrak's widespread use by pharmaceutical Web sites, they could provide cross-site information. For example, a pharmaceutical company could find out if a user on their site left to visit a competitor's Web site. The pharmaceutical companies enjoyed this extra information and Pharmatrak grew quickly.

This litigation arose when users of the pharmaceutical Web sites noticed a Web address they did not recognize loading in their Web browsers when they visited their pharmaceutical Web site of choice, and became concerned. Interhack was brought in as experts and asked to examine the mechanism Pharmatrak used to collect site usage statistics. We discovered that Pharmatrak had provided a small piece of Javascript that their clients embedded in the code of their Web sites. Each time a Web site with the script was viewed, the script sent a Web request back to Pharmatrak. We also found that the Web request sent back carried with it a great deal of sensitive information provided by visitors to the the various pharmaceutical Web sites.

The defendants in the case, Pharmatrak and their customer pharmaceutical companies, denied that any personal information was provided to Pharmatrak. Pharmatrak went so far as to say that their system does not and cannot collect personal information, and represented to the court that there were "zero instances" of such collection. To refute their claim, we provided an expert report of over *1,500* pages including personal information found in Pharmatrak's own Web server log files, information that Pharmatrak had told its clients and the court that their system was incapable of collecting. We determined the root cause of this collection was that the Javascript provided by Pharmatrak its clients

had been coded to send across *all* information in the address of a page. When the pharmaceutical companies saw our evidence, they vehemently proclaimed that such collection was unauthorized, and left Pharmatrak alone in its defense.

In the end, Pharmatrak was found to be in violation of the interception clause of the ECPA. The court held that the personal information contained in the URL was protected content under ECPA, and that Pharmatrak was a third party intercepting the communication without authorization.

Summary

As you can see, the problems encounted in modern litgation can be extremely complicated. Therefore, be sure to determine whether any key issues involve specialized evidence, be it computer related or otherwise. Bringing in an expert early can help guide your case strategy from the outset, saving money and time later in the litigation, as well as ensuring that you have an expert at the ready should testimony be required.

About the Authors

C. MATTHEW CURTIN, CISSP is the founder of Interhack Corporation, a computer firm based in Columbus, and Lecturer in the Department of Computer Science and Engineering at The Ohio State University. He has appeared as an expert in federal and state courts, in both civil and criminal proceedings, and on behalf of plaintiffs, defendants, and the court. His work has been used by the U.S. Court of Appeals for the First Circuit to establish standards for the application of Federal wiretap statutes to Web technology in the *Pharmatrak Privacy Litigation*.

Under Curtin's leadership, Interhack's Forensic Computing practice provides services that range from custom software development for analysis to consultation on cost-effective electronic discovery. The firm works with corporate clients and counsel to provide the right balance of risk, utility, and expense in its information management function.

Curtin is the author of *Brute Force: Cracking the Data Encryption Standard* (Copernicus Books, 2005), which chronicles his experience as one of the coördinators of the first project in open research to break a message encrypted with the then-standard method use by the U.S. Government for data encryption. His previous book, *Developing Trust: Online Privacy and Security* (Apress, 2001), discusses how to build online applications that are secure and that respect the privacy of their users.

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Chris earned a Bachelor of Science in computer science, graduating summa cum laude from Arizona State University, as the only computer science major in his graduating class to submit a bachelor's thesis. He then earned a Master of Science in computer science from University of California, Santa Barbara, graduating with honors. He also earned a Juris Doctor from William & Mary School of Law where he served as a research fellow in the Center for Legal and Court Technology. Chris was sworn in as an attorney by the Supreme Court of Ohio just days before joining Interhack in the Spring of 2008.