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## Practical Legal Knowledge Systems

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# Should You Use the Web to Deliver Legal Guidance to Your Clients?

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## Introduction

### Brief Survey of Innovative Ways of Delivering High Quality Legal Advice Over the Web

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Will Web-based legal information and advisory systems increase or decrease business litigation and/or regulatory actions against businesses?

What legal topics are ripe for creating such systems?

What does it take to build such systems?

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## Introduction

The dot-com bubble has burst but the Internet is here to stay. Start-ups with unproven ideas and questionable business plans are out. Established organizations that use the Web to extend and enhance their traditional products and services are in.

To date, the Web has had a limited impact on how lawyers deliver their services to clients. For the most part, lawyers use the Internet to communicate with clients via e-mail, share documents using extranets, or provide information about their practice with a firm Web site.

The Internet has the potential to fundamentally change how lawyers deliver their services to clients. Law firms in the USA, England, and Australia have developed innovative Web-based services to deliver advice to clients. This article briefly surveys some of these innovative services and discusses some of the questions such services raise.

## Brief Survey of Innovative Ways of Delivering High Quality Legal Advice Over the Web

### *Linklaters & Alliance*

[Linklaters](#) is a top-5 London law firm, offers "Blue Flag," a Web-based service that consists of related advisory services including, for example, regulatory compliance advice for business managers in financial institutions, advice for derivatives professionals on making sure transactions are binding, summaries of shareholder disclosure rules by country with links to detailed information, and interpretive materials on the regulations governing fund managers. On its Web site, the firm extols the benefits of online advice:

“Using technology and the Internet the legal expertise of Linklaters can now be accessed at the touch of a button, wherever you are and whenever you need it... It is an innovative approach which brings the following key benefits:

- Instant access from your desk top
- 24 hour global availability, 7 days a week
- Continually updated
- Cost effective
- Improves your business process through technology
- Based on Linklaters legal expertise you can trust “

### *Lovells*

[Lovells](#) is another leading London law firm, announced in October 2000 a [free Web site](#) service offering guidance on arbitration matters. Quoting from the Web site:

“This Website is made up of three principal parts:

- Guidance and information on the drafting of arbitration agreements for inclusion in international commercial contracts;
- The text of arbitration laws (with summaries) and procedural rules; and
- A drafting engine, which may be used to prepare an arbitration agreement”

### *Clifford Chance*

[Clifford Chance](#), yet a third top London firm, offers a [suite of online services](#). “NextLaw” offers guidance on the regulatory risks of e-commerce (e.g., digital signatures and data protection. “Alerter” is a service for the financial sector that has push e-mail tailored to the subscriber’s personal profile, daily digests of regulatory developments, and directories of regulators. “Cross Border” provides information and practical guidance for cross border transactions across a wide range of jurisdictions.

### *Bryan Cave*

[Bryan Cave](#) (a large St. Louis-based firm) has developed two Web advisory services. *The National Law Journal* on June 26, 2000 reported:

“A client preparing to import or export goods can access the firm's "Trade Zone" site. On the site, a client answers a series of detailed questions about its trading partner, the goods to be shipped and other relevant information.

“The site flashes a "red light" if an answer indicates the deal is likely to run into international trade snags. When that happens, a client can "link" to a Bryan Cave lawyer for immediate help. The firm's international trade attorneys take turns staffing the site.”

### ***Davis Polk & Wardwell***

**Davis Polk & Wardwell** (a top NYC firm) offers advice over the Web for selected financial institutions clients. *AmLaw Tech* in December 1999 reported:

“Davis Polk’s Global Collateral Project focuses on cross-border financings. It allows clients to enter information about a specific transaction (the jurisdictions that apply, the type of collateral at issue) and pull up an on-point legal analysis.”

### ***Blake Dawson Waldron***

**Blake Dawson Waldron**, a top Australia and Pacific Rim firm, has developed a suite of online advisory services covering a range of topics including advertising law compliance, privacy, and fair pricing. As the firm explains on its Web site:

“A Virtual Lawyer™ system takes the user through a question and answer session. Each question posed depends on how the previous question was answered. Once all relevant questions have been answered the program generates a summary report in plain English. The report may resolve the inquiry or provide initial advice as to whether a certain transaction is compliant. The report can be e-mailed to the legal compliance department for review or further action... A Virtual Lawyer™ system provides answers instantly. It is available 24 hours a day, 7 days a week, from anywhere in the world.”

All of these law firm services have received favorable press reports and client reaction. The economics of these services and organizational support behind them vary. Some firms have set up separate groups to develop systems; others do so in the context of their ordinary practice. Some charge clients upfront for customized systems, others develop systems first and then sell them on a subscription fee basis. All appear to be backed significant investments to develop both content and technology.

## **Questions about and Implications of Delivering Advice over the Web**

The advent of large law firms developing these systems raises many interesting questions. The remainder of this article addresses a few of the most interesting questions and offers some preliminary answers.

### ***Will clients find these systems useful?***

The answer is yes. To be sure, such systems cannot answer every question a client has. But the appropriate metric is to compare these systems to the available alternatives. For many employees of companies small and large, legal advice is often not available on a timely and cost-effective basis, even for relatively simple legal questions. For these employees, automated systems can be extremely helpful,

providing at a minimum a "triage" answer: you have a problem, you do not have a problem, or consult a lawyer for this problem. At least from the perspective of the in-house lawyer or employee, these systems can help address the high cost and limited availability of legal counsel. (These systems can also provide a complete audit trail, another benefit for some in-house lawyers.)

***Will Web-based legal information and advisory systems mean that business people seek advice from lawyers less often?***

At least with the current state of systems, the answer is most likely no. Web-based systems can answer many questions but not all. They are more likely to extend the reach of lawyers to employees not currently receiving advice than they are to reduce the demand for advice. As mentioned, these systems are a form of triage. Where they cannot definitively answer a question, they can collect information for a lawyer to review. The likely impact is to free lawyers from mundane question and to allow them more time to answer hard ones. In effect, by meeting the demand for simple legal advice, these systems will increase the demand for more complex, and hence higher value, legal advice.

***Will Web-based legal information and advisory systems increase or decrease business litigation and/or regulatory actions against businesses?***

It seems likely they will decrease litigation. Many business people operate without legal guidance because it is too expensive to obtain or because obtaining it unacceptably slows down decision making. Web-based advisory systems are low cost and always available. Consequently, they can guide business people where it may not be feasible for lawyers to do so. Assuming some disputes stem from outright mistakes (as opposed to calculated risks), then Web advisory systems, by making advice less expensive and more readily available, will reduce<sup>1</sup> the amount of litigation. Two other factors tend also to help avoid litigation. First, these systems free lawyers to spend more time on the hard questions, which, on balance, should reduce the potential for disputes. And second, these systems can significantly reduce inconsistency in corporate decision making, thus removing yet another potential cause of disputes.

***What legal topics are ripe for creating such systems?***

Where a lawyer is developing a system for a clearly articulated need of a specific client(s), then virtually any legal topic is possible. If thinking about the market at large, however, then it is best to consider legal issues that 1) occur in high volume across many businesses and 2) present many questions susceptible to answering with an automated systems. The obvious candidates are employment law, certain trade practices (e.g., advertising and pricing), environmental regulations, and financial regulations.

***What does it take to build such systems?***

There is no one formula for creating automated Web advisory systems, but here are several steps in a process that would typically be useful to follow:

1. Identify a need in the market, that is, a legal topic to address. Of course, it should be a topic in which the firm or lawyer has expertise.

2. Determine what type of information or advice to provide to users of the system. For example, decide if the goal to provide advice, collect information for a lawyer to review, generate a regulatory filing, or draft an agreement.
3. Select a "technology platform," that is, the type of software and system to deliver advice. Many choices are available: a set of simple Web (HTML) pages; simple or sophisticated document/content management software; relational databases; document assembly software; FAQ (Frequently Asked Question) software; expert systems; and a wide range of customized solutions. Even where commercial off-the-shelf software is selected, some integration with other systems is likely to be necessary. It may also be necessary to purchase one or more servers or upgrade the speed of the Internet connection.
4. Develop the content. Regardless of the technology selection, lawyers or professionals working under lawyer supervision must develop content to deliver to clients. Even where a lawyer or firm has a well-organized collection of relevant work product, it is likely that a significant effort will be required to translate the content into a more useable format. And, more typically, there will be a need to develop new content. This does not necessarily mean legal research; it may mean that the leading expert must articulate aspects of his or her know-how in a way that can be captured in software for re-use.
5. Make plans at the outset to keep content current.
6. The functional tasks involved – selecting technology, developing content, and keeping content current – may require developing a new organizational structure and compensation scheme to support them. Furthermore, it may also be necessary to create new positions (e.g., a "knowledge engineer" who works with the legal expert and puts the expert's expertise into software).
7. "Beta test" the system with selected clients. (That is, introduce the system on a trial/test basis to a small number of users for feedback and debugging.)
8. Roll out the system and market it.
9. Collect feedback about how it is used and its value and have a process to improve the system based on user feedback.
10. Measure the costs and benefits, both direct and indirect.
11. The need to test a system, develop a marketing program, collect feedback, and explicitly measure outcomes suggests a need for close collaboration among several discrete functional departments (at least in larger organizations).

***Should litigators build such systems or, what are the economics of building automated systems?***

The economics are not yet clear. The fixed costs of this process can be high as the enumerated steps above suggest. Lawyers and firms should consider carefully what the potential return is. Until the market moves further ahead, earning a return on just subscription fees may be difficult. It may be possible, however, to achieve a high indirect return. One way is by cementing important client relationships. Another way is to position these systems so that when they identify difficult issues, the law firm is retained to resolve them. For example, some software can automatically send an e-mail message to a lawyer that indicates further advice is required.

**Conclusions**

It would be hard to argue convincingly today that every lawyer or firm should rush to deliver its services over the Web. But the advent of the innovative law firm services described above and the ongoing investment in Web initiatives by most established companies suggests that the Web will

continue to change the way we do business. At a minimum, lawyers need to keep an eye on these developments and regularly assess the impact on their practice and business. But lawyers who want to gain a competitive advantage and create tighter bonds with clients should think hard about how they can use the Web to deliver their expertise and service directly to clients over the Web. But do not think too hard or long – you may need to act soon!

## **Examples of Legal Advice and Guidance over the Web**

Ron Friedmann  
December 2001

Attached is a list of law firms and other organization that are using the Web to deliver advice, guidance, or legal training to clients. This list is based on example I have found and is neither comprehensive nor complete.

Law Firms and Law Departments

Organizations Other than Firms and Departments

## Law Firms and Law Departments

(Alphabetic Order by Firm or Company Name)

<b>Organization</b> <i>(Service Name)</i>	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
<b>Allen &amp; Overy</b>  <b>New Change</b>	Document creation and extranet	Quoting from the firm's NewChange Web site, New Change offers: <ul style="list-style-type: none"> <li>• “Revolutionary new drafting process for documents.</li> <li>• Secure, web based virtual deal rooms for individual transactions.</li> <li>• Secure, web based virtual caseroom for dispute resolution.”</li> </ul> <a href="http://www.newchange.com/">http://www.newchange.com/</a>	July 2001
<b>Baker &amp; McKenzie</b>  <b>BakerMAKS™</b>	Online collaboration and knowledge management	Quoting from the firm's Web site: “BakerMAKS™ is Baker & McKenzie's new web-based knowledge management system. This proprietary system allows Baker & McKenzie practitioners and clients to access a shared database of legal expertise – a virtual library of legal precedents, local regulatory issues, and research ... BakerMAKS™ captures not just documents, but best practices related to how a specific legal matter is handled and the sequence of tasks needed to complete a project.... BakerMAKS™ is also a sophisticated productivity tool that helps organize even the most complex multi-jurisdiction project using built-in calendars, contact lists, and project management capabilities - efficiently linking the user to relevant documents, corporate information, and communications.” <a href="http://www.bakerandmckenzie.com/BakerNet/Resources/Client+Sites/BakerMAKS+-+About.htm">http://www.bakerandmckenzie.com/BakerNet/Resources/Client+Sites/BakerMAKS+-+About.htm</a>  See also article at <a href="http://www.internetweek.com/customers/customers102201-1.htm">http://www.internetweek.com/customers/customers102201-1.htm</a>	Oct 2001
<b>Beauchamps Solicitors</b>  <b>Grow on Line</b>	Advice for e-commerce in Ireland	Quoting from Beauchamp's separate web site for this service: “ <b>Growonline</b> , run by <b>Beauchamps Solicitors</b> , one of Ireland's leading law firms, is a one stop service that will assist you in setting up and running an e-business in Ireland” <a href="http://www.newchange.com/">http://www.newchange.com/</a>	Oct 2001
<b>Appleby Spurling &amp; Kempe</b>	Document creation	Quoting the Just Ask web site: “Just AS&K [Inc] is the first of a range of web-based business products being launched by Just AS&K, the flagship electronic solutions provider of Bermuda law firm, Appleby Spurling & Kempe. Just AS&K [Inc] allows you to	July 2001

<b>Organization</b> (Service Name)	<b>Type of Service</b>	<b>Description of Service</b>  <i>Date source and URL last checked</i>
<b>Just AS&amp;K</b>		incorporate both Bermuda and Cayman Islands companies over the Internet. The system simplifies the process and provides you with direct access to AS&K and its alliance partners' team of experts." <a href="http://www.justaskinc.bm/">http://www.justaskinc.bm/</a> See also an interesting article about this site in <a href="#">Legal Technology News</a> (June 2001)
<b>Ballard Spahr Andrews &amp; Ingersoll</b>	Document creation	Quoting a press release: <span style="float: right;">July 2001</span> "e-Cognita Technologies, Inc. today announced that Ballard Spahr Andrews & Ingersoll, LLP, a national law firm with more than 350 lawyers in seven offices, has selected e-Cognita's Streamloaner(TM) Closing Management software to automate the firm's commercial real estate finance practice.... Streamloaner automates commercial real estate lending for all parties involved. The browser-based software works within and between businesses to automate and streamline the entire loan and service delivery process, from underwriting through closing, to portfolio or sale. Law firms and commercial lenders using Streamloaner benefit from its elimination of repetitive data entry and coordination of collaborative communication between internal and external parties, as well as its ability to highly automate intelligent documents of any type. The software streamlines the processing and closing of loans." <a href="#">Press release on Yahoo, July 11, 2001</a>
<b>Blake Dawson</b>  <b>Virtual Lawyer</b>	Advice	Quoting an <i>AmLaw Tech</i> article: <span style="float: right;">July 2001</span> "Virtual Lawyer – Advertising' will question a brand manager about the terms used in an advertisement. It then renders a verdict on whether an ad breaks Australian advertising law or regulations." <a href="#">AmLaw Tech, December 1999</a>
<b>Bryan Cave</b>  <i>Trade Zone</i>  <b>No Zone</b>	Advice and online compliance training	Quoting a <i>National Law Journal</i> article: <span style="float: right;">July 2001</span> "A client preparing to import or export goods can access the firm's 'Trade Zone' site... answers a series of detailed questions... The site flashes a 'red light' if an answer indicates the deal is likely to run into international trade snags... 'No Zone' trains workplace supervisors in the thorny arena of harassment law." <a href="#">National Law Journal, June 26, 2000</a>
<b>Clifford Chance</b>  <i>Online Services,</i>	Advice, alerts, legal source material, other information	Quoting from the firm's Web site: <span style="float: right;">July 2001</span> "NextLaw provides rapid and practical assistance when assessing legal and regulatory risks of e-commerce in multi-jurisdictions. <ul style="list-style-type: none"> <li>• Online Contract Formation</li> </ul>

<b>Organization</b> (Service Name)	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
<i>including</i> <i>Next Law and</i> <i>Alerter</i>		<ul style="list-style-type: none"> <li>• Electronic Signatures</li> <li>• Encryption</li> <li>• Data Protection</li> <li>• Bank Secrecy</li> </ul> <p>“The financial services market is complex and ever changing. Keeping abreast of developments within the global markets is a key challenge... We have developed Alerter in response to these challenges. The service includes:</p> <ul style="list-style-type: none"> <li>• "Push" email alert tailored to your personal profile</li> <li>• Concise structured digest of regulatory developments from international centres - daily</li> <li>• Directory of regulators, exchanges etc.</li> <li>• Quick links to other relevant sites”</li> </ul> <p><a href="http://www.cliffordchance.com/online/home.htm">http://www.cliffordchance.com/online/home.htm</a></p>	
<b>Davis Polk</b>  <i>Global Collateral</i> <i>Advisor</i>	Advice	<p>Quoting an <i>AmLaw Tech</i> article:</p> <p>“Davis Polk’s Global Collateral Project focuses on cross-border financings. It allows clients to enter information about a specific transaction (the jurisdictions that apply, the type of collateral at issue) and pull up an on-point legal analysis.”</p> <p><a href="#">AmLaw Tech, December 1999</a></p>	July 2001
<b>Denton Wilde</b> <b>Sapte</b>  Leasebank	Advice and documents	<p>Quoting Charles Christian’s <i>Legal News Media</i>:</p> <p>“Denton Wilde Sapte will next week launch a new online legal service for the leasing industry called Leasebank. The pricing model for the service, which will include advice as well as downloadable document templates, will be based around an annual subscription fee - reported to be £10,000 pa - that is refundable to users who subsequently instruct the firm. Given that it is an old complaint, here at New Media Lawyer, that many law firms are currently giving away the family silver through offering far too much free material on their web sites to users who will never convert into fee paying clients, Denton’s approach may prove a happy compromise.”</p> <p><a href="#">Legal Technology Insider and New Media Lawyer</a> Issue.83 – July 12, 2001</p> <p>Note that this firm’s Web site also has an <a href="#">interesting feature</a> – it allows customizing to generate personal shortcuts to content of interest and personalized legal/industry alerts</p>	July 2001
<b>Eversheds</b>	Online debt collection	<p>Quoting the Debt Recovery Web site:</p> <p>“Eversheds deliver an efficient and professional debt recovery service. Our aim is to collect your debts in the</p>	August 2001

<b>Organization</b> (Service Name)	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
<b>Debt Recovery</b>	service	shortest time possible, reducing your debtor days and improving your cash flow.... Starting the process could not be easier. You can instruct us by completing an online instruction form on the following pages. We will then send a letter to your debtor demanding payment... You remain in control. After you have placed a debt with us for collection, we provide you with real time access to your case records and online reporting facilities” <a href="http://www.everdebt.com/index.htm">http://www.everdebt.com/index.htm</a>  Note that Eversheds also offers customized <a href="#">e-commerce news alerts</a> .	
<b>General Electric</b>  <i>Virtual Patent Advisor</i>	Advice and online research	Quoting from the <i>American Lawyer</i> magazine: “[T]he Virtual Patent Advisor... allows lawyers and engineers to enter information about a product under development and quickly find out about potential patent problems... ‘We have taken a process that took months and reduced it to real time, maybe fifteen minutes’ say Robert Lampe, Jr. a senior patent lawyer at Power Systems.” The American Lawyer, March 1998 [Article is not on the web]	Date of check Not Applicable
<b>Gilbert and Tobin</b>  <b>Sherpa Online</b>	Online compliance training	Quoting the firm’s Sherpa Online Web site: “Gilbert & Tobin, in a strategic alliance with Morgan & Banks, has developed Sherpa Online, a suite of five Internet-delivered compliance and business training tools designed for a non-legal audience... Chances are your employees are your most valuable asset. But they could also turn out to be quite a liability.... The answer to minimising your risk is education... In part, this means having a corporate compliance program... We've launched with five programs initially, but many more are on the drawing board... NetControl, Privacy, Smart Contracting, Trade Practices, FairXchange... Sherpa Online brings knowledge of the law to deep within an organisation where real damage can easily be caused. It's a suite of simple online training programs employees can complete in their own time and at their own pace.” <a href="http://www.sherpaonline.com.au/html/default.html">http://www.sherpaonline.com.au/html/default.html</a>	July 2001
<b>Hammond Suddards</b>  <b>Hammonds Direct</b>	High volume conveyancing and mortgage arrears management services.	Quoting the service Web site: “HammondsDirect provides comprehensive legal support to lenders and financial institutions in the following areas: Sale & Purchase, First Time Buyer, Remortgage, Mortgage Arrears Management & Litigation, Mortgagee Sales.... Our clients have DIRECT access to real time management information and financial summary reports through Internet browser technology.... Through our sophisticated workflow and imaging technology we are able to deliver DIRECT at the touch of a button information which identifies the status of a transaction. Demonstrable added value can now be achieved by the outsourcing of volume transaction management [including faster loan	December 2001

<b>Organization</b> (Service Name)	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
		draw down and risk management]” <a href="#">Hammonds Direct</a>	
<b>Linklaters</b>  <b>Blue Flag</b>	Advice, document creation, and transaction management	Quoting the service Web site: “Blue Flag® is the way Linklaters delivers legal services electronically.. Using technology and the Internet the legal expertise of Linklaters can now be accessed at the touch of a button, wherever you are and whenever you need it. The Blue Flag® concept of electronic delivery has been applied across the practice so that where technology can help to deliver legal solutions more efficiently, quickly and cost effectively then Linklaters offers you the choice of Blue Flag®” <a href="http://www.linklaters.com/english/blueflag/index.html">http://www.linklaters.com/english/blueflag/index.html</a>	July 2001
<b>Littler Mendelson with Employment Law Learning Technologies</b>	Online compliance training	Quoting the ELT Web site: “In order to guarantee that our products are the most reliable, authoritative and the best available, ELT, Inc. has entered into a partnership with Littler Mendelson.... ELT is in the business of providing employment law training through the sale of training and education products, computer-based training and education applications and live-training and educational services. ELT is not in the business of providing legal advice or legal services, and the protections of the lawyer-client relationship do not exist with respect to the training services provided by ELT to your organization.” <a href="http://www.elt-inc.com/about/littler.html">http://www.elt-inc.com/about/littler.html</a>	August 2001
<b>Lovells</b>	Advice, legal source material, and document creation	Quoting from the firm’s Web site: “This Website is made up of three principal parts: <ul style="list-style-type: none"> <li>• Guidance and information on the drafting of arbitration agreements for inclusion in international commercial contracts;</li> <li>• The text of arbitration laws (with summaries) and procedural rules; and</li> <li>• A drafting engine, which may be used to prepare an arbitration agreement”</li> </ul> <a href="http://www.lovells.com/Arbitration">http://www.lovells.com/Arbitration</a>	July 2001
<b>Mallesons Stephen Jaques</b>  <b>PrivacyOnline</b>	Advice, compliance tools, document creation	Quoting the service Web site: “Privacyonline is a practical online guide to implementing your responsibilities under the private sector privacy regime which applies from 21 December 2001” The service includes education and training, project/task planning, reference materials, interactive compliance advisors, and document drafting.	December 2001

<b>Organization</b> (Service Name)	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
		<a href="http://www.msj.com.au/msj/privacy/privacy.htm">http://www.msj.com.au/msj/privacy/privacy.htm</a>	
<b>Proskauer Rose</b>	Online compliance training	Quoting from a press release: "Proskauer Rose LLP's labor and employment law department, one of the nation's most prestigious employment-law practices, and <a href="#">WeComply, Inc.</a> have teamed up to offer the first and only fully customizable online training program for corporate managers on a critical issue in today's workplace -- "Preventing Discrimination and Harassment." <a href="#">Press release dated June 5, 2001 on Yahoo</a> (and on Proskauer's site)	July 2001
<b>Seyfarth Shaw</b>  <i>Seyfarth Shaw at Work</i>	Online compliance training	Quoting from the service Web site: "Seyfarth Shaw at WorkTM offers a wide range of high-energy, interactive employment law training programs, that are specifically designed and delivered to increase participant "buy-in," and to teach the fundamentals of employment law without the legalese." <a href="http://www.seyfarth.com/client/work.asp">http://www.seyfarth.com/client/work.asp</a>	July 2001
<b>Weil Gotshal</b>  <i>eAdvisor</i>	Advice	Quoting from an article by Stephan Kahn on the firm's Web site: "The stimulus for developing this site came from outside: it was the need General Electric Company, a major WGM client, had to give its large, geographically dispersed law department an extensive body of material relating to Internet and e-commerce legal issues... At GE's suggestion, we agreed that it would pay a fixed price and WGM would own the site and be able to market a non-proprietary version to other clients who were not competitors of GE... Through this arrangement, the client got what it wanted for a relatively low, preset price and we got even more incentive than we already had to continue improving and enhancing the site to the benefit of all users, including, of course, the founding client." <a href="#">Article</a> (June 2000) by partner Steve Kahn on the firm's Web site.	July 2001
<b>Wilson Sonsini</b>  <i>Document Access &amp; Subscription System</i>	Document Creation	Quoting a Wall Street Journal Article: "When venture capitalists raise new funds to invest, they generally need reams of paper in the form of offering memorandums and partnership agreements... [Wilson Sonsini] is trying to alleviate that paper jam with a new service that puts many such documents online in one place... The Document Access & Subscription System was developed in-house at Wilson Sonsini and will be a service for the firm's existing clients and a way to lure new clients." Wall Street Journal, Monday, June 11, 2001 at Page B5	

<b>Organization</b> <i>(Service Name)</i>	<i>Type of Service</i>	<i>Description of Service</i>	<i>Date source and URL last checked</i>

## Organizations Other than Firms and Departments

Below is a list of organizations other than law firms or law departments that offer products or services that overlap with legal issues. I have compiled this list from multiple sources but it is neither comprehensive nor complete.

### *Services and Products for Compliance*

<b>Organization</b> <i>(Service Name)</i>	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
<b>LRN</b> <i>Legal Compliance and Education Center</i>	Online compliance training, wide range of topics	<p>Company Web site:                      “The Legal Compliance and Education Center (LCEC)™ is the first entirely Web-based training and reference platform designed to address workplace ethics and compliance issues. LCEC is now available to nearly 3 million employees worldwide, setting the standard for training in various areas of the law. LCEC provides employees with access to the knowledge they need to recognize compliance concerns, avoid risks and seek assistance when necessary.”</p> <p>Charter subscribers: Boise Cascade, Cardinal Health, Conoco, Exelon, General Motors, Honeywell International, Johnson &amp; Johnson, Kellogg, Kennecott, Lucent Technologies, Matsushita (Panasonic), Morgan Stanley Dean Witter, Motorola, Raytheon, Sears, Texaco, TRW, Vivendi Universal</p> <p>Topics: Antitrust, Business Ethics, Commercial Banking, Commercial Practices, Consumer Finance, E-Commerce, Environment, Employment and Human Resources, Government Contracts, Health Care, Insurance, Intellectual Property, International Business, Securities</p> <p><a href="http://www.lrn.com/lrnsite/main11.html">http://www.lrn.com/lrnsite/main11.html</a></p>	September 2001
<b>Legal Research Center</b>	Online compliance training	<p>Company Web site:                      “Complying with state and federal regulations has never been more demanding. Penalties for non-compliance can be severe - even crippling to a company. LRC's Corporate Compliance Services provide cost-effective preventive law solutions that you can implement faster than you ever imagined. Choose from LRC's growing inventory of compliance solutions, or customize a solution to meet your company's specific needs...</p> <ul style="list-style-type: none"> <li>• Online compliance training for your employees</li> </ul>	September 2001

<b>Organization</b> (Service Name)	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
		<ul style="list-style-type: none"> <li>• Surveys of compliance requirements under varying state laws</li> <li>• Content development for your law department intranet site”</li> </ul> <a href="http://www.lrci.com/index.html">http://www.lrci.com/index.html</a>	
<b>Eduneering</b>	Online compliance training	<p>Company Web site:</p> <p>“EduNeering, the leading provider in online compliance education solutions, helps to ensure enterprise-wide regulatory compliance by educating employees in the latest regulations in the areas of LifeScience, Healthcare, Energy and General Industries.... EduNeering delivers Web-based compliance education solutions through a market proven process that effectively guards against liabilities associated with audits, accidents or injuries...</p> <ul style="list-style-type: none"> <li>• Certified and current course content</li> <li>• Litigation avoidance through our compliance curriculum</li> <li>• Reducing risk through technology</li> <li>• Extensive and reliable learning documentation”</li> </ul> <a href="http://www.eduneering.com/solutions.html">http://www.eduneering.com/solutions.html</a>	September 2001
<b>Integrity Interactive</b>	Online compliance training	<p>Company Web site:</p> <p>“We offer "best practice" web-based compliance and business ethics training solutions—solutions that can substantially reduce your compliance risk exposure and help your employees do business with integrity... Integrity Interactive has brought together a group of the worlds leading corporate compliance experts.”</p> <a href="http://www.integrity-interactive.com/compliance/compliance.htm">http://www.integrity-interactive.com/compliance/compliance.htm</a>	September 2001
<b>We Comply</b>	Online compliance training, wide range of topics	<p>Company Web Site</p> <p>“Let WeComply help you jump-start your company's compliance-training efforts quickly and cost-effectively with —</p> <ul style="list-style-type: none"> <li>• High-quality online compliance training that's easy to set up and administer.</li> <li>• Content that's customizable to your company's specific needs, and that you can update quickly when those needs change.</li> <li>• An interactive and fun format that's accessible to all employees — not just those with specially-equipped computers and fast Internet connections.”</li> </ul> <a href="http://www.wecomply.com/">http://www.wecomply.com/</a>	September 2001
<b>Compliance</b>	Compliance	Company Web Site	September 2001

<b>Organization</b> (Service Name)	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
<b>Partners, Inc.</b>	tools, human resources	<p>“CPi is dedicated to delivering state-of-the-art, web-based HR Compliance Management Systems to the HR Marketplace. Systems include an Employee Handbook Management System and a Compliance Training Management System. Both systems are designed to help employers avoid costly employee lawsuits. CPi’s HR Compliance Management Systems provide the tools to create, communicate, track, update and reinforce legally compliant policies - thus providing one-stop shopping for employers seeking to mitigate employee lawsuits. “</p> <p>Company has an arrangement with the law firm Fisher &amp; Phillips (<a href="http://www.laborlawyers.com/">http://www.laborlawyers.com/</a>).</p> <p>Products and services include creating employee handbooks, generating employee documents (e.g., offer letters), training courses, and tools to assess whether a worker is an independent contractor or employee.</p> <p><a href="http://www.cpi4hr.com/">http://www.cpi4hr.com/</a></p>	
<b>Netcompliance</b>	Compliance management, safety and health	<p>Company Web Site</p> <p>“NetCompliance offers companies the ability to comply with federal and soon, state and local, regulations via the Internet or individual company Intranets. The company uses its eComply™ technology to capture the expertise and knowledge of traditional health and safety consultants and place that information into individual compliance and training modules.”</p> <p>Focus is on materials and environmental safety.</p> <p><a href="http://www.netcompliance.com/">http://www.netcompliance.com/</a></p>	September 2001
<b>Virtual Compliance</b>	Compliance management, safety and health	<p>Company Web Site</p> <p>“Virtual Compliance develops innovative digital compliance solutions for all kinds of compliance challenges. Our patent-pending expert systems integrate information and compliance management tools with the services, supplies and training needed to make compliance easier than ever before! Easy to use online regulations... Online MSDS management for employers and suppliers ... MSDS Inbound ... MSDS Outbound ... HazMat Digital Expert”</p> <p><a href="http://www.vcompro.com/">http://www.vcompro.com/</a></p>	September 2001
<b>CyberReg</b>	Compliance intelligence (international)	<p>Company Web Site</p> <p>“CybeReg is an internet-based database of environmental regulations in countries outside the U.S. Its target customers are involved in environmental, health and safety compliance activities and product distribution for manufacturers operating globally”</p> <p>It aims to be a single source for international compliance information. Attempting to establish an international network of experts, especially for environmental information..</p> <p><a href="http://www.cyberreg.com/">http://www.cyberreg.com/</a></p>	September 2001

<b>Organization</b> <i>(Service Name)</i>	<b>Type of Service</b>	<b>Description of Service</b>	<i>Date source and URL last checked</i>
LexRadar	Compliance intelligence (international)	Company Web Site “The LexRadar Global Regulatory Compliance Intelligence [provides] multilingual, timely and accurate analysis of regulatory developments in selected emerging markets ... and targeted regulatory and industrial sectors ... The analysis is prepared for subscribers by leading national law firms. [Benefits:] <ul style="list-style-type: none"> <li>• Real time notification of regulatory developments that pose a potential impact upon operations or plans</li> <li>• Impact and content analysis in multilingual format</li> <li>• Company wide access through electronic delivery</li> <li>• Reduction of information acquisition costs to below that charged by law firms, accounting firms or consultants”</li> </ul> <a href="http://www.lexradar.com/">http://www.lexradar.com/</a>	September 2001

*Services and Products for Contract Formation and Management*

PRELIMINARY INFORMATION

<b>Organization</b> <i>(Service Name)</i>	<i>Type of Service</i>	<i>Description of Service</i>	<i>Date source and URL last checked</i>
Imany		According to Interactive Week Magazine, September 17, 2001, p. 28, in June, “I-many formed a partnership with J.D. Edwards & Co. to include its contract negotiation and management software in its enterprise applications at the life sciences sector.”	
DiCarta		Contract management ASP. October 31, 2001: “diCarta Announces Next Generation Enterprise Contract Management -- diCarta Contracts 2.0” <a href="http://biz.yahoo.com/bw/011030/300366_1.html">http://biz.yahoo.com/bw/011030/300366_1.html</a> diCarta Solidifies Position in Enterprise Contract Management with Significant Recent Wins <a href="http://biz.yahoo.com/bw/011030/300360_1.html">http://biz.yahoo.com/bw/011030/300360_1.html</a>	
Beachfire		“Provides a hosted software platform, called the Collaborative Agreement Builder, for negotiating complex contracts.” “Parties will essentially log on to the system and use its tools to discuss terms and conditions, edit contracts and finalize agreements.” Groundbreaking customer is the International Swaps and Derivatives Association.  Interactive Week Magazine, September 17, 2001, p. 28	
Oracle and I2		As reported in Information Week, Sept. 3, 2001, p. 50: Oracle and I2 are both moving into contract management. They are adding features that let customers store contracts.	

## Creating Windmills - KM Is Not A Separate Process

The practice of law is regularly dependent on the use and reuse of “knowledge” in one form or another. Most of what lawyers have to offer to clients is based on their knowledge, whether it consists of a particular skill, an acquired experience, a learned expertise or some other form of information or wisdom. So, it makes sense that the more a lawyer can use his or her knowledge and the collective intellectual capital of others in the firm, the more productive and valuable he or she becomes.

In practical terms, Knowledge Management (KM) is a process to leverage what the organization collectively “knows.” Some refer to this as simply delivering the right knowledge to the right person at the right time. It may take the form of using in-house research or document precedents to eliminate redundant effort and lower costs. It could mean drawing on a collection of skills, experience and best practices to achieve a better result or faster response. Or it could be as simple as sharing client intelligence to develop new business or improve service and relationships. The better the firm manages and leverages these knowledge assets, the greater the financial benefit for all involved. Put another way, the failure to re-use what you know means that you will be always re-inventing the wheel at the expense of your client, your profitability and your competitiveness.

If a rich internal repository of information, skills and experience were easily available in your firm, there is no doubt that lawyers would use it as readily as picking up a case digest. Lawyers are trained to work with multiple information sources, references and precedents, so the use of knowledge resources fits their natural work process. However, the problem has never been in the *use* of knowledge, but rather in the gathering of high quality knowledge.

### The Major Obstacle

By far the biggest challenge for all organizations is to find effective ways to gather relevant, up-to-date knowledge from the minds and materials of their busy professionals. A “top-down” KM process, whereby management commands that every lawyer dissect personal files and memories to submit reusable knowledge, does not really suit the culture of the legal profession. No one has time for a knowledge inventory, and it is difficult to recall what you know when asked out of context.

As an alternative, many have focused KM efforts on capturing and reusing written work product. They find it is easier to bypass lawyers and deal directly with their work product. By culling through opinions, pleadings, agreements, e-mails or other tangible work product, they can build KM document repositories. However, this process is particularly labour-intensive and limited in scope. Publishing a precedent requires careful verification and constant attention to potential circumstances requiring revision.

There is a serious question of whether a document alone fully conveys the sophisticated levels of knowledge, such as tax or negotiating considerations, contained within. Also, the culling process often requires a dedicated task force to find that one or two per cent of reusable knowledge contained in the vast volumes of law firm work product.

### The Myth That Lawyers Will Not Share

When law firm KM initiatives fall short of expectations, many attribute the failure to the lawyer’s inherent unwillingness to share. However, this conclusion unfairly blames the lawyer for the failure of the KM process to engage, accommodate or benefit the individual.

Lawyers are no different from any other busy knowledge professionals. They juggle weighty responsibilities and are subject to tremendous demands on their time. So, if sharing involves an extensive commitment outside the scope of their immediate obligations, it becomes inherently difficult to participate.

Yet, the vast majority lawyers are ready and willing to share their knowledge given the right circumstances. For example, if you walked into the office of a colleague with a need for specialized information or expertise, nine times out of ten he or she would try to help you or point you in the right direction – time permitting. While it is true that KM requires a shift in firm culture, it also needs to create the proper circumstances for self-sustained sharing.

So, what are the right circumstances that facilitate vigorous lawyer contribution and participation in the KM process? Let's look at the five most important factors: Timeliness (When), Proximity (Where), Simplicity (How), Control (How Much) and Payback (Why).

### 1. Contribution When You Think Of It

Knowledge contribution cannot be isolated from the daily workflow or separated from people. It is not a one-time collaboration or a collection of greatest hits. To be relevant and effortless, contribution must be immediate, while you are thinking of it.

What does this mean in a legal context? We know that the one moment when a lawyer is thinking about the client, the case, the practice, and the law is when he or she is doing or recording the work. Therefore, any technology that allows the contribution or capture of knowledge to take place at that moment when it is freshest in the mind of the contributor is likely to produce the broadest, most accurate range of knowledge.

### 2. Contribution at the Intersection of Thought

The best place to gather knowledge is the place where lawyers go each day – at the "intersection of thought." The physical location is not as important as positioning KM in close proximity to the lawyer's work. Therefore, the most effective strategy is to provide the lawyer with an easy means to contribute and consume knowledge from within the normal workflow.

For example, while composing or reviewing a document, can you save it as a personal precedent? While entering time, can you jot down a note about the client, the case or the practice? While sending advice by e-mail, can you send a copy or a note to the knowledge base?

Knowledge management will not survive as a separate process. Most KM experts now predict that KM will soon lose its separate identity as it becomes embedded within existing work systems. Mario D'Amico, Chief Technology Strategist at PensEra Knowledge Technologies, describes this "knowledge funneling" approach as like a windmill versus a treadmill. Instead of constantly prodding the user to contribute tremendous effort (the treadmill), we must attach or embed the means for contribution and usage within existing lawyer work processes, so knowledge is funneled naturally from work.

### 3. Simplicity Increases Participation

The method to contribute knowledge must be clear, concise, simple and quick. Most KM projects result in elaborate, time-consuming questionnaires that discourage participation. Yet, the most effective KM system is one that has daily contributions and use. A firm can increase the likelihood of success by ensuring it takes very little time, effort or training to contribute or access knowledge. Lawyers should be

encouraged to just “jot down” knowledge notes while they are thinking about it. Knowledge categories can be originated with the user and mapped to make it as basic or sophisticated as needed.

Simplicity also applies to ease of access. The process should be built for anytime access without complex implementation (e.g. browser-based). Ideally, new knowledge updates should be distributed as regular “feeds” to interested members of the firm, so members can become aware and tap knowledge even without searching.

#### 4. Respecting Privacy - Begin the “Knowledge Conversation”

Granting a lawyer the absolute right to keep his/her knowledge private may sound like the antithesis of knowledge management, but it is a fundamental stepping-stone to knowledge sharing. This is not a question of ownership, but of participation.

One of the principal impediments to participation is the time and effort necessary to compose, edit and refine a contribution for internal “publication” so that it can be clear to all potential readers. If I post a note about my practice for my own use, it can be short and cryptic. If I know that only other senior members of my practice group will see it, I may be a little more thorough, but I still have confidence that others of equal experience will understand it. However, if the note is broadcast to a firm wide enterprise knowledge base, it now must be explicitly and meticulously clear. This means investing much more time and effort for no immediate benefit. Moreover, since the note represents my best practices, it had better be flawless or others may detrimentally rely on it - or mock my error.

It is easy to see how the casual exchange of knowledge can often be stifled by unrestricted enterprise publication. Will a lawyer frequently participate in this “publication” process if he/she cannot control the range of circulation? Not likely.

For lawyers to fully participate, the organization must respect the lines between personal, group and corporate knowledge. It must empower the individual to contribute for his/her own benefit without the inhibition and chilling effect of blanket dissemination. Knowledge sharing is not going to take hold in an organization overnight, but it will never happen if contributors have no privacy control. By building a knowledge conversation from the ground up, the organization can build a more long-lasting and sustaining knowledge sharing culture.

#### 5. Payback to the Contributor

Lawyers will more likely contribute to a KM system if they derive a direct benefit from the results. This goes beyond performance incentives. If a lawyer is to be motivated to enter knowledge notes, the primary beneficiary should be that lawyer. By structuring the knowledge base into personal and enterprise zones, the law firm can provide a lawyer with a means to record, organize and access knowledge that first and foremost benefits him or her, while secondarily building knowledge assets for the firm.

For example, when a lawyer jots down notes about the case, a recent client conversation, a practice shortcut, or a business opportunity, he or she should have access and reuse this personal knowledge for his or her own benefit. The knowledge system should help classify and organize the information for the individual. If he or she shares some or all of the information with the firm, then all can gain from team collaboration.

Similarly, if a team contributes multiple knowledge notes on a file, each member can stay abreast without extra effort. To generate contribution, the process must first answer the question, “What’s in it for me?” A self-serving system is also a self sustaining KM process.

#### KM Perseverance has Great Rewards

It is often said that knowledge management requires a cultural change by the organization. But the “art” of knowledge management is also evolving and adapting to the business context and needs of the professional. The myth that lawyers will not share will soon be refuted by a new generation of knowledge-gathering tools that are geared to suit the work and thought processes of the professional. A grassroots KM process that captures and delivers knowledge where and when work is being done will attract greater participation and produce greater rewards for all parties involved.

*Dan C. Felean is a principal of PensEra Knowledge Technologies, the developer of TimeKM™ and other web-based knowledge tools for law firms and corporate law departments. Dan has more than 25 years experience in law and technology, both as a practicing attorney and as a consultant to law firms and law departments. See [www.pensera.com](http://www.pensera.com).*

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Sally Gonzalez

[Paper To Come]

# **CONCEPT MAPS AND XML: ARE THEY OF ANY PRACTICAL VALUE TO TODAY'S BUSY LAWYER?**

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Notes of a presentation for

## *Practical Knowledge Systems in Today's Law Offices*

The International Association for Artificial Intelligence and Law  
Chicago Kent College of Law - March 16, 2002

*This is a practical, real-world sketch of how I envision the early adopters will be and are beginning to use concept maps and XML in their law practice. I am directing these remarks today to the practicing lawyers in the audience. To illustrate my thoughts, I have chosen an explicitly simple example deal that most transactional lawyer have experience with: a real estate sale.*

### What is a Concept Map?

A concept map is your law firm's knowledge, experience and processes, codified.

Marc Lauritsen recently defined the crux of a concept map as:

The legal and lawyering processes, including:

- a. events
- b. activities, tasks and actions  
(what has been, is being, needs to be, will be done as a part of the legal work)<sup>2</sup>

### A Vision of a Next-Generation Real Estate Deal

#### Event 1 – Offer

*A concept map of the terms of the offer will include many possible contract terms, such as:*

- *Buyer*
- *Seller*
- *Price*
- *closing date*
- *conditions precedent*
  - *financing*
  - *due diligence*
  - *environmental inspections*

<sup>1</sup> Janet Svoboda consults with attorneys to improve their existing substantive law practice systems, staffing and technologies and to implement new technologies. Prior to consulting, she practiced law for over 20 years in law firms, solo, in a "Fortune 500" company and as general counsel to a medical device company.

<sup>2</sup> Lauritsen, Marc, Ontologies and Openness in Law Practice Automation, Eighth International Conference on Artificial Intelligence and Law, May 2001, <http://www.capstonepractice.com/OntoOpen.html> .

- *environmental indemnifications*
  - “As is”:  
Buyer takes all liability after closing, regardless of when a release may have occurred. Seller retains no liability.
  - “My watch / your watch. No baseline”:  
Seller continues to be liable for incidents occurring prior to the closing date. Buyer takes liability for incidents occurring after the closing date. No baseline report exists.
  - “My watch / your watch, with a baseline”:  
Seller continues to be liable for pollution shown in baseline report. Buyer takes liability for pollution in excess of the baseline report.

Marc Lauritsen states that the purpose of a concept map is "to support better quality and faster development of new [technology] applications, and greater reuse of and interoperability among existing applications."<sup>3</sup> And he suggests that the legal profession will benefit from lawyers sharing concept maps in an open-source context, much as the Linux operating system was developed as an alternative to Microsoft Windows. He proposes that lawyers agree on the typical events, activities, tasks and actions that are common in the practice of each of their respective specialties. This vision of lawyers sharing concept maps in an open-source context seems to be a project aimed at producing something like a "Restatement of the Law Practice Processes of Contracting and Closing on the Sale of Real Estate," for the purpose of developing legal technology.

A concept map can be shared as an "open source" or public domain technology development tool, as Mr. Lauritsen suggests. But concept mapping is also a powerful law practice knowledge management tool. Lawyers can use concept mapping in our everyday practice, capturing value to both the individual lawyer and his team immediately when created, and later, as a precursor to the organization's development or adoption of technology based upon the concept maps.

In the above example, when we transfer the concept of three principal types of environmental indemnifications from our mind and commit it to writing in an organized way, we learn and remember it better, and we likely may further refine our ideas as we read and edit them. So, when we are next in hot negotiations on this topic, the three principal types of environmental indemnifications jump immediately and clearly to mind. The discipline of conceptual mapping help us come to better know what we know. In this way, concept mapping individually benefits a lawyer who practices it.

#### What is XML?

eXtensible Markup Language, XML, is a metadata language, so it consists of "data about data." An XML tag labels data contained in document, and that XML label facilitates searching, organizing and presenting that data. In some ways XML is similar to reveal codes in WordPerfect® and HTML codes. But, while HTML has a prescribed set of tags to describe the appearance of data, XML allows users to define their own set of tags and definitions.

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<sup>3</sup> *Id.*

There is an initial XML specification, and there are specialized subtypes of XMLs that follow from it. I will illustrate here a real estate contract specialized version of XML, that I created, solely for this presentation. The real estate industry is in the process of developing consensus on XML standards.<sup>4</sup>

In our vision of a next-generation real estate deal, during the offer phase, a prospective buyer of an investment property may choose to use in-house software or internet based software designed by Realtors® to interpret the significant deal points of an XML-enabled version of the Realtors form purchase/sale contract. The format of XML data can be efficiently controlled by XSL stylesheets (eXtensible Stylesheet Language). That might look like:

XML Tag	Contract Provision
<Contract Date>	This contract is entered into this <b>16<sup>th</sup> day of March, 2002</b> ...
<Seller>	... by and between <b>A Big Crafty Derivatives Enterprise, Inc.</b> , a Texas Corporation ("Buyer"), and ...
<Signatory of Seller>	<b>Kenneth L. Lay</b> , Chairman and CEO
<Price>	The purchase price ("Purchase Price") for the Premises shall be Six Million Dollars ( <b>\$6,000,000.00</b> )
<Legal Description>	<b>All of Block 18, Utopia Subdivision, Syn City, Texas</b>
<Closing Date>	The closing ("Closing") for the transaction contemplated in this Agreement shall take place on <b>May 15, 2002</b> , or on such other date as the parties may mutually agree ("Closing Date").
<Environmental Indemnification>	<b>Seller's Environmental Indemnification. For a period of three (3) years from the Closing, Seller will indemnify and hold Buyer harmless from and against any third party claims under applicable Environmental Laws, resulting from or in any way relating to the condition, ownership, operation or use of the Property before the Closing. "Environmental Laws" means all federal, state and local laws, regulations and codes thereunder, which concern pollution or protection of human health or the environment and which apply to the Property and in given circumstances.</b>

Benefit:

- Realtors may like the electronic version of the contract because they build-in security, so that only buyers and sellers and their attorneys who are working with a Realtor will be able to have access to the programming functions illustrated here, to make their jobs easier. Realtor's software licensing fees could repay the cost of developing the software systems.

<sup>4</sup> See the Data Consortium at <http://www.dataconsortium.org> and the Mortgage Information Standards Maintenance Organization at <http://www.mismo.org>. For an excellent introduction and survey, see PricewaterhouseCoopers, "XML and Real Estate Data Standards," [www.pwcglobal.com/images/gx/eng/fs/re/xml.pdf](http://www.pwcglobal.com/images/gx/eng/fs/re/xml.pdf)

Concept maps and XML, interact when XML labels the concepts that we identify as useful to us in our practice.

Event 2 – Acceptance

A concept map of the acceptance step would include:

- All of the same contract terms as the offer step, but with the prospective seller's ability to change any or all of the offered terms.
- The requirements of a contract, including such concepts as:
  - adequate consideration,
  - both parties' signatures, and
  - counter-offers.

***In our example real estate deal, the prospective seller can create a custom checklist of "deal-killer" issues to performs a triage on the various offers presented, and the seller decides to accepts one of the offers. The prospective seller's short list of issues can be presented like this:***

<b>XML Tag</b>	<b>Offer from A</b>	<b>Offer from B</b>
<Price>	\$5,750,000.00	\$6,000,000.00
<Financing Terms>	<i>Buyer's obligation to purchase the Property shall be subject to the condition precedent that Buyer shall have obtained on or before two business days prior to the Closing Date, financing of not less than \$5,000,000 at an interest rate of not greater than 7%.</i>	[none]
<Environmental Indemnification>	<i><u>"As Is;" No Prior Understandings or Warranties.</u> Buyer has inspected the Property and will become fully acquainted with its condition prior to Closing. Buyer acknowledges that Seller has made no representations or warranties about: (a) economic viability, profitability or business potential of the Property; (b) the condition or suitability of the Property for Buyer's business or for any other use; or (c) the environmental condition or status of the Property. Buyer hereby assumes all liability for such matters and shall take the Property <u>"AS IS, WHERE IS"</u> in such condition as the same may be on the execution hereof, subject to normal wear and tear occurring</i>	<i><u>Seller's Environmental Indemnification.</u> For a period of three (3) years from the Closing, Seller will indemnify and hold Buyer harmless from and against any third party claims under applicable Environmental Laws, resulting from or in any way relating to the condition, ownership, operation or use of the Property before the Closing. "Environmental Laws" means all federal, state and local laws, regulations and codes thereunder, which concern pollution or protection of human health or the environment and which apply to the Property and in given circumstances. This provision shall survive Closing and the recording of the Deed.</i>

	<i>between the date hereof and Closing.</i>	
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**Benefits:**

- This XML capability will benefit sellers in a circumstance where quick turn-around is critical or when there are a high-volume of offers to deal with.
- Other sellers might negotiate the deal-killer issues first, before even considering all of the remainder of the contract.

*Event 3 – Buyer performs its due diligence*

<p><i>A concept map of the due diligence step would include:</i></p> <ul style="list-style-type: none"> <li>• <i>What things buyer requests from seller.</i></li> <li>• <i>What things buyer obtains from third parties.</i></li> <li>• <i>Buyer's review of information obtained.</i></li> <li>• <i>Timelines for due diligence steps.</i></li> <li>• <i>Buyer's election to terminate or close the transaction.</i></li> </ul>
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In our example deal, the buyer organizes and performs its due diligence. Here is a simple illustration of one step of a lawyer's due diligence jobs, computing a timeline:

***Lawyer's Computation of Timeline – a Concept Map***

<b>Day Number</b>	<b>Title Events</b>	<b>Environmental Events</b>
0	Contract signed.	
# 20	+20: Seller delivers title commitment.	↓
# 40	+20: Buyer makes objections.	↓
# 45	↓	+45: Buyer completes environmental inspection.
# 65	↓	+20: Last day Buyer may give Seller notice to terminate the contract.
# 70	+30: Seller must complete cures to title.	↓
	May 15, 2002	

This timeline consists of 2 parallel timelines that eventually converge. This example hints at the timeline problems we have all seen, caused by haphazard document drafting, when parallel timelines do not successfully converge.

This is how XML formatting can help us visualize this step:

<Title Timeline>	<Environmental Timeline>	<Closing Date>
Within <b>twenty (20) days</b> from the date of this Agreement Seller shall deliver to Buyer evidence of title to the Property in the form of a commitment for title insurance, excepting only the items specified in Section 4 above and such conditions and exceptions normally contained in such commitments.	Subject to the provisions of Section 9 hereof, from the date of execution of this Agreement until <b>forty-five (45) days</b> thereafter, Buyer, through his own agents, advisors and consultants may enter the Property to conduct such inspections, examinations, tests, assessments, studies, analyses and investigations of the Property (collectively, "Investigations") as it deems reasonably necessary or desirable to familiarize its self with the Property.	
If the title is deemed to be defective, BUYER shall notify SELLER in writing within <b>twenty (20) days</b> after receipt of the commitment, and SELLER shall have <b>thirty (30) days</b> thereafter in which to cure the title. In the event of any such notice is given by BUYER, the date of the Closing shall be postponed accordingly.	In the event such Investigations disclose conditions unsatisfactory to BUYER, in its sole and absolute discretion exercised in good faith, and BUYER so notifies SELLER in writing within <b>twenty (20) days</b> of the completion of the Investigations, then this Agreement shall become null and void, and SELLER shall return the Earnest Money to BUYER and destroy all written reports of the Investigations.	
		The Closing for the transaction contemplated in this Agreement shall take place on <b>May 15, 2002</b> , or on such other date as the parties may mutually agree.

XML is a labeling tool for searching and organizing. XML can give us the sections of the contract, so that we can figure out if the timelines converge successfully. However, if we want to use technology to efficiently and accurately create, revise and verify parallel-to-converging timelines, then we need a tool other than XML. A programming routine to create, revise and verify timeline computations can be implemented most simply by using procedural code. Litigators have flocked to adopting scheduling software that computes due dates for filing answers, motions, and every other step of litigation, based on each specific court's rules. The litigators' scheduling software is powerful and flexible, allowing them the freedom to manipulate dates in many different ways.

This example illustrates three steps of a vigorous natural progression of the development of law practice processes: First we conceptualize; then we work with the tools we have; and finally, we choose better tools. In our example, we first organized a manual process, using the principles of conceptual mapping. Next we used our presently existing software tools. Here I analogize XML to its ubiquitous older brother, HTML. And finally, when we are fully using the capabilities of the present technology, we will develop

the specifications for our next step. What is the cost/benefit analysis of whether we need scheduling software like the litigators use, or whether the XML presentation is sufficient for our needs? If we are using the full capabilities of an existing technology, we are a better judge of whether our practice really requires the next more complex technology, and whether that technology will meet our needs.

Event 4 – Title company prepares for closing

*A concept map of the title company's closing preparation steps would include:*

- *Issue title commitment.*
- *Send parties copies of documents which are exceptions to title.*
- *Respond to requests to delete exceptions.*
  - *Prepare and circulate closing statement.*

In our example deal, the contract is processed for closing at the title company using the XML tags to organize their work.

<b>XML Tag</b>	<b>§</b>	<b>Contract Provision</b>
<Earnest Money Trustee>	5	The earnest money deposit shall be placed with the <b>Title Company</b> ...
<Earnest Money Receipt Date>	5	...within three (3) business days of execution of this Agreement.
<Title Commitment Delivery Date>	8	Within twenty (20) days from the date of this Agreement Seller shall deliver to Buyer evidence of title to the Property in the form of a commitment for title insurance, excepting only the items specified in Section 4 above and such conditions and exceptions normally contained in such commitments.
<Closing Date>	3	The closing (“Closing”) for the transaction contemplated in this Agreement shall take place on <b>May 15, 2002</b> , or on such other date as the parties may mutually agree (“Closing Date”).
<Closing Costs>	16	The <b>parties shall equally divide</b> the cost of the closing services of the Title Company, and any applicable transfer taxes.

Benefit:

- The title company, like the other service providers (the appraiser, mortgage lender and broker), uses the XML-tagged contract to make it more efficient. The efficiencies will translate to cost savings, which could be shared between the service provider and its customers.

Event 5 – Closing

*A concept map of the closing steps would include:*

- *Parties deliver all signed documents to title company.*
- *Buyer delivers purchase funds to title company.*
- *Title company records deed (the old fashioned way!)*
- *Title company delivers closing documents to parties.*
  - *Title company delivers title policy to buyer.*

The closing process is customarily a well-understood and agreed-upon process where the tacit has become explicit by mapping document flow with checklists and agendas and by mapping dollar flow with a closing statement. Transactional lawyers clearly recognize the benefit of exchanging draft closing checklists and closing statements as a method of identifying unresolved issues. Many of us have a hard time appreciating that the process of concept mapping applied to earlier stages in a transaction, will also yield significant benefits. And many of us who do appreciate the value of conceptual mapping simply have a hard time being disciplined enough to apply conceptual mapping any earlier than the closing of a transaction.

When we look at the closing process documents as containing elements of concept maps, we see how they create the benefits of clear and successful delegation of responsibilities. As we use such tools more, we will see more opportunities to delegate and become more efficient. We will be capturing our tacit knowledge to make it explicit, for the benefit of our organization.

In our example deal, the parties perform their closing responsibilities remotely and asynchronously throughout the closing day using XML tags.

Benefit:

- The buyer's cost of managing the property will be less if he uses management software that accepts downloading of the electronic data from the closing documents.
- When the buyer eventually sells the property, his cost of selling will be less if the electronic data from the purchase and management can be transferred electronically to the sale contract, due diligence, closing documents and closing service providers.

WHO ARE AND WILL BE THE EARLY ADOPTERS OF CONCEPT MAPS AND XML?

- High volume users:
  - In my example: Realtors, title companies.
  - In-house legal departments who automate their most repetitive legal processes:
    - A company enters all of its material contracts into a database.
    - A company obtains a written indemnification form every independent contractors who enters its premises to perform services.
- High dollar users:
  - Large law firm and in-house legal departments doing complex deals that have elements that can be automated and budgets that make the earlier investments cost-effective.
  - Initial projects are likely to displace paralegal and junior associate's hours.
- High tech users:
  - Cisco, GE, Sony Electronics, etc.
  - Law firms are partnering with their clients.
- The British, Australians and Europeans.
  - Reason: the multidisciplinary practice which is permitted there.

**CONCLUSION**

Are concept maps or XML of any practical value to today's busy lawyer?

XML is a tool for labeling, searching and organizing. We will begin identifying tasks that are so repetitive that that it is worth the modest investment.

Concept maps are a framework for us to capture our tacit knowledge about how we practice law. Where might we start conceptually mapping our law practice knowledge?

- Repetitive, even simple tasks.
- Complex recurring issues.
- Projects involving many people.

Concept maps, like the road to success, are continually under construction.

As we use conceptual mapping:

- We become, individually, more proficient and efficient as we create our work product.
- We delegate better. We are more accurate and precise when we delegate using a concept map that we have developed. And, we see more occasions to delegate when the "road map" is available for the associate or paralegal to follow.
- We can recognize appropriate technologies at appropriate times for our practice, and we can implement them more seamlessly.
- We are helping create the building blocks and organizational system for lawyer-centric practical knowledge systems.
- We share common ground with our colleagues; we learn from them; we clarify our own understanding; and by contributing to this shared knowledge, we improve the legal system.

# **Bringing Up Rita – The Re-Education of a Lawyer**

## Artificial Intelligence Modeling of Complex Legal Transactions

### **Prologue**

Lawyers and AI programmers speak different languages and approach problems from different perspectives. In attempting to build expert drafting systems that model the legal thinking process and produce legally acceptable documents, the AI programmer must adjust his thinking and at the same time readjust the lawyer's thinking.

Rita is a lawyer. Not just any lawyer, but a brilliant lawyer at the top of her field. Her specialty is the creation of complex security instruments, known to others by the shorthand, "derivatives." She has the ability to grasp complex financial trends, the nuances of international tax, the hedging of risk, and build a collection of transactional documents that effectuates the goals of her clients.

Rita understands the meaning (and nuance) of every word in the derivatives she creates. She knows all the moving parts. She knows the implications of changes in one passage and how they would ripple through hundreds of other passages and dozens of other documents. As a junior partner at a major law firm, Rita is tasked with educating a group of associates to produce the lucrative transactional documents for her well-heeled financial clients.

One of Rita's clients offers her the opportunity to bid on all of its derivative work if Rita can do the work for a flat transactional fee. This promises to be a 10-fold increase in work that would overwhelm Rita's current tangible resources (i.e. bodies). A survey of her historical billing records for these derivatives shows that even if she had the bodies, the proposed fee (20% below the average historical fee for production of the derivatives) would put her department at risk and threaten the current profit margin.

Rita attends a session on artificial intelligence and the law and decides to work with a consultant to build an expert drafting system to model the creation of the documentation for her client's derivatives. She recognizes the substantial investment of her time that will be required as well as capital resources. She also recognizes that such an expert system will let her handle a 10-fold increase in work without increasing her legal body count. Combining the flat-fee with the volume guarantee of her client, this could make her team of lawyers the most profitable team at her firm.

So begins the education of Rita.

### **Linguistics and Thought Processes**

Rita meets retain Marc, an experienced AI programmer. In their initial discussions, Rita explains the documentation to Marc. Rita starts with a broad conceptual discussion, explaining financial markets, the different parties to the transaction, and the different types of debt instruments. She explains the tax provisions that permit these transactions to function in a tax free status. She explains how the hedges work. Then Rita presents Marc with hundreds of pages of documentation. She proceeds to go through the documents in minute detail, as she would with a junior associate. Marc interrupts her and begins her education.

### **Lawyer Meets Programmer:**

To a programmer the classic legal approach to documentation is fuzzy and soft. There are no hard and fast rules. At each paragraph, sentence, and phrase, the language is reexamined and crafted. There are shades of gray and nuance in every phrase. The inflexion of a sentence can be vitally important. Some statements are made in the affirmative. Other requirements are effectuated by the absence of a negative. Contract language that appears precise to a lawyer is hopelessly imprecise to a programmer. The precision that comes from an understanding of the other moving parts of a document is not self-evident to the programmer. For example, many lawyers define terms in context, rather than in a section called "Definitions". Lawyers sometimes purposely foster ambiguity in documents through imprecise language. Also, since many documents are evolutionary, concepts can be improperly labeled. Rather than creating new section numbers, lawyers will often add proviso on proviso.

When it comes to extracting the "Rules", the programmer will discover there are multiple and overlapping conditions. Some of the conditions will be "nested" whereas others will just be "concurrent". There will often be errors in the logic that have been perpetuated. In sets of documentation that can run over 300 pages, there are bound to be mistakes that get perpetuated, most of them inconsequential (but some important). Since a programmer needs to address every single clause, the AI programmer is bound to find most if not all of these inconsistencies in the development process.

Furthermore, there is a complex thread of consequences that ripples through the entire documentation. The document is like a complex tapestry where the lawyer and AI programmer need to follow every thread. It is the blend of overlapping threads that produces the tapestry. Once the threads are separated and the patterns discerned, the real work begins. Many of these patterns are non-evident on the face of the tapestry.

For a lawyer, the "form" of the document, not just the words, is also vitally important. The document must look "official". Indices and a table of contents must be produced. Each lawyer has his own unique paragraph numbering scheme. Many a project has been considered a "partial failure" because the document required cleanup by a secretary.

Finally, and perhaps most frustrating to the AI programmer, is the ad hoc manner in which the documents were created. Lawyers react to client requests and changes in the law, building options into their master template to address known scenarios or past scenarios. Lawyers are reactive, not proactive. Lawyers generally do not build options into their documents to address the hypothetical, for the simple reason that they are paid by the hour to address the current need. This is not to say that lawyers are not forward thinking and don't think about hypotheticals. Rather, the current structures do not compensate a lawyer for drafting a complex financial instrument that will not be used.

### **Programmer Meets Lawyer:**

To a lawyer, the classic programming approach is rigid and cumbersome. Programming elevates rules above text, and then reduces the rules to symbols. Programming requires rigid adherence to proper syntax. Programming is a foreign language that seems ill-suited to the nuanced legal approach. Syntax errors will cause an application (or template) to fail. Templates will contain "code". Blocks of code will be reduced to "subroutines". A programmer will then use the "subroutines" as shorthand for blocks of code. A programmer will also building in error checking to constrain mistakes and prevent the template from failing.

The template must be marked to show every rule and every result. Rules must be explicit, returning either a "true" or a "false". There will be a consequence for every rule. The absence of a consequence *will*

leave a hole in the document. Rules are evident, instead of non-evident. The syntax will often be cumbersome and hard to follow.

Programming is "structured". For every IF statement, there is or should be an ELSE statement, or an awareness that no ELSE statement is required. When it comes through handling nested conditions, the programmer needs to unpeel the tapestry and rebuild it in exactly the right order. Minor changes should allow the application to build an entirely different tapestry without producing a jumble of threads. Finally, programming is by definition proactive. In programming you are constantly asking, "What if ...." The programmer needs to address all scenarios and find the appropriate textual consequences for combinations of choices that have not been made.

### **Education begins in Earnest:**

Rita's background explanation on the derivatives transaction was informative to Marc. However, Marc saw that the detailed explanation of the documents would not be a fruitful discussion unless Marc focused the discussion on the information he needed to build the application.

### **Markup Techniques:**

Marc explained that he needed to understand the "moving parts" of the transaction. If a portion of the documentation never changed, Marc had no need to understand it. In fact, much of the lesson in Derivatives 101 would never find its way into the expert drafting system because those lessons applied to "boiler plate" that would be found in all variants of the transaction.

Marc asked Rita to step outside the text of the document and develop "business rules" that described the preconditions to the legal language that would change. Marc asked Rita to review the documentation and mark all text that was optional or subject to change. For each block of text, Marc asked Rita to create a footnote or endnote that explained in plain English the circumstance under which that text was included or excluded. Similarly, where there were blanks or transaction specific details, Marc similarly asked her to drop a footnote that explained how the blank would be filled in. And with respect to exhibits and ancillary documents, Marc asked her to define the conditions under which such documents were to be included.

Marc asked that Rita be explicit in her explanation of the business rules. He suggested she could use "shorthand" for the rules, but admonished her to be consistent, and describe the rules consistently across the documents. Marc asked Rita to send the annotated documentation to him and promised to schedule a follow-up meeting a week after he received the documentation. At this meeting, the real work would begin.

### **A Lesson in Abstraction:**

Marc met with Rita a week after he received her mark-up. Marc handed Rita a spreadsheet printout. He had organized all her business rules on a spreadsheet. He had grouped them together by concept. Marc had taken the liberty to restate the business rules in the form of questions or prompts and to assign to those rules a variable code (or codes). Where the rules were composites or nested, Marc had also defined the circumstances under which the business rules would be asked.

The spreadsheet also contained a number of inquiries. In refining the business rules, Marc had discovered gaps in logic and inconsistencies in the mark-up. These gaps were raised at the abstract level. Together, Marc and Rita reviewed the spreadsheet, further refining the rules. There were areas where Marc had addressed scenarios which would never occur. These options were pared down. There were also areas where there were gaps in the documentation. Rita would have to revise her documentation to

address those gaps. However, there was no requirement for the documents to be revised at this stage. Marc would put placeholders in the template to keep the project moving.

### **Where Rubber Meets the Pavement:**

Marc and Rita also discussed the document. Some of Marc's refinements would require certain passages to be rewritten. For example, definitional language might be moved to a central location. Certain provisos would be moved into subparagraphs. Descriptions of parties, assets and other collections might be changed syntactically.

Rita reviewed the spreadsheet carefully. She was concerned that she could understand the "code". There was discussion of variable naming schemes. Every prompt was revised and clarified. Rita stressed that the coding be "transparent" so that any lawyer with a "key" could understand the template. The key or "Rosetta stone" would include the "code" and the business rule in plain English.

Most important, Marc and Rita defined a series of special business rules to handle combinations of conditions. This was done to simplify the coding of the template so that Rita could quickly identify the business rules surrounding optional text. The special business rules, called "computations" or "objects" would go a long way to hiding and simplifying the programming syntax.

Rita also stressed the resulting format of the assembled document. The document must conform to "legal standards". There should be a minimal amount of post-assembly word processing.

### **Working Together**

Over the next few weeks Marc and Rita developed a common language. Through the use of the Rosetta stone embodied by the spreadsheet, Rita revised the document markup and added language where omissions had been pointed out by Marc.

Marc in turn refined his coding rules and built a collection of information gathering dialogs. He applied all the business rules discussed to properly thread his way through the prompts. Marc met with Rita to review and refine the dialogs. He then took Rita's revised markup of the documentation and applied the codes to the templates to finish the application. Over the next week, Rita and Marc had several phone calls to reviews issues that arose as Marc coded the documents. Some of these were done over a remote PC session so both parties could look at the language together. Since Marc and Rita had developed a common language and approach, the conversations were brief and focused. In short order the document set was completed and the application delivered.

### **Epilogue:**

Rita developed an intake questionnaire to gather transactional information from her client. Her client filled out the questionnaire on-line. One of Rita's associates would contact the client to clarify any discrepancies in the answers given and to address any additional requirements not addressed in the questionnaire.

The associate would then process the answers through the expert system Marc and Rita had built. The system would produce an abstract of the transaction and the complete set of documentation in short order. The associate would review the abstract and transaction with Rita, make further refinements and turn the document around the same day.

Needless to say, it was a happy result for everyone.

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Seth Rowland is a recovering lawyer, educated at Dartmouth College and the University of Pennsylvania Law School, who began his legal career at Cravath, Swaine & Moore, followed by a year clerking for Hon. J.L. Edmondson, U.S. Court of Appeals for the Eleventh Circuit, then followed by several years at Kramer-Levin. Throughout his legal career, he worked to bring the best fruits of technology to the practice of law, building litigation support databases, designing Lotus Notes databases, working with automated transcription software, and designing document intake processes .

Four years ago, he left the formal practice of law to set up a technology consulting practice to use software to redesign the legal document drafting process. His clients include leading law firms, insurance companies, government procurement departments, and large public companies for whom he has advised on and built expert drafting systems. He is a regular speaker and writer on technology, as well as a technology licensing expert.

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# **Visualization Technology in Legal Research**

**Carole Hafner**

**[Paper to come]**

# XML Rule Editor for Java Expert Systems

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A system, created by Dr. Leff, enables rule-based processing, transformation, and generation of Legal XML documents [1,2]. It has been suggested for Court Filing XML Work Group Proposed Standard. A rule developer can take a sample of the input document, and the user will be able to cut and paste the modified piece of XML document into the output XML documents.

This is a report on a dedicated editor for the above system. This makes generating the Rule Base XML Documents easier, more intuitive, and less error-prone.

Before that software is described, the possible role of XML in the litigation process is discussed. In particular, we show how XML makes it easy for expert systems to get the facts on which they operate.

Some of the work that court personnel, litigation attorneys, prosecutors, and defense attorneys perform with documents is routine. If the documents such as motions, indictments, and presentencing reports are coded, computer systems in each of these offices can generate new documents. Decisions that do not require judgment or discretion can be made by rules. Information, such as the defendant's name or the amount of the prayer, can be transferred from a place on one form to a place on another form automatically. Information that was located and placed in a document by one party to the case can be extracted by another party and placed in their software. Then their software can put it into documents that they produce without reentering the data or information.

Several recent developments have made the time ripe for applying computers to automate this routine work in the courts, saving staff costs and reducing errors. Let me emphasize that this report represents an effort for automating routine actions only. Those actions that require human discretion, that involve “open texture” problems as described in [3], are not helped by the techniques described here.

The Legal XML Standards organization has developed standards for court filing [4] and a basic XML standard for court documents. The former is actively used, particularly in the Georgia State interoperability project [5]. It provides an envelope containing information needed to populate the records of the case management system for the new filing. Legal XML Court Filing submissions contain the pleading, motion, order, etc. as an attachment. It is encoded. The receiving court decodes it and puts it in their document management system.

The Court Document Standard [12] is a representation of legal documents. It has tags for the case caption, signature block, and certificate of service – all common in many different legal documents. It also has markup for paragraphs and lists. In particular, there are tags for “machine data” which is information intended to be exchanged or examined by software such as the rules described below.

## Why XML?

XML is a standard promulgated by the World Wide Web Consortium for the exchange of structured information. It is being used for the exchange of structured information such as purchase orders, health care insurance claims, accountant's reports, specifications of steel available for purchase or sale, and real estate lending/leasing information. The Gartner group estimates that seventy-five percent of business-to-business electronic transmissions will be done using XML.

The Extensible Markup Language (XML) is the universal format for structured documents and data. It is frequently used in business-to-business electronic commerce. Because XML is a standard that conforms to a specification defined by the World Wide Web Consortium (W3C), the documents written in XML are also interoperable on many kinds of enterprise applications. According to the survey conducted by *Wall Street & Technology*, more than 40 percent of Fortune 500 companies have already implemented an XML strategy, with more than 35 percent planning to do so in the next year [6].

XML allows programs to extract the numbers and other data from this structured information. It also allows a standardization group to create a Data Type Definition or Schema which specifies how the information can be presented and validated. The Court Document Standard 1.0 and its DTD ensure that all complying court documents would be marked up with tags around such information as the plaintiff's name, the defendant's address, and the information that would normally appear in a signature block or certificate of service. Programs can pull this information out of the court documents and ensure that they comply with court rules or do other processing.

The alternative to XML is electronically submitting court filings in formats such as Adobe's Portable Document Format or as Microsoft Word Documents without tags. However, it would be difficult or impossible, for a programmer to write software to extract information. Even a simple task like locating the Case Number or Plaintiff Name in the case caption might require artificial intelligence. This is because each submitter might use slightly different mechanisms to format this, even though the documents would look the same when printed.

Note, Adobe has introduced a new technology called XMP, which combines Portable Document Format and XML. This allows these PDF documents to contain XML tags that can be read by software processing a workflow [7].

An example rule-based application to criminal law is a system to identify offense elements and identify "lesser included offenses" [8]. One offense is a lesser included offense of the other when it is theoretically impossible, under any circumstance, to commit the second offense without by the same conduct committing the first.

At first the system was developed as a series of rules in an artificial intelligence programming language, Prolog. It was then translated into a series of explicit rules on a web page.

However, these rules do not "look at" at the documents in the case such as an indictment. Thus, a person wanting to use the expert systems must read the document, and then enter the appropriate information into the Prolog system. Or, they could go to the Web page to check the rules manually.

Many law firms, government legal offices, and law departments of large corporations use document assembly. After suitable configuration and programming, the person drafting a legal document can

choose alternatives from lists, enter the text that corresponds to a placeholder such as "Name of Defendant," or respond to pre-programmed questions. The software then drafts the appropriate document. The configuration of the document assembly software can include logic or rules that could advise on the law of many jurisdictions and have been used to generate a set of documents that comprise hundreds of pages. Some document assembly applications would be considered artificial intelligence. There are many commercial programs that are optimized to assemble documents for law firms. These systems are frequently integrated with software to manage the activities in the law firm. [9-11].

In litigation or a criminal case, documents are exchanged. Without XML, there is no feasible way that information from documents produced from the document assembly system in one's lawyer's office can be fed into the expert system at another lawyer's office. For example, in a criminal case, the prosecutor prepares an indictment which lists the charges against the defendant. With XML, when the court or defense attorney receives a copy of that indictment, these charges could be input to the expert systems running on their computers. The court's software could ensure that the sentence is consistent with the charges and the defense attorney's computer could scan for possible instance of double jeopardy.

In a civil case, a plaintiff may submit a complaint containing a prayer for money damages. If the prayer was marked up as XML, the amount of money specified in the prayer could be transferred to the court's computers for use in preparing the judgment. Or, it could be extracted by the computer in the defendant's attorney's office for further processing.

## Rule-based Transformations for XML

As reported in [1] and [2], rules are expressed in XML. But this is more than simply accepting what would be the input to a traditional expert system shell in XML format. The left hand side of the rules specify XML whose presence will trigger the rule. The right hand side is XML to be generated. A conventional expert system rule contains pattern variables such as **X** in:

```
IF ?X is Employee
AND ?X AGE >= 65
THEN ?X can retire
```

This means that the name of the Employee is copied to the fact about retirement and matched against the name in the AGE fact.

By comparison, in the XML mark up for rules, the XML in the left hand side contains an expression of the form `<TextVariable VariableName="a">` where information must be extracted from the existing XML. The right hand side would also contain `<TextVariable VariableName="a">`. When the rules are run, the left hand side would be matched against a document in the document management system. *a* would be bound to a name in the specified part of that document. The XML rule engine creates a new document of the form indicated by the right hand side, copying the value of *a* to the location indicated by the location of `<TextVariable VariableName="a">` in the right hand side of the rule.

## The Editor

The user begins composing the XML rule base by choosing a sample document using the "Open XML Directory" Menu. It will appear in the left hand panel. (See Figure One.) They use the arrow keys below

the panel to select the part that they wish to move to the left hand side of the new rule. As the user moves within the XML, the relevant part of the tree is marked in RED.

The user then goes to the right hand panel and selects **New Rule** and **New LHS Check**. Then the user selects **Move From Sample**. The material is moved over and specifies the part matched.

Then the user marks the parts that they wish to match. They use the buttons:

**ChangeVariable**

**Change to Any Content**

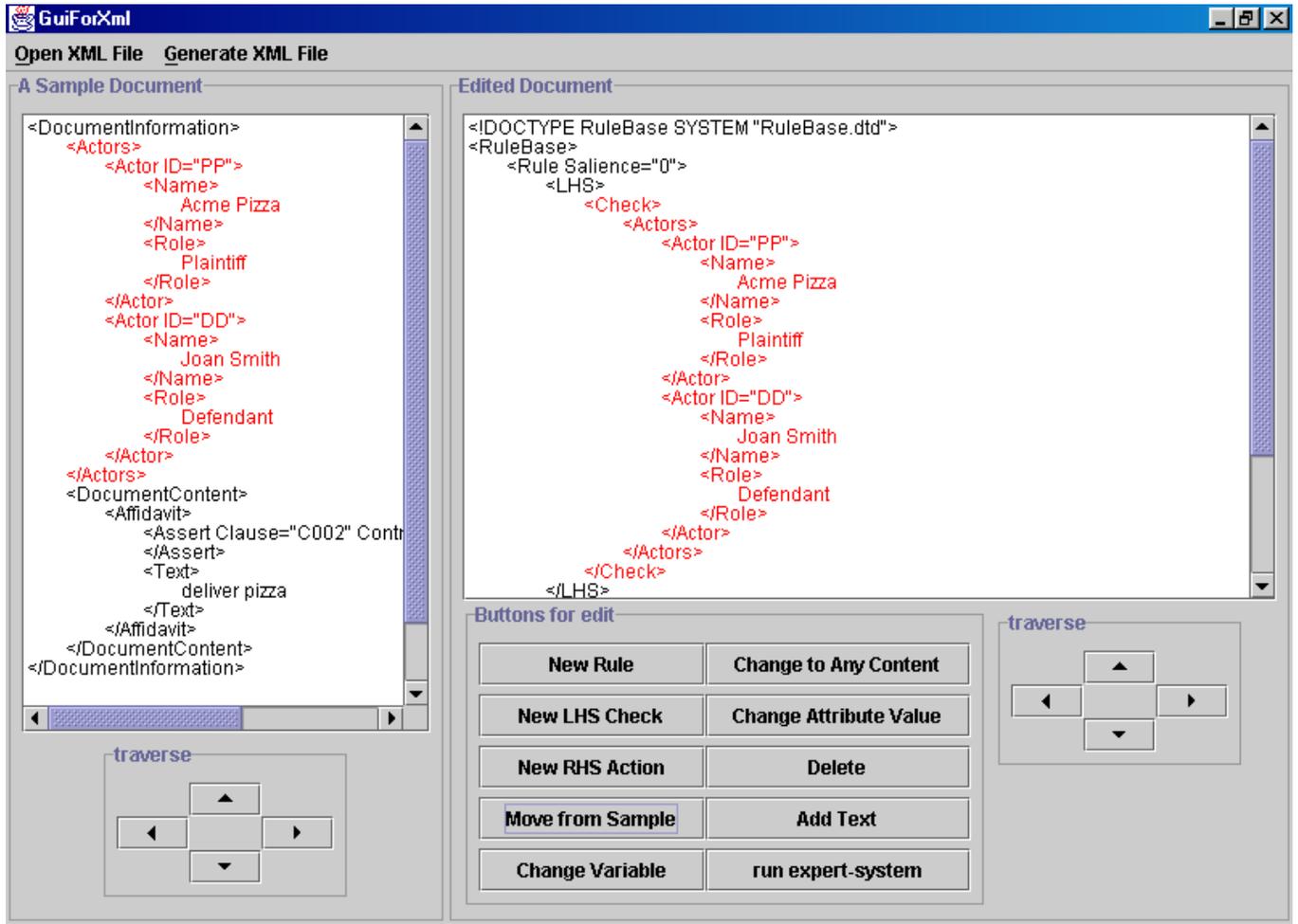
**Change Attribute Variable**

This places the special tags that stand for variable matching (as described in the standard [2]) in the XML enclosed within the **Check** field of the Left Hand Side of the rule. Navigation within the Rule Document is done with the arrow keys below the right hand panel.

Now the user is ready to create the right hand side. Again, they select a sample document that is an instance of the XML that they wish to create. They use the arrow keys below the left hand panel to select the part of the XML that is to be produced. This time they use **New RHS Action** and **Move From Sample** to move it to the right hand side of the rule being formed. And again, they use the buttons (**ChangeVariable**, **Change to Any Content**, **Change Attribute Variable**) to mark this up, this time to indicate the places to receive the data that was bound to variables by the Left Hand Side.

Lastly, the user clicks **Run Expert System** to run their new rule base against the real input.

Figure 1



## Conclusions

We have provided a way of creating rules that are written in XML, that recognize XML, that produce new XML. This XML represents legal documents, for example as described using the Court Document Standard [12]. The above editor allows the user to create these rules. At all times, the rules look like the documents with which the user is already familiar.

This is in contrast with XSLT. Yes, XSLT does allow transformation of XML. And [13] explains how XSLT can be coded so it corresponds to rules. But the XML that describes the document transformation and matching process doesn't look like the users XML input or user's XML output documents. And this XSLT is not created by simple replacements on samples of the input and output documents.

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## Will Technology Change the Practice of Law by Providing Access to New or Previously Inaccessible Information?

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The proliferation of electronic information is raising some interesting questions about how the evolving access to new or previously inaccessible information is likely to change the practice of law.

This paper discusses TRAC, an interesting electronic source of new or previously inaccessible information. Then it speculates about how TRAC and other new electronic data sources may impact on the practice of law.

### TRAC: An Exemplar of What Is Possible

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TRAC is the acronym for Syracuse University's On-line "Transactional Records Access Clearinghouse". The purpose of TRAC is to provide information needed to fairly judge the performance of the federal government.<sup>4</sup>

To achieve its purposes, TRAC uses three different information technologies:

- Data warehouses;
- Data mining tools; and
- The Internet.

## *Databases vs. Data Warehouses*

A database is a collection of information. A database management package is the software that is used to create and manipulate the information in the database.

There are a number of different kinds of databases. A "transactional" database<sup>5</sup> is one of the most important types of databases for recording and tracking the activities of an organization. For example, when a government employee is hired, information about the employee and his/her job is recorded in a transactional database. As information about the employee changes (e.g. salary, work schedule, or grade) the database is updated.

Database technology continues to decrease in cost and increase in user friendliness. As a result, the number of transactional databases has risen dramatically. When the number of databases proliferates, it becomes progressively harder to use data related to individual parts of an organization to understand the organization in its entirety. This resulting condition is often referred to as "information silos."

The common need to integrate information from different databases gave rise to another type of software, the data warehouse. One purpose of data warehouses is to break down the individual silos of information that exist in most large organizations, including the US federal government.

Data warehouses differ from transactional databases in several significant ways.

- First, warehouses consist of one or more transactional databases that can be integrated.
- Second, in addition to transactional records, warehouses may contain summarized data that can also be integrated with the transactional data.
- And finally, warehouses contain historical data that is updated periodically, often quarterly or yearly, rather than "live" data that is constantly being updated in real-time.

"A distinguishing characteristic of warehoused data is that it is used for decision making rather than for operations."<sup>6</sup>

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<sup>4</sup> For more detailed information about TRAC, see the "About Us" page on TRAC's web site: <http://trac.syr.edu>.

<sup>5</sup> Other kinds of databases might focus on static information, including, for example, historical or summarized data. A static database might include information like text or zip codes that would not be constantly changing.

<sup>6</sup> Donald P. Tayi Ballou and Kumar Giri, "*Enhancing Data Quality in Data Warehouse Environments*", 42 (No. 1) Communications of the ACM 71 (1999).

However, the integration of several databases raises a number of problems.

- The databases may group records by different characteristics. For example, one database may group its records by zip code while another groups its records by county. When these databases are merged, a decision has to be made about how to treat zip code records for zip codes that cross county boundaries.
- Historical data can present problems when the categories of data collected have changed over time, or when the collection methods have changed, or when some data has been lost.

A number of warehousing software packages purport to diminish these problems. However, when compared to database software, warehouse software is neither inexpensive nor easy to use. Despite the existence of new warehousing tools, "... [the] creation, maintenance, and daily administration of data warehouses are still formidable tasks that are far from being fully automated."<sup>7</sup>

To build its data warehouse, TRAC begins by searching through government manuals, websites and other such sources to identify relevant systems of records maintained by different agencies. Based on these leads, TRAC requests specific data sets and all of the agency documentation describing the details of what is covered and how the information is organized and processed. The requests usually are made under the Freedom of Information Act.

As indicated by its name, TRAC always tries to obtain transactional information about individual matters rather than summary tables. Concerning criminal enforcement, for example, it acquires data from the Executive Office for United States Attorneys about each referral for prosecution.

Data elements about each referral include:

- where and when the referral was filed,
- which agency made the referral,
- the lead charge,
- the initials of the assistant U.S. Attorney handling the matter,
- whether it was declined for prosecution and why,
- whether the matter resulted in an indictment,
- the initials of the presiding judge,
- the outcome, and,
- if convicted, the sentence.

TRAC obtains data from many different sources including the

- Executive Office for United States Attorneys in the Justice Department,
- the Administrative Office of United States Courts,

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<sup>7</sup> Alan Benander, Barbara Benander and Adam Fadlalla, "Data warehouse administration and management", 17 *Information Systems Management* 71 (2000).

- the Office of Personnel Management,
- the Internal Revenue Service,
- the Environmental Protection Agency and
- a range of other specialized federal agencies and the Census Bureau.

Areas covered include

- criminal enforcement,
- civil actions,
- administrative enforcement by the IRS,
- federal staffing, and
- federal expenditures.

Once the data sets and documentation are in hand, statistical and other kinds of checks are made to test the completeness and reliability of the information that has been provided. Data from different sources about similar events may be compared or merged as a further check on data set reliability. Data sets and fields not measuring up are not used for analysis.<sup>8</sup>

While TRAC constantly strive to automate its production processes, preparation of data for entry into the data warehouse continues to require the skills of highly trained statisticians, data analysts, and computer programmers in addition to individuals with expertise in the subject matter.

Performance criteria are defined and indicators developed. The linking, grouping, and classification variables that will be used to place the data into geo-political-temporal context are then developed and added to the data. Finally, the data are added to TRAC's data warehouse and made available via specially designed web sites.

The size of TRAC's data warehouse is enormous taking up approximately 240 gigabits of storage space. For example, because there were more than 140,000 criminal referrals for prosecution in a recent year and the online data go back to 1986, the information in this area alone is extensive. In the last two years, TRAC's enforcement data has been expanded to include civil matters -- where the government is either the plaintiff or the defendant -- and administrative actions by the IRS; each year, between 75,000 and 100,000 civil referrals, and 350,000 records, are added to the system.

## *Data Mining*

As daunting as establishing a data warehouse may be, creating information from the warehouse is yet another formidable task. Given the size of the data warehouse, finding information amid all the data is akin to searching for the proverbial needle in a haystack.

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<sup>8</sup> TRAC doesn't actually discard any data that it gets, but some fields are viewed as unreliable. For example, some EPA data contained a "pollutant field", but the field was often empty or contained codes that weren't defined in the code table. If TRAC doesn't know what a code means, it can not use the data. Databases vary considerably in the quality of information contained.

“The purpose of data mining is to explore the data warehouse looking for trends, relationships, and outcomes.”<sup>9</sup> The objective is to find the patterns, which will provide a coherent unified view of the organization, and to place this information into a context that will make it understandable.

This can only be accomplished through the integration of several databases. The integration of the databases provides the geo-political-temporal<sup>10</sup> information necessary for interpretation. For integration, we need tools that allow users to specify what information they want without needing to understand the complexities behind how the data is organized, how the queries find and combine data, and how the information was generated.<sup>11</sup>

By accessing the data warehouse, users can obtain information about each individual matter. The real power of the warehouse, however, is in the data mining tools specifically developed by TRAC. These tools allow users to generate tables, graphs and maps to answer questions about how the law is enforced in different parts of the country by different agencies, programs, and statutes, and how the enforcement of different laws has changed over time.

### *Internet Access*

To provide access to the data warehouse and the data mining tools, TRAC harnesses the power of the Internet by maintaining two broad categories of web sites.

- **Free sites:** First is a series of six free public web sites that mostly focus on the criminal enforcement activities of the FBI, INS, DEA, ATF, Customs Bureau and IRS. TRAC's IRS site also includes information about IRS administrative actions--audits, seizures, levies and liens, etc.
- **Subscription sites:** TRAC's second offering consists of two dynamic subscription sites, TRACFED and FEDPROBE,<sup>12</sup> that provide vastly more information. In the criminal area alone, for example, enforcement data can be organized by statute, by district and by virtually any agency. But TRAC's subscription sites offer a lot more than data about criminal enforcement. The U.S Attorneys also represent the government in civil matters where the government is the plaintiff or the defendant. As mentioned briefly above,

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<sup>9</sup> Owen P. Hall, Jr., “*Mining the Store*”, 22 (No. 2) **Journal of Business Strategy** 24 (1998).

<sup>10</sup> TRAC data enable the user to see trends by comparing, for example, one geographical region with another, one administration with another, and one year with another.

<sup>11</sup> Liam Friedland, “*Accessing the Data Warehouse: Designing Tools to Facilitate Business Understanding*”, (January- February) 1998 *Interactions* 25.

<sup>12</sup> The features of TRACFED and FEDPROBE can be viewed without charge by clicking on the [flash movie](#) link in the “TRACFED and FEDPROBE” paragraph in the “About Us” page of the TRAC web site.

another layer contains extensive information about the civil matters processed by the U.S. Attorneys.<sup>13</sup>

TRAC'S uniquely comprehensive collection of information has become an important stop for those interested in the actual operations of the federal government. TRAC's six public sites, for example, are receiving "hits" at a rate of more than 5 million a year. Subscribers to TRAC's subscription service now number more than 300 (including, for example, news reporters, public interest workers, political analysts, law schools, and Congressional staffers).

### **Demonstration:**

The kinds of questions that can be answered include the following:

- What was the median sentence in each of the 90 federal districts within the borders of the United States in fiscal year 2001?
- On an annual basis, from 1986 to 2001, what changes occurred in the average time required to prosecute a case in federal court?
- For a particular district, what proportion of cases brought under a law often used in the prosecution of police brutality matters were declined?
- For a particular judge, what was the average number of days from court filing to disposition? How does this compare with the average for the district?
- For a particular prosecutor, what percentage of referrals was prosecuted? Of those prosecuted, what percentage was convicted? Of those convicted, what percentage received prison sentences, and how long was the average prison sentence? How do these statistics compare with the district? The state? The U.S.?
- What is the most common reason that individual tax returns get selected for audit in my district?
- What is the average average amount recommended for taxes and penalties?
- How many civil referrals for employment discrimination have been closed without a court filing?

The list of potential questions is probability endless. The important point is that each user is allowed to define the questions to be asked and the threads of inquiry to be followed. The user driven exploration of TRAC presents a significant contrast to the static electronic and paper information sources.

Time, space and financial constraints force the publishers of static electronic and paper information sources paper to edit the available data, selecting the information and the display formats that seem most likely to present the publisher's or author's point of view or to be useful to potential users.

TRAC doesn't edit the data it supplies; it can include all data that meets its quality standards. As a result, the TRAC data can be responsive to a far broader range of interests and uses than static

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<sup>13</sup>Yet another area offers essentially complete agency-by-agency staffing information -- from statistical overviews by federal judicial district, state, county or city down to the names and salaries of individual employees. Federal expenditure data -- agency-by-agency and program-by- program -- provide another perspective on the government.

data would be. In addition, the data can be responsive to unknown or unforeseen issues or concerns that will inevitably emerge as time passes.

The ability to answer a broad range of these and other questions quickly and easily gives a previously unavailable picture of the workings of the US federal legal system.

## The Impact of New or Previously Inaccessible Information

TRAC is one example of a source of new or previously inaccessible information. TRAC may be at the cutting edge of the electronic dissemination of information, but it is not alone. Moreover, every advancement that TRAC makes in finding, packaging and disseminating information is likely to raise the standard (albeit slowly) across the field.

As more new or previously inaccessible information becomes available, the practicing lawyer needs to consider how such information may or must impact on the best practice standards of the profession.

One kind of information relevant to the practice of law is experiential information. The legal rules identified in the statutes and cases establish the rights and duties that apply in a particular situation. However, the letter of the law in the books is often different from the operation of the law in practice. The practicing lawyer's experience in past cases often provides the lawyer with information about the nature of the differences between theory and practice.

Experiential information is not equally available to all lawyers. A system which enabled lawyers to access some or all of the experiential information would be desirable so that clients of all lawyers have the benefit of such information.

In addition, experiential information can be misleading. So, some confirmation of such information would be desirable. A recent study<sup>14</sup>, for example, attempted to test the widely shared experiential information that defendants are more successful than plaintiffs in getting adverse trial outcomes reversed on appeal. In simplistic terms, the study wanted to know what percentage of plaintiff-appeals cases were decided for the plaintiff, and what percentage of defendant-appeals cases were decided for the defendant.

Cases are available for free from a variety of sites (including court sites and the Cornell Law School Legal Information site), but the sites are not set up to permit users to ask questions of the kind raised in the appellate success study. Nor can users ask questions

- about regional variations (if any),
- about variations over time (particularly as the court membership changes), or
- about differences in success rates for various kinds of cases (are plaintiffs significantly more successful on appeal in employment cases than in insurance cases?).

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<sup>14</sup> Gail Diane Cox, "*Voir Dire: Those Appealing Defendants*" 24 (No. 19) *The National Law Journal* A22 (January 14, 2002), citing the pending publication of Schwab, Eisenberg & Claremont, "*Plaintiphobia*" in the *University of Illinois Law Review*.

The information gleaned from answers to such questions can help the practitioner to evaluate the more traditional legal rule information contained in the text of the statutes and cases. With access to both kinds of information, the individual practitioner may be able to improve the advice to be given to clients about whether or not to appeal in a particular case.

Experiential information can also relate to other issues in the spectrum of legal practice. For example, understanding the investigative and prosecutorial policies of the New York State Attorney General's office could be very useful to the lawyer who is representing a client in a matter involving the AG's office. Yet, the AG's web site<sup>15</sup> displays limited information about its investigative and prosecutorial activities.

One section describes the functions of various departments. Another contains press releases that describe some investigative and prosecutorial activities. A site user could sift through the press releases and count the incidence of particular investigations or prosecutions. But would the results be complete or meaningful? Some smaller investigations or prosecutions may not be memorialized in a press release. The press releases may report only one stage in the processing of a matter. For example, a press release may report the prosecutions in a particular matter, but the convictions, acquittals or other dispositions of the prosecutions may not make it into a press release.

The site user cannot ask the site:

- How many investigations were conducted jointly with other state departments or with a particular state department?
- How many prosecutions of a particular offense were filed in each county for a particular year?
- What percentage of prosecutions of a particular offense resulted in convictions?
- What trends are shown by comparing the number and success of the insurance fraud prosecutions in one year with the comparable prosecutions in earlier years?

Information about how the AG's office manages and processes its cases can provide the practicing lawyer with insights that will be helpful in advising clients and in working with the AG's office on client matters.

Information about how the law works in practice can be a valuable component of the practicing lawyer's advice. Governmental and other web sites are constantly expanding the kinds of operational and other information available and reducing the burdens of accessing the available information. However, the sites usually stop short of providing a full range of the information-mining and other user tools that would enable the practicing lawyer to correctly assess the environment in which advice is to be given.

## Conclusion

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<sup>15</sup><http://www.oag.state.ny.us/home.html>.

TRAC is a work in progress. It is continuously expanding both the kinds of data mining tools provided, and the breadth and depth of the information provided. As other sites copy and build upon the TRAC model, the range of available information is likely to expand exponentially.

The practicing lawyer has to keep an eye on these developments and to ask how the availability of so much electronic information will impact on the way law is practiced. Will the information:

- Impose new duties on the lawyer? Will the lawyer who fails to canvas the Internet for information relevant to a client matter be guilty of malpractice in the same way that a lawyer's failure to know the law might be malpractice?
- Enable the lawyer to pursue cases that would have been prohibitively expensive because of data inaccessibility? If data about the summons, service, and disqualification of grand and petty jurors becomes available on line, for example, could cases for discrimination at various points in the process be made more easily and cheaply than when the claimant had to pay for the collection and analysis of the data?
- Create new clauses of action?

## Knowledge Tools for Legal Knowledge Tool Makers

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### *Introduction*

A small but growing number of lawyers now make a living building knowledge tools for other lawyers to use in their practices. They work on know-how databases, portals, document assembly applications, expert systems, intelligent checklists, and related technologies that serve as cognitive prostheses to busy professionals. As legal knowledge engineers, they put increasingly intelligent forms of technologies in the hands of their lawyer clients. But what about the toolmakers themselves? What intelligent technologies can *they* use in their own characteristic professional activities?

This paper sketches some tools that are being or could be used by those of us in the legal field who spend time building knowledge tools for others. It also considers how law firms might exploit such technical assets to achieve a significant competitive and disruptive edge.

### *Some examples*

On a prosaic level, lots of the technologies we espouse to our lawyer customers can be directly applied to our own practices. For instance,

- Knowledge bases can be constructed of legal technology work products, applications, tools, and experts, both within and across offices.
- Smart checklists can be developed that remind us of tasks and issues that need to be addressed in development projects.
- Document assembly tools can be used to generate memos, questionnaires, documentation, and other materials need to define and accomplish KM projects.
- Expert systems can be written to help substantive specialists to think through the possible appropriateness of knowledge system development projects, elicit some of the requisite know-how, and even create a first pass at a rule base.
- Collaborative research tools like Cartagio ([www.missiontrek.com/legal](http://www.missiontrek.com/legal)) can facilitate intelligence gathering about tools and methods.

Another class of applications might be thought of as “codification accelerators.” For example,

- Advanced document comparison utilities can be used to highlight patterns of variation within related sets of transactional documents, helping to accelerate the mark-up processes that typically precede document automation efforts.
- Data mining and rule induction tools can be used to identify candidate rules implicit in a collection of cases or documents. Patterns can be noticed and surfaced for human confirmation.
- Visualization technology can similarly assist in facilitating human recognition of important patterns that may signal aspects of codifiable knowledge.<sup>1</sup>
- Tools exist for generating lots of fact patterns and running them through systems to check and debug their logic.
- Machine learning techniques can be applied to enrich knowledge stores through user feedback and automated discovery of subtle regularities.
- Taxonomies like West’s key number system or LawPort’s starter taxonomy can spare us from needless reinvention.
- Auto-categorization tools like Autonomy can help us organize large bodies of documents that serve as either raw material for, or auxiliary help resources to, a knowledge system project.

Another way of looking at this is to think in terms of specialized tools that

- Help us see and document patterns in data
- Help us interact with knowledge experts in efficient ways
- Help us handle routine aspects of our knowledge codification efforts and validate/debug our works in progress
- Help us maintain, extend, and integrate our applications

### *Some challenges*

- There’s a relatively small market for these tools, so it’s hard to capitalize their development.
- Firms are reluctant to share tools and know-how out of competitive concerns.
- Budgetary constraints will be significant until the business case for advanced legal knowledge tools becomes more compelling, which brings us to ...

### Disruptive technologies

Since the release of Clayton Christensen’s book *The Innovator’s Dilemma* in 1997, legal commentators (Mountain, Susskind, Hokkanen<sup>2</sup>) have speculated about the implications of

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<sup>1</sup> See Lauritsen and Johnson, *Reenvisioning Law Practice with Computers: Visualization and Collaboration*. In Materials for Sixth Annual Technology in the Law Practice conference. American Bar Association. Chicago, March 1992.  
[http://www.eff.org/Legal/Tools/lauritsen\\_johnson\\_legal\\_comp.article](http://www.eff.org/Legal/Tools/lauritsen_johnson_legal_comp.article)

<sup>2</sup> Darryl R. Mountain, Could New Technologies Cause Great Law Firms to Fail?, *Journal of Information, Law and Technology*, 2001(1) at <http://elj.warwick.ac.uk/jilt/01-1/mountain.html>;

“disruptive technologies” for law firms. Disruptive technologies provide a new, alternative value proposition that clears away prior value propositions. In the context of law firms, self-help on-line legal services developed with Internet-related technologies are such disruptive technologies, according to Susskind and Mountain, and eventually, the face of the legal landscape will be altered through the widespread use of such systems by consumers as well as corporate customers.

However, a couple of issues should be noted regarding the characteristics of disruptive technologies. First, they are usually not of value to high-end clients and must be developed down-market. For this reason, they are ignored by those companies serving the most profitable end of the sector. In the case of the legal sector, the high end of the market is dominated by large corporate firms (and maybe some specialty boutiques) that are successful in charging very high fees for their work. Christensen makes use of a concept of the “value network” to encompass the combined tools, technologies, techniques, and people that establish a firm’s value proposition (e.g., a large, geographically distributed, full practice law firm with high overhead but deep connections to international corporations has a different value network than a solo trusts and estates practitioner who is well known at his local church).

In *Transforming the Law*, Susskind suggests that large law firms should query and involve their clients with respect to the delivery of new self-help services. This would appear to contradict Christensen’s thesis that customers do not know what they want until they want it. It is for this latter reason that these new technologies, once understood by customers, become their sole desire and the prior technologies are abandoned, thus causing great companies to fail because they could not switch gears fast enough to provide the new technologies before their customers were lost. Christensen makes clear that asking customers what they want will not lead a company to develop disruptive technologies because customers only know to suggest those technologies that extend and sustain the existing relationship.

This should not be read to suggest that Susskind is giving poor advice; indeed a client orientation is usually desirable, and professional firms have long been criticized for not having enough of it. It may be that this discrepancy arises out of the difference between product companies like the ones that Christensen analyzed and service companies like law firms. Susskind is surely correct that eventually these sort of services will become significant replacements for services currently provided by lawyers. The services that title insurance companies now provide in handling real estate closings come to mind as an analogous example. It would seem that if a new service has the capacity to displace an existing service then it should be entitled to the term “disruptive service.” However, the fact remains that the examples provided by Christensen involved products that were developed for down-market clients and then, once perfected, moved up-market to displace high-end service, while these new on-line services seem to be proliferating on the upper end of the legal market at the moment.

The other issue with identifying these as disruptive services relates to the time-frame in which they are deployed. In Christensen’s work, disruptive companies developed new technology that was ignored by dominant companies focusing on sustaining technologies. These soon-to-be disruptors perfected their value networks for applications that were off the radar screens of the dominant companies. These new technologies, whether new types of disk drives or excavating

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Richard Susskind, *Transforming the Law* (2000); John Hokkanen, Investing in Technology: A Business Framework. *Managing Partner*, September 1999. Volume 2, No. 4, 8-13. [Available at <http://www.llrx.com/features/investing.htm>.]

technology, were non-trivial because the technologies took time and effort to develop and could not be quickly replicated (and likely had proprietary technology protected by intellectual property laws). Once high end clients saw the value of these new technologies and demanded them, the products offered by the high-end providers were no longer satisfactory. These providers were unable to adapt within the time period required to maintain their customer base and were usually wiped out entirely.

One of the issues with the development of on-line legal advisors and other self-help technology is the time required. Technologies like Jnana certainly enhance the ease of modeling legal knowledge for purposes of creating self-help systems. However, the task of knowledge engineering can be quite slow. Developing one application will likely help with developing the next, but the time required for doing the legal knowledge modeling makes achieving benefits of scale from past work difficult. In short, if a law firm hears of a competitor rolling out an application to its clients, the law firm can easily begin an equivalent project. It may even be imagined that in ten years all major law firms will have such systems as Susskind suggests, but such imagined scenarios do not envision the destruction of the dominant players as in Christensen's book.

## Envisioning disruptive technologies

In thinking about Christensen's work applied to law firms, one may speculate what truly disruptive technologies could look like. Such technologies would be comprised of several components: 1) methods for representing knowledge units in reusable blocks; 2) revolutionary knowledge modeling tools to create those blocks; and 3) methodologies and personnel networks within a firm that implement 1 and 2 efficiently and within a short time frame.

Clearly we have a great need to represent legal knowledge in building blocks that may be reused by multiple applications. Existing technologies (whether document assembly, on-line advisor systems, or know-who systems) have knowledge that is trapped within its own context. Combining related data alone requires the construction of complex data warehouses where normalized sets of data provide the linkages between systems (e.g., see LawPort). In an ideal knowledge world, not only would the data sets of the CRM, billing, and document management systems be related, but knowledge building blocks would be developed so that they could be used by document assembly systems, on-line query and advisor systems, know-who systems, intellectual capital retrieval systems, and even automated personal "bots." To do this, a common language for interrelating these components needs to be developed. From a data representation point of view, it would seem that the legal XML effort would apply to provide such a framework.

This framework for representing legal knowledge must then have revolutionary tools to enable the rapid modeling of this legal knowledge. Ideally, tools would be designed that could parse our existing bodies of legal knowledge (i.e., briefs, cases, treatises, and codified law) to propose an initial set of knowledge components and relationships in the designated framework's format. New tools would be developed to allow attorney experts to easily draft and review their knowledge without having to learn any of this new technology. Such tools must also have easy to use editing and revision interfaces for more computer-savvy lawyers to maintain the knowledge bases.

A law firm that developed these two components in even a narrow area of law would have devastating technology. Not only could documents be assembled and questions be asked within the law firm, clients could be given access to executive summaries as well as deep knowledge

systems. What-if scenarios could be run where the impact of proposed regulations in complex regulatory environments could be assessed. A firm having such technology would then need to develop the methodologies and personnel to administer this technology's application to other legal areas. With all three components – knowledge building block frameworks, knowledge acquisition tools, and the people and methods to run them with a high level of quality assurance – one would think that such a firm would wreak havoc in the legal marketplace. It is plausible to think that completely new markets would emerge for such a firm, including the sale of subscription services to state, federal, and international governments.

Numerous questions arise when thinking about such technologies. Would a firm be better off to seek multi-organizational adoption of the knowledge framework or to protect it as proprietary? Which firms or organizations (e.g. West) have or would acquire the requisite components: a) cash to fund the R&D; b) cognitive frameworks and theoreticians to develop the underlying technologies; c) technologists to implement all necessary technology; and d) requisite legal expertise to sufficiently qualify a system? Would such technologies best be funded by a governmental agency like the National Science Foundation so that its value may be made publicly available to all firms, legal services entities, etc.? Is there any future in an open source strategy, like the Open Practice Tools initiative?<sup>3</sup>

### *Tooling up*

Legal knowledge tool makers shouldn't be like the proverbial cobbler's children, walking barefoot in a shop that produces shoes. A dirty secret of our business is how little use we make of the very kinds of knowledge-work-streamlining technologies we so enthusiastically evangelize to others. We can take refuge for only so long in the comforting story that "meta-practice" (knowledge work that is *about* legal knowledge work) is even harder to systematize than practice itself. By trying harder to find and use knowledge leveraging aids that suit our own work, we can not only enhance our professional effectiveness, but also improve our sense of solidarity with the "end-lawyers" we serve, and deepen our insights into the mysterious dance of people and their evolving artificial assistants.

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<sup>3</sup> See Marc Lauritsen, *Ontologies and Openness in Law Practice Automation*. Workshop on "Legal Knowledge Systems in Action," Eighth International Conference on Artificial Intelligence and Law, St. Louis, Missouri May 2001. <http://www.capstonepractice.com/OntoOpen.html>

# Current Legal Applications of Neural Net Technology

Alan Soudakoff, Vice President  
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March 16, 2002

What is a Neural Network?

*Software model of how human brain cells work*

*Example of single neuron [diagram to be inserted]*

*Example of network of neurons [diagram to be inserted]*

*Training of network is used to establish weights and thresholds through “back propagation”*

*Essentially a statistical modeling technique*

*Non-linear functions are typically used*

*No programming required to model systems*

## How Can Neural Networks Be Applied to Legal Issues

*Predictions of Case Outcomes (e.g. damage assessments, child support payments, application of the death penalty)*

*Textual Search Relevance*

What are the Problems and Limitations of Using Neural Networks in the Law?

*Need for adequate sized training and testing samples*

*Need to predefine “input nodes”*

*Handling of inconsistent cases*

*No legal reasoning articulated*

How Has Neural Network Technology Been Used in Legal Practice?

*Prediction of case outcomes*

Split-Up, an Australian system that predicts that relative division of assets following a divorce

Input Nodes: 94 factors

Output Nodes: 1 (percentage split)

Training set: 103 unreported decisions

Golden Parachute, a Dutch system to determine payments to departed executives

Input Nodes: 3 (age, income and years worked for company)

Output Nodes: 1 (amount of payment)

Training set: 38 cases (plus 62 for testing)

Neurolex, a French system to assist mayors in determining the legality of new municipal by-laws

Input Nodes: various factors including type of bylaw and various factual circumstances

Output Nodes: 2 (by-law is valid or invalid)

Training set: 378 published cases

## *Search Engines*

DolphinSearch, [www.dolphinsearch.com](http://www.dolphinsearch.com) uses a neural network-like approach to analyze the frequency that search terms occur together with all other words in the system's lexicon. A "semantic profile" is thus created for a search term that can be compared to similar profiles for existing documents and a relevance ranking created. Such a system could be used in a litigation support context to find documents that are relevant to say, "price fixing" without using those words.

SCALIR (a Symbolic and Connectionist Approach to Legal Information Retrieval).

What Can We Expect in the Future?

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# Creating an Environment in Law Firms Where Artificial Intelligence and Knowledge Management Will Work

Dennis M. Kennedy \*

The adoption of artificial intelligence applications and knowledge management technologies by the legal profession has proceeded far less rapidly than many people would have expected or hoped. While vendors of data mining, knowledge management and other information technologies consistently see the legal profession as a fertile market for their products and initiatives, they are often disappointed by the resistance they find by lawyers and law firms. Why have advanced and sophisticated information techniques made so little impact on the information-intensive legal profession? What can be done to open up the legal market? In spite of the general climate of resistance, what projects are good candidates for these techniques?

There is a certain inevitability to the entry of knowledge management and artificial intelligence approaches in the legal profession, whether the push comes from within the profession or from external pressures from clients and competitors. This paper will discuss some of the needs that law firms want to address with artificial intelligence and knowledge management projects, the resistance barriers in law firms, and then move on to list some attractive target areas for these approaches and factors that will contribute to success of these types of projects.

## **1. Needs Law Firms Seek to Address.**

As part of an information intensive profession, lawyers and law firms create, use and store vast amounts of information in connection with their work. This information has a recognized value because it holds experience and expertise learned and maintained by legal organizations. Too often, however, the transfer of this knowledge inside or outside the firm occurs by happenstance or through one-on-one conversations without a sharing of information by all who need the information. Law firms want to tap into the value of their information in systematic and effective ways.

**A. Not Reinventing the Wheel.** To a surprising extent, in many law firms research is often duplicated, and agreements and other documents are created from scratch when models for such agreements already exist. The concern is not just inefficiency but also the inability to take advantage of best practices and current information and to make proper assignments to people with appropriate experience. With varying degrees of success, all firms have made efforts to implement techniques such as brief banks, standardized forms, training manual and documentation of procedures. Document assembly is one example of a technology used to capture prior efforts and to standardize best practices.

**B. Knowledge Transfer and Mentoring.** It is highly desirable to transfer the knowledge and even wisdom of older attorneys down to younger attorneys. In many cases, older attorneys may leave a firm or even die without the knowledge and other benefits of their experience being captured in a usable fashion. Not only is there a loss of substantive practice knowledge, but far too often there is the loss of the history and stories of a firm culture. There is a growing recognition of how much information is carried by way of story-telling. Core knowledge about a firm and its practices are encoded in its “myths and legends.” Where transfer of this experience and expertise is not encouraged and facilitated, the knowledge of important historical details, such as how difficult management, ethical and other situations were handled, is no longer available for later generations of the firm. The transmission of core values and wisdom is either hindered or does not occur. Increasingly, law firms are recognizing the value of this loss and emphasizing the role of senior attorneys must play in mentoring other attorneys.

**C. Efficient Delivery of Legal Services.** Attorneys arguably work many more hours than other “knowledge workers.” There is often a question of whether attorneys are simply working harder rather than working smarter. Both attorneys and clients see the benefits of more efficient delivery of legal services. Attorneys are increasingly aware of productivity gains achieved in other businesses by use of technology and find that their clients who have achieved such gains through the use of technology are pressuring law firms to adopt the same approaches. In other cases, business clients expect law firms to have certain technologies in place and are not willing to pay lawyers to deliver work in what is seen as inefficient and expensive ways.

**D. Information Overload.** Attorneys are inundated with paper, e-mail, advance sheets, journals, newsletters, web pages and a rising tide of information falling over them. Keeping up with developments in a practice area can take a substantial amount of time. As attorneys take advantage of e-mail newsletters, e-mail discussion lists, and other Internet resources, the symptoms of information overload can become very apparent. The need to organize, process and store in a retrievable fashion relevant information has become increasingly important.

**E. Employee Retention.** The new generation of lawyers leaving law school has been raised in an era of computers. Soon we will have a generation of law students who have never known a time when the Internet was not available. The level of expectations and reliance of sophisticated approaches to information and technology of these lawyers is very high. Law firms have found and will continue to find an unwillingness by these lawyers to stay at firms that do not have state-of-the-art approaches to information. Law firms realize that addressing technology concerns is an essential part of attracting and retaining the best talent.

## **2. Resistance Barriers to Artificial Intelligence and Knowledge Management Projects.**

**A. Culture of Individual Practices.** Nearly every successful knowledge management project has at its roots an organization in which there is a culture of sharing of information. More important, success grows from a culture of willingly sharing information. While financial incentives can help create a spirit of willingness, the trick is to create a culture where the benefits of sharing information are seen as real and sharing knowledge becomes second nature. Many firms are often described as a collection of individual practices. Even within specific practice areas, lawyers may work in a very autonomous manner. In addition, lawyers in one practice area may see little or no commonality with lawyers in other practice areas. At a more basic level, there is often a divide between litigation attorneys and transactional attorneys that is difficult to bridge.

**B. Resistance to Technology.** Far too often, the attorneys, especially older attorneys, who must be involved in the transfer of knowledge down to other attorneys have a reluctance to use technology. Ironically, attorneys whose whole careers show a demonstrated ability to learn completely new areas of knowledge during the preparation of cases or through their representation of clients in a particular industry will balk at the notion of using computers. This reluctance to learn hardware and specific software can result in an unwillingness to be involved in “technology” at any level, even including the unwillingness to be assisted in knowledge transfer techniques that would involve the use of technology.

**C. Lack of Time.** The increasing emphasis on massive billable hour requirements tends to leave lawyers with little time and opportunity to create expert systems, highly organized data structures, or other artificial intelligence and knowledge management techniques. All of these efforts require the investment of substantial amounts of upfront time. Systems that require large amounts of upfront

organization have little chance of succeeding in most law firms. Techniques that may involve the ability to process existing information “as it lies” will have the greatest opportunity for success.

**D. Inability to Measure Returns.** Metrics are not readily available that would help law firms measure the financial return of knowledge management applications. Where billing structures are not changed, the efficiencies obtained through these types of applications may not benefit a firm financially. For example, while the idea of document assembly has long been attractive to lawyers, the reality of reducing a several hour drafting job to ten minutes is not financially advantageous if billing continues to be based on a pure billable hours basis.

**E. Incentive Structures.** While there are a few firms that have created positions such as “chief knowledge officers,” in many cases attorneys interested in knowledge management projects do them on a voluntary basis or may even be penalized for their efforts if these efforts diminish their amount of billable hours. In a traditional law firm, there is often a lack of incentive structures to motivate lawyers to be involved in a knowledge management project. In firms where knowledge management efforts, such as brief banks, or collections of memoranda have been tried, with unsuccessful results, there is often a reluctance to try again and a tendency to dismiss the whole notion of knowledge management rather than to analyze carefully where the prior projects failed and develop more effective new projects.

### **3. Attractive Areas for Knowledge Management and Artificial Intelligence Projects.**

It is becoming increasingly apparent that large-scale, firm-wide knowledge management techniques have little chance of success in law firms, especially if they are the first project undertaken. Discrete, well-considered pilot projects that can be scaled up and rolled out throughout the firm have a much greater opportunity of success. Similarly, targeted, incremental approaches that work within the existing knowledge flow of the firm are preferable to attempts to reorganize how people work. Examples of projects that should be given careful consideration are:

**A. Litigation Strategy.** A good starting project for many law firms would be an application in the area of litigation strategy. Excellent tools are available and the return on investment in this area can readily be perceived.

Perhaps the most interesting development in knowledge management in law firms has been the success of a software program, CaseMap ([www.casesoft.com](http://www.casesoft.com)), over the past few years. CaseMap allows lawyers to pull information that otherwise might be hidden in legal pads, bankers’ boxes, or in the memories of individual lawyers into a format that allows lawyers to gather and analyze facts in a helpful manner. Through a simple method of tagging information, lawyers can use CaseMap to find answers to questions previously difficult to obtain. For example, a lawyer preparing a summary judgment motion can, in a matter of seconds, retrieve a list of all undisputed facts in the case relating to the issue about which they are writing. A lawyer can assess the strength of a case by seeing a list of all undisputed facts that have been judged by that lawyer or other members of the team as highly unfavorable.

CaseMap creates a method for looking at the information involved in the case in a variety of ways and preparing and testing strategies as well as determining where additional work may be required on a case. In addition, a lawyer can determine the strengths and weaknesses of a case and the role that individual witnesses will play in developing a case.

In part the key to the success of CaseMap is its reasonable price, \$495, but, more so, its success lies in its use of a relatively simple interface to accomplish a limited number of highly useful things. The program recognizes that there is a great utility in identifying key information and associating it with other

information and that a broad-based approach can be much more useful than a method that attempts to implement hundreds or even thousands of rules to create a trial strategy.

**B. Client Relationship Management.** A highly important area in knowledge management is customer relationship management (“CRM”). CRM is simply a method of gathering, associating and using in an efficient manner information that you have about customers. In many law firms, there are countless examples of lawyers trying to cultivate a potential client only to find later that that potential client was a college roommate of someone else at the firm. Where information about clients is not readily available, lawyers working for a long-term firm client for the first time can easily make mistakes, such as e-mailing clients who have demanded that information only be faxed to them or Fedexing copies to clients who only want e-mail copies. The holy grail of CRM in law firms is to promote the cross-selling of business to existing clients. This area is an especially fertile one for potential knowledge management and artificial intelligence projects.

**C. Conflict Checking.** Conflict checking is an area of difficulty for many law firms, especially as the number of clients increases and as companies enter into more joint ventures and combinations. While traditional databases can be of great assistance, often potential conflicts can only be seen by lawyers who are personally familiar with the relationships between a variety of companies and people. While CRM efforts will have a spillover effect in the area of conflict checking, the application of artificial intelligence specifically to conflict checking holds a great deal of promise.

A product in development from DolphinSearch ([www.dolphinsearch.com](http://www.dolphinsearch.com)) is an example of an artificial intelligence tool that may have application in the area of conflict checking as well as other knowledge management projects. DolphinSearch is based on research that was done on communications between dolphins and then applied to the assessment of data and information. DolphinSearch can be described as a “fuzzy” method of searching because it is based on pattern recognition rather than a top-down, rules-based artificial intelligence approach. As a result, DolphinSearch can recognize connections between documents, clients and other information and retrieve relevant information with striking results. This ability to use the program is a way to identify connections between information has significant promise in the area of conflict checking.

**D. Delivery of Client Services.** The most exciting area of potential development for artificial intelligence and knowledge management systems is in the area of actual delivery of legal services to clients. This delivery of services might occur through traditional means or over the Internet. A number of examples of this trend are appearing and a good resource for keeping track of this phenomena is the elawyering site maintained by Jerry Lawson at [www.elawyering.org](http://www.elawyering.org). The application of technology to the delivery of legal services is especially attractive in the area of what is sometimes referred to as the “latent market for legal services” or the segment of the market where people cannot afford traditional legal services. From document preparation to delivery of relevant legal information to decision tree approaches to transactions, there is a world of opportunity and law firms are only beginning to tap the potential.

**E. Managing Information Overload.** Lawyers, like many others, are fighting to gain some degree of control over the overwhelming amount of information they receive on a daily basis. Through the use of intelligent agents and other knowledge management and artificial techniques, it is gradually becoming possible to manage that flow of information. Techniques, such as creating daily electronic newspapers, personalized resources, and “push” technologies to deliver specific information, updates and other information of interest can all be highly effective with very tangible benefits. Microsoft’s Digital Dashboard initiative for use of Outlook as a front end for information retrieval and management is a good example of this type of effort ([www.microsoft.com/digitaldashboard/](http://www.microsoft.com/digitaldashboard/)). “Personal knowledge

management” tools such as Clickgarden ([www.clickgarden.com](http://www.clickgarden.com)) give the ability to harvest and organize information on the web. This area suggests a number of useful, discrete pilot projects that can have a high impact on individual attorneys and develop momentum for other projects.

#### **4. Strategies for Improving the Likelihood of Success of your Projects.**

- Choose discrete rather than global projects.
- Use methods that process existing pools of data rather than require large amounts of upfront coding, organization or tagging.
- Identify appropriate tools and get those tools into the hands of the people who will actually use them.
- Choose committed, enthusiastic volunteers for pilot projects.
- Stay up-to-date about new tools and improvements to existing tools.
- Achieve buy-in from top levels of management.
- Develop appropriate incentive structures for attorneys participating in projects.
- Set goals, supply necessary resources and determine from the beginning a method of measuring success or failure of a project. In part, this involves the ability to answer the two following questions: How will you determine whether a project is successful and who will determine whether it is a successful?
- Determine whether a chief knowledge officer level position is required. It is difficult to have success for large projects without such a person.
- Stay aware of developments, talk to others involved in successful projects and keep current with initiatives at other firms.
- Listen to your clients and try to anticipate their needs as a driving force in your projects.
- Maintain a high degree of flexibility and willingness to change direction.
- Try to get as thorough an understanding of the information flows and the information cultures within your firm.
- Attempt several pilot projects at a time. Diversify your risk.
- Be innovative and courageous.

#### **5. Conclusion.**

While the past history of knowledge management and artificial intelligence in the legal profession does not show a lot of successes or adoption of these projects, a number of factors, economic and otherwise, are coming into play and suggest that there is light at the end of the tunnel. By being aware of

the available tools, the fundamental promise and potential that law firms see in these techniques and being able to deal with the resistance barriers, you improve your likelihood of success. Discrete, high impact pilot projects are a good way to start and build momentum for an evolutionary development of these projects. There are also practical strategies that can further enhance your efforts and open up the promise of knowledge management and artificial intelligence that many people see in the legal profession. Most important, there are others working on similar projects who are willing to share information and provide assistance. The future looks promising.

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# A Collection of Internet Resources on Artificial Intelligence, Knowledge Management and the Law

Dennis M. Kennedy

*The following list is a sampling of useful resources on artificial intelligence and law and the use of knowledge management in the practice of law. This list is not exhaustive and is intended as a representative sampling and includes many sites that are useful starting points or will help direct you to other resources.*

## Artificial Intelligence Resources

American Association for Artificial Intelligence Resources Page - <http://www.aaai.org/Resources>

Artificial Intelligence and Law (Prakken) - <http://www.cs.uu.nl/people/henry/research/ailaw.html>

The Artificial Intelligence and Law Group (Nissan) -  
[http://www.gre.ac.uk/~E.Nissan/CmsWeb/ai\\_and\\_law\\_group.html](http://www.gre.ac.uk/~E.Nissan/CmsWeb/ai_and_law_group.html)

Artificial Intelligence and Law Group (BILETA) - <http://www.bileta.ac.uk/ailaw/ailaw.html>

Artificial Intelligence and Law Research Links (Visser) –  
<http://www.csc.liv.ac.uk/~pepijn/research-links.html>

Artificial Intelligence and Law Resources - <http://www.greatstar.com/lois/ailaw.html>

Artificial Intelligence and the Law Resource Center – <http://www.denniskennedy.com/ailaw.htm>

Artificial Intelligence in Law (Tyree) - <http://www.law.usyd.edu.au/%7Ealant/ai.htm>

Commercializing Legal Neural Networks (Hunter) -  
<http://elj.warwick.ac.uk/jilt/artifint/2hunter/contents.htm>

A Discourse on Law and Artificial Intelligence (Aikenhead) - <http://www.law.warwick.ac.uk/ltj/5-1c.html>

DMOZ.org's Resources on Artificial Intelligence and Law -  
[http://dmoz.org/Computers/Artificial\\_Intelligence/Applications/Law\\_and\\_Law\\_Enforcement/](http://dmoz.org/Computers/Artificial_Intelligence/Applications/Law_and_Law_Enforcement/)

DolphinSearch – <http://www.dolphinsearch.com/>

International Association for Artificial Intelligence and Law - <http://set.gmd.de/iaail/iaail.html>

Is a Computer Capable of Interpreting Case Law? (Mulder & Combrink- Kuiters) -  
<http://elj.warwick.ac.uk/jilt/issue2/11demldr/default.htm>

Journal of Information Law and Technology - <http://elj.warwick.ac.uk/jilt/artifint/default.htm>

Jurix - <http://www.jurix.nl>

Legal Machines (Bringsjord) - <http://www.rpi.edu/dept/ppcs/AILAW/manifesto2.htm>

Legal Reasoning, Legal Theory and Artificial Intelligence (Smith & Gelbart) - <http://qsilver.queensu.ca/law/smith.htm>

Logic Programming (Moles and Sangha) - <http://law.uniserve.edu.au/law/pub/compute/logic/>

Online Index of Artificial Intelligence Journals - <http://www.cs.iastate.edu/~honavar/aijournals.html>

Syllabus for Artificial Intelligence and Law (Ashley) - <http://www.lrdc.pitt.edu/Ashley/ailawsyl00.htm>

Teaching Artificial Intelligence to Law Students (Hunter) - <http://www.law.warwick.ac.uk/ltj/3-3h.html>

Victoria, Australia Final Report on Technology and Law, Chapter 13 (1999) - <http://www.parliament.vic.gov.au/lawreform/tech/13.html>

## **Knowledge Management Resources**

BRINT Guide to Knowledge Management Resources - <http://www.brint.com/km/>

CaseMap - <http://www.casemap.com/>

ECompany WebGuide on Knowledge Management - <http://www.ecompany.com/webguide/0,1660,1477%7C343%7C0%7C0%7C1%7Ca,00.html>

Finding the Right Balance (Ruber) - [http://www.destinationcrm.com/km/dcrm\\_km\\_article.asp?id=400&ed=9%2F1%2F00](http://www.destinationcrm.com/km/dcrm_km_article.asp?id=400&ed=9%2F1%2F00)

Get a Competitive Edge with Knowledge Management (Kull) - <http://www.lfmi.com/news/km.cfm>

Intranets and Knowledge Management Solutions: Law Librarians Lead the Way (Skalbeck & Pacifici) - <http://www.llrx.com/features/lead.htm>

KMWorld - <http://www.kmworld.com/>

Knowledge Management: A Bibliographic Resource (Hokkanen & Bond) - [http://www.llrx.com/features/km\\_bib.htm](http://www.llrx.com/features/km_bib.htm)

Knowledge Management: BizDegree.com - <http://www.bizdegree.com/know.htm>

Knowledge Management: Can It Exist in a Law Office? (Platt) - <http://www.llrx.com/features/km.htm>

Knowledge Management: What's the Fuss About (Lauer) - <http://www.law.com/cgi-bin/gx.cgi/AppLogic+FTContentServer?pagename=law/View&c=Article&cid=ZZZL4PSIBFC&live=true&cst=1&pc=0&pa=0&s=News&ExpIgnore=true&showsummary=0>

A Knowledge Management and Distribution System for Legal Services Programs (Granat) - <http://www.equaljustice.org/techcenter/knowledge.htm>

Knowledge Management and Law Resource Center – <http://www.denniskennedy.com/kmlaw.htm>

Knowledge Management for Lawyers (Kennedy) - <http://www.denniskennedy.com/kmtl.htm>

Knowledge Management in Law Firms (Gottschalk) - [http://www.utexas.edu/depts/ic2/austin99/abstracts/25\\_gott.htm](http://www.utexas.edu/depts/ic2/austin99/abstracts/25_gott.htm)

Knowledge Management Magazine - [http://www.destinationcrm.com/km/dcrm\\_km\\_index.asp](http://www.destinationcrm.com/km/dcrm_km_index.asp)

Knowledge Management Resource Center - <http://www.kmresource.com/>

Remaking the Firm: How KM is Changing Legal Practice - [http://www.destinationcrm.com/dcrm\\_ni\\_article.asp?id=270&art=mag](http://www.destinationcrm.com/dcrm_ni_article.asp?id=270&art=mag)

Searching for Bookmark Management Solutions (Kennedy) - <http://www.llrx.com/features/bookmark.htm>

Some Principles of Knowledge Management (Pritchard) - <http://www.priweb.com/knowledgeprinciples.htm>

Ten Principles of Knowledge Management (Davenport) - <http://www.itmweb.com/essay538.htm>

Use of IT for Knowledge Management in Law Firms (Gottschalk) - <http://elj.warwick.ac.uk/jilt/99-3/gottschalk.html>

WendyTech - <http://www.wendytech.com/>

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