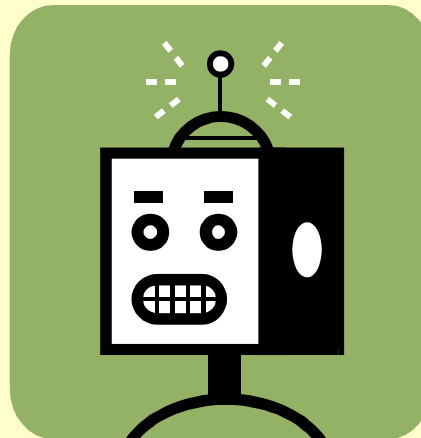


Disruptive Technologies

COLPM 2011



Richard Granat

Granat Legal Services, DirectLaw,
MyLawyer.com



Maura Grossman

Wachtell, Lipton, Rosen & Katz



Kingsley Martin

KIIAC



Marc Lauritsen

Capstone Practice Systems,
Legal Systematics, All About Choice



Cameo appearances

Darryl Mountain

Ontago



Richard Susskind

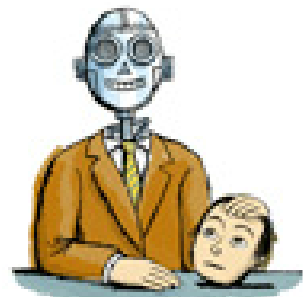


HOME / ROBOT INVASION : WILL THESE MACHINES STEAL YOUR JOB?

Will Robots Steal Your Job?

Software could kill lawyers. Why that's good for everyone else.

By [Farhad Manjoo](#) | Updated Thursday, Sept. 29, 2011, at 2:42 AM ET



INTRODUCTION:
THE ROBOT
INVASION



PART I: WILL A
ROBOT STEAL
MY DAD'S JOB?



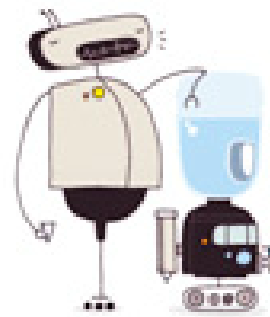
PART II: THE
ROBOT WILL SEE
YOU NOW



PART III:
ROBOTTKE



PART IV:
ANDROID AT
LAW



PART V: ROBOT
VS. EINSTEIN

Venture funded providers

Off shore lawyers

Corporate insourcing

Law 'factories'

Virtual law firms

The Squeeze



Accountants

Legal process outsourcers

Form sites

Self help systems

Doc prep services

Other lawyers

Paying Work

Non-'practice' providers

Values beyond effectiveness

Distinctive lawyering values

Generic process optimization

Substantive systems

1000x



ACM Chess Challenge

Garry Kasparov

VS



Garry
Kasparov



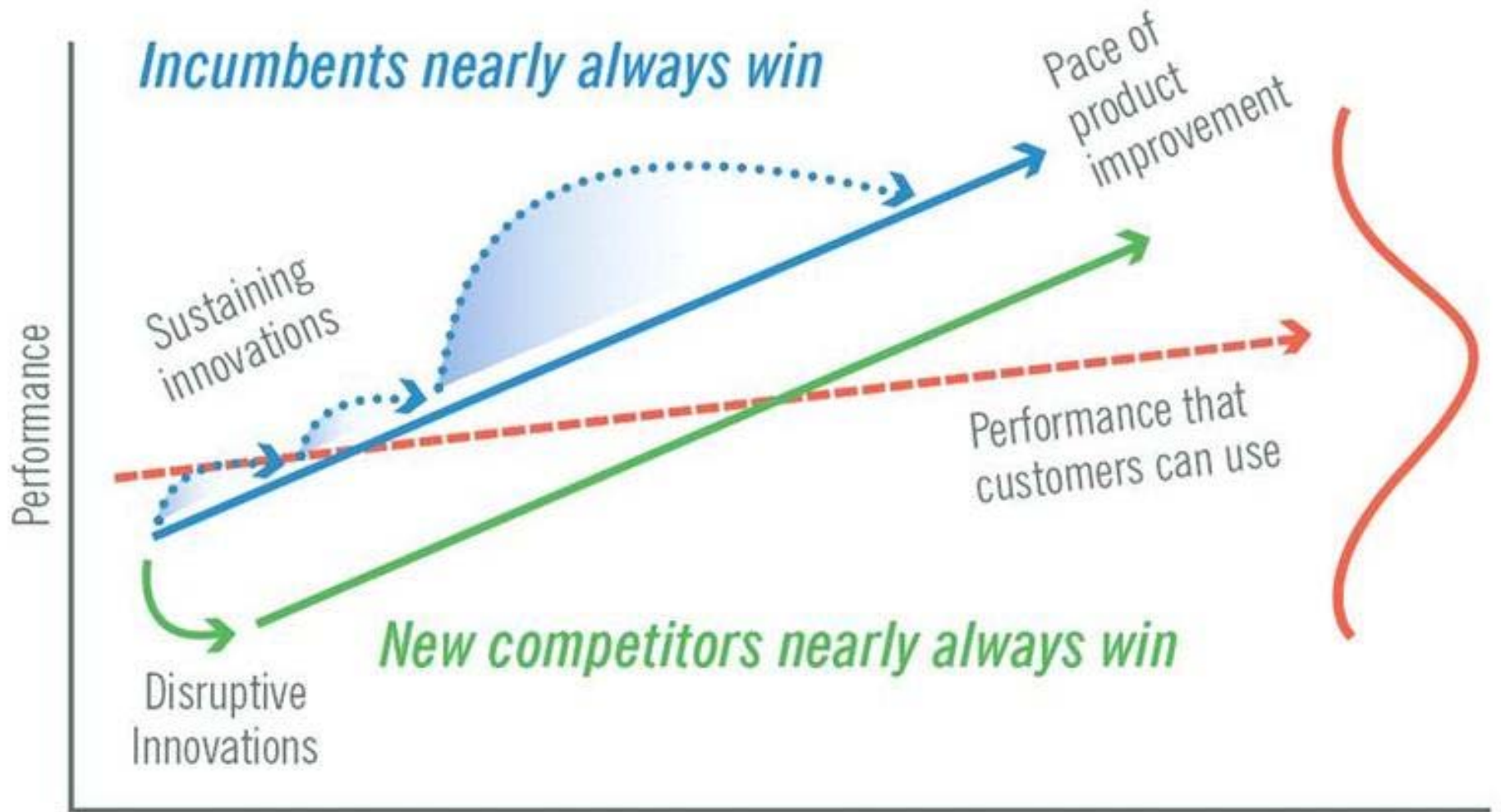
acm



Jenn

WATSON

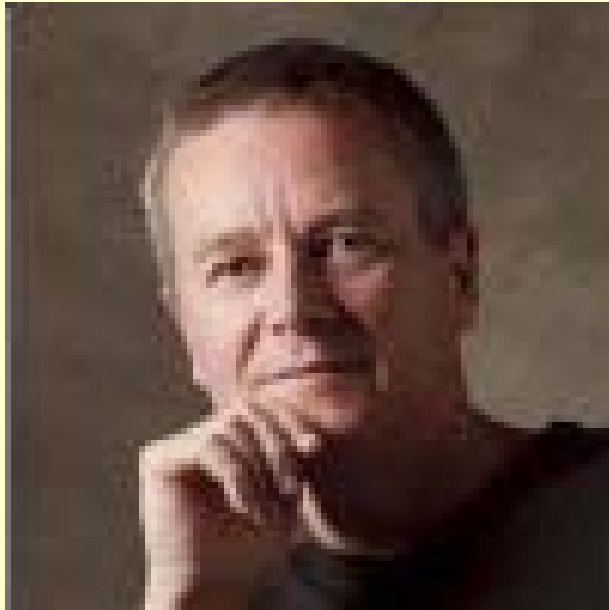
MILES



Source: Clayton Christensen, *The Innovators Solution*

Three Current Disruptions

- Contract analysis and standards (Kingsley)
- Online legal services and digital applications (Richard)
- Automated document review (Maura)



Disruptive Technologies in Transactional Practice

- Technology Performing Legal Tasks
 - **Contract Analysis**
- Technology de-mystifying contracts
 - **Contract Standards**

Contract Analysis

Technology

LEGAL TASK:

1. **Search:** Find relevant material
2. **Organize:** Identify legal rules and principles
3. **Analyze:** Determine best approach

Analyze

Organize

Search

Production

1980

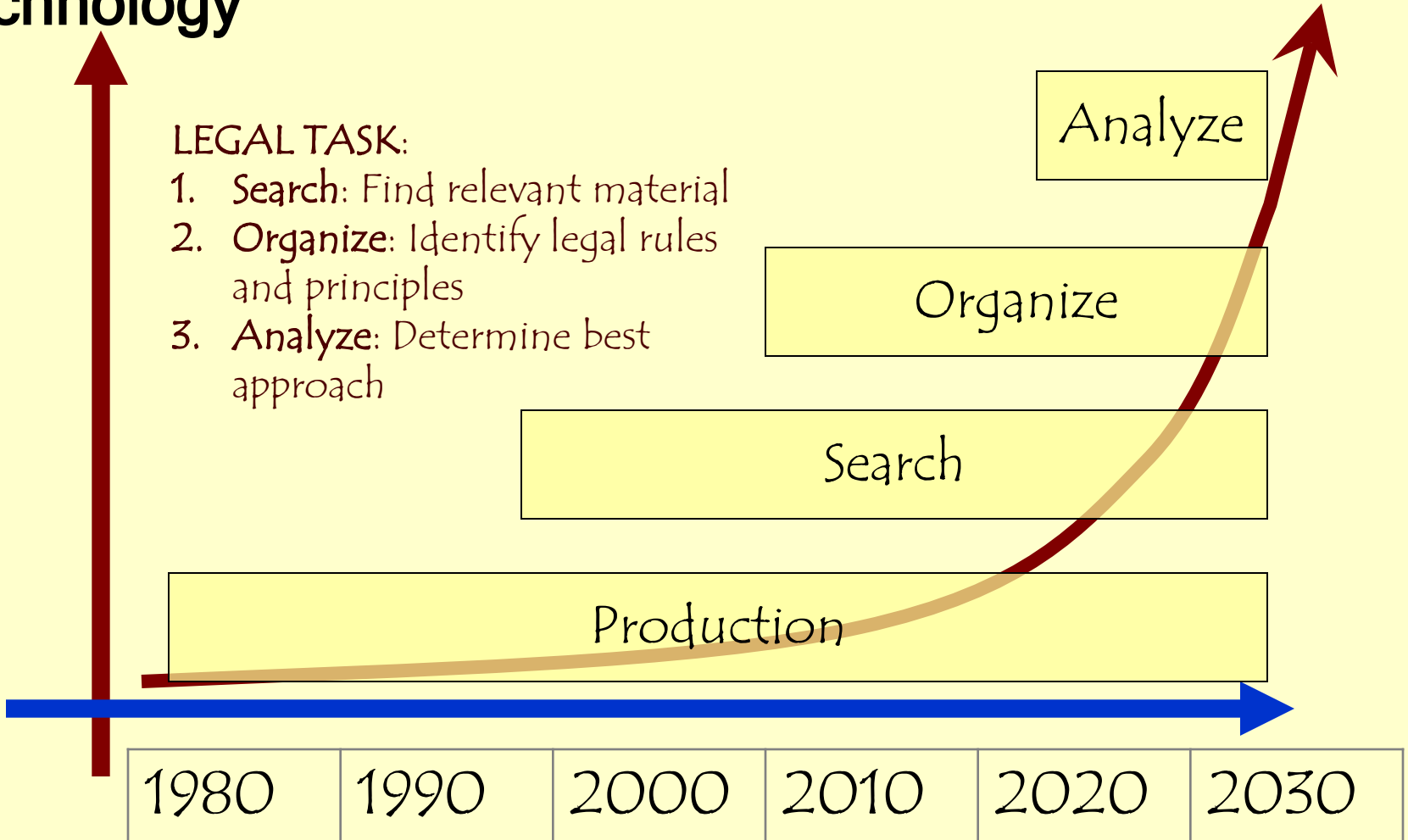
1990

2000

2010

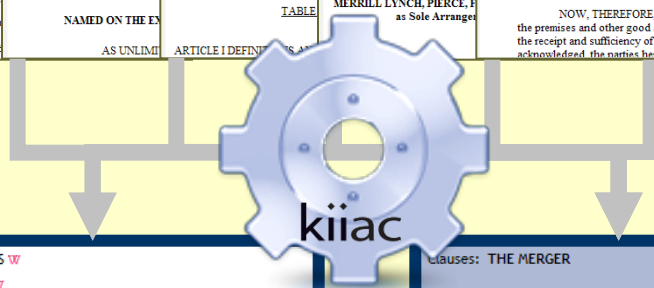
2020

2030



Inductive Reasoning Engines

<p>FIRST AMENDMENT TO F THIS FIRST AMENDMENT AGREEMENT (herein called the July 28, 2006, is entered into by COAST, INC., a Delaware corpo financial institutions and other hereto (the "Lenders"), THE RC ("RBS"), as administrative agent "Administrative Agent") for the syndication agent (in such cap Lenders, BMO CAPITAL MAR HARRIS NESBITT FINANCIN such capacity, the "Documents Issuers parties thereto. Terms d hereinafter defined) are used he them therein, unless the contex</p> <p>WT</p> <p>WHEREAS, the Borrower, o Administrative Agent, the Issu heretofore executed that certai of April 4, 2006 (the "Existin time amended, supplemented, i including pursuant to this Ame</p> <p>WHEREAS, pursuant to a P of June 6, 2006, as amended by Purchase and Sale Agreement o</p>	<p>FIFTH AMENDED AND R</p> <p>DATED AS O</p> <p>FIRSTSERV</p> <p>AS CANA</p> <p>FIRSTSERV</p> <p>FIRSTSERV</p> <p>AS US</p> <p>THE WHOLLY-</p> <p>NAMED ON THE EX</p> <p>AS UNLIMITED</p>	<p>U.S.</p> <p>CREDIT</p> <p>Dated as of</p> <p>AUT</p> <p>THE INITIAL LE</p> <p>as li</p> <p>CIT</p> <p>TABLE</p> <p>ARTICLE I DEFINITIONS</p>	<p>CREDIT</p> <p>by</p> <p>THE HOV</p> <p>as</p> <p>LEHMAN COM</p> <p>as Agen</p> <p>MERRILL LYNCH C</p> <p>as Syndicator</p> <p>THE BANKS PARTY H</p> <p>Aug</p> <p>LEHMAN</p> <p>MERRILL LYNCH, PIERCE, F</p> <p>as Sole Arrange</p>	<p>SECOND AMENDMENT</p> <p>THIS SECOND AMENDMENT (this "Amendment") dated as of November 2, 2007 to the Credit Agreement referenced below is among TENNESSEE VALLEY AUTHORITY, a wholly owned corporate agency and instrumentality of the United States of America (the "Borrower"), the Lenders identified on the signature pages hereto and BANK OF AMERICA, N.A., as a Lender and as Administrative Agent.</p> <p>WITNESSETH</p> <p>WHEREAS, pursuant to the Full Maturity Credit Agreement dated as of May 17, 2006 (as amended as of November 2, 2006, and as further amended, modified and supplemented from time to time, the "Credit Agreement") among the Borrower, the Lenders identified therein and the Administrative Agent, the Lenders agreed to make extensions of credit to the Borrower; and</p> <p>WHEREAS, the Borrower has requested certain modifications to the Credit Agreement and the Lenders have agreed to the requested modifications on the terms and conditions set forth herein.</p> <p>NOW, THEREFORE, IN CONSIDERATION of the premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:</p>
--	---	---	--	--



DEFINITIONS	w
THE OFFER	w
THE MERGER	w
THE MERGER	w
CLOSING	w
EFFECTS OF THE MERGER	w
MERGER CONSIDERATION	w
EFFECT ON CAPITAL STOCK	w
EXCHANGE OF CERTIFICATES	w
ESCROW	w
TAX CONSEQUENCES	w
ADDITIONAL ACTIONS	w
MERGER WITHOUT MEETING OF STOCKHOLDERS	w
ELECTION PROCEDURES	w

Clauses: THE MERGER	
253	THE MERGER AGREEMENT AND PLAN OF MERGER, ()
254	THE MERGER AGREEMENT AND PLAN OF MERGER, ()
255	THE MERGER AGREEMENT AND PLAN OF MERGER, ()
256	THE MERGER AGREEMENT AND PLAN OF MERGER, ()
257	MERGER OF MERGER SUB INTO THE COMPANY AGREEMENT AND PLAN OF MERGER, ()
258	THE MERGER AGREEMENT AND PLAN OF MERGER, ()

Contract Analysis Engine

From a set of documents, analyze

How the document is organized (**checklist**)

What clauses it contains (**clause library**)

Range of standard and non-standard language (**clause language**)

Contract Standards

Statement of Agreement
Purchase, License or Performance
Consideration/ Mechanics of Exchange
Representations and Warranties
Covenants
Conditions
Indemnification
Term and Termination
Remedies
General Provisions

De-mystifying the contract process

Common contract framework for bi-lateral and multi-lateral exchanges

All agreements share many common characteristics

500 core agreement types
Average: 50 clauses per doc
Average: 70% overlap
= 17,500 clauses

Contract Standards

Emergence of de facto standards

Ironically, more sophisticated transactions, more standardized

Document Type	Consistency
Interest Rate Swap Agreement	97%
Merger Agreement	90%
Finance Agreement: (e.g. Term Loans, Credit Agreements etc.)	85%
Corporate Formation: (e.g. Articles of Incorporation, Bylaws)	85%
Employment, Consulting Agreements	65%
Purchase or Lease of Real Property	60%
Supply Agreements	55%



Market Metrics

- 78% of Americans do not have a will or updated will.
- 50% of all marriages end in divorce.
- Personal Bankruptcy filings have almost doubled since 1990.
- More than 10 million American are victims of Identity Theft each year.
- Nearly 9 out of 10 employees experienced at least one legal concern during the past year. (Legal Needs Study).
- In fact, seven out of 10 Americans said they experienced a legal event within the past year*, according to a recent survey conducted by ARAG, a legal solutions provider. (Legal Needs Study). Data also supported by American Bar Association Legal Needs Study.

The DIY Legal Landscape

- Estimated to be a \$684 million market by Outsell, Inc. now. (See <http://tinyurl.com/4ymg88x>)
- Drivers of Growth:
 - WebMD Effect
 - Connected generation consumers want online legal services
 - Weak economy is driving DIY.
 - Middle class is priced out of current legal market.
- **Early stage of development** -- Where TurboTax was 10 years ago.
- Includes self-help books, self-help software, web-based legal software, web-based document preparation services, and solos and small law firms offering “limited legal services” to DIY consumers through virtual law firm client portals.

Growth of Online Disrupters

- Nolo - Growth is flat, because basically a book publisher. Early innovator.
- RocketLawyer - About a \$10,000,000 business.
- LegalZoom – Reportedly generating more than \$100 million in revenue. Document Preparation Service. Vulnerable to smart legal software solutions and forms.
- USLegalForms.com - \$7,000,000 a year. Forms only. No document automation technology
- Many small players on the Web. Expanding at a fast rate in every legal niche. The companies that will last are those that use web-enabled document automation technology.



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- Dangerous Products & Drugs
- Divorce & Family Law
- DUI / DWI & Traffic Tickets
- Employment Law
- Foreclosure
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Do you need a fresh start? Everyone deserves a second chance. Fortunately, the laws of the United States give people the opportunity to start over by wiping away their debts.

Bankruptcy does not have to be expensive or time-consuming. A licensed bankruptcy attorney can guide you through the process and provide options for getting out of debt. They can also stop creditors from harassing you. You can get immediate help at an affordable flat fee.

To see if bankruptcy is an option for you, simply click the link below.

Three Easy Steps

- 1 Complete our online questionnaire.
- 2 Receive a free bankruptcy evaluation with an attorney.
- 3 Your attorney will prepare and file your bankruptcy documents - guaranteed.



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Get Started

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Appoint someone you trust to make crucial life decisions when you can't.

Get Started

As Easy as 1-2-3

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Complete the Submit to attorney Download your

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CHAT WITH US

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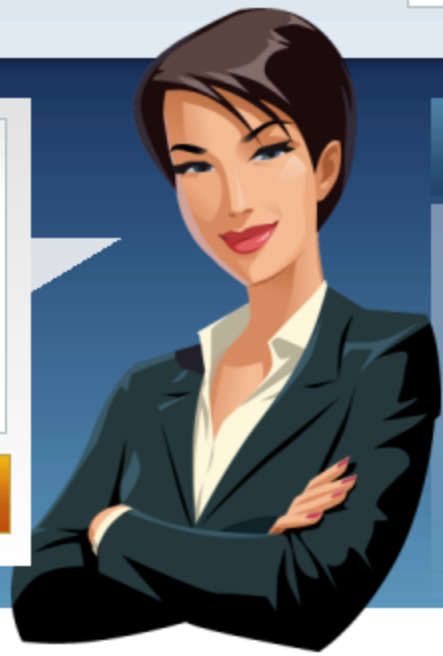
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by asking questions and receiving crowdsourced answers from lawyers



Lawyers market themselves
by providing legal advice, building their online reputations, and providing fixed-price services

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Ask questions **publicly**, and receive legal advice that will benefit the entire LawPivot community.

Recent Q&A Activity

-  **Ron Shepherd**, Partner from Nampa, ID responded to the question:
"My daughter takes dance and is on a dance team."
-  **Ron Shepherd**, Partner from Nampa, ID responded to the question:
"The condo above mine flooded. Who is liable for the

From the Blog

- » **A heads up for startups** by Stewart Einwohner (Stewart G. Einwohner, P.C.)
- » **Top ten legal tips for independent contractors** by Dana Shultz (Dana H. Shultz, Attorney at Law)

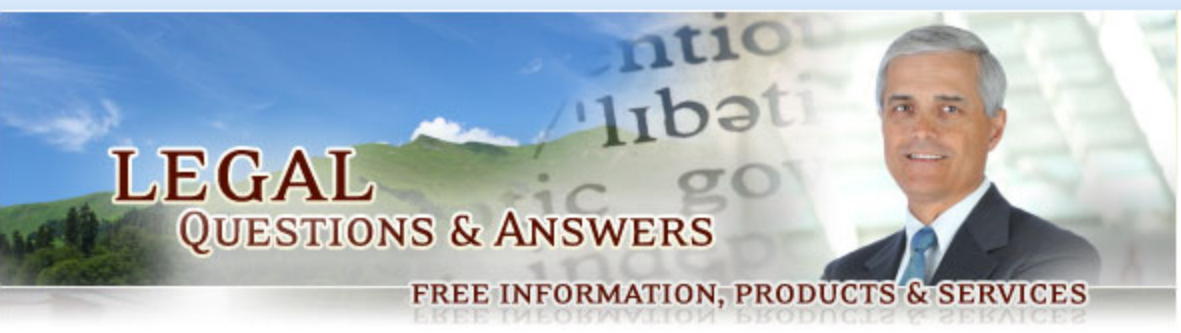


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Legal Industry Sectors



Financial reporting
 Status reporting
 Scheduling
 Calendar control
 Case management
 Contact management
 Windows → Web-based.

Client



LawPIVOT

Online legal services
 Online legal guidance systems
 Intelligent calculators
 Intelligent client portals



New service opportunities
 New business models:
 turning knowledge into value
 2009 and beyond



Technology

Information

Knowledge

Document management- web-based and desktop
 Document storage
 Human resource management
 Marketing databases
 Discovery databases
 Keeping basic systems running
 2001- present



efficiency
 productivity
 leveraging knowledge



Know-how databases
 Knowledge management
 Form libraries
 Intranet services
 2005- present

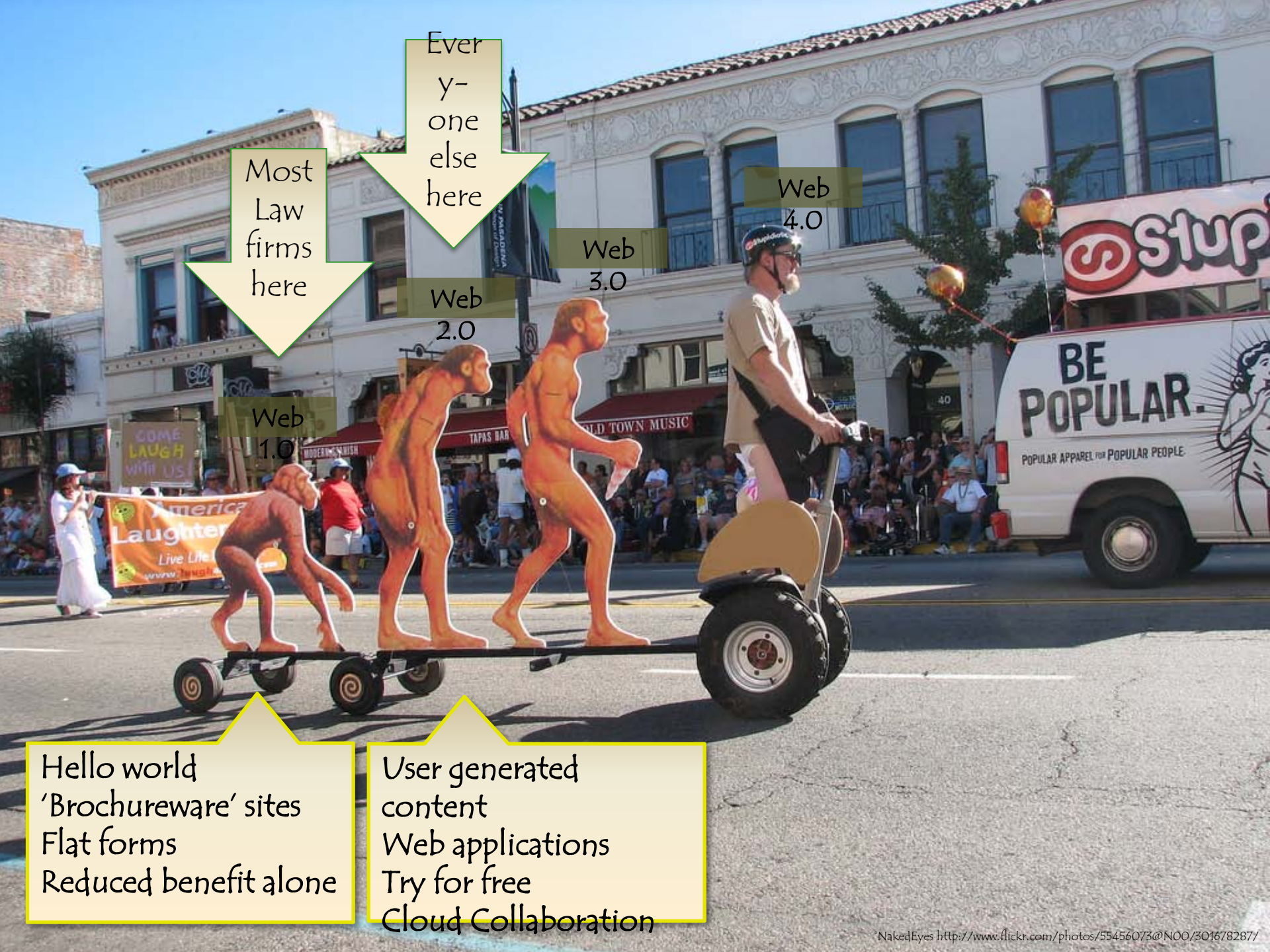


Internal

Adapted from Richard Susskind, O.B.E., *The Grid in The End of Lawyers: Rethinking the Nature of Legal Services*, (2009).

Thoughts About the Future

- TurboTax is to H&R Block as SmartLegalForms is to LegalZoom.
- OpenTable is to Restaurants as DirectLaw is to Law Firms.
- Intelligent Legal Forms will cost no more than a song on iTunes.



Every-
one
else
here

Most
Law
firms
here

Web
4.0

Web
3.0

Web
2.0

Web
1.0

Hello world
'Brochureware' sites
Flat forms
Reduced benefit alone

User generated
content
Web applications
Try for free
Cloud Collaboration



Disruptive Legal Technologies: Technology-Assisted or Automated Document Review

Maura R. Grossman
Wachtell, Lipton, Rosen & Katz
mrgrossman@wlrk.com
(212) 403-1391

Debunking the Myth of the ★Perfect★ Manual Review

- The Myth:

- That “eyeballs-on” review of each and every document in a massive collection of ESI will identify *essentially all* responsive (or privileged) documents; and
- That computers are *less reliable than humans* in identifying responsive (or privileged) documents.

- The Facts:

- Humans *miss a substantial number* of responsive (or privileged) documents;
- Computers – aided by humans – *find at least as many* responsive (or privileged) documents as humans alone; and
- Computers – aided by humans – *make fewer errors* on responsiveness (or privilege) than humans alone, and are *far more efficient* than humans.

Pairwise Assessor Overlap in the TREC 4 Ad Hoc Task (Voorhees 2000)

Assessment	Primary	Secondary	Tertiary
Primary	100%		
Secondary	42.1%	100%	
Tertiary	49.4%	42.6%	100%

Assessor Overlap with the Original Response to a DOJ Second Request (Roitblat et al. 2010)

Assessment	DOJ Production	Team A	Team B
DOJ Production	100%		
Team A	16.3%	100%	
Team B	15.8%	28.1%	100%

Defining “Technology-Assisted” or “Automated” Document Review

- The use of **machine learning technologies** to *categorize an entire collection* of documents as responsive or non-responsive, *based on human review of only a subset* of the document collection. These technologies typically rank the documents from most to least likely to be responsive to a specific information request. This ranking can then be used to “cut” or partition the documents into one or more categories, such as potentially responsive or not, in need of further review or not, etc.
 - Think of a spam filter that reviews and classifies e-mail into “ham,” “spam,” and “questionable.”
- As contrasted with **exhaustive manual review**, which entails *human review of the entire document collection* to categorize each and every document as responsive or non-responsive.

Measures of Information Retrieval

- **Recall** =

$$\frac{\text{\# of responsive documents } *retrieved*}{\text{Total \# of responsive documents } *in the entire document collection*}$$

(“How many of the responsive documents did I find?”)

- **Precision** =

$$\frac{\text{\# of } *responsive documents* \text{ retrieved}}{\text{Total \# of } *documents* \text{ retrieved}}$$

(“How much of what I retrieved was on-point?”)

- F_1 = The harmonic mean of **Recall** and **Precision**.

Effectiveness of Manual Review

Study	Review	Recall	Precision	F_1
Voorhees	Secondary	52.8%	81.3%	64.0%
Voorhees	Tertiary	61.8%	81.9%	70.4%
Roitblat et al.	Team A	77.1%	60.9%	68.0%
Roitblat et al.	Team B	83.6%	55.5%	66.7%
	Average	68.8%	69.9%	67.2%

Effectiveness of Technology-Assisted Reviews at TREC 2009

Team	Topic	# Docs. Produced	Recall	Precision	F_1
Waterloo	201	2,154	77.8%	91.2%	84.0%
Waterloo	202	8,746	67.3%	88.4%	76.4%
Waterloo	203	2,719	86.5%	69.2%	76.9%
H5	204	2,994	76.2%	84.4%	80.1%
Waterloo	207	23,252	76.1%	90.7%	82.8%
	Average	7,973	76.7%	84.7%	80.0%

Manual Versus Technology-Assisted Reviews

Study	Review	Recall	Precision	F_1
Voorhees	Secondary	52.8%	81.3%	64.0%
Voorhees	Tertiary	61.8%	81.9%	70.4%
Roitblat et al.	Team A	77.1%	60.9%	68.0%
Roitblat et al.	Team B	83.6%	55.5%	66.7%
	Average	68.8%	69.9%	67.2%

Team	Topic	Recall	Precision	F_1
Waterloo	201	77.8%	91.2%	84.0%
Waterloo	202	67.3%	88.4%	76.4%
Waterloo	203	86.5%	69.2%	76.9%
H5	204	76.2%	84.4%	80.1%
Waterloo	207	76.1%	90.7%	82.8%
	Average	76.7%	84.7%	80.0%

TREC 2009 Topics Used in This Study

Topic	Request for Production
201	All documents or communications that describe, discuss, refer to, report on, or relate to the Company's engagement in structured commodity transactions known as "prepay transactions."
202	All documents or communications that describe, discuss, refer to, report on, or relate to the Company's engagement in transactions that the Company characterized as compliant with FAS 140 (or its predecessor FAS 125).
203	All documents or communications that describe, discuss, refer to, report on, or relate to whether the Company had met, or could, would, or might meet its financial forecasts, models, projections, or plans at any time after January 1, 1999.
204	All documents or communications that describe, discuss, refer to, report on, or relate to any intentions, plans, efforts, or activities involving the alteration, destruction, retention, lack of retention, deletion, or shredding of documents or other evidence, whether in hard-copy or electronic form.
207	All documents or communications that describe, discuss, refer to, report on, or relate to fantasy football, gambling on football, and related activities, including but not limited to, football teams, football players, football games, football statistics, and football performance.

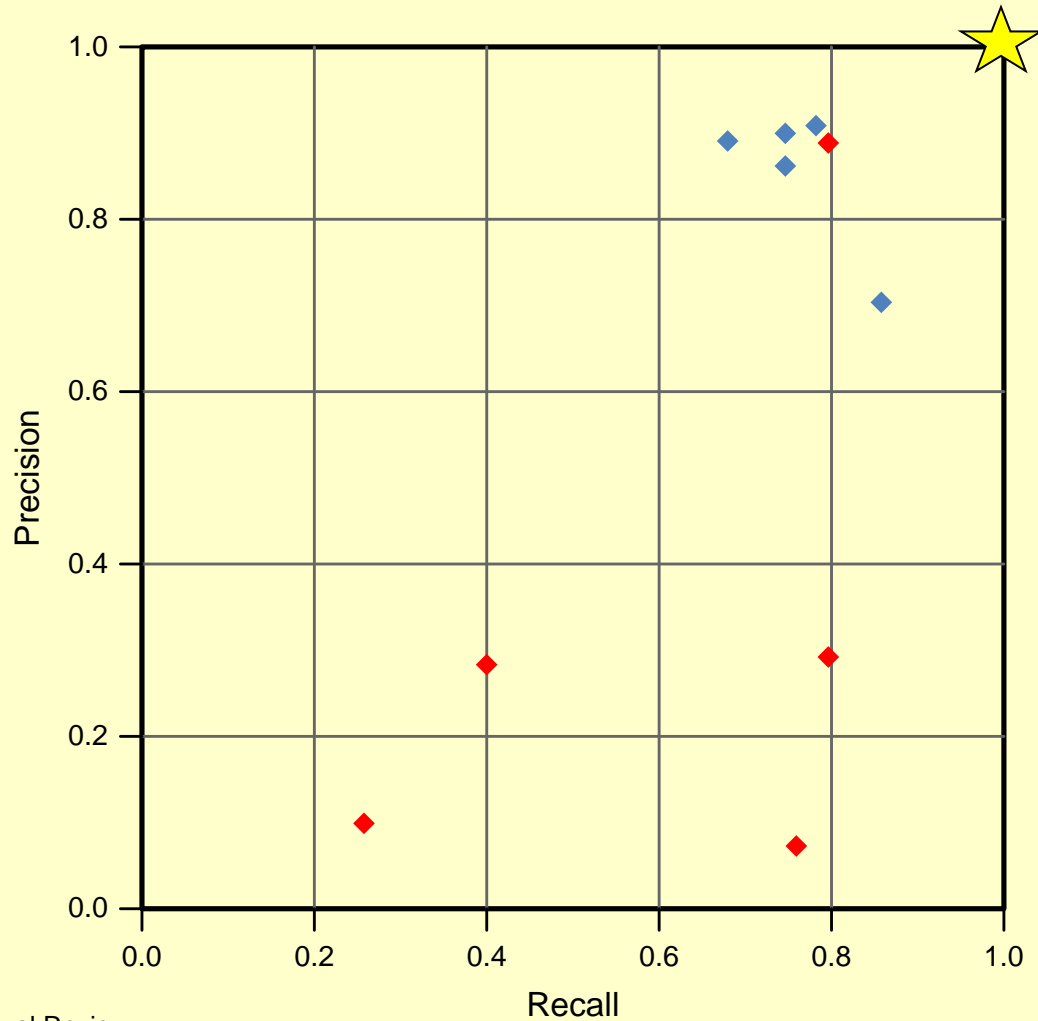
Effectiveness of TREC 2009 Manual Versus Technology-Assisted Reviews

Topic	Team	Recall	Precision	F_1
201	Waterloo	(†) 77.8%	(*) 91.2%	(*) 84.0%
	TREC (Law Students)	75.6%	5.0%	9.5%
202	Waterloo	67.3%	(*) 88.4%	(*) 76.4%
	TREC (Law Students)	(†) 79.9%	26.7%	40.0%
203	Waterloo	(*) 86.5%	(*) 69.2%	(*) 76.9%
	TREC (Professionals)	25.2%	12.5%	16.7%
204	H5	(*) 76.2%	(*) 84.4%	(*) 80.1%
	TREC (Professionals)	36.9%	25.5%	30.2%
207	Waterloo	76.1%	(†) 90.7%	82.8%
	TREC (Professionals)	(†) 79.0%	89.0%	(†) 83.7%
Avg.	H5 / Waterloo	(†) 76.7%	(*) 84.7%	(*) 80.0%
	TREC	59.3%	31.7%	36.0%

Results marked (*) are superior and overwhelmingly significant ($P < 0.0001$)

Results marked (†) are superior but not statistically significant ($P > 0.1$)

Effectiveness of TREC 2009 Manual Versus Technology-Assisted Reviews



◆ = TREC 2009 Manual Review

◆ = TREC 2009 Technology-Assisted Review

Efficiency of Technology-Assisted Versus Exhaustive Manual Reviews

Topic	Review Effort (# Docs.)		Effectiveness (F_1)	
	Tech. Asst.	Manual	Tech. Asst.	Manual
201	6,145	836,165	84.0%	9.5%
202	12,646	836,165	76.4%	40.0%
203	4,369	836,165	76.9%	16.7%
204	20,000	836,165	80.1%	30.2%
207	34,446	836,165	82.8%	83.7%
Average	15,521	836,165	80.0%	36.0%

- Exhaustive manual review involves coding **100%** of the documents, while technology-assisted review involves coding of between **0.5%** (Topic 203) and **4.1%** (Topic 207) of the documents (**1.9%, on average, per topic**).
- Therefore, on average, technology-assisted review is 50 times more efficient than exhaustive manual review.

Conclusions and Take-Away Messages

- Technology-assisted review *finds at least as many responsive documents* as exhaustive manual review (meaning that *recall is at least as good*).
- Technology-assisted review is *more accurate* than exhaustive manual review (meaning that *precision is much better*).
- Technology-assisted review is *orders of magnitude more efficient* than manual review (meaning that it is *quicker and cheaper*).
- *It is possible to measure quality*, and *measurement is key*.
 - **Not all technology-assisted review (and not all exhaustive manual review) is created equal.**
 - **Measurement is critical in selecting and defending an e-discovery strategy.**
 - **Measurement also is important in discovering better search methods and tools.**

References and Additional Resources

- TREC
 - <http://trec.nist.gov/>
- TREC Legal Track
 - <http://trec-legal.umiacs.umd.edu/>
- TREC 2008 Overview
 - <http://trec.nist.gov/pubs/trec17/papers/LEGAL.OVERVIEW08.pdf>
- TREC 2009 Overview
 - <http://trec.nist.gov/pubs/trec18/papers/LEGAL09.OVERVIEW.pdf>
- TREC 2010 Overview
 - Forthcoming (Nov. 2011) at <http://trec-legal.umiacs.umd.edu/>
- **Maura R. Grossman & Gordon V. Cormack, *Technology-Assisted Review Can Be More Effective and More Efficient Than Exhaustive Manual Review*, XVII RICH. J.L. & TECH. 11 (2011), <http://jolt.richmond.edu/v17i3/article11.pdf>**
- **Maura R. Grossman & Gordon V. Cormack, *Inconsistent Assessment of Responsiveness in E-Discovery: Difference of Opinion or Human Error?*, Research Paper Accepted for DESI IV: ICAIL Workshop on Setting Standards for Searching Electronically Stored Information in Discovery (June 2011), <http://www.umiacs.umd.edu/~oard/desi4/>**