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# Technology, Big Data and Tomorrow's Lawyers

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Much of the debate in legal education centers on whether law schools are doing their best to educate lawyers who are ready to practice today. But significant technological advancements are changing how lawyers provide legal services. While much of lawyering will stay the same, much will change. To address the ongoing evolution, law schools also must prepare students for the legal profession of tomorrow.

In the last half-century, technology has revolutionized how lawyers practice, but its impact on the substance of lawyering has been surprisingly minimal. Word processors represented a quantum leap over typewriters. But at its core, typing is still typing—a way of putting words on paper (or PDF). Electronic research using WestLaw or LexisNexis allowed lawyers to more quickly retrieve current information.

Yet, putting aside snazzy interfaces and faster searches, these tools just digitized books. They changed the form of the research process, but not the content. For all of these innovations, new shiny gadgets were just that: tools to help the lawyer work more efficiently.

The next generation of legal technology will transition from affecting how lawyers work to changing what lawyers do. While we are nowhere near the day when [Robot, Esq.](#) rises in court to argue a case, new innovations will aid lawyers in making legal decisions—what I call "assisted decision making."

We are already seeing see the first ripples of this next wave with new tools: electronic discovery enabled by predictive coding, forecasts of judicial decisions with predictive analytics and intelligent information systems that can answer legal questions in plain English.

1. Predictive coding: Document review, for the most part, entails searching through vast troves of records, trying to find certain keywords or phrases that render a document privileged and thus outside the scope of producible documents. Even with existing computer-search programs, this is a time consuming, fallible process.

Enter predictive coding. Instead of performing simple keyword searches for certain terms, lawyers can train intelligent systems to learn what types of communications—sentences, paragraphs and entire emails—discuss privileged content.

Predictive coding is extremely accurate. Manual human review can identify [60 percent of responsive documents](#), according to "Man versus Machine: Predictive Coding Making Its Mark in Electronic Discovery," an article in the July-August 2012 issue of *Flash*, a publication from the American Bar Association Section of Labor and Employment Law. In contrast, predictive coding has been rated as more than [80 percent](#) accurate, according to "How a Computer Did the Work of Many Lawyers," a Jan. 17, 2013, article in *The Wall Street Journal*. Ultimately, the lawyer will choose which documents to produce, but this technology will assist with that decision.

2. Predictive analytics: Predictive coding is only the start. One of a lawyer's core jobs is predicting the outcome of the client's case. Alas, to quote Yogi Berra, "It's tough to make predictions, especially about the future."

Predictive analytics can help. By crunching and computing vast amounts of data about how courts have resolved past cases, predictive analytics can offer detailed forecasts about judicial behavior.

Since 2009, I have operated [FantasySCOTUS.net](#), a Supreme Court fantasy league that lets players compete and predict how the High Court will rule. Combining the collective wisdom of the more than 20,000 players who participate, my research shows that the wisdom of this crowd yields predictions at [more than 70 percent accuracy](#).

That's compared to Supreme Court experts, who do [slightly better than chance](#), according to an essay published in *The Columbia Law Review* in 2004, "The Supreme Court Forecasting Project: Legal and Political Science Approaches to Predicting Supreme Court Decisionmaking." This year, I will release a new algorithm that can predict the outcome of cases at similar accuracies without any human interaction. Generating predictions for Supreme Court is only the first stage of judicial forecasting.

Already, predictive analytics firms are offering insights into how lower courts will handle cases. Consider the questions that these systems can answer with quantitative authority: How often does a judge grant pretrial motions, issue a ruling without oral arguments, dismiss a case on the pleadings, take away a jury's verdict, issue sanctions for discovery abuse, award attorney fees, etc.?

Lawyers can offer informed guesses to these questions, based on their own experiences, but predictive analytics can analyze every decision a judge has made and generate reliable predictions. With this intelligence, lawyers can now base their strategy on new unprecedented insights.

3. Intelligent information systems: In the not-too-distant future, artificial intelligence systems will have the ability to reduce answering a legal question to the simplicity of asking a question.

Imagine a virtual litigation assistant akin to IBM's Jeopardy-winning Watson. Call it Harlan. A lawyer could tell Harlan about the case at hand: the parties, facts, merits and remedy sought. The lawyer could share any relevant documents. Based on an advanced algorithm that mapped out the relationship between all of the relevant case law, Harlan could generate forecasts for how different judges will resolve the cases and perhaps even recommend an ideal forum (call it fantasy forum shopping)

Harlan could explain how best to structure the litigation, what types of motions would be most successful and how to arrange arguments. With advances in artificial intelligence, Harlan might even draft the briefs (many sections of briefs today are copied from boilerplate), or at least check

the persuasiveness of the arguments against other successful arguments already accepted by courts.

Harlan would also work wonders for nonlawyers, who could use the Harlan app to pose questions in plain English. Harlan's suggestions may or may not include hiring a lawyer. With the correct controls for conflicts of interest and zealous representation, Harlan potentially could improve access to justice.

## Keys to the Future

Today's law schools best can prepare lawyers for tomorrow's profession in three key ways.

First, legal educators need to understand that these innovations will leave many elements of legal practice largely undisturbed, even though these developments will disrupt other aspects. The commoditization of certain matters that can be automated will shift some labor to intelligent systems. Tasks ranging from document review to legal research no longer will be the sole province of entry-level associates and contract attorneys. In much the same way that word processors obviated the stenographer, and online research decreased the reliance on law libraries, new disruptive technologies slowly will trigger a foundational shift in lawyering.

Second, given that realization, law professors should continue to teach students the knowledge and skills needed for positions that will continue to thrive in the new digital economy. Here, there is a natural synergy with the focus on practice-ready lawyering, as these skills always will provide value to lawyers and their clients. The jobs that require original, creative, hands-on thinking will remain in demand. But, educators should also teach the skills of tomorrow's legal profession.

To that end, third, law schools should prepare students for the new opportunities afforded by this technological shift. They should learn how to work with and benefit from these intelligent systems as they perform legal services.

Law schools should go one step further. Law students trained to build these systems will hold a competitive edge. The coding movement, which aims to teach students of all grades how to create and develop information and knowledge on computers, should continue on through law school.

We need more lawyers, versed in the language of law and technology, to build legal tools that are consistent with how lawyers practice and the duty they owe their clients. Law schools, and law firms, imbued with legal experience, knowledge and professional responsibility, should be leading these innovations.

To prepare our students for the evolution of the legal market, legal education should take account of our changing profession, and teach our students to lead this disruption.

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