> In the summer of 1993 I was working with a small team developing expert systems (artificial intelligence software) for the construction industry when Mark came into my office. He was waving a floppy disk and enthusiastically said "Ian, you've got to see this! It's a web browser!" "What's the Web and why do I want to browse it?" I replied. "It's really cool, you can see information from all over the world and navigate around it like a web," he said, so I took his disk and installed a browser called Cello, and then had to install some other network drivers, and after about half a day of lost work I was ready to browse the Web.
>
> *-- Dr. Ian Watson, "The Universal Machine" (a popular history of computing)*

> We've figured out how to make the law available. There's a machine for that called the Web. Now we need to make the law accessible
>
> *-- Tom Bruce, Director of the LII, and author of Cello*

LII: Web Science for Law

Back in 1992, before there was Google, before there was Amazon, when there were only about 30 web sites in the world, the LII started as a unique collaboration between a technologist and a legal scholar who wanted to use the Web to make legal information easier to find, understand, and use.

We built the first legal web site in 1992, and the LII became the first to offer the decisions of the United States Supreme Court on the Web. That kicked off a long string of firsts:

- In 1993, we created Cello, the first Web browser for the Microsoft Windows platform so that the Web would be available to people outside the scientific and academic communities. Later that year, we became the first to offer the United States Code on the Web.
- From 1996-2000, we taught the first law-school course offered online, an activity that was as much an innovation in academic administration as it was in the technology of teaching.
- In 2000 we released the first XML version of the United States Code, the compilation of all the laws passed by Congress. The US Code is now our most popular resource -- and it is also the focus of research and commercial development by others that will lead to better, targeted information resources for citizens and businesses.
- In 2012 we released the Code of Federal Regulations and are focusing our program of applied research on problems of finding and understanding the Federal regulations that affect every aspect of life in the United States and around the world.

You could say that we spent the last 20 years making law available on the Web. Now, we're working to make it accessible by using Web science to make law easier to find and understand. The first two decades were about putting legal information online and linking it to itself. Now, we're beginning to link law to the places and things that it's about, so that you can easily find answers to questions like:

- What regulations apply to my business?
- Are there any special rules that apply to the place where I live? What do I have to do to comply with them?
- What did the Supreme Court actually say? Is it what I read in the newspaper?
- How old do I have to be to get married in my state?

Every search for information involves using something you know as a way to find something you don't know. On the Web, that

usually means entering search terms into Google or Bing to find the thing itself, or seeking out the web site of a person or organization that you think might offer the information you want. Our idea is to make finding legal information easier by expanding the number of things you can use to find the law: the name of a product, a place, or some other fact about your situation.

Here are a few examples of the kind of science and engineering we're talking about.

Linked Open Data

You're trying to decide where you want to live when you retire. There are a lot of things to think about, including climate, average cost of living, and so on. And tax laws are really important -- not just Federal income tax laws, but taxes on annuity payments, property taxes, sales tax, and other state-imposed fees -- especially if you're on a fixed income. How can you work up a comparison that takes all of these factors into account? It's easy to find all that information on the different Web sites where it lives, but it's hard to pull it all together, especially if you have more than one state or location to think about.

You run a microbrewery, and you're thinking about expanding your business outside your home state. You already know where to find information on the Web that will help you estimate the size of your market, transportation costs, and so on. But there are legal factors too. You might know some websites where you can find out about business licensing procedures and regulations that apply to brewing, alcoholic beverages, food processing and packaging in each of your neighboring states. But pulling all that information together and comparing compliance costs and requirements across locations is difficult and time-consuming.

Your lawyer is telling you that you should go to court. You're not so sure. You want to find out for yourself how cases like yours have come out in the past, and whether the results are likely to be worth the time and trouble. There's a lot of information that you could weigh, if you could only get it all into one place.

Nobody looks at legal information for fun (well, we do, but we have very poor social skills). Most people just want to solve a problem or make a decision for which legal information is only one piece of the puzzle. We're working to organize and shape legal information collections so that the puzzle pieces are easier to find and fit together -- in fact, so easy that we could then build software applications do it for citizens, consumers, and businesses.

Linked Data techniques are the key to that process. Right now, we think that the biggest short-term gains are to be made in looking at Federal regulations. Over the next two years, we're planning a series of improvements to our edition of the Code of Federal Regulations that will, in ways large and small, make it easier to hook up with the things it regulates, the places it talks about, and the real-world procedures it describes.

That's an important first step, and it's a hard one. We're lucky to have our home at a university where there are leaders in this new kind of information science -- and particularly lucky that we can take advantage of the endless curiosity and ingenuity of the students they attract. Last year, eight Master's of Engineering students — software engineers in one of the most demanding programs in the country — won an award for their work on developing linked data models for the LII.

Web Analytics

We've been putting legal information out to the public for more than two decades now, and we still know less than we should about how it is used, and how we can use our knowledge of user behavior to make things easier to find. The same analytic tools that marketers use to figure out how to steer buyers to products on web sites can be used to figure out how to steer legal information consumers to the information they need -- once they know they need it. Our problem is to figure

out how to offer little bits of education within the information-seeking process so that users can learn what to look for at the same time they're looking for it. Analytic tools can reveal the places where the path is hard to find, so that we know where we need to post new maps.

Reference librarians are expert guides, but there aren't enough of them. So we're looking at ways to capture their knowledge and feed it into the process when it's needed. And no, we're not going to put a stupid paperclip at the bottom right corner of your screen -- these days, library science can do better, and we're finding out how.

Thought leadership

Sometimes we just talk a good game, but we do it where others will listen. During the last year we served on the steering committee for a US House of Representatives workshop on legislative data transparency, contributed to a UN-sponsored global conference on information technology in Parliaments, and presented research and papers at numerous academic conferences. We testified at a Congressional hearing on data modernization in the House of Representatives, and were major contributors to an initiative urging bulk publication of all Congressional work product in XML, a matter on which we were invited to speak to a Congressional task force. We are members of the OASIS Technical Committee that is developing a global XML standard for the publishing of legislative information.

Our VoxPopuLII guest blog is a well respected means for researchers and practitioners in the different legal information subdisciplines to talk to each other about what they're doing. There, law librarians can find out what information-science researchers are doing, social scientists can talk about how information products get used outside of libraries, and policy people can talk about how their work is related to technology. The LII Metasausage blog publishes technical information and white papers related to legal information technology, particularly as it relates to legislative data and work products.

But our biggest recent effort was Law via the Internet 2012, a conference for the community of open-access legal information publishers around the world. With 250 attendees from 37 countries, the program was a global review of the state of the art in making legal information available to citizens, business, and government. Two of the five LVI program tracks focused on applications development and legal information science, with participation from both the public and private sectors. Soon, we will be collaborating with our Italian colleagues at ITTIG and others as co-publishers of an open online journal reporting work from this community of practice.

Collaboration

We don't do this by ourselves. We get a lot of help from those around us here at Cornell, particularly our colleagues at the Law School and in the Faculty of Computing and Information Science, as well as their students. Our collaborators also include many in the more than 25 operations around the world that have adopted the LII's name as part of their own. We have housed visiting researchers and interns from CanLII (the Canadian Legal Information Institute), the Institute for Law and Technology at the Autonomous University of Barcelona, and other academic institutions. Our current edition of the Code of Federal Regulations is the result of a collaboration with the Cornell Law Library and the US Government Printing Office, and for the last two years we have done commissioned research and analysis for the Office of Strategic Initiatives at the Library of Congress.

Technology is half the recipe

The other half is you. Of course we rely on our supporters for some of the financial resources to help make our work possible. But we also rely on you to tell us what works and what doesn't; what you'd like to do with legal information that you can't; how we can help you and your business. Stay in touch!