Challenges and a Path Forward for Realizing Data-Driven Federal Internet Policy

A Research Agenda for Law and Computer Science and Internet Data

8th Workshop on Internet Economics (WIE 2017)

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The opinions expressed are those of the author and do not necessarily represent the views of the Federal Communications Commission or the United States Government.

本人の見解によるものであり、アメリカ合衆国その他の代弁ではないことをご承知下さい
‘For the rational study of the law the black-letter man may be the man of the present, but the man of the future is the man of statistics and the master of economics’ (Holmes, 1897)

• Data Driven / Evidence-Based Policy Making and Challenges for Law and Policy Practice

• Data Collection, Analysis and Sharing of Data Follow the moccains of a staffer working a public policy data trail

• Research Agendas, Pedagogy and Management of "Legal Hackers" and the Field of Law and Computer Science
Law and Economics

A Roadmap for Law and Computer Science

- Scottish Enlightenment
- Rights contingent upon economic and social conditions Marx 1859
- Law and Economics
  - ‘the application of economic theory and econometric methods to examine the formation, structure, processes and impact of law and legal institutions’ (Rowley, 1989, p. 125).
- Chicago neo-classicals - the suspicion of government and markets protecting rational individual choice
- Private property rights generally create better incentives for husbanding scarce resources than do common property or freely available objects
- Principles of price theory dictating implicit economic of legal problems
- Paradigm Accepted: law and economics into the Law Schools (1973-1980)
Law and Computer Science

The legal toolset for data, algorithms and Internet Technology

Privacy
Internet Regulation
IoT and Software Systems and Sensors
Figure 1. Key Milestones in the U.S. Evidence-Building System

- 1787: U.S. Constitution Signed, Calls for Decennial Census
- 1903: Commission Appointed by Secretary of the U.S. Treasury to Investigate Accounting Methods
- 1942: Federal Reports Act
- 1950: Federal Records Act (FRA), Budget and Accounting Procedures Act
- 1973: Dept. of Health, Education, and Welfare Develops Fair Information Practice Principles (FIPPs)
- 1974: Privacy Act
- 1977: Privacy Protection Study Commission
- 1980: Paperwork Reduction Act (PRRA)

- 1993: Government Performance and Results Act (GPRA)
- 1995: PRA Reauthorized
- 2000: Information Quality Act
- 2002: Confidential Information Protection and Statistical Efficiency Act (CIPSEA)
- 2002: E-Government Act
- 2010: GPRA Modernization Act
- 2016: Commission on Evidence-Based Policymaking Created

Legend: ❄️ Laws | ⌚️ Commissions

*Timeline not to scale*
Transparency & Open Government

• POTUS Memorandum for the Heads of Executive Departments and Agencies

“My Administration is committed to creating an unprecedented level of openness in Government. We will work together to ensure the public trust and establish a system of transparency, public participation, and collaboration. Openness will strengthen our democracy and promote efficiency and effectiveness in Government.”
Strategy for American Innovation

• Harnessing Creativity of the American People through Incentive Prizes
• Tapping Talents of Innovators through Making, Crowdsourcing, and Citizen Science
• Adopting an Innovation Toolkit for Public-Sector Problem-Solving
• Building & Using Evidence for Social Innovation
• Federally-funded research freely accessible to innovators, scientists, general public
Strategy for American Innovation

• Defines Open Federal Data a national asset to be made publicly available
  – Advance government efficiency
  – Improve accountability,
  – Fuel private-sector innovation, scientific discovery, and economic growth.

• Making Open and Machine Readable Default for Government Information
Executive Order of May 9, 2013, Making Open and Machine Readable the New Default for Government Information

1. Collect or create information in a way that supports downstream information processing and dissemination activities
2. Build information systems to support interoperability and information accessibility
3. Strengthen data management and release practices
4. Strengthen measures to ensure that privacy and confidentiality are fully protected and that data are properly secured
5. Incorporate new interoperability and openness requirements into core agency processes

SUBJECT: Open Data Policy—Managing Information as an Asset
Figure 2. Federal Principal Statistical Agencies (PSAs)

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<th>U.S. Department of Agriculture</th>
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<td>Economic Research Service</td>
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<td>National Agricultural Statistics Service</td>
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Evidence-Based Policymaking A guide for effective government - A report from the Pew-MacArthur Results First Initiative Nov 2014

Framework has five key components, each with multiple steps that enable governments to make better choices through evidence-based policymaking:

(1) program assessment,
(2) budget development,
(3) implementation oversight,
(4) outcome monitoring, and
(5) targeted evaluation.
Evidence-Based Policymaking
Commission Act of 2016

a. Commission TO:
b. Study the data inventory, data infrastructure, database security, and statistical protocols related to Federal policymaking.
c. Make recommendations on how data infrastructure, database security, and statistical protocols should be modified.
d. Determine the optimal arrangement for which administrative data, survey data, and related statistical data series may be integrated and made available for evidence building while protecting privacy and confidentiality.
e. Make recommendations on how best to incorporate evidence building into program design.
f. Consider whether a “clearinghouse” for program and survey data should be established and how to create such a “clearinghouse.”
Guiding Principles for Evidence-Based Policymaking

a. Privacy. Individual privacy and confidentiality must be respected in the generation and use of data and evidence.
b. Rigor. Evidence should be developed using well-designed and well-implemented methods tailored to the questions being asked.
c. Transparency. Those engaged in generating and using data and evidence should operate transparently, providing meaningful channels for public input and comment and ensuring that evidence produced is made publicly available.
d. Humility. Care should be taken not to over-generalize from findings that may be specific to a particular study or context.

e. Capacity. The capacity to generate and use data and evidence should be integrated within government institutions and adequately funded and staffed.
Numbers

Docket 09-191 filings

Commission Documents
Opens a New Window.

In the Matter of Preserving the Open Internet Broadband Industry Practices.

Bureau Name
General (Multiple Bureaus)

Date Created
10/22/09

Total Filings
116,833

Filings in last 30 days: 4
Numbers

Docket 14-28 filings

Commission Documents

Opens a New Window.

Protecting and Promoting the Open Internet

Bureau Name
General (Multiple Bureaus)

Date Created
2/19/14

Total Filings
2,189,846

Filings in last 30 days
62
Numbers

Docket 17-108 filings

Commission Documents
Opens a New Window. Small Business Impact

Restoring Internet Freedom

Bureau Name
Wireline Competition Bureau

Applicant

Date Created
4/26/17

Total Filings
22,157,658

Filings in last 30 days
5,282
Challenges

- Regulatory Practice
- IT Modernization
- Data-Driven Law
Data Driven Computational Law

- Regulatory Practice
- IT Modernization
- Data Driven Law decision making
- fragility AND verifiability of algorithms
- "big data" implications
  - volume
  - veracity
  - variety
  - velocity
- Value
Research Questions

• What are the set of skills and approaches necessary for data-driven law and policy practice? Computer Scientists - Law Schools
• What Kinds of Legal Knowledge and Reasoning are amenable to computational approaches?
• How do we evaluate the "law'y'ness" of computational legal solutions?
• What is the role of technical knowledge in legal practice?
DATA 101 for Attorneys or...

"Where to start with data for the tech-savy attorney"

• Collecting, cleaning, and managing data
  – “wrangling”, Regex, CSV’s, databases, SQL
• Processing and Exploring Data
  – SQL, R, Statistics, BI and other Tools
• Sharing and Storytelling with Data
  – Mapping, Charting, CDFs and Stats

And what “Foreign Law?”
Start with AI!!

Norvig & Russell
Law Schools and Teaching for "Legalhackers"

Programming for Lawyers
Data Science for Lawyers
AI and Blockchain for Lawyers
Legal Reasoning and Jurisprudence

Legal argument
  - Textual
    • Plain Meaning
      - Lay usage
      - Dictionary definitions
      - “Terms of Art”
      - Definitional sections
    • Canons of Construction
    • Intratextual Arguments
      - Intent, Precedent, Tradition, and Policy

Logic / Rhetoric / Persuasion / Abductive reasoning

Figure 1: Typing rules for the terms of core Simplicity. [Link](https://blockstream.com/simplicity)
What does Comparative Law have to do with Hacking Law?

– Legal Hackers seek to understand the role and capabilities of legal and technology systems in order to improve on social goals
– Legal Hacking as a synergy *necessitating both technical and legal skills* to solve a new set of problems akin to “Law and Economics”
– Two tracks:
  – Technologists exploring ways technology can improve legal systems
  – Legal practitioners exploring the legal and policy implications of technology
ご清聴ありがとうございました！
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Realizing a change in Government

- Government should be transparent
- Government should be participatory
- Government should be collaborative
Strategy for American Innovation

• POTUS 2009 Defines Two Areas of Innovation Focus
  – Innovation to drive economic growth and address national priorities
  – Institutional and public-sector innovation

• Developed and expanded strategy through administration

• OMB Guidance on the Use of Challenges and Prizes to Promote Open Government and other innovation topics
Strategy for American Innovation

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Emerging Best Practices on How to Collect, Understand, & Share Data

Information exchange on collection, processing, & sharing of Information

- Privacy
  - IRB
  - Terms of Use
- Admin
  - PRA
  - FOIA
  - DQA
- Procurement
  - ADA, Gift Exceptions, Open Source, IP and Data Rights
What does Open Data have to do with a Dinner Party?

– We bond with whom we share food
– Guests eat what we eat
– Sharing is reciprocated
– Features of Data
  • Is it fresh?
  • Is it clean?
  • Is it labeled?

Greg Elin
First Chief Data Officer,
Federal Communication Commission
Open Government Data Principles

Government data shall be considered open if it is made public in a way that complies with the principles below:

1. **Complete**
   
   All public data is made available. **Public data** is data that is not subject to valid privacy, security or privilege limitations.

2. **Primary**
   
   Data is as collected at the source, with the highest possible level of granularity, not in aggregate or modified forms.

3. **Timely**
   
   Data is made available as quickly as necessary to preserve the value of the data.

4. **Accessible**
   
   Data is available to the widest range of users for the widest range of purposes.

5. **Machine processable**
   
   Data is reasonably structured to allow automated processing.

6. **Non-discriminatory**
   
   Data is available to anyone, with no requirement of registration.

7. **Non-proprietary**
   
   Data is available in a format over which no entity has exclusive control.

8. **License-free**
   
   Data is not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, security and privilege restrictions may be allowed.
• Notice and Consent, Statutory Approaches, and Fair Information Practices
  – HEW Advisory Committee and Fair Information Practices 1973
    • no secret personal-data record-keeping systems
    • individual to find out what information about him is in a record and how it is used.
    • individual to prevent information about him obtained for one purpose from being used or made available for other purposes without his consent.
    • individual to correct or amend a record of identifiable information about himself.
    • creating, maintaining, using, or disseminating records of identifiable personal data must assure the reliability of the data for their intended use and must take reasonable precautions to prevent misuse of the data
  – Data Rights
    • European Union’s Data Protection Directive and unambiguous notice and consent or data export
• Privacy Act of 1974
  – Collect or retrieve personal information
  – “system of records”
    • actually retrieve records using individual identifier
    • information about an individual, name of the individual or by some identifying number, symbol, or other identifying particular assigned to the individual

• E-Government Act of 2002
  – privacy impact assessments
  • collect, maintain, or disseminate information in identifiable form from the public or create new PRA electronic collection of information in identifiable form for 10 or more persons
  • "Information in identifiable form" (i) directly identifies an individual or (ii) identify specific individuals in conjunction with other data elements, i.e., indirect identification 5 U.S. Code § 552a(a)(5).
• FTC 2000 - notice, choice, access and correction


• FTC 2012 Privacy Report - Privacy by Design, Simplified Choice for Businesses and Consumers, Greater Transparency

• Privacy Multistakeholder Process: Mobile Application Transparency