Today’s Agenda

1. A reminder: our predicament
2. Contemporary policy debates around privacy
3. How do we govern privacy
   • The role of policy preferences
   • The privacy paradox
   • Measuring the value of privacy
   • Organized interests
4. How should we govern privacy
   • Issues with notice and consent
   • What are the alternatives?
Perspectives on Data Privacy

- Data privacy often involves a balance of competing interests

- Making data available for meaningful analysis
  - Auditing algorithmic decision-making
  - Medical research and health care improvement
  - Advertising
  - Protecting national security

- Protecting individual privacy
  - Personal value of privacy and respect for individual – thanks Rob!
  - Freedom of speech and activity
  - Avoiding discrimination
  - Preventing access from “adversaries”
While Mehran may be a math wizard, what did we learn?

1. Anonymization is kind of dead end
2. Encryption has been pretty effective so far but
   • the NSA has hacked it (so says Mehran)
   • quantum computing will defeat the public key and
   • if we successfully encrypt, we lose other things we care about (e.g. the right of government agencies to access data to protect people’s safety and security)
3. Differential privacy is limited in its application (protecting privacy in the context of statistical analysis)
4. Plus it is getting worse every day: digital trails, data aggregation, facial recognition, etc.
So What Do We Do?

• No one can agree on a definition of privacy
• Every technical solution falls short on some dimension
• We are trying to balance a set of competing interests

This sounds like a problem for...
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Pushing Too Far?

Remember the examples from Wednesday:

• The ability of researchers to predict things about you with only information about your “likes” (for fun!)
• The power of recommendation systems to know exactly what you want
• The ability of advertisers to precisely target you

Well these same technologies can be put to uses with less benign consequences:

• Targeting in political campaigns (by candidates, foreign actors)
• Government surveillance (e.g. terrorism, immigration, etc.)
• Cambridge Analytica scandal breaks (March 2018)
• Used a digital app “This is Your Digital Life” to mine information on people who consented to participate and all of the people in their network (87m people)
• Facebook discovered this in 2015 and asked that the data be deleted
• It was not
The Apology

We have a responsibility to protect your information. If we can’t, we don’t deserve it.

You may have heard about a quiz app built by a university researcher that leaked Facebook data of millions of people in 2014. This was a breach of trust, and I’m sorry we didn’t do more at the time. We’re now taking steps to make sure this doesn’t happen again.

We’ve already stopped apps like this from getting so much information. Now we’re limiting the data apps get when you sign in using Facebook.

We’re also investigating every single app that had access to large amounts of data before we fixed this. We expect there are others. And when we find them, we will ban them and tell everyone affected.

Finally, we’ll remind you which apps you’ve given access to your information so you can shut off the ones you don’t want anymore.

Thank you for believing in this community. I promise to do better for you.

Mark Zuckerberg
The Consequences – None!

Wall Street Has Moved On From Cambridge Analytica Scandal
Facebook’s share price from January 2 to May 10, 2018 (closing prices)

On March 17, The Guardian broke the story of Cambridge Analytica harvesting millions of Facebook profiles to manipulate people.
A (Brief) History of Privacy Legislation

Our existing legal framework developed as a response to specific concerns about the data in the hands of major institutions:

• Credit (FCRA)
• Health information (HIPAA)
• Government-held information (Privacy Act)
• Educational information (FERPA)
• Other legislation addresses: genetic information, information about children, financial information, and electronic communications

Enforcement happens through public and private litigation and FTC regulation.
More generally, the U.S. approach to data held by companies is based on a combination of *transparency and choice*. U.S. entities inform individuals of their respective information-flow practices and provide people with a choice to consent or not.

This approach has a broad appeal given:

1. Our conception of privacy as the right to control information about oneself
2. Our commitment to notions of a competitive free market, in which people can go elsewhere if they don’t like the terms.
But We Cannot Keep Up…

• Expansion of data universe
• Gaps in coverage of existing laws and policies
• Limits of a focus on personally identifiable information, given aggregation, linking, etc.
• Increasingly unrealistic to rely simply on those who hold the data
• And the list goes on…
Contrast the U.S. with Europe: GDPR

**Strengthened privacy rights of individuals**

**Valid Consent**
- Stricter rules for obtaining consent as a legal basis for processing.

**Transparency**
- The right to clear information over what data is collected and how it is processed.

**Correction**
- The right to rectify inaccurate personal data.

**Erasure**
- The right in certain cases to have personal data erased.

**Data Portability**
- The right to move personal data from one service provider to another.

**Automated Processing**
- The right not to be subject to a decision based solely on automated processing.
Far-Reaching & With Teeth

• Complete overhaul of data protection framework
• Applies across all member states of EU
• Applies to all organizations processing the data of EU residents – wherever those organizations are based
• Administrative penalties for breach of up to 4% of global revenue
• Data subjects have a right to bring actions (in their home state) and to receive damages if their rights have been breached
• Perhaps it will create pressure for regulatory convergence?

Commenting on the GDPR:

“We’re still nailing down the details on this, but it should directionally be, in spirit, the whole thing.”

Mark Zuckerberg to Reuters (April 2018)

“We’re going to make all the same controls and settings available everywhere, not just in Europe.”

Mark Zuckerberg (in a call to clean up the prior comment)
In the Other Direction: India & China

**The touchable system**

Cumulative Aadhaar\(^*\) registrations, bn

<table>
<thead>
<tr>
<th>Year</th>
<th>Registrations</th>
</tr>
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<tbody>
<tr>
<td>2010</td>
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</tr>
<tr>
<td>2011</td>
<td>0.4</td>
</tr>
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<td>2013</td>
<td>0.8</td>
</tr>
<tr>
<td>2014</td>
<td>1.0</td>
</tr>
<tr>
<td>2015</td>
<td>1.2</td>
</tr>
<tr>
<td>2016</td>
<td>1.4</td>
</tr>
</tbody>
</table>

*Unique identification number

**INDIA’S POPULATION**
2016: 1.3bn

Source: National statistics

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**Sesame Credit**

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Economist.com
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This calls for the tools of social science: comparative policy analysis.

We want to understand “how, why, and to what effect different governments pursue particular courses of action or inaction” (Heidenheimer 1983)

The assumption is that by studying variation in policy outputs we can better understand the factors (social, economic, environmental, and political) that might account for that output.

Information privacy is a relatively new problem – how have governments approached it differently?
How Much Variation is There?

- There is evidence of strong policy convergence around a set of core fair information principles (Bennett 1992)
  - Openness
  - Individual access and correction
  - Collection limitation
  - Use limitation
  - Disclosure limitation
  - Security

- 43 information privacy laws had been enacted by the early 2000s, mostly across Europe and other OECD countries

- By 2016, more than 120 countries had adopted similar laws
### What About Implementation?

<table>
<thead>
<tr>
<th></th>
<th><strong>Self-Regulation</strong></th>
<th><strong>Privacy Self-Management</strong></th>
<th><strong>Regulation by Supervisory Bodies</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Information practices are implemented internally by organizations with limited external intervention</td>
<td>• Control is ensured through the active participation and intervention of those whose data is held</td>
<td>• Interaction between data subjects and controllers is mediated by a third party</td>
<td></td>
</tr>
</tbody>
</table>
Generating Hypotheses

Why does Europe adopt more a more assertive regulatory approach, while the United States relies on self-regulation and privacy self-management?

• Different values (as a function of experience, constitution, etc.)
• Pressure from organized interests, groups
• Partisan and electoral competition
• Bureaucratic interests
How are policies adopted in a democracy? It requires thinking about:

Preferences → Organized interests → Aggregation → Decision-making → Implementation
Measuring Preferences

How can you measure preferences regarding privacy and information sharing?

Take a survey here: cs181.stanford.edu

Three main approaches in social science:

- Public opinion polls
- Privacy behaviors
- Willingness to pay for privacy
Early Studies

Harris-Equifax Consumer Privacy Survey (1990) asked:

• Are you very concerned about threats to your personal privacy today?
• Do you agree strongly that business organizations seek excessively personal information from consumers?
• Do you agree strongly that the government since Watergate is still invading the privacy of citizens?
• Do you agree that consumers have lost all control of the circulation of their information?

Index coded as high concern (3 or 4 yes), moderate concern (2), low concern (1)
Categorizing People

• **Fundamentalists** are generally distrustful of organizations that ask for their personal information, worried about the accuracy of computerized information and additional uses made of it, and are in favor of new laws and regulatory actions to spell out privacy rights and provide enforceable remedies...

• **Pragmatists** weigh the benefits to them of various consumer opportunities and services, protections of public safety or enforcement of personal morality against the degree of intrusiveness of personal information sought and the increase in government power involved....

• The **Unconcerned** are generally trustful of organizations collecting their information, comfortable with existing procedures and not in favor of new privacy laws or regulations.
The Privacy Index

- What score did you receive? What category are you in? Why?
### Confidence in Institutions

#### Few express confidence that their records will remain private and secure

<table>
<thead>
<tr>
<th>Institution</th>
<th>Very confident</th>
<th>Somewhat confident</th>
<th>Not too confident</th>
<th>Not at all confident</th>
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<td>Your credit card companies</td>
<td>9</td>
<td>29</td>
<td>21</td>
<td>25</td>
<td>12</td>
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<td>Your cellular telephone company</td>
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<td>Your email provider(s)</td>
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<td>Your cable TV company</td>
<td>5</td>
<td>23</td>
<td>24</td>
<td>29</td>
<td>16</td>
</tr>
<tr>
<td>Companies or retailers you do business with</td>
<td>4</td>
<td>22</td>
<td>28</td>
<td>33</td>
<td>10</td>
</tr>
<tr>
<td>Your search engine provider(s)</td>
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<td>41</td>
<td>15</td>
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<tr>
<td>The social media sites you use</td>
<td>1</td>
<td>10</td>
<td>24</td>
<td>45</td>
<td>18</td>
</tr>
<tr>
<td>The online advertisers who place ads on websites you visit</td>
<td>1</td>
<td>6</td>
<td>23</td>
<td>53</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Survey conducted August 5, 2014-September 2, 2014. Refused responses are not shown.

PEW RESEARCH CENTER
Hypotheticals

% of adults who would find these different scenarios acceptable or not acceptable

**Office surveillance cameras**

Several co-workers of yours have recently had personal belongings stolen from your workplace, and the company is planning to install high-resolution security cameras that use facial recognition technology to help identify the thieves and make the workplace more secure. The footage would stay on file as long as the company wishes to retain it, and could be used to track various measures of employee attendance and performance.

- **ACCEPTABLE**: 54%
- **IT DEPENDS**: 21%
- **NOT ACCEPTABLE**: 24%

**Auto insurance**

Your insurance company is offering a discount to you if you agree to place a device in your car that allows monitoring of your driving speed and location. After the company collects data about your driving habits, it may offer you further discounts to reward you for safe driving.

- **ACCEPTABLE**: 37%
- **IT DEPENDS**: 16%
- **NOT ACCEPTABLE**: 45%

**Smart thermostat**

A new technology company has created an inexpensive thermostat sensor for your house that would learn about your temperature zone and movements around the house and potentially save you on your energy bill. It is programmable remotely in return for sharing data about some of the basic activities that take place in your house like when people are there and when they move from room to room.

- **ACCEPTABLE**: 27%
- **IT DEPENDS**: 17%
- **NOT ACCEPTABLE**: 55%
Privacy and Information Sharing

• Which scenarios did you find acceptable? Not acceptable? Why?
Measuring Behavior

Privacy Paradox

Stated

Private Data

No

http://

Incentive

Navigation

Encryption

Illusion

Private Data

http://
Willingness to Pay

• Another strategy is to estimate how much people value privacy in monetary terms.
• One study estimated that students would be willing to pay between $30 and $44 to use a website that protected against improper access and secondary use of their data.
• But these estimates do not seem stable:
  • An experiment offered gift cards to people at a mall $10 for an anonymous gift card and $12 for one that was trackable.
  • They were all offered the opportunity to trade.
  • 50% of those who got the anonymous card kept it; only 9% of those who got the trackable card switched.
  • People value privacy more when they have it than when they do not.
Preferences Depend on Context

**Public’s shifting concerns on security and civil liberties**

*Bigger concern about govt anti-terrorism policies? (%)*

- Not gone far enough to protect country
- Gone too far restricting civil liberties

<table>
<thead>
<tr>
<th>Year</th>
<th>Not gone far enough</th>
<th>Gone too far restricting</th>
</tr>
</thead>
<tbody>
<tr>
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<td>56</td>
</tr>
<tr>
<td>2013</td>
<td>29</td>
<td>28</td>
</tr>
</tbody>
</table>

Source: Survey conducted Dec. 8-13, 2015. Don’t know responses not shown.

**Post-Snowden, increased opposition to gov’t surveillance**

*The government’s collection of telephone and internet data as part of anti-terrorism efforts*

<table>
<thead>
<tr>
<th>Month</th>
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<th>Approve</th>
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<tbody>
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<tr>
<td>Jan</td>
<td>53</td>
<td>40</td>
</tr>
</tbody>
</table>


PEW RESEARCH CENTER/USA TODAY
The Challenge with Preferences

- They are difficult to measure
- They do not correlate with behavior
- They are context dependent
- They are unstable

- This is a problem for democratic politics
  - One job of politicians is to represent the preferences of the public

- This is a problem for models of consumer choice
  - A market model depends on individuals being able to choose the products that have the features they most want
The Role of Organized Interests

So if policy choices are unlikely to reflect some aggregate assessment of what the public wants, what do they reflect?

What kinds of interest groups organize to influence the policy process on data privacy? What do you think they want?
INTEL'S APPROACH TO PRIVACY

Intel has a longstanding history of supporting privacy. Recent discussion about the need for a US federal law inspired us to draft a bill that will optimize for both innovation and protecting privacy.

We published a draft of that bill on this site in November of 2018, and invited some of the country’s top privacy experts to discuss the draft. We also wanted to hear from you.
Tech Companies

YOU’RE LOOKING AT ONE OF THE MOST POWERFUL MEN IN THE WORLD

(but this one won’t steal your data)

Meet Tim Cook, Apple CEO

SUBSCRIBE TODAY £8 FOR 8 WEEKS
Associations

accessnow

U.S. Chamber of Commerce
Standing Up for American Enterprise

Internet Association

epic.org
States and Municipalities

**CCPA**
- Requires consent from the individual
- Wide definition of personal information including browser history, purchase behavior, site/app interactions
- Allows for opt-out of collection/use
- Fines potentially in the millions of dollars
- Private right of action, class suits
- Extraterritorial effect on business

**GDPR**
- Has a legitimate interest component
- Defines PII and sensitive information
- Default to opt-in for collection/use
- Fines potentially in the millions of dollars
- Public complaints to an enforcement body to address
- Extraterritorial effect on business
How are policies adopted in a democracy? It requires thinking about:

1. Preferences
2. Organized interests
3. Aggregation
4. Decision-making
5. Implementation

Breaking Governance Down
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Should We Become More Like Europe?

• Supporters of notice and consent “see regulatory protection of privacy as interfering with the fundamentally benign trajectory of information technologies and the benefits they unlock” and argue that individuals should be able to make their own self-interested decisions about what to disclose.

• Others argue that “regulatory intervention may be needed to balance the interests of the subjects of data against the power of commercial entities and governments holding that data.”

• Where do you come down?
Are individuals up to the challenge of navigating privacy in the information age?

Social scientists are skeptical (Acquisti et al 2015). Lawyers are concerned (Solove 2013). Information scientists doubt it (Nissenbaum 2011). Why?

1. People are uncertain about their preferences
2. Preferences are context dependent
3. Privacy preferences can be manipulated
4. Privacy self-management does not scale well
5. People cannot factor in aggregation
6. People cannot anticipate harm
Alternatives?

1. Comprehensive privacy regulation, but the challenge is that this denies people the freedom to make choices (paternalism)
   • It is not always clear how to trade off privacy and data use
   • There are social benefits to data aggregation and benefits

2. Improving privacy self-management through:
   • Opt-in consent
   • Partial privacy self-management
   • Shift to managing downstream use
   • Codify basic privacy norms about what is not acceptable
The Time For Debate is Now

The prospects for bipartisan cooperation on comprehensive privacy legislation are reasonably good. Can you believe it?

Senate Commerce Committee Chair Wicker (R) wants a “federal law on the books by the end of 2019.” His House counterpart Rep. Pallone (D) endorsed pursuing comprehensive legislation.

Go do your homework on draft legislation:

Consumer Data Protection Act (Wyden)
Data Care Act (Schatz)
Others in development