

Chapter 5: Information Privacy

Chapter Overview

- Introduction
- Perspectives on privacy
- Information disclosures
- Data mining
- Examples of consumer backlash

5.1 Introduction

Information Technology Erodes Privacy

- Collection, exchange, combination, and distribution of information easier than ever, lessens privacy
- Scott McNealy: “You have zero privacy anyway. Get over it.”
- We will consider how we leave an “electronic trail” of information behind us and what others can do with this info



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5.2 Perspectives on Privacy

Defining Privacy

- Privacy related to notion of access
- Access
 - Physical proximity to a person
 - Knowledge about a person
- Privacy is a “zone of inaccessibility”
- Privacy violations are an affront to human dignity
- Too much individual privacy can harm society
- Where to draw the line?

Harms of Privacy

- Cover for illegal or immoral activities
- Burden on the nuclear family
- Hidden dysfunctional families
- Ignored people on society's fringes

Benefits of Privacy

- Individual growth
- Individual responsibility
- Freedom to be yourself
- Intellectual and spiritual growth
- Development of loving, trusting, caring, intimate relationships

Is There a Natural Right to Privacy?

- Privacy rights stem from property rights: “a man’s home is his castle”
- Coercive Acts before American Revolution led to 3rd Amendment to U.S. Constitution
- Samuel Warren and Louis Brandeis: People have “the right to be let alone”
- Judith Jarvis Thomson: “Privacy rights” overlap other rights
- Conclusion: Privacy is not a natural right, but it is a prudential right

Do People Have the Right to Be Left Alone?



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Privacy and Trust

- Perhaps modern life is actually more private than life centuries ago
 - Most people don't live with extended families
 - Automobile allows us to travel alone
 - Television v. public entertainment
- Challenge: we now live among strangers
- Remedy: establishing reputations
 - Ordeal, such as lie detector test or drug test
 - Credential, such as driver's license, key, ID card, college degree
- Establishing reputation is done at the cost of reducing privacy

Case Study: New Parents

- Sullivans have a baby girl
- Both work; they are concerned about performance of full-time nanny
- Purchase program that allows monitoring through laptop's camera placed in family room
- They do not inform nanny she is being monitored

Rule Utilitarian Evaluation

- If everyone monitored nannies, it would not remain a secret for long
- Consequences
 - Nannies would be on best behavior in front of camera
 - Might reduce child abuse and parents' peace of mind
 - Would also increase stress and reduce job satisfaction of child care providers
 - Might result in higher turnover rate and less experienced pool of nannies, who would provide lower-quality care
- Harms appear greater than benefits, so we conclude action was wrong

Social Contract Theory Evaluation

- It is reasonable for society to give people privacy in their own homes
- Nanny has a reasonable expectation that her interactions with baby inside home are private
- Sullivan's decision to secretly monitor the nanny is wrong because it violates her privacy

Kantian Evaluation

- Imagine rule, “An employer may secretly monitor the work of an employee who works with vulnerable people”
- If universalized, there would be no expectation of privacy by employees, so secret monitoring would be impossible
- Proposed rule is self-defeating, so it is wrong for Sullivans to act according to the rule

Virtue Ethics Evaluation

- Sullivans are responsible for well-being of their daughter
- Chose nanny through concern for baby: characteristic of good parents
- Daughter is truly defenseless, unable to communicate with them
- Decision to monitor can be viewed as characteristic of good parents
- Would also expect them to cease monitoring once assured nanny is doing well

5.3 Information Disclosures

Public Records

- Public record: information about an incident or action reported to a government agency for purpose of informing the public
- Examples: birth certificates, marriage licenses, motor vehicle records, criminal records, deeds to property
- Computerized databases and Internet have made public records much easier to access

Records Held by Private Organizations

- Credit card purchases
- Purchases made with loyalty cards
- Voluntary disclosures
- Posts to social network sites

Data Gathering and Privacy Implications

- Facebook tags
- Enhanced 911 services
- Rewards or loyalty programs
- Body scanners
- RFID tags
- Implanted chips
- OnStar
- Automobile “black boxes”
- Medical records
- Digital video recorders
- Cookies and flash cookies

Facebook Tags

- Tag: Label identifying a person in a photo
- Facebook allows users to tag people who are on their list of friends
- About 100 million tags added per day in Facebook
- Facebook uses facial recognition to suggest name of friend appearing in photo
- Does this feature increase risk of improper tagging?

Enhanced 911 Services

- Cell phone providers in United States required to track locations of active cell phones to within 100 meters
- Allows emergency response teams to reach people in distress
- What if this information is sold or shared?

Rewards or Loyalty Programs

- Shoppers who belong to store's rewards program can save money on many of their purchases
- Computers use information about buying habits to provide personalized service
 - ShopRite computerized shopping carts with pop-up ads
- Do card users pay less, or do non-users get overcharged?

Body Scanners

- Some department stores have 3-D body scanners
- Computer can use this information to recommend clothes
- Scans can also be used to produce custom-made clothing

Body Scanner Takes Measurements

AP Photo/Richard Drew

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RFID Tags

- RFID: Radio frequency identification
- An RFID tag is a tiny wireless transmitter
- Manufacturers are replacing bar codes with RFID tags
 - Contain more information
 - Can be scanned more easily
- If tag cannot be removed or disabled, it becomes a tracking device

Implanted Chips

- Taiwan: Every domesticated dog must have an implanted microchip
 - Size of a grain of rice; implanted into ear
 - Chip contains name, address of owner
 - Allows lost dogs to be returned to owners
- RFID tags approved for use in humans
 - Can be used to store medical information
 - Can be used as a “debit card”

OnStar

- OnStar manufactures communication system incorporated into rear-view mirror
- Emergency, security, navigation, and diagnostics services provided subscribers
- Two-way communication and GPS
- Automatic communication when airbags deploy
- Service center can even disable gas pedal

RFID Tags Speed Inventory Process



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Automobile “Black Boxes”

- Modern automobiles come equipped with a “black box”
- Maintains data for five seconds:
 - Speed of car
 - Amount of pressure being put on brake pedal
 - Seat belt status
- After an accident, investigators can retrieve and gather information from “black box”

Medical Records

- Advantages of changing from paper-based to electronic medical records
- Quicker and cheaper for information to be shared among caregivers
 - Lower medical costs
 - Improve quality of medical care
- Once information in a database, more difficult to control how it is disseminated

Digital Video Recorders

- TiVo service allows subscribers to record programs and watch them later
- TiVo collects detailed information about viewing habits of its subscribers
- Data collected second by second, making it valuable to advertisers and others interested in knowing viewing habits

Cookies

- Cookie: File placed on computer's hard drive by a Web server
- Contains information about visits to a Web site
- Allows Web sites to provide personalized services
- Put on hard drive without user's permission
- You can set Web browser to alert you to new cookies or to block cookies entirely

Flash Cookies

- Flash cookie: File placed on your computer's hard drive by a Web server running the Adobe Flash Player
- Flash cookie can hold 25 times as much information as a browser cookie
- Flash cookies not controlled by browser's privacy controls
- Some Web sites use flash cookies as a way of backing up browser cookies. If you delete browser cookie, it can be "respawned" from the flash cookie
- Half of 100 most popular Web sites use flash cookies

5.4 Data Mining

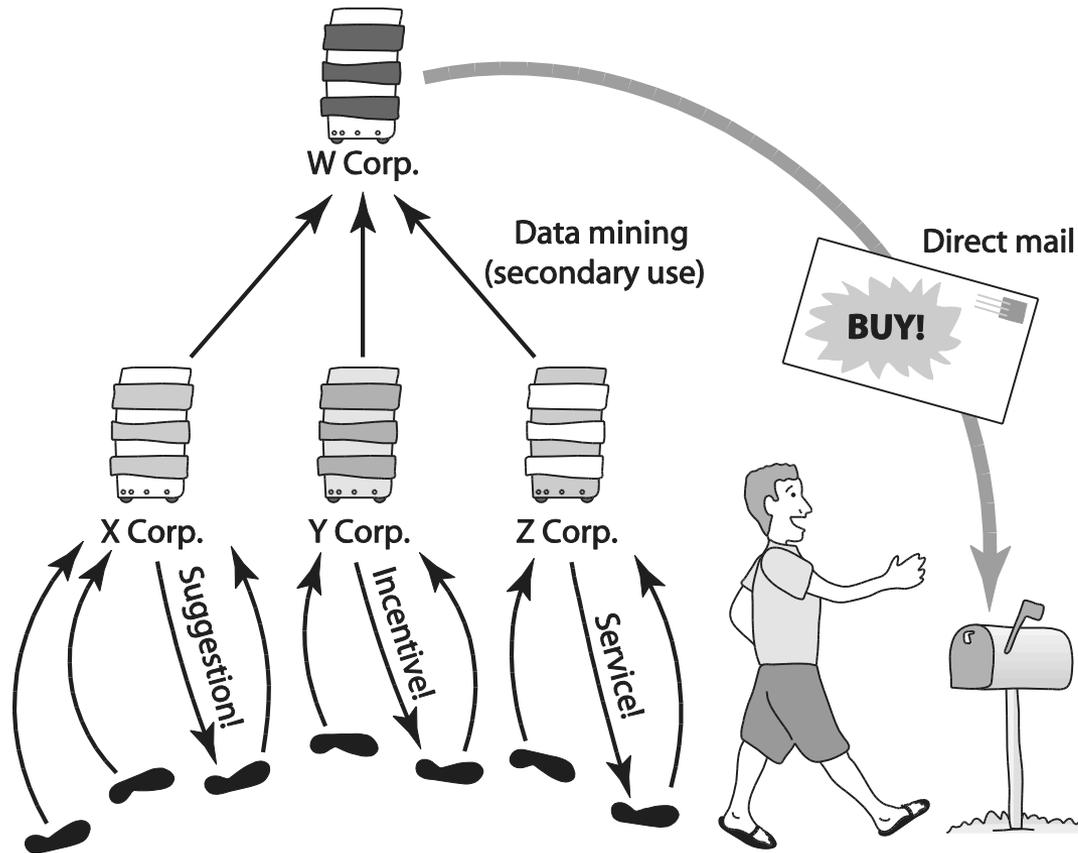
Data Mining Defined

- Searching records in one or more databases, looking for patterns or relationships
- Can be used to create profiles of individuals
- Allows companies to build more personal relationships with customers

Google's Personalized Search

- Secondary use: Information collected for one purpose use for another purpose
- Google keeps track of your search queries and Web pages you have visited
 - It uses this information to infer your interests and determine which pages to return
 - Example: “bass” could refer to fishing or music
- Also used by retailers for direct marketing

Secondary Uses of Information



Collaborative Filtering

- Form of data mining
- Analyze information about preferences of large number of people to predict what one person may prefer
 - Explicit method: people rank preferences
 - Implicit method: keep track of purchases
- Used by online retailers and movie sites

Ownership of Transaction Information

- Who controls transaction information?
 - Buyer?
 - Seller?
 - Both?
- Opt-in: Consumer must explicitly give permission before the organization can share info
- Opt-out: Organization can share info until consumer explicitly forbid it
- Opt-in is a barrier for new businesses, so direct marketing organizations prefer opt-out

Credit Reports

- Example of how information about customers can itself become a commodity
- Credit bureaus
 - Keep track of an individual's assets, debts, and history of paying bills and repaying loans
 - Sell credit reports to banks, credit card companies, and other potential lenders
- System gives you more choices in where to borrow money
- Poor credit can hurt employment prospects

Targeted Direct Mail

- Businesses mail advertisements only to those most likely to purchase products
- Experian and other companies provide customized mailing lists
- Example: Target's efforts to reach pregnant women

Microtargeting

- Political campaigns determine voters most likely to support particular candidates
 - Voter registration
 - Voting frequency
 - Consumer data
 - GIS data
- Target direct mailings, emails, text messages, home visits to most likely supporters

Price Customization

- Data aggregation firms sell profiles of shopper to on-line retailers
- Retailers use this information to offer different prices to different people

Social Network Analysis

- Collect information from social networks to inform decisions
- Bharti Airtel (India) offers special promotions to “influencers”
- Police use Facebook and Twitter posts to deploy officers on big party nights
- Banks combine social network data with credit reports to determine creditworthiness

Police Monitor Facebook and Twitter to Identify Locations of Big Parties



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5.5 Examples of Consumer Backlash

Marketplace: Households

- Lotus Development Corporation developed CD with information on 120 million Americans
- Planned to sell CD to small businesses that wanted to create mailing lists based on various criteria, such as household income
- More than 30,000 consumers complained to Lotus about invasion of privacy
- Lotus dropped plans to sell CD

Facebook Beacon

- Fandango, eBay, and 42 other online businesses paid Facebook to do “word of mouth” advertising
- Facebook users surprised to learn information about their purchases was shared with friends
- Beacon was based on an opt-out policy
- Beacon strongly criticized by various groups
- Facebook switched to an opt-in policy regarding Beacon

Netflix Prize

- Netflix offered \$1 million prize to any group that could come up with a significantly better algorithm for predicting user ratings
- Released more than 100 million movie ratings from a half million customers
 - Stripped ratings of private information
- Researchers demonstrated that ratings not truly anonymous if a little more information from individuals was available
- U.S. Federal Trade Commission complaint and lawsuit
- Netflix canceled sequel to Netflix Prize

Malls Track Shoppers' Cell Phones

- In 2011 two malls recorded movement of shopper by tracking locations of cell phones
 - How much time people spend in each store?
 - Do people who shop at X also shop at Y?
 - Are there unpopular areas of mall?
- Small signs informed shoppers of study
- After protest, mall quickly halted study

iPhone Apps Upload Address Books

- In 2012 a programmer discovered Path was uploading iPhone address books without permission
- Internet community pointed out this practice violated Apple's guidelines
- CEO of Path apologized; app rewritten
- Twitter, Foursquare, and Instagram also implicated for same practice

Instagram's Proposed Change to Terms of Service

- Late 2012: Instagram announced changes
 - Privacy policy
 - Terms of service
- Legal experts: Instagram and Facebook would have right to use photos in ads without permission
- Instagram CEO: New policy misunderstood
- Changed advertising section of terms of service agreement back to original version