

Chapter 3: Networking

Chapter Overview

- Spam
- Internet interactions
- Text messaging
- Censorship
- Freedom of expression
- Children and inappropriate content
- Breaking trust
- Internet addiction

Far More People Have Access to Cell Phones than Electricity or Clean Water



Charles Sturge/Alamy

The Numbers behind Networks

- Businesses need to communicate rapidly with customers, suppliers, and employees.
- Almost 4 billion people worldwide use a mobile device to access the Internet
- More than 2.6 billion people worldwide bought something online, spending about \$5.7 trillion.
- More than 3.6 billion people worldwide use a social network such as Facebook, Twitter, Instagram, or Pinterest, including 97 percent of Fortune 500 firms, who use them to communicate with their customers

(Insider Intelligence/ eMarketer, 2022)

3.2 Spam

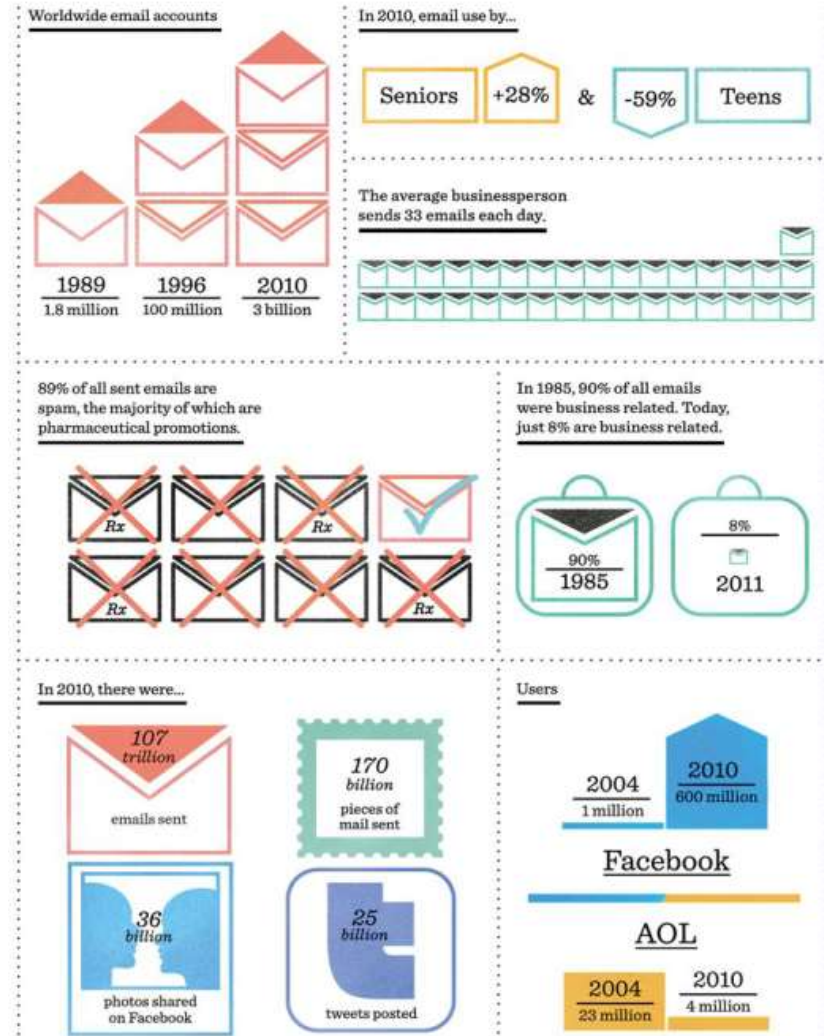
The Spam Epidemic (1/3)

- Spam: Unsolicited, bulk email
- Spam is profitable
 - More than 100 times cheaper than “junk mail”
 - Profitable even if only 1 in 100,000 buys product
- Amount of email that is spam has ballooned
 - 8% in 2001
 - 90% in 2009

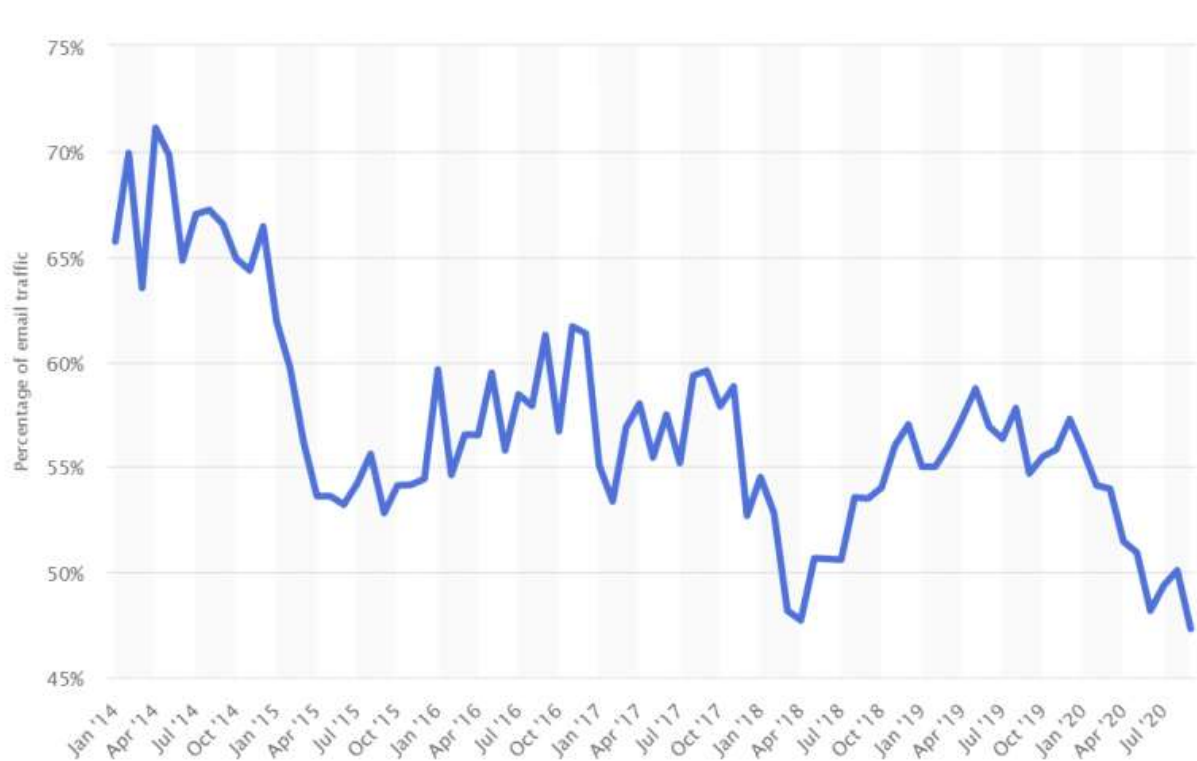
The Spam Epidemic (2/3)

The Spam Epidemic

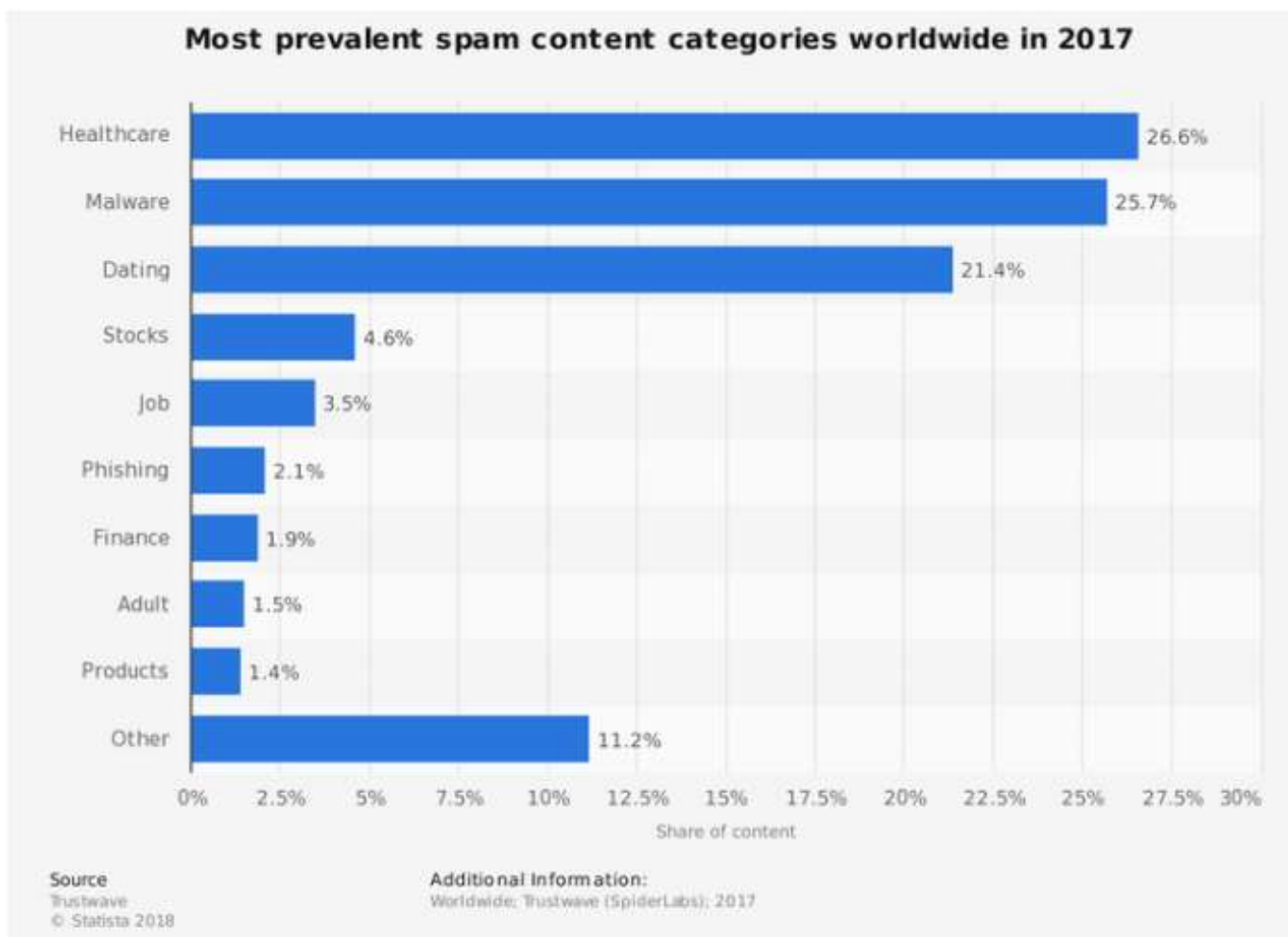
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...but things have gotten (somewhat) better



Main Spam Categories



The Spam Epidemic (3/3)

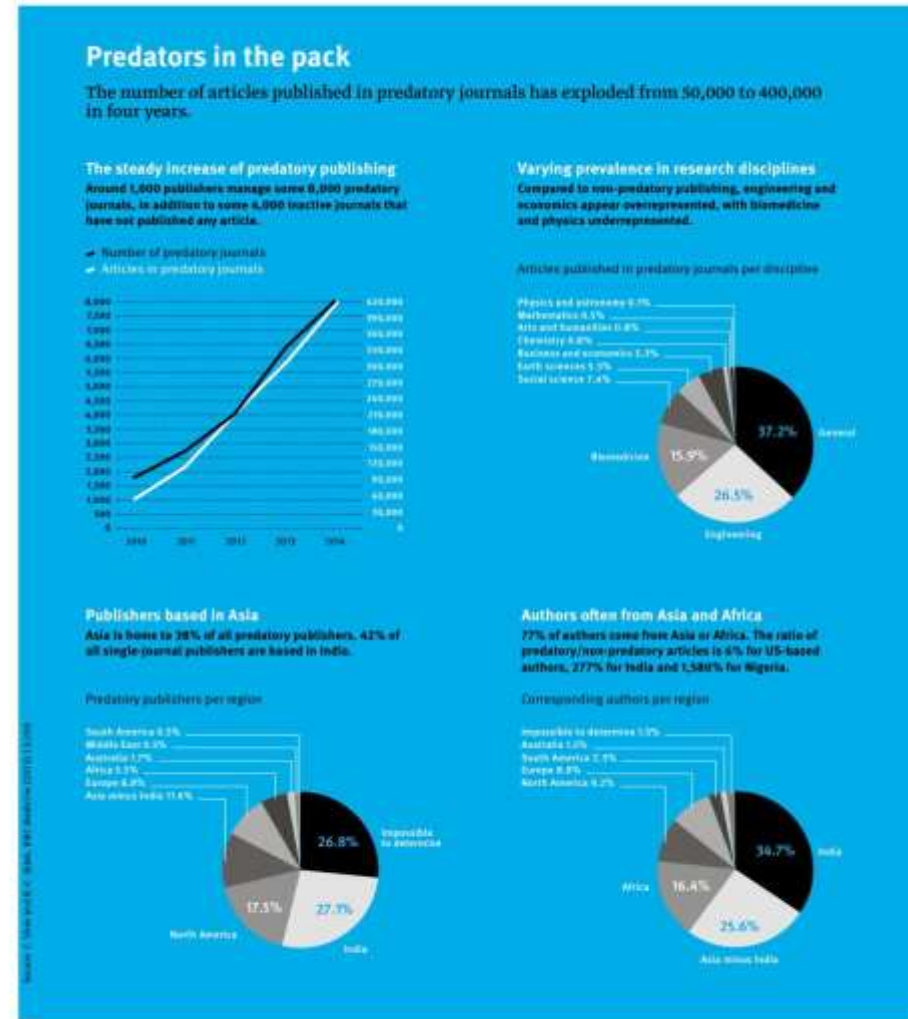
- How firms get email addresses
 - Web sites, chat-room conversations, newsgroups
 - Computer viruses harvest addresses from PC address books
 - Dictionary attacks
 - Contests
- Most spam sent out by bot herders who control huge networks of computers
- Spam filters block most spam before it reaches users' inboxes

Science's spam epidemic

Total number of papers published worldwide in **predatory journals** rose from about 50,000 in 2010 to more than 400,000 in 2014

Hijacking journals

The Directory of Open Access Journals (DOAJ) – 9000 journals



Pakistani context - Protection from Spam, Unsolicited, Fraudulent and Obnoxious Communication Regulations, 2009

- ✓ Administered by Pakistan Telecommunication Authority/ PTA
- ✓ Requires that all operators (telecom operators licensed by the PTA) to establish a standard operating procedure to control spamming.
- ✓ All such operators are required to develop a standard operating procedure for controlling unsolicited calls. The operators are also required to establish a consolidated “Do Not Call Register” in connection with controlling unsolicited calls. The operators are further required to ensure registration of telemarketers.
- ✓ Punishable with imprisonment which may extend to three years or a fine which may extend to PKR 10 million, or both.

Source: <https://iclg.com/practice-areas/data-protection-laws-and-regulations/pakistan>

Case Study: Ann the Acme Accountant

- Ann: Accountant at Acme Corporation
- She distributes paychecks to all 50 employees
- Ann sends email advertising Girl Scout cookie sale
- 9 recipients order cookies; average 4 boxes each
- Other 40 recipients unhappy to get email; half complain to a co-worker
- Did Ann do anything wrong?

Kantian Analysis

- We should always respect autonomy of others, treating them as ends in themselves and never only as the means to an end (2nd formulation of Categorical Imperative)
- Ann didn't misrepresent what she was doing
- She didn't force anyone to read the entire email
- Some who read her email chose to order cookies
- Therefore, she didn't "use" others, and her action was not strictly wrong
- However, an "opt in" approach would have been better

Act Utilitarian Analysis

- Benefit to Girls Scouts = \$108
 - \$3 profit per box of cookies
 - 36 boxes sold
- Harm to company: time wasted
 - Orders taken during breaks
 - Lost productivity from complaining: \$70
 - 20 employees \times 2 \times 5 minutes/employee = 200 minutes
 - 3.5 hours \times \$20/hour = \$70
- Benefits exceed harms, so action good
- Company may create policy against future fundraisers

Rule Utilitarian Analysis

- Q: What would be consequences of everyone in company used email to solicit donations?
- A: Plenty of employee grumbling and lower morale
- If all doing it, unlikely any one cause would do well
- Harms greater than benefits, so Ann's action was wrong

Social Contract Theory Analysis

- Acme Corporation has no prohibition against using its email system this way
- Ann was exercising her right to express herself
- Some people didn't appreciate message, but she didn't act like a spammer
 - She didn't conceal her identity
 - She wasn't selling a fraudulent product
- Ann did nothing wrong

Virtue Ethics Analysis

- As employee, relevant virtues: honesty, fairness, respect
- Ann was honest: her email didn't mislead anyone
- She wasn't fair or respectful, and she exercised poor judgment (as evidenced by larger amount of complaining by co-workers)
- In her role as parent, she did all work herself and didn't find a role for her daughter to play
- Ann should have found a way for her daughter to help, and she should have found another way to advertise that respected co-workers

Summary

- Analyses reached different conclusions, but Ann could have taken a less controversial course
- She could have posted a sign-up sheet to identify those interested in cookie sale
- That way, she would have sent email only to those interested, avoiding the problems of grumbling and lost productivity
- She could have found a way to get her daughter more engaged

Need for Socio-Technical Solutions

- New technologies can cause social change
- Spam is an example of this phenomenon
 - Email messages practically free
 - Profits increase with number of messages sent
 - Strong motivation to send more messages
- For communications to be perceived as fair, they need to be two-way (allowing consequences for misuse)
 - Internet design allows unfair, one-way communications

3.3 Internet Interactions

Pornography

Child Sex Abuse Imagery

- Recent explosion in online child sex abuse imagery
<https://www.nytimes.com/interactive/2019/09/28/us/child-sex-abuse.html>
 - 1998: 3,000 reports of child sex abuse imagery
 - 2009: over 100,000 reports
 - 2014: over 1,000,000 reports
 - 2018: over 18,400,000 reports
 - 1/3 of total ever reported; represents over 45,000,000 images
- It's important that we approach this issue with sensitivity
 - also important that we not ignore it; it's important
- *What factors contribute to this epidemic?*
- *Why have legal responses failed?*
- *What can be done?*

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Sexting

- Definition: sexually suggestive text messages or emails with nude or nearly nude photographs
- In a 2009 survey, 9% of U.S. teenagers admitted to sending a sext, 17% admitted to receiving a sext
- 2018 study: 14% sending; 25% receiving
- Case of Jesse Logan
 - killed herself after ex-boyfriend shared pictures
- Case of Phillip Alpert
 - just turned 18; sent pictures of his 16 year-old girlfriend.
 - sentenced and registered as a sex offender for child pornography
- Case of Ting-Yi Oei
 - principal kept a copy of a picture as evidence
 - angry parent sued him
 - lost job over child pornography charges

How should society respond to sexting?

Cyberbullying

- Cyberbullying: Use of the Internet or phone system to inflict psychological harm
- In a 2009 survey, 10% admitted to cyberbullying, and 19% said they had been cyberbullied (2016 same)

Girl allegedly commits suicide after being bullied



Vancouver area teen commits suicide after telling story of being cyberbullied (with video)

#RIPAminda is trending as people post news and condolences for the teen, Amanda Todd

BY GILLIAN SHAW, VANCOUVER SUN OCTOBER 11, 2012 1:15 PM

A Vancouver area teen who told a heart-breaking story in a [YouTube video](#) of cyberbullying that led to an all-out schoolyard attack has committed suicide.

In stories and posts flooding Vancouver's social media networks, #RIPAminda is trending as people post news and condolences for the teen, Amanda Todd. Amanda died in Coquitlam last night.

The young teen went to school in Maple Ridge but had changed schools and was living in Coquitlam. She joined YouTube on September 6 and posted her video September 7. Her last YouTube activity was when she added a Hunter Hayes music video to her favourites on YouTube.

3.4 Text Messaging

Transforming Lives in Developing Countries

- M-PESA in Kenya
 - Save money
 - Pay bills
 - Transfer funds
- Communicate information about crop prices
- Protect against counterfeit medicine

Twitter

- Web-based social networking service
- More than 200 million users
- Blogging tool
- Business promotion
- Role in Arab Spring uprisings debated
 - (+) Social networks lead to politicization
 - (-) Ties in social networks too weak for high-risk activism

3.5 Censorship

Forms of Direct Censorship

- **Government monopolization of a communication medium**
 - E.g., the government owns all television stations, or all printing presses, and so controls the message
 - Doesn't work so well with the Internet (though see Saudi Arabia; China)
- **Prepublication review**
 - Certain kinds of information must be reviewed before they can be published
 - E.g., nuclear/military secrets
- **Licensing and registration**
 - You can't operate a TV station without a license
 - Necessary because of limited bandwidth
 - Opens the door to regulation of content (as in Canada)

Self-censorship

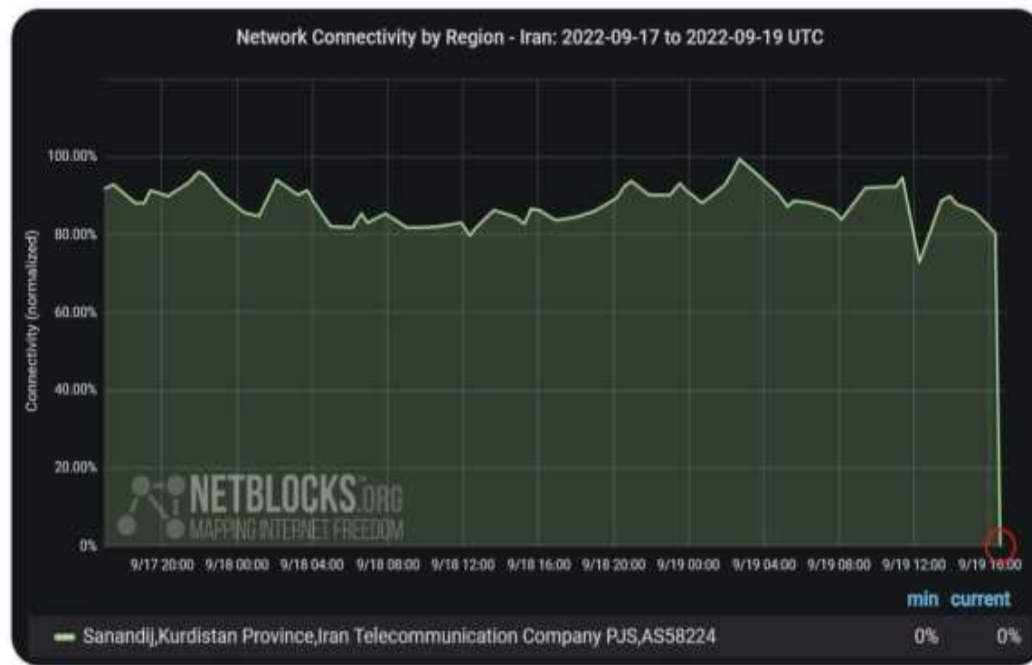
- Most common form of censorship
- Group decides for itself not to publish
- Reasons
 - Avoid subsequent persecution
 - Maintain good relations with government officials (sources of information)
- Ratings systems created to advise potential audience
 - Movies, TVs, CDs, video games
 - **Not** the Web

Governmental Filtering and Surveillance

- Cuba, North Korea: Internet virtually inaccessible
- Saudi Arabia: centralized control center
- People's Republic of China:
 - Blocks Internet access at times of social unrest
 - Has “one of most sophisticated filtering systems in the world”
- Germany: Forbids access to neo-Nazi sites
- United States: Have been repeated efforts to limit access of minors to pornography

Internet access in Iran

- Recent disruptions of internet services in the wake of protests for the death of Mahsa Amini
- Access to Instagram and Whatsapp was restricted (Facebook, Youtube and Twitter are already banned)



Challenges Posed by the Internet

- **Many-to-many communications**
 - Hard for the government to shut down (but not at all impossible)
- **Dynamic connections**
 - Computers coming and going all the time; hard to know who's who
- **Huge numbers of Web sites**
 - Hard to control access to online information
- **Extends beyond national borders, laws**
 - Governments may have limited authority to shut down sites
- **Hard to distinguish between minors and adults**
 - Important for initiatives that seek to restrict children's access

Ethical Perspectives on Censorship

- Kant opposed censorship
 - Enlightenment thinker
 - “Have courage to use your own reason”
- Mill opposed censorship
 - No one is infallible
 - Any opinion may contain a kernel of truth
 - Truth revealed in class of ideas
 - Ideas resulting from discourse are more influential

Mill's Principle of Harm

“The only ground on which intervention is justified is to prevent harm to others; the individual's own good is not a sufficient condition.”

3.6 Freedom of Expression

Freedom of Expression: History

- **De Scandalis Magnatum (England, 1275)**
 - You could be imprisoned for weakening loyalty to the King
 - Not so different from lèse-majesty laws today, esp. in Thailand, Morocco, Jordan (see <http://en.wikipedia.org/wiki/Lese-majesty>)
- **18th century: freedom of the press in England**
 - Anyone could print what they liked
 - Punishment for libel: publication causing harm, even if truth
- **American states adopted bills of rights including freedom of expression**
 - Freedom of expression in 1st amendment to U.S. Constitution: “Congress shall make no law ... abridging the freedom of speech, or of the press”

1st Amendment to U.S. Constitution

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.

Freedom of Expression

Not an Absolute Right

- 1st Amendment covers political and nonpolitical speech
- Right to freedom of expression must be balanced against the public good
- Various restrictions on freedom of expression exist

In pairs:

Which restrictions on freedom of expression do you think are justified?

Case Study: Kate's Blog

- Kate: Maintains a popular “life on campus” blog
- Jerry: Another student; active in Whig Party
- At private birthday party, someone gives Jerry a Tory Party T-shirt as a gag, and Jerry puts it on
- Kate uses cell phone to take picture of Jerry when he isn't looking, posts it on her blog
- Story read by many people on and off campus
- Jerry confronts Kate and demands she remove photo; she complies, and they remain friends
- Kate's blog and Jerry both become more popular

Kantian Analysis

- Kate uploaded Jerry's photo to her blog without asking his permission
- She treated him as a means to her end of increasing the readership of her Web site
- Her action was wrong

Social Contract Theory Analysis

- Birthday party held in apartment of one of Jerry's friends
- Jerry had a reasonable expectation of privacy
- Kate violated Jerry's right to privacy
- Kate's action was wrong

Act Utilitarian Analysis

- Benefits
 - Popularity of Kate's blog increased (definitely)
 - Jerry become more popular on campus (definitely)
- Harms
 - Jerry's anger at Kate (only temporary)
 - Photo could discredit Jerry at some point in future (unlikely)
- Benefits greater than harms, so Kate did a good thing

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Rule Utilitarian Analysis

- What if everyone were constantly taking photos of people they encountered and posting them?
- Positive consequences
 - People would have more opportunities to keep up with what their friends are doing
 - People might be more reluctant to engage in illegal activities
- Negative consequences
 - People would become more self-conscious
 - Some relationships would be harmed
- Negative consequences more weighty than positive consequences, so Kate's action was bad

Virtue Ethics Analysis

- True friends trust each other and seek each other's good
- Reciprocity and equality are fundamental elements of friendship
- Lack of reciprocity: Kate took something from Jerry without giving him anything in return
- Lack of equality: She put her own interest above that of Jerry
- Kate's actions did not seem to be characteristic of a good friend

Summary

- Four out of five analyses: Wrong for Kate to post the photo without asking Jerry's permission
- Kate figured it would be better to beg for forgiveness than ask for permission, but she cut Jerry out of a decision that affected both of them, and that's no way to treat a friend
- Kate should have tried to get Jerry's consent



Tracking Apps

- Location data forms the basis for a multibillion dollar industry. For eg, Mobilewalla, has data from 75,000 mobile apps and 1.6 billion devices across more than 35 countries.
- Once you agree to tracking, the app will typically refer you to a privacy policy that details how that data can be used. **Very few people read it.**
- Free apps are supported by sale of user information to third parties. Companies buy data for analytics, fraud detection, advertising and marketing purposes.

You are manipulated by subliminal cues from the ubiquitous digital tech, designed to bypass the users awareness

These algorithms are the "product" sold on the market which corporations & the state use to modify & manipulate your future behavior, thoughts & perception of the world

What is surveillance capitalism?

All your behaviors, actions, whereabouts, social interactions on the internet (on all digital apps/ platforms) are tracked & monitored

This data is used to build algorithms that predict your future behavior

This behavioral data serves as free raw materials in digital capitalism



Technology Trends that Influence Ethical Issues

Trend	Impact
Computing power doubles every 18 months.	More organizations depend on computer systems for critical operations and become more vulnerable to system failures.
Data storage costs rapidly decline.	The steep reduction in cost enables the collection and storage of Big Data. Organizations can easily maintain detailed databases on individuals. There are no limits on the data collected about you.
Data analysis advances	Companies can analyze vast quantities of data gathered on individuals to develop detailed profiles of individual behavior. Large-scale population surveillance is enabled.
Networking advances	The cost of making data accessible from anywhere falls exponentially. Access to data becomes more difficult to control.
Mobile devices proliferate.	Mobile devices may be tracked without user consent or knowledge. The always-on device becomes a tether.
Artificial intelligence (AI)	Increased reliance on various forms of AI in decision making substitutes data-driven calculations for human judgment.

The World Wide Web

- WWW : networked hypertext system
- Stimulated tremendous growth in popularity of Internet
- Two important attributes
 - It is decentralized
 - Every Web object has a unique address

Rise of the App

- People spending more time on smartphones and tablets
- Using Web browsers awkward on mobile devices
- Mobile apps replace Web browsers as way to access Internet on mobile devices

How We Use the Internet

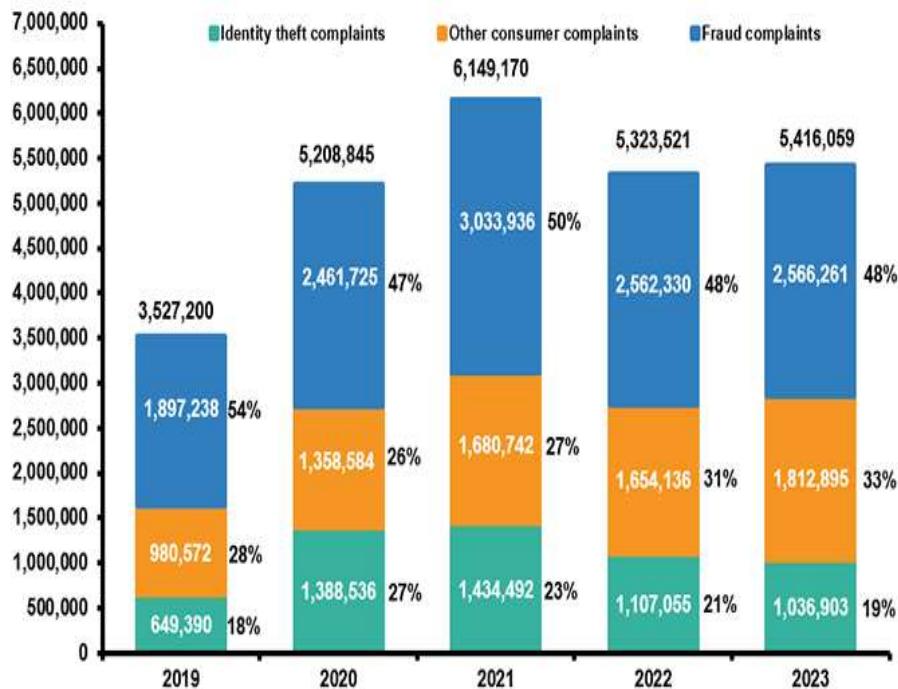
- Shopping
- Socializing (e.g., Facebook)
- Contributing content (e.g., wikis)
- Blogging
- Crowdsourcing
- Learning
- Exploring our roots
- Entering virtual worlds
- Controlling the Internet of Things
- Paying taxes
- Gambling
- Taking humanitarian action
- Lots more!

IDENTITY THEFT

The crime of using the personal or financial information of another person to commit fraud, such as making unauthorized transactions or purchases.

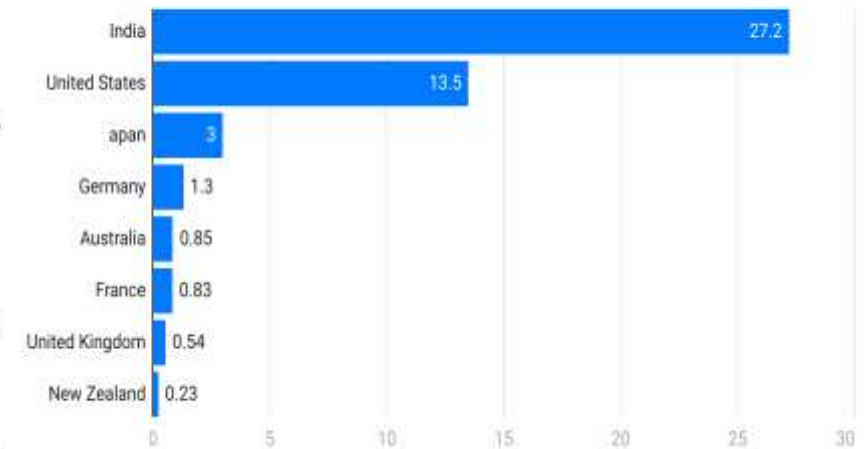
Committed in many different ways and its victims are typically left with damage to their credit, finances, and reputation.





Number of adults in selected countries who have ever fallen victim to identity theft in 2022

(in millions)

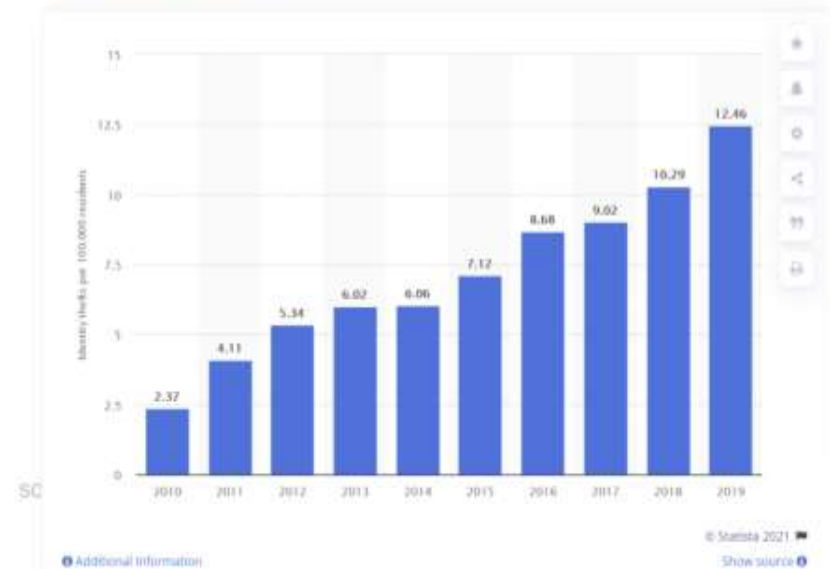


Source: Enterprise Apps Today

Identity Theft

- Identity theft: when a person uses another person's electronic identity
- Phishing: use of email to attempt to deceive people into revealing personal information

Rate of identity thefts in Canada from 2010 to 2019
(per 100,000 residents)



Identity Theft (1/2)

- Identity theft: When a person uses another person's electronic identity
- Leading form of identity theft is credit card fraud
- Financial institutions contribute to problem by making it easy to open new accounts
- About 8 million cases of identity theft in U.S. in 2010
- Consumer's liability for credit card losses limited to \$50

Identity Theft (2/2)

- Nearly half of cases from lost credit card, checkbook, etc.
- In 20% of cases, credit card number stolen at time of making purchase (skimmers)
- About 1 million cases of identity theft annually in United States from online activities
- Phishing: Use of email to attempt to deceive people into revealing personal information
- Identity theft a federal crime, but only 1 in 700 cases results in an arrest

3.7 Children and Inappropriate Content

Web Filters

- Web filter: Software that prevents display of certain Web pages
 - May be installed on an individual PC
 - ISP may provide service for customers
- Methodologies
 - Maintain “black list” of objectionable sites
 - Examine content for objectionable words/phrases



Calvin and Hobbes, 1990 / © Universal Press Syndicate

Child Internet Protection Act

- Libraries receiving federal networking funds must filter pages containing obscenity or child pornography
- U.S. Supreme Court ruled CIPA did not violate 1st Amendment guarantees (6-3 decision in June 2003)

Ethical Evaluations of CIPA

- Kantian evaluation: CIPA is wrong
- Act utilitarian evaluation: depends on how benefits and harms are weighed
- Social contract theory: freedom of conscience should be given precedence

3.8 Breaking Trust

Chat-Room Predators

- Chat room: Supports real-time discussions among many people connected to network
- Instant messaging and chat rooms replacing telephone for many people
- Some pedophiles meeting children through chat rooms
- Police countering with “sting” operations

Ethical Evaluations of “Stings”

- Utilitarian evaluation
- Kantian evaluation
- Social contract theory evaluation

False Information

- Quality of Web-based information varies widely
- Other media also have information of varying quality
 - *The New York Times v. The National Enquirer*
 - *60 Minutes v. Conspiracy Theory*
- Google attempts to reward quality
 - Ranking uses “voting” algorithm
 - If many links point to a page, Google search engine ranks that page higher

3.9 Internet Addiction

Is Internet Addiction Real?

- Some liken compulsive computer use to pathological gambling
- Traditional definition of addiction:
 - Compulsive use of harmful substance or drug
 - Knowledge of its long-term harm
- Some people spend 40-80 hours/week on the Internet, with individual sessions lasting up to 20 hours

Is Internet Addiction Real?

- Kimberly Young created test for Internet addiction
 - Sample question: “Have you repeatedly made unsuccessful efforts to control, cut back, or stop Internet use?”
 - Patients who answer “yes” to at least 5 of 8 questions may be addicted
- Others disagree, noting
 - Computer use is generally considered a positive activity
 - Excessive use does not lead to criminal activity
 - More accurate to call excessive use a compulsion

Contributing Factors

- Social factors
 - Peer groups
- Situational factors
 - Stress
 - Lack of social support and intimacy
 - Limited opportunities for productive activity
- Individual factors
 - Tendency to pursue activities to excess
 - Lack of achievement
 - Fear of failure

Algorithms to promote engagement

- Large, popular social media platforms use algorithms to increase user engagement
- Proposed content is designed to keep the user on the website longer
 - It also often becomes more extreme as the user follows the suggestions
 - Sometimes with very disturbing results: <https://www.npr.org/sections/thetwo-way/2017/11/27/566769570/youtube-faces-increased-criticism-that-its-unsafe-for-kids>
- Other stimuli increase use by offering small and frequent dopamine hits (likes, retweets)
 - <https://hai.stanford.edu/news/psychiatrists-perspective-social-media-algorithms-and-mental-health>

Ethical Evaluation

- Enlightenment view
 - Individuals can and should govern their lives
 - People are responsible for their choices
- Jeffrey Reiman's view
 - Addict's behavior makes sense if addict has no hope for a better future
 - Society bears responsibility for putting people in hopeless situations