CPSC 430
Computers & Society

Class 3A: Network Communications (Chapter 3)

Dr. Firas Moosvi | 2024_S2

Slides courtesy of Dr. Kevin Leyton-Brown

Class Outline

1. Announcements (5 mins)

2. Ethics Review (20 mins)

3. Break (10 mins)

4. Introduction to Networked Communications (20 mins)

5. Activity: Chat Room predators (30 mins)

6. Control and Censorship of Network Communications (20 mins)

7. Break (10 mins)

8. Activity: Internet Addiction and Accountability (20 mins)

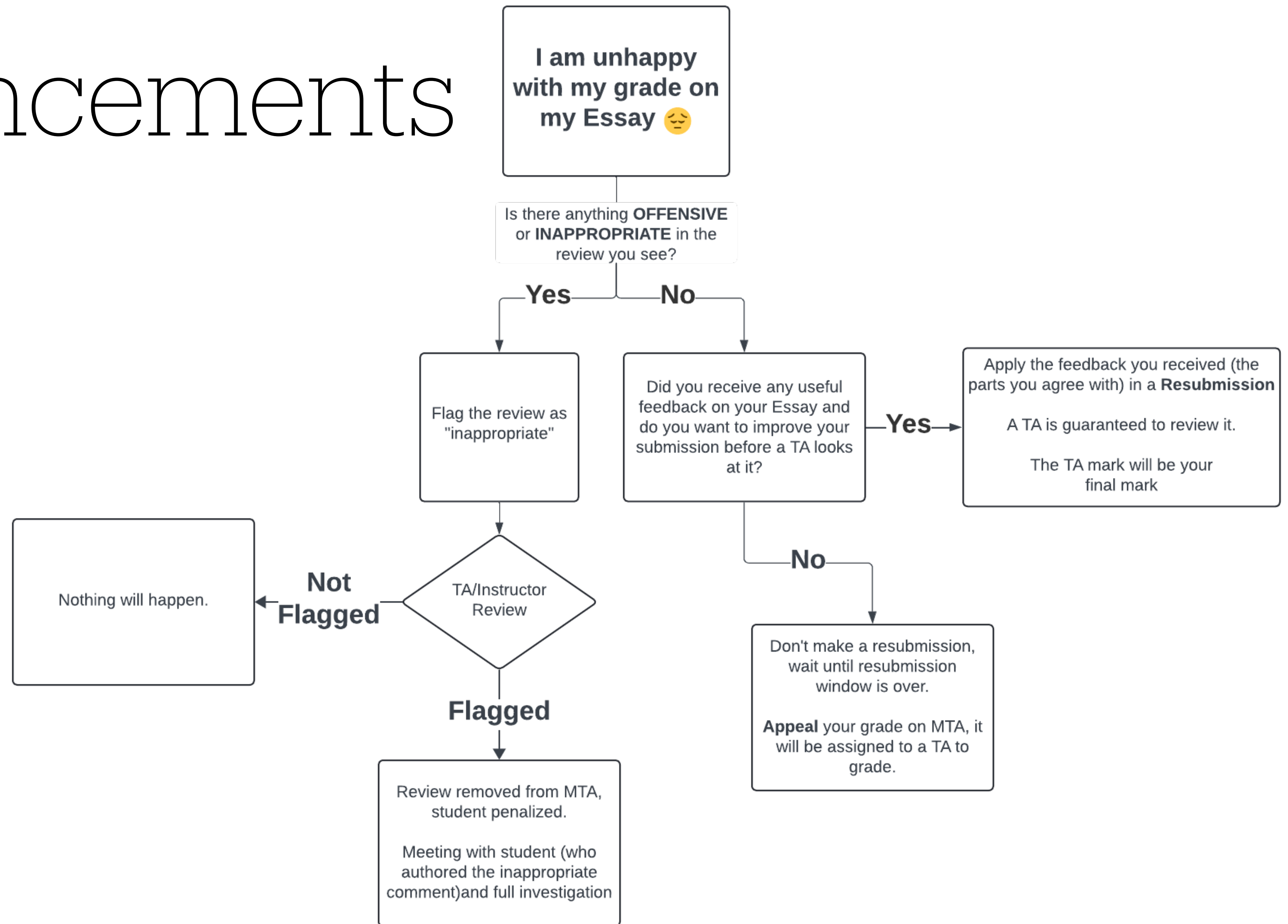9. Reminders before next class (5 mins)

Announcements

Announcements

- Participation grades for the first two weeks of the course are released on MTA.

- The next two updates:
  - July 26th
  - August 9th

Participation Grades

Class	Grade	Comments
2024-07-12	0.0	#points: 0, #bonus: 0, median: 5, max: 21
2024-07-10	0.0	#points: 0, #bonus: 0, median: 6, max: 20
2024-07-08	0.0	#points: 0, #bonus: 0, median: 4, max: 20
2024-07-05	0.0	#points: 0, #bonus: 0, median: 2, max: 4
2024-07-03	0.0	#points: 0, #bonus: 0, median: 4, max: 8

Announcements

I am unhappy with my grade on my Essay 😔

Is there anything **OFFENSIVE** or **INAPPROPRIATE** in the review you see?

Yes

Flag the review as "inappropriate"

TA/Instructor Review

Not Flagged

Nothing will happen.

Flagged

Review removed from MTA, student penalized.

Meeting with student (who authored the inappropriate comment)and full investigation

No

Did you receive any useful feedback on your Essay and do you want to improve your submission before a TA looks at it?

Yes

Apply the feedback you received (the parts you agree with) in a **Resubmission**

A TA is guaranteed to review it.

The TA mark will be your final mark

No

Don't make a resubmission, wait until resubmission window is over.

Appeal your grade on MTA, it will be assigned to a TA to grade.
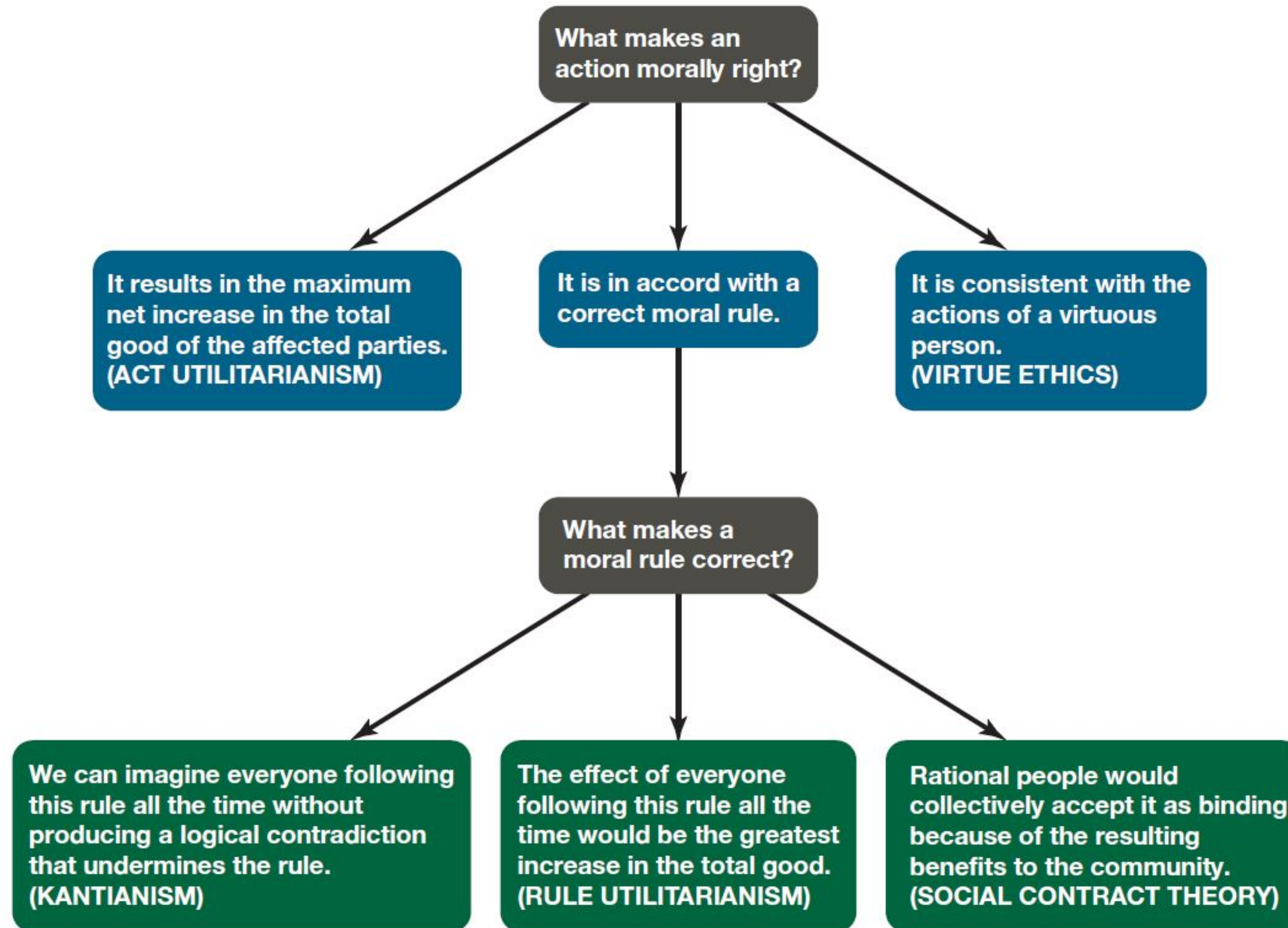
Ethics Review

Recap

- Define:
  - Kantianism
  - Act Utilitarianism
  - Rule Utilitarianism
  - Social Contract Theory
  - Virtue Ethics

- What's the "right" theory to use?

Comparing Workable Ethical Theories

Exercise

The British government has placed hundreds of thousands of cameras in public places and runs face recognition software that allows the tracking of individuals across cities. The resulting data is used by police to deter and prosecute crimes, and also by the intelligence services for purposes that are not disclosed publicly. The British public is broadly supportive of this initiative, but a substantial minority disagrees.

Is this initiative ethical from the following perspective:

- act utilitarian

- rule utilitarian
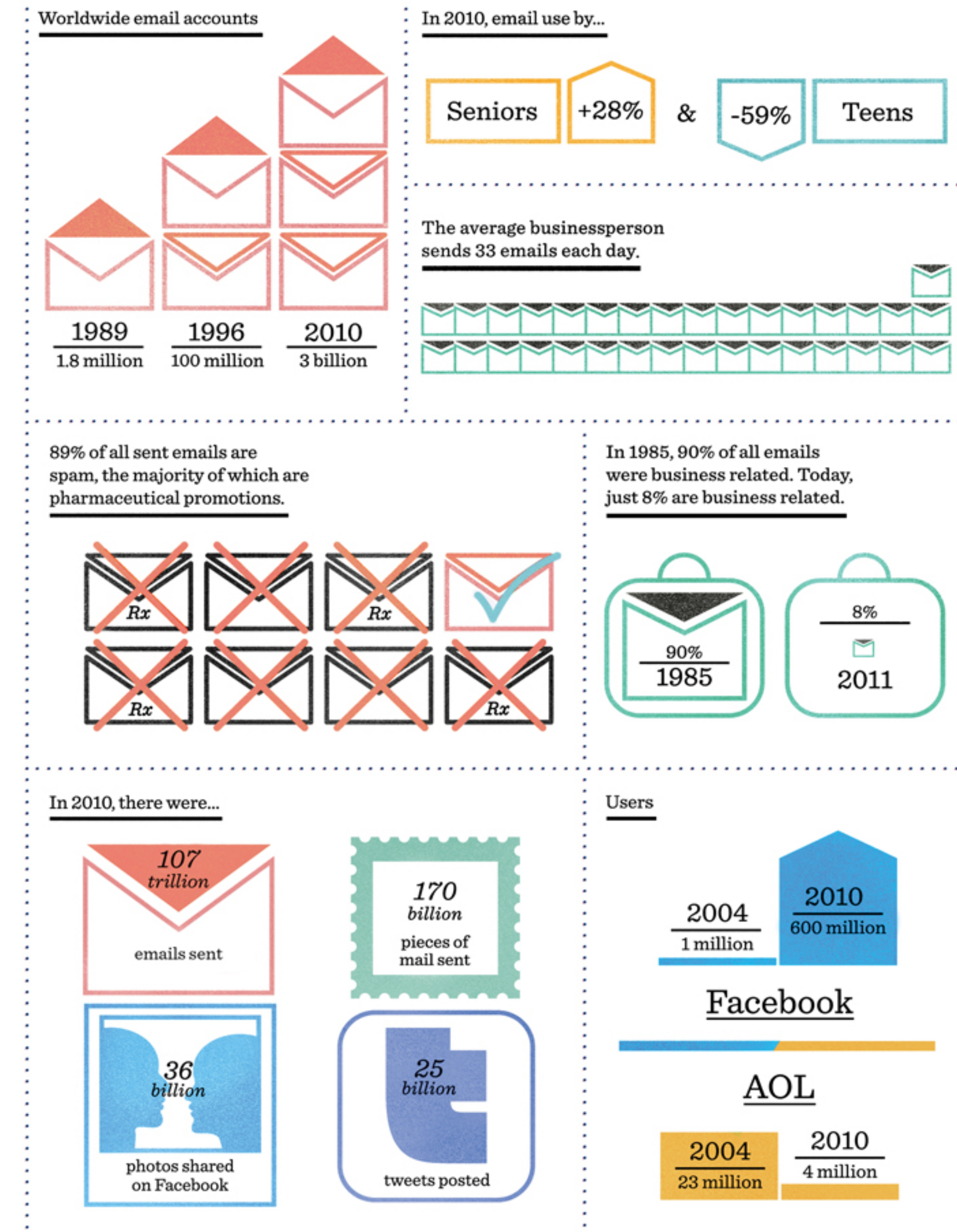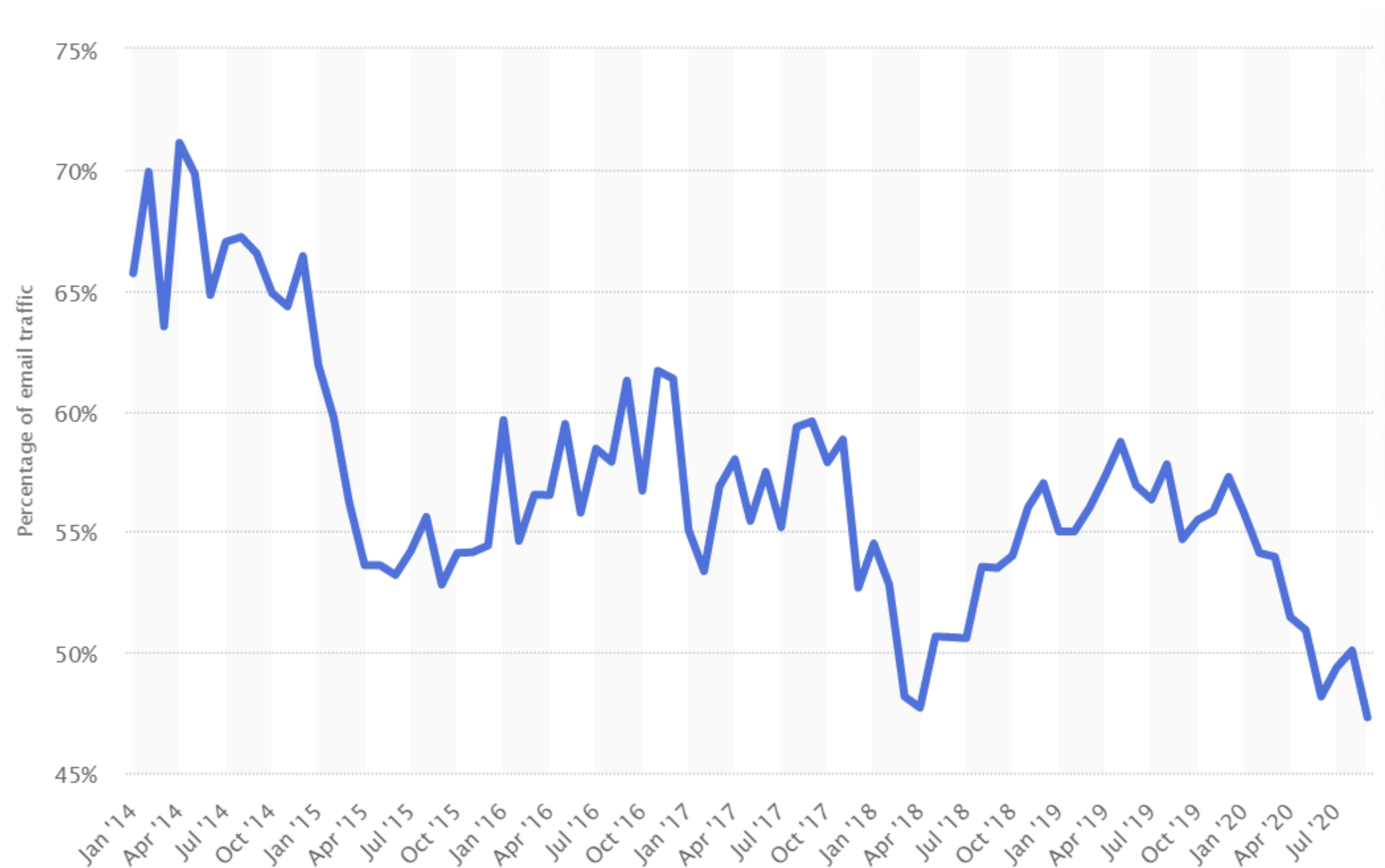
- social contract theory

- virtue ethics

Break

Introduction to Networked Communications

The Spam Epidemic

- Spam: Unsolicited, bulk email

- Spam is profitable
  - More than 100 times cheaper than "junk mail"
  - Profitable even if only 1 in 100,000 buys

- Amount of email that is spam has grown rapidly
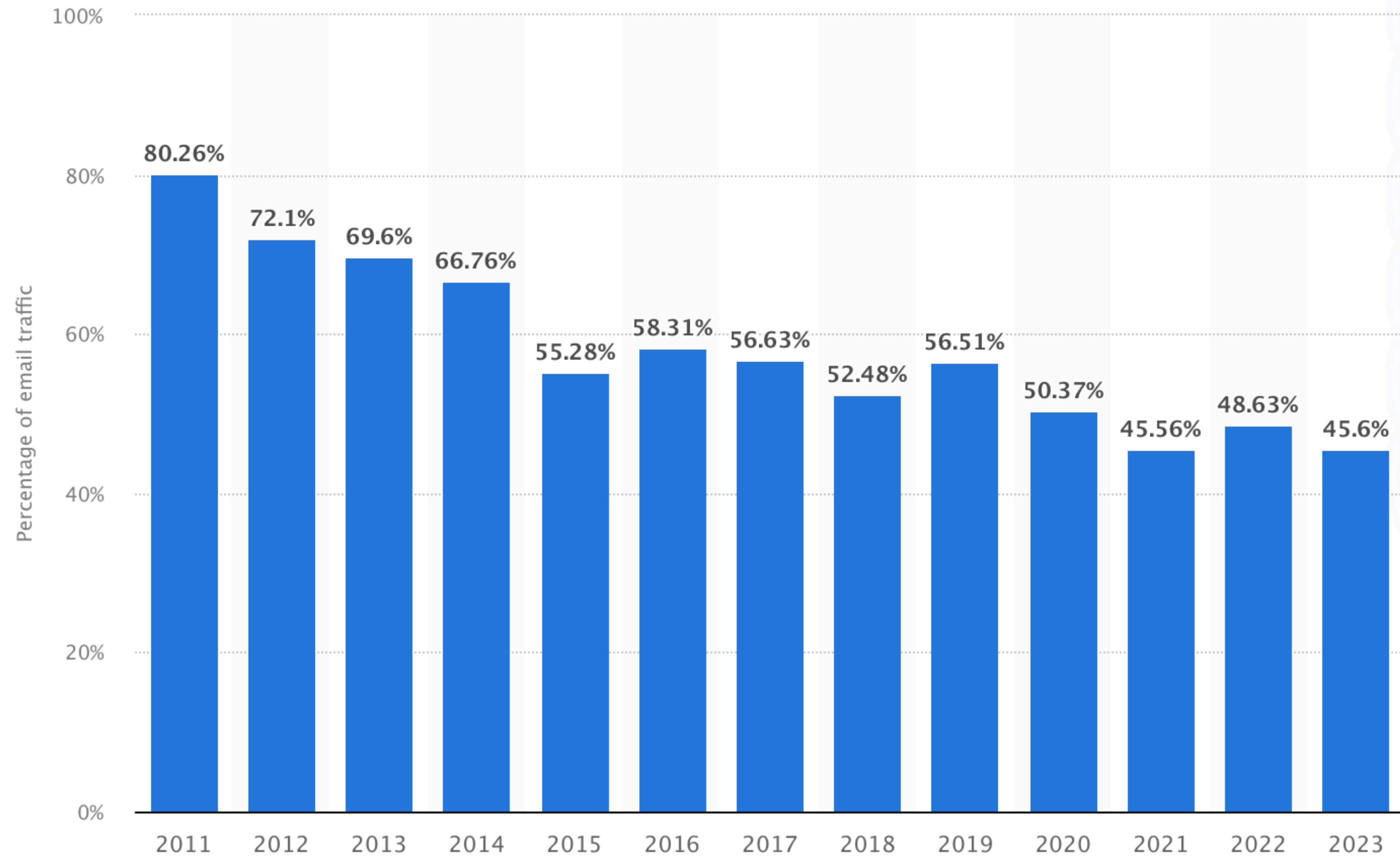 - 8% in 2001
  - 90% in 2009
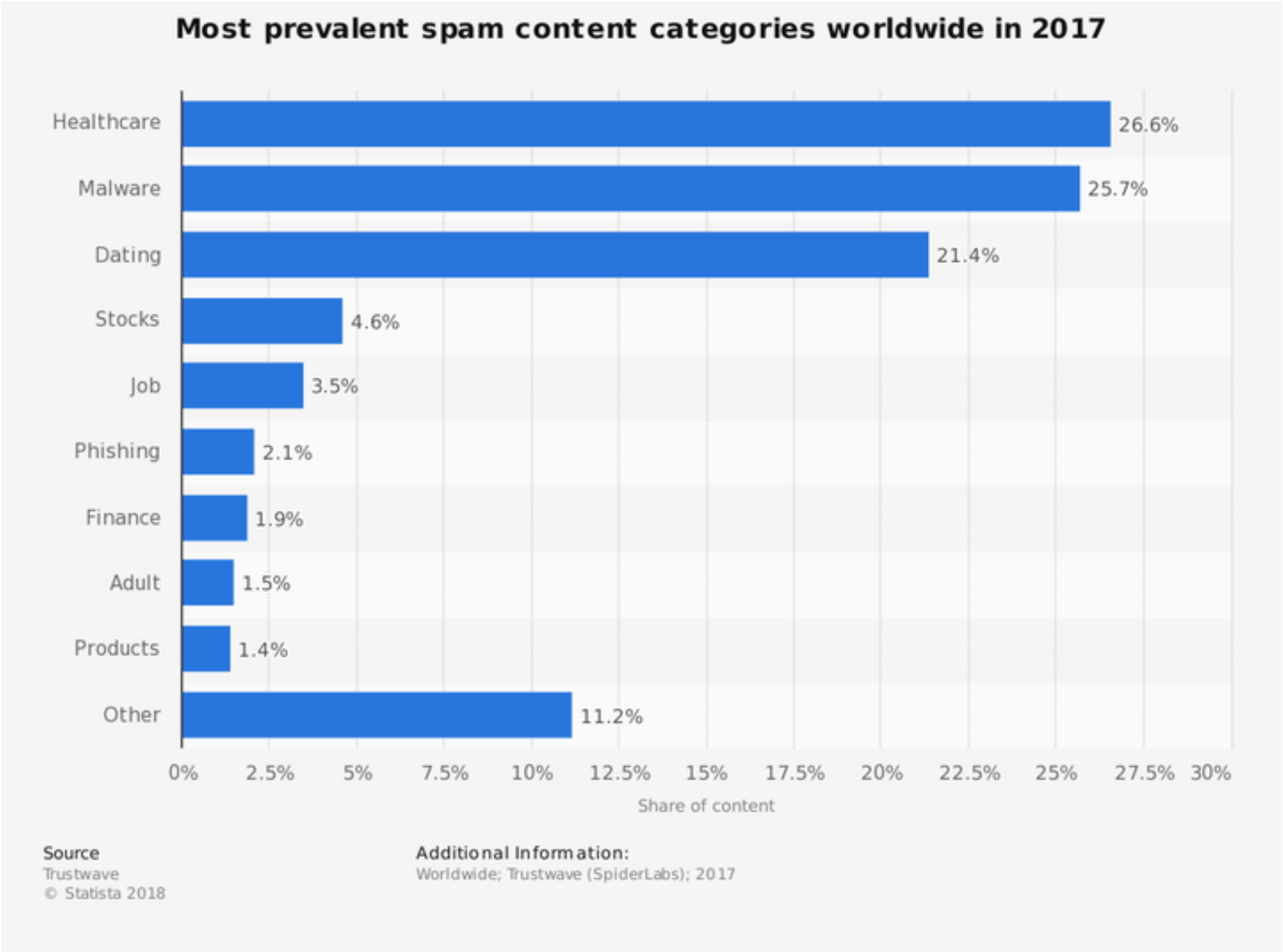
…but things have gotten (somewhat) better

Percentage of email traffic

75%
70%
65%
60%
55%
50%
45%

Jan '14, Apr '14, Jul '14, Oct '14, Jan '15, Apr '15, Jul '15, Oct '15, Jan '16, Apr '16, Jul '16, Oct '16, Jan '17, Apr '17, Jul '17, Oct '17, Jan '18, Apr '18, Jul '18, Oct '18, Jan '19, Apr '19, Jul '19, Oct '19, Jan '20, Apr '20, Jul '20

...but things have gotten (somewhat) better

Percentage of email traffic

- 2011: 80.26%
- 2012: 72.1%
- 2013: 69.6%
- 2014: 66.76%
- 2015: 55.28%
- 2016: 58.31%
- 2017: 56.63%
- 2018: 52.48%
- 2019: 56.51%
- 2020: 50.37%
- 2021: 45.56%
- 2022: 48.63%
- 2023: 45.6%

source: https://www.statista.com/statistics/420400/spam-email-traffic-share-annual/

Main Spam Categories

Most prevalent spam content categories worldwide in 2017

Category	Share of content
Healthcare	26.6%
Malware	25.7%
Dating	21.4%
Stocks	4.6%
Job	3.5%
Phishing	2.1%
Finance	1.9%
Adult	1.5%
Products	1.4%
Other	11.2%

Share of content

Canadian Context

- Canada's Anti-Spam Legislation (2014) prohibits companies from:
  - sending commercial electronic messages without consent, including emails, social networking accounts and text messages;
  - alteration of transmission data in an electronic message, which results in the message being delivered to a different destination without express consent;
  - installing computer programs without express consent;
  - promoting products or services online using false or misleading representations;
  - collecting personal information by accessing a computer system or electronic device illegally;
  - collecting or using electronic addresses using computer programs without permission ('address harvesting').

- Source: http://fightspam.gc.ca/eic/site/030.nsf/eng/h_00039.html

Ethical Evaluations of Spamming

The book argues from each perspective whether spamming is wrong. Let's see if we can make the arguments ourselves:

- Kantian evaluation

- Act utilitarian evaluation

- Rule utilitarian evaluation

- Social contract theory evaluation

- Virtue ethics evaluation

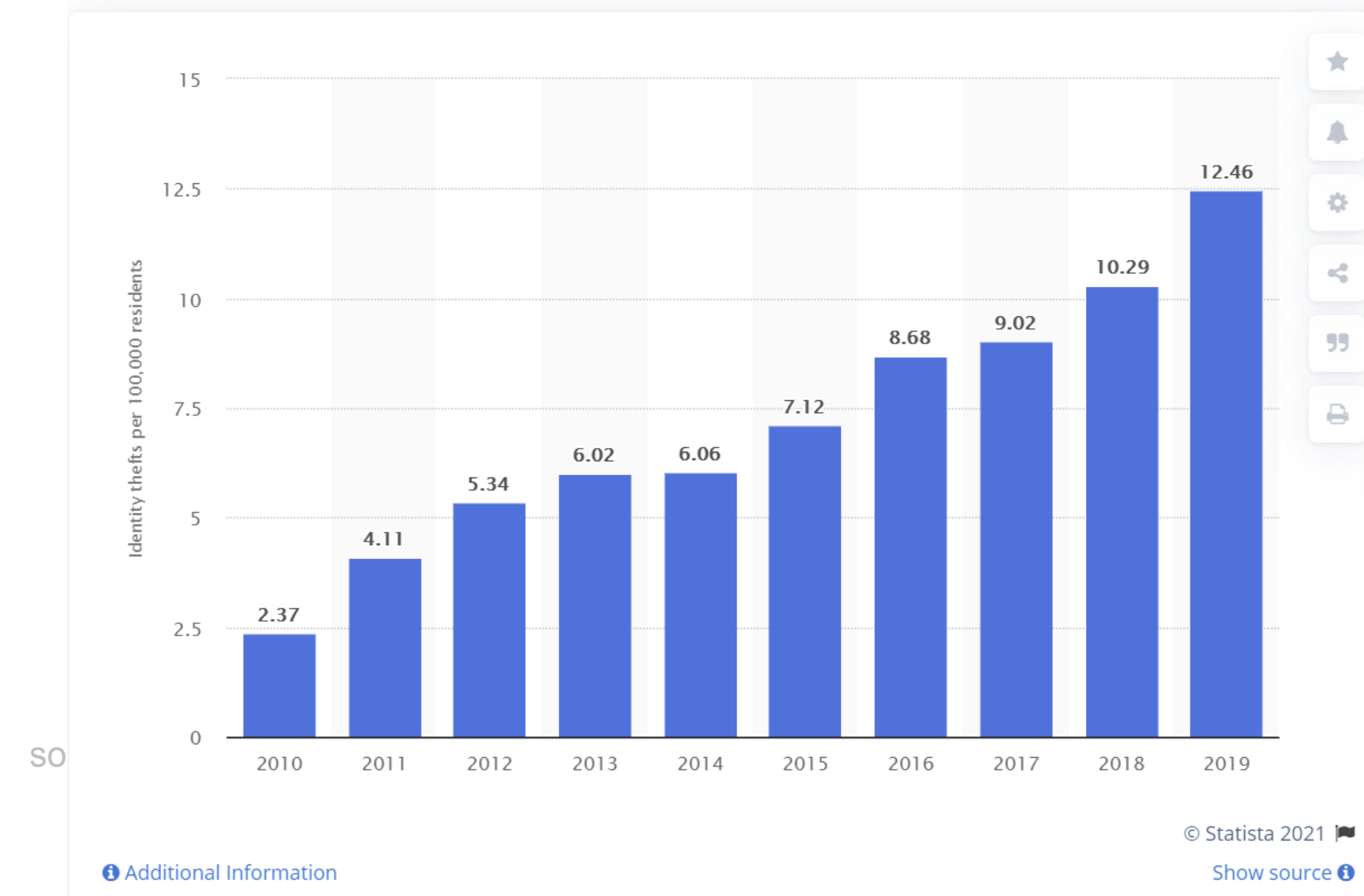Which of these do you find most/least convincing?

Need for Socio-Technical Solutions

- New technologies can cause social change
  - Calculators --> "de-skilling" of bookkeeping
  - Telephones --> blurred work/home boundaries

- 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

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)

Year	Identity thefts per 100,000 residents
2010	2.37
2011	4.11
2012	5.34
2013	6.02
2014	6.06
2015	7.12
2016	8.68
2017	9.02
2018	10.29
2019	12.46

© Statista 2021

Additional Information

Show source

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?*

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

I have nobody
I need someone
:(

Share: Share 5 | Tweet | +1 | Recommend 30 | Text: + - | 🖨 | ✉ | 💬 (0)

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

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

BY GILLIAN SHAW, VANCOUVER SUN   OCTOBER 11, 2012 1:05 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, #RIPAmanda 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.

Activity:
Chat Room Predators

Activity: 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

Are chatroom "stings" ethical, class will divide into 10 groups and argue from the following perspective:

- Kantianism

- Act utilitarian

- Rule utilitarian

- Social contract theory

- Virtue ethics

Control and Censorship of Network Communications

Government Control of the Internet

- North Korea: Internet mostly inaccessible; Myanmar: formerly inaccessible; Cuba: Notoriously slow & expensive.

- Saudi Arabia: centralized control

- People's Republic of China: highly sophisticated filtering ('great firewall') as well as censorship

- Germany: Forbids access to neo-Nazi sites

- United States: Limits access of minors to pornography

Key Findings

1

Global internet freedom declined for the 13th consecutive year. Digital repression intensified in Iran, home to this year's worst decline, as authorities shut down internet service, blocked WhatsApp and Instagram, and increased surveillance in a bid to quell antigovernment protests. Myanmar came close to dislodging China as the world's worst environment for internet freedom, a title the latter country retained for the ninth consecutive year. Conditions worsened in the Philippines as outgoing president Rodrigo Duterte used an antiterrorism law to block news sites that had been critical of his administration. Costa Rica's status as a champion of internet freedom has been imperiled after the election of a president whose campaign manager hired online trolls to harass several of the country's largest media outlets.

2

Attacks on free expression grew more common around the world. In a record 55 of the 70 countries covered by *Freedom on the Net*, people faced legal repercussions for expressing themselves online, while people were physically assaulted or killed for their online commentary in 41 countries. The most egregious cases occurred in Myanmar and Iran, whose authoritarian regimes carried out death sentences against people convicted of online expression-related crimes. In Belarus and Nicaragua, where protections for internet freedom plummeted during the coverage period, people received draconian prison terms for online speech, a core tactic employed by longtime dictators Alyaksandr Lukashenka and Daniel Ortega in their violent campaigns to stay in power.

3

Generative artificial intelligence (AI) threatens to supercharge online disinformation campaigns. At least 47 governments deployed commentators to manipulate online discussions in their favor during the coverage period, double the number from a decade ago. Meanwhile, AI-based tools t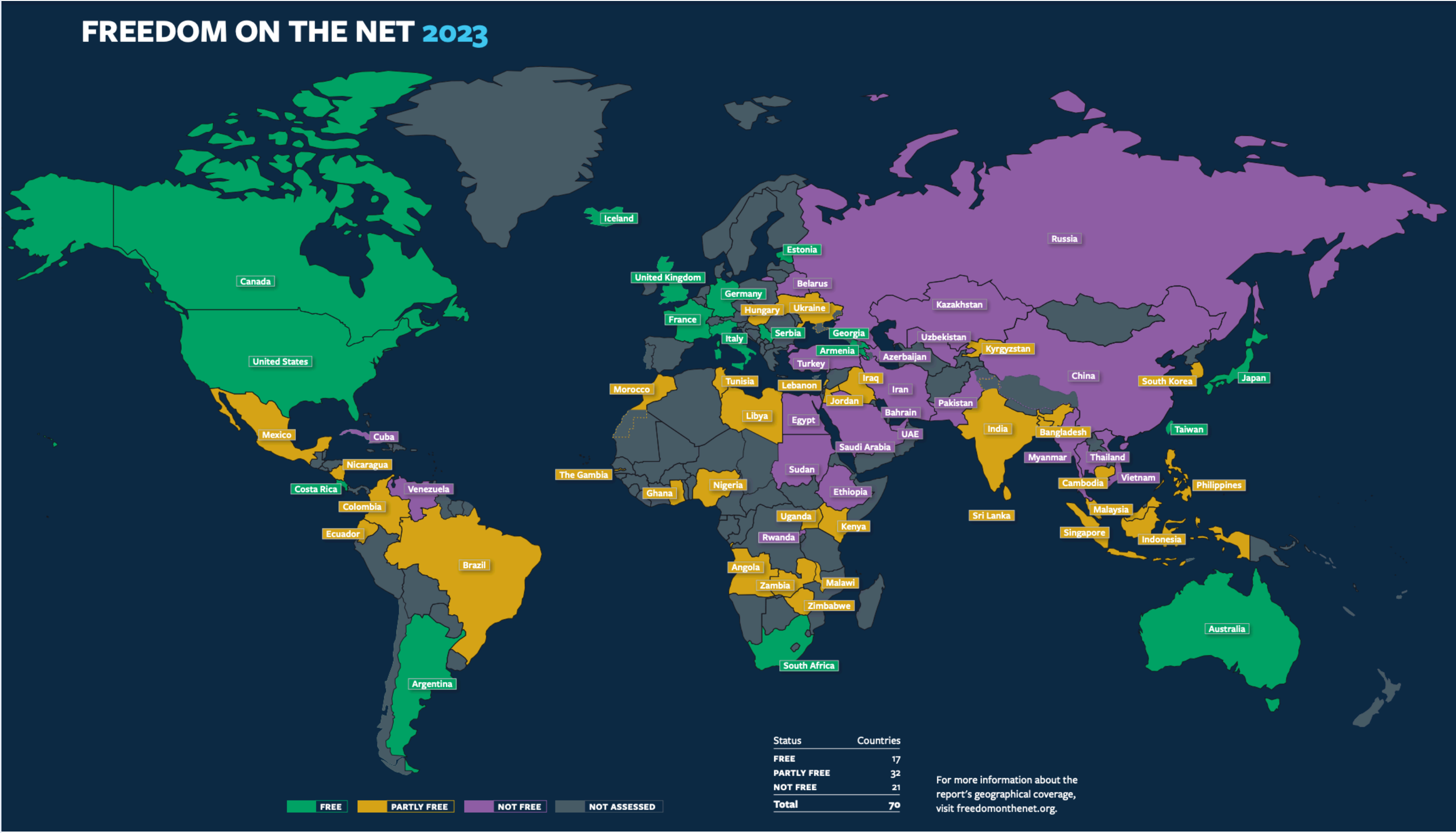hat can generate text, audio, and imagery have quickly grown more sophisticated, accessible, and easy to use, spurring a concerning escalation of these disinformation tactics. Over the past year, the new technology was utilized in at least 16 countries to sow doubt, smear opponents, or influence public debate.

4

AI has allowed governments to enhance and refine their online censorship. The world's most technically advanced authoritarian governments have responded to innovations in AI chatbot technology, attempting to ensure that the applications comply with or strengthen their censorship systems. Legal frameworks in at least 22 countries mandate or incentivize digital platforms to deploy machine learning to remove disfavored political, social, and religious speech. AI, however, has not completely displaced older methods of information control. A record 41 governments blocked websites with content that should be protected under free expression standards within international human rights law. Even in more democratic settings, including the United States and Europe, governments considered or actually imposed restrictions on access to prominent websites and social media platforms, an unproductive approach to concerns about foreign interference, disinformation, and online safety.
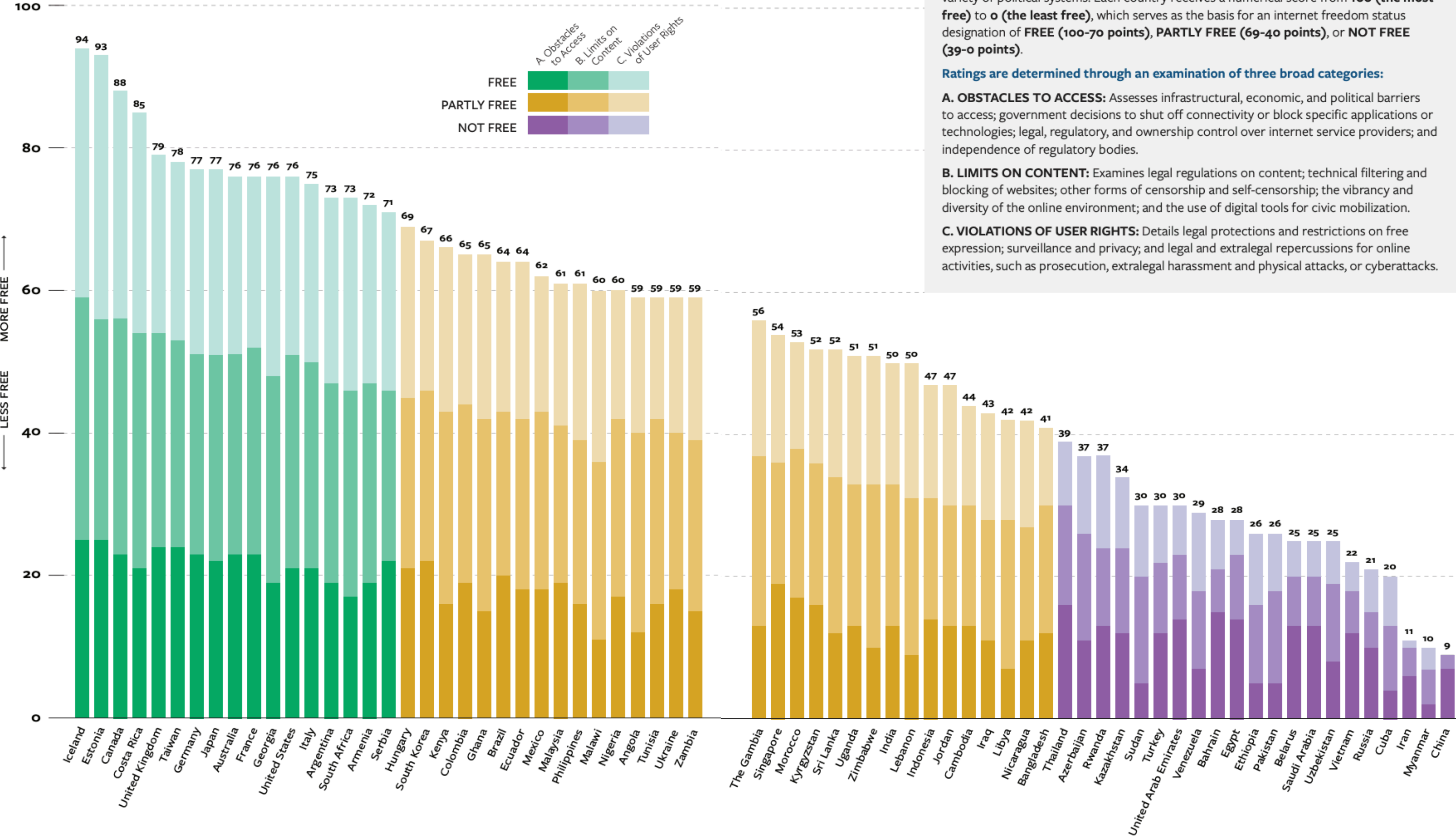
5

To protect internet freedom, democracy's supporters must adapt the lessons learned from past internet governance challenges and apply them to AI. AI can serve as an amplifier of digital repression, making censorship, surveillance, and the creation and spread of disinformation easier, faster, cheaper, and more effective. An overreliance on self-regulation by private companies has left people's rights exposed to a variety of threats in the digital age, and a shrinking of resources in the tech sector could exacerbate the deficiency. To protect the free and open internet, democratic policymakers—working side by side with civil society experts from around the world—should establish strong human rights–based standards for both state and nonstate actors that develop or deploy AI tools.

FREEDOM ON THE NET 2023

Status	Countries
FREE	17
PARTLY FREE	32
NOT FREE	21
Total	**70**

For more information about the report's geographical coverage, visit freedomonthenet.org.

FREE PARTLY FREE NOT FREE NOT ASSESSED

https://freedomhouse.org/report/freedom-net/2023/repressive-power-artificial-intelligence

100 = Most Free   0 = Least Free

	A. Obstacles to Access	B. Limits on Content	C. Violations of User Rights
FREE			
PARTLY FREE			
NOT FREE			

Freedom on the Net 2023 covers 70 countries in 6 regions around the world. The countries were chosen to illustrate internet freedom improvements and declines in a variety of political systems. Each country receives a numerical score from **100 (the most free)** to **0 (the least free)**, which serves as the basis for an internet freedom status designation of **FREE (100-70 points)**, **PARTLY FREE (69-40 points)**, or **NOT FREE (39-0 points)**.

Ratings are determined through an examination of three broad categories:

A. OBSTACLES TO ACCESS: Assesses infrastructural, economic, and political barriers to access; government decisions to shut off connectivity or block specific applications or technologies; legal, regulatory, and ownership control over internet service providers; and independence of regulatory bodies.

B. LIMITS ON CONTENT: Examines legal regulations on content; technical filtering and blocking of websites; other forms of censorship and self-censorship; the vibrancy and diversity of the online environment; and the use of digital tools for civic mobilization.

C. VIOLATIONS OF USER RIGHTS: Details legal protections and restrictions on free expression; surveillance and privacy; and legal and extralegal repercussions for online activities, such as prosecution, extralegal harassment and physical attacks, or cyberattacks.

Private control of the internet?

- In February 2022, Russia launched an offensive against Ukraine.

- In various areas of Ukraine, network infrastructure was destroyed. The Ukranian government asked SpaceX to help by activating Starlink, a satellite internet service

- SpaceX provided and funded Starlink services to Ukraine, but not unconditionally. For example, it refused to extend Starlink availability outside of the country's borders (Crimea – occupied by Russia since 2014)

- Elon Musk reportedly ordered Starlink to be turned off near the Crimean coast last year to prevent a Ukrainian drone attack on Russian warships (later retracted)

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 prosecution
  - Maintain good relations with government officials (sources of information)

- A "soft" form of self-censorship: ratings systems
  - Movies, TVs, CDs, video games
  - Nothing similar has happened on the Web
    - At least, not consistently.

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
  - Product of the Enlightenment: reaction to institutional control
  - "Have courage to use your own reason"

- Mill opposed censorship
  1. No one is infallible: we may silence the truth.
  2. Even if not, an opinion may contain a kernel of truth.
  3. Even if not, the truth must be rationally tested and validated.
  4. Ideas are most persuasive if they're tested rigorously.

  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."

When, if ever, do you think censorship is justified?

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"

Canadian Charter of Rights and Freedoms

1. The *Canadian Charter of Rights and Freedoms* guarantees the rights and freedoms set out in it **subject only to such reasonable limits prescribed by law** as can be demonstrably justified in a free and democratic society.

2. Everyone has the following fundamental freedoms:

(a) freedom of conscience and religion;

(b) freedom of thought, belief, opinion and expression, including freedom of the press and other media of communication;

(c) freedom of peaceful assembly; and

(d) freedom of association.

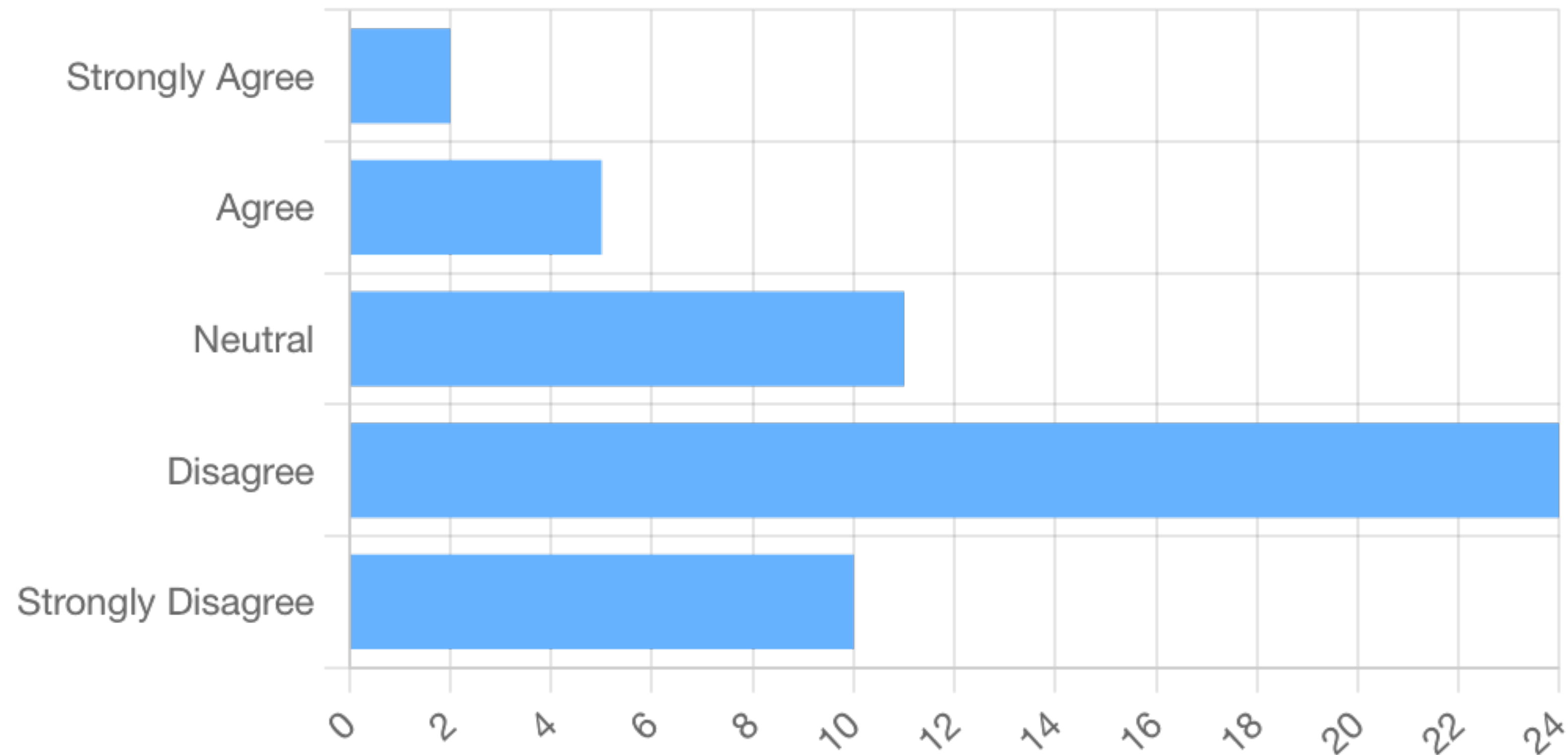# Freedom of Expression not an Absolute Right

- Right to freedom of expression must be balanced against the public good

- Various restrictions on freedom of expression exist
  - e.g., Section 1 of the Canadian Charter is used to justify laws against hate speech, even though these limit expression

In pairs:

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

Networked Communications

"Any social network that employs moderators should be required to make it impossible to share posts flagged as false."

Internet Addiction/Excessive Use

- 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

- Arguments against it being an addiction

  – Computer use is generally considered a positive activity

  – Do not need more to function; we don't develop a 'tolerance'

  – Excessive use does not lead to criminal activity

  – More accurate to call excessive use a compulsion

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

Break

Activity: Internet Addiction and Accountability

Vote

Do you believe that internet addiction is real?

A: Yes

B: No

Does society bear an ethical responsibility for excessive internet use/internet addiction?

A: Yes

B: Somewhat

C: No

Should we hold tech companies accountable?

Reminders before next class