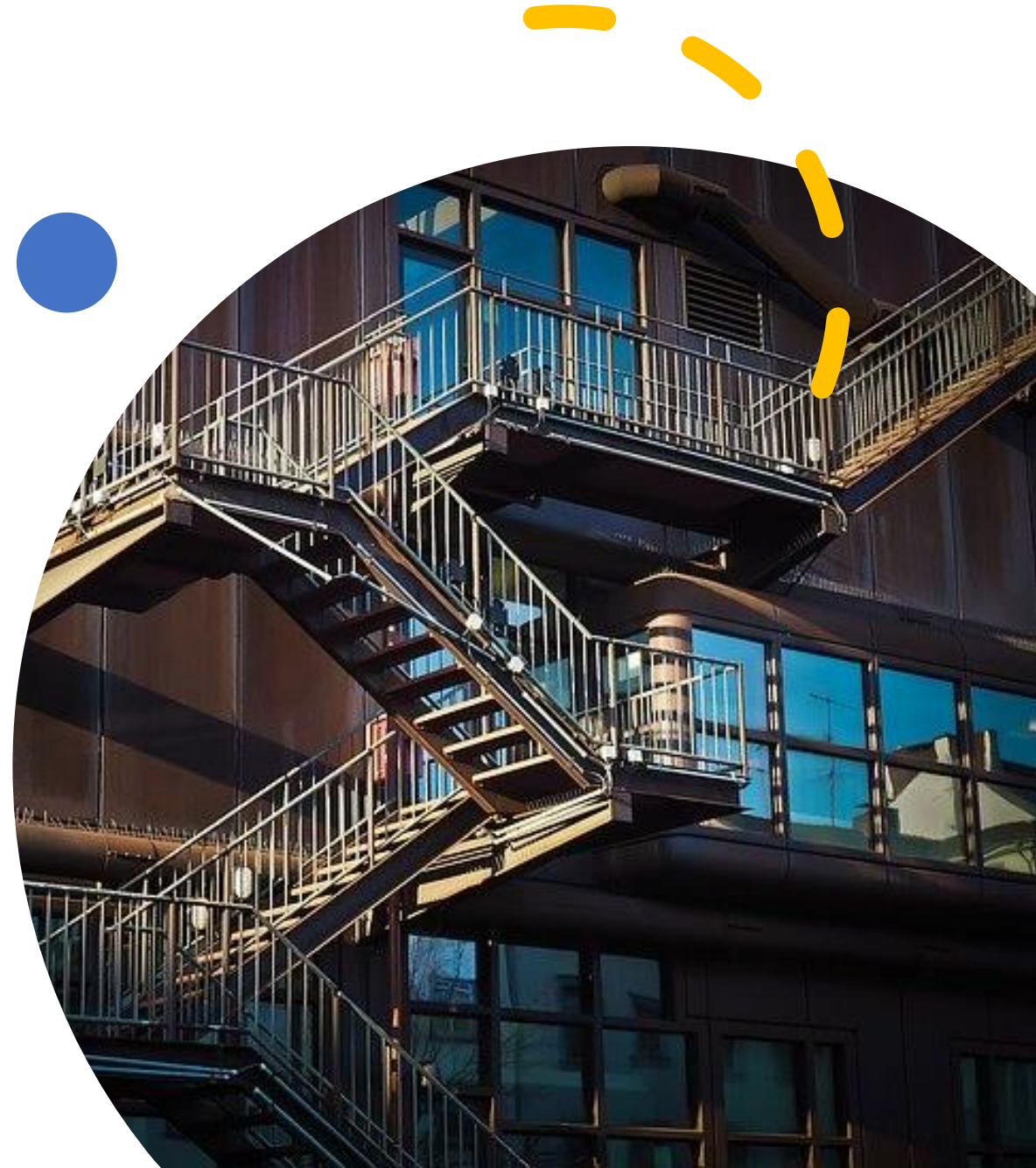


Privacy Enhancing Technologies & Choice

Răzvan Rughiniș

Course outline

- Why?
 - Privacy is not cake
 - Why now?
 - Who cares?
- Sensemaking: Four perspectives
 - Ethical | Free market | Cognitive | Interactional
- Taking action: Three roles
 - User | Expert | Policy-maker
- Privacy = choice in the new world order
 - 4th Industrial Revolution
 - Digital infrastructures & Platform capitalism
 - Surveillance capitalism





1. Why?

Privacy is not cake!



Privacy vs. Choice Enhancing Technology

- Information is fuel for choice
- The world becomes more predictable
 - Google Search
 - Google Maps & Waze
 - Tripadvisor, Airbnb
 - Facebook, LinkedIn
 - Amazon, Tinder, Uber
- We become more predictable!
 - Who knows us?
 - Who can manipulate us?



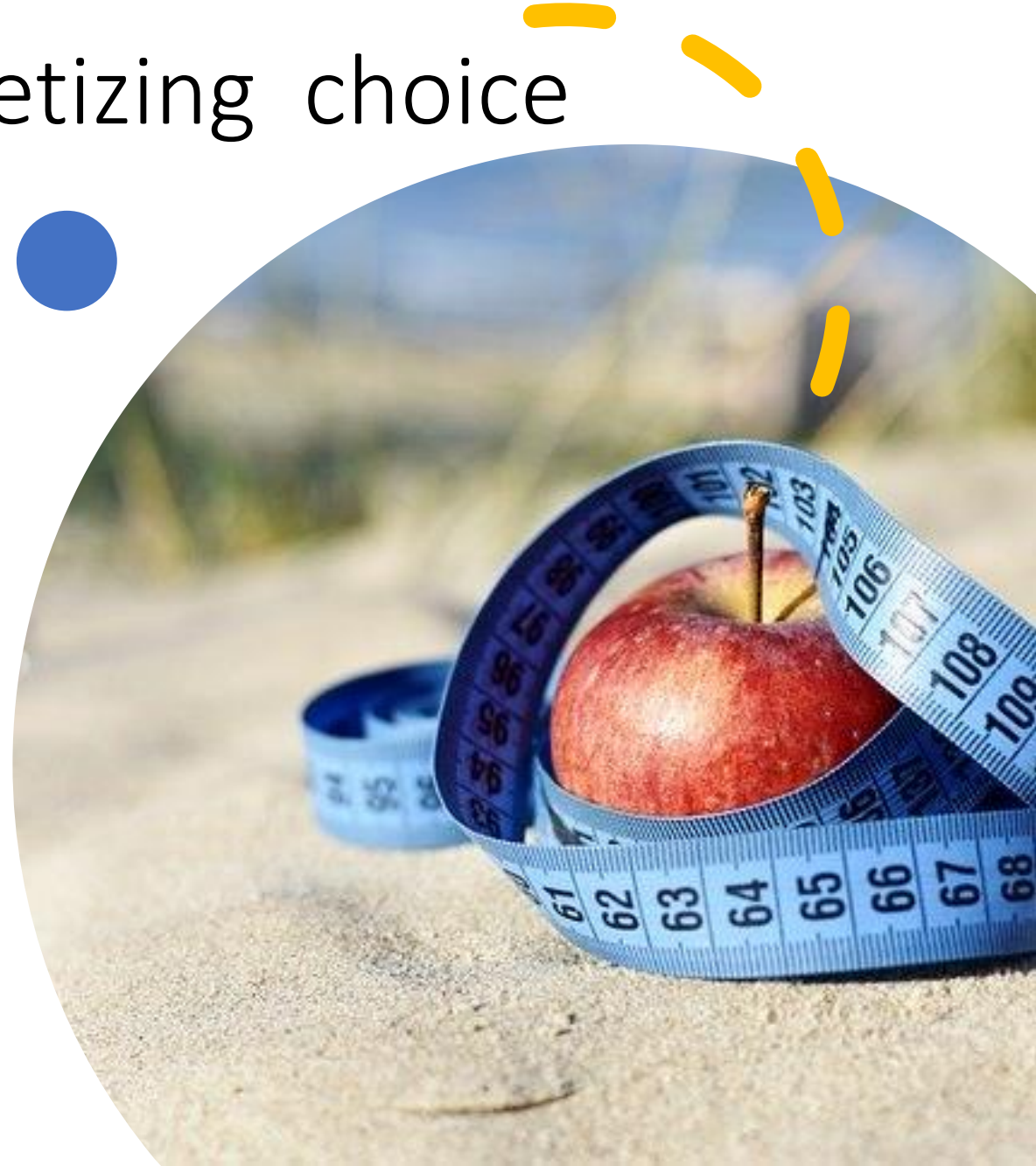
Tech = extending ourselves

- The plus side: Technologies **extend us**
 - Extended memory
 - Extended cognition
 - Extended relationships
 - Extended eroticism
 - Extended imagination
 - Extended desire
- The minus side: **who pays?**
 - Technologies **monetize** selves
 - For the profit of others
- Technologies **downgrade** us ([Harris](#))



Tech = enhancing & monetizing choice

- Tech = Vision + **Business**
- Possible / **Business** / Probable
 - How do business logics shape our choices?
- A new world order
 - Surveillance capitalism
 - Persistent data capture at scale
 - To predict and change our actions
 - 4th Industrial Revolution: integration of computing, big data and humans
 - The AI/ML wave: organized algorithms make ethical decisions for and about us



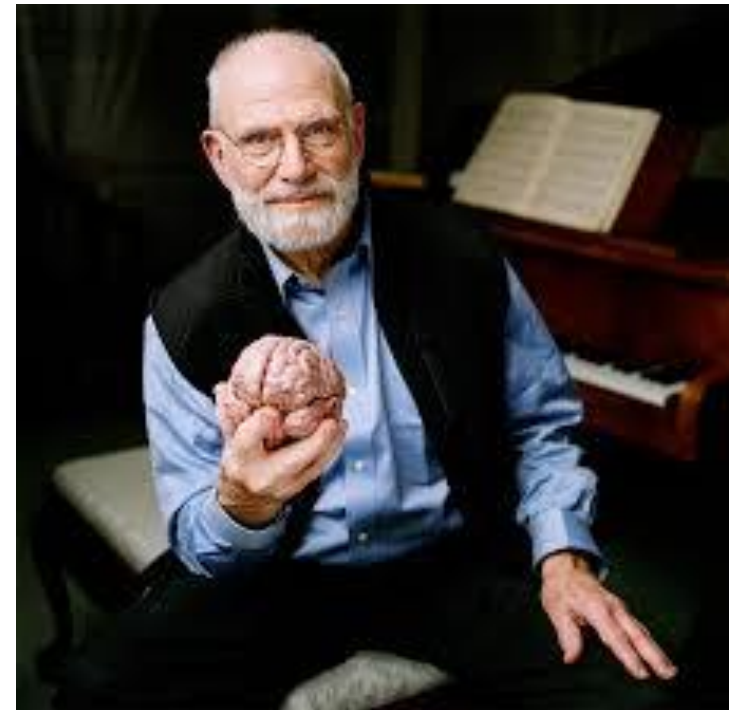
A hand holding a smartphone. The screen shows a person walking away on a railway track that curves through a dense green forest. The background of the slide is a light grey gradient with a faint image of the same scene.

When have I been manipulated?

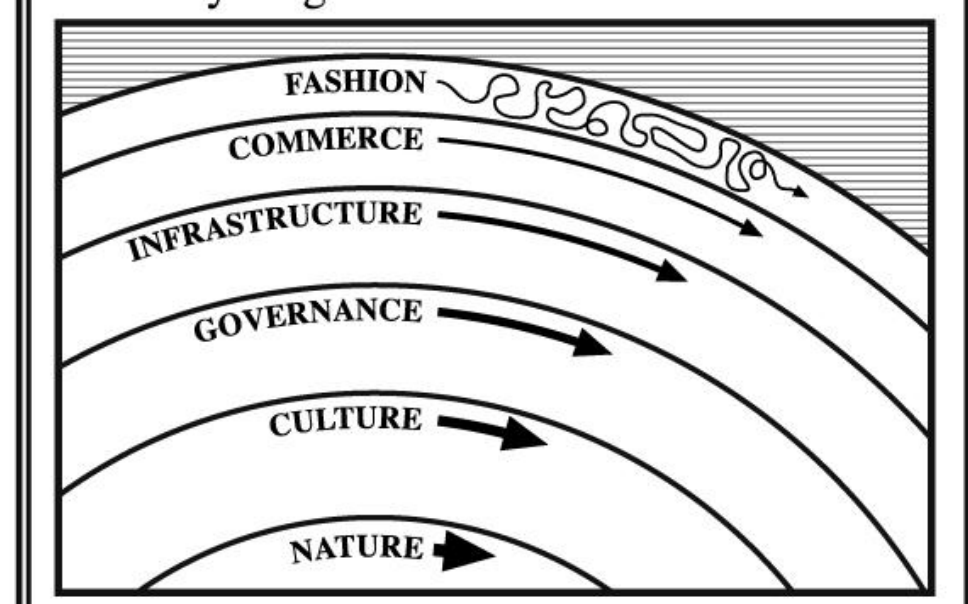
- Manipulation through time
- Cumulative, long-standing real-time intervention with feedback loops
- Invisible & un-explainable algorithmic decisions that classify and target us
- Deep change in culture and nature through fast-paced technological disruptions

Oliver Sacks: The eternal present

- Oliver Sacks, 2019, [The Machine Stops](#)
- Manipulation is not a big change of mind or hearts, but minuscule shifts in relevance and action
 - Induced through nudges, prompts, and feedback loops
 - It occurs in the continuously adaptive present



Stewart Brand: Pace layering



- Stewart Brand, Pace layering diagram; see his discussion [here](#)
- Fast changes in the upper layers trickle down to the deeper layers
- How do digital technologies change human nature?
 - Memory
 - Attention
 - Love
 - Friendship and trust



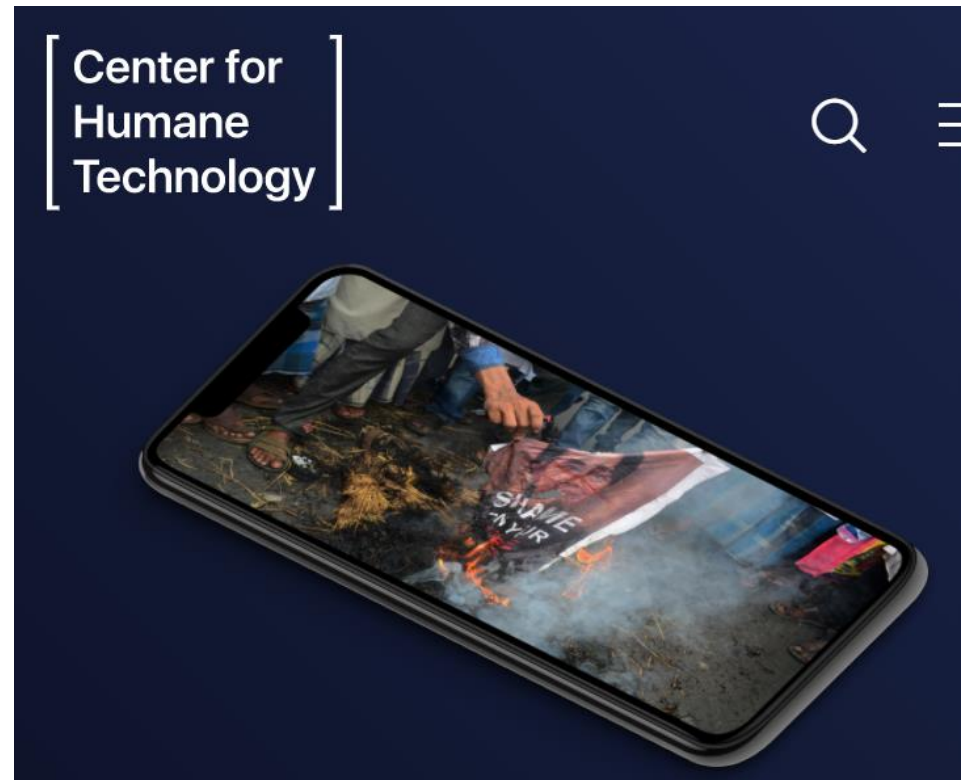
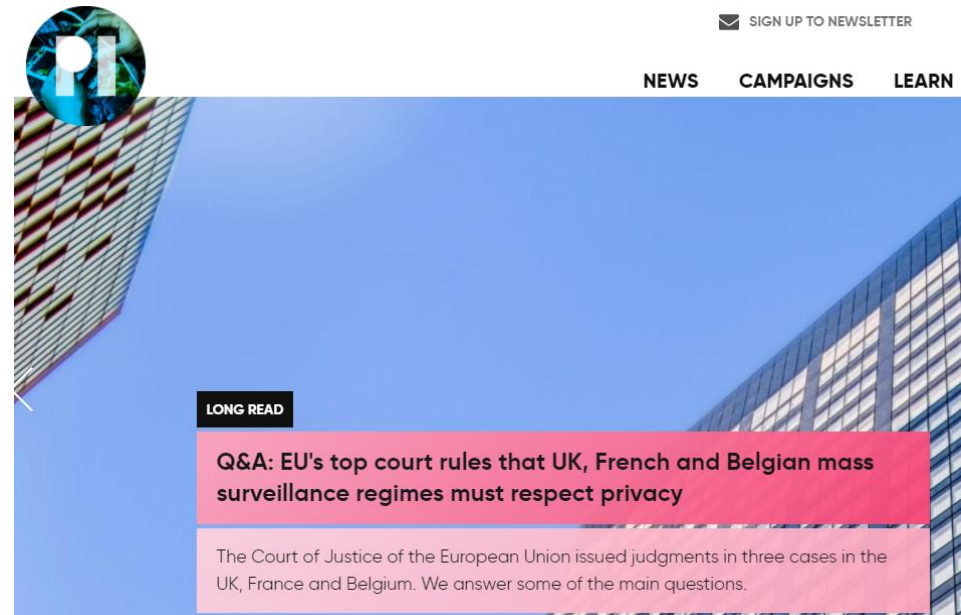
Why now?



- Global legal changes
 - The [Digital Services Act](#) in EU – from 2024
 - The [GDPR](#) in EU – since May 25th, 2018
 - The California Consumer Privacy Act ([CCPA](#)) – since January 1st, 2020
- Anti-trust investigations
 - Ex. EU anti-trust decisions against Google (2017, 2018, [2019](#), [2022](#))
 - US House Judiciary Committee investigation on Google, Facebook, Amazon and Apple ([Sept. 2020 Report](#))
 - US antitrust cases ([Source](#)) – eg [California against Amazon, 2022](#)
- Collective action through NGOs

Collective action through NGOs

- [European Digital Rights](#) EDRi (EU)
- [Asociația pentru Tehnologie și Internet](#) APTI (Ro)
- [Center for Humane Technology](#) (US)
- [Privacy International](#) (UK)
- [Electronic Frontier Foundation](#) EFF (US)





3. Who cares?

The unfairness of surveillance capitalism



The Social Dilemma

- Tristan Harris, former design ethicist at Google and co-founder of Center for Humane Technology
- Jaron Lanier
- Roger McNamee, an early investor in Facebook
- Julian Rosenstein, co-creator of Facebook like button
- Shoshanna Zuboff
- Cathy O’Neill
- Anna Lembke, an addiction expert at Stanford University

Tristan Harris

- Computer scientist, ethicist, businessperson
- Founder of Center for Humane Technologies
- [Interviews](#)
 - [Downgrading the human](#)
 - [Can truth survive Big Tech?](#)
 - TED Talks: [How a handful of tech companies control billions of minds every day](#)



Jaron Lanier

- Computer scientist and philosopher, composer, businessperson
- Founder of virtual reality
- [Web](#)
- Interviews
 - [How social media ruins your life](#)
 - TED Talk: [How we need to remake the Internet](#)



Justin Rosenstein

- Software programmer and entrepreneur
- Co-founder of Asana
- Developer of the Facebook Like button
- Interviews
 - [Why not a Dislike button](#)



Tim Kendall

- Tech CEO
 - CEO of Moment, an app that helps adults and children use their phones in healthier ways
- Former director of monetization at Facebook and president of Pinterest
- Interviews
 - [On Social Dilemma and social media addiction](#)





4. Sensemaking

4 perspectives

4 perspectives

- Ethical: fairness, harm, autonomy
- Free market: can we choose freely?
- Cognitive (psychological): can we think & feel freely?
- Interactional (sociological): can we associate freely?





5. Taking action

3 roles



3 roles: user/citizen, expert, and policy-maker

- User/citizen
 - Taking a stance
 - Data curation
- Expert
 - Whistleblowing
 - NGO collective action
- Policy-maker
 - Policy evaluation & design



';--have i been pwned?

Check if you have an account that has been compromised in a data breach

razvan.rughinis@gmail.com

pwned

Oh no — pwned!

Pwned on [7 breached sites](#) and found [no pastes](#) ([subscribe to search sensitive breaches](#))



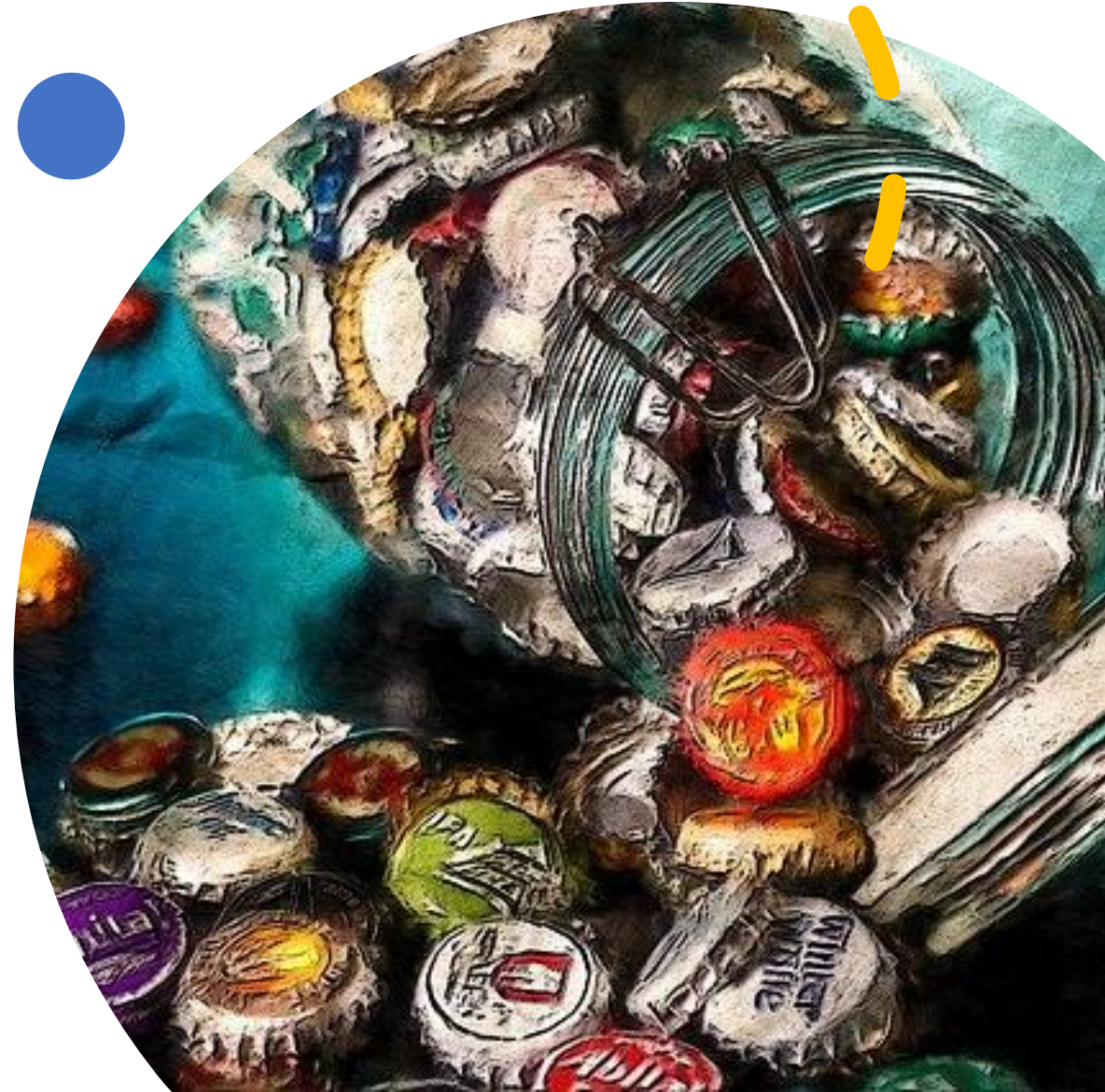
3 Steps to better security

Start using 1Password

Defense is
necessary
but
insufficient

Defense vs. Curation & Taking action

- Two approaches to security: reactive vs proactive
- What is privacy in a digital world?
 - Defense
 - Curating...
 - Our personal traces | data
 - Our tech partners & markets
 - Taking action: whistleblowing, NGO





6. The new world order

The 4th Industrial Revolution,
platform capitalism and surveillance
capitalism



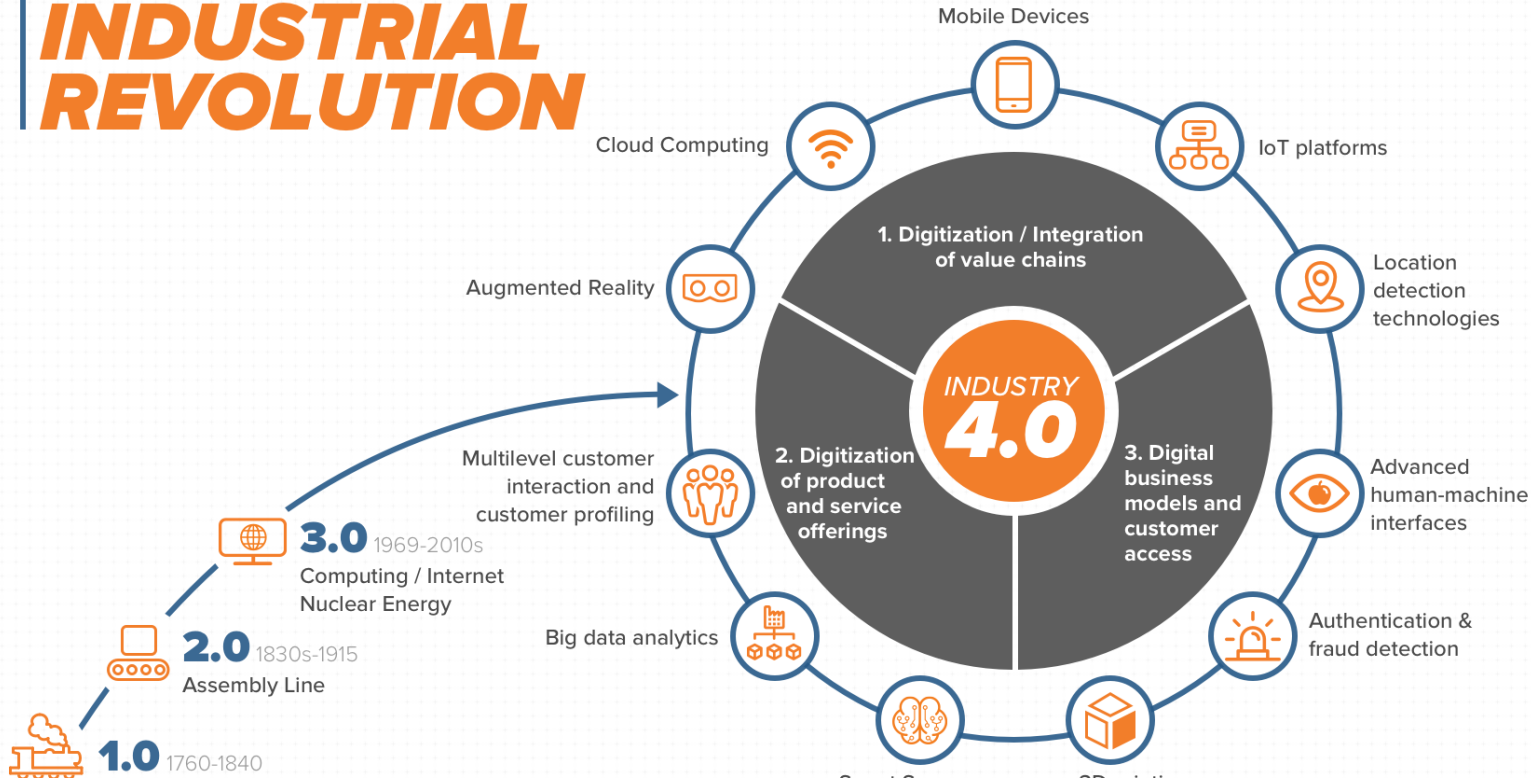
The new world order

- The 4th Industrial Revolution
- Platform capitalism: infrastructures turn digital
- Surveillance capitalism & data markets
- App culture



THE DAWN OF THE

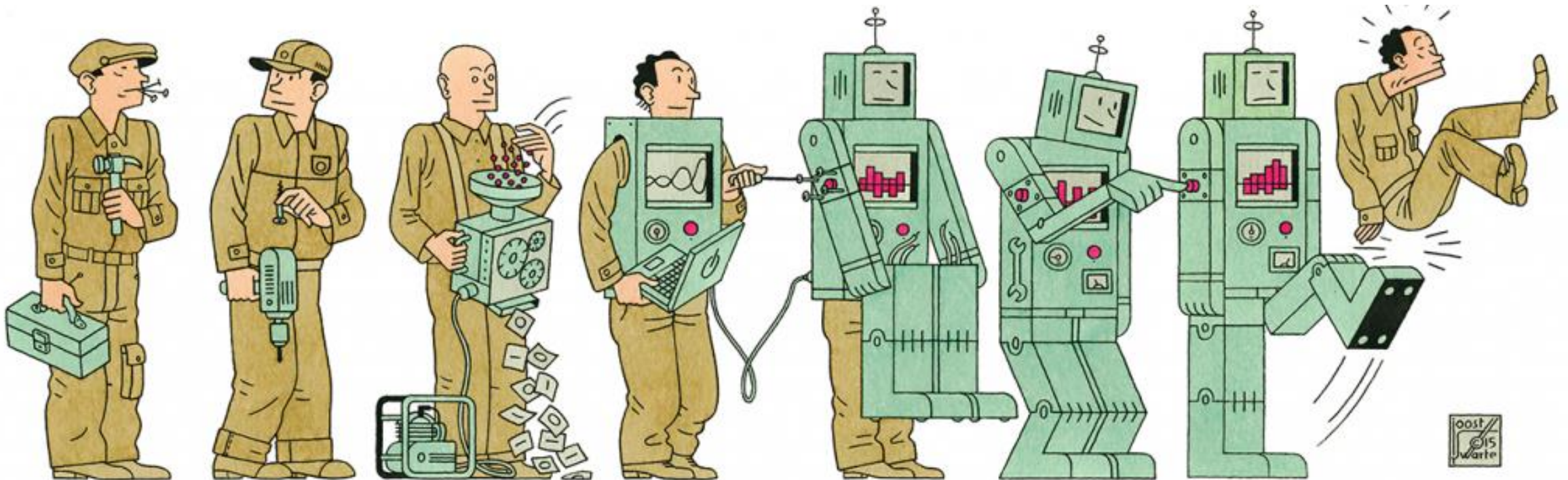
FOURTH INDUSTRIAL REVOLUTION



The 4th industrial revolution

Tech vs. humans

- Exploitation & replacement
- Changing social games
- Redefining human nature



Platform capitalism: Infrastructures turn digital

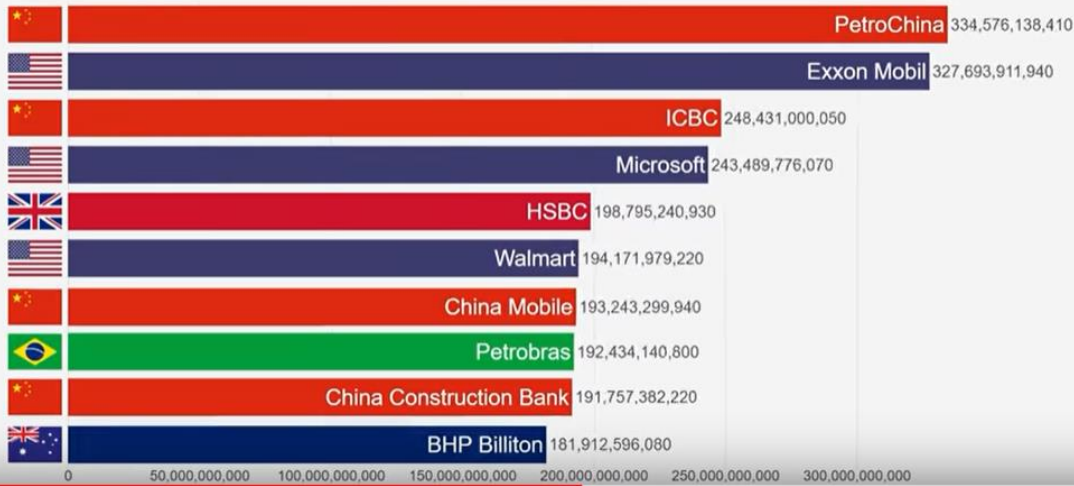
Largest US companies in 2018 vs. 2008

2018				2008			
Rank	Company	Founded	USbn	Rank	Company	Founded	USbn
1	Apple	1976	890	1	Exxon	1870	492
2	Google	1998	768	2	General Electric	1892	358
3	Microsoft	1975	680	3	Microsoft	1975	313
4	Amazon	1994	592	4	AT&T	1885	238
5	Facebook	2004	545	5	Procter&Gamble	1837	226
6	Berkshire	1955	496	6	Berkshire	1955	206
7	J&J	1886	380	7	Google	1998	198
8	JP Morgan	1871	375	8	Chevron	1879	192
9	Exxon	1870	367	9	J&J	1886	192
10	Bank of America	1909	316	10	Walmart	1962	184

Most Valuable Companies In The World

Dec-09

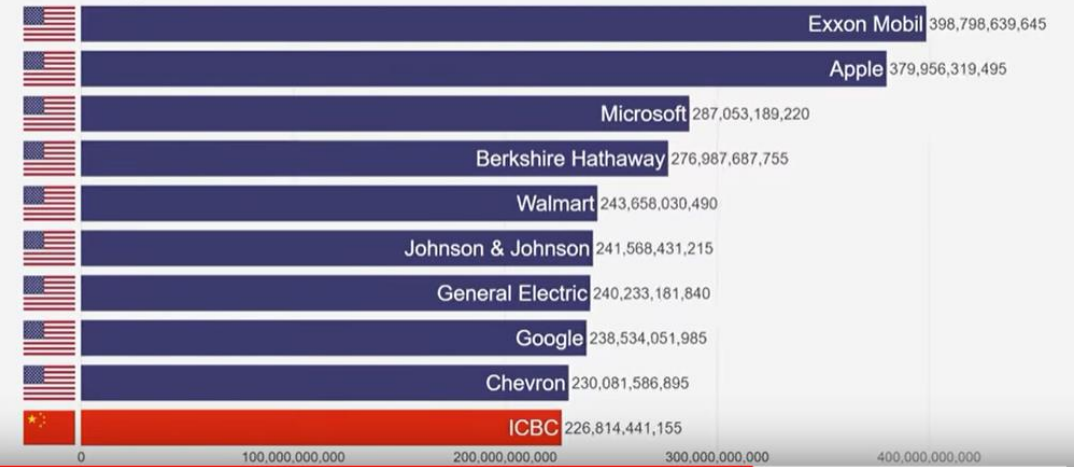
Market Cap in US Dollars



Most Valuable Companies In The World

Aug-13

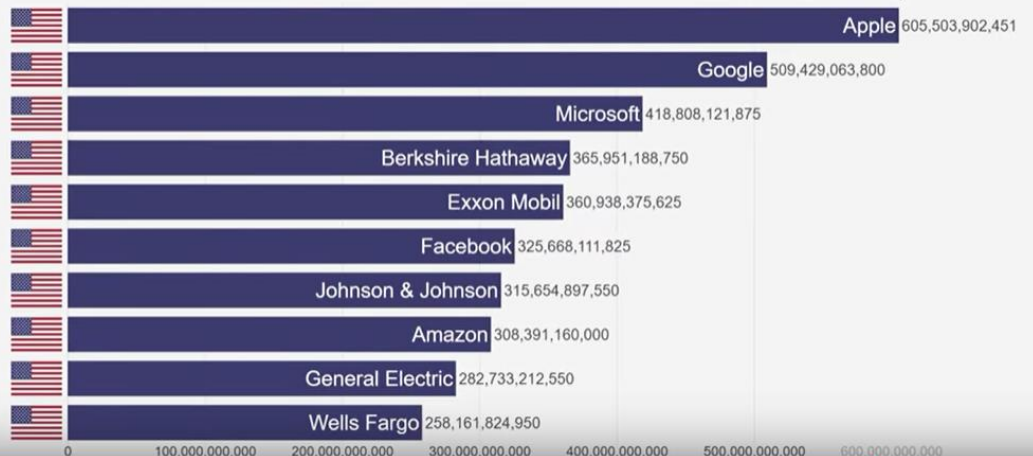
Market Cap in US Dollars



Most Valuable Companies In The World

Jul-16

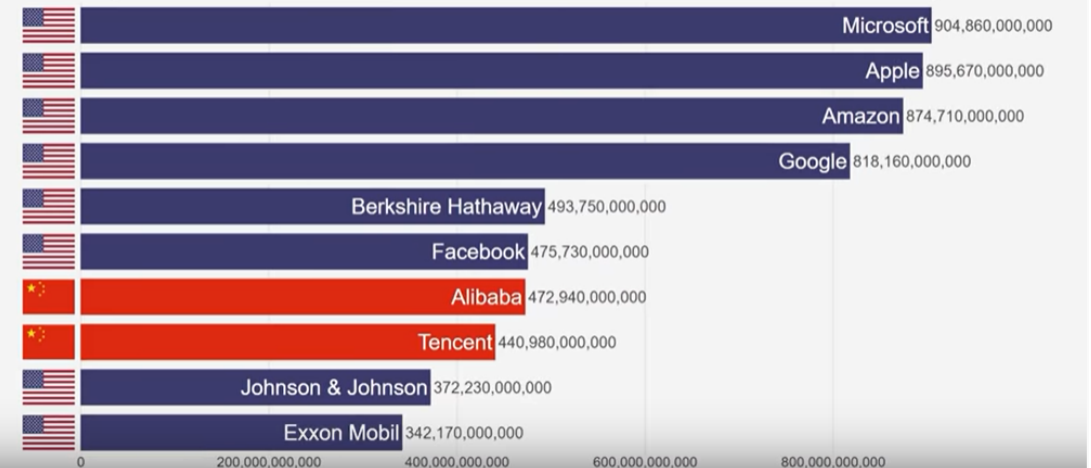
Market Cap in US Dollars



Most Valuable Companies In The World

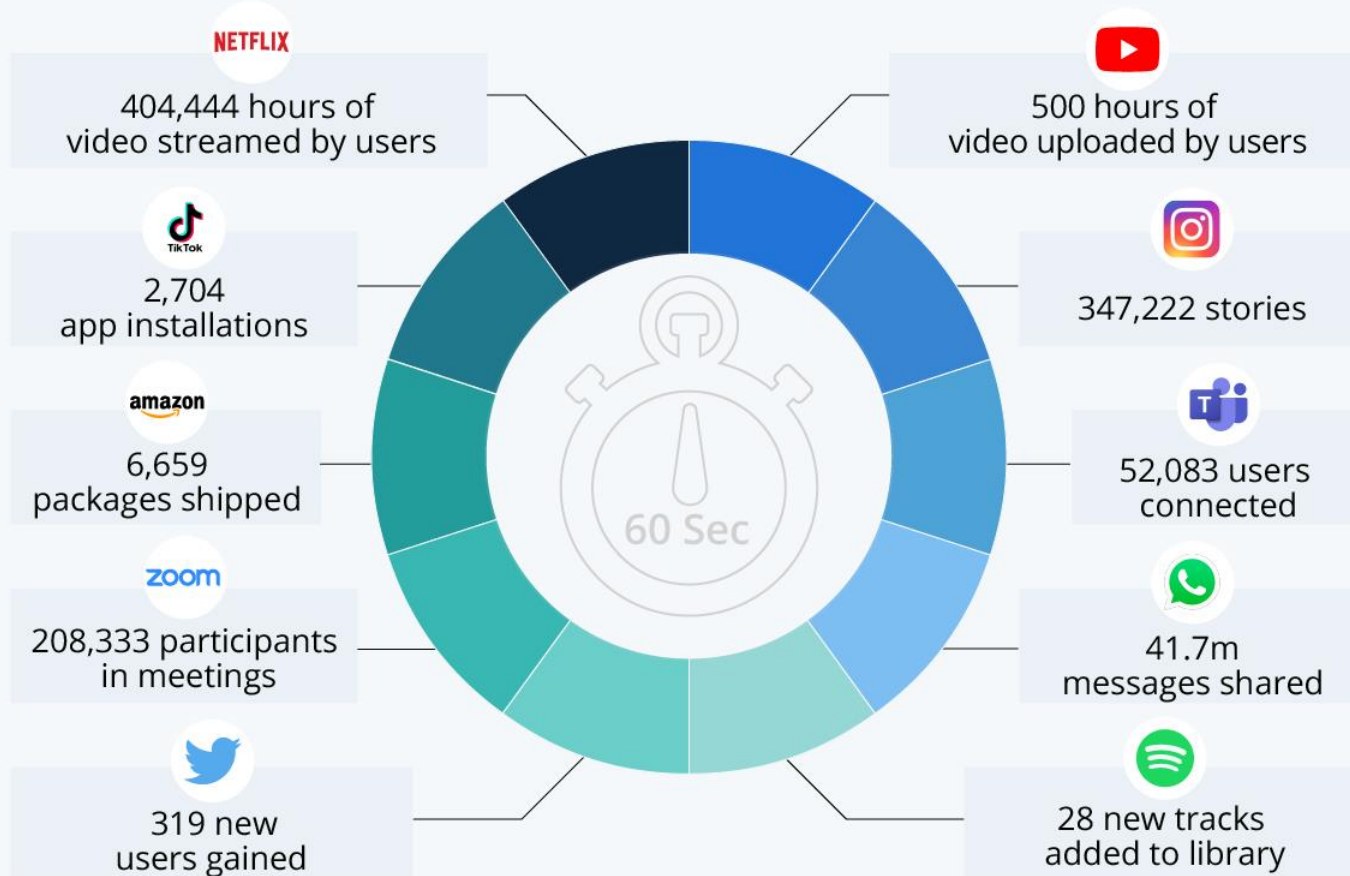
Apr-19

Market Cap in US Dollars



A Minute on the Internet in 2020

Estimated amount of data created on the internet in one minute



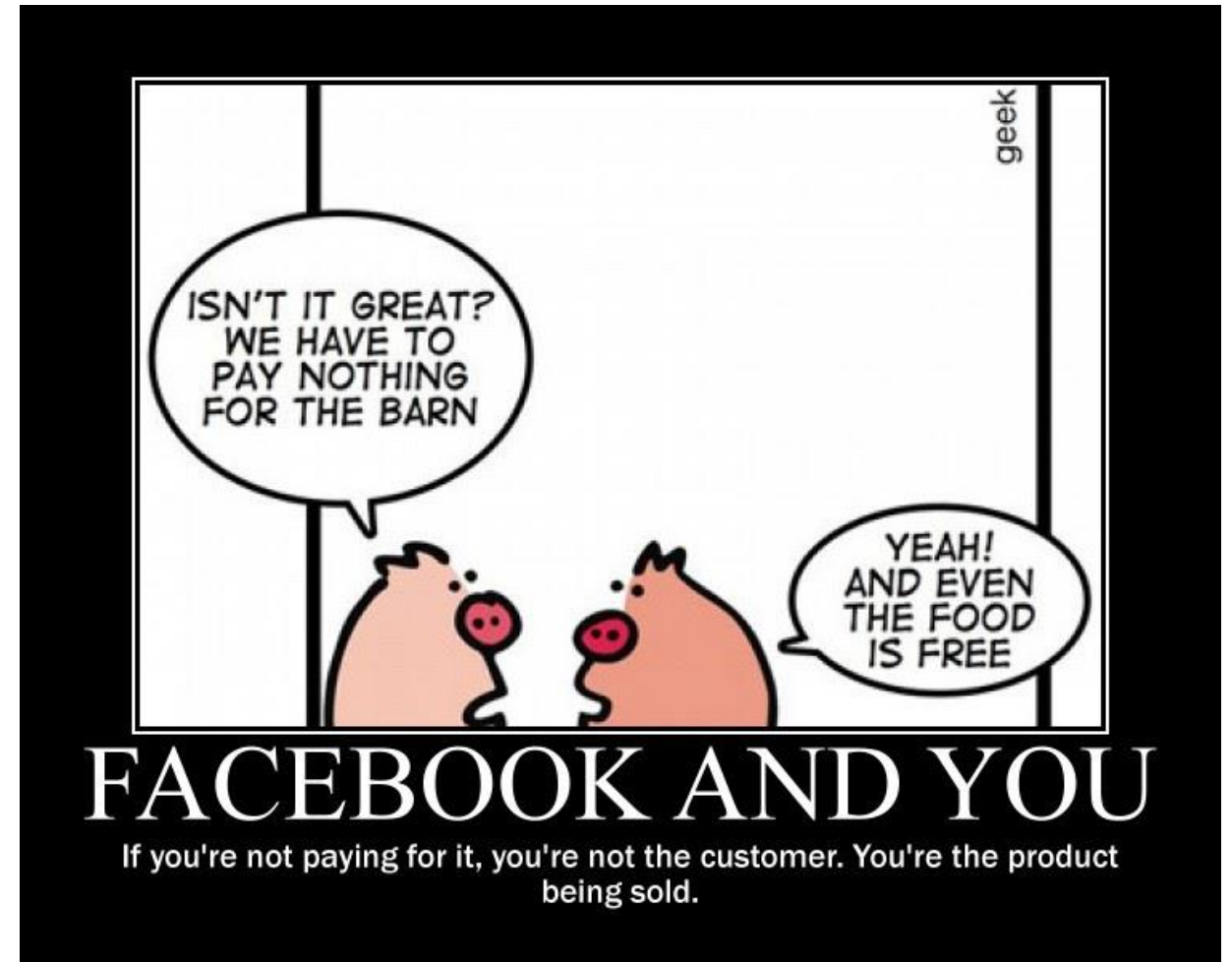
Source: Visual Capitalist



Data is the new oil

What about humans?

- Humans are mined for **cash, data, and time**
- Humans are sold on **data markets**
 - User traces & data enrichment
- Humans are competing on **platform markets**
 - Gig economy: Humans are sources of cheap, unseen labor



How the Tech Giants Make Their Billions



Published 11 months ago on March 29, 2019

By Jeff Desjardins



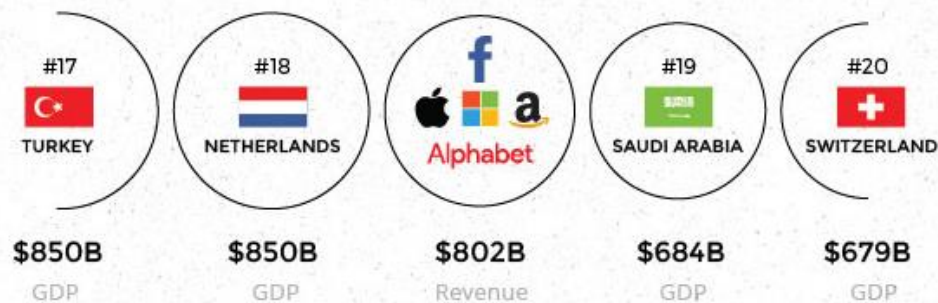
CHART OF THE WEEK

How Tech Giants Make Their Billions

Breaking down the revenue streams of tech's largest companies

Collectively, the Big Five tech companies generate over \$800 billion in revenue each year, making them bigger than Saudi Arabia's entire economy.

How do these companies make their money? Let's dig in.



Big Tech Revenues (2019 vs. 2018)

Company	Revenue (2018)	Revenue (2019)	Growth (YoY)
Apple	\$265.6 billion	\$260.2 billion	-2.03%
Amazon	\$232.9 billion	\$280.5 billion	20.44%
Alphabet	\$136.8 billion	\$161.9 billion	18.35%
Microsoft	\$110.4 billion	\$125.8 billion	13.95%
Facebook	\$55.8 billion	\$70.8 billion	26.88%
Combined	\$801.5 billion	\$899.2 billion	12.19%

How Tech Giants Make Their Billions

You are also a customer

- **Microsoft**
 - *Revenue in 2018: \$110.4 billion*
- **Apple**
 - *Revenue in 2018: \$265.6 billion*
- **Amazon**
 - *Revenue in 2018: \$232.9 billion*

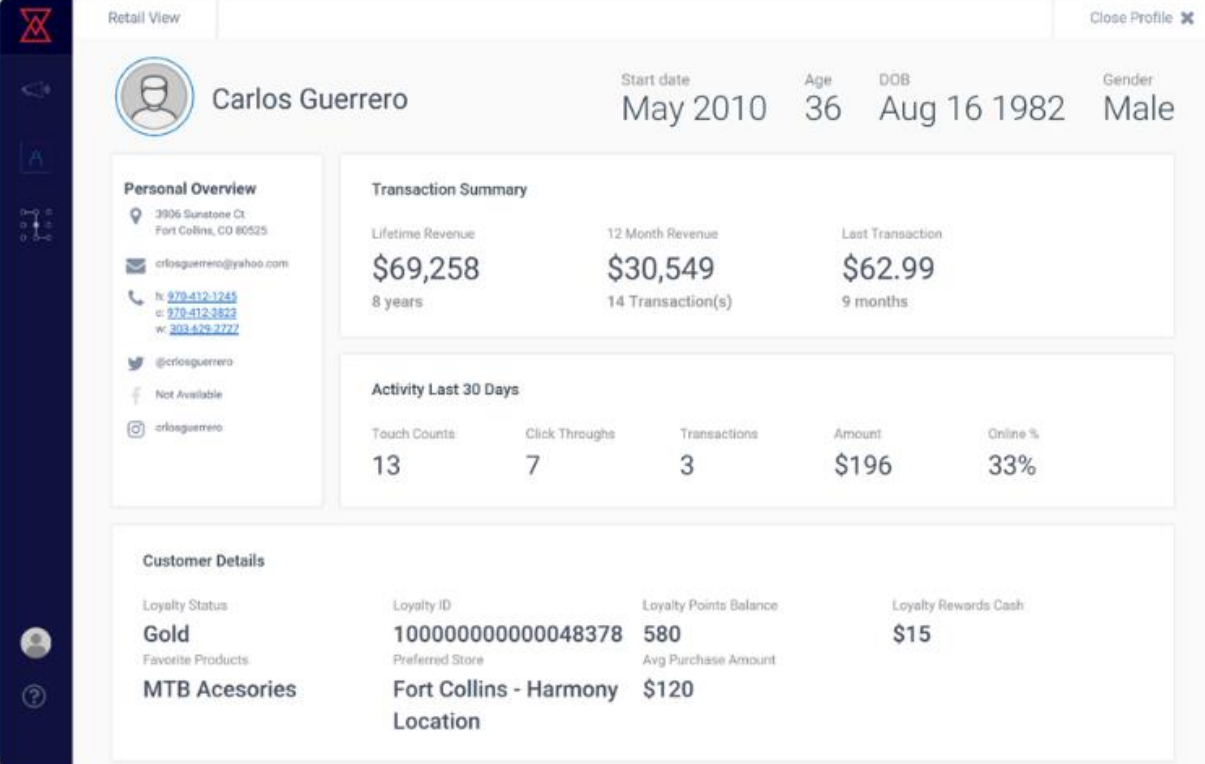
Our data attracts our money

You are mainly the product

- **Alphabet**
 - *Revenue in 2018: \$136.8 billion*
- **Facebook**
 - *Revenue in 2018: \$55.8 billion*

Our data attracts our eyeballs

Data markets turn people into products



Customer Profile View

A web user interface that displays key data such as personally identifiable information, demographic and behavioral information, and metrics like web visits, transaction history, customer lifetime value and more.

Personal Overview

- 3906 Sunstone Ct
Fort Collins, CO 80525
- orlsguerrero@yahoo.com
- 970-412-1245
970-412-3822
203-479-7777
- @crlsguerrero
- Not Available
- orlsguerrero

Transaction Summary

Lifetime Revenue	12 Month Revenue	Last Transaction
\$69,258 8 years	\$30,549 14 Transaction(s)	\$62.99 9 months

Activity Last 30 Days

Touch Counts	Click Throughs	Transactions	Amount	Online %
13	7	3	\$196	33%

Customer Details

Loyalty Status	Loyalty ID	Loyalty Points Balance	Loyalty Rewards Cash
Gold	100000000000048378	580	\$15
Favorite Products	Preferred Store	Avg Purchase Amount	
MTB Accesories	Fort Collins - Harmony Location	\$120	

RedPoint Global: “Know all That’s Knowable About the Customer”

Data enrichment makes people predictable

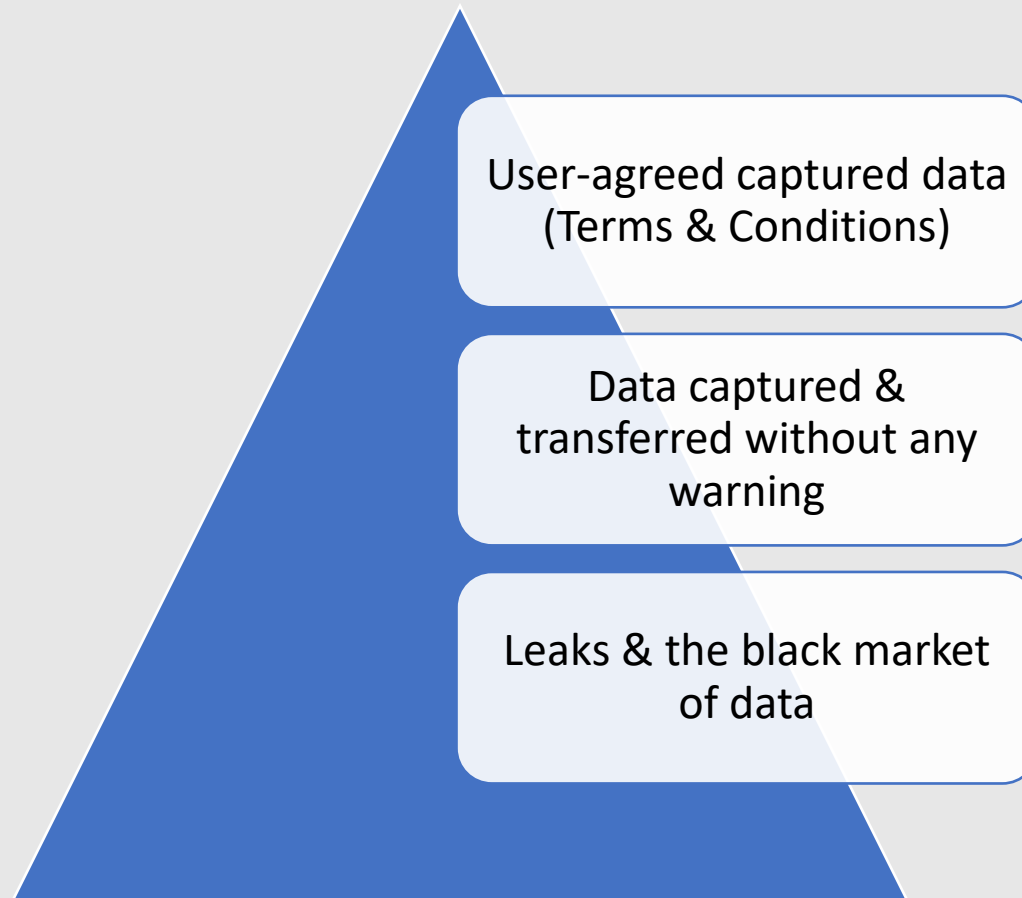
Data Enrichment

What It is and Why You Need It

- Merging local datasets with third party data
 - Geographic
 - Demographic: income, kids, criminal background



Layers of user control over personal data



November 22, 2019

Personal And Social Information Of 1.2 Billion People Discovered In Massive Data Leak

On October 16, 2019 Bob Diachenko and Vinny Troia discovered a wide-open Elasticsearch server containing an unprecedented **4 billion user accounts** spanning more than **4 terabytes of data**.

A total count of unique people across all data sets reached more than 1.2 billion people, making this one of the largest data leaks from a single source organization in history. The leaked data contained names, email addresses, phone numbers, LinkedIn and Facebook profile information.

What makes this data leak unique is that it contains data sets that appear to originate from 2 different data enrichment companies.

Shoshanna Zuboff: Surveillance capitalism

- Data – Prediction products – Behavior modification
 - Business model
 - Scale
 - Consolidation
- Interviews: [The Intercept](#), [The Guardian](#)

[Log in](#)

[Join](#)

 Facebook

 Google

Username or email

Password

Log in



Surveil-lance Cap-i-tal-ism, n.

- **1.** A new economic order that claims human experience as free raw material for hidden commercial practices of extraction, prediction, and sales; **2.** A parasitic economic logic in which the production of goods and services is subordinated to a new global architecture of behavioral modification; **3.** A rogue mutation of capitalism marked by concentrations of wealth, knowledge, and power unprecedented in human history; **4.** The foundational framework of a surveillance economy; (..) **8.** An expropriation of critical human rights that is best understood as a coup from above: an overthrow of the people's sovereignty.

Surveillance capitalism

- “Once we searched Google, but now Google searches us. Once we thought of digital services as free, but now surveillance capitalists think of us as free.”
- “Economies of action”: systems designed to modify our behavior for commercial outcomes
- “It is no longer enough to automate information flows about us; the goal now is to automate us.”
- “We are trapped in an involuntary merger of personal necessity and economic extraction”

THE AGE OF SURVEILLANCE CAPITALISM

—
**THE FIGHT FOR A
HUMAN FUTURE
AT THE NEW
FRONTIER OF POWER**

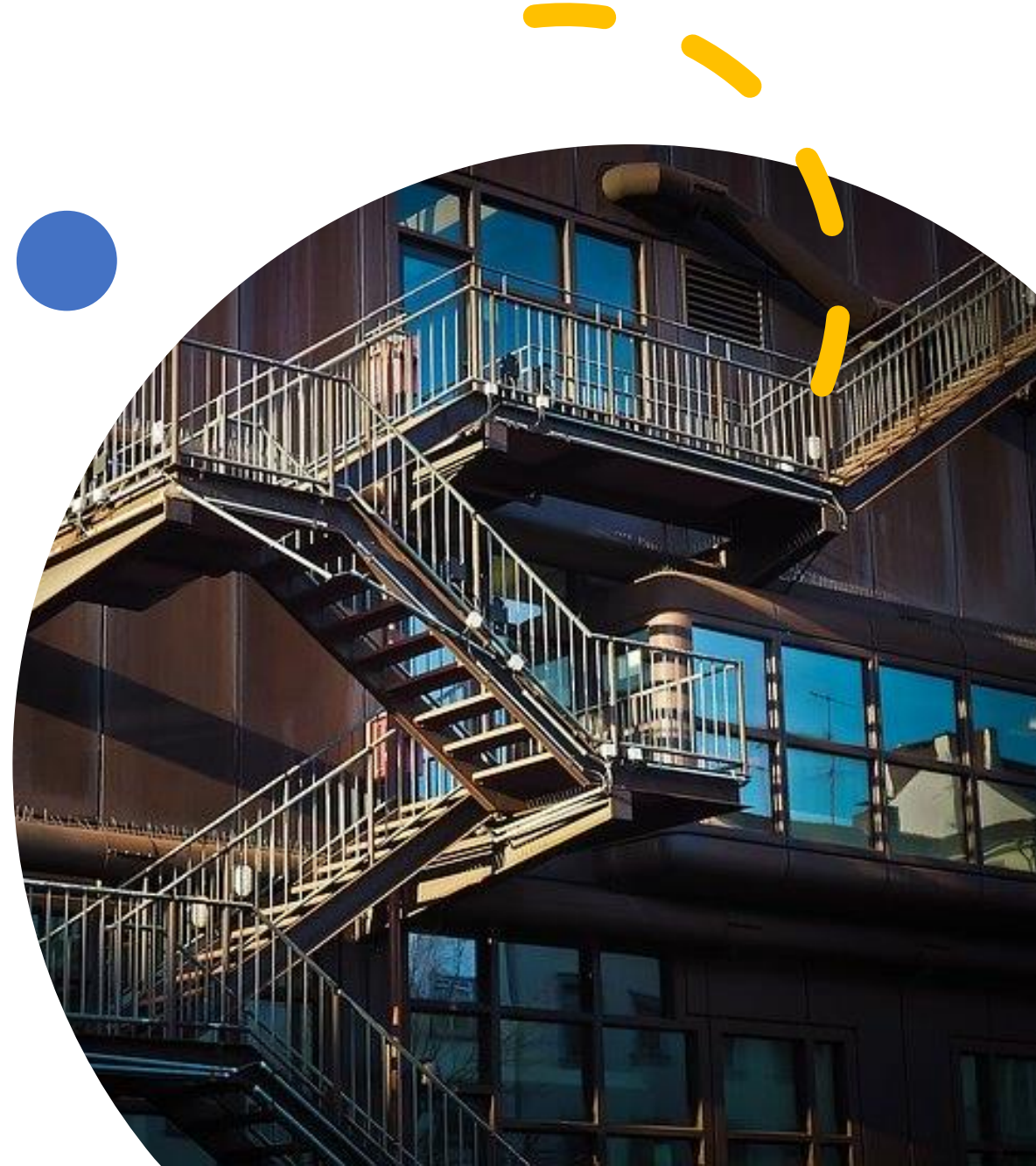
—
**SHOSHANA
ZUBOFF**



5. Conclusions

Take away

- Why care? Manipulation & fairness
- Privacy concerns tech people
- Privacy = choice in the new world order
 - 4th Industrial Revolution
 - Digital infrastructures & Platform capitalism
 - Surveillance capitalism
 - App culture
- **Sensemaking: Four perspectives**
 - Ethical | Free market | Cognitive | Interactional
- **Taking action: Three roles**
 - User | Expert | Policy-maker

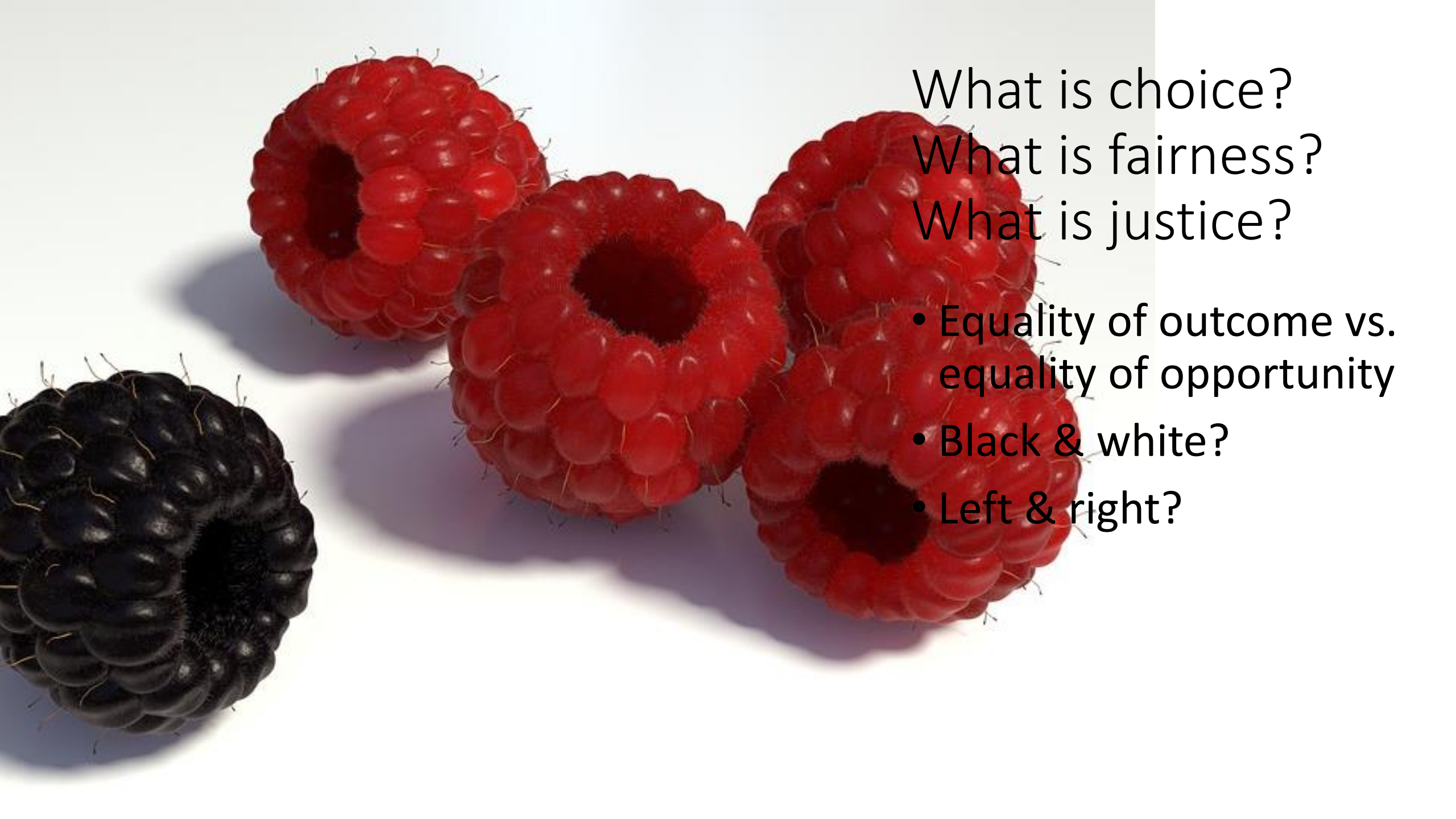


Take away

- Why?
 - Privacy is not cake: Tech is downgrading human autonomy
 - Why now? Emerging policies, investigations, NGO collective action
 - Who cares?
- Sensemaking: Four perspectives
 - Ethical | Free market | Cognitive | Interactional
- Taking action: Three roles
 - User | Expert | Policy-maker
- Privacy = choice in the new world order
 - 4th Industrial Revolution
 - Digital infrastructures & Platform capitalism
 - Surveillance capitalism

Selected readings

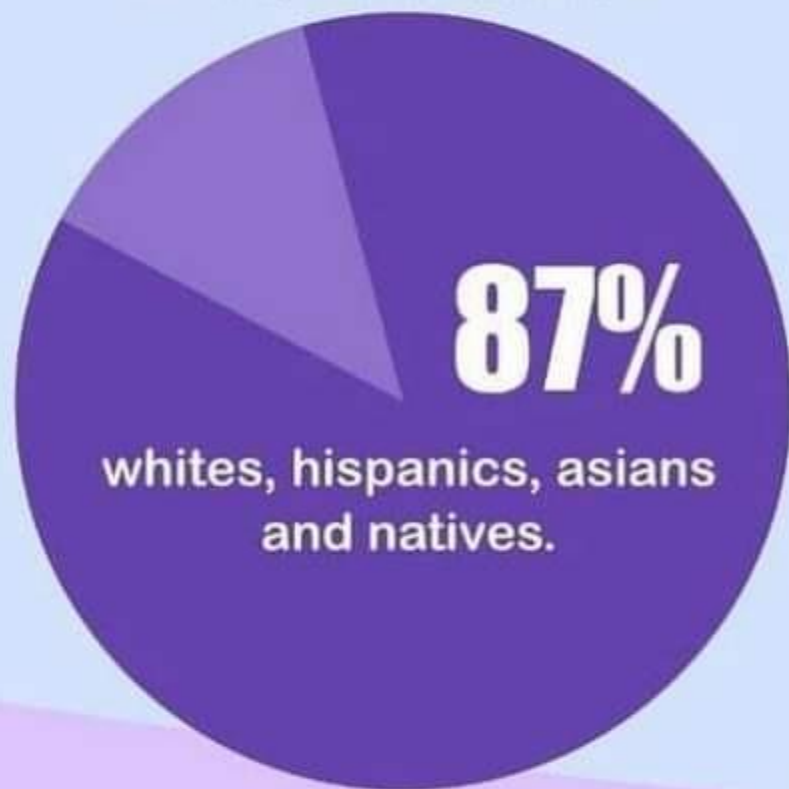
- Stuart Brand, 2018. [Pace layering: How complex systems learn and keep learning](#)
- Scott Brinker, 2016. [Martec's Law: The greatest management challenge of the 21st century](#)
- Wolfie Christl, 2017. [Corporate Surveillance in Everyday Life](#). Cracked Labs.
- John Naughton, 2019, ['The goal is to automate us': welcome to the age of surveillance capitalism](#)
- Jeff Desjardins, 2019, [How the tech giants make their billions](#)
- Ashiqur R. KhudaBukhsh, Rupak Sarkar, Mark S. Kamlet, and Tom M. Mitchell. "[We Don't Speak the Same Language: Interpreting Polarization through Machine Translation](#)." *arXiv preprint arXiv:2010.02339* (2020).



What is choice?
What is fairness?
What is justice?

- Equality of outcome vs. equality of opportunity
- Black & white?
- Left & right?

U.S. POPULATION



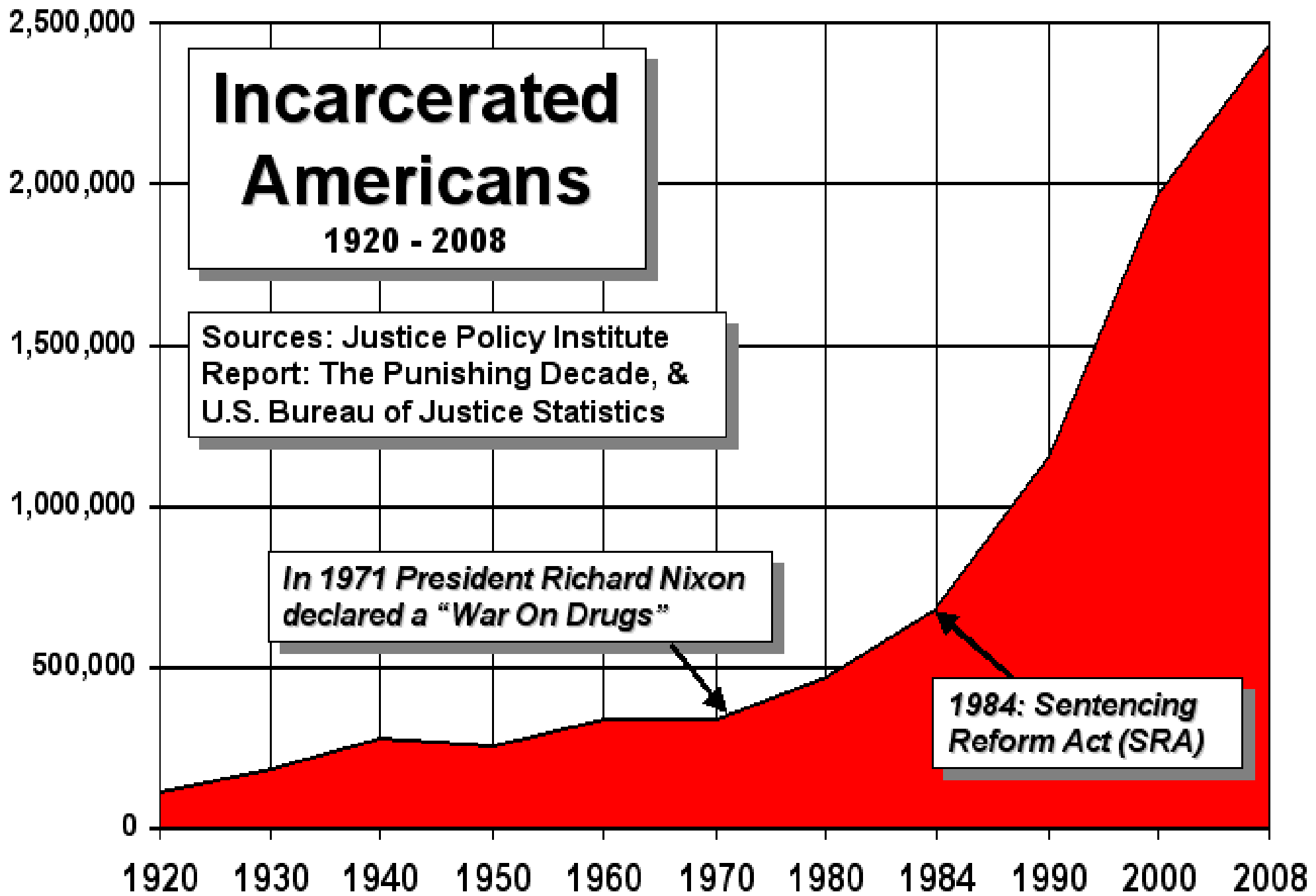
Commit



CRIME IN U.S. (2019)



Source: <https://ucr.fbi.gov/crime-in-the-u.s/2019/crime-in-the-u.s/>

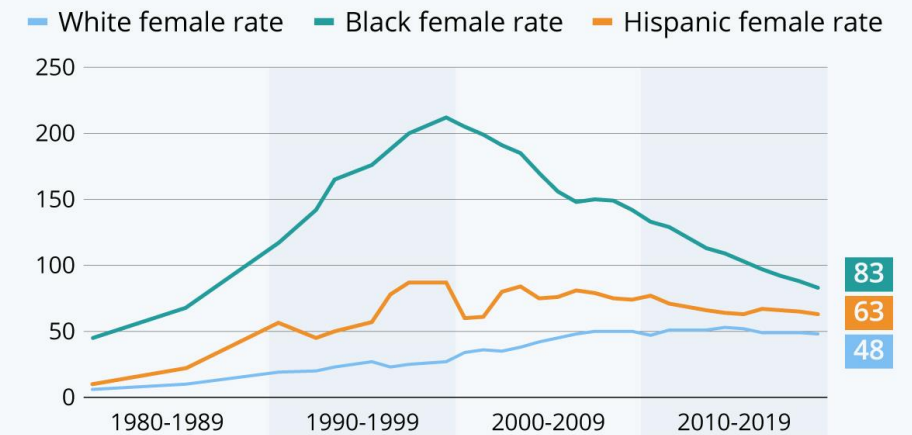
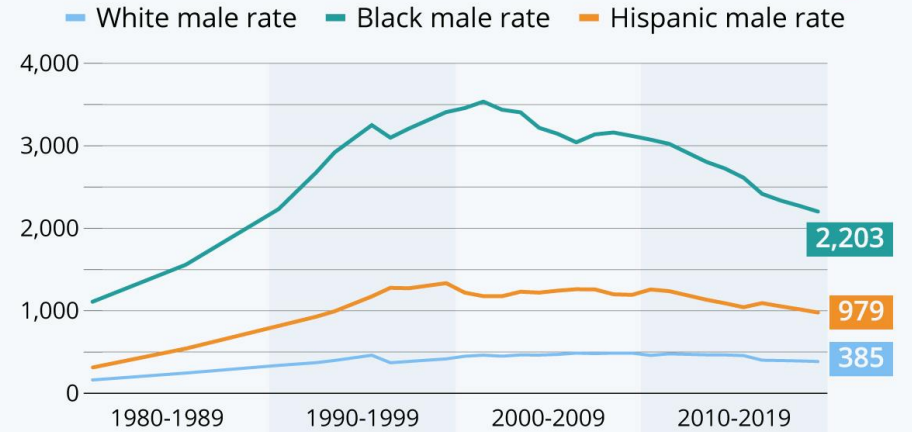


Changing policies, changing incarceration rates

- “There’s been a big decline in the black incarceration rate, and almost nobody’s paying attention” (Keith Humphreys, Washington Post, 2016)
 - “methamphetamine, prescription opioid and heroin epidemics have affected whites more than did the crack cocaine epidemic”

Black Incarceration Rates Are Dropping in the U.S.

Sentenced prisoners in the U.S.
per 100,000 residents, by race/ethnic origin*



* State and federal prison, 18 years and older

Source: Bureau of Justice Statistics



We Don't Speak the Same Language: Interpreting Polarization through Machine Translation

Ashiqur R. KhudaBukhsh, Rupak Sarkar, Mark S. Kamlet, Tom M. Mitchell

[Download PDF](#)

WILL KNIGHT BUSINESS 10.21.2020 05:34 PM

The Left and the Right Speak Different Languages—Literally

A study analyzing patterns in online comments found that liberals and conservatives use different words to express similar ideas.



Left & Right



What Republicans and Democrats say about each other

% of Republicans who say Democrats are more ___ than other Americans

			About the same	
Closed-minded	52%	Open-minded	11%	35%
Immoral	47	Moral	3	49
Lazy	46	Hard-working	3	50
Dishonest	45	Honest	2	52
Unintelligent	32	Intelligent	3	64

% of Democrats who say Republicans are more ___ than other Americans

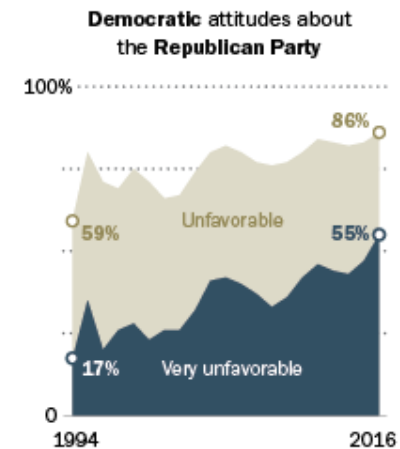
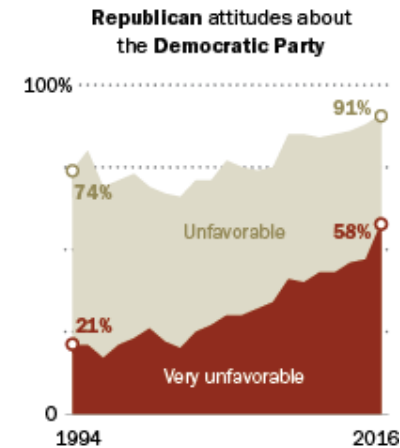
			About the same	
Closed-minded	70%	Open-minded	5%	23%
Dishonest	42	Honest	5	51
Immoral	35	Moral	9	54
Unintelligent	33	Intelligent	7	58
Lazy	18	Hard-working	9	71

Note: Don't know/No answer not shown.

Source: Survey conducted March 2-28 and April 5-May 2, 2016.

PEW RESEARCH CENTER

Rising partisan antipathy

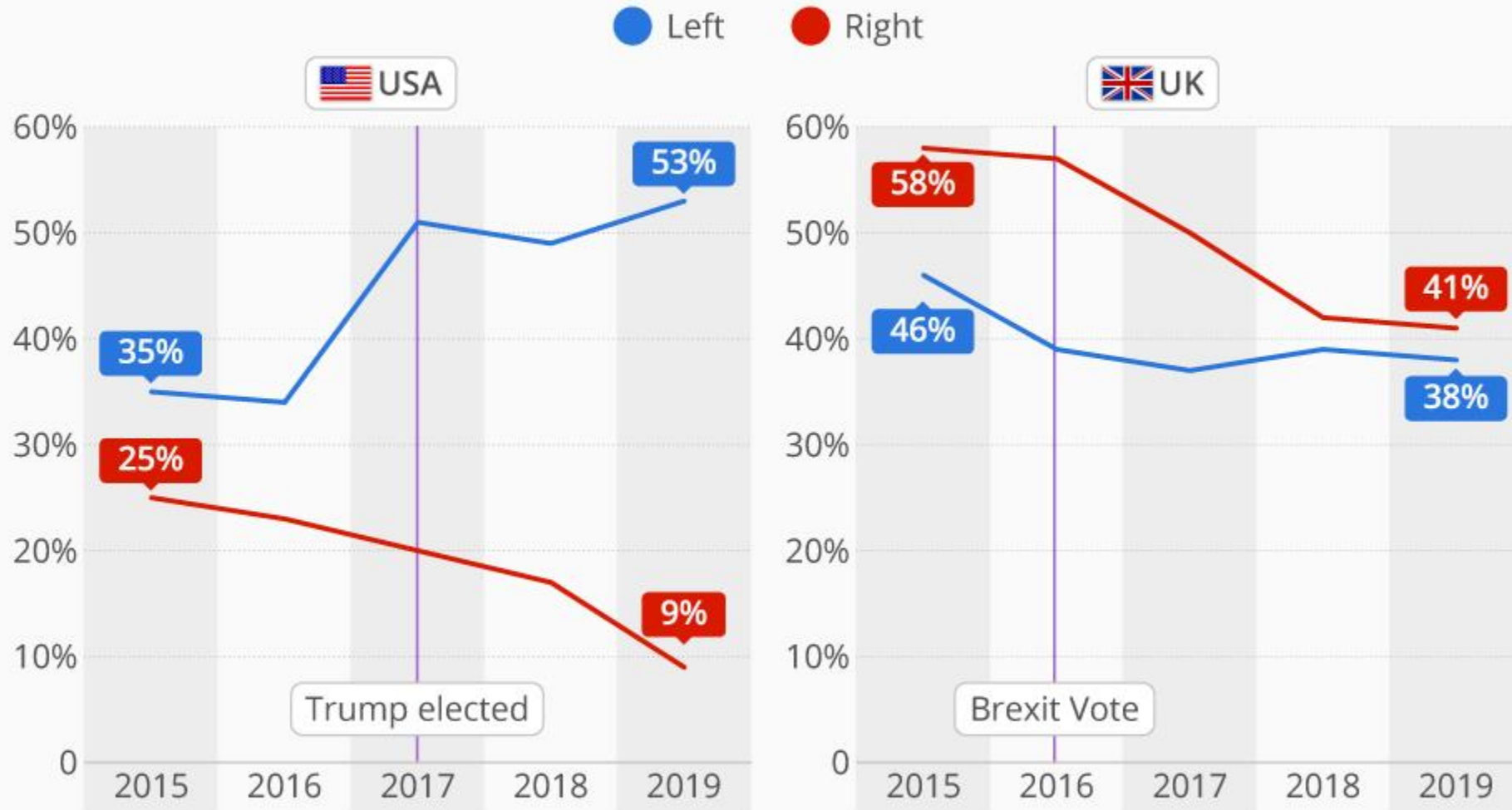


Source: Survey conducted April 12-19, 2016.

PEW RESEARCH CENTER

Is News Polarization An American Problem?

Share of respondents that trust most news most of the time by partisanship



1,000 U.S. adults were interviewed for this survey, while 800 UK respondents were interviewed between the end of January to the beginning of February 2019.

Source: Reuters Institute Digital News Report

Fairness vs Fake News, Hate Speech & Polarization

Karen Hao, March 2021, "[How Facebook got addicted to spreading misinformation. The company's AI algorithms gave it an insatiable habit for lies and hate speech. Now the man who built them can't fix the problem.](#)", MIT Technology Review



Photo of Joaquin Quiñonero Candela,
a director of AI at Facebook