Technology and Democracy: Self-correcting or Collision Course?

Foresight Synergy Network
University of Ottawa, November 23, 2018
Stephen Fanjoy
“A people that no longer can believe anything cannot make up its mind. It is deprived not only of its capacity to act but also of its capacity to think and to judge. And with such a people you can then do what you please.”

Hannah Arendt, 1978
Technology and Democracy: Self-correcting or Collision Course?

Communication and information technology has always played a role in politics. Until very recently, the normative view was that these technologies were a constructive, humanistic force that generally helped to achieve, among other things, more just, functional, rational and accountable political governance. This view was held no more firmly than in democratic states, especially during the Cold War era through to the early years of mass internet adoption. But almost all technologies have dual uses and, compared to authoritarian governance, democracy is a historically young, incomplete, and fragile human institution. The technology developments of the last half decade and a critical appreciation of the information operations, propaganda, and psychology of the last century suggest much future uncertainty about the role that technology may continue to play in advancing democracy. This overview will raise many questions, answer too few, but should stimulate much discussion and thought.
What (is) “democracy”?
A Simple, Working Definition of Democracy

• Group decision making via representation
  – Free, fair, and regular elections
  – Election results accepted
• Rules and norms for civil information exchange
  – Including but not limited to news media
  – Reasonable disagreement
• Equality of participants
• A process that iterates, corrects, continues
Number of world citizens living under different political regimes

The Polity IV score captures the type of political regime for each country on a range from -10 (full autocracy) to +10 (full democracy). Regimes that fall into the middle of this spectrum are called anocracies.

Source: World Population by Political Regime they live in (OWID (2016))
OurWorldInData.org/a-history-of-global-living-conditions-in-5-charts/ • CC BY-SA
Political Regime, 2015
The Polity IV score classifies the type of political regime for each country on a range from -10 (full autocracy) to +10 (full democracy). Regimes that fall into the middle of this spectrum are called anocracies.

Source: Political Regime (OWID based on Polity IV and Wimmer & Min)
What is technology?

• “Technology is the collection of techniques, skills, methods, and processes used in the production of goods or services or in the accomplishment of objectives...”

Technology can be the knowledge of techniques, processes, and the like, or it can be embedded in machines to allow for operation without detailed knowledge of their workings...”
The Provisional Argument

• Information and communications technology (ICT) is increasingly pervasive and powerful
  – Serves commercial interests
  – Changes human values, behaviour, minds
• Democracy requires humans and ICT
  – ICT is hackable and insecure
  – Humans are hackable
• Democracy is hackable

• We’re in deep trouble...

(Unless...)
Agenda

• Introduction
• (In)Security
• Battle for our minds
• Humans are hackable
• Humans are surveilled
• (Discussion: what can be done?)
# Century of Converging Domains

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<tr>
<th>GeoPol Context</th>
<th>WW1</th>
<th>WW2</th>
<th>Cold War</th>
<th>9/11</th>
<th>Snowden</th>
<th>Arab Spring/Winter ISIS</th>
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<td>Industrial Espionage</td>
<td>Criminal</td>
<td>Commercial</td>
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<td>ICT Security</td>
<td>Clipper Chip</td>
<td>RSA</td>
<td>ZeroDay</td>
<td>Stockpiling</td>
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<td>ICT Media</td>
<td>AdNews, Radio, Movies</td>
<td>TV</td>
<td>24hr News</td>
<td>Internet</td>
<td>Social</td>
<td>Mobile</td>
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<td>Science</td>
<td>Behavioural</td>
<td>Psychology</td>
<td>Social Psychology</td>
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** Ukraine/Brexit, 11/9
A brief history of ICT

• 3100 BCE words on clay tablets
• 1438 Johannes Gutenberg movable type
  – 1450 mass printing
• 1517 Martin Luther
  – 95 complaints, 30 pamphlets, 300,000 copies
• 1605 weekly “news press”
• 1844 Samuel Morse telegraph
  – 1880 650,000 miles worldwide
  – Used in Crimean and US Civil Wars

• 1876 Alexander Graham Bell telephone
  – 1983 first commercial mobile handset
• 1894 Guglielmo Marconi wireless telegraphy (radio)
  – Belgian Congo and Russian-Japanese war
  – 1906 first US radio broadcast
  – 1924 3 million sets and 20 million listeners
  – 1932 FDR Fireside Chats
  – 1941 Pearl Harbor speech 80% of Americans listened live
“It would not have been possible for us to take power or use it in the ways we have without the radio”

Joseph Goebbels
A brief history of ICT

• **Television**
  – 1960 90% of American households
  – Telegenic JF Kennedy vs Nixon
  – 1980 CNN founded, 24hr news

• **BBSs** 1978

• **ARPANET to the Internet**
  – 1980 70 institutions and 5,000 users
  – 1980 Usenet
  – 1982 invention of :-) and :-(
  – 1989 160,000 users
  – 1990 Tim Berners-Lee html, https, url
  – 1990 3 million users
  – 1995 16 million users
  – 2000 360 million users

• **Social network** 1998 (Six Degrees)
  – 2004 Facebook
  – 2006 Twitter

• **Smartphone** 2000 (Ericsson)
  – 2007 iPhone
  – 2014 mobile time on internet exceeds PCs, 99.5% to access content/information
  – 2016 checked 165 day per day (ave)

• **Global Information war**
  – 2013+ ISIL social media

• **Hacking democracy**
  – 2014 Ukraine election hack
  – 2016 Brexit
  – 2016 US presidential election
“I thought once everybody could speak freely and exchange information and ideas, the world was automatically going to be a better place. I was wrong about that”

Evan Williams, Twitter Cofounder
Selected Democratic Information Technologies

- Education
- Statistics and polling
- Election systems
- Media
- Political party
  - Voter data and analytics
    - Note: Exempted from privacy laws
  - Campaign systems
  - Communications (email, mobile, etc.)
- New technologies
  - Social media
  - Big data
  - Forums
  - AI
Percent Who Say Their News Media are Doing Very/Somewhat Well at Reporting ... The Different Positions on Political Issues Fairly

(Source: PEW)
News Sites by Partisan Attention
## US News Media Trends

### Key annual audience trends, 2017 vs. 2016

<table>
<thead>
<tr>
<th>Medium</th>
<th>Change</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspapers</td>
<td>↓ 11%</td>
<td>daily circulation</td>
</tr>
<tr>
<td>Cable TV</td>
<td>↓ 12%</td>
<td>evening news combined average audience</td>
</tr>
<tr>
<td>Network TV</td>
<td>↓ 7%</td>
<td>evening news combined average audience</td>
</tr>
<tr>
<td>Local TV</td>
<td>↓ 15%</td>
<td>morning news combined average audience</td>
</tr>
<tr>
<td>Local TV</td>
<td>↓ 7%</td>
<td>late night/early evening combined average audience</td>
</tr>
<tr>
<td>Digital-native news</td>
<td>5%</td>
<td>average monthly unique visitors</td>
</tr>
</tbody>
</table>


### Key annual economic trends, 2017 vs. 2016

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<thead>
<tr>
<th>Medium</th>
<th>Change</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspaper</td>
<td>↓ 10%</td>
<td>advertising revenue</td>
</tr>
<tr>
<td>Cable TV</td>
<td>↑ 10%</td>
<td>total revenue for Fox News, CNN, and MSNBC combined</td>
</tr>
<tr>
<td>Network TV</td>
<td>No change</td>
<td>in combined advertiser expenditures for the evening broadcast news programs</td>
</tr>
<tr>
<td>Local TV</td>
<td>↓ 13%</td>
<td>over-the-air ad revenue from 2016 election year</td>
</tr>
<tr>
<td>Local TV</td>
<td>↓ 4%</td>
<td>over-the-air ad revenue from last non-election year of 2015</td>
</tr>
<tr>
<td>Radio</td>
<td>↓ 2%</td>
<td>Average per-station revenue for all-news, news/talk and news/talk/info stations</td>
</tr>
</tbody>
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**Sources:** Pew Research Center analysis of year-end SEC filings of publicly traded newspaper companies; SNL Kagan; Kantor Media; Pew Research Center analysis of MEDIA Access Pro & BIA Advisory Services data.
US News Media Trends

- Digital advertising revenue continues to grow, but little of it benefits news organizations.
- 52% of all digital display advertising revenue goes to just two companies: Facebook and Google.
- Mobile advertising revenue, which totaled $61 billion in 2017, roughly equal to the total amount of digital advertising revenue just two years prior.

![Digital and non-digital advertising revenue chart](chart.png)

Note: Figures are updated annually.
PEW RESEARCH CENTER
About two-thirds of Americans get news on social media

% of U.S. adults who get news on social media ...

68% ever get news on social media

- Never: 32%
- Often: 20%
- Sometimes: 27%
- Hardly ever: 21%

But most social media news consumers expect news there to be inaccurate

% of social media news consumers who say they expect the news they see on social media to be ...

Largely inaccurate  Largely accurate
57%  42%

More than half of social media news consumers expect the news there to largely be inaccurate

% of social media news consumers who say they expect the news they see on social media to be ...

<table>
<thead>
<tr>
<th></th>
<th>Largely inaccurate</th>
<th>Largely accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>All social media news users</td>
<td>57%</td>
<td>42%</td>
</tr>
<tr>
<td>Republicans</td>
<td>72%</td>
<td>27%</td>
</tr>
<tr>
<td>Democrats</td>
<td>46%</td>
<td>52%</td>
</tr>
<tr>
<td>Independents</td>
<td>52%</td>
<td>47%</td>
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</tbody>
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Among social media news consumers, those who prefer to get news on ...

Largely inaccurate  Largely accurate

<table>
<thead>
<tr>
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<th>Largely accurate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social media</td>
<td>42%</td>
<td>53%</td>
</tr>
<tr>
<td>TV</td>
<td>58%</td>
<td>41%</td>
</tr>
<tr>
<td>Website/App</td>
<td>59%</td>
<td>39%</td>
</tr>
<tr>
<td>Radio</td>
<td>61%</td>
<td>38%</td>
</tr>
<tr>
<td>Print</td>
<td>68%</td>
<td>30%</td>
</tr>
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Note: No answer responses not shown.
Source: Survey conducted July 30-Aug. 12, 2018.
“News Use Across Social Media Platforms 2018”
PEW RESEARCH CENTER
Back in the top 20 but still room for improvement

Prime Minister Trudeau has strongly advocated for a ‘free media’ as guaranteed under Canada’s 1982 Constitution. Despite recent positive steps, like the establishment of a Commission of Inquiry to investigate Quebec police surveillance of multiple journalists, and the adoption of a federal press “shield law” to protect the confidentiality of journalists’ sources, his first two years in office have been an overall disappointment. A VICE News reporter is still fighting a court order compelling him to hand over communications with his source to the Royal Canadian Mounted Police.
(IN)SECURITY
Carl von Clausewitz

• War is “the continuation of political intercourse with the addition of other means”
  – Part of a continuum of interactions between peoples and governments

• “The moral elements are among the most important in war. They constitute the spirit that permeates war as a whole... they establish a close affinity with the will that moves and leads the whole mass of force.”
USA GAO: “Automation and connectivity are fundamental enablers of DOD’s modern military capabilities. However, they make weapon systems more vulnerable to cyber attacks. Although GAO and others have warned of cyber risks for decades, until recently, DOD did not prioritize weapon systems cybersecurity. Finally, DOD is still determining how best to address weapon systems cybersecurity.”

“DOD testers routinely (2012 to 2017) found mission-critical cyber-vulnerabilities in nearly all weapon systems that were under development. Using relatively simple tools and techniques, testers were able to take control of these systems and largely operate undetected.”
“In 2010, 50 nuclear-armed Minuteman in underground silos in Wyoming disappeared from their launching crews’ monitors for nearly an hour...

Hackers were constantly bombarding our nuclear networks, and it was considered possible that they had breached the firewalls...
“Everything is Becoming a Computer”

- Computers are hard to secure
- Patching is failing
- Attackers harder to find
- Everyone is insecure
- Risks are becoming catastrophic
Hackers only needed a phone number to track this MP's cellphone

Tests show Canada's two largest telecoms vulnerable to international hackers

Brigitte Bureau, Catherine Cullen, Kristen Everson - CBC News -
Posted: Nov 22, 2017 5:00 PM ET | Last Updated: November 24, 2017

What is SS7 and is China Using It To Spy on Trump's Cell Phone?

The telecom industry has known about a major vulnerability in its mobile infrastructure for decades, so why was nothing ever done about it?
• Living vs immortal vulnerabilities
• Vulnerabilities are offensive and defensive intelligence assets
• 6.9 years average life
  – ~25% less than 1.5 years
• About 5.7% of known/secret vulnerabilities become public per year
• Once disclosed median time to exploit 22 days
BATTLE FOR OUR MINDS
Information Operations

• Information Operations (IO)
  – Electronic Warfare (EW)
  – Computer Network Operations (CNO)
  – Psychological Operations (PSYOP)
  – Military Deception (MILDEC)
  – Operations Security (OPSEC)
“This will always remain one of the best jokes of democracy, that it gave its deadly enemies the means by which it was destroyed.”

Joseph Goebbels
Propaganda

• “From the Latin propagare, to propagate”
  – “The organized attempt through communication to affect the belief or action or inculcate attitudes in a large audience in ways that circumvent or suppress an individual’s adequately informed, rational, reflective judgement.”

• “The propagandist sets the stage to provide some false or unexamined premise in the picture of reality affecting a propagandee’s action.”

  Randal Marlin
20th Century Propaganda

- **WW1**
  - British Political Warfare Executive
    - Domestic propaganda
  - US Office of War Information
    - Creel Committee delegitimized domestic propaganda

- **Russian revolution**
  - Films; domestic

- **Nazi Germany**
  - Hitler and Goebbels inspired by Britain and US; domestic

- **Cold war**
  - Film, radio, TV, print, think tanks

- **Commercial advertising/public relations and propaganda are dual uses of the same underlying methods.** Political advertising too.

- **Social psychology of persuasion**
  - Credibility, expertise, trustworthiness, attractiveness
  - Quick, superficial impressions and decisions
  - Emotion vs logic
  - Us vs them
  - Reach groups
  - Hide the propagandist
Doublethink:

“To know and not to know, to be conscious of complete truthfulness while telling carefully constructed lies, to hold simultaneously two opinions which cancel out, knowing them to be contradictory and believing them;

to use logic against logic, to repudiate morality while laying claim to it ...

to forget whatever was necessary to forget, then draw it back to memory again at the moment it was needed, and then promptly forget it again; and above all,

— To apply the same process to the process itself... even to understand the word doublethink involved the use of doublethink”

Political language is “designed to make lies sound truthful” a “contagion” designed to conceal

Lies and false presuppositions vs neutral facts

“...a nightmare world in which the Leader... controls not only the future but the past”

Propaganda exploits lazy thinking
Jacques Ellul: Propaganda, Political Illusion, The Technological Society

- Use one or more governing myths:
  - Work, happiness, nation, youth, the hero
- Direct propaganda receptiveness requires prior conditioning “pre-propaganda”
  - Myths, stereotypes, ambiguities, images
- Propaganda is a technique that exploits sociology, psychology, technology
  - Political vs sociological propaganda
  - Agitation vs integration
  - Vertical vs horizontal
  - Irrational vs rational
- The illusion that people control politics, that it is the solution
- Technology is amoral, in control, growing, self-reinforcing, demands that people adapt and submit, will solve all problems
Psychological Operations (PSYOP)

- **Influence** the emotions, motives, and objective reasoning, and ultimately the behavior of governments, organizations, groups, and individuals
  - Exploit logic, fear, desire
- **Propaganda + psychological tactics**
  - Individuals, groups, mass audiences
- **Ancient form, “war of the mind”**
  - For both conquering and controlling
  - Nonviolent force multiplier
- **White propaganda**
  - Truthful, sourced
  - Omissions and emphasis
- **Gray propaganda**
  - ~Truthful, can’t be falsified, unsourced
  - Omissions, emphasis, racial/ethnic/religious bias

- **Black propaganda**
  - Deceitful, false attribution
  - Hide true source
- **Rolling Stone, ACLU 2011**
  - US Army accused of PSYOP campaign on members of the Senate and Congress to manipulate funding for the war in Afghanistan
  - “To amend the United States Information and Educational Exchange Act of 1948 to authorize the domestic dissemination of information and material about the United States intended primarily for foreign audiences, and for other purposes.”
We’re In The Era of Domestic Propaganda


- 2003 Rumsfeld DoD Information Operations Roadmap (declassified):
  - “information for foreign audiences, including public diplomacy and PSYOP, increasingly is consumed by our domestic audience and vice-versa... the distinction between foreign and domestic audiences becomes more a question of USG intent rather than information dissemination practices...”

- 2012 Smith-Mundt Modernization Act repeals previous domestic information operations restrictions.
Overton Window

The (shifting) range of politically acceptable policies in the current climate of public opinion without being too extreme for a politician to gain or keep public office.
21st Century Propaganda

- Rich intertextuality (shaping of meaning)
- Horizontal diffusion rather than vertical
- Contributions from multiple agents
- Distributed activity
- Parallelism, repetition
  - 7/24 (mobile) sharing
  - Automated sharing
- Dialogic process
- Provocative, shock value
  - Outrage
- New highly segmented and mass audiences
HUMANS ARE HACKABLE
Heuristics and Cognitive Biases

• Our brains have two systems
  – System 1 – our subconscious brain is fast
    • Intuition, instinct, automatic, involuntary, emotive, subjective
    • Uses heuristics
  – System 2 – our conscious brain requires effort
    • Reasoning, deliberating, focusing concentrating
    • Prone to logical error
    – Evolution made self control of our brain lazy
    – They are frequently in conflict
    – They are frequently wrong and can be easily manipulated

• Heuristics are simple, efficient decision making and judgement forming rules that are usually good enough or safe

• Heuristics can result in systematic errors in logic, probability, or rational choice theory. These errors are called cognitive biases.
Heuristics

- Priming: so_p (is it u or a?)
- Cognitive ease: familiar and easy seem more true
- Coherent stories: assumption about anomaly
- Confirmation bias: prioritize supportive evidence
- Halo effect: assume a person/thing is all good or all bad
- Judgement: averages and false matching, false equivalence
- Substitution: replace complex problems with simpler ones
- Affect: let likes and dislikes determine belief
- ... and 39 others...
Misperceptions, the Media and the Iraq War

October 2, 2003

Principal Investigator
Steven Kull

Research Staff
Clay Ramsay
Seth Aschius
Evan Lewis
Phillip Wains

Frequency of Misperceptions:
Evidence of al-Qaeda Links, WMD Found, World Public Opinion Favorable

Respondents with one or more misperceptions

- Fox: 80%
- CBS: 71%
- ABC: 61%
- NBC: 55%
- CNN: 55%
- Print media: 47%
- PBS-NPR: 23%
Evidence of Links Between Iraq and al-Qaeda

Is it your impression that the US has or has not found clear evidence in Iraq that Saddam Hussein was working closely with the al Qaeda terrorist organization?

US has:
- Fox: 67%
- CBS: 56%
- NBC: 49%
- CNN: 48%
- ABC: 45%
- Print media: 40%
- PBS-NPR: 16%

Weapons of Mass Destruction

Since the war with Iraq ended, is it your impression that the US has or has not found Iraqi weapons of mass destruction?

US has:
- Fox: 33%
- CBS: 23%
- NBC: 20%
- CNN: 20%
- ABC: 19%
- Print media: 17%
- PBS-NPR: 11%

World Public Opinion

Thinking about how all the people in the world feel about the US having gone to war with Iraq, do you think:
- The majority of people favor the US having gone to war

- Fox News: 35%
- CBS: 28%
- ABC: 27%
- CNN: 24%
- NBC: 20%
- Print media: 17%
- PBS-NPR: 5%
Memory is a Malleable, Subjective Construct

- Our brain is a reality simulation machine that constantly, selectively, and uniquely perceives, filters, codes, and recalls “objective reality” with our own biases and previous life influences.
- The world is not truth and fact, lies and fiction, but many shades of grey.
- Constructivism suggests that knowledge is self-constructed; meaning is the result of our experiences and our mental representation of ideas.
- Neuroplasticity gives us learning and creativity, it also gives us vulnerability to false memories of false events, and these can be implanted.
- News filters our reality and influences our perception of our identity.
- Be cautious with our own memories, curious about where memories come from, kind to people who are factually untrue.
Memory is a Malleable, Subjective Construct

• “Our memories are constructive... Memory works... like a Wikipedia page: you can go in there and change, but so can other people.” Prof Elizabeth Loftus

• Memory and identity are inherently linked

• False memories, not real but feel like they are, happen all the time
  – Post-event information, memory borrowing, contagious memories, group conformity, informational social influences
  – We see, remember and understand the world in deeply imperfect ways

• Memories can be shaped
Neil Postman: Media, Technology and Thought

• Orwell vs... Aldous Huxley in Brave New World, where people medicate themselves into bliss, voluntarily sacrificing their rights

• A particular medium can only sustain a particular level of ideas. Speech vs books, essays, radio, news, television... digital news, social media, tweets...

• “Television is altering the meaning of 'being informed' by creating a species of information that might properly be called disinformation—misplaced, irrelevant, fragmented or superficial information that creates the illusion of knowing something but which in fact leads one away from knowing”

• Technopoly is deified, “totalitarian technocracy", which demands the "submission of all forms of cultural life to the sovereignty of technique and technology". Society seeks its authorization in technology, finds satisfactions in technology, and takes orders from technology"
Ursula Franklin: The Real World of Technology

- **Technology** is a system of methods, procedures, organization, a *mindset*
- **Holistic technologies**
  - Craft workers or artisans; control, ownership of the work from start to finish
- **Prescriptive technologies**
  - Division of labour, work as a sequence of steps, large-scale
  - Establish structures of power and control, patterns of hierarchy, authoritarianism, supervision, competition, and exclusion
  - Discourages critical thinking, create "a culture of compliance" to the "one way of doing it"
  - "Many technological systems, ... are basically anti-people,"... "People are seen as sources of problems while technology is seen as a source of solutions."
- **Communication technologies**
  - Reshape political and social realities, distance people from each other
  - Focus on selective fragments, unusual pseudorealities, produced to attract and hold attention
  - "Images from afar have taken over much of our everyday reality like an immensely powerful occupation force. "And somewhere, someone will have to ask, 'How come the right to change our mental environment—to change the constructs of our minds and the sounds around us—seems to have been given away without anybody's consent?'"
SURVEILLANCE
U.S. INTELLIGENCE FUNDING
National Intelligence Program leaked by E. Snowden

US NATIONAL INTELLIGENCE: $52.6 billion

CENTRAL INTELLIGENCE AGENCY: $14.7 billion
NATIONAL SECURITY AGENCY: $10.8 billion
NATIONAL RECONNAISSANCE OFFICE: $10.3 billion
NATIONAL GEOSPATIAL-INTELLIGENCE PROGRAM: $4.9 billion
GENERAL DEFENSE INTELLIGENCE PROGRAM: $4.4 billion
JUSTICE DEPARTMENT: $3.0 billion
OTHER: $4.5 billion

DATA COLLECTION: $25.3 billion
DATA PROCESSING AND EXPLOITATION: $6.1 billion
DATA ANALYSIS: $6.2 billion
MANAGEMENT, FACILITIES AND SUPPORT: $14.4 billion

AGENCIES

MARTINGRANDJEAN.CH (CREDITS)
Source: FY2013 Congressional Budget Justification Book
Google knows everything about you, me, everyone
Surveillance Capitalism

• Advertising is incidental. **Behavioral data was the historic turning point**

• “The online world is not truly bound by terrestrial law... it’s the world’s largest ungoverned space.” (Eric Schmidt)

• “Three laws of information technology:
  – Everything that can be automated will be automated
  – Everything that can be informated will be informated
  – Every digital application that can be used for surveillance and control will be used for surveillance and control”

• “There are **two groups of people who are being monitored regularly** as they move about the country. The **first group is monitored involuntarily by a court order** requiring that a tracking device be attached to their ankle. **The second group includes everyone else.”** (Auto insurance executive)
Surveillance Capitalism

- “The goal of everything we do is to change peoples actual behavior at scale. When people use our app, we can capture their behaviors, identify good and bad behaviors, and develop ways to reward the good and punish the bad. We can test how actionable our cues are for them and how profitable for us” (CDS of prominent SV startup)

- “The assault on behavioral data is so sweeping... (that it) threatens the existential and political canon of the modern liberal order. The principle of self-determination... The sanctity of the individual and the ideals of social equality; the development of identity, autonomy, and moral reasoning; the integrity of contract. Norms and rules of collective agreement; the functions of market democracy; the political integrity of societies; and the future of democratic sovereignty.”

(January 2019)
The Growing Algorithmization of Life

• Data, algorithms and models have subjective presuppositions and logic
  – Create feedback loops
  – Justice and compassion elude direct quantification

• Examples
  – Policing and criminal courts
  – Politics
  – University acceptance
  – Job applications and performance evaluation
  – Credit
  – Insurance and healthcare

• Algorithmic bias shapes society
We are the Product

• By the end of the 1920s, most Americans were accustomed to being “cajoled and sold to” in print and on billboards.

• By the end of the 1950s, advertisers had wormed their way into the family living room, with television and radio networks “owning” times of the day that were previously sacred, like dinner hour.

• Then came the personal computer, the internet and, finally, the “fourth screen”: our mobile phones. They devoured every morsel of attention we had left, “rather in the way fracking would later recover great reserves of oil once considered wholly inaccessible.”

• “Once a commons that fostered the amateur eccentric in every area of interest, the web, by 2015, was thoroughly overrun by commercial junk”

• Philosopher William James “our life experience would ultimately amount to whatever we had paid attention to.”
We are the Product

• Attention is the product, merchants are the customer
• Attention capture for advertising has a long history
  – Public spaces, homes, cars, schools, recreation, bedrooms, hands, brains
  – Social media is the latest in a long tradition
• Rene Girard: mimetic desire is the root of behaviour
  – “Man is a creature who does not know what to desire, and who turns to others to make up his mind. We desire what others desire because we imitate their desires.”
• Humans seek the like-minded – “community”
• Humans respond to implied recommendations from friends
What is Fake News?

- **Fabricated** content
  - Completely false
- **Manipulated** content
  - Distort genuine information or imagery (e.g., “clickbait” headline)
- **Imposter** content
  - Impersonate genuine sources to leverage brand trust
- **Misleading** content
  - Eg present comment as fact
- **Fake context** of connection
  - Factually accurate content with false contextual information (e.g., article headline not related to content)
- **Satire and parody**
  - Presenting humorous but false content as if it is true
- **False Amplification**
  - Coordinated campaigns to manipulate public discussion
    - Increase desired engagement
    - Suppress genuine engagement
  - By state and non-state actors
    - Government agencies
    - State-funded media
    - Third party intermediaries
    - Paid “trolls”
- **Digital Information Operations methods by another name**

(Source: UK House of Commons Digital Culture, Media and Sport Committee)
Facebook, the Perfect Advertising & Fake News Factory

- NYT 2014
  - FB’s 1.2 billion users generated 15M person years of free labour
- It is not just about friends, following, and likes
- Internet is filled with social media identity tracking pages
  - Every click, scroll, page
- Offline, real-world ID, behaviour and attribute tracking
  - Location, spending, doing
- (Get “quasi immutable device ID examples”)
- Advertising has become surveillance
- Guardian in 2016
  - FB ‘sucked up $27 million of ad revenue’

- As admitted, but not limited to Facebook:
- Information operations
  - Action to distort political sentiment
- False news
  - Pretend to be factual but contains intentional falsehoods to arouse attention and emotion
- Disinformation
  - Spreading false news
  - Feeding unwitting intermediaries
- False amplifiers
  - Coordinated activity to manipulate the political discussion, amplifying chosen narratives
  - Includes intimidating counter narratives

(Source: London Review of Books, John Lanchester)
How are we Targeted and Tracked?

- Identity for flyers or coupons
  - Antonio García Martínez
  - 1 Clarence Place #13
  - San Francisco, CA 94107

- Quasi-immutable device ID broadcast hundreds of times a day on mobile ad exchanges.
  - 38400000-8cfo-11bd-b23e-10b96e40000d

- On a PC
  - 07J6yJPMB9juTowar.AWXGQnGPA1MCmThgb9wN4vLoUpg.BUUtWg.rg.FTN.0.AWUXzTUF
  - “This is the content of the Facebook re-targeting cookie, which is used to target ads-are-you based on your browsing.”
Social Media Icons

★ ★ ★ ★ ★

Grow your social media following with linked icons

Facebook  Twitter  Instagram  Email
Weaponization of Social Media

• The internet has left adolescence
• The internet has become a battlefield
• This battlefield changes how conflicts are fought
• This battlefield changes what “war” means, war and politics have become fused
• We are all part of this war
“Digital information warfare is cost-effective and high-impact, making it the perfect weapon of a technologically and economically weak power.”

Alina Polyakova, The Brookings Institute, 2018
Russian Interference in 2016 US Election

• “In sum, the total known cost of the most high-profile influence operation against the United States is likely around one million dollars.”
  – $100,000 Facebook ads
  – $4,700 Google ads
  – $240,000 over two years for 36,000 bot accounts on Twitter (IRA troll farm)
  – $50,000 intelligence gathering trip carried out by two Russian agents
  – Production of misleading or divisive content (pictures, memes, etc.)
  – Cyber attacks on the Democratic National Committee and the Clinton campaign
“Artificial intelligence is the future, not only for Russia, but for all humankind. It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world.”

Russian President Vladimir Putin, 2017
A. The race for leadership

Global distribution of AI startups

Top countries and cities by number of startups

**Top Countries**

1. United States 1,393
2. China 303
3. Israel 262
4. United Kingdom 249
5. Canada 135
6. Japan 115
7. France 105
8. Germany 106
9. India 62
10. Sweden 56

**Top regional hubs**

1. San Francisco 596
2. London 211
3. Tel Aviv 180
4. New York 169
5. Beijing 136
6. Boston 102
7. Tokyo 68
8. Shanghai 77
9. Los Angeles 72
10. Paris 72

**States**

- China: 383
- India: 84
- Latin America: 41
- Europe: 769
- United Kingdom: 245
- France: 106
- Israel: 109
- Russia: 19

1. Regional hubs comprise core city plus principal urban area and rural agglomeration e.g. San Francisco plus Bay Area, i.e. metropolitan area.
2. Ranking and/or 2021 data topics for which information was not available: Among cities, 100 are located in India.

Source: Asgard, CB Insights, Crunchbase, Israel startups, Nesta, AI4EU, NPD Group, B2, World Patents Office.
“For the first time in history it is near impossible to be unobserved”
US Army General Mark Milley, 2017
Freedom House: Freedom on the Net, 2018

GLOBAL INTERNET POPULATION BY 2018 FOTN STATUS
FOTN assesses 87 percent of the world’s internet user population.

- Not Free: 34%
- Partly Free: 33%
- Free: 20%
- Not Assessed: 13%

Rising Digital Authoritarianism, by the Numbers

- 8 Consecutive years of global internet freedom declines
- 36 Countries with representatives who attended Chinese trainings and seminars on new media or information management
- 17 Governments approved or proposed laws restricting online media in the name of fighting “fake news” and online manipulation
- 18 Countries increased surveillance, often eschewing independent oversight and weakening encryption to gain unfettered access to data

Internet freedom declined in 26 countries, while only 19 made gains, most of the gains minor.
Global internet user stats

Nearly 3.7 billion people have access to the internet.

According to Freedom House estimates:

- 71% live in countries where ICT users were arrested or imprisoned for posting content on political, social, or religious issues.
- 55% live in countries where political, social, or religious content was blocked online.
- 48% live in countries where individuals have been attacked or killed for their online activities since June 2017.
- 47% live in countries where the surveillance powers of the authorities increased in the past year, threatening user rights to privacy.
- 47% live in countries where access to social media or messaging platforms were temporarily or permanently blocked.
- 42% live under governments that disconnected internet or mobile networks, often for political reasons.
Inputs

- Adherence to traffic rules
- Income-tax payment
- Adherence to family-planning limits
- Loan repayment
- Payment for public transportation
- Credit-card bills
- Academic honesty
- Utility bills
- Volunteer activity
- Payment of court judgments
- Filial piety
- Criminal record

Includes:

- Jaywalking
- Interactions with other internet users
- 'Reliability' of information posted or reposted online
- Shopping habits

Generating credit score with algorithm

- Insurance premiums
- Ratings will determine eligibility for loans, jobs, etc
- Access to social services
- Access to luxury hotels
- Loan rates and amounts
- Access to internet services
- Travel abroad
- Eligibility for government jobs
- School admission and scholarships
- Access to planes and high-speed trains

*It is currently unclear how "online inputs" will be implemented.
Source: WSJ reporting based on government blueprints, state-media reports and interviews with architects of the plan.

THE WALL STREET JOURNAL
China’s tight grip on enterprises
Influencing business decisions via Social Credit Scores*

*Selection of data collected and exemplary effects of Social Credit Scores.
Source: Policy documents and regulations released by the Chinese central government since 2014.
Foreboding Warnings

• For millennia, authority came from god, from humans for a century or so
• Democracy is predicated on free will
  – Elections are based on feelings, no voter preconditions of informed rational thought
• Feelings are genetic neural, or biochemical algorithms
• Soon data and algorithms will give better answers (they only have to be better than average)
• We will be forced to submit to algorithms
• Digital dictatorship with human figureheads (for illusion)
• The human mind has been domesticated by technology
• We hardly know how the mind works, and invest little to learn
Foreboding Warnings

• The goal of human equality is very recent, “inequality goes back to the stone age”
• Globalization has grown inequality.
• AI and bioengineering will make inequality much worse
  – Human casts
  – Human speciation
• Humans will unavoidably generate and cede their data: DNA, body, mind
• Regulating data ownership is key
WHAT CAN BE DONE?