NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

NUDGES FROM ABROAD: INVESTIGATING AMERICAN VULNERABILITY TO FOREIGN CHOICE ARCHITECTURE

by

Joshua A. Henson

June 2023

Co-Advisors:
Cristiana Matei
Christopher Bellavita (contractor)

Approved for public release. Distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			*Form Approved OMB No. 0704-0188*
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC, 20503.			
1. AGENCY USE ONLY *(Leave blank)*	**2. REPORT DATE** June 2023	**3. REPORT TYPE AND DATES COVERED** Master's thesis	
4. TITLE AND SUBTITLE NUDGES FROM ABROAD: INVESTIGATING AMERICAN VULNERABILITY TO FOREIGN CHOICE ARCHITECTURE			**5. FUNDING NUMBERS**
6. AUTHOR(S) Joshua A. Henson			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			**10. SPONSORING / MONITORING AGENCY REPORT NUMBER**
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.			**12b. DISTRIBUTION CODE** A
13. ABSTRACT (maximum 200 words) This thesis uses a future scenario methodology to examine how China could use modern artificial intelligence (AI) and data tools to nudge the United States away from liberal democracy. The study imagines the period surrounding the 2032 federal elections in the United States and identifies three critical uncertainties to craft a set of plausible future scenarios. Each scenario narrative is examined for implications, and the wide-ranging set of findings are leveraged to offer a set of conclusions and recommendations. In general, there appears to be a set of risks surrounding the intersection of data surveillance, AI, and democracy. Specifically, the tools of commercial data capture could be used by foreign governments to alter behavioral patterns of Americans. The effects of these risks range from the loss of individual or corporate autonomy to the potential breakdown of the liberal democratic order.			
14. SUBJECT TERM propaganda, information communication technologies, data surveillance, China, social credit system, nudge theory, choice architecture, democracy, democratic resilience, artificial intelligence			**15. NUMBER OF PAGES** 175
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	**18. SECURITY CLASSIFICATION OF THIS PAGE** Unclassified	**19. SECURITY CLASSIFICATION OF ABSTRACT** Unclassified	**20. LIMITATION OF ABSTRACT** UU

NAVAL POSTGRADUATE SCHOOL | MONTEREY, CALIFORNIA | WWW.NPS.EDU

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release. Distribution is unlimited.

**NUDGES FROM ABROAD: INVESTIGATING AMERICAN VULNERABILITY
TO FOREIGN CHOICE ARCHITECTURE**

Joshua A. Henson
Combat Systems Manager, U.S. Coast Guard, Department of Homeland Security
BA, Thomas A. Edison State College, 2015
MS, University of Maryland, Global Campus, 2018

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(HOMELAND SECURITY AND DEFENSE)**

from the

**NAVAL POSTGRADUATE SCHOOL
June 2023**

Approved by: Cristiana Matei
Co-Advisor

Christopher Bellavita
Co-Advisor

Erik J. Dahl
Associate Professor, Department of National Security Affairs

iii

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

This thesis uses a future scenario methodology to examine how China could use modern artificial intelligence (AI) and data tools to nudge the United States away from liberal democracy. The study imagines the period surrounding the 2032 federal elections in the United States and identifies three critical uncertainties to craft a set of plausible future scenarios. Each scenario narrative is examined for implications, and the wide-ranging set of findings are leveraged to offer a set of conclusions and recommendations. In general, there appears to be a set of risks surrounding the intersection of data surveillance, AI, and democracy. Specifically, the tools of commercial data capture could be used by foreign governments to alter behavioral patterns of Americans. The effects of these risks range from the loss of individual or corporate autonomy to the potential breakdown of the liberal democratic order.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

x

LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AI	artificial intelligence
AI/ML	artificial intelligence and machine learning
CCP	Chinese Communist Party
CCPA	California Consumer Privacy Act
CISA	Cybersecurity and Infrastructure Security Agency
COVID-19	coronavirus disease 2019
DNA	deoxyribonucleic acid
FBI	Federal Bureau of Investigation
GDPR	General Data Protection Regulation
GPT-3	Generative Pre-trained Transformer 3
IMO	International Maritime Organization
LIDAR	light detection and ranging
MR	mixed reality
MSS	Ministry of State Security
NBA	National Basketball Association
O2O	online to offline
SCS	social credit system
STEEP	social, technological, economic, environmental, political
SWOT	strengths, weaknesses, opportunities, threats
TUNA	turbulent, uncertain, novel, ambiguous
UFWD	United Front Work Department
VR	virtual reality

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

This thesis uses a future scenario methodology to examine the following question: How could China use modern artificial intelligence (AI) and data tools to nudge the United States away from liberal democracy? The study imagines the period surrounding the 2032 federal elections in the United States and identifies three key uncertainties defining that future. Those uncertainties are adjusted on the axes of a three-dimensional scenario space, as depicted in Figure 1. to craft a set of narrative stories illustrating plausible futures.
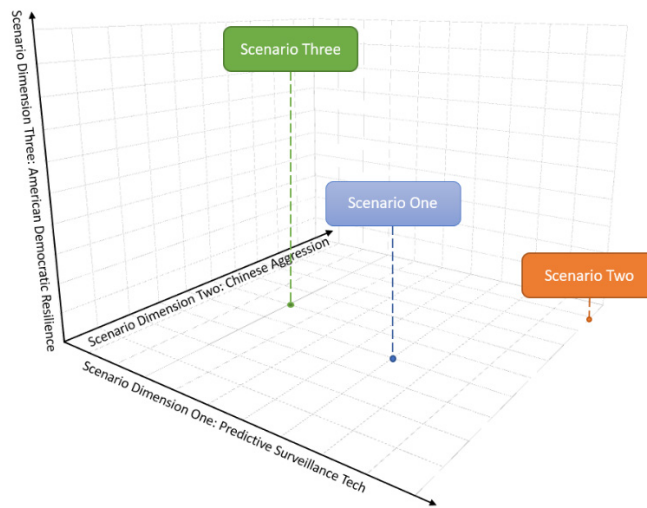
Figure 1.   Three-Dimensional Scenario Space

The first of the three uncertainties is the maturity of digital surveillance and accompanying AI tools. In the modern, internet-driven economy, people are continuously monitored and influenced by companies like Google, Facebook, and Amazon to change their consumer behaviors. This same technology could be used by an authoritarian state not only to control its own population but also to nudge the attitudes and actions of people outside its borders, such as the American voting public.

The second uncertainty is the level of aggression China shows in using those technologies to change the liberal democratic ideals and actions of Americans. China is

developing technological tools that can drive human behavior and could use those tools to nudge people's attitudes outside its borders. How aggressively it uses those tools to such ends is an uncertain element driving this thesis study.

The third uncertainty is the relative strength of liberalism and democracy in the United States. While there is broad concern about the health of liberal democracy in the United States and across the West more generally, it is uncertain whether this worry among scholars indicates a broad, long-term trend or simply the normal growing pains of democratic progress.

Each scenario in this thesis resides at a discrete point along the three axes of uncertainty. Those possible futures were used to craft narrative stories illustrating what such a future could look like. The first story follows a corporation navigating pressure from China to temper an employee's personal speech. The second story follows a woman who is slowly radicalized by AI-driven technological interventions and then shows the possible effects of such radicalization when deployed by a foreign adversary at massive scale. The third story follows an entrepreneur whose consumer product business in China renders him vulnerable to the Chinese government's demands to turn over his internet media company's user data.

The aim of these three narratives was not to predict the future nor to encompass the total range of possible future variability. Instead, they were designed as tools to draw findings, which led to the following conclusions:

1. Intrusive data surveillance is a threat to democracy.

2. China has multiple levers available to influence American thought.

3. American corporations are susceptible to foreign nudging.

4. Online stimuli can produce offline actions.

5. American democracy may be as vulnerable to physical attack as it is to ideological attack.

These conclusions led to the following recommendations:

1.   Continuously educate Americans of all ages to improve and maintain high levels of technological and media literacy.

2.   Regulate how personal data are used and shared.

3.   Invest in American AI research and development.

4.   Lead the world in supporting free discourse and liberal democracy.

The future is unknowable, but this thesis applies lessons from the future to inform the present. By setting different values for three critical uncertainties—technological maturity, foreign aggression, and American democratic resilience—that test alternative futures, this thesis explores the ways in which a foreign adversary like China could alter America's liberal democratic values. Each of the three scenarios in this thesis offers its own insights into the benefits, risks, and opportunities that could be realized, and the resultant findings and recommendations help to explain how democracy might thrive—or deteriorate—as new AI and surveillance technologies grow more central to modern life.

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

It is impossible to sufficiently thank the people and institutions who support a year and a half of intense study, but some stick out.

Pock, your love made this possible. Your curious mind, your insistent work ethic, your encouragement of my obsessions, and your challenging of my ideas motivate me every day. You are my editor in life, and I'm a better person for it.

Cris and Chris, thank you for your patience, encouragement, and willingness to follow me into uncomfortable places.

My leadership and coworkers at the United States Coast Guard granted me the space to accomplish this while continuing to work full time. I cannot thank Cecily and J.J. enough for telling me, "This doesn't distract you from your work. This is your work. Take the time to do what you need to." This product could not have been created without your understanding and encouragement.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

This thesis explores the nexus of three forces in modern America: how increasingly pervasive digital surveillance feeds the rapid development of artificial intelligence (AI) tools, the attempts of autocratic countries to change American opinion about social and political issues, and the apparent decline in the health of American democracy. It does so by asking what could result if a peer competitor such as China attempted to use technology-driven choice architecture techniques to change U.S. domestic opinion about liberal democracy.

China as an antagonist in this frame could easily be replaced by another non-democratic regime seeking to weaken democracy around the world, such as Russia, Iran, or even many corporations. This thesis uses China as an antagonist to identify ways that adversaries could use emerging technology to influence American views about liberal democracy.

This research project is biased in one area: the belief that liberal democracy is preferable to forms of autocratic or authoritarian forms of government. *Liberal democracy* is defined here as a society where the de jure and de facto government is popularly elected in free and fair elections (democratic) and where the government protects the rights of individuals (liberal). Some may debate the desirableness of liberal democracy in a global context—indeed, the Chinese government argues against it in its push to remake the global order to its preference. But in the chosen context of a homeland security discussion, protecting liberal democracy in the United States flavors the findings, conclusions, and recommendations of this thesis.

A. THE PROBLEM: DEMOCRATIC LIBERALISM IN A DIGITAL WORLD

The modern internet has become as powerful a tool for authoritarians as it has for democracies. Data technology enables new and deep insights about individuals and groups. Companies and governments are rushing to use these data to manipulate human behavior. It may be the case that a determined adversary of liberal democracy could use these technologies to nudge American thinking away from liberal ideals.

1

While internet technology was once assumed a panacea for advancing liberal democratic ideals, the reality is more complicated. As time and technology advance, optimistic assumptions that richer media technology promote liberalism have given way to a new consensus: that new media technology does little or nothing to protect individual rights.[1] It can often have the opposite effect. And just as autocratic regimes use internet communications technology to manipulate and control their own populations, so too could they plausibly turn those tools outward to weaken democracies like the United States.

This more complicated reality appears to be a product of consolidating and analyzing massive stores of user data in corporate-owned or government-controlled silos. In *The Age of Surveillance Capitalism*, Shoshana Zuboff accuses private companies of subordinating the autonomy of individuals by aggressively capturing, aggregating, and deploying personalized data to intricately manipulate consumer behavior.[2] She describes how companies like Facebook and Google use proprietary AI and machine learning (AI/ML) algorithms to change how humans perceive and respond to the world, driving people's buying decisions and behavioral patterns.[3] Ronald Diebert echoes this warning and adds that pervasive data collection and AI/ML deployment make social media one of the modern authoritarian government's most powerful tools, rather than the digital town square and protector of free speech liberalism some (like entrepreneur Elon Musk) presume it to be.[4]

At the outset of the explosive growth of the internet, many assumed that it would inevitably be used to build a more open and harmonious world.[5] Google was an exemplar of

---

[1] Ronald J. Deibert, "The Road to Digital Unfreedom: Three Painful Truths about Social Media," *Journal of Democracy* 30, no. 1 (January 2019): 25–39, https://doi.org/10.1353/jod.2019.0002.

[2] Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (New York: Public Affairs, 2020), 512–19.

[3] Zuboff, 292–98.

[4] Deibert, "The Road to Digital Unfreedom"; Shannon Bond, "Elon Musk Addresses Twitter Staff about Free Speech, Remote Work, Layoffs and Aliens," NPR, June 16, 2022, https://www.npr.org/2022/06/16/1105608659/elon-musk-twitter-employees.

[5] Dan Fost, "Digital Utopia: A New Breed of Technologists Envisions a Democratic World Improved by the Internet," *San Francisco Chronicle*, November 5, 2006, https://www.sfgate.com/business/article/DIGITAL-UTOPIA-A-new-breed-of-technologists-2547704.php.

this attitude with its early motto, "Don't be evil."[6] But Zuboff points out that this euphoria largely subsided after the early-2000s dot-com bust when another possibility dawned on cash-strapped business leaders: using new internet communications technologies and the "data exhaust" they emanate to understand, monetize, and control people's behavior.[7] Individual rights such as privacy become subordinate under such a system to the profit imperative, making people susceptible to powerful tools of manipulation that can alter their viewpoint, behavior, and environment.

Large tech corporations are not alone in deploying aggressive data capture to influence people. The government of China is building an ambitious program of intrusive surveillance that prompts journalist Kai Strittmatter to frame living in modern China akin to living in Foucault's panopticon.[8] Geoffrey Cain is more blunt, titling a 2021 book on Chinese government surveillance and predictive policing in Xinjiang province *The Perfect Police State*.[9] The Chinese Communist Party (CCP) repurposes private-sector AI/ML and surveillance tools to enable predictive policing, using technology to tackle previously implausible tasks like erasing Muslim religion from Xinjiang province.[10] China is also creating a social credit system that combines data capture and predictive algorithms to incentivize behavior from people and businesses—even those not sited within China's

---

[6] Alphabet later removed this motto from its online Code of Conduct in 2018, but it can be found archived here: "Google Code of Conduct," Alphabet, October 12, 2017, https://web.archive.org/web/20180421105327/https://abc.xyz/investor/other/google-code-of-conduct.html.

[7] Zuboff, *The Age of Surveillance Capitalism*, 68, 93–97.

[8] While the original idea of the panopticon is credited to English philosopher Jeremy Bentham, Foucault expanded the idea of a physical prison to technological surveillance of the general population's daily lives. Kai Strittmatter, *We Have Been Harmonized: Life in China's Surveillance State* (New York: Custom House, 2020), 167–70.

[9] Geoffrey Cain, *The Perfect Police State: An Undercover Odyssey into China's Terrifying Surveillance Dystopia of the Future* (New York: Public Affairs, 2021).

[10] Strittmatter, *We Have Been Harmonized*, 203–13.

borders.[11] Along with this proverbial carrot, the system employs sticks that punish behaviors the CCP deems antisocial like not paying bills or supporting undesirous political speech.[12]

In this environment of encroaching technology and an aggressive Chinese state, American political parties and institutions have exhibited varying degrees of newly illiberal and undemocratic behavior. Florida, the third-largest state, now has a governor and a state legislature that seek both to control the political ideology of academics in the state and to economically punish the state's largest employer for expressing disfavored views.[13] In 2021, a group of 100 prominent democracy scholars released a statement of concern cataloging how democracy is increasingly fragile in the United States.[14] And in January 2022, a sizable percentage of Americans expressed their belief that the loser of the 2020 presidential election had actually won.[15] A subset of those Americans had been sufficiently radicalized to attempt a putsch of the U.S. Congress before it could certify an electoral result. While many political candidates espousing these views failed to win elections in 2022, there remain elected officials at the state and federal levels who deny the validity of the 2020 election results.[16] Some of

---

[11] Sarah Jakob, "The Corporate Social Credit System in China and Its Transnational Impact," *Transnational Legal Theory* 12, no. 2 (2021): 294–314, https://doi.org/10.1080/20414005.2021.1977019; Michael D. Sutherland, *China's Corporate Social Credit System*, CRS Report No. IF11342 (Washington, DC: Congressional Research Service, 2020), https://crsreports.congress.gov/product/pdf/IF/IF11342.

[12] Karen Li Xan Wong and Amy Shields Dobson, "We're Just Data: Exploring China's Social Credit System in Relation to Digital Platform Ratings Cultures in Westernised Democracies," *Global Media and China* 4, no. 2 (2019): 220–32, https://doi.org/10.1177/2059436419856090; Susan V. Lawrence and Michael F. Martin, *China's National Security Law for Hong Kong: Issues for Congress*, CRS Report No. R46473 (Washington, DC: Congressional Research Service, 2020), https://crsreports.congress.gov/product/pdf/R/R46473/4.

[13] Zack Beauchamp, "Ron Desantis Is Following a Trail Blazed by a Hungarian Authoritarian," Vox, April 28, 2022, https://www.vox.com/policy-and-politics/2022/4/28/23037788/ron-desantis-florida-viktor-orban-hungary-right-authoritarian.

[14] In 2021, a group of 100 pro-democracy scholars released a joint statement concerning the health of American democracy. "Statement of Concern," New America, June 1, 2021, http://newamerica.org/political-reform/statements/statement-of-concern/.

[15] Brianna Richardson, "Axios/Momentive Poll: January 6th Revisited," SurveyMonkey, accessed July 15, 2022, https://www.surveymonkey.com/curiosity/axios-january-6-revisited/.

[16] "60 Percent of Americans Will Have an Election Denier on the Ballot This Fall," FiveThirtyEight, September 6, 2022, https://projects.fivethirtyeight.com/republicans-trump-election-fraud/; Lawrence Norden and Marina Pino, "Election Deniers Running for Secretary of State Were This Election's Biggest Losers," Brennan Center for Justice, November 14, 2022, https://www.brennancenter.org/our-work/analysis-opinion/election-deniers-running-secretary-state-were-elections-biggest-losers.

this antidemocratic activity originates from countries like Russia and China, which manipulate social media algorithms to alter discourse—and voter behavior—to their liking.[17]

This thesis explores the intersection of advanced AI surveillance technology and American democracy by asking what forces will drive future developments in that problem space and, then, further imagining the impact these forces would have on American democracy over the next several election cycles. It employs a future scenario planning methodology to construct a set of plausible narratives wherein future China uses technological tools to drive American thought. Those scenarios are then used to gain insight into the implications of any such activity, driving a linked set of findings, conclusions, and recommendations.

B.   RESEARCH QUESTIONS

How could China use modern AI and data tools to nudge the United States away from liberal democracy?

This first question leads to three subordinate questions:

1.   Could a future adversary like China possess the technological tools to change American sociopolitical thought?

2.   How could a country like China use modern internet communications technology to weaken American democracy?

3.   To what extent are Americans susceptible to outside attacks on liberal democracy?

C.   LITERATURE REVIEW

As the research questions touch on areas of technology, democracy, and choice architecture, the remainder of this chapter reviews the literature in each of these three areas,

---

[17] Bret Schafer et al., *Influence-enza: How Russia, China, and Iran Have Shaped and Manipulated Coronavirus Vaccine Narratives* (Washington, DC: Alliance for Securing Democracy, 2021), https://securingdemocracy.gmfus.org/russia-china-iran-covid-vaccine-disinformation/; Robert Mueller, *Report on the Investigation into Russian Interference in the 2016 Presidential Election*, vol. 1 (Washington, DC: Department of Justice, 2019), https://www.justice.gov/archives/sco/file/1373816/download; Roger McNamee, *Zucked: Waking Up to the Facebook Catastrophe* (New York: Penguin Books, 2020).

presenting definitions and current debates in each field. The review is split into two basic conversations, each with several sections. The first four sections cover literature on the state of internet communication technology, ending with a review of choice architecture research and philosophy. The second conversation offers three sections covering a review of democracy: the definition of modern democracy, observations on democratic backsliding, and democratic resilience in the United States.

1. How Internet Communication Technology Impacts Society

A corpus of literature discusses how internet communication technology affects society by impacting how people communicate, work, collect knowledge, and engage politically. Several scholars agree that internet communication technology has changed how governments, businesses, and individuals interact, communicate, and view the world.[18] This newfound global connectedness has driven the frenetic pace of technological innovation, which Philbeck and Davis liken to a fourth industrial revolution.[19]

Many see this revolution as a boon for humanity. They point out how the internet revolution has accelerated trade and production, dramatically increased knowledge transfer, and connected people in ways previously unimaginable. Philbeck and Davis, for example, note some disruptive benefits digital technology has brought to production and manufacturing, such as how technology enables new methods of managing supply chains and labor.[20] Lin and Xing separately show how internet communication technology seems to increase trade in goods and services.[21] Internet communication has made modern labor and commerce more efficient.

---

[18] Thomas Philbeck and Nicholas Davis, "The Fourth Industrial Revolution: Shaping a New Era," *Journal of International Affairs* 72, no. 1 (2018): 17–22; Henry Kissinger et al., *The Age of AI: And Our Human Future* (New York: Little, Brown and Company, 2021).

[19] Philbeck and Davis, "The Fourth Industrial Revolution."

[20] Philbeck and Davis.

[21] Faqin Lin, "Estimating the Effect of the Internet on International Trade," *Journal of International Trade & Economic Development* 24, no. 3 (April 2015): 409–28, https://doi.org/10.1080/09638199.2014. 881906; Zhongwei Xing, "The Impacts of Information and Communications Technology (ICT) and E-Commerce on Bilateral Trade Flows," *International Economics & Economic Policy* 15, no. 3 (July 2018): 565–86, https://doi.org/10.1007/s10368-017-0375-5.

This newfound efficiency from internet communication technology has also led to an increase in knowledge. In the 1980s, R. Buckminster Fuller observed what is now known as the "knowledge-doubling curve," or the exponential growth in the human accumulation of knowledge.[22] Chamberlain adapts Fuller's contention to claim that, due to internet technologies, human knowledge is now doubling more than once per year, and Schilling suggests knowledge is on a trajectory to soon double every 12 hours.[23] Internet communications technologies have transformed how humans learn and share understanding.

Some scholars also believe that the connectedness stemming from adopting these technologies helps to spread liberalism and democracy. Kendall-Taylor, Lindstaedt, and Frantz note the impact internet technology has on democratic diffusion, an important mechanic that weakens autocratic rule.[24] They argue that social media can support and spread democracy by giving voice to marginalized people and facilitating collective action, though they also recognize the presence of countervailing mechanics that favor authoritarians and autocrats.[25] While Fukuyama wrote *The End of History and the Last Man* before the internet became a central fixture of modern life, his argument in that book is that technological advancement has led liberal democracy to vanquish its foes of fascism and communism.[26] Connectedness accelerated by technology is seen by many as a global net gain.

However, evidence has failed to support some of these rosy assumptions. Technologist Bruce Schneier argues that structures like cloud computing, data ownership schemes, and software as a service allow a small group of elite corporations to capture user

---

[22] R. Buckminster Fuller, *Critical Path* (New York: St. Martin's Press, 1981).

[23] David Russell Schilling, "Knowledge Doubling Every 12 Months, Soon to Be Every 12 Hours," *Industry Tap* (blog), April 19, 2013, https://www.industrytap.com/knowledge-doubling-every-12-months-soon-to-be-every-12-hours/3950; Paul Chamberlain, "Knowledge Is Not Everything," *Design for Health* 4, no. 1 (2020): 1–3, https://doi.org/10.1080/24735132.2020.1731203.

[24] Andrea Kendall-Taylor, Natasha Lindstaedt, and Erica Frantz, *Democracies and Authoritarian Regimes* (Oxford: Oxford University Press, 2019), 139.

[25] Their argument is that technology both helps and hurts democracy in various ways. Ways in which it can undermine democracy include amplifying extreme voices and creating echo chambers that encourage political polarization. Kendall-Taylor, Lindstaedt, and Frantz, 296.

[26] Francis Fukuyama, *The End of History and the Last Man* (New York: Free Press, 2006). While history has been unkind to Fukuyama's thesis in hindsight, he was not without his critics at the time. See, for example, the writings of Samuel Huntington and Timothy Fuller.

attention and consolidate their own power at the expense of the average user, an effect he calls feudal computing.[27] An example could be a company's use of location history to build and sell access to profiles that identify individual users without their knowledge or consent. Zaid builds on this point, arguing that governments can and do use similar digital tools to smother democratic protests, such as those in Morocco following the Arab Spring.[28] The tools of technology can be wielded by oligarchs and autocrats as well as by liberal activists. As the prominence of internet communication technologies continues to grow, the literature suggests that these technologies will continue to exert mixed effects on society.

2. Data Surveillance Technology

As internet communication technology has grown more prominent, so has the use of this technology to facilitate user data collection and analysis. Much of these data are captured via interactions with websites, mobile applications, or internet-enabled devices such as wearables. Zuboff contends that while these user data were once considered a sort of wasteful exhaust in the 1990s, they have since become the primary profit center for companies like Google.[29] Tucker concurs, further suggesting that tying user data to marketing imperatives has made it nearly impossible for a modern consumer of the internet to be truly anonymous.[30] Becerril likewise finds broad agreement in the literature that modern internet applications now record nearly every facet of the user's interaction with them.[31] Nearly every interaction between modern technology and its users is captured and stored.

---

[27] Bruce Schneier, "Power in the Age of the Feudal Internet," Co:llaboratory, October 22, 2018, http://en.collaboratory.de/w/Power_in_the_Age_of_the_Feudal_Internet.

[28] Bouziane Zaid, "Internet and Democracy in Morocco: A Force for Change and an Instrument for Repression," *Global Media and Communication* 12, no. 1 (2016): 49–66, https://doi.org/10.1177/1742766515626826.

[29] Zuboff, *The Age of Surveillance Capitalism*, 67–70.

[30] Patrick Tucker, "Has Big Data Made Anonymity Impossible?," *MIT Technology Review*, May 7, 2013, https://www.technologyreview.com/2013/05/07/178542/has-big-data-made-anonymity-impossible/.

[31] Anahiby Becerril, "The Value of Our Personal Data in the Big Data and the Internet of All Things Era," *Advances in Distributed Computing and Artificial Intelligence Journal* 7, no. 2 (2018): 71, https://doi.org/10.14201/ADCAIJ2018727180.

Aggregating and analyzing user data produce powerful insights about both individual users and aggregate groups of people.[32] Zuboff contends that because of the value these data profiles provide, data are often both privately held and guarded by companies as a vital proprietary business asset.[33] She notes that the shift from providing consumer services to aggressively collecting data on user behavior started during the economic uncertainty of the early 2000s, when companies like Google and Facebook faced a growing need to monetize their assets.[34] Data turned out to be the greatest of those assets, and the monetization thereof has made these companies behemoths. Consequently, data surveillance sits at the heart of the modern internet.

3. Artificial Intelligence and Prediction Algorithms

One emerging use for these data is to train ML algorithms. ML is a subset of AI—together called AI/ML—that trains algorithms to make accurate predictions without being explicitly programmed to do so. As asserted in *The Age of AI*, the core principle of AI/ML prediction engines is that algorithms scan large data sets to search for useful connections.[35] Sometimes the results are surprising, for instance, when the DeepMind AI reduced an already-optimized Google server farm's cooling bills by 40 percent.[36] And as a team of researchers at MIT demonstrated with the new antibiotic Halicin, AI/ML-discovered connections can also create extraordinary shortcuts in research.[37] According to these AI experts, using AI/ML to discover connections between data points shows a great deal of promise.

---

[32] Becerril, "The Value of Our Personal Data"; Tucker, "Has Big Data Made Anonymity Impossible?"

[33] Zuboff, *The Age of Surveillance Capitalism*.

[34] Zuboff.

[35] Kissinger et al., *The Age of AI*, 61–68.

[36] Kissinger et al., 22.

[37] Jonathan M. Stokes et al., "A Deep Learning Approach to Antibiotic Discovery," *Cell* 181, no. 2 (2020): 475–83, https://doi.org/10.1016/j.cell.2020.04.001.

Scholars and practitioners widely agree that the methods used to train AI/ML tools need large amounts of data from which to infer and evaluate connections.[38] According to the authors of *The Age of AI*, one reason that ML has advanced so rapidly in the early 2020s is geometric increases in available data to feed the algorithms.[39] A second reason for this rapid growth is a concurrent increase in processing power, which enables the complex calculations required for AI/ML training.[40] Consequently, the former president of Google China joins a chorus of voices asserting that the world leaders in AI/ML are the companies with both the largest hoards of data and the best access to cutting-edge hardware.[41] Google, for example, has leveraged its stored user interactions to build a better search engine, one preferred by many users and advertisers.[42] According to the literature, because successful AI/ML training is so reliant on sifting through large volumes of reliable data, recent increases in both processing power and the volume of available data have created explosive growth in AI/ML development and innovation.

4. Choice Architecture: How Companies and Governments Use Data to Limit Freedom

One possible use of these surveillance systems and their companion AI/ML prediction engines is to anticipate and artificially limit people's apparent choices. This idea, loosely clumped under the term *choice architecture*, has many proponents, but it was popularized in

---

[38] While a sampling of sources is provided here, it is well understood among AI development researchers that training AI neural nets using large tranches of data is currently the most promising method for building useful AI. Kissinger et al., *The Age of AI*, 66–67; Executive Office of the President, *Big Data: Seizing Opportunities, Preserving Values* (Washington, DC: White House, 2014), 6–7, https://www.hsdl.org/?abstract&did=752636; Balaji Raghothaman, "Training, Testing and Validation Challenges for Next Generation AI/ML-Based Intelligent Wireless Networks," *IEEE Wireless Communications* 28, no. 6 (December 2021): 5–6, https://doi.org/10.1109/MWC.2021.9690485; Prabhakar Raghavan, "How AI Is Powering a More Helpful Google," *The Keyword* (blog), October 15, 2020, https://blog.google/products/search/search-on/.

[39] Kissinger et al., *The Age of AI*, 74.

[40] Kissinger et al., *The Age of AI*, 85; Cain, *The Perfect Police State*, 52; Executive Office of the President, *Big Data*, 7.

[41] Kai-Fu Lee, *AI Superpowers: China, Silicon Valley, and the New World Order* (Boston: Houghton Mifflin Harcourt, 2021), 12–13; Kissinger et al., *The Age of AI*, 74; Nina Xiang, *Red AI: Victories and Warnings from China's Rise in Artificial Intelligence* (self-pub., 2019).

[42] Raghavan, "How AI Is Powering a More Helpful Google."

Thaler and Sunstein's book, *Nudge*.[43] It is defined there as "organizing the context in which people make decisions."[44] A "nudge" in this construction is an outside intervention that predictably changes a person's choices without removing one's freedom to choose.[45] Thaler and Sunstein suggest that a proper nudge should be both easy and cheap to ignore.[46]

In describing choice architecture, Thaler and Sunstein bring the ideas of Kahneman and Tversky into the realm of policy. The latter pair upended the discussion of how economists should account for human behavior in their 1979 presentation of prospect theory.[47] The core idea of prospect theory is that, rather than following rational economics principles, humans make decisions in ways that are predictably irrational, for instance, by weighting potential losses more heavily than more-likely gains.[48] Expanding this core idea in *Nudge*, Thaler works with Sunstein to suggest how choice architecture can be used by governments to provoke better decisions among the citizenry.

Other economists and psychologists have since added to the discussion, further developing the idea of the nudge. The team of Münscher, Vetter, and Scheuerle proposes a taxonomy of choice architecture techniques, categorizing them as either providing biased information to assist decisions, or artificially structuring the space in which decisions are made, or assisting decision-making by biasing one choice over others.[49] Mrkva et al. demonstrate that the socioeconomic status of the subject alters the effectiveness of nudges and suggest ways to leverage this phenomenon to reduce outcome disparities.[50] Halpern, Service,

---

[43] Richard H. Thaler and Cass R. Sunstein, *Nudge*, updated ed. (New York: Penguin Books, 2021).

[44] Thaler and Sunstein, 3.

[45] Thaler and Sunstein, 8.

[46] Thaler and Sunstein, 8.

[47] Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47, no. 2 (1979): 263–91, https://doi.org/10.2307/1914185.

[48] Kahneman and Tversky.

[49] Robert Münscher, Max Vetter, and Thomas Scheuerle, "A Review and Taxonomy of Choice Architecture Techniques," *Journal of Behavioral Decision Making* 29, no. 5 (December 2016): 511–24, https://doi.org/10.1002/bdm.1897.

[50] Kellen Mrkva et al., "Do Nudges Reduce Disparities? Choice Architecture Compensates for Low Consumer Knowledge," *Journal of Marketing* 85, no. 4 (July 2021): 67–84, https://doi.org/10.1177/0022242921993186.

and Thaler recount how the British government's Behavioral Insights Team (known as the "nudge unit") applied choice architecture across disciplines to encourage subtle but meaningful changes in constituent behavior.[51] Epidemiologists, dieticians, and cancer researchers use nudges to successfully elicit behavioral improvements that lead to improved health outcomes.[52] But nudge theory has some critics, such as Kosters and Van der Heijden, who contend there is insufficient evidence to suggest that it works.[53] Despite the naysayers, this body of research adequately demonstrates the efficacy of nudges in altering human behavior.

Distinct from the lopsided debate on the efficacy of nudging is a raging conversation about the ethics thereof. On the ethical uses of nudges, Sunstein argues that choice architecture finds its ethical basis in libertarian ideas, insisting that nudges do not remove autonomy so long as the ultimate choice lies with the individual.[54] In justifying the ethics of nudging, Sunstein frames it as a sort of libertarian paternalism, asserting that such interventions are legitimate as long as they both preserve freedom and benefit the individual targeted.[55] Sunstein admits that this soft paternalism likely violates John Stuart Mill's harm principle but views small interventions to correct errors in behavioral markets as excusable and even

---

[51] David Halpern, Owain Service, and Richard H. Thaler, *Inside the Nudge Unit: How Small Changes Can Make a Big Difference*, revised ed. (London: W. H. Allen, 2019).

[52] Anne N. Thorndike et al., "Choice Architecture to Promote Fruit and Vegetable Purchases by Families Participating in the Special Supplemental Program for Women, Infants, and Children (WIC): Randomized Corner Store Pilot Study," *Public Health Nutrition* 20, no. 7 (May 2017): 1297–1305, https://doi.org/10.1017/S1368980016003074; Gareth J. Hollands et al., "Altering Micro-environments to Change Population Health Behaviour: Towards an Evidence Base for Choice Architecture Interventions," *BMC Public Health* 13 (2013): 1218, https://doi.org/10.1186/1471-2458-13-1218; Daitaro Misawa, Jun Fukuyoshi, and Shintaro Sengoku, "Cancer Prevention Using Machine Learning, Nudge Theory and Social Impact Bond," *International Journal of Environmental Research and Public Health* 17, no. 3 (February 2020): 790, https://doi.org/10.3390/ijerph17030790.

[53] Mark Kosters and Jeroen Van der Heijden, "From Mechanism to Virtue: Evaluating Nudge Theory," *Evaluation* 21, no. 3 (2015): 276–91, https://doi.org/10.1177/1356389015590218.

[54] Cass R. Sunstein, *Why Nudge? The Politics of Libertarian Paternalism*, Storrs Lectures on Jurisprudence (New Haven: Yale University Press, 2015); Cass R. Sunstein, *The Ethics of Influence: Government in the Age of Behavioral Science*, Cambridge Studies in Economics, Choice, and Society (New York: Cambridge University Press, 2016).

[55] Sunstein, *The Ethics of Influence*, 11–17.

laudable as long as the individual retains the ultimate choice.[56] In sum, the ethical argument in favor of using choice architecture is built on libertarian ideals.

Nevertheless, critics of this ethical framing abound. According to Zuboff, marrying choice architecture with data surveillance and AI/ML leads to a crisis of individual autonomy, especially when companies engage in a process of behavior modification that she calls "herding."[57] Intentional herding is often used by platform owners to market products or services, but not all examples of herding are deliberate.[58] For example, on YouTube, algorithm-driven filters can herd users toward increasingly extreme content without the platform's further input.[59] In essence, the algorithm nudges viewers toward extremist views by artificially limiting their viewing choices—a marriage of big data and choice architecture that Yeung calls a "hypernudge."[60] In another example, Facebook has experimented with herding techniques to increase voter turnout among its users, an effort privacy advocates deride as ethically suspect.[61] Despite professed doubts about both the effectiveness and ethical foundation of choice architecture, nudging is a tool in widespread use among government, public health, and business entities. Most experts agree that choice architecture appears to change behavior predictably.

5.   Defining and Evaluating Democracy

The next few sections move the focus from technology to democracy. This section references definitions and measures of democracy as suggested in the literature while the remaining two sections look at the health of democracy, both globally and in the United States.

---

[56] John Stewart Mill's harm principle simply states that people should be free to act however they wish unless their actions cause harm to someone else. Sunstein, *Why Nudge?*

[57] Zuboff's more pointed descriptor, "behavior modification," is a more accurate term to use than Thaler and Sunstein's "nudge" in describing how an actor like the Chinese government employs choice architecture. Zuboff, *The Age of Surveillance Capitalism*, 292–98.

[58] Zuboff, 296.

[59] Joe Whittaker et al., "Recommender Systems and the Amplification of Extremist Content," *Internet Policy Review* 10, no. 2 (2021), https://policyreview.info/articles/analysis/recommender-systems-and-amplification-extremist-content.

[60] Karen Yeung, "'Hypernudge': Big Data as a Mode of Regulation by Design," *Information, Communication & Society* 20, no. 1 (2017): 118–36, https://doi.org/10.1080/1369118X.2016.1186713.

[61] Zuboff, *The Age of Surveillance Capitalism*, 298–308.

13

There is no universally accepted definition of democracy in the literature, despite the vast work published on the topic. The word democracy comes from the Greek *demokratia—demos* meaning people and *kratos* meaning rule—which roughly translates to "rule of the people." Thus, most definitions of democracy involve a procedural aspect of collective rule by consent of the demos.[62] But differences of culture, time, and scope complicate that definition. Schumpeter sidesteps these distinctions with his technical definition of democracy: "that institutional arrangement for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people's vote."[63] Rather than describing the purpose or theory of democracy, Schumpeter's definition describes the technical reality of democratic governance: people vote to make decisions on their behalf.

Others define democracy by a set of ideal characteristics against which a state is measured. Lipset starts by identifying certain levels of economic development and political legitimacy as necessary precursors for democracy.[64] Huq and Ginsberg build on this foundation, defining a "constitutional liberal democracy" as that which upholds free, fair, and meaningful elections; the liberal rights of freedom of speech and association; and the rule of law.[65] Galston echoes these characteristics, using different terms with similar meanings (i.e., democracy, liberalism, and constitutionalism).[66]

Celebrated American political theorist Robert Dahl takes a similar approach, defining democracy's ideal attributes. For Dahl, the attempt to define democracy raises philosophical questions: Who can participate in the democratic process, and why? Are simple majoritarian principles sufficient? And how should imbalances such as tyrannical majorities or minorities

---

[62] Robert Alan Dahl, *Democracy and Its Critics* (New Haven: Yale University Press, 1989), 3–5.

[63] Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* (New York: Harper Perennial, 2006), 250.

[64] Seymour Martin Lipset, "Some Social Requisites of Democracy: Economic Development and Political Legitimacy," *American Political Science Review* 53, no. 1 (1959): 69–105, https://doi.org/10.2307/1951731.

[65] Aziz Z. Huq and Tom Ginsburg, "How to Lose a Constitutional Democracy," *UCLA Law Review* 65, no. 78 (2018), https://doi.org/10.2139/ssrn.2901776.

[66] William A. Galston, "The Populist Challenge to Liberal Democracy," *Journal of Democracy* 29, no. 2 (2018): 5–19, https://doi.org/10.1353/jod.2018.0020.

be corrected?[67] Dahl suggests that a democracy (as he conceives it) is an ideal unlikely to be fully realized, so he proffers the concept of "polyarchy," a never-ending process of working toward liberal, democratic, and constitutional ideals.[68] Others, such as Linz and Stepan, call this process "consolidation."[69] Dahl's and similar scholars' attempts at defining democracy are interesting because they imply endless progress or regress, a common theme in other writings about democracy (such as Huntington's description of "waves").[70]

In subscribing to this idea of consolidation, democracy involves the problem of measuring its progress. Dahl's *Polyarchy* offers two dimensions for measuring the extent to which a modern government is democratic: 1) public contestation (or liberalization), how readily a government accepts input from the people; and 2) inclusiveness (or participation), how much of society is allowed to participate in the political process.[71] In Dahl's conception, polyarchy has higher liberalization and higher inclusiveness than other systems, such as elected monarchy or competitive oligarchy.[72] Dahl is not alone in defining a scale or matrix by which to measure democracy. Indeed, scholars seem to agree that democracy is a spectrum, not a destination. Linz and Stepan measure democracy's consolidation in three ways: behaviorally, attitudinally, and constitutionally.[73] Mounk offers a simpler matrix, as shown in Figure 1, suggesting a "thin definition" of democracy that echoes Dahl by gauging liberalism and democracy to categorize systems of government.[74] Alternatively, Huntington

---

[67] Dahl, *Democracy and Its Critics*, 119–31, 135–52, 176–92.

[68] Robert Alan Dahl, *Polyarchy: Participation and Opposition* (New Haven: Yale University Press, 1971).

[69] Juan J. Linz and Alfred C. Stepan, "Toward Consolidated Democracies," *Journal of Democracy* 7, no. 2 (1996): 14–33, https://doi.org/10.1353/jod.1996.0031.

[70] Samuel P. Huntington, "Democracy's Third Wave," *Journal of Democracy* 2, no. 2 (1991): 12–34, https://doi.org/10.1353/jod.1991.0016.

[71] Dahl, *Polyarchy*, 4.

[72] To Dahl, an elected monarchy, A.K.A. closed hegemony, is characterized by low liberalization and low inclusiveness. A competitive oligarchy is marked by high liberalization and low inclusiveness. Dahl, 5–8.

[73] The behavioral measure examines what democratic leaders do, the attitudinal measure evaluates public faith in democratic processes, and the constitutional measure gauges the "rule of law." Linz and Stepan, "Toward Consolidated Democracies."

[74] Yascha Mounk, "The Undemocratic Dilemma," *Journal of Democracy* 29, no. 2 (2018): 98–112, https://doi.org/10.1353/jod.2018.0030.

focuses on the process of democratization, which he argues proceeds and recedes in waves and counter-waves.[75] All these attempts to measure and evaluate democracy affirm that 1) the state of democracy shifts along a continuum, and 2) democracy is fundamentally tied to liberalism in some way.
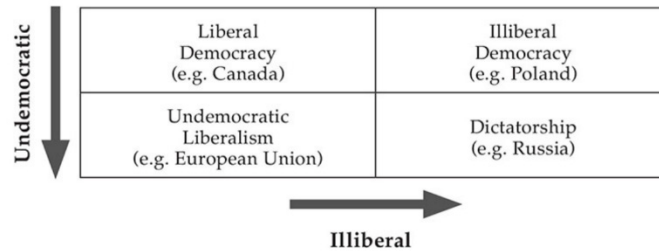
Figure 1.   The Liberalism–Democracy Matrix.[76]

Nonetheless, other scholars note that not all democracies are liberal. Zakaria asserts that during Huntington's third wave of democratic transitions, a set of countries lacking a liberal tradition became democracies without adopting liberal limits on the power of government.[77] While those countries are democratic by Schumpeter's definition, their current governments either have not adopted or have eroded the respect for freedom of speech or association that some other definitions of democracy presuppose. Hungary and Poland of the 2020s are prominent examples of illiberal democracies.[78] Furthermore, the United States at one time enslaved millions of people. Thus, not all democracies are entirely free.

Such forms of illiberal democracy are not new phenomena. Dahl calls the state of illiberal democracy "competitive oligarchy," acknowledging it as a normal waypoint on the

---

[75] Huntington, "Democracy's Third Wave."

[76] Source: Mounk, "The Undemocratic Dilemma," 100.

[77] Fareed Zakaria, "The Rise of Illiberal Democracy," *Foreign Affairs* 76, no. 6 (1997): 22–43, https://doi.org/10.2307/20048274.

[78] Marc F. Plattner, "Illiberal Democracy and the Struggle on the Right," *Journal of Democracy* 30, no. 1 (January 2019): 5–19; Anne Applebaum, *Twilight of Democracy: The Seductive Lure of Authoritarianism* (New York: Doubleday, 2020).

16

democratic continuum.[79] For example, American democracy has morphed over its history, at times less liberal and inclusive than at other times. Dahl characterizes the United States of the 18th century as a competitive oligarchy.[80] Larry Diamond agrees, asserting that the United States did not truly democratize until the Voting Rights Act of 1965.[81] The nature of democracy, in the United States and elsewhere, is not static but changes over time.

As suggested in the literature, a democracy is a system that allows the people to elect leaders to make decisions. What characterizes consolidated liberal democracy are the elevation of individual autonomy over government power and the creation of a predictable and reliable system of laws. A liberal democracy allows all adults to participate in the democratic process. It is a system that protects individual rights, such as speech and association. It dispenses equal justice without regard of social, political, or economic station. More importantly, liberal democracy is not a static trait but one that evolves continuously.

6.   Democratic Backsliding

The prior section explored how liberal democracy is characterized in the academic literature and described the process of democratic consolidation. This section delves into the opposite phenomenon. Democratic deconsolidation, also known as democratic backsliding, is the subject of strong contemporary debate as experts worry about an apparent global recession of democracy and liberalism. This section looks at the types of democratic backsliding described in the academic literature before exploring the causes of modern backsliding.

Linz and Stepan observe three attributes of consolidated democracies: a common belief that democratic systems and institutions are the best way to govern, no significant effort to achieve goals using non-democratic means, and an affinity for the rule of law up and down

---

[79] Dahl, *Polyarchy*, 7.

[80] Dahl, *Democracy and Its Critics*.

[81] Larry Diamond, *Ill Winds: Saving Democracy from Russian Rage, Chinese Ambition, and American Complacency* (New York: Penguin Books, 2019).

society.[82] In contrast, deconsolidation (or backsliding) is the process of transitioning away from these three ideals.[83] Many experts and observers worry that amid widespread deconsolidation by this definition, democracy is undergoing a crisis. Diamond calls this supposed crisis a global democratic recession.[84] A veritable parade of respected authors—among them Albright, Ben-Ghiat, and Applebaum—join Diamond to fret about the state of democracy.[85] The consensus is that democracy seems to be in decline, though whether temporary or permanent remains to be seen.

The ways in which democracies backslide seem to be changing. In *How Democracies Die*, Levitsky and Ziblatt describe how the classic model of democratic deconsolidation, the military coup, has been supplanted by a subtler means of backsliding: the subversion of democratic norms by legitimately elected leaders.[86] Rather than a sudden flash of gunfire and smoke, leaders slowly deconstruct the norms that serve as democracy's "guardrails," including mutual tolerance of opponents and institutional self-restraint.[87] Bermeo agrees that the landscape has shifted, arguing that military coups are being replaced with executive aggrandizement and that electoral fraud is being replaced with strategic harassment and manipulation.[88] To Bermeo, these new methods are more vexing than the old because they are incremental and ambiguous, which make them tough for lay people to detect.[89] These scholars show that the ways democracies backslide are becoming subtler.

---

[82] Juan J. Linz and Alfred C. Stepan, *Problems of Democratic Transition and Consolidation: Southern Europe, South America, and Post-Communist Europe* (Baltimore: Johns Hopkins University Press, 1996), 5–7.

[83] Linz and Stepan, *Problems of Democratic Transition and Consolidation*.

[84] Larry Diamond, "Democratic Regression in Comparative Perspective: Scope, Methods, and Causes," *Democratization* 28, no. 1 (2021): 22–42, https://doi.org/10.1080/13510347.2020.1807517.

[85] These authors' relevant works are offered here without specific page references, as "fretting about the state of democracy" is a faithful summation. Madeleine Albright and William Woodward, *Fascism: A Warning* (New York: HarperCollins, 2019); Ruth Ben-Ghiat, *Strongmen: Mussolini to the Present* (New York: Norton, 2021); Applebaum, *Twilight of Democracy*.

[86] Steven Levitsky and Daniel Ziblatt, *How Democracies Die* (New York: Crown, 2018), 2–6.

[87] Levitsky and Ziblatt, 102–11.

[88] Nancy Bermeo, "On Democratic Backsliding," *Journal of Democracy* 27, no. 1 (2016): 5–19, https://doi.org/10.1353/jod.2016.0012.

[89] Bermeo.

Huq and Ginsburg join this consensus on how the mechanism of deconsolidation is changing and suggest that the United States is not immune.[90] They present two paths of modern democratic backsliding: authoritarian reversion and constitutional retrogression.[91] The first of these is a sudden turn to authoritarianism (like a military coup), which they judge is unlikely to happen in the United States.[92] They consider the second path, however, constitutional regression, a threat.[93] This second path is the incremental decay that vexes Bermeo, a slow deconstruction of the norms protecting democracy. Huq and Ginsberg offer Hungary, Poland, and Venezuela as examples of nations with elected leaders who have slowly manipulated systems to disadvantage competition, undermine liberal rights, arrogate power to the executive, and subvert the rule of law.[94] Levitsky, Ziblatt, Bermeo, Huq, and Ginsberg all agree that the subtler forms of democratic backsliding are harder to detect and prevent.

Just as important as the mechanisms by which democracies backslide are the reasons. Karl Popper famously points out in a footnote the fundamental paradox that a free people can choose to elect an authoritarian, but he fails to explore why.[95] Many subsequent researchers examine why voters reject democracy (for example, by electing would-be authoritarians), and several have suggested reasons for this phenomenon. The rest of this section reviews the causes, including economic disparities and political polarization, both of which lead to populism.

Recall from the previous section Lipset's contention that economic development and security are important precursors for democratic consolidation.[96] Brownlee and Miao agree, arguing that economic strength ultimately prevents democratic deconsolidation in countries

---

[90] Huq and Ginsburg, "How to Lose a Constitutional Democracy."

[91] Huq and Ginsburg, 13–19.

[92] Huq and Ginsburg, 13–14.

[93] Huq and Ginsburg, 72.

[94] Huq and Ginsburg, 14–15.

[95] Karl R. Popper, *The Open Society and Its Enemies*, one-volume ed. (Princeton: Princeton University Press, 2020), 581.

[96] Lipset, "Some Social Requisites of Democracy."

19

with powerful economies like the United States.[97] But others, including Huq, Ginsberg, and Przeworski, contend that even democracies with strong economies leave people out, and many of those left behind consequently turn to populist authoritarians to lead them.[98] Przeworski focuses on economic inequality and the poor, finding that poor people threaten democracy in three ways.[99] First, poor citizens may simply decline to participate, weakening the legitimacy of the elected government. The poor may also support authoritarians who promise to improve their lot. Alternatively, the poor may support economic redistribution, which can push elites into supporting authoritarians to prevent such a move. Huq and Ginsberg likewise find that economic inequality is a common cause of democratic reversal.[100] The body of research indicates that democratic consolidation and backsliding are partially linked to economic inequality.

Economic factors alone cannot account for democratic regress. They converge with other causes including polarization and populism. Kapstein and Converse contend that economic and institutional collapse combine to weaken democracy rather than one or the other forming a sole root cause.[101] Focusing on the United States, Levitsky and Ziblatt suggest that economic inequality is but one of many drivers of democratic peril; political polarization threatens mutual tolerance, thus leading to populism.[102] These two forces—polarization and populism—can lead to the institutional collapse about which Kapstein and Converse warn.

The literature points to these twin dangers of polarization and populism as causes for democratic regress, with the former tending in most views to lead to the latter. Svolik suggests that populist leaders break down democratic institutions by stoking partisan political

---

[97] Jason Brownlee and Kenny Miao, "Why Democracies Survive," *Journal of Democracy* 33, no. 4 (2022): 133–49, https://doi.org/10.1353/jod.2022.0052.

[98] Huq and Ginsburg, "How to Lose a Constitutional Democracy"; Adam Przeworski, "The Poor and the Viability of Democracy," in *Poverty, Participation, and Democracy: A Global Perspective*, ed. Anirudh Krishna (Cambridge: Cambridge University Press, 2008), 125–46, https://doi.org/10.1017/CBO97805117 56160.007.

[99] Przeworski, "The Poor and the Viability of Democracy."

[100] Huq and Ginsburg, "How to Lose a Constitutional Democracy," 4.

[101] Ethan B. Kapstein and Nathan Converse, "Poverty, Inequality, and Democracy: Why Democracies Fail," *Journal of Democracy* 19, no. 4 (2008): 57–68, https://doi.org/10.1353/jod.0.0031.

[102] Levitsky and Ziblatt, *How Democracies Die*, 227–30.

differences and asking their supporters to trade democratic values for partisan gain.[103] Galston agrees, further suggesting that populism's natural counterpoint to multiculturalism is part of what makes it attractive to people who feel left behind in a global and multicultural world. In Galston's argument, populists claim to speak for "the people," when it is difficult to define or agree on who the people are.[104] The populist steps in to define in-group and out-group membership in electorally convenient ways. Achen and Bartels take a different approach in explaining polarization and populism, pointing out that people often vote based on identity rather than policy.[105] According to Moghaddam, economic and other types of uncertainty drive people to perceive freedom differently and behave accordingly.[106] People view their liberation as coming from their group membership rather than from their individual identity, so they vote for a strong populist who promises to protect their in-group.[107]

Mounk offers a different approach to the problem of populism, arguing that authoritarian populism is a logical response to what he calls undemocratic liberalism.[108] To Mounk, frustration over the growth of technocratic institutions in the West (such as overweening bureaucracy or unaccountable courts and central banks) makes room for this authoritarian populist counterpoint to Zakaria's "illiberal democracy."[109] Moghaddam also writes about the dangers of technocratic institutions, warning that unbounded bureaucracy is a danger to democracy because of its unaccountable nature.[110] According to these two, populists can easily vilify a frustrating and unaccountable bureaucracy and weaken the people's faith in government institutions.

---

[103] Milan W. Svolik, "Polarization versus Democracy," *Journal of Democracy* 30, no. 3 (2019): 20–32, https://doi.org/10.1353/jod.2019.0039.

[104] Galston, "The Populist Challenge to Liberal Democracy."

[105] Christopher H. Achen and Larry M. Bartels, *Democracy for Realists: Why Elections Do Not Produce Responsive Government*, Princeton Studies in Political Behavior (Princeton: Princeton University Press, 2017), 4.

[106] Fathali M. Moghaddam, *Threat to Democracy: The Appeal of Authoritarianism in an Age of Uncertainty* (Washington, DC: American Psychological Association, 2019), 13–14, https://doi.org/10.1037/0000142-000.

[107] Moghaddam, 13–14, 32, 103.

[108] Mounk, "The Undemocratic Dilemma."

[109] Mounk, "The Undemocratic Dilemma"; Zakaria, "The Rise of Illiberal Democracy."

[110] Moghaddam, *Threat to Democracy*, 139–41.

This section has provided an overview of writings on the mechanisms and causes of democratic backsliding. It has shown how, in the modern world, democracies tend to backslide slowly and more subtly than with the fascist, militarist, or communist revolutions and coups of the 20th century. Modern democracies often backslide due to a combination of economic disparity and a breakdown of institutions brought about by the twin dangers of polarization and populism.

7.   Political Polarization in the United States

Recall the previous section's discussion of democratic backsliding. Many experts worry that the United States seems to be entering a period of democratic backsliding along with the rest of the world, largely due to a marked increase of political polarization. This section reviews literature specifically on American democracy, focusing on two areas: the erosion of democratic norms and the increase of polarization.

The previous two sections detailed how Dahl, Huq and Ginsberg, Linz and Stepan, and a host of others define democratic norms: free and fair elections, the rule of law, and liberal freedoms. According to Dahl, democracy partly finds its prerequisites in two liberal ideals: the principle of intrinsic equality and the presumption of personal autonomy.[111] Assaults on such norms and prerequisites, according to the literature, weakens a democracy. Also recall the finding that these attacks are most often perpetrated by populist leaders who stoke partisanship. Enter a populist American president in 2016.

While Albright points to the election of the serial norm-breaking populist Donald Trump as an alarming wake-up call, his elevation to the presidency on a populist platform is probably better classified as reaction to existing illiberal trends rather than the cause of new ones.[112] Polarization, for instance, had been accelerating in the United States for years before the 2016 election. Indeed, Binder noted the precipitous decline of political moderates in Congress as early as 2003.[113] Baldassarri and Gelman also found in 2008 that increased

---

[111] Dahl, *Democracy and Its Critics*, 99.

[112] Albright and Woodward, *Fascism*, 237–38.

[113] Sarah A. Binder, *Stalemate: Causes and Consequences of Legislative Gridlock* (Washington, DC: Brookings Institution Press, 2004), 63–65, ProQuest Ebook Central.

polarization among the public had followed increasing polarization among the political elite.[114] These observations indicate that recent events in American politics, such as the January 6 attack on the Capitol, are reactions to existing trends and not new and sudden shifts.

In one explanation for polarization in the United States, Achen and Bartels point out that voters do not make rational decisions based on what they believe but instead make emotional decisions based on group association and personal self-image.[115] They claim that American democracy is characterized by people who vote based either on social identity or on irrational feelings about their economic and social situation.[116] The pair also explain that rationality matters less than group identity because "partisanship is not a carrier of ideology but a reflection of judgments about where 'people like me' belong."[117] Adding to this idea, Nichols asserts the relative comfort and security of modern life have allowed bored voters to view politics as entertainment. Moreover, voters have become inward-facing and narcissistic and grown obsessed with identity-based grievances rather than motivated by good citizenship.[118] In his view, American voters are lulled into complacency by the relative safety and convenience of modern life, viewing political engagement as a form of entertainment rather than a source of existential decision-making. Voters seem more focused on in-group identity and entertainment than on good policy.

Other authors point to different causes for polarization, including political fragmentation and gerrymandering. Pildes has coined this era in American history the "age of political fragmentation," listing unproductive congressional gridlock and unaccountable politicians among the reasons.[119] To Pildes, the introduction of new internet communications technologies and social media has removed traditional barriers between individual legislators

---

[114] Delia Baldassarri and Andrew Gelman, "Partisans without Constraint: Political Polarization and Trends in American Public Opinion," *American Journal of Sociology* 114, no. 2 (September 2008): 408–46, https://doi.org/10.1086/590649.

[115] Achen and Bartels, *Democracy for Realists*, 4.

[116] Achen and Bartels, 264–66.

[117] Achen and Bartels, 266.

[118] Tom Nichols, *Our Own Worst Enemy: The Assault from Within on Modern Democracy* (New York: Oxford University Press, 2021), 105–21.

[119] Richard H. Pildes, "The Age of Political Fragmentation," *Journal of Democracy* 32, no. 4 (2021): 146–59, https://doi.org/10.1353/jod.2021.0058.

and their constituents, weakening the traditional political parties and leaving politicians accountable only to their most politically engaged (and often most extreme) constituents.[120] David Pepper, on the other hand, blames gerrymandering for much of America's political polarization, arguing that gerrymandered legislative districts provide increasingly unaccountable politicians with incentives to take ever more extreme and hardline positions.[121] In sum, new technology and legislative districts that fail to mirror the electorate are fragmenting American politics, leading to polarization.

Scholars point out the markedly negative effects this polarization has had on American democracy. Macy et al. have identified tipping points whereby sufficiently intense polarization prevents a nation's people from coming together against common threats or for a common cause.[122] They offer the COVID-19 pandemic response as an illustration, but one could easily consider polarized reactions to the January 6 attack on the U.S. Capitol, the Russian invasion of Ukraine, or any one of hundreds of mass shootings to see this phenomenon at play in the United States. Kleinfeld contends that this dynamic leads to physical violence, the new American reality being that millions of Americans are willing to accept or excuse political violence if it helps them meet their partisan goals.[123]

According to the literature, the United States, while a liberal democracy with strong institutions, is showing signs of increasing political fragmentation, polarization, and populism. Where the literature is unclear is whether this will continue, accelerate, or abate.

D.   CHAPTER OVERVIEW

This chapter has examined American democracy in a new technological and media environment and asked how an adversary like China might nudge American democracy. The literature on technology, choice architecture, and democracy fills the gaps of the problem

---

[120] Pildes.

[121] David Pepper, *Laboratories of Autocracy: A Wake-up Call from Behind the Lines* (Grove City: St. Helena Press, 2021), 141–42.

[122] Michael W. Macy et al., "Polarization and Tipping Points," *Proceedings of the National Academy of Sciences* 118, no. 50 (2021): e2102144118, https://doi.org/10.1073/pnas.2102144118.

[123] Rachel Kleinfeld, "The Rise of Political Violence in the United States," *Journal of Democracy* 32, no. 4 (2021): 160–76, https://doi.org/10.1353/jod.2021.0059.

statement, showing evidence of the difficult terrain that American democracy could face in this new technological and geopolitical environment. The following chapter outlines how this author intends to answer the research question, using a scenario planning methodology to peer into the future without predicting it.

The structure of the thesis is as follows. Chapter I defined the problem space, articulated a set of research questions, and reviewed the literature around relevant technology, choice architecture, and democracy. Chapter II explains the research methodology and offers a description of the three critical variables analyzed in the scenarios. Chapters III through V present narratives that illustrate versions of the future, as well as discuss the background and implications of each. Chapter VI presents a set of findings, conclusions, and recommendations.

THIS PAGE INTENTIONALLY LEFT BLANK

II. RESEARCH DESIGN: THE SCENARIO PLANNING METHOD

The field of futures studies presents a set of logical frameworks and methodologies by which to explore the possibilities of the future. This thesis uses one of those methods, future scenario planning, to construct plausible future scenarios that can answer the research question. This chapter describes what scenario planning is and how it is used in this thesis. It explains the centrality of narrative to the process, defending the decision to rely on fictional stories to present different versions of the future. It describes the iterative process of defining critical variables and applying them to envision different futures. Finally, it defines the three critical variables this thesis uses, assembling them into a three-dimensional volume in which the following chapters' scenarios reside.

A. WHY SCENARIO PLANNING METHODOLOGY

Crisis managers, scientists, public policymakers, and business leaders use various scenario-based methods alongside quantitative methods of forecasting to illuminate possible futures.[124] The scenario planning methodology is a subset of futures studies that identifies key variables and uses them to build a set of plausible scenarios of how the future may unfold. While scenario planning techniques are often used to inform strategic business development, research and experience suggest the methodology can be applied in any complex problem space.[125]

Rafael Ramirez and the Oxford Scenarios Programme recommend using the scenario-based futures methodology in turbulent, uncertain, novel, and ambiguous (TUNA) conditions.[126] These conditions are where traditional methods of forecasting often fragment and where history is no longer a reliable indicator of the future environment.[127] According to

---

[124] Kees Van der Heijden, *Scenarios: The Art of Strategic Conversation*, 2nd. ed. (Chichester: Wiley, 2010), 158.

[125] Van der Heijden, 3–10.

[126] Rafael Ramírez and Angela Wilkinson, *Strategic Reframing: The Oxford Scenario Planning Approach* (Oxford: Oxford University Press, 2018), 28–34.

[127] Ramírez and Wilkinson, 63–64.

Ramirez and Wilkinson, TUNA conditions often surround wicked problems.[128] A wicked problem is of complex origin and surrounded by shifting causality, where many solutions result in ordered effects that cause more harm than good.[129] A wicked problem exists when it is difficult to isolate the variable of a solution equation: whereas a math student may find it simple to solve algebraically for *x*, an economist or city planner facing a wicked problem must contend with myriad unknown variables that influence both the problem space and the set of possible solutions.[130]

The complex interplay of technology, culture, public opinion, and discourse makes the research question of this thesis a wicked problem, sited in a TUNA environment. A scenario planning methodology is more likely than a quantitative research method to find success in unpacking this complex problem space. This thesis uses scenario planning to highlight a risky area for the near future of democracy: the nexus of advancing surveillance technology, consumer manipulation, foreign adversaries, and shifting American attitudes about liberal democracy.

1.   Scenarios as a Tool to Understand Uncertainty

Scenario planning research finds its roots at the RAND Corporation in physicist (later futurist) Herman Kahn. While others developed similar methods around the same time, Kahn's approach in *Thinking about the Unthinkable* branched away from common probabilistic and game theory methods toward what he called "future-now thinking."[131] Kahn's innovation was later expanded by Pierre Wack and Edward Newland in the 1960s and 1970s to develop a scenario-based prediction methodology at the Royal Dutch/Shell group of companies.[132] In his own words, Wack's primary insight was that, rather than trying to use math to forecast away all uncertainty, we should "accept uncertainty, try to understand it, and

---

[128] Ramírez and Wilkinson, 32.

[129] C. West Churchman, "Guest Editorial: Wicked Problems," *Management Science* 14, no. 4 (1967): B141–42.

[130] Horst W. J. Rittel and Melvin M. Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4, no. 2 (1973): 155–69, https://doi.org/10.1007/BF01405730.

[131] Herman Kahn, *Thinking about the Unthinkable* (New York: Horizon Press, 1962).

[132] Van der Heijden, *Scenarios*, 3–10.

make it part of our reasoning."[133] By embracing uncertainty, the planners at Shell developed a methodology that allowed the company to anticipate the 1970s' oil crisis and the 1980s' recession.[134] Their system of future scenario planning is a structured way of exploring the implications of a complex and uncertain future.

2. Scenarios as a Learning Tool

Scenarios are meant for learning. Thomas Chermack calls scenario planning a "customized learning project."[135] The Oxford team agrees, calling their scenario participants "learners."[136] They borrow this construction from Van der Heijden, who dedicates a section of his book to arguing that scenario planning is a specialized form of learning.[137] The Global Business Network under Schwartz calls its semiannual gatherings "learning conferences."[138] There is clear consensus that a focus on learning is central to successful deployment of scenario planning.

Van der Heijden uses the scenario approach to facilitate the Kolbian learning loop. In this loop, learning is derived by reflecting on experiences, forming abstract theories of causality from those reflections, and testing them to create new experiences.[139] Scenarios allow a learner to conduct thought experiments that evaluate a potential decision's effect in a range of different models of the future. Van der Heijden uses scenarios to inform decisions in a Kolbian process he calls "wind tunneling."[140] Wind tunneling is a thought experiment that places decision options into models of different future environments, like the controlled test an aerospace engineer might conduct on a wing design to observe its reaction to different

---

133 Pierre Wack, "Scenarios: Uncharted Waters Ahead," *Harvard Business Review* 63, no. 5 (September–October 1985): 73–89.

134 Peter Schwartz, *The Art of the Long View: Planning for the Future in an Uncertain World* (New York: Doubleday, 1991), 7–10.

135 Thomas J. Chermack, *Scenario Planning in Organizations: How to Create, Use, and Assess Scenarios* (San Francisco: Berrett-Koehler, 2011), 171.

136 Ramírez and Wilkinson, *Strategic Reframing*, 4.

137 Van der Heijden, *Scenarios*, 15–17.

138 Schwartz, *The Art of the Long View*, 99.

139 Van der Heijden, *Scenarios*, 37–38.

140 Van der Heijden, 283–84.

29

airflows. What each iteration teaches can then be plugged back into the assumptions of the model for the next go-around. This iterative wind tunneling allows scenario learners to gain insights about the future that may be inscrutable with quantitative risk analysis.

The Oxford team uses a different model with the same effect. The reframing and reperceiving cycle alternates between changing a perspective on macro-level future potential (reframing) and diving into the micro-level implications of decisions within the potential space to learn the what-if implications in practice (see Figure 2).[141]
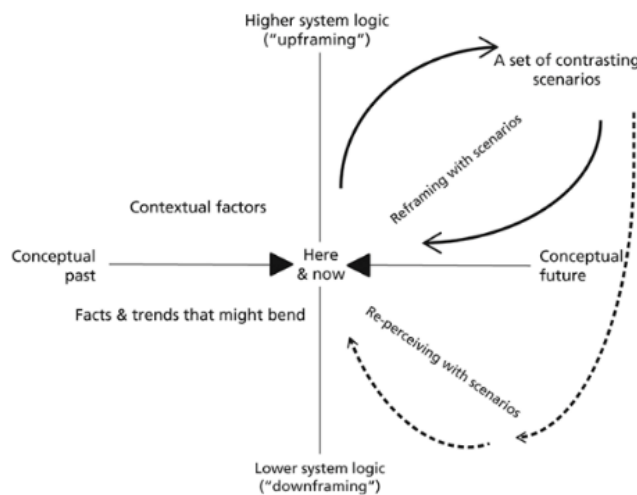
Figure 2.   Oxford's Reframing and Reperceiving Cycle.[142]

The point of the cycle is to come to that eureka moment where reperception grants a novel insight toward answering an intractable question (or a wicked problem). The goal of building scenarios is to reach that moment of understanding the ramifications of a previously undetected or discarded future.

Consequently, the scenarios in the following chapters are not meant to be accurate predictions from an all-knowing oracle. They are likewise not a Cassandra's warning about

---

[141] Ramírez and Wilkinson, 160.

[142] Source: Ramírez and Wilkinson, *Strategic Reframing*, 12.

things to come or even a set of statistically predictive risk statements.[143] Instead, they are tools—plausible models of infinite futures based on analyses of current trends. They are used as controlled environments for thought experiments to make sense of potential consequences of environmental factors and policy choices. By illuminating contemporary forces against the backdrop of a plausible future, recommendations for change can be wind tunneled to see what impacts today's decisions could have on the future.

B.   CRITICAL UNCERTAINTIES AND THE CENTRALITY OF NARRATIVE

Pierre Wack lays out two fundamental aspects of scenario planning in a 1985 piece for *Harvard Business Review*. In the first article of a two-part series, he outlines the basic premise of futures analysis: some things are predetermined while others are uncertain.[144] He argues that uncertainties are what make quantitative forecasting insufficient: one cannot mathematically calculate the unknowable, and historical data analysis often fails to quantify some uncertainties.[145]

Wack also asserts that the elements driving the future are more often uncertain than predetermined and that a subset of these uncertainties are what he calls "critical uncertainties." These critical uncertainties, which some call "scenario dimensions," are the best candidates for futures analysis.[146] Wack's apprentice and successor Peter Schwartz agrees in *The Art of the Long View*, delineating between predetermined elements and critical uncertainties.[147] Critical uncertainties are found "by questioning your assumptions about predetermined elements."[148] To Schwartz, analyzing the predetermined and discovering the uncertain are intimately linked, and one is not discoverable without fully considering the other.

---

[143] Cassandra of Troy, a mythical figure, was granted the gift of prophesy but cursed never to be believed. She foresaw that the city of Troy would fall if Paris went to Sparta and took Helen as a wife, but her warnings went unheeded.

[144] Wack, "Uncharted Waters Ahead."

[145] Wack.

[146] Wack.

[147] Schwartz, *The Art of the Long View*, 113–23.

[148] Schwartz, 121.

Returning to the foundational 1985 series, Wack explains in the second article how scenarios explore both the world of facts and the world of perceptions.[149] This second article states that a scenario with a perfect conceptual underpinning will fall flat if it fails to communicate a point that is both simple and meaningful to the audience. Thus, successful future scenario planning forces decision-makers to reframe their view of the world and account for previously undetected threats and opportunities (i.e., reperception).[150]

The method that Wack suggests for communicating meaningfully is to tell relatable narratives that have a defined beginning, middle, and end.[151] Scenario planners are not alone in recommending this method of communication. Military intelligence scholar Erik Dahl suggests in his description of "focusing events" and "wake-up calls" that a terrorist threat can only lead to action if it is perceived by policymakers as vividly as it is by the intelligence community.[152] For example, if those in the intelligence community who perceived the eventualities of the 9/11 terror attack had embraced the techniques of the storyteller in addition to dry analysis, decision-makers might have responded differently before it occurred. The scenario planning practitioner aims to craft relatable narratives derived from rigorous analysis of critical uncertainties to inform better decisions.

Other scenario planning experts support Wack's focus on narrative. The Oxford team recommends telling stories, ones that push the audience to view multiple permutations of the downstream consequences of their present choices.[153] Perceiving those consequences enables decision-makers to make better choices. Van der Heijden invokes Ingvar's research about memory to suggest that scenario narratives activate the memory centers of the brain, allowing

---

[149] Pierre Wack, "Scenarios: Shooting the Rapids," *Harvard Business Review* 63, no. 6 (November–December 1985): 14.

[150] Wack, "Shooting the Rapids"; Rafael Ramírez et al., "Using Scenario Planning to Reshape Strategy," *MIT Sloan Management Review*, June 13, 2017, https://sloanreview.mit.edu/article/using-scenario-planning-to-reshape-strategy/.

[151] Wack, "Shooting the Rapids."

[152] Erik J. Dahl, "Missing the Wake-up Call: Why Intelligence Failures Rarely Inspire Improved Performance," *Intelligence and National Security* 25, no. 6 (2010): 778–99, https://doi.org/10.1080/02684527.2010.537876.

[153] Ramírez and Wilkinson, *Strategic Reframing*, 44.

the audience to create memories of the future that clarify present decisions.[154] In positioning these memories of the future next to visualization and imagination, Chermack allows scenario learners to engage critically with the future like they would with the past.[155] All of these practitioners agree that if a scenario evokes a memory, especially a visual one, then the scenario is more likely to clarify the decisions of the present. The best way to evoke these memories of the past is by telling an effective story, much as a Hollywood scriptwriter creates a sensory experience by drawing his audience into a crafted reality.

With this importance of narrative in mind, the design of this thesis builds logically derived scenarios. It uses those scenarios to craft compelling narratives aimed at invoking memories of the future to improve present decision-making. It strives for narratives that are relatable, thought-provoking, and grounded in both logic and real, observable trends. The goal is not a great science fiction story but a reperception of the threat environment to inform today's policy choices. The reader is encouraged to wind tunnel the political, policy, technological, and business choices of today through these potential futures to consider the plausible outcomes.

1.   The Deductive Method of Building Scenarios

A scenario project is more than a collection of plausible stories. These stories are built on a foundation of trend analysis. Scenarios exist for two reasons—either opening or resolving new questions—and they exist in two constructions—as one-time projects or as part of an iterative process.[156] This thesis uses a one-time project construction to open new questions.[157] Van der Heijden calls this type of scenario project a "sense-making project,"

---

[154] Van der Heijden, *Scenarios*, 133–34.

[155] Chermack, *Scenario Planning in Organizations*, 238–39.

[156] Van der Heijden, *Scenarios*, 161.

[157] This choice was partly based on personal preference, as this author was more comfortable dissecting themes than composing grand images. Another consideration involved time and resources. While the inductive approach might have worked to answer this research question, it would have taken a team of people more time than the thesis project allowed this independent scholar.

deeming it especially useful for exploring turbulent circumstances.[158] The goal here is to make sense of a set of possible futures to answer the research question.

2. The Process: Identifying Uncertainties to Deduce Possibilities

As detailed by Chermack, the two main approaches to scenario building are inductive and deductive.[159] Figure 3 depicts how this thesis uses the deductive approach of first identifying critical uncertainties and then using them to create a set of scenarios that inform corresponding narratives.
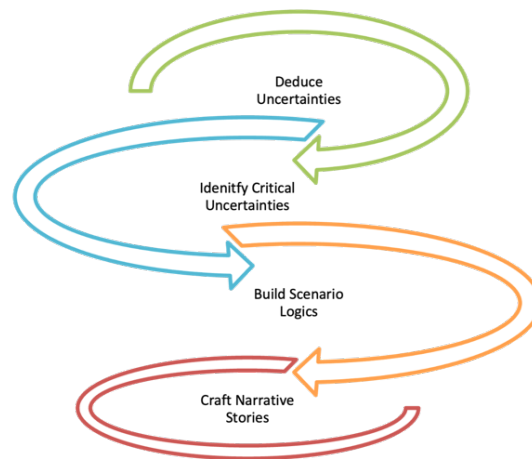
Figure 3.   The Deductive Approach to Scenario Building

As shown in the figure, a large set of uncertainties is filtered to define those that are critical. Critical uncertainties are used to define the logical worlds underpinning each scenario. This is done by embracing the variability of those critical uncertainties and playing with their values to build each future. These logical constructions in turn inform fictional narratives. These narratives allow one to visualize future possibilities in a structured way.

---

[158] Van der Heijden, *Scenarios*, 161.

[159] Chermack, *Scenario Planning in Organizations*, 129–30.

Schwartz notes that building scenarios requires assembling several logical building blocks, a view shared generally by other scenario planners.[160] Three questions underpin the logical building blocks: 1) What are the key drivers in the scenario? 2) Which drivers are predetermined, and which are uncertain? 3) Are the chosen uncertainties that make up the scenario dimensions binary or scalar? Figure 4 displays the logical progression toward deductively building a scenario space.
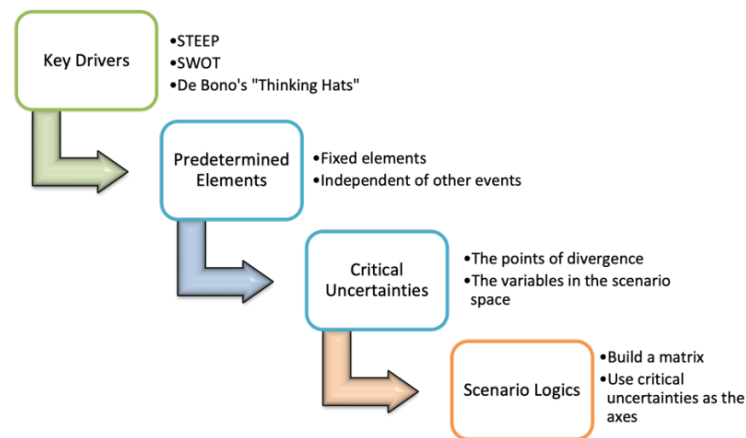
Figure 4.   Building the Scenario's Logic

The scenario planning literature agrees that choosing the key drivers is vital to a deductive scenario project. As shown in Figure 3, a range of techniques can be used, for example, surveying social, technological, economic, environmental, and political (STEEP) forces; performing strengths, weaknesses, opportunities, and threats (SWOT) analysis; or applying De Bono's "thinking hats."[161]

3.   Critical Uncertainties

Some key drivers are predetermined. Schwartz defines predetermined elements as those that "do not depend on any particular chain of events."[162] He offers demographics and

---

[160] Schwartz, *The Art of the Long View*, 105–23.

[161] Schwartz, *The Art of the Long View*, 110–12; Van der Heijden, *Scenarios*, 183; Chermack, *Scenario Planning in Organizations*, 103–13.

[162] Schwartz, *The Art of the Long View*, 115.

birthrates as examples.[163] While understanding these elements is vital to success, they are not variables but integers of the scenario equation.

Some other driving forces are uncertain. In Figure 3 these uncertain drivers are categorized as critical uncertainties, those most likely to drive future events.[164] One example is climate change. Trends indicate that climate change is accelerating, but human action could change that trend. Another example is Moore's law, the assumption that the number of transistors that will fit on an integrated circuit will increase at a predetermined rate. The rightness or wrongness of Moore's law impacts the speed of computing and does much to color the future, as do different models of climate change progression.

It is vital not to conflate predetermined elements with critical uncertainties because together they form the logical foundation of the scenarios. Wack notes that conflating these building blocks is where forecasters often get it wrong—by assuming that uncertain elements are predetermined and consequently making false assumptions.[165] Schwartz suggests identifying critical uncertainties by examining the predetermined elements for what makes them seem certain.[166] Scenario planners should challenge conventional wisdom to find what is predetermined and then separate that from what is merely assumed to be so. They should also be careful in choosing only the most vital of those uncertain elements as the basis for scenario construction. Van der Heijden argues the logical choices involve "driving forces with high impact and high uncertainty."[167]

These critical uncertainties are then arranged in a two-dimensional matrix or a three-dimensional volume called the scenario space. Van der Heijden encapsulates this process when he calls critical uncertainties "scenario dimensions."[168] Including too many critical

---

[163] Schwartz, 114–19.

[164] Schwartz, *The Art of the Long View*, 120–23; Ramírez and Wilkinson, *Strategic Reframing*, 217; Chermack, *Scenario Planning in Organizations*, 128–29.

[165] Wack uses the example of the 1960s' forecast of an exponential increase in oil demand, which turned out to be wildly incorrect. Wack, "Uncharted Waters Ahead."

[166] Schwartz, *The Art of the Long View*, 121.

[167] Van der Heijden, *Scenarios*, 248.

[168] Van der Heijden, 227.

uncertainties adds unnecessary dimensions and makes a scenario project unwieldy and ineffective. Van der Heijden recommends arranging two uncertainties into a 2 × 2 matrix.[169] Chermack and the Oxford approach both allow for an additional dimension (creating a 2 × 2 × 2 volume, which this thesis uses), but none of these authors recommend a volume with more than three dimensions.

C.   THE THREE SCENARIO DIMENSIONS

This thesis identifies three critical uncertainties and arranges them into scenario dimensions. Together, these three uncertainties comprise a three-dimensional volume encompassing the range of possible futures. Figure 5 shows these dimensions.

Predictiveness of Surveillance Technologies

Less Predictive   More Predictive

Chinese Efforts to Control American Discourse

Weak   Strong

American Attitudes Toward Democracy

Liberal   Autocratic
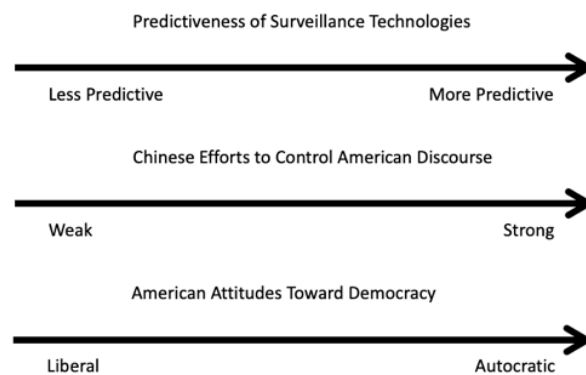
Figure 5.   Critical Uncertainties as Scenario Dimensions

The three dimensions, displayed individually in Figure 5, are combined into a three-axis volume in a later figure. A description of each dimension follows.

1.   Choosing Scenario Dimensions

The previous sections of this chapter explained how the scenario dimensions are simply the most impactful variables for assessing the research question, which asks how

---

[169] Van der Heijden, 247–51.

China could use modern AI and data analytics to nudge the United States into a more authoritarian-friendly mindset. This question holds several implications.

First, "how could" implies a future tense in the investigation. The scenarios are set around the 2032 election cycle, a moment of legislative turnover and possibly of presidential turnover. Linz recognizes transitions of executive power as inherently unstable periods in presidential systems.[170] This observation is supported by two events in the United States: the secession of South Carolina following the election of Abraham Lincoln to the presidency and the January 6 attack on the U.S. Capitol following the election of Joseph Biden to the same office.[171] Such instability makes that time horizon an interesting target for exploring future possibilities.

The question also suggests that China could use AI tools and data analytics to nudge American thought. It is necessary to assess those tools and to account for possible variations in both their technological maturity and China's deployment of them. The word nudge in the research question refers to the choice architecture techniques originally described by Thaler and Sunstein.[172] Chapter I explained how choice architecture generally presupposes a form of libertarian paternalism that may seem unlikely to apply to a post-totalitarian nation like China. But the remainder of this thesis investigates whether it may be possible to repurpose these techniques for non-libertarian ends. The ability and determination of China to use choice architecture techniques outside its domestic domain is a critical unknown for the scenarios.

Finally, the question is premised on the health of liberal democracy and the American public's attitudes toward it. Building out the scenarios requires assessing the health of American democracy, the current trends toward liberalism and illiberalism, and what democracy could look like in the early 2030s.

---

[170] Juan J. Linz, "The Perils of Presidentialism," *Journal of Democracy* 1, no. 1 (1990): 54.

[171] David A. Moss, *Democracy: A Case Study* (Cambridge, MA: Belknap Press, 2019), 268–73; Joe Biden, "Remarks to Mark One Year since the January 6th Deadly Assault on the U.S. Capitol," White House, January 6, 2022, https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/01/06/remarks-by-president-biden-to-mark-one-year-since-the-january-6th-deadly-assault-on-the-u-s-capitol/.

[172] Thaler and Sunstein, *Nudge*, 1–5.

Each of these three critical unknowns forms one of the three axes bounding the scenario space. The remainder of this chapter examines each of the three axes in detail, scaling and bounding each based on current trends.

a.   *Scenario Dimension One: Predictiveness of Surveillance Technologies*

The first scenario dimension evaluates AI-driven surveillance technology. This dimension pays special attention to how commercial tools of surveillance drive consumer behavior. This dimension emphasizes the developing trend of building prediction engines, in other words, using AI to power activities like predictive policing and consumer analytics. The first dimension also evaluates the nascent Chinese social credit system and similar tools of digital authoritarianism as potential sources of leverage against U.S. persons and businesses.

The literature review in Chapter I described concerns and debate around the capture and use of consumer data. Some experts are wary of this explosion in data capture, warning against the intrusiveness and lack of accountability that accompany it. Zuboff describes a "coup from above" whereby companies use the data profiles they collect to influence people in non-consensual ways.[173] It is difficult to escape from the data capture ecosystem. Despite efforts in places like the European Union and California to enact strong data privacy and autonomy laws, it is still difficult to ascertain what data are being collected much less extricate one's personal data from the company collecting them.[174]

Some authoritarian countries have found data capture to be as useful a tool for autocratic governance as for business. In China, according to a U.S. Senate committee report, data are generally owned or claimed by the state, even when they are collected by private entities.[175] Consequently, Nina Xiang notes that about four-fifths of Chinese data are held by the government in some form.[176] According to Brookings, this claim to commercial data

---

[173] Zuboff, *The Age of Surveillance Capitalism*, 513–16.

[174] Zuboff, 482–85.

[175] U.S. Senate, Committee on Foreign Relations, *The New Big Brother: China and Digital Authoritarianism* (Washington, DC: U.S. Senate, 2020), 20–22, https://www.foreign.senate.gov/imo/media/doc/2020%20SFRC%20Minority%20Staff%20Report%20-%20The%20New%20Big%20Brother%20-%20China%20and%20Digital%20Authoritarianism.pdf.

[176] Xiang, *Red AI*, 31.

makes China a leader in appropriating personally identifying data for government use.[177] China likely collects more personal data than any other government.

This massive tranche of state-owned data exists partly because companies doing business in China have a legal responsibility to support the state's goals.[178] Strittmatter suggests that two important goals of the Chinese government are surveilling its citizens and using the resulting data profiles to predict people's behavior.[179] Recent events imply such data capture is focused not only on Chinese subjects. China has also shown significant interest in obtaining data on American and European users, going so far as using criminal means to obtain them.[180] Aside from unofficial means like hacking Western databases, the Chinese government's official data collection ecosystem uses tools like pervasive camera surveillance, biometrics and facial recognition, text message monitoring, and cell phone tracking—and even DNA tracking—to closely monitor its citizens both at home and abroad.[181] China is aggressively matching and even expanding the data collection practices it has borrowed from Western corporations.

Some of this massive effort to collect data appears to be driven by China's ambition to become a world leader in AI development. Chapter I explained the importance of data in training new AI tools, and the Chinese government holds a convenient claim to an unimaginable amount of data. The CCP has set a national goal of leading the world in AI development by 2030.[182] It is making good progress toward that goal though some scholars

---

[177] Jessica Dawson and Tarah Wheeler, "How to Tackle the Data Collection behind China's AI Ambitions," *Brookings Tech Stream* (blog), April 29, 2022, https://www.brookings.edu/techstream/how-to-tackle-the-data-collection-behind-chinas-ai-ambitions/.

[178] Coco Liu and Zheping Huang, "China Deals Fresh Blow to Tech Giants in Reach for Data," Bloomberg, March 4, 2021, https://www.bloomberg.com/news/articles/2021-03-05/china-deals-fresh-blow-to-tech-giants-in-reach-for-data.

[179] Strittmatter, *We Have Been Harmonized*, 215–34.

[180] Kristen E. Eichensehr, ed., "United States Joins with Allies, Including NATO, to Attribute Malicious Cyber Activities to China," *American Journal of International Law* 115, no. 4 (October 2021): 715–21, https://doi.org/10.1017/ajil.2021.54.

[181] Cain, *The Perfect Police State*, 106–111; Strittmatter, *We Have Been Harmonized*, 186–213.

[182] Xiang, *Red AI*, 8.

indicate that a lack of capacity for manufacturing the sophisticated chips needed for these calculations could hold it back.[183]

China is using AI/ML for a variety of tasks, of which monitoring and controlling its large population are the most prominent.[184] The CCP seeks to monitor and control both human behavior and the collective urban experience to a surprising degree of granularity. To this end, the Chinese government has funded smart city projects in hundreds of cities.[185] Chinese firms lead the global smart city market, a fact that Segev argues is problematic outside China due to cybersecurity and data privacy concerns.[186] Along with smart city algorithms that predict the time a trash can may need emptying or warn when problematic traffic patterns emerge, other algorithms use data on human behavior to engage in predictive policing.

Riding alongside other smart city initiatives, predictive policing is an emerging tool that has attracted global controversy. The goal of predictive policing algorithms in the United States is to efficiently manage asset deployment.[187] Even this limited use is met with skepticism from privacy advocates who question whether these systems unfairly profile people based on factors like race, class, age, or locality.[188] In contrast to the American use case, some accuse the Chinese government of trying to use these predictive policing algorithms for a far broader purpose: to pre-detain people for questioning before an actual crime has been committed.[189] If successful, video and audio surveillance, bolstered by AI facial, text, and voice recognition tools, feeds a predictive policing algorithm that predicts an

---

[183] Xiang, *Red AI*; Cain, *The Perfect Police State*, 54.

[184] Cain, *The Perfect Police State*, 110–11.

[185] Alice Ekman and Cristina de Esperanza Picardo, *Towards Urban Decoupling?: China's Smart City Ambitions at the Time of Covid-19*, Brief 10 (Paris: European Union Institute for Security Studies, 2020), http://www.jstor.org/stable/resrep25030.

[186] Hiddai Segev, "Smart Cities with Chinese Characteristics," *Strategic Assessment* 24, no. 3 (July 2021): 99–104.

[187] Jon Fasman, *We See It All: Liberty and Justice in an Age of Perpetual Surveillance* (New York: Public Affairs, 2021), 167–81.

[188] Fasman, 166, 171–73, 177–79.

[189] Cain, *The Perfect Police State*, 129–32.

antisocial act before it is committed.[190] This identification then allows agents of the state to prevent the anticipated criminal act and re-educate (or "harmonize") the pre-criminal without trial.[191] The tools of big data and AI/ML, while often useful for ethical policing, show potential for abuse when successfully repurposed by authoritarian governments to monitor, predict, and control citizen behavior.

Another way China seeks to use data and machine learning is by deploying a national social credit system (SCS) that can measure and nudge human behavior. The Chinese SCS continues the country's long history of government social scoring that includes personal dossiers and morality files on citizens.[192] The SCS relies on social quantification algorithms to detect deviance from what the government considers acceptable behavior.[193] The SCS evaluates several parameters: financial trustworthiness, such as repaying loans; political trustworthiness, such as expressing only opinions the Chinese government deems acceptable; and social trustworthiness, such as following traffic laws, eschewing religious beliefs, and refraining from violent outbursts.[194] The SCS's prediction algorithms and scoring are used to reward and punish in large and small ways, from favoring a business's growth to denying a person access to public transit.[195] The government argues that this system furthers its goal of creating a harmonious society where people are respectful and get along with each other.

There is room to doubt the maturity and effectiveness of the SCS. Deploying it has taken longer than anticipated, and some note that the system lacks a coherent nationwide

---

[190] Shai Oster, "China Tries Its Hand at Pre-Crime," Bloomberg Businessweek, March 7, 2016, https://www.bloomberg.com/news/articles/2016-03-03/china-tries-its-hand-at-pre-crime#xj4y7vzkg; Strittmatter, *We Have Been Harmonized*, 196–99, 205–15.

[191] Strittmatter, *We Have Been Harmonized*, 215.

[192] Min Jiang, "A Brief Prehistory of China's Social Credit System," *Communication and the Public* 5, no. 3–4 (2020): 93–98, https://doi.org/10.1177/2057047320959856.

[193] Fan Liang and Yuchen Chen, "The Making of 'Good' Citizens: China's Social Credit Systems and Infrastructures of Social Quantification," *Policy & Internet* 14, no. 1 (2022): 114–35, https://doi.org/10.1002/poi3.291.

[194] Strittmatter, *We Have Been Harmonized*.

[195] Liang and Chen, "The Making of 'Good' Citizens."

architecture.[196] Liu, for example, points out there is not one national system but several regional ones, which may pose difficulties in reconciling their data and algorithms.[197] Thus, the systems are more performative than substantive, but Liu admits this may change as the technology advances.[198] Taking a different approach, Hansen and Weiskopf evaluate whether the SCS has brought Chinese society to a point of "universal transparency and surveillance" and find it has not.[199] Some skepticism of the system's effectiveness seems warranted.

Yet others highlight future risk over current reality. Cain, for example, argues the tools being perfected to suppress the Uyghur minority can be applied in other contexts, such as with Hong Kong dissidents.[200] There is also growing concern that Western companies doing business in China are responding to the tools of digital authoritarianism in ways that further undermine the liberal mores of their home countries. Eric Schwartzel recounts how the American movie industry has over time become deeply responsive to pressure from the Chinese government's cultural censors, even when scripting and editing movies not released in China.[201] Likewise, a long list of Western companies have self-censored messages about the Hong Kong freedom movement under pressure from the Chinese government.[202] A 2020 Congressional Research Service report indicates that China uses political data to inform credit scoring of corporations, including multinationals.[203] China already exerts pressure on

---

[196] Jessica Reilly, Lyu Muyao, and Megan Robertson, "China's Social Credit System: Speculation vs. Reality," *Diplomat*, March 30, 2021, https://thediplomat.com/2021/03/chinas-social-credit-system-speculation-vs-reality/.

[197] Chuncheng Liu, "Multiple Social Credit Systems in China," *Economic Sociology* 21, no. 1 (November 2019), https://doi.org/10.31235/osf.io/v9frs.

[198] Liu.

[199] Hans Krause Hansen and Richard Weiskopf, "From Universalizing Transparency to the Interplay of Transparency Matrices: Critical Insights from the Emerging Social Credit System in China," *Organization Studies* 42, no. 1 (2021): 109–28, https://doi.org/10.1177/0170840619878474.

[200] Cain, *The Perfect Police State*, 225–27.

[201] Erich Schwartzel, *Red Carpet: Hollywood, China, and the Global Battle for Cultural Supremacy* (New York: Penguin Books, 2022).

[202] Tim Bartz et al., "China Pressures Foreign Companies to Fall in Line on Protests," *Der Spiegel*, August 28, 2019, https://www.spiegel.de/international/business/hong-kong-china-pressures-foreign-companies-on-protests-a-1283314.html.

[203] Sutherland, *China's Corporate Social Credit System*.

Western companies to publicly refrain from commenting on politically taboo subjects, so the country would likely use a tool like the SCS to further those efforts.

Regardless of the current power of the SCS, given the current technological and political trajectory, it is reasonable to expect the SCS or a collection of tools like it will improve and grow in scope. As these authoritarian tools grow in pervasiveness and effectiveness, they could have a chilling effect on corporate speech, on news and entertainment media, and possibly on individual speech from any entity wishing to conduct business within China.

Scenario Dimension One defines the technological possibility of the scenario volume. More specifically, it examines how data surveillance and AI/ML prediction technologies can combine to drive the choices and attitudes of Americans. What emerges from the literature is a range of plausible technological capabilities. While most scholars expect the AI/ML tools described here to improve, there is dispute about how effective the Chinese state will be at harnessing them. There is also disagreement about how well the available hardware will enable the AI software advancements needed to realize a system that effectively collects data, ties it to individuals, and uses it to predict and influence individual behavior.

The technology around internet communication, data capture, AI/ML-driven predictions, and choice architecture is advancing rapidly, achieving new levels of effectiveness. Because of the partial success already demonstrated in both the private and public sectors, some degree of effectiveness can be assumed when building the scenarios. It is unlikely that the technology in the period leading to 2032 will be ineffective or neutral. Thus, the three scenarios are built within a range on this axis of "marginally effective" to "highly effective."

b. Scenario Dimension Two: Chinese Efforts to Control American Discourse

The second dimension evaluates how a foreign adversary could use behavioral economics in the modern age. Specifically, it looks at China to gauge both the government's capability to impact American democracy and its intent to do so.

In the last two decades, some governments have experimented with choice architecture, the so-called nudge described by Richard Thaler and Cass Sunstein.[204] With an eye toward the possibilities presented by choice architecture techniques, this dimension rates the likelihood of an autocratic Chinese government's using technological or other leverage over Americans to subtly drive their choices and attitudes. The second dimension also evaluates the potential capability and intent of a future Chinese government to alter or control American discourse.

One possible use of the surveillance systems and AI/ML prediction engines described in the previous section is to artificially limit people's apparent choices. Chapter I described choice architecture, also called nudging. If private companies and local or national governments can use these techniques to alter opinion and behavior within their borders, there is likely space for foreign governments to similarly alter opinion and behavior outside their borders. The United States saw the effects of such an effort in 2016. The Mueller investigation made it common knowledge that Russian propaganda aimed at disrupting the 2016 election permeated Facebook and other social media at the time.[205] It is less understood how this propaganda was both microtargeted at specific demographics and tailored to drown out alternative viewpoints.[206] Some operations, for example, tried to cause physical violence and unrest by geographically collocating opposing extremist rallies.[207] Each piece of viral propaganda in this effort was a nudge aimed at moving online discourse into offline behavior.

There is evidence that China also uses social media propaganda to drive American discourse.[208] This use of propaganda adds to other Chinese efforts to stifle free expression and monitor people around the world in increasingly invasive ways.[209] So far, the purpose of

---

[204] Thaler and Sunstein, *Nudge*.

[205] Mueller, *Report on the Investigation into Russian Interference*, 1:14–31.

[206] Mueller, 1:24–28.

[207] Mueller, 1:29–31.

[208] Carly Miller et al., *Sockpuppets Spin Covid Yarns: An Analysis of Pre-attributed June 2020 Twitter Takedown* (Stanford: Stanford Internet Observatory, 2020), https://stacks.stanford.edu/file/druid:zf032rd0838/20200611_China_Report.pdf.

[209] Adrian Shahbaz and Allie Funk, *Freedom on the Net 2021: The Global Drive to Control Big Tech* (Washington, DC: Freedom House, 2021), https://freedomhouse.org/report/freedom-net/2021/global-drive-control-big-tech.

China's overseas propaganda appears to be a distraction from subjects the regime would prefer buried. This propaganda approach contrasts with Russia's, whose trolls seek confrontation and disruption.[210] Fedasiuk argues that China's brand of internet trolling has so far been ineffective, though he adds it should still be taken seriously.[211] But it would likely strengthen China's nudging efforts if the government automated individual data collection and targeting overseas the way it does domestically in places like Xinjiang.

While China does not currently seem to nudge individual Americans, it apparently seeks to nudge institutional behavior. One example is the Confucius Institutes, a cultural exchange program at universities.[212] These centers are funded by the CCP and influence the host universities into refraining from discussing topics deemed sensitive by China.[213] This stricture artificially limits the free exchange of ideas and prevents some students from comprehending the full range of choices in Chinese policy.[214] Another example is China's use of economic statecraft to manipulate Western political discourse.[215] China uses its economic strength to pressure institutions to stifle disfavored narratives.

China seems determined to limit global discourse around subjects it deems sensitive, internal matters.[216] This trend is likely to remain largely the same, though it is uncertain

[210] Jean-Baptiste Jeangene Vilmer and Paul Charon, "Russia as a Hurricane, China as Climate Change: Different Ways of Information Warfare," War on the Rocks, January 21, 2020, https://warontherocks.com/2020/01/russia-as-a-hurricane-china-as-climate-change-different-ways-of-information-warfare/.

[211] Ryan Fedasiuk, "A Different Kind of Army: The Militarization of China's Internet Trolls," *China Brief* 21, no. 7 (2021), https://jamestown.org/program/a-different-kind-of-army-the-militarization-of-chinas-internet-trolls/.

[212] "Confucius Institute Introduction," Chinese International Education Foundation, accessed August 8, 2022, https://www.cief.org.cn/jj.

[213] Rachelle Peterson, "The Confucius Institutes," *Academic Questions* 32, no. 2 (June 2019): 178–86, http://dx.doi.org/10.1007/s12129-019-09783-8.

[214] Jennifer Ruth and Yu Xiao, "Academic Freedom and China," *Academe* 105, no. 4 (Fall 2019): 39–44; Peterson, "The Confucius Institutes"; "China: Government Threats to Academic Freedom Abroad," Human Rights Watch, March 21, 2019, https://www.hrw.org/news/2019/03/21/china-government-threats-academic-freedom-abroad.

[215] Larry Diamond and Orville Schell, *Chinese Influence & American Interests: Promoting Constructive Vigilance* (Stanford: Hoover Institution Press, 2018), 123–38, https://www.hoover.org/research/chinas-influence-american-interests-promoting-constructive-vigilance.

[216] Diamond and Schell, 8–11.

whether it will grow into trying to control expression from overseas individuals as well as institutions. Whether the CCP will expand its domestic use of choice architecture to influence individuals within the United States remains to be seen.

In addition to stifling topics it wants buried, like the Tiananmen Square massacre, China also peddles a viewpoint about the desirability of democratic governance and whether the global order should be organized around it. China stands as a consistent antagonist for the Western-led global order. The CCP advocates instead for a global system wherein Western ideals of liberalism and democracy become less dominant than a competing set of values centered on national sovereignty (especially sovereignty in service of authoritarian policy).[217] China's leaders assert that their country's economic and scientific success is because they eschew democracy in order to embrace what President Xi Jinping calls a "moderately prosperous society in all respects," one based on "socialism with Chinese characteristics."[218] At the same time, China also seeks to build a new international system that the United States and its allies no longer dominate.[219]

In the Chinese framing, Western-style liberal democracy is inherently unstable and unreliable compared to a single-party democracy governed in accordance with socialist ideals.[220] Chinese leaders and media point to the messiness of recent events like the Brexit vote and the turmoil of the Trump presidency to suggest that liberal democracy is weak, corrupt, and dying.[221] They offer their system as a more responsible alternative and use

---

[217] Sarah Repucci and Amy Slipowitz, *Freedom in the World 2021: Democracy under Siege* (Washington, DC: Freedom House, 2021), https://freedomhouse.org/report/freedom-world/2021/democracy-under-siege; Matt Schrader, *Friends and Enemies: A Framework for Understanding Chinese Political Interference in Democratic Countries* (Washington, DC: Alliance for Securing Democracy, 2020), 1–3.

[218] Xi Jinping, *The Governance of China*, vol. 2 (Beijing: Foreign Languages Press, 2017), 3–15, 62, 77–86.

[219] Elizabeth Economy, "Xi Jinping's New World Order: Can China Remake the International System?," *Foreign Affairs* 101, no. 1 (February 1, 2022): 52–67.

[220] Xi Jinping, *The Governance of China*, 2nd ed., vol. 1 (Beijing: Foreign Languages Press, 2018), 149–59.

[221] "Where American Democracy Has Failed, as Told by Facts," China Global Television Network, July 8, 2022, https://news.cgtn.com/news/2021-12-09/Where-American-democracy-has-failed-as-told-by-facts-15QN13KVmBW/index.html; Vincent Ni, "China Attacks 'US-Style Democracy' prior to Biden Summit," *Guardian*, December 6, 2021, https://www.theguardian.com/world/2021/dec/06/china-attacks-us-style-democracy-prior-to-biden-summit.

incentives, mostly economic, for other governments to trend in illiberal directions.[222] For example, Greece was apparently induced to vote in the European Union against a human rights declaration disfavored by China.[223] China seeks to use its influence to dismantle the democratically centered global order.

There is a possibility that China's leaders could attempt to control discourse abroad the way they do domestically. According to Strittmatter, the Chinese government works domestically to harmonize society, which under Xi means stifling dissent and smoothing out deviant opinions.[224] Strittmatter describes how the government deploys social pressure, censorship, and pervasive monitoring via internet-enabled tools to harmonize society.[225] According to the Brookings Institution and others, these tools are then exported to other countries, along with the totalitarian values that built them.[226] This exported digital authoritarianism encompasses a wide range of both technological and legal innovations that aim to control discourse, monitor citizens, sell or seize user data, stifle free expression, and proliferate sophisticated spyware across the globe.[227]

In addition to exporting the tools of digital authoritarianism, China also seeks to export ideas, both about itself and about how the international order should be structured. Coco suggests that China advocates for a post-hegemonic system that allows for nations to unilaterally protect their own autocrats from global pressure to liberalize.[228] Similarly, Anne-Marie Brady catalogs how the Chinese government has infiltrated Western media to stifle

---

[222] Elizabeth Economy, "China's Assertive Authoritarianism," *Democracy*, no. S62 (2021), https://democracyjournal.org/magazine/62-special-issue/chinas-assertive-authoritarianism/.

[223] Clive Hamilton and Alex Joske, *Silent Invasion: China's Influence in Australia* (London: Hardie Grant Books, 2018), 147–49.

[224] Strittmatter, *We Have Been Harmonized*, 5–8.

[225] Strittmatter, 7.

[226] Yau Tsz Yan, "Exporting China's Social Credit System to Central Asia," *Diplomat*, January 17, 2020, https://thediplomat.com/2020/01/exporting-chinas-social-credit-system-to-central-asia/; Alina Polyakova and Chris Meserole, *Exporting Digital Authoritarianism* (Washington, DC: Brookings Institution Press, 2019), https://www.brookings.edu/research/exporting-digital-authoritarianism/.

[227] Shahbaz and Funk, *Freedom on the Net 2021*.

[228] Orazio Coco, "Contemporary China and the 'Harmonious' World Order in the Age of Globalization," *Chinese Journal of Global Governance* 6, no. 1 (2020): 1–19, https://doi.org/10.1163/23525207-12340044.

48

some messages while implanting others into Western consciousness.[229] She claims this infiltration serves to influence foreign decision-makers in China's favor as the CCP seeks to disrupt and remake the global order.[230] Diamond and Schell agree and highlight other areas of Chinese influence in the West such as academia and politics.[231] China spends up to $10 billion each year on these efforts by one accounting, a number that is likely to increase as China's economic power grows.[232] China appears determined to change the global conversation about what constitutes good governance.

The literature suggests that China is building a global narrative about the ineffectiveness, instability, and precariousness of liberal democratic systems. China has also moved aggressively to alter global discourse about its own political system and about the decisions of its rulers. At the same time, choice architecture is available to the CCP as a proven tool that both businesses and governments can use to change behavioral trends. The unknowns are what level of effort China is willing to exert toward changing American domestic discourse, how ably it could do so, and whether its apparent determination to build a new global order will persist into 2032. That range of uncertainty offers a choice about where to place each scenario space on the spectrum of plausible levels of China's resolve. The scenarios in this thesis exist on this axis between a neutral position of continuing efforts and a position denoting aggressive, capable acceleration by the CCP.

c.   Scenario Dimension Three: American Attitudes toward Democracy

The final scenario dimension is the relative health of American democratic institutions. This dimension is bounded using both a global and a domestic view of democratic and antidemocratic trends. The goal is to evaluate the underlying susceptibility of Americans to negative messages about liberal democratic norms and positive (or coercive) messages

---

[229] Anne-Marie Brady, "China's Foreign Propaganda Machine," in *Authoritarianism Goes Global: The Challenge to Democracy*, ed. Larry Jay Diamond, Marc F. Plattner, and Christopher Walker (Baltimore: Johns Hopkins University Press, 2016), 187–97.

[230] Anne-Marie Brady, "New Zealand and the CCP's 'Magic Weapons,'" *Journal of Democracy* 29, no. 2 (2018): 68–75, https://doi.org/10.1353/jod.2018.0026.

[231] Diamond and Schell, *Chinese Influences & American Interests*.

[232] Brady, "China's Foreign Propaganda Machine."

49

about autocratic governance. This third scenario dimension measures how likely or unlikely Americans are to accept illiberal nudges from abroad.

The United States today is a liberal democracy, but this has not always been the case, and there are indications of decreasing liberalism, especially at the subnational level. The characteristics of American democracy that many take for granted have developed over time and through struggle. Some are relatively new developments that might be more precarious than some imagine.

In *On Democracy*, Dahl and Shapiro describe the institutions necessary for large-scale democracy: officials who are elected, frequent elections that are free and fair, freedom of expression, access to alternative viewpoints and information, associational autonomy, and inclusive citizenship.[233] Inclusive citizenship in particular has ebbed and flowed throughout American history.[234] Diamond points out the importance of the Voting Rights Act in entrenching inclusive citizenship in the United States, emphasizing that this element took more than 200 years to implant.[235] Similarly, it was not until the 19th Amendment was ratified in 1920 that women were guaranteed inclusive citizenship. Applying Dahl and Shapiro's model, these examples show how the United States has usually, but not always, grown more inclusive and therefore more democratic as time has passed.

American associational rights, freedom of expression, and access to information have also expanded and contracted over time. Historical events like the passage of the Alien and Sedition Acts, President Lincoln's suspension of habeas corpus, and the internment of Japanese Americans during the Second World War illustrate an occasional flexibility in how the U.S. government respects individual freedom. And while the press in the United States has remained consistently free, media concentration sometimes warps the availability of information to consumers.[236] Facebook, for example, has recently been criticized for what

---

[233] Robert Alan Dahl and Ian Shapiro, *On Democracy*, 2nd ed. (New Haven: Yale University Press, 2021.

[234] Dahl and Shapiro.

[235] Diamond, *Ill Winds*.

[236] Siva Vaidhyanathan, "The New Nightmare Scenario for the Media," *Slate*, May 21, 2021, https://slate.com/business/2021/05/att-warnermedia-discovery-hbo-media-concentration-facebook-google.html.

some consider political censorship while also being criticized by others for pushing inaccurate or allegedly harmful political messages.[237] And in the leadup to the Spanish-American war, an outbreak of yellow journalism from major news outlets pushed the United States into conflict.[238] These anecdotes illustrate that American liberalism and inclusion are not fixed but variable.

Chapter I recounted how some scholars have warned that the United States is experiencing a period of democratic decline, in part due to increasing polarization. If there is a weakening in American democracy, it is happening in the broader context of what Diamond calls a global democratic recession.[239] In this global context, political polarization has accelerated in the United States as elsewhere. Since the election of Donald Trump in 2016, the United States has experienced a series of nearly perfectly split 50–50 federal elections between the two major parties. As democracy struggles globally, polarization in U.S. politics points toward possible trouble for American democracy.

Even if there is a developing trend of democratic backsliding in the United States, the nation remains a liberal democracy. A foreign actor would have to work hard to alter that. One possible vector of attack is to weaken American democracy's underpinnings. Dahl argues that democracy partially finds its prerequisite in two liberal ideas: the principle of intrinsic equality and the presumption of personal autonomy.[240] The principle of intrinsic equality is simply that a democracy should, when making collective decisions, give equal weight to the needs of all people. The presumption of personal autonomy is the principle that each person is the best judge of his own interests. An attack on one of those two prerequisites can injure democracy, for example, through systematic partisan gerrymandering or through racially biased voting procedures. Encouraging such policies is a lever of discourse power available to a foreign nation with the resources and savvy to exploit it, much as Russia did in 2016. A more aggressive foreign adversary could more directly encourage democratic backsliding in

---

[237] McNamee, *Zucked*.

[238] Craig Carey, "Breaking the News: Telegraphy and Yellow Journalism in the Spanish-American War," *American Periodicals* 26, no. 2 (2016): 130–48.

[239] Diamond, "Democratic Regression in Comparative Perspective."

[240] Dahl, *Democracy and Its Critics*, 99.

51

the United States, by stoking antagonism between already polarized social identity groups. Rhetorical, technological, or physical attacks on the mechanisms of voting could cause a weakening of faith in democracy. One way to instigate this type of attack is by encouraging undemocratic means of reaching policy goals. There is a wide range of available attacks on democracy.

The third scenario dimension measures how resilient American liberal democracy could be against an attack in 2032. This is the dimension with the widest range of plausible values, largely because democracy in the United States and globally is experiencing crisis while autocrats and authoritarians appear to be strong. This situation is turbulent and uncertain (TUNA in the language of earlier sections).[241] With a polarized and nearly 50–50 electorate, it is as easy to imagine realities in which Americans experience a resurgence in democratic fervor as it is to imagine them falling into competitive authoritarianism, or something in between. The scenarios are built with this in mind, conceptualizing a wide range of democratic resilience in the United States.

2.   Building the Scenarios

The three critical uncertainties are transformed here into the scenario dimensions, or the three axes of the scenario volume. As shown in Figure 6, each axis is a scalar rather than binary set, and the three scenarios appear graphically on three axes. The scenarios are shown in positions relative to those three dimensions, allowing the reader to visualize how each scenario compares with the range of possibilities in each dimension.

---

[241] Ramírez and Wilkinson, *Strategic Reframing*, 28–34.
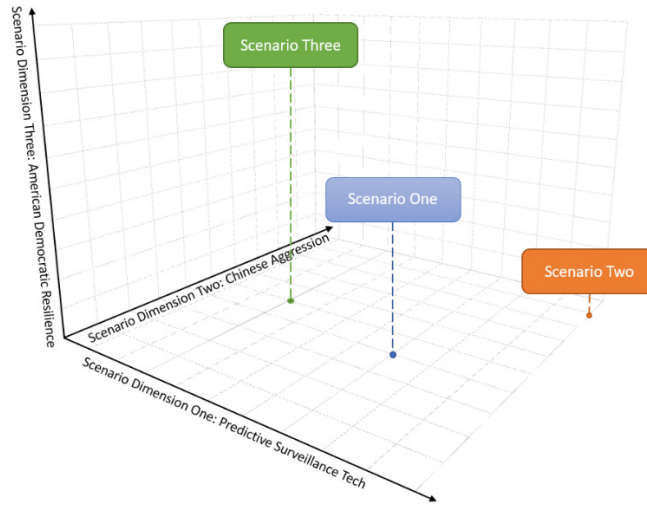
Figure 6.   The Scenario Volume

The first scenario presents a version of the status quo, with middling values on all three scalars. The second scenario envisions a worst case, where highly mature technology pairs with strong Chinese aggressiveness to face off against a weakened American democracy. The final scenario imagines that the Chinese aggressor lacks the technical capability and political will to mount a coherent attack while American democracy exhibits strong signs of democratic resilience (i.e., a "better case").

Along with bounding the dimensions of the scenario volume, it is also important to outline the time horizon of a scenario project, or the point in time at which the scenarios reside.[242] This thesis seeks to assess relatively short-term threats to American democracy, those approaching realization by the early 2030s if at all. For this reason, the time horizon is set to late 2032 and early 2033, surrounding the 2032 presidential election. As the events of January 6, 2021, emphasized, American democracy appears to be at a weak point during the traditional handover of executive authority. It is interesting to observe the effects of these scenario elements during such a turnover.

---

[242] Ramírez and Wilkinson, 39–42.

D. CONCLUSION

This chapter did two things: it explained the methodology used in this thesis, and it presented the logic behind the three scenarios that follow. The scenarios in the next three chapters are presented in the form of fictional narratives, each set in a different version of the future, with accompanying explanations and discussions.

The future scenario planning methodology allows one to peer into several futures with varying degrees of plausibility, standing in contrast to methods of prediction that use statistics and probability to forecast what is most likely to come. One thing that makes scenario planning so powerful for addressing complex questions is that, in discarding the calculation of probability, one is empowered to explore a wider range of possibility, drawing insights that may be ignored by a more probabilistic approach.

This thesis has adopted three scenario dimensions to address future uncertainties that are most critical in answering the research question. Given this project exists at the nexus of technology and democracy, it makes sense that the state of each makes up two of the three dimensions of uncertainty. The third dimension is the intent and capability of the adversary. In this project, China is the notional adversary, but a similar technique could be applied to a different country or interest group by simply swapping an analysis of that group into the axis in China's stead.

Each of these scenarios is a snapshot in time, a static image of a dynamic and ever-changing future. As time passes, an observer will see the facts converge with or diverge from the trends and assumptions underpinning these narratives. The passage of time will inevitably change their plausibility as visions of the future, forcing each to be reexamined in turn. That process is the core of the Oxford team's iterative reframing and reperceiving cycle.[243] The purpose of these scenarios is to answer the research question at the time it is asked, producing a set of findings, conclusions, and recommendations informed by what the future could plausibly become.

---

[243] Ramírez and Wilkinson, 12.

III. SCENARIO ONE: THE STATUS QUO

The first of three scenarios occupies a moderate space within the three dimensions. Specifically, this story is set in a future world with technology advancing on current trend, a slightly weakened American democracy, and a slightly more aggressive China. The chapter examines how China could plausibly nudge Americans away from liberal democracy if critical uncertainties follow closely with current trends at the time of this writing, in 2023. Consider this scenario a vision of the current status quo ante. Scenario One's narrative, presented in four parts, depicts employees and executives of a fictional American company that has been targeted by a future Chinese government in response to free media expression. Analysis follows each narrative section. The other two scenarios, in Chapters IV and V, respectively, also follow this convention.

A. LI WEIGUO'S STORY

Li Weiguo returns from a business trip to Ulaanbaatar, where his employer, Skant Media, produces travel content.[244] Skant distributes a wide array of global virtual reality (VR) content (called "stories") covering entertainment, news, documentary, travel, and more. When not managing logistics for Skant's documentary arm, Weiguo produces independent VR stories on social media. This content mostly covers the state of voting rights in American states, but he has recently branched into commenting on the state of freedom in Hong Kong. He had grown up and lived there before the Chinese crackdown in 2020 and the COVID-19 pandemic forced him to emigrate to the United States.

Returning home to San Diego after three weeks without internet, he dons his VR glasses, logs into his social media analytics visualizer, and notes several new followers. These new followers lack clear relationships to previously existing followers—an oddity. How did they find his content? He notes that the VR avatars of many of them

---

[244] Weiguo is a common given name in China that translates to "great country."

have Chinese names. Although pleased about his content's increased reach, he wonders which of his VR stories has captured attention and gone viral among the Chinese-language community and why. As he begins mapping the new follower relationships, he recognizes that a departure from his advocacy of state-level voting rights to focus on Hong Kong has likely increased his Asian following. Yet the sudden explosion of followers and replies from Mandarin-speaking avatars while he was out of the country surprises him.

According to Weiguo's analytics visualizer, the new engagement clusters around his commentary on the long-postponed election to replace John Lee, Hong Kong's controversial leader. Many in the pro-democracy movement consider Lee, like Carrie Lam before him, a loyalist of Chinese authoritarians, so there is little doubt a similar figurehead will succeed Lee. Two months ago, Weiguo released several bilingual VR stories decrying the unfair electoral practices he expected in the upcoming Hong Kong election. The replies to those stories outnumbered replies to American political content five to one.

Weiguo suspects that a popular pro-democracy advocate has shared one or more of his new stories. As he continues mapping the relationships, however, he finds that none of the new followers are notable or influencers. Most have fewer than 20 followers, and they have few ties to each other. When he selects replies to watch at random, the engagement is resoundingly negative. Much of it also makes little sense and is rife with non-sequiturs. Rather than echoing the pro-democracy sentiment he expects, these new followers incoherently denounce American slavery and colonialism, two topics with no bearing on his Hong Kong videos.

Weiguo realizes that these new accounts are sharing not the Hong Kong VR stories but ones he posted several months ago denouncing state legislatures for increasing voting restrictions after the 2026 election cycle. Accounts that originate outside the United States are sharing them in high numbers. Also, many replies from the VR avatars of these new followers bear the hallmarks of an AI voice translation application common in many VR chat and coworking environments. Finally, although many of the new followers are sharing these stories, they do not have followers of their

56

own responding and re-sharing posts to make the content truly viral. Instead, the shares are seemingly unrelated aside from their identical content, causing Weiguo's critical videos about the United States to trend. Statements preface the shared content denouncing the hypocrisy of American politicians, who criticize China's "free and fair" democracy while preventing many Americans from voting. On VR social media, the hashtags #fakedemocracy and #shametoflorida are now trending, as are his stories criticizing recent antidemocratic activity by the Florida legislature. The anomalous activity from these apparently foreign accounts appears almost entirely responsible for the surge.

Weiguo closes his laptop and wonders what to do next. He realizes he's drawn the attention of China's so-called "50 Cent Army," the trolling operation that began as a clumsy online mob and became more sophisticated and pervasive when AI monitoring algorithms took over human functions in the 2020s. Worried about the personal implications of the Chinese government's noticing his content, he picks up the phone and calls his uncle in Macao. He needs to ensure that his family members who stayed in Hong Kong after COVID and the initial pro-democracy protests are okay.

* * *

Li Weiguo experiences a plausible future version of something that happens on the internet today: an attack of foreign trolls. China's internet trolling is becoming an increasingly pervasive tool of statecraft for a country that sees the internet as the key battleground for its "image sovereignty."[245] But the trolling is currently ineffective and focuses on China's domestic issues and its image abroad. Organizations and efforts like the 50 Cent Army are not yet the massive, automated botnets that many Americans assume troll social media. They are humans, with varying degrees of English mastery.[246] In many cases, these human trolls lack deep knowledge about a topic—let alone English fluency or an understanding of idioms. These deficits often produce

---

[245] Fedasiuk, "A Different Kind of Army," 8–18.

[246] Fedasiuk.

incompetent results, such as incorrect gendering, odd-sounding expressions, and amusingly incorrect readings of social trends.

China's trolls increase noise around an issue to prevent effective messaging by perceived critics of China. Their crude attempts to use a chorus of voices to saturate online discourse around a topic prevent others from viewing messages that China disfavors.[247] Weiguo experiences a version of this type of attack, with the added twist of its originating in a VR space with AI-targeted algorithms rather than humans on Quora or Twitter.

One way this future scenario diverges from the current reality is unknown to Weiguo: how his content comes to China's attention. Technological advances have made AI/ML tools more efficient. He is unaware of the reach of the Chinese government's automated monitoring of global social media, so he underestimates its effectiveness at monitoring VR discourse for troublesome topics. Rather than a crude keyword analysis of text, this future tool kit uses sophisticated algorithms that scan new online content and assess it for relevance to China's goals. When finding threatening content, AI can successfully assign it to other resources for attack, such as the 50 Cent Army or content-generating AIs.

This new engagement that Weiguo has encountered is generated by AI, not humans. Put simply, AI monitors have made him a target for AI content generators. China's government uses AI in this scenario to create counter-programming in VR, which brings many benefits, such as drowning out content the government considers incorrect or dangerous.[248] In this case, AI has identified content and assigned it to another set of AI machines for social media attacks to distract from Weiguo's message about democracy in Hong Kong.

---

[247] Gary King, Jennifer Pan, and Margaret E. Roberts, "How the Chinese Government Fabricates Social Media Posts for Strategic Distraction, Not Engaged Argument," *American Political Science Review* 111, no. 3 (2017): 484–501.

[248] This scenario was authored before the explosion of tools like OpenAI's ChatGPT in early 2023. The expanding mainstreaming of these types of AI content generators illustrates the increasing plausibility of effective foreign-generated AI content supplanting less-effective human content. "Introducing ChatGPT," Open AI, accessed May 2, 2023, https://openai.com/blog/chatgpt.

As a final note, in this scenario, Weiguo's general advocacy for democracy did not receive attention from Chinese AI, but content that advocated democracy in Hong Kong prompted a reaction. In this scenario, such a response reflects the Chinese government's indifference to pro-democratic or anti-autocratic content online. This VR messaging attack perpetuates China's current discourse control practices, made more effective by advancing technology.[249]

B. CHINA ENGAGES LI WEIGUO'S EMPLOYER

Matt sighs as he sends another email to his contact with the Chinese government. As lead corporate counsel for Skant Media's operations in Asia, he must often answer inquiries and demands from a dizzying array of local and national Chinese government agencies interested in his company's activities. Last week, he resolved one such request by convincing Skant's travel content arm to remove footage from its VR tour of Chengdu. This footage showed scenes that the local government considered unflattering and "un-modern" and made one reference to what the government called "incorrect history." Accommodating the local Chinese government's aesthetic preferences is important for Skant's success because Chinese consumers have a voracious appetite for VR content. The growing middle class has the disposable income to make serving them a lucrative business. In the markets of 2029, a VR tour banned from China's platforms by an annoyed government agency quickly transforms from a profitable venture into an expensive loss. Nothing wins the attention of Chinese censors like showing a China with income disparity or without the ultra-modern aesthetics that the government prefers.

But this latest request is different. Citing the national security law, the local government in Hong Kong demanded that Skant take down internet content it deemed subversive and terrorist-supporting—in the government's words, "historical nihilism." But the content is not available in China, nor is it produced by Skant. Instead, a Skant employee, Li Weiguo, produces it privately using independent resources and branding for VR stories inside the United States. China wants the stories about the Hong Kong

---

[249] King, Pan, and Roberts, "How the Chinese Government Fabricates Social Media Posts."

elections removed, specifically those in which Li accuses Hong Kong of "sham elections run by a totalitarian government." The Hong Kong government suggests that this statement is legally actionable as incitement of terrorism, and the foreign ministry points out that it would be unwise for Skant or its employees to "hurt the feelings of the Chinese people" as they may stop purchasing Skant's content in response.

<center>* * *</center>

The scenario illuminates the downstream effects of China's social media monitoring. As Erich Schwartzel illustrates in *Red Carpet*, the Chinese government routinely leverages commercial pressure and access to its media markets to control or suppress content, including content unavailable to Chinese media markets.[250] In this case, AI monitoring has alerted a Chinese government agency to objectionable content from a Skant employee, content that Skant did not know existed and would not have sanctioned anyway because of free speech rights. Just as automated resources on social media attempt to drown out Li Weiguo's content, here, a government official squeezes Weiguo's employer to remove his messages about China from internet discourse.

The Chinese government today expects companies to advance government priorities, regardless of competing corporate values or profit motives.[251] In this scenario, that expectation grows to impact a company's employees as well as the company itself. An employee is the target of Chinese ire, but the threat of Chinese sanction applies to the entire company. This phenomenon is longstanding. Cathay Pacific faced a similar situation in 2019 when two top executives were forced to step down amid controversy surrounding the pro-democracy protests in Hong Kong.[252] Similarly, the entire National Basketball Association (NBA) faced a huge loss of

---

[250] Schwartzel, *Red Carpet*, 326–32.

[251] Stein Ringen, *The Perfect Dictatorship: China in the 21st Century* (Hong Kong: HKU Press, 2016), 12–19; Diamond and Schell, *Chinese Influences & American Interests*, 10.

[252] Timothy McLaughlin, "Cathay Pacific CEO Resigns amid Beijing Pressure," *Washington Post*, August 16, 2019, https://www.washingtonpost.com/world/cathay-pacific-ceo-resigns-amid-beijing-pressure/2019/08/16/cae03f26-c00c-11e9-a8b0-7ed8a0d5dc5d_story.html.

<center>60</center>

revenue after the Houston Rockets' general manager tweeted in support of pro-democracy protests, resulting in an effective content ban.[253]

Whereas the aforementioned examples illustrate China's willingness to punish a company for the public actions of prominent executives, in this scenario, a line employee's private actions draw threats from the Chinese government. China's government has become increasingly strident and assertive in a variety of contexts and venues, led by the so-called "wolf warrior diplomats," who under President Xi have sought opportunities to assert Chinese prerogatives in overseas discourse, commerce, military relations, and the media.[254] In this scenario, that assertiveness forces Matt and other Skant executives to choose between either supporting their employee's First Amendment activity or succumbing to commercial pressure from a foreign government.

C.   A COORDINATED DEFENSE AGAINST A WIDER PROBLEM

Matt leaves his meeting with representatives from the Departments of Commerce and State feeling a sense of purpose, and a bit of dread. The Commerce Department expressed concern over his predicament with Li Weiguo's content but not surprise. In fact, Matt has learned from this meeting that variations on the dispute over those VR stories are happening to an increasing number of companies like his. For the past several months, when a company's employees openly criticize the Chinese government on social media, the company eventually receives vague warnings from Chinese contacts. Such warnings come even when the content in question is English-language content with no presence in Chinese media. The warnings are delivered in friendly sounding language, but when a company relies as much on Chinese customers as Skant does, any rebuke can arrive with a sense of menace.

The State Department representative suggests there is a new approach to public diplomacy in certain bureaus of the Chinese national government. The aggression of

---

253 William D. O'Connell, "Silencing the Crowd: China, the NBA, and Leveraging Market Size to Export Censorship," *Review of International Political Economy* 29, no. 4 (2022): 1112–34, https://doi.org/10.1080/09692290.2021.1905683.

254 Yan Xuetong, "Becoming Strong: The New Chinese Foreign Policy," *Foreign Affairs* 100, no. 4 (July/August 2021), ProQuest.

Chinese diplomats that accelerated in the 2020s has spread from diplomatic and intergovernmental communications to the sphere of public discourse. China has long complained about what it characterizes as Western meddling in internal Chinese matters. By targeting Western companies that do business in China, the Chinese government exercises greater control over Western media and better presents what China's leader calls a "harmonious discourse about the benefits of China's equitable partnership with all mankind."

The U.S. government has asked Matt to join forces with the Departments of Commerce and State and a group of private companies pushing back against pressure from China's government. The Commerce Department believes that if a large enough bloc of companies from strategically selected sectors stands against this pressure, with backing from American and European governments, such a show of unity will cause China to rethink its strategy of punishing companies for the free speech activities of their employees. Matt's mission after today's meeting is to convince Skant's other executives to join this effort.

As he settles into his car to the airport, Matt's phone rings. It is Huang Bochen, chief counsel to an important Skant partner company in China and Southeast Asia. As far as Matt knows, Mr. Huang has no knowledge of the Li Weiguo situation. Nevertheless, Mr. Huang oddly expresses concern that if Skant does not assuage the government's anger over the company's activities, he might advise his board against continuing its profitable partnership with Skant. Matt is confused and asks what activities should be ended. Though Mr. Huang insists he does not know the specifics, he fears that recent dips in Skant's social credit standing might force him to discontinue their partnership unless changes are made. Matt politely ends the call, his earlier feeling of dread returning tenfold. Matt and the rest of the Skant leadership face a stark choice between joining with the U.S. government to support a valued employee's creative freedom or preventing the business disruptions sure to come from irritating China's governmental bodies.

* * *

Matt's experience illustrates three things about this scenario. First, the American government remains strongly committed to democratic freedoms, to the point of coordinating a response to China's attempts to stifle speech. Second, China is using technology in new ways, applying overseas media monitoring as a blunt-force tool of public diplomacy. Finally, due to China's investment in social credit scoring, Skant's standing has already been damaged by Li Weiguo's First Amendment activity.

Matt's meeting with U.S. government representatives exposes a strong and functioning American federal government, one that continues to value free speech and association rights. This government's forceful international response shows commitment to a global order that continues to value freedom, democracy, and autonomy. Even though many in American political leadership may have reason to find Li Weiguo's content politically inconvenient, the government upholds his freedom to express those views.

Matt's experience also shows the impact of possible technological advances. China uses AI tools as a novel addition to the tool kits of public diplomacy in this scenario.[255] Here, China uses AI technology in concert with more traditional personal interactions and warnings to bully corporations into helping it control China's image. The traditional tools of public diplomacy, such as academic partnerships and a paid media presence, are supplemented by a new, more aggressive approach of trying to apply a version of China's domestic media controls overseas.

This grab for control is not spurred by technology. It is instead a course of action made more effective by advances in technology. If it were so inclined, the Chinese government of 2023 could do nearly everything it does in this scenario, but the execution would likely be slower and less effective. Using AI tools to monitor foreign discourse allows China's censors in this scenario to react more quickly, cast a wider monitoring net with fewer gaps, and prevent ideological contamination of human internet monitors.

---

[255] *Public diplomacy*, a term with many inadequate definitions, is best explained as the use of public relations tools to influence foreign opinions of another country. Nicholas J. Cull, "'Public Diplomacy' before Gullion: The Evolution of a Phrase," *USC Center on Public Diplomacy* (blog), April 18, 2006, https://uscpublicdiplomacy.org/blog/public-diplomacy-gullion-evolution-phrase.

All of these benefits of technological monitoring make overt interference with overseas speech like Weiguo's more effective and more attractive to a Chinese government interested in controlling global discourse.

In this scenario, Matt perceives the specter of the commercial consequences Skant could face if it joins American pushback against these Chinese requests. These consequences arise from China's deployment of an SCS, which monitors financial, business, social, and political criteria to assign companies and individuals a reliability score, broader in scope but otherwise like a FICO score in the Unites States.[256] As of 2022, these systems were deployed regionally in many parts of China. While the implementation varies from locale to locale, the Chinese government intends to nationalize the system and use it to harmonize the conduct and discourse of both individuals and corporations within China.[257]

The consequences of a low social score in China could be dire for a company dependent on access to Chinese markets. In the scenario's fully implemented SCS, antisocial behavior such as Li Weiguo's criticism of Hong Kong's leadership lessens the social score of the offender. A score below a set of thresholds triggers sanctions that range from higher fees and increased official scrutiny all the way to an inability to conduct business in China or even imprisonment for re-education.

China's monitoring systems draw a connection between the original offender, Li Weiguo, and his employer, Skant. By continually scouring ever-increasing amounts of internet data for relationships that humans miss, deep learning algorithms draw connections and inferences that are expected to revolutionize risk, insurance, and underwriting—a set of disciplines that neatly parallel the deployment of a system like the SCS, which seeks to quantify and human behavior.[258] A company like Skant that does significant business in or with China will need to remain aware of its social credit standing lest it lose the ability to continue operations there. Matt's Chinese associate

---

[256] Liang and Chen, "The Making of 'Good' Citizens."

[257] Reilly, Muyao, and Robertson, "China's Social Credit System."

[258] Kai-Fu Lee and Qiufan Chen, *AI 2041* (New York: Currency, 2021), 22–32.

alludes to the consequences a single employee's private actions could have on the company's business in China.

D. SKANT EXPERIENCES THE CONSEQUENCES AND FACES A CHOICE

Ashleigh, Skant's chief content officer, is frustrated. She plans to travel to an important media conference in Hong Kong but cannot book a hotel. Every time her travel is booked and confirmed through Skant's corporate travel portal, it is later canceled by the individual hotel in Hong Kong. She has contacted the sales departments of seven hotels so far and has received no reasonable explanation for the cancellation. No, the hotel is not overbooked. No, there is no outstanding payment owed. No, there are no renovations or other conflicts. The hotels simply cannot accommodate her at this time.

She sighs and calls the eighth hotel. The sales director, a cheerful young Chinese woman, tells her that no, she's sorry, the hotel is unable to book her room due to the risk. When pressed to explain what she means by risk, the woman becomes audibly embarrassed and explains that Ashleigh and others of her company's executive team have been flagged as unreliable. Booking them would pose an undue risk to the hotel. She is very sorry but hopes that Ashleigh will continue to patronize other hotels of this brand in different countries.

When Ashleigh calls Matt, he informs her that her experience is not an anomaly. Everyone at the director level or higher within Skant has had similar problems traveling in China. One irate traveler was even trapped in Shanghai's Hongqiao Airport mid-trip and unable to book a plane or train ticket to his destination. Skant hired a car to drive the stranded manager over the border to Vietnam so he could fly back home to Detroit.

Matt explains to Ashleigh that the company has been downgraded by the social credit monitoring system in China. Business travel is becoming impossible there as a result. He is in the process of drafting a new travel advisory to forbid company employees from traveling to and within China. Ashleigh is furious, as this obstacle leaves several of her teams completely unable to create lucrative VR content for the Chinese market.

When she learns the cause of the downgrade in Skant's credit score, Ashleigh reaches out to her contacts in the Chinese government. After working through the bureaucracy, she receives a stark ultimatum: either Li Weiguo's VR stories about Hong Kong are taken down or lowered social credit scores will continue to inhibit Skant's business. The choice is clear: Skant's duty to media independence and its employee's freedom of speech or Skant's fiduciary duty to its shareholders. Ashleigh asks Matt, "If we decline to cooperate, at what point will government authorities simply block our content from all of China?"

* * *

This scenario concludes with an illustration of the practical impacts that China's SCS will have on both businesses and individuals trying to work in the country. While the system is not mature enough in 2023 for the scenario's consequences to be a reality, the Chinese government is working in that direction and has applied significant resources to build a network of incentives and consequences for financial, social, and communicative behavior.[259]

Left open-ended in this scenario is Skant's ultimate decision about Weiguo. Whether Skant's leaders muzzle their employee or accept the losses of its Chinese business is of little consequence to the outcome, because China's adversary in this scenario is not Skant, nor is it Li Weiguo. The target is free speech in the United States and other Western democracies. China's goal in this scenario is to incentivize certain types of discourse about itself while discouraging others. Regardless of the personal or business consequences for Weiguo, Matt, and Ashleigh, China's goal has been achieved. Western content creators have been placed on notice that speaking out about subjects the government considers to be "inciting terrorism" or "supporting historical nihilism" comes with potential consequences to their employment, or even their employer's business. These consequences apply regardless of whether the objectionable content is viewable on the Chinese internet. Simply expressing unapproved messages about China, anywhere in the world, will now come at personal cost.

---

[259] Reilly, Muyao, and Robertson, "China's Social Credit System."

E.   DISCUSSION

This scenario uses the story of an individual content creator to show how exercising free speech could grow more complicated and riskier in a future where maturing AI tools make monitoring such speech effective and globally pervasive. Some experts contend there is a global struggle between the worldviews posed by liberal democracies and more autocratic systems of governance. This scenario shows what happens when technology brings those worldviews into open conflict.

There are four important facets to this scenario. First, there is a strong American democracy, though there are indications of some weakened institutions. Second, in a more connected world, the First Amendment to the U.S. Constitution is no longer sufficient protection against government interference with free speech in the United States. Third, the legal and fiduciary duties of global corporations can be manipulated to work against liberalism. Finally, human and organizational behavior can be influenced through choice architecture, which earlier chapters have defined as artificially limiting the apparent choices available to a person or entity.

1.   The Strength of American Liberal Democracy

The first facet in this scenario is that both the American government and American companies and individuals display a strong commitment to the traditional liberal ideals of free speech and a free press. This commitment prompts the U.S. government to coordinate a robust international response to apparent Chinese aggression. The response includes an interagency government reaction as well as collaboration with businesses and other democratic governments to craft a forceful pushback against China's attempts to control discourse within the democracies.

While there is a robust government-led response to this perceived aggression, the scenario shows some cracks in the foundations of American democracy. For example, some of Weiguo's VR stories highlight new state-level voting restrictions following recent elections. The impact of these state-level assaults on democratic freedoms is that they provide a convenient platform from which Chinese AI and human actors can assault the value of Western democracy. The trolls in this scenario attack the hypocrisy of

67

supporting democracy overseas while limiting it domestically. If deprecations of American democracy had been more pronounced, the response to China's aggression would have been less forceful, with negative consequences both for Li Weiguo and for free speech more generally.

2. How the Connected World Impacts Freedom

This scenario highlights the unintended negative consequences of global connectedness. Chapter I detailed how idealists had once assumed that enhanced communication between autocratic and democratic societies would inevitably lead to increased democratization and liberalization. It also showed that as time has passed, the data have failed to support that hypothesis.

In this version of 2032, both internet connectedness and AI/ML tool development have advanced apace from 2023. Chinese AI/ML tools have developed an improved understanding of English-language content, facilitating China's ability to monitor content, flag it as problematic, and send it to other AI/ML algorithms for attack and neutralization using different means. An improved understanding of English also improves offensive AI content creation tools that author counter-programming to drown out newly trending media like Weiguo's AI stories. Ultimately, AI advances allow the CCP to target resources more effectively and thus prevent negative discourse about itself from gaining audience across social media platforms.[260]

The consequences of the technological developments in this scenario include a foreign government's increased ability to impact free speech and media in the United States. Developments in the scenario imply that the guarantees of the U.S. Constitution's Bill of Rights are weakening against government influence. The Constitution guards against the U.S. government's unduly impacting or influencing the speech, association, or other expression of a person or company, but it does not provide a similar guard against a foreign government intent on pressing sanctions or consequences on the speech

---

[260] One development in the scenario is the movement of social media to VR. While this detail is interesting, it is ultimately unimportant to the scenario's lessons or outcomes. The same scenario could port to non-VR technologies with similar results.

of Americans. This lack of protection from foreign government interference could become problematic in a multipolar world, one where autocracies and democracies compete in a battle of ideas. One need not rely on a fictional scenario for examples of this. As the earlier example of the NBA's Houston Rockets shows, China already uses its commercial strength to nudge American discourse.[261] This scenario illustrates how technology may accelerate the reach and impact of those nudges.

3. The Role of Corporations in a Liberal Society

In this scenario, a fictional company is forced to navigate a complicated landscape of incentives and responsibilities. These incentives and duties include moral, legal, ethical, and fiduciary responsibilities to Skant employees, to two powerful governments, and to Skant's shareholders and business partners. While Skant appears at first to support the expressive freedoms of its employee, by the end of the scenario that conclusion is left open-ended and very much in doubt.[262] This open-endedness is a deliberate choice to highlight that this vignette is only one instance of a wider, ongoing pressure campaign using corporations to limit American free speech, and not all companies will react similarly. The problems that corporations pose for democracy in this scenario come from two fronts. The first is legal, and the second is fiduciary.

First, while corporations have no legal responsibility in the United States to support democracy or freedom, Xi Jinping articulates how any company wishing to operate in China has a clearly defined set of legal and moral responsibilities both to uphold the CCP's doctrine and to support the national security goals of the Chinese state.[263] This is a lopsided set of incentives that requires Western businesses to deny a part of their cultural makeup to conduct business in the world's largest market, tacitly accepting a set of legal and ethical principles imposed by a non-democratic regime.

---

[261] Recall the earlier mention of how a tweet from an NBA team's general manager in support of the Hong Kong pro-democracy movement resulted in huge commercial sanctions against the entire league. O'Connell, "Silencing the Crowd."

[262] While it may seem unlikely that a corporation such as Skant would defend an employee the way it does in this scenario, Skant's initial defense of Li Weiguo is a narrative choice made to facilitate storytelling and set up the final conundrum.

[263] Xi, *The Governance of China*, 2:282–84, 289–91.

69

Many companies successfully balance the competing priorities of founding cultural values and imposed non-democratic legal requirements. But this scenario shows how untenable the balance between these competing values can be. Over time, accepting compromises to democratic mores is likely to erode the fidelity to liberal ideals of both American companies and their American employees and corporate officers.

Second, the fiduciary duties of the corporate officers to their shareholders compel such officers to bias their decisions toward maximizing shareholder return. In many cases, that forces compromise with Chinese government ideology to participate in Chinese markets. For example, *Der Spiegel* details how companies like Versace and Daimler stifled support of the Hong Kong protests or changed their public views on other politically sensitive topics.[264] U.S. airlines like American and Delta removed marketing references to Taiwan in 2019, even though they continue to fly to its capital, Taipei.[265] Entertainers are also targets, with acts as varied as Katy Perry, Jay-Z, Lady Gaga, Miley Cyrus, and Maroon 5 banned from touring on the mainland for political reasons.[266] The incentive of corporate profits sometimes subordinates the needs of a democratic populace.

Both legal and fiduciary pressures make corporations a lever that a foreign entity could use to endanger the health of democracy. By operating the twin levers of lopsided legal environments and the fiduciary imperatives of corporate governance, a savvy foreign government could use a democracy's corporations as a tool against it, nudging those corporations to comply with authoritarian directives.

Throughout this scenario, both Li Weiguo and Skant retain a full range of choices, from ignoring the Chinese pressure to succumbing to it. But on closer examination, China's government in this scenario has arranged the incentives and penalties to ensure that some choices are unpalatable to a company interested in

---

[264] Bartz et al., "China Pressures Foreign Companies to Fall in Line on Protests."

[265] Sui-Lee Wee, "Giving In to China, U.S. Airlines Drop Taiwan (in Name at Least)," *New York Times*, July 25, 2018, https://www.nytimes.com/2018/07/25/business/taiwan-american-airlines-china.html.

[266] Adam Wright, "Banned in China: Why Some of Music's Top Stars Are Blacklisted by Beijing," *South China Morning Post*, December 8, 2017, ProQuest.

70

sustaining its business and profitability. This arrangement of incentives, while not a nudge by Thaler and Sunstein's strict definition, illustrates how foreign governments can apply a totalitarian version of choice architecture to achieve their goals. When a government has both the ability and motivation to target rewards and punishments to achieve ideological ends, it can have an outsized effect outside its own nominal jurisdiction. In the case of Weiguo's VR stories, China has the potential to limit the access of American audiences to American-produced content it dislikes.

F.   CONCLUSION: BUILDING SCENARIO ONE

Scenario One presented the status quo in this project. It illustrated how technological change could, if it continued apace with today, be used by a Chinese government like President Xi's in 2023. Scenario One, depicted in blue, appears in the center of the scenario volume (see Figure 7).
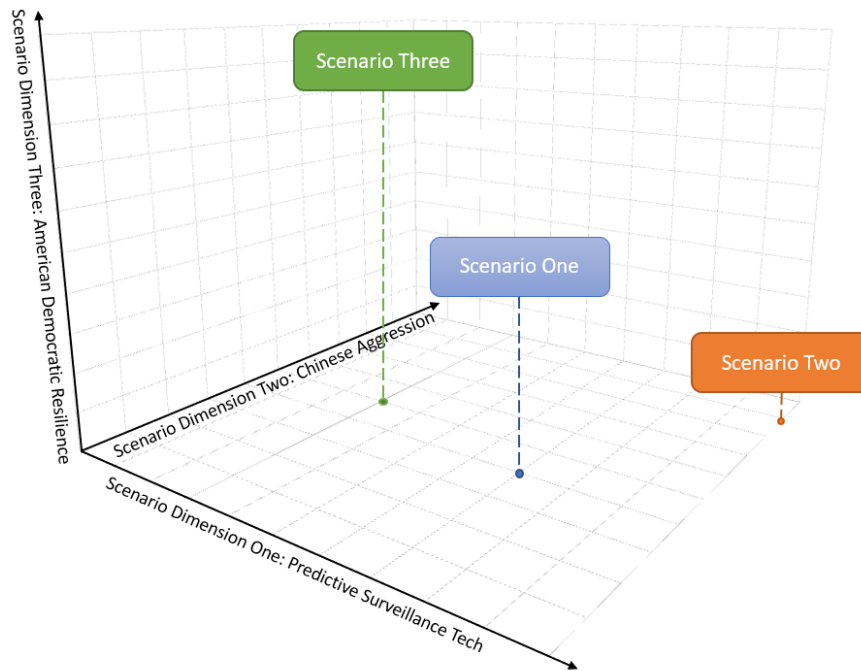
Figure 7.   Scenario One's Position in the Scenario Volume

As Figure 7 shows, this scenario is situated on the same three axes as the other two scenarios. Dimension One spans the effectiveness of surveillance technology and

prediction machines. The site of this scenario on the Dimension One axis is at a moderately improved level of technology from today. Dimension Two is the strength of Chinese aggression in pursuing its autocratic goals, and this scenario shows a moderate increase in Chinese aggression in this space. Finally, Dimension Three measures the strength of American democracy. This scenario shows a United States with incidents of democratic regress at the level of individual states but a federal government showing some improvement from the reality of the early 2020s.

IV.   SCENARIO TWO: THE WORST CASE

This chapter presents the second of the three scenarios. This second scenario's narrative is a plausible worst case. In it, a determined adversary causes a legitimation crisis in the United States. The story follows a young woman named Jennifer who is nudged by sophisticated algorithms into a spiral of radicalization. The scenario focuses on the process of radicalization, not on Jennifer's opinions.[267] In the latter part of the scenario, it becomes evident that Jennifer's journey toward rejecting democracy is repeated hundreds or even thousands of times across the nation, with catastrophic results. An ancillary character, federal agent Marvin Chen, observes how this radicalization at scale harms the United States.

This scenario is not intended to guess the means by which an adversary could attack the U.S. democratic process nor to imagine how the U.S. government would respond to such an attack. The goal is to instead describe one plausible outcome of selecting the worst-case values for the three critical uncertainties described in Chapter I: rapidly advancing technology, high aggression from an adversary, and low democratic resilience in the United States. The narrative follows a single person's radicalization and then expands to show how this radicalization process repeats tens of thousands of times across the United States. It also shows that not all tools of manipulation are technological. Other forms of social pressure are brought to bear, many of them allowed under U.S. law.

A.   JENNIFER'S JOURNEY

Jennifer peers excitedly through her new mixed reality (MR) glasses. A transparent replacement for her clunky old VR headset, this new device looks just like normal eyeglasses. Unlike normal eyeglasses, the enhancements in this device fully replace her smartphone. Miniaturized batteries, optical and LIDAR sensors, built-in radios, and high-resolution image generators mean these new glasses not only show her the world but also

---

[267] While Jennifer fixates on water scarcity in California, a range of political motivations could be substituted, including partisan identity politics (e.g., Democratic or Republican).

enhance it with additional virtual layers that only she can see. They are the bleeding edge of technology.

Aside from the rush of playing with the MR hardware, she's also excited by the set of new life-management applications available on the device. These apps "experience" the day along with her and offer helpful suggestions along the way. Some suggestions are simple, like noting that it's time to order groceries and starting a list. Some she hopes will make her healthier, like the "minute meditations" that encourage mindfulness. Still other apps will save her money with targeted advertisements and deals. Finally, exciting new MR social applications promise to match her with compatible strangers for friendship, dating, or business. This last feature is her favorite. A lifelong extrovert, her move to Northern California from Los Angeles has felt isolating and lonely. Using the new device to meet like-minded people in her new home will help.

* * *

The technology contained in Jennifer's glasses fulfill the promise of the original Google Glass project.[268] As of late 2022, Meta has experimented with similar hardware ideas in a different way, seeking to make MR mainstream with the Oculus Pro device.[269] Amazon has likewise released the Nreal Air augmented reality glasses.[270] The idea of augmented or MR is a frontier made possible by current hardware and software advances.

In this scenario, the promise of MR has matured into a fully realized, well-integrated commercial product. That product pairs sophisticated hardware with advanced data analytics and AI to optimize the user's every waking moment. These glasses know Jennifer's location, scan her surroundings, and identify the people in her general vicinity. They catalog her decisions, and they use AI/ML algorithms to suggest new options she

---

[268] Joshua Topolsky, "I Used Google Glass: The Future, but with Monthly Updates," Verge, February 22, 2013, https://www.theverge.com/2013/2/22/4013406/i-used-google-glass-its-the-future-with-monthly-updates.

[269] "Meta Quest Pro: Our Most Advanced New VR Headset," Meta Store, accessed October 28, 2022, https://www.meta.com/quest/quest-pro/.

[270] Nadeem Sarwar, "Nreal's Air AR Glasses Head to the U.S., Ready to Rock with iPhones," Digital Trends, September 27, 2022, https://www.digitaltrends.com/mobile/nreal-air-ar-glasses-united-states-launch-price-ios-support/.

may like. Those nudges are built into visualization layers that allow her to focus attention on social prompts, business prompts, commercial prompts, or no prompts at all. The layered suggestions in these glasses also hold the potential to artificially limit her choices and nudge her toward decisions the way that some social media algorithms do on smartphones.

What Jennifer fails to notice is that while her glasses are an American product, some of the applications and layers are from foreign companies, including state-owned entities in China. By agreeing to an opaque terms-of-service agreement, she has allowed these entities access to her personal user data in ways she doesn't understand. As detailed in the literature review, this situation is common with today's smartphone applications and other internet tools.[271] In this scenario, Jennifer's data are shared with a Chinese state-owned company that harvests and uses consumer data as a tool of statecraft. The next section explores some consequences of that naivete.

B.   NUDGES TOWARD RADICALIZATION

Jennifer's glasses tap her left temple, and she uses a discreet hand gesture to bring up her social layer. A new VR story has dropped from her favorite influencer, and she decides to take a break from her boring chores to see what's happening in the world.

She never cared much for politics before, but now her glasses have introduced her to people and content that expand her views. She has become more politically aware and likes that her newfound activism makes her feel like a part of a community, one that makes a difference. Her passion is water use. She has become part of a group of dedicated citizens who care about how the government is stealing water from her part of the state and giving it to southern cities and who want to make the depredations stop. She grew up believing in equality and a free vote, but her research efforts in social layers, virtual meetups, and VR stories have convinced her that she was wrong about voting equality. Voting doesn't work when stupid people are allowed to overwhelm the ones who know what's really happening. Maybe the influencers and the VR stories are right, and democracy doesn't work anymore.

---

[271] Zuboff, *The Age of Surveillance Capitalism*, 48–49.

It's too corrupted by Southern Californian money. Maybe it's time to force people to wake up and care.

Recently, nudges from the social layer have introduced Jennifer to a new group, one promising offline action rather than online pontificating. She eagerly awaits an invitation into their member vetting process. She never heard of the group before moving here, but she now knows many members from hanging out in MR social layers. This group shares an ethos that promises "real action" to save the Northern farms from the South's water theft. She's eager to help.

Her eyes widen in excitement as her glasses relay the message that the Patriot Water Warrior group has cleared her for vetting and would like to set up a virtual meeting. She shares her availability, eager to join the group's important work. Everything in her feels that linking with this group is right: she is finally going to get involved and make a difference. Her vote doesn't change anything, but she vows that her actions will.

* * *

Jennifer's opinions, values, and patterns of life are changing. Algorithms in the social layer of her glasses are seeking the things that gain her attention and passion. They leverage that insight to provide suggestions about where to eat, what media to consume, and even what people might become good friends. Over time, these suggestions subtly manipulate her opinions, alter her values, and drive her actions.

The feedback mechanisms in the AI tools over time cause these seemingly innocuous suggestions to mimic Yeung's hypernudges, as described in Chapter I.[272] While this form of data-driven decision guidance is a model commonly used by commercial services like Amazon and content providers like YouTube, in this scenario, the commercial hypernudge model has been coopted for statecraft. Jennifer's changing values are the beginning of a radicalization process made more effective by advancing technology. Jennifer is not alone; unseen so far in the narrative are the hundreds of thousands of users besides Jennifer targeted to varying degrees by China's covert radicalization AIs. These

---

[272] Yeung, "Hypernudge."

76

algorithms use local issues to evoke passionate responses from their targets and expose them to more broadly radical, antidemocratic ideas.

A natural extrovert who feels cast adrift after a move, Jennifer has relied on MR social layers to build a new network of friends in the area to which she has relocated. This reliance grants the algorithms an opening to introduce her to people and ideas that subtly influence her opinions about political issues, just as surely as a new friend group influences a person's speech and dress. The glasses suggest media to her, and these media items introduce her to new ideas. A similar process has been documented in a study on radicalization via YouTube.[273] Systematic exposure to new people, new habits, and new media have nudged a previously apolitical woman into hyperawareness of controversial and emotional political issues. The points these influencers make about corruption have even led her to question core beliefs about democracy, particularly whether trusting fellow citizens leads to good governance, a message routinely delivered by Chinese leaders.

While the hypernudges in this scenario are an intentional act by a foreign adversary, there is precedent for similar outcomes from unintentional nudges. Radicalization is sometimes an unintentional byproduct of commercial tools meant to keep a user's eyes on the screen. For example, while YouTube does not intentionally radicalize its customers, its commercial algorithms were shown in some cases to have a radicalizing effect.[274] A similar effect has occurred in other topical and geographical domains; Brazil, for example, struggled against online misinformation about the Zika virus, misinformation that was amplified by YouTube.[275] In these cases, YouTube's suggestion engine fed viewers ever more incendiary content because that content prompted people to engage emotionally and spend more time on the site. YouTube's commercial goal is engagement with advertisements, and radicalization is presumably an unexpected and undesirable outcome.

---

[273] Manoel Horta Ribeiro et al., "Auditing Radicalization Pathways on YouTube," in *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency* (New York: Association for Computing Machinery, 2020), 131–41, https://doi.org/10.1145/3351095.3372879.

[274] Ribeiro et al.

[275] Jonas Kaiser, Adrian Rauchfleisch, and Yasodara Córdova, "Fighting Zika with Honey: An Analysis of YouTube's Video Recommendations on Brazilian YouTube," *International Journal of Communication* 15 (2021).

In Jennifer's story, however, the effect is intended. Jennifer is being manipulated for another country's gain using the same sort of mechanism a modern media corporation uses to drive consumer engagement.

C.   GAMIFYING RADICALIZATION

Jennifer watches intently through her glasses as they highlight a face in the crowd. Nondescript but fit, her target seems unremarkable. If the glasses hadn't alerted her to his presence, she probably would have missed him.

She cleared the Patriot Water Warrior vetting process several months ago with a cohort that her trainers celebrated as the largest intake group ever. Now she helps with the vetting process after completing several VR training seminars. A sudden increase in new membership requests ensures there is plenty of work for the vetting team. And vetting is important, because many people fail to understand that force, not words, wins elections. If people can't understand that, they're not good candidates for membership.

Her task today is to discreetly follow a new applicant and learn all she can about him and his associates. Right now, her target seems to be talking on his personal communication device. She subtly moves to a better sightline for his mouth and sets her glasses to read his lips. She had been unaware of this application before the technical team had told her about it, and she had been initially squeamish about the privacy implications of the product. But the technicians assured her the function was an experimental layer meant for deaf people unable to receive hearing implants. The Patriot Water Warriors were just testing it out to help the developers.

She frowns as she watches the text transcript scroll across her view. He is talking with a girlfriend that his social file fails to note, raising a red flag. He is supposed to disclose close associates. Jennifer's trainer had taught her the AI monitors that feed the group's background data are unlikely to miss a discrepancy that important. Another red flag is the way he talks. The language and demeanor, according to the algorithms in her analysis layer, indicate someone unlikely to agree with the mission of the Patriot Water Warriors. Instead, he exhibits several known markers of law enforcement. She files her report, flagging him for further investigation and follow-up.

How exciting! Her first major score in the Big Game! The Big Game is what some of the Patriot Water Warriors call the group's reliability index. The group asks members to sign up for the index, a commercial monitoring application that collects data from their glasses and other devices, assigning points for certain actions and demerits for others. There's an endless number of ways to rack up points in the game, but the goal of every member is the same: to stay in the green and get greener. The deeper the green on a member's reliability scale, the more missions they are assigned by the Patriot Water Warriors, and the more social capital they earn. Jennifer's reliable support for VR stories and other messaging on social media have landed her this vetting mission. She wonders what exciting missions will come now that she's proven herself.

* * *

Jennifer's radicalization has advanced. She is now an accepted member of a paramilitary group aligned with her newfound antidemocratic views. The group calls itself "patriotic," but its mission is to save the country from an unlikely enemy: democracy. Its core ideology is that democracy has failed and that strong leaders are needed to fix California's issues and awaken a new American renaissance. While the (fictional) group has existed since 2020, they have seen a sudden increase in new members like Jennifer. Group leaders remain unaware that this influx is because people deemed susceptible to their worldview are being systematically herded into their fold by Chinese AI algorithms. This herding process is being perpetuated among similarly violent groups across the political spectrum.

In this vignette, Jennifer has been assigned to investigate a new applicant. Her experience illustrates two points about the scenario. First, technology will soon make it difficult to fake an identity. Second, gamifying a process motivates people to participate, transforming the drudgery of contributing into a fun and engaging activity.

When data capture is pervasive and widely available, algorithms can build profiles of people. They build profiles by drawing connections between traits and behaviors and applying those templates to individuals. This application of AI/ML technology is already

79

fundamental to Amazon's and Google's push advertising.[276] In this scenario, Jennifer's observation of traits that conflict with her subject's profile raises red flags. The subject's profile is built by AI that augments an applicant's profile with user data and direct observation. Anonymity is nearly impossible in the face of surveillance this coordinated and pervasive.

The second thing this story illustrates is the power of gamification. Gamification uses the reward systems of computer games to motivate people to act in certain ways outside a game environment.[277] An example of a gamified system is an airline loyalty program whereby consumer behaviors earn points and status that can be used as currency toward tangible rewards.[278] In this scenario, a foreign adversary gamifies actions based on a set of ideological views, rewarding its targets for preferred behaviors. An aggressive adversary with the proper technology could monitor as well as reward and encourage behavior. This deployment of Yeung's hypernudge process creates a feedback loop more powerful than simple suggestion or peer pressure generates.[279]

D.   OUTSIDE COORDINATION

Jennifer settles into her airline seat, exhausted but happy. Her successful unmasking of the would-be law enforcement infiltrator was followed up by a mission to swat him.[280] The swatting wasn't a punitive measure for failing the background assessment but rather an evaluation tool. The algorithms tagged the target, who she now

[276] Zuboff, *The Age of Surveillance Capitalism*, 254–68.

[277] Sebastian Deterding et al., "From Game Design Elements to Gamefulness: Defining 'Gamification,'" in *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments* (New York: Association for Computing Machinery, 2011), 9–15, https://doi.org/10.1145/2181037.2181040.

[278] Zuhal Cilingir and Yaşar Gültekin, "5 Gamification Applications in Hospitality and Airline Industries: A Unified Gamification Model," in *Gamification for Tourism*, ed. Feifei Xu and Demetrious Buhalis (Bristol: Channel View Publications, 2021), 83–99, https://doi.org/10.21832/9781845418236-007.

[279] Yeung, "Hypernudge."

[280] The term *swatting* refers to the practice of calling in a fake crime, so the police treat the victim as a dangerous suspect. It is a popular practice among certain online extremist communities. John Bahadur Lamb, "Death by Swat: The Three Elements of Swatting," in *Video Games Crime and Next-Gen Deviance*, ed. Craig Kelly, Adam Lynes, and Kevin Hoffin (Bingley, UK: Emerald Publishing Limited, 2020), 73–89, https://doi.org/10.1108/978-1-83867-447-220201005.

knows to be Marvin Chen, as possible law enforcement. Jennifer's mission in September was to verify that suspicion. She succeeded, and the video she recorded of his interaction with law enforcement allowed the Patriot Water Warriors both to validate that he was a law enforcement officer and to identify him and his family.

But that is in the past. Today's deep sense of accomplishment comes from her successful completion of "warrior training" in remote areas of New Zealand. The training is hosted by Chinese-Australian billionaire Hu Yuan, a benefactor to antidemocratic militant groups. In tandem with the physical training were lectures that taught her the antidemocratic and pro-environmental philosophy of the Patriot Water Warriors and introduced her to a cadre of new friends of similar mindset from around the world. With this cohort of like-minded people, she learned a plethora of useful skills: small unit tactics, camera spoofing to prevent AI detection, bombmaking, and more. She knows that with this training she will succeed at bringing to fruition the ultimate goals of the Patriot Water Warriors: to right the wrongs of the last election, to force the selection of strong leaders who can bring America and the world into a new age, and to save the Northern California wild from the depredations of the overpopulated South.

* * *

In the previous section, Jennifer's online radicalization moved from online to offline when she conducted in-person surveillance of Marvin Chen. In this section, she shows an increasing willingness to commit offline, physical, and even violent acts to attain the goals of the Patriot Warriors. She places law enforcement in danger by investigating the reliability of a member applicant. Then, Jennifer travels halfway around the world to learn new paramilitary skills and reinforce her antidemocratic politics. Her path from online to offline action echoes the escalating path of radicalization other terrorists have taken, designating out-group enemies and justifying escalating violence against them.[281]

---

[281] Allison G. Smith, *How Radicalization to Terrorism Occurs in the United States: What Research Sponsored by the National Institute of Justice Tells Us*, NCJ 250171 (Washington, DC: National Institute of Justice, 2018), https://www.ojp.gov/pdffiles1/nij/250171.pdf.

81

One item revealed in this section is the source of the group's funding. In this case, Hu Yuan is Chinese but has been exiled from the country under criminal charges and now lives in Australia and New Zealand. Shadowy exiles like Mr. Hu are not unusual. Many billionaire Chinese expatriates are either actual criminals or losers of power games within the political and business culture of the country.[282] There is suspicion that some of these expatriates to Western countries like Australia clandestinely promote the goals of the CCP to curry favor or avoid additional sanctions back in China. Hamilton and Joske note several such expatriates, like billionaire Huang Xiangmo, working with CCP-affiliated political groups in Australia.[283] Diamond and Schell also emphasize the Chinese government's ambition to instrumentalize the Chinese diaspora to assist its global policy goals.[284]

E.   PRESSURING THE CHINESE DIASPORA

Marvin Chen walks confidently into the nondescript office. As an FBI investigator of online extremism, he has long known that some of the Chinese provinces maintain satellite police offices overseas. He just never expected to be invited to one. Last week, a polite young man had suggested he come to this address, "for convenience," to receive an important family message. After some security vetting and briefing, his leadership encouraged him to attend the meeting. Marvin wonders what awaits him.

He is greeted by a cheerful woman who directs him to a plain, well-lit room. In it is a conferencing system. As the system comes online, he is surprised to see his dad's sisters and several of his cousins. They greet him and after pleasantries start asking why he is harassing perfectly legitimate Chinese businessmen. Confused, he asks them what they mean. They explain to him that the family will be much more fulfilled in business and in life if Marvin leaves Hu Yuan alone. They have heard that he is harassing Mr. Hu's business operations, and they fear that he is bringing shame on the family through his "antisocial and possibly illegal harassing behavior."

---

[282] Hamilton and Joske, *Silent Invasion*, 55–92.

[283] Hamilton and Joske, 55–59, 64–68.

[284] Diamond and Schell, *Chinese Influences & American Interests*, 39–40.

His curiosity piqued, Marvin asks the woman who showed him in whether he can take notes. She eagerly indicates that he should, offering him a pencil from the holder on her desk. The conversations that follow both excite and disturb him, because his extended family seem to know a shocking amount of detail about his investigations. For example, they know about his failed attempt to infiltrate a Patriot Water Warrior cell in Northern California, and they chastise him for his shameful dishonesty. His eldest aunt harshly warns that his antisocial actions will cause embarrassment and harm to his family in Hong Kong if he doesn't cease engaging in such shameful misdeeds.

He lets his family know that he is happy to hear from them and that he will respectfully consider what they have shared. He tells the receptionist that he is ready to leave, and he puts away his tablet as she shuts down the conference equipment. She politely suggests to him as they leave the room that it would be better for him and his family if he didn't share with others what happened here. "As a law enforcement officer, you doubtless understand the value of discretion." She also raises the possibility of another meeting with his family if he is willing. "Our technology is so much more clear than commercial tech, and it is good to maintain family ties." On the ride back to his office, he wonders how exactly the Chinese government had learned so much about his investigations and what it meant that his father's family seemed to have been targeted by the Hong Kong government because of his investigations.

* * *

Marvin Chen is a first-generation American with extended family still in Hong Kong. He is also a federal agent seeking to understand newly developing patterns of domestic extremist activity. His investigations have started to make trouble for the Chinese government's plans. Shifting focus from Jennifer to Marvin in this vignette shifts the scenario's focus away from technology and toward China's increasingly aggressive attempts to influence American behavior. Marvin's experience highlights two things about China's increased aggression. First, the Chinese government desires to use its diaspora as a tool of the state, regardless of formal nationality. Second, the Chinese government has begun to employ overseas police outposts in Western nations.

83

China's government and the CCP have long viewed the diaspora of ethnically Han Chinese people living abroad as a government resource. During their premierships, both Deng Xiaoping and Xi Jinping suggested that all ethnically Chinese people are a resource subject to monitoring and influence by the CCP.[285] As the CCP puts it, all Han people around the world are "sons and daughters of the Yellow Emperor."[286] Though Americans like Marvin likely disagree with that point of view, this doesn't prevent the Chinese government from applying various forms of pressure to influence them.

Matt Schrader, a China analyst with the Alliance for Securing Democracy, documents several ways the Chinese government's United Front Work Department (UFWD) partners with other agencies to harness overseas Chinese people as an informational, scientific, economic, and propaganda resource. Methods of instrumentalizing the diaspora include controlling Chinese-language media, enticing experts with personal and economic inducements to decamp to China, and manipulating family ties to pressure overseas Chinese to cooperate with the CCP.[287] The Ministry of State Security (MSS) and UFWD use cultural leverage, such as the concept of *guanxi* (or "obligation"), to impose a sense of duty on certain susceptible ethnic Chinese people to fulfill a perceived honor obligation to China.[288] Both the MSS and UFWD tend to focus on specific weak links: new immigrants, older immigrants who found integrating difficult, and people who have or desire business connections with the mainland.[289] In this scenario, China attempts to use familial obligation and social pressure tactics to guide Marvin's investigations away from uncovering new funding streams for domestic extremist groups.

---

[285] Schrader, *Friends and Enemies*; Xi, *The Governance of China*, 1:45.

[286] Diamond and Schell, *Chinese Influences & American Interests*, 39.

[287] Schrader, *Friends and Enemies*.

[288] David Major, "Panel II: Chinese Intelligence Collection Operations and Implications for U.S. National Security: Prepared Statement of Mr. David Major," in *Chinese Intelligence Services and Espionage Operations: Hearing before the U.S.–China Economic and Security Review Commission* (Washington, DC: U.S.–China Economic and Security Review Commission, 2016): 77–79, https://www.uscc.gov/sites/default/files/transcripts/June%2009%2C%202016%20Hearing%20Transcript.pdf.

[289] Vilmer and Charon, "Russia as a Hurricane, China as Climate Change."

China occasionally claims extranational jurisdiction for specific laws. Hong Kong's new national security law, for example, asserts global jurisdiction.[290] This claim is not mere posturing, as multiple foreign nationals are currently wanted by China for their statements about Hong Kong, including U.S. citizen Samuel Chu.[291] This arrogation of authority is worrying given cases like those of Gui Minhai, Michael Spavor, and Wu Huan, all wanted for actions taken overseas, outside the country's geographic boundaries.[292] China claims wide authority over the overseas diaspora in this scenario.

Alongside the arrogation of global legal jurisdiction unto itself, China maintains overseas law enforcement outposts. This alleged transnational policing by the Chinese government is controversial in many countries.[293] The Chinese government advertises these police outposts as a service provider for the local population, helping members of the diaspora communicate effectively with the local government and assisting with maintenance tasks like driver's license renewals.[294] However, Safeguard Defenders issued a report accusing these centers of using tactics akin to those Marvin experiences in the

---

[290] U.S.–China Economic and Security Review Commission, *2020 Report to Congress* (Washington, DC: U.S.–China Economic and Security Review Commission, 2020), 24, https://www.uscc.gov/annual-report/2020-annual-report-congress.

[291] "Exclusive: Wanted by Beijing, Activist in-Exile Wayne Chan Says He Won't Stop Fighting for Hong Kong Independence," *Hong Kong Free Press*, August 3, 2020, https://hongkongfp.com/2020/08/03/exclusive-wanted-by-beijing-activist-in-exile-wayne-chan-says-he-wont-stop-fighting-for-hong-kong-independence/.

[292] Kelly Ho, "Bookseller Gui Minhai Jailed for 10 Years in China for 'Illegally Providing Intelligence' to Overseas Parties," *Hong Kong Free Press*, February 25, 2020, https://hongkongfp.com/2020/02/25/bookseller-gui-minhai-jailed-10-years-china-illegally-providing-intelligence-overseas-parties/; Joe McDonald and Ng Han Guan, "China Sentences Canadian to 11 Years in Case Tied to Huawei," AP News, August 11, 2021, https://apnews.com/article/middle-east-canada-business-china-global-trade-2d3c30207dbfc80d1820771d291cec68; Normaan Merchant and Matthew Lee, "Detainee Says China Has Secret Jail in Dubai, Holds Uyghurs," AP News, August 16, 2021, https://apnews.com/article/china-dubai-uyghurs-60d049c387b99b1238ebd5f1d3bb3330.

[293] Matt Schrader, "'Chinese Assistance Centers' Grow United Front Work Department Global Presence," *China Brief* 19, no. 1 (2019), https://jamestown.org/wp-content/uploads/2019/01/Read-the-1-4-2019-CB-Issue-in-PDF.pdf; Conor Gallagher, "Government Seeks Answers from Chinese Embassy on 'Police Service Station' in Dublin," *Irish Times*, October 8, 2022, https://www.irishtimes.com/politics/2022/10/08/government-seeks-answers-from-chinese-embassy-on-police-service-station-in-dublin/.

[294] Henry Ridgwell, "China's 'Overseas Police Stations' Breach Sovereignty, Report Claims," Voice of America, October 11, 2022, https://www.voanews.com/a/china-s-overseas-police-stations-breach-sovereignty-report-claims/6785143.html.

scenario to secretly pressure criminal suspects to return to China for trial.[295] As explored in the narrative, the Chinese government repurposes its overseas law enforcement apparatus to hamper a U.S. investigation.

F.   DEMOCRATIC CATASTROPHE

How did it go so wrong so suddenly? Since the mid-2010s, there has been increasing disputes and unrest around American elections, but nothing like this. Two weeks after the elections, neither presidential candidate has been declared the winner, four states have unresolved senate elections, and nearly 20 percent of the nation's congressional races remain in dispute.

Marvin reviews the events around election season in his head. As fall arrived and early voting started, he had noticed an increase in the nuisance lawsuits one or the other party regularly brought to set arbitrary limits on voting. At the same time, seven states passed late-breaking laws limiting access to the polls. While the phenomenon wasn't new, the intensity had caught his attention at the time. Then, election day came, and it seemed to him like all hell had broken loose. Armed militia groups blocked access to the polls in select precincts across the country. A militia in one state kidnapped the secretary of state and forced her to certify a winner on video before the votes were counted. Another militia set fire to a warehouse in Miami where votes were being counted. After all this disruption, there was no way for Americans to know who had won the election as the Christmas holiday approached.

The militia groups seem to lack any unifying ideology aside from an apparent loss of faith in the democratic process. Each group mobilizes around its own pet issue or cause, be it Jennifer's environmental activism, ethnic nationalism, or partisan grievance. There isn't any obvious tie between them. But three things are indisputable: they are angry, they are violent, and their targets of choice combine to prevent a free and fair election in the United States.

---

[295] Safeguard Defenders, *110 Overseas: Chinese Transnational Policing Gone Wild*, Investigations and Briefings Series (Madrid: Safeguard Defenders, 2022), https://safeguarddefenders.com/sites/default/files/pdf/110%20Overseas%20%283%29.pdf.

The ensuing constitutional crisis is well above Marvin's pay grade, a fact for which he is thankful. But as an expert in domestic extremism, he throws his energy into determining what happened, and how. It's unlikely that so many unrelated groups with such different ideologies all spontaneously had the same idea and that the groups all knew exactly which exploited weak points would most impact the election. He suspects that this is a coordinated assault on American democracy.

He also worries that it may have worked. Even if investigators like him figure out what happened and produce evidence, even if the state and federal judges, legislators, and executives can agree on a way to unwind the situation and define the winners of the election, it is unlikely that any such solution would be acceptable to the losers.

There is no clear path to resolving this crisis.

* * *

The narrative closes with democratic catastrophe. There is no war, but there is also no clearly legitimate government. Likewise, there is no obvious path to form such a government. Regardless of the current government's course of action, there will likely be continued unrest amidst a legitimation crisis. This is the ultimate wicked problem.

This ending is made possible by three things: the technological maturity of AI-driven data analytics, an aggressive and creative assault by a capable foreign adversary, and a U.S. government weakened by a string of contested elections. In this scenario, the worst plausible case is assumed for all three axes of the scenario volume, and the result is crisis.

The ending shows the potential impact of radicalization like Jennifer's being magnified at scale. It is unlikely the radicalization spiral that each target experiences will push all of them to physical violence. This curated radicalization process is, however, likely to push many to that point. It is also likely to heighten suspicion of whatever solution is devised to this electoral conundrum and to generally lower faith in the legitimacy of democratic governance. This combination of suspicion and a lack of legitimacy adds complexity to the already tough situation faced by the federal government.

87

In this scenario, the high maturity of data capture and AI data analytics empower kinetic attacks on American elections. Commercial applications that capture large amounts of data about Americans use associated AI/ML tools to build profiles of the voting public. Other AI uses these data to identify weak points in the electoral system, provided as targets to unwitting domestic extremist groups willing to take physical action, each group believing it will be furthering its individual causes. The full scope of the attack's true aggregate target—democracy itself—is unknown to the domestic perpetrators. Indeed, most of these extremists likely see themselves as democracy's champions. These are the worst-case consequences of a state's operationalizing the tools of big data described in Chapter I.

The other thing allowing this scenario to play out is America's decreasing democratic resilience. In this fictional future, the current trend of American distrust in elections that Chapter II highlighted has continued, as have ongoing low-level legal and legislative assaults on access to the polls in certain states. Recall from the first two chapters the discussion of how gerrymandering and political fragmentation have led to polarization and populism. These types of partisan clawing for advantage lower American democratic resilience and potentially decrease the trust that Americans have for democracy. In this worst-case scenario, the rejection of democracy opens the election to attack from an exceptionally aggressive antagonist, one enabled by advanced technology.

G.   DISCUSSION

This scenario exposes the risks of the worst case. Rather than theorize about the U.S. government's response to such a worst case, the narrative instead explores the exposed weaknesses. The narrative rests on three main assumptions. One assumption is a highly accelerated rate of technological advancement, especially in data capture and transformative AI. Another assumption is a highly aggressive foreign adversary, one determined to use technological tools to weaken American democracy at its roots. The final assumption is an American democracy already struggling with a waning resilience, a trend continued from the late 2010s and early 2020s.

This worst-case narrative leads to several conclusions. First, transformative AI in the future could be used to target individuals for tailored radicalization. These people could be targeted for radicalization as easily and as accurately as companies like Amazon, Facebook, and Google target people for advertising. Second, low democratic resilience could create doubt that democracy even works, which might lead some people to reject democratic norms in favor of political violence. Finally, the United States is highly vulnerable to a directed series of kinetic attacks on the seams of the democratic process. The 2016 and 2020 elections exposed some edge cases in the American democratic process, and this scenario lays bare the consequences of failing to secure the physical conduct of U.S. elections.[296]

1.   Transformative AI

This scenario imagines the existence of transformative AI. The idea of transformative AI is an emerging area of study for computer ethicists and AI developers.[297] As defined by Karnofsky, it is an ecosystem of AI that significantly changes how humans interact with the world.[298] One of the three criteria by which Karnofsky defines transformative AI is the expansion of surveillance technology beyond the reach of human comprehension.[299] China accomplishes such an expansion in this scenario. Here, the CCP has built a surveillance capability beyond human capacity, one that has created highly detailed profiles of everyone about whom it gathers data. The surveillance ecosystem maps people's social networks and anticipates their wants and needs. In Jennifer's case, it notes her recent move to a different area of the state and predicts her need for new social groups. It then targets her for another type of AI.

---

[296] An "edge case" in computing is a low-likelihood occurrence that breaks logical algorithms. The term edge case in computer science is used mostly in the context of software testing. Software testers are charged with pushing the boundaries of the algorithms to find the edge cases in software and discover logical flaws, much as this scenario pushes boundaries.

[297] Ross Gruetzemacher and Jess Whittlestone, "The Transformative Potential of Artificial Intelligence," *Futures* 135 (2022): 102884, https://doi.org/10.1016/j.futures.2021.102884.

[298] Holden Karnofsky, "Some Background on Our Views Regarding Advanced Artificial Intelligence," *Open Philanthropy* (blog), May 6, 2016, https://www.openphilanthropy.org/research/some-background-on-our-views-regarding-advanced-artificial-intelligence/.

[299] Karnofsky.

This second type of AI is familiar to marketers who use predictive analytics to anticipate and manipulate consumption patterns.[300] In the scenario, AI uses predictive analytics to design a series of algorithm-driven hypernudges that alter Jennifer's viewpoint, change her social structure, and subtly incentivize her gradual path to radicalization. It is unlikely that every target will be as susceptible to this scheme as Jennifer is, but if this approach is successful often enough at scale, it could radicalize enough people to create major problems for the United States.

For AI to attain this transformative level of effectiveness, it needs access to massive amounts of data about the people it catalogs.[301] In the scenario, this need for data is fed by Jennifer's reliance on augmented reality glasses. The software applications built into her glasses provide the data to build her profile. She selects a set of applications that simplify her life and entertain her, but they also collect immense stores of data about her life and viewpoints.

Foreign-owned applications that collect user data are a concern. For example, in October 2022, TikTok was accused of providing constant location data about individual users to the Chinese government.[302] This revelation follows concerns that ownership of TikTok and other applications by Chinese companies allows the Chinese government access to data that could track dissidents, map social networks of political opponents, and even expose the locations of secret military bases.[303] Elon Musk's purchase of Twitter in late 2022 raises concerns about the privacy and security of user data, including direct

[300] Sanjeev Verma et al., "Artificial Intelligence in Marketing: Systematic Review and Future Research Direction," *International Journal of Information Management Data Insights* 1, no. 1 (2021): 100002, https://doi.org/10.1016/j.jjimei.2020.100002.

[301] Gruetzemacher and Whittlestone, "The Transformative Potential of Artificial Intelligence."

[302] Emily Baker-White, "TikTok Parent ByteDance Planned to Use TikTok to Monitor the Physical Location of Specific American Citizens," *Forbes*, October 20, 2022, https://www.forbes.com/sites/emilybaker-white/2022/10/20/tiktok-bytedance-surveillance-american-user-data/.

[303] Zack Whittaker, "Grindr Sold by Chinese Owner after U.S. Raised National Security Concerns," *TechCrunch* (blog), March 6, 2020, https://techcrunch.com/2020/03/06/grindr-sold-china-national-security/; Patrick Tucker, "China's Aggressive Data Push Worries Military Intel Officials," Defense One, July 9, 2021, https://www.defenseone.com/threats/2021/07/chinas-aggressive-data-push-worries-military-intel-officials/183645/; Dina Temple-Raston, "China's Microsoft Hack May Have Had a Bigger Purpose than Just Spying," NPR, August 26, 2021, https://www.npr.org/2021/08/26/1013501080/chinas-microsoft-hack-may-have-had-a-bigger-purpose-than-just-spying.

messages, because of Tesla's commercial exposure in China.[304] Access to these data can help develop the type of transformative AI tools this scenario envisions.

2.   Low Democratic Resilience

This scenario narrative exists against the backdrop of a stressed democratic process in the United States. In this fictional space, armed vigilantes frustrated with electoral and policy outcomes use open violence to obfuscate or directly change the results of numerous elections. While this violence is made worse by the external coordination of participants, the scenario highlights that the type of post-election violence seen in January 2021 could be orders of magnitude more dangerous if aimed at the mechanism of an election, rather than in protest of settled electoral results. The results of the scenario's violent attacks aimed at election logistics could range from confusion and localized violence to a full legitimation crisis.

The decline of Americans' faith in democracy, exemplified by Jennifer in the story, is more intense in the scenario than in today's reality. It is, however, plausible and shares a direct line back to the 2016 and 2020 federal elections. Indeed, the 2022 election brings a new set of legal battles about who can access what types of balloting and by what procedures.[305] These legal skirmishes cast doubt in the minds of some about the fairness, legitimacy, and accuracy of U.S. elections. Partisan operatives continue to draw legislative districts designed to stifle votes with increasing precision at the same time some of these gerrymandered legislatures weaken the power and independence of their states' executive and judicial branches. Meanwhile, populist politicians are now as a matter of course denigrating the fundamental legitimacy of elections they lose. If this confluence of polarization and opportunism continues, or bleeds over into physical violence, a determined and technically sophisticated adversary could exploit the resultant decline in democratic legitimacy.

---

[304] Charles Mok, "Why Elon Musk's Twitter Purchase Is a National Security Concern," *Diplomat*, November 9, 2022, https://thediplomat.com/2022/11/why-elon-musks-twitter-purchase-is-a-national-security-concern/.

[305] "Voting Rights Litigation Tracker," Brennan Center for Justice, May 24, 2021, https://www.brennancenter.org/our-work/research-reports/voting-rights-litigation-tracker.

3. Physical Vulnerability of American Elections

This chapter's narrative exposes the vulnerability of the American electoral system to physical attack, especially an attack instigated from abroad but conducted within. The previous sections noted the root causes of this vulnerability, including the credulity and lack of sophistication of the tech consumers in this story, as well as a more general decline in people's faith in democracy. But the coordinated, specific microtargeting of the election's infrastructure is why this scenario ends with an existential crisis. As the narrative completes, the governing and political apparatus cannot say with any certainty who won the election in many races, which party holds a congressional majority, and so on. The narrative ends with the United States in an ungovernable limbo, one where no institution holds sufficient legitimacy in the eyes of the people to determine the election's winners and losers.

One source of this vulnerability is declining trust in democratic institutions. Declining trust in democracy in the new millennium has in the United States accompanied decreasing rates of voter participation, increasing structural inequality, and growing cynicism.[306] A 2016 study found that not only are young people criticizing elected leaders more often, but they are also increasingly indifferent to the idea of democracy itself.[307] Mettler and Brown claim that polarization is responsible for this growing lack of trust, specifically polarization that divides along rural–urban lines.[308] They further blame partisan politicians for stoking rural grievances to earn political support.[309] This focus on grievance politics enflames three of the four threats to democracy articulated by Mettler and Lieberman: political polarization, economic inequality, and a sense of what types of

---

[306] Commission on the Practice of Democratic Citizenship, *Our Common Purpose: Reinventing American Democracy for the 21st Century* (Cambridge, MA: American Academy of Arts and Sciences, 2020), 1–2.

[307] Roberto Stefan Foa and Yascha Mounk, "The Democratic Disconnect," *Journal of Democracy* 27, no. 3 (July 2016): 5–17, https://doi.org/10.1353/jod.2016.0049.

[308] Suzanne Mettler and Trevor Brown, "The Growing Rural–Urban Political Divide and Democratic Vulnerability," *Annals of the American Academy of Political and Social Science* 699, no. 1 (2022): 130–42, https://doi.org/10.1177/00027162211070061.

[309] Mettler and Brown.

people should be accepted into the democratic society.[310] A population that thinks democracy does not work for the citizens is less likely to defend it from attack. And a population that has been conditioned through grievance politics to view electoral outcomes as an illegitimate usurping of one's place in society is primed to become the attackers.

Another source of this vulnerability is the underexplored flip side of hardening the American election apparatus. More than $300 million was designated for cybersecurity hardening in 2019 under the Help America Vote Act of 2002, but little effort went toward physical security of polling places and participants.[311] As cybersecurity hardening continues, physical hardening seems to remain a low priority. The International Crisis Group warned in 2020 of the increasing danger of election-related violence in the United States, a danger realized when partisans of the ousted president attacked the U.S. Capitol on January 6 the following year.[312] Yet, as of 2023, little action has been taken to protect the physical places where people vote and where those votes are counted. This apparent inattention to physical security leaves American elections vulnerable.

H. CONCLUSION: BUILDING SCENARIO TWO

This second scenario is a clear worst case. It is situated on the same three axes as the other two scenarios, as shown in orange in Figure 8.

---

[310] The fourth threat is executive aggrandizement. While this phenomenon has arisen in recent American history, it is unimportant to this point. Suzanne Mettler and Robert C. Lieberman, *Four Threats: The Recurring Crises of American Democracy* (New York: St. Martin's Press, 2020), 14–25.

[311] Election Infrastructure Subsector Government and Coordinating Council, *Election Infrastructure Security Funding Considerations* (Washington, DC: Cybersecurity and Infrastructure Security Agency, 2020), https://permanent.fdlp.gov/gpo147732/20_0311_cisa_eis-gcc-funding-considerations.pdf.

[312] International Crisis Group, *The U.S. Presidential Election: Managing the Risks of Violence*, Report No. 4 (Washington, DC: International Crisis Group, 2020), 1–2, JSTOR.
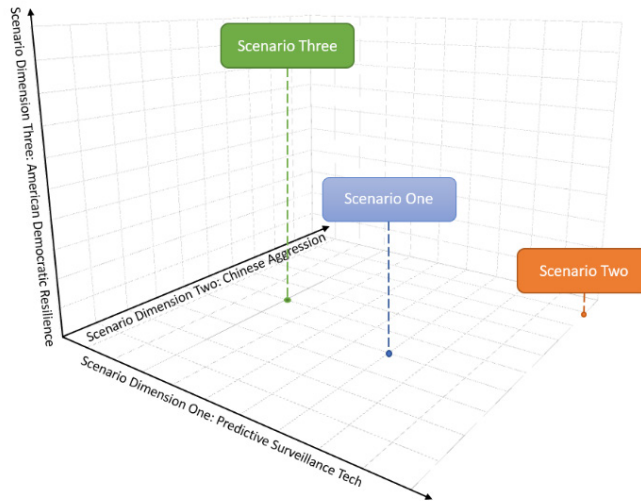
Figure 8.　Scenario Two's Position in the Scenario Volume

As the figure shows, this scenario is positioned at the extreme ends of all three dimensions. It assumes the highest plausible level of technical accomplishment, the highest likely aggression from the foreign adversary, and the lowest plausible level of democratic resilience within the United States. The resulting narrative is consequently extreme yet plausible. Its goal is not to alarm but to inform by bounding the risk environment.

An explicit worst-case scenario is a tool for exploring the edges of plausible futures given current trends. This chapter's narrative assumes that democracy in the United States continues its current polarization and sinks into further disarray. At the same time, technological advances have a transformational effect on how people interact with the internet, a transition that leaves them susceptible to manipulative and microtargeted techniques deployed over the new media.

The results are disastrous. Consider that outcome neither prophetic nor a warning. Instead, use the scenario to consider the ramifications of the building blocks that go into crafting it. Technological change unleashed into an environment of weak democratic governance and aggressive foreign adversaries can have significant negative impacts on American society.

94

V.   SCENARIO THREE: A HEALTHIER DEMOCRACY

This final scenario follows a business owner facing foreign pressure to provide his company's user data to an adversary of the United States. Here, a weakened Chinese government meets a strong and healthy democratic system in the United States, while the rapid advancement of AI/ML technology has paused following initial gains in the late 2010s and early 2020s.

A.   UNEXPECTED BUSINESS CHALLENGE

Emil Trask is frustrated. A global entrepreneur renowned for successful consumer products, Emil recently purchased the popular social media platform Zoot, an undertaking that has proven more complex than he had expected. His vision was to streamline the service to make it profitable and sustainable. He then planned to expand the platform not only to enable social interaction but also to leverage facial recognition and trusted identity technology to facilitate authentic product reviews, online to offline (O2O) services such as deliveries, and secure payment processing. But countless users seem to construe even the smallest change he makes as a personal attack on their happiness. Now, in addition to the unanticipated turmoil from Zoot's user base, an unforeseen global consequence is emerging: the impact his ownership of Zoot could have on his other consumer product companies in China.

Emil has experience navigating the notoriously rough-and-tumble Chinese market. Piracy is rampant there. Absent the intellectual-property ethos of Silicon Valley culture, it's a market where every successful product team should plan to be copied, aggressively. It takes long nights and weekends for his teams to remain one iteration ahead of the hungry competition. That competition, especially from state-affiliated firms, has become increasingly desperate since the prolonged turmoil of the COVID-induced economic downturn and the sudden passing of longtime President Xi Jinping.

The Chinese market is different from most Western markets, with a heavier focus on O2O products. Trask's expertise in creating these O2O experiences is the source of his vision for Zoot's future transformation. Using WeChat as a model, he envisions remaking

Zoot into a one-stop shop in the United States for texting, calling, video meetings, news, social engagement, product reviews, product marketing, and payments—all using facial recognition to simplify identity verification and transaction processing. Zoot's verified identity infrastructure will someday be a hub for online and offline commerce and communication.

But there is a new wrinkle. While Zoot does not operate in China, Emil has received ominously phrased requests from Chinese government agencies for access to Zoot's user data. Their justification is the Chinese national security law, which requires businesses operating in the country to comply with national security directives. Many local government agencies interpret the law to mean that by selling non-Zoot products in China, like Trask's popular line of electric scooters, Emil must give provincial governments nearly unfettered access to proprietary Zoot customer data. Emil's engineers believe that Chinese officials really want more data to feed their firms' slow AI/ML development. And now, the national government has demanded that he apply what it calls "common sense standards of civility" to moderate content posted within Zoot. While the phrase sounds innocuous, what the government really wants is the power to censor what Zoot users say in other countries.

This encroachment on his business is unacceptable to Emil, not least because he understands that the data will be used by his competitors—often state-owned—to soften his competitive edge. But even more important to him is his personal reputation as a free speech warrior and techno-libertarian. Cooperating with these requests will do major damage to his personal brand in the Western world. But not cooperating will cause millions—perhaps billions—of dollars of damage to Emil's other business lines, especially consumer products in China.

* * *

Emil Trask is conducting business in an environment different from the previous scenarios. The Chinese government is disjointed and weakened, and AI development has entered another slow period following the explosion of progress in the early 2020s. Internal

96

dissent in China starts with President Xi's unpopular COVID-19 response.[313] This malaise deepens as the 2020s continue and the economic downturn remains, weakening China's national government. One consequence of the weakened Chinese national government is increased local power and autonomy. Competition among China's local leaders results in a less cohesive policy environment.

The weakened national government's predicament is made worse by the surprise death of President Xi before he designates a clear successor.[314] One goal of the various officials jockeying for position in this newly competitive environment is to recapture the growth China's economy enjoyed in the earlier years of the 21st century. This scenario's version of China consequently focuses less on controlling overseas political discourse and more on remaining competitive in domestic and global markets.

This unstable political environment in China poses challenges for Emil Trask's businesses. First, he must consider the oft-conflicting whims of multiple local Chinese officials in addition to directives from the unstable national leadership. Second, many of China's leaders in the scenario securitize the profitability of state-supported enterprises, conflating their economic success with other national security imperatives. Finally, while Trask's businesses in mainland China are structurally unaffiliated with his new business at Zoot, officials in China are using them as leverage to gain access to Zoot's user data. They believe that these data will kickstart their stagnant AI industry and return China to the economic growth trajectory it once enjoyed.

Trask's concurrent ownership of social media and consumer product companies has made him vulnerable to pressure from governments demanding access or control over the former to allow pursuit of the latter. The vulnerability of American businesses to Chinese pressure is not a novel suggestion, as Elon Musk's ventures in China have shown. Some experts have suggested that his concurrent ownership of electric automaker Tesla, space

---

[313] Eyck Freymann and Yanzhong Huang, "Xi Won't Yield over Zero-COVID Pressures," *Foreign Policy*, June 8, 2022, https://foreignpolicy.com/2022/06/08/xi-china-zero-covid-policy-ccp-pressures/.

[314] This absent successor is not a narrative device but the current reality in today's China. Alice Su and David Rennie, "Xi Jinping Has No Interest in Succession Planning," *Economist*, October 20, 2022, https://www.economist.com/china/2022/10/20/xi-jinping-has-no-interest-in-succession-planning.

pioneer SpaceX, and social media company Twitter opens the latter to exactly this sort of pressure.[315]

This scenario extends a trend in Chinese commerce from the 2020s. Piracy and copying are the expected cost of doing business in China. Former Google executive and current Chinese venture capitalist KaiFu Lee suggests that this is a strength of the Chinese AI market vis-à-vis Silicon Valley.[316] He claims that Silicon Valley's culture values originality and eschews those who steal ideas while China's tech culture celebrates those who aggressively copy good ideas and then iterate on them to broaden their utility and impact as fast as possible.[317] In this scenario, using government pressure, state-owned firms try to strong-arm Emil into giving them new data sets from Zoot that will hopefully accelerate AI development. Especially useful to them will be Zoot's facial recognition and verified identity framework, which Emil hopes will enable frictionless payments for goods and services with simple gestures at a camera.

B.   ROBUST WESTERN RESPONSE

Emil flashes a triumphant grin at the stage manager as he leaves the lectern, one that belies his nervousness. He's just gambled the future of his companies. But if he has, so too has a good portion of the American technology industry.

He is part of a group of technology magnates going public with the growing list of demands internet businesses are receiving from all levels of the Chinese government. The group at this joint event announced a consolidated public–private effort pushing back against worldwide censorship and data monitoring. While industry leaders like Trask are being lauded for their decision to participate, the reality is that in the current American political environment, they have little choice. After the foreign-sourced disruption of several federal elections, a new generation of politicians has been elected in part by vowing to prevent such disruptions from happening again. Trask and his counterparts believe that

---

[315] Mok, "Musk's Twitter Purchase Is a National Security Concern."

[316] Lee, *AI Superpowers*, 24–25.

[317] Lee, 26–30.

cooperating with these new leaders will allow them to help shape the increasingly stringent regulatory environment they expect is coming.

The immediate positive press reaction on social media feeds Trask's cautious optimism that he's done the right thing, both for the company and for his chosen country. As an immigrant, he values the personal and business freedoms he's found in the United States. Cynical business calculations aside, he's not willing to offer his company's data to an autocratic regime without putting up a fight.

The launch of that fight was a massive media event. Emil shared the stage with three other major technology firm leaders, the British foreign secretary and several other foreign dignitaries, the vice president of the United States, and a former speaker of the house. While all representing different interests and even opposing politics, they formed a bulwark against the misappropriation of personal data. The U.S. vice president, speaking for the group, had deemed preventing the misuse of personal data the cornerstone of a truly free internet.

This defensive strategy has three fronts: noncompliance, education, and updated legal frameworks. The first front, noncompliance, is a business pledge both to refrain from cooperating with authoritarian demands for internet censorship and to refuse to allow governments access to global customer data without a clear set of verifiable protections. This part worries Trask because it exposes his business to significant sanctions from countries like China. He also wonders which of his competitors is most likely to break the pledge to gain an advantage in one of the world's largest markets.

The second front is an educational push. Since the chaos of the U.S. elections in the late 2010s and early 2020s, some state governments have been pushing media literacy, both in schools and through focused advertising. At first, this policy was considered a partisan attempt to censor specific political viewpoints, but over time, people have responded to the messaging and have become much savvier consumers of all types of media. The new privacy organization that Trask and his partners are building works with federal and state-level school regulators to create a similar campaign nationwide. Additionally, the privacy group pledges to develop several applications in legacy internet and VR to gamify the task

of discerning news from manipulation. The idea is to make media literacy a competitive endeavor, one in which applications use various means to reward savvier media consumption.

New legal frameworks form the third front of this unified defense. Part of the legal push involves new laws in the United States and European Union to modernize data privacy restrictions for internet and social media companies. The United States—which due to domestic politics never successfully enacted a nationwide version of the European Union's General Data Protection Regulation (GDPR)—will join a new global standard that improves upon GDPR protections. Along with the new laws, an international standards organization will be launched under the auspices of the United Nations. Like the International Maritime Organization (IMO), which governs safety in international waters, this new organization will create and maintain international safety standards for legacy and VR internet applications.

* * *

This scenario contains a robust response to China's aggressive pressuring of Western companies. The response shows both a strong federal government and private-sector willingness to cooperate with the government on complex issues. Private business in this scenario accepts both social responsibility and short-term profits as coequal drivers of business decisions. This alternative way of approaching business sustainability is an emerging trend in the early 2020s, one that is by no means certain to prevail.[318] The approach is nonetheless plausible enough to explore in one of the three scenarios.

Along with the willingness of business and government to craft a partnership in response to Chinese threats against free discourse, this scenario includes politicians who are willing to subordinate competing partisan agendas and solve emerging problems

---

[318] There is a movement in business research away from the short-term thinking of quarterly profits toward long-term sustainability in areas like technological development, the customer base, and social environment. Sumantra Ghoshal, "Bad Management Theories Are Destroying Good Management Practices," *Academy of Management Learning and Education* 4, no. 1 (2005): 75–91; Robert Rubin and Erich Dierdorff, "Building a Better MBA: From a Decade of Critique toward a Decennium of Creation," *Academy of Management Learning and Education* 12, no. 1 (2013): 125–41, https://doi.org/10.5465/amle.2012.0217.

affecting Americans. These politicians join forces with business and with each other to lead not just a domestic effort but a global partnership. The narrative portrays a unified bloc of healthy democracies that together use the tools of media, education, and policy action. They apply those tools to weather attacks on democracy as well as push back against the perpetrators.

The three-pronged response to China's efforts to pressure Western media companies starts with a civic-minded public–private partnership. The U.S. government here partners with companies to publicize foreign-sourced attempt to censor and steal data. The benefits to cooperating companies include free media exposure and positive brand recognition. Alongside these perks, they retain a seat at the table where new regulations are crafted, allowing them to nudge those regulatory updates away from unduly harming their core businesses.

There are likewise strong benefits for the government in this approach. Americans may respond more favorably to private-sector actions than they do government actions. For example, Reich, Sahami, and Weinstein, authors of *System Error: Where Big Tech Went Wrong and How We Can Reboot*, note that while government actions in the technological or surveillance space often incur backlash, similar actions by private companies rarely do.[319] Marrying a public- and private-sector response to this problem echoes a similar effort in the first scenario but finds more success here because Americans are more receptive to democratic values and because the Chinese government is in relative disarray.

But regulation alone is insufficient. It is challenging for regulatory efforts to keep pace with fast-changing technology.[320] In this scenario, government and industry partner to educate the public in how to detect harmful messages and media manipulation. Focusing on education can improve the ability of media consumers to detect fake messages and resist manipulative advertising. Though recent studies have suggested a few ways to accomplish this educational goal, any specific pedagogical or andragogical suggestion is outside the

---

[319] Rob Reich, Mehran Sahami, and Jeremy M. Weinstein, *System Error: Where Big Tech Went Wrong and How We Can Reboot* (New York: Harper, 2021), 115.

[320] Reich, Sahami, and Weinstein, 261–63.

scope of this thesis.[321] Nevertheless, the studies indicate that improved media and information literacy curtails the spread of misinformation and disinformation.[322]

Another powerful method used alongside educational techniques in the scenario is gamification. As explained in an earlier discussion, gamification applies rewards and incentives to drive human behavior.[323] People in this scenario are offered reward structures for discerning when they are being manipulated.[324] Gamifying healthier media consumption makes fun what might otherwise be drudgery, and introducing joy into the effort to beat back propaganda and censorship is likely to prevent cynicism and generate positive feelings around better media habits.

The final prong of the approach is regulatory. The government in this scenario invites private companies to participate. Regulating modern technology has proved difficult, especially for more liberal countries with free markets.[325] Several approaches have been tried with mixed success. One approach, creating "regulatory sandboxes" in Taiwan and the United Kingdom, has shown that such partnerships of government with business help regulatory agencies keep up with the rapid pace of technological change.[326] In this regulatory sandbox scheme, companies present emerging technologies via proof-of-concept papers, and industry and government leaders work together to iterate the regulatory process alongside technological development. Whether by this scheme or another, the scenario portrays public- and private-sector stakeholders working together to help both.

---

[321] Joanna M. Burkhardt, *Combating Fake News in the Digital Age*, Library Technology Reports 53, no. 8 (Chicago: ALA TechSource, 2017); Theodora Dame Adjin-Tettey, "Combating Fake News, Disinformation, and Misinformation: Experimental Evidence for Media Literacy Education," *Cogent Arts & Humanities* 9, no. 1 (2022): 2037229, https://doi.org/10.1080/23311983.2022.2037229; T. Philip Nichols and Robert Jean LeBlanc, "Media Education and the Limits of 'Literacy': Ecological Orientations to Performative Platforms," *Curriculum Inquiry* 51, no. 4 (2021): 389–412, https://doi.org/10.1080/03626784.2020.1865104.

[322] Adjin-Tettey, "Combating Fake News, Disinformation, and Misinformation."

[323] Deterding et al., "From Game Design Elements to Gamefulness."

[324] The irony of manipulating people into detecting when they are being manipulated does not escape me.

[325] Araz Taeihagh, M. Ramesh, and Michael Howlett, "Assessing the Regulatory Challenges of Emerging Disruptive Technologies," *Regulation & Governance* 15, no. 4 (2021): 1009–19, https://doi.org/10.1111/rego.12392.

[326] Reich, Sahami, and Weinstein, *System Error*, 262.

The scenario also envisions establishing a global standards organization to govern media and information technology. This idea has ample precedents, including the example provided in the narrative. The IMO regularly reviews the international regulatory frameworks that make transit on the high seas a consistently safe environment for crews, passengers, and other stakeholders.[327] The IMO stands as a safeguard for global physical commerce. A similar body is established in this scenario to safeguard digital commerce by making information and communications technology a consistently safe environment for users, businesses, and governments. Those standards are then applied to the regulatory process in the United States.

International standards are an important step, but the most important regulatory action in this scenario is codifying a global data privacy standard in U.S. federal law. The current state of privacy law is governed by a scheme that the Federal Trade Commission has sought to change—called "notice and choice," or "notice and consent"—whereby customers must be told how their data are used and given a choice to opt out.[328] Some believe this guideline is problematic because, in practice, companies simply craft opaque and confusing privacy statements that almost all consumers decline to review.[329] After all, most customers simply accept the default privacy schema, even though the default is unfavorable to them.[330]

In contrast, the European Union's GDPR provides much more robust protections of user data privacy.[331] It also enumerates both how and when personal data can be used

---

[327] "Brief History of IMO," International Maritime Organization, accessed November 16, 2022, https://www.imo.org/en/About/HistoryOfIMO/Pages/Default.aspx.

[328] Aaron Boyd, "FTC Considering New Data Privacy Regulations That Go Beyond Asking Users for Consent," Nextgov.com, August 19, 2022, https://www.nextgov.com/emerging-tech/2022/08/ftc-considering-new-data-privacy-regulations-go-beyond-asking-users-consent/376081/.

[329] Reich, Sahami, and Weinstein, *System Error*, 117–20.

[330] Aleecia M. McDonald and Lorrie Faith Cranor, "The Cost of Reading Privacy Policies," *I/S: Journal of Law and Policy for the Information Society* 4 (2008–2009): 543.

[331] Stephen P. Mulligan and Chris D. Linebaugh, *Data Protection Law: An Overview*, CRS Report No. R45631 (Washington, DC: Congressional Research Service, 2019), https://crsreports.congress.gov/product/pdf/R/R45631.

and what rights the customer has to control those uses.[332] Attempts to pass similar nationwide protections in the United States have failed, though the state of California has successfully passed its own version of the GDPR, called the California Consumer Privacy Act (CCPA).[333] Other states are starting to follow this lead and pass laws like the CCPA, but some experts worry the resulting regulatory patchwork is likely to create confusion if the federal government fails to adopt a common standard.[334] This scenario envisions federal adoption of a unified standard, one that is both shared with the rest of the democratic world and flexible enough to keep pace with new disruptive technologies.

C.   CRIMINAL THREATS

One of Trask's online stores is down again. Trask's engineering team assures him it will be back up in under an hour.

For the past several months, a series of criminal ransomware attacks and attempted data thefts have plagued the operations of several companies participating in the data protection group Emil Trask helped launch. Zoot is the latest casualty, though the damage from this attack is minor and recovery will be complete in a couple hours. More troublesome are indications of a partial breach of the user profile service, the AI-driven cataloging and prediction engines that drive advertising and identity verification on Zoot.

When joining the data protection community, Trask expected a negative public response from China, but the anticipated legal and regulatory attack on his core businesses never materialized. Instead, surprisingly, the Chinese government publicly retreated from its demands of Zoot and other media companies. What's more, several local Chinese officials issued self-criticisms and resigned from their positions.[335] Trask not only is free

---

[332] Mulligan and Linebaugh.

[333] Eric N. Holmes, *California Dreamin' of Privacy Regulation: The California Consumer Privacy Act and Congress*, CRS Report No. LSB10213 (Washington, DC: Congressional Research Service, 2018), https://crsreports.congress.gov/product/pdf/LSB/LSB10213.

[334] Mulligan and Linebaugh, *Data Protection Law*; Cecilia Kang, "Tech Industry Pursues a Federal Privacy Law, on Its Own Terms," *New York Times*, August 26, 2018, https://www.nytimes.com/2018/08/26/technology/tech-industry-federal-privacy-law.html.

[335] Self-criticism is a Maoist practice that is exactly what it sounds like: people publicly criticize themselves. The practice has regained currency under the premiership of President Xi.

104

to continue selling his scooters in China but has also been invited to build versions of popular O2O services in several Chinese cities.

Instead of furious sanctions, there appears a shadow campaign of criminal hacking aimed at companies associated with the data protection movement. Only some of these attacks are traceable to China. The emerging pattern is one of pervasive minor attacks aimed at low-impact commercial operations. Only recently have the ransomware attacks and digital heists been aimed at targets as large as Trask's Zoot.

Almost every attack seems to be aimed at one thing: collecting data and user profiles from Zoot's identity verification engine. These data are intensely personal. They are also informative fodder to feed predictive AI tools. Whereas ransomware attacks punish companies like Zoot with financial losses, successive data breaches pose a much larger threat. It seems that some countries are looking for ways to obtain the data they need through clandestine means.

* * *

The Chinese response to Western pushback against diplomatic and commercial pressure in this third scenario is tepid and disorganized. The national government backs down and forces local officials to follow suit. The in-scenario reason for this shift is domestic politics in China. While local officials are most concerned with recapturing economic growth, the national government is focused on regime stability following the loss of President Xi. In propping up a weakened regime and failing to capitalize politically on a fight against annoyed Western powers, China forces a tactical withdrawal from local posturing around national security laws. The message to businessmen like Trask is not "obey or else" but "we are open for business." This message follows a pattern in China's communist regime since Mao's aggressive reshaping of China, whereby subsequent leaders like Deng Xiaoping have connected with the West to lower the commercial and diplomatic temperature and leverage foreign capital and foreign technology.[336]

---

[336] Michael Pillsbury, *The Hundred-Year Marathon: China's Secret Strategy to Replace America as the Global Superpower* (New York: Henry Holt, 2015), 99–114, 177–96.

105

As the national government cools the regulatory temperature, criminal elements move into the void. These criminals take advantage of gaps in Western cybersecurity to weaken businesses and enrich themselves. This behavior is not unusual; such attacks are a constant cost of doing business, with one report estimating a new attack every 11 seconds in 2022.[337] But there is a purpose beyond extracting a monetary ransom. The attacks in this scenario also include data breaches. Chinese efforts to develop AI need data to keep pace with Western efforts. In the scenario, criminals steal user data for state-supported entities that seek through illicit means what diplomatic and commercial pressure has failed to obtain.

There is precedent for such data thefts. In 2021, a prominent China-sourced data breach of Microsoft Exchange email servers was made public, and experts suggest its purpose was to gather data for AI training.[338] In this scenario, after coercion fails, China's local state-owned enterprises revert to hacking, a less overt and less diplomatically risky method of obtaining the information they need. Western businesses need to maintain a vigilant cybersecurity posture, a task helped by regulators adopting stringent and adaptive privacy protection standards.

D.   POSITIVE RESULTS

As election returns arrive and early calls are made, the prominent trolling efforts leading up to this election are proven ineffectual. Emil watches one set of pundits pause a discussion of exit polling to consider those efforts, and why they failed. The growing consensus is that the new American electorate comprises more sophisticated media consumers, and the old methods of propaganda that Russia pioneered in the 2010s have crumbled against a savvier electorate.

Emil knows that it's not that simple. His data privacy group worked tirelessly the previous year to lobby for important legislative changes. For one, a new federal data privacy law prevents the disclosure of certain user profiles to foreign actors, among other

---

[337] Ivana Vojinovic, "Ransomware Statistics in 2022: From Random Barrages to Targeted Hits," DataProt, November 16, 2022, https://dataprot.net/statistics/ransomware-statistics/.

[338] Temple-Raston, "China's Microsoft Hack."

proscriptions. Another grants the Cybersecurity and Infrastructure Security Agency (CISA) both a data privacy protection mandate and a law enforcement mandate with criminal and administrative enforcement powers.

The impact of these events is clear to Trask. If foreign trolling operations lack sufficient data on the electorate, they are clumsy and inadequate. If the voters are educated about how to spot manipulative media and come to see spotting such manipulation as a game, they are much less likely to be swayed. And if government and the private sector work together to improve the functioning of democracy, it creates a healthy environment in which business can more easily thrive.

Sure, his businesses may have occasionally harvested slightly lower quarterly earnings at times because of new government restrictions on user profiles and data sharing. Maybe savvier consumers are more difficult marketing targets. But the impact of a stable democratic system in which to grow his businesses has, in his calculation, more than made up for any such theoretical short-term loss of efficiency.

* * *

Emil Trask ends the scenario with an introspective look at why bolstering democracy and pushing back against autocratic demands can in the long term be good for business. His personal ruminations are echoed in the theories of current business and political thinkers.[339]

In this scenario, a lack of usable data and a less mature technological base prevent foreign powers from successfully manipulating the American electorate. China, the stand-in for a foreign aggressor here, fails on multiple fronts to obtain data that would help it better understand and target Americans. It initially fails to coerce data from American companies, and it subsequently fails to steal sufficient data or technology to make up for

---

[339] Carl Henrik Knutsen, "A Business Case for Democracy: Regime Type, Growth, and Growth Volatility," *Democratization* 28, no. 8 (2021): 1505–24, https://doi.org/10.1080/13510347.2021.1940965; Carl Henrik Knutsen, "Playing the Long Game: Why Democracy Is Good for Business," *The Loop: ECPR's Political Science Blog*, June 30, 2021, https://theloop.ecpr.eu/playing-the-long-game-why-democracy-is-good-for-business/; Rebecca Henderson, "Business Can't Take Democracy for Granted," *Harvard Business Review*, January 8, 2021, https://hbr.org/2021/01/business-cant-take-democracy-for-granted.

that shortfall. The first of these failures is due to a strong public–private response to autocratic pressure on business. The second failure is due to a strengthened regulatory environment where companies work together with government regulators to craft standards that are common, scalable and adaptable and make sense for businesses and consumers alike.

Another thing impacting the ability of foreign adversaries to nudge democracy is that CISA is granted criminal and administrative enforcement powers. The agency is currently empowered only to investigate and advise, but it cannot enforce its recommendations, nor can it seek criminal penalties or fines for those who violate U.S. laws. Empowering CISA to enforce data protection standards improves outcomes in this scenario.

E.   DISCUSSION

This final scenario follows the experiences of a fictional business magnate to discover whether and how the public and private sectors can work together to protect liberalism and democracy from outside attack. The narrative's "what-if" depends on the reversal of three current trends. First, it shows a slowdown from the current pace of AI development. Second, it shows a China forced to focus on domestic political difficulties rather than on its global image. Finally, the threats to democracy and liberalism that many contemporary observers fear are stalking the United States fail to materialize. Each of these mirrors the critical uncertainties that bound the scenario volume, and each, to a varying degree, involves a plausible reversal of the current trends at time of this writing in 2023. This scenario is not necessarily a best case, but it is a better one.

1.   A Slower Pace of AI/ML Development

Of the three scenarios, this one has the lowest level of advancement in Chinese AI/ML technology. There are several reasons for this choice, but note that in this narrative, the level of AI sophistication in the United States remains unknown. Here, lagging AI development is assigned only to Chinese industry. The slowdown could be a product of lackluster economic recovery following the COVID-19 pandemic, disjointed leadership at

108

local and national levels of Chinese government, structural inhibitions on China's technological growth, or a combination thereof.

In this scenario, the COVID-19 pandemic causes a downturn in China's economic growth relative to the rest of the world. This could have a range of meanings, and the details are intentionally left vague. It could imply a China in recession, or it could mean that China's growth has slowed only enough to hold it back relative to the West. Which case is true is unimportant, and it is useful to leave it as a relative measure instead of an absolute one. The intentional ambiguity prevents artificially limiting the scenario's breadth.

Regardless of whether the economic downturn is a recession or merely sluggishness relative to other countries, one likely consequence is lagging Chinese investment in advanced technology. The dip in investment prevents this version of China from maintaining a rapid pace of AI development. The Chinese government is forced to focus on more pressing expenses like civil construction, the social safety net, and propping up the regime amid an increasingly restless middle class. This shift in focus causes a technical debt in AI development relative to the West.

Another possible reason for a slump in AI development could be that it is a worldwide phenomenon. There is precedent for such a scenario. The development of AI over the past several decades has been marked by a cycle of long stagnant periods followed by sudden breakthroughs.[340] As those breakthroughs are exploited in new markets and industries, fundamental AI research hits another plateau, and future progress slows. As of 2022, the most recent breakthrough centers on deep learning and neural nets are made possible by corresponding innovation in computing hardware.[341] These breakthroughs are being exploited in a growing array of contexts such as finance, insurance, marketing, supply chain management, policing, and medicine. There is no clear sign that a slowdown will happen between 2023 and the scenario time horizon of the early 2030s, but some fear

---

[340] Lee, *AI Superpowers*, 6–10.

[341] Lee, 6–10, 161.

current progress may not be sustainable without significant concurrent improvements in computing hardware.[342]

The advances in computing hardware necessary to fuel AI development is a problem for China. While China is a world leader of hardware, it lags countries like Taiwan and the United States in its ability to manufacture advanced chips of the type needed for high-end graphics processing or deep learning.[343] AI deep-learning algorithms are complex. The Generative Pre-trained Transformer, model 3 (GPT-3), for example, is an AI tool that produces human-like text given simple prompts such as "write an essay about democracy."[344] GPT-3 was fed 45 terabytes of training data through a neural net 96 layers deep. For context, a single terabyte of data can store 17,000 hours of digital music or 310,000 digital photographs.[345] Processing this volume of data requires semiconductors capable of high volume calculations, and China currently lacks the ability to make them.[346] Even worse for China, in 2022, the Biden administration made it harder for the country to procure the necessary hardware by placing export controls on certain types of semiconductors.[347] Some, including prominent Chinese policymakers, see China's inability to manufacture these types of semiconductors as the main obstacle in its AI software development efforts.[348]

[342] Karl Berggren et al., "Roadmap on Emerging Hardware and Technology for Machine Learning," *Nanotechnology* 32, no. 1 (October 2020): 012002, https://doi.org/10.1088/1361-6528/aba70f.

[343] Saif M. Khan and Carrick Flynn, *Maintaining China's Dependence on Democracies for Advanced Computer Chips* (Washington, DC: Brookings Institution, Center for Security and Emerging Technology, 2020), https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_computer_chips_khan_flynn.pdf.

[344] Luciano Floridi and Massimo Chiriatti, "GPT-3: Its Nature, Scope, Limits, and Consequences," *Minds and Machines* 30, no. 4 (2020): 681–94, https://doi.org/10.1007/s11023-020-09548-1.

[345] Kelly Brown, "A Terabyte of Storage Space: How Much Is Too Much?," *Information Umbrella* (blog), July 8, 2014, https://aimblog.uoregon.edu/2014/07/08/a-terabyte-of-storage-space-how-much-is-too-much/.

[346] Khan and Flynn, "China's Dependence on Democracies for Advanced Computer Chips."

[347] Ellen Nakashima, Jeanne Whalen, and Cate Cadell, "U.S. Imposes Tough Rules to Limit China's Access to High-Tech Chips," *Washington Post*, October 7, 2022, https://www.washingtonpost.com/technology/2022/10/07/china-high-tech-chips-restrictions/.

[348] Xiang, *Red AI*, 132–42.

2.   A Less Aggressive China

This scenario's lagging economy does more than just slow investment in computing. It also forces the Chinese government to reevaluate its priorities. The narrative consequently depicts a more timid nation than President Xi's China of the early 2020s.

As with plateaus in AI development, there is precedent for China's pulling back from an aggressive to a passive diplomatic stance. Following the excesses of Chairman Mao's cultural revolution, his successor, Deng Xiaoping, took a series of steps meant to calm domestic politics and present a mirage of openness to the West. This sudden openness allowed China to quickly improve its economic and technological development from the industrial knowledge, products, and capital flowing in from an America eager to build an Asian counterbalance to the Soviet Union.[349] One maxim, considered the cornerstone of Deng's foreign policy, translates to "hide your capability and bide your time."[350] According to some experts like Michael Pillsbury, China followed this philosophy for decades, using Western benevolence to obtain technology and realize unprecedented economic growth while preventing any concurrent encroachment of liberalism within its population.

In this scenario, China's pullback from a previously aggressive stance is partially caused by a relatively weak economic position. The unexpected passing of President Xi Jinping with no clear successor also weakens the national government and party apparatus. That weakness forces them to consolidate their power and prevent the appearance of party disunity by reining in ambitious local leaders. In this scenario, the sudden and unexpected transition of national leadership provokes caution among national leaders and diplomats, cueing them to back down from prior demands in the face of a unified Western front.

The threat that this Western pushback poses to an already weakened economy also presents an opportunity for national leaders in China to consolidate power by weakening potential rivals in lower levels of government. The narrative contains anecdotes of local

---

[349] Pillsbury, *The Hundred-Year Marathon*, 99–114.

[350] "Deng Xiaoping's '24-Character Strategy,'" Global Security, accessed September 12, 2021, https://www.globalsecurity.org/military/world/china/24-character.htm.

leaders' not only pulling back from aggressive commercial and legal demands but also issuing self-criticisms in the Chinese media for their aggressive overreach. Such self-criticisms are a tool of political power among the Chinese elite, used under Xi's regime to discipline CCP cadres and leaders who stray from orthodoxy.[351] The public loss of face by officials forced to issue such statements often ends their political and business careers. To a new generation of national leaders seeking to consolidate their personal control, pulling back from the Xi government's characteristic disputatiousness is an opportunity to assert dominance over foreign policy and local leadership in one stroke.

3.   A Stronger U.S. Democracy

This scenario ends with a relatively positive outcome for liberal democracy in the United States, one especially preferable to the disaster seen in Scenario Two. The positive outcome is partly due to factors outside of U.S. control, but the primary driver of the good ending is the resilience shown by American democracy.

That resilience is characterized by healthy engagement across government and the private sector, bipartisan unity of effort toward solving important issues, strong civic education aimed at all ages of Americans, and leadership on the global stage. All these positive traits have been displayed in the United States to varying degrees since the Second World War. But as the literature review in Chapter I revealed, some experts who fear democratic regression in the early 2020s are warning that those traits are weakening while illiberalism grows.

Scenario Three outlines a world where the perceived illiberal trend in American politics reverses. That reversal is made manifest not only among politicians and government officials but also among the general population, business, and even Emil Trask, the main character. Rather than a weakened democracy, preoccupied with partisan strife and fights over election validity, this version of the United States has the political

---

[351] Yuanyuan Liu, "Staging Repentance: A Discourse Analysis of Mediated Confession in Xi Jinping's First Five-Year Term," *Journal of Current Chinese Affairs* 47, no. 3 (2018): 17–45, https://doi.org/10.1177/186810261804700302.

and moral bandwidth to defend liberal principles of free speech, privacy, and association, both domestically and overseas.

The scenario hints at one method used to strengthen liberalism: education. In the narrative, the population is armed with tools of discernment in the face of media hostile to liberal ideals. This comes from formal education of students, media education of citizens, and using gamification as a tool to nudge Americans toward healthier media habits. At the same time, a change has occurred in business education.

In the early 21st century, business schools faced criticism for focusing on short-term profits at the expense of nearly everything else.[352] According to critics, social responsibility, research and development, employee welfare, and even long-term viability have become secondary to chasing quarterly stock price fluctuations. But there are indications that some business theorists and researchers in the 2020s are staking a position that balances short-term profits with long-term gains. This scenario envisions that trend taking hold and continuing, and it examines how that comportment would impact the fraught relationships between companies, customers, and the government. It is possible that such a trend would not only be good for democracy but also have positive impacts on the long-term health of American businesses.

F.   BUILDING SCENARIO THREE

The third scenario, while not strictly a best case, may be considered a better case, especially given its outcome relative to the other two. It is situated on the same three axes as the other two scenarios, as shown in green in Figure 9.

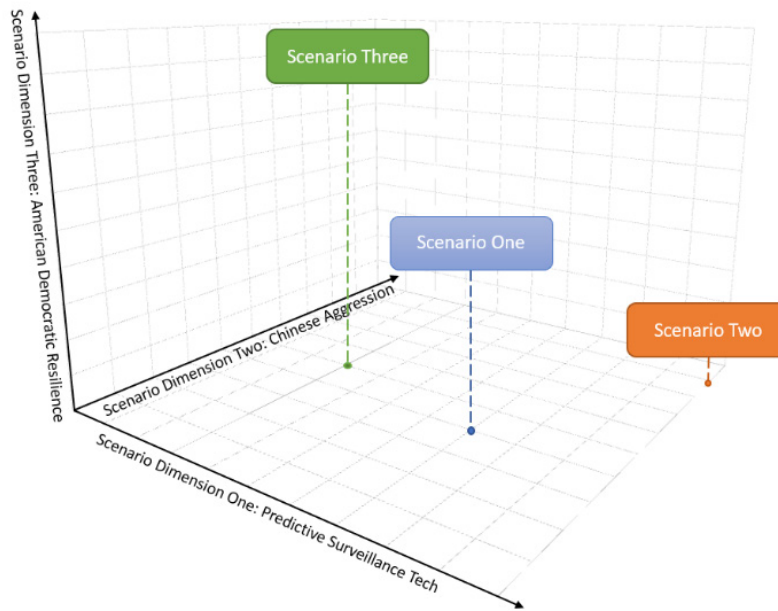[352] Rubin and Dierdorff, "Building a Better MBA."

Figure 9.   Scenario Three's Position in the Scenario Volume

As Figure 9 shows, this scenario is most remarkable in the strength of American democracy. It assumes the highest plausible level of democratic resilience paired with a moderate level of Chinese aggression and a low level of technological capability. Note that while China begins the scenario aggressively, it later backs down to a less aggressive stance when the United States leads democracies in pushing against autocratic demands. The resulting narrative highlights how a strong American democracy is more likely to experience positive outcomes than scenarios where liberalism is receding.

VI. FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Chapter I described the world of 2023 as one where the complex interplay between technology, autocracy, and democracy presents opportunities and challenges to autocrats and liberals alike. That world includes increasingly pervasive surveillance that can be used by businesses and governments to monitor, categorize, predict, and ultimately manipulate human behavior on a grand scale. Viewing this ability to manipulate behavior through a homeland security lens raised an interesting question: How could a foreign adversary like China use this technology to nudge Americans away from the tenets of liberal democracy?

That primary research question supported a set of more specific sub-questions. The first of those sub-questions addressed technological maturity: Will future technology be capable of changing how Americans think? The second sub-question asked, How could a country like China use that technology to weaken American democracy? The third forced an introspective look at the American voter: To what extent are Americans susceptible to the kinds of attacks that the first two sub-questions imply? This thesis sought to answer this set of questions for policymakers and the public at large.

The investigation examined three plausible alternative futures, testing a set of critical future variables: the technological maturity of data capture and AI, foreign aggression, and democratic resilience. Setting these variables to different intensities resulted in narratives that highlighted challenges and benefits across a wide range of plausible futures. Those fictional narratives exposed a set of findings and conclusions that together have led to several recommendations. These findings, conclusions, and recommendations are addressed in this final chapter.

The future is infinitely diverse and unknowable, but a disciplined examination of trends illuminates paths it may take. The future scenarios presented in this thesis were not meant to be predictive nor static. Instead, they were a sort of mental wind tunnel that illuminated how policy decisions made today could impact the future world. That wind tunnel dynamically applied the cycle of reframing and reperceiving described in Chapter

II. As time passes and trends change, the logic bolstering each scenario will also inevitably change, opening up new possibilities and new questions.

A.   FINDINGS

Each scenario examined a different configuration of the future, and the resulting fictional narratives suggest findings and conclusions that can be examined and addressed today. These three future scenarios were built by assessing current trends for variability and potential impact. Observers and policymakers can watch each of these trends as time passes, monitor to see whether reality is converging on one or the other of these plausible realities, and adjust the findings to account for that convergence. Reframing the future to reperceive the policy challenges of the now does not end with the findings, conclusions, and recommendations offered here.

1.   In the Future, Transformative AI Could Be Used to Target Individuals for Tailored Radicalization.

Karnofsky's definition of *transformative AI* can be summarized as that which moves beyond human comprehension and uses digital surveillance to understand people better than they understand themselves.[353] These deep insights into a person's motivations are the fuel needed for a machine designed to alter human behavior. Current advances in both digital surveillance technology and AI tools are approaching the Karnofskian definition of transformative.

The second scenario, Jennifer's story of radicalization, shows how an individual can be identified, targeted, and successfully nudged by such a transformative set of AI tools into previously uncharacteristic patterns of behavior. In Jennifer's case, her new patterns of behavior are uncharacteristic, unlikely to emerge without an external influence, and highly destructive to American democracy. These new behavioral patterns emerge because a transformative set of AI tools targets her mindset and behavior, both online and offline. The same scenario eventually shows the consequences of utilizing this technique on a

---

[353] Karnofsky, "Advanced Artificial Intelligence."

massive scale to change population-wide behavioral patterns by tailoring nudges to the individuals who form them.

2. China Successfully Changes American Democracy in Two of the Three Scenarios.

Two of the three scenarios show China successfully changing American democratic values including free speech, free association, laissez-faire capitalism, and free and fair elections. One scenario, Emil's story, has a positive outcome. In that scenario, business and government work together to actively defend Western democratic values. One scenario, Jennifer's story, ends in a democratic catastrophe that halts the peaceful transition of government. And the third scenario, Li Weiguo's story, has a more ambiguous ending. Despite that ambiguity, even if Weiguo's employer, Skant, refuses to succumb to pressure from China, the data in the literature review and in discussion of that scenario make clear that other companies like Skant will do exactly what China demands. Repeated over time by dozens or hundreds of firms, bowing to that pressure will chill democratic values, especially free speech.

3. Chinese Success or Failure Hinges on Three Factors.

Each scenario assigns a different value to the set of three fundamental variables: the maturity of the technology, the strength of the attack, and the resilience of the United States. The first factor, the maturity of the technology, is less determinative than the other two factors in the outcome. In all three scenarios, regardless of technological capability, China relies more heavily on commercial pressure or social pressure (*guanxi*) to drive political discourse. The second and third factors, on the other hand, are interrelated and together highly correlated with the success or failure of any attack on democracy. The second factor, the strength of the assault, is highly correlated with success. This finding is intuitive. When an adversary is competent and expends more effort in a contest, the likelihood of a successful attack generally increases. The third factor, American democratic resilience, is also highly correlated with success. The second and third factors work together, contrasting the effectiveness of the offense versus the effectiveness of the defense. Emil's story shows how a weak and disorganized Chinese government will be

117

hard-pressed to find any advantage against a resilient United States. Jennifer's story shows quite the opposite.

4.   **Americans Lack Control of Important Personal Data That Could Be Used for Commercial or Government-Driven Behavioral Influence.**

All three scenarios include attempts to target Americans individually to elicit different behaviors. These nudges are enabled by the combination of modern internet communications technology, pervasive data surveillance, and AI data analytics. In all three scenarios, the targets' lack of control over personal data makes them more susceptible to influence or nudges.

The first scenario's main character, Weiguo, is identified by AI monitors and assigned to AI content generators (trolls) that work to drown out his message. Once he is identified, his behavior is a data point used by yet another set of AI algorithms to assess his employer's ideological trustworthiness in China. Every step of this process relies on technological maturity for its success.

China acutely understands Jennifer in the second scenario because she voluntarily provides intimate data about her personal life, her beliefs, and her emotions via the apps on her augmented reality glasses. These data points are used by an AI to build a target profile for her, a profile used to tailor nudges that work specifically for her. Without that level of data collection, any effort to tailor messages for Jennifer would have been less effective.

China targets Marvin Chen, the U.S. government agent in Jennifer's story, because his profile tags him both as law enforcement and as a suitable target for family pressure. Interestingly, much of the data gathered about him comes from a source outside his control: Jennifer's personal and electronic surveillance of him in public. Pervasive data capture can provide the collector with meaningful insights even when the data are collected in indirect or incidental ways.

In the final scenario, China targets Emil to obtain the kind of data used in the other two scenarios. It is not his personal data that makes him a target. China is interested in his

access to data about other Americans, presumably so it can use the information in ways like those suggested in the other scenarios.

In every scenario, the aggregate of data collection is either used or sought as a way of accomplishing several important tasks. One of these is the training of AI algorithms, which draws connections within large data sets. Another is to understand what motivates individuals and predict how they might act. Finally, data empower the targeting of individuals, whether through technologically empowered hypernudging or for good old-fashioned commercial and social pressure.

Each scenario illuminates the importance of personal data. When pervasive surveillance pairs with AI analytics, it enables new ways to understand and influence people. In the scenarios, China uses these new methods and tools to attack democracy.

5.   Global Internet Business Models May Threaten Modern Democracies.

All three scenarios include aspects of the interrelationship between personal freedoms and the fiduciary duties of modern corporations to maximize value for their shareholders. The friction in this interrelationship is most stark in Weiguo's story, which centers on a company's efforts to balance its duties to an employee against its duties to its shareholders. While the ending to Weiguo's story is ambiguous, it is difficult to imagine a modern corporation in a similar dilemma siding with a single employee over the profit motive. Such a situation is unlikely because companies, especially public corporations, have a legal and moral responsibility, as stewards of their shareholders' investments, to maximize profits. In Skant's case, backing Weiguo would be a costly proposition.

While Emil's story in the last scenario has a more desirable ending—and one more straightforward than Weiguo's—Emil's scenario, like Weiguo's, shows the results of the friction between a corporation's profit motive and a host government's political ideology. Emil and his contemporaries decide that the long-term profit motive in their case requires them, as business leaders, to side with the stronger government. It just so happens that in Emil's scenario, the United States appears stronger and has the stronger market presence. America's relative economic and political strength in Emil's scenario enables businesses like his to decline Chinese directives.

119

Jennifer's story in the second scenario is different from the other two stories. In Jennifer's future, the companies collecting and transferring her data to the government are based in China, perhaps even state-owned entities, and are subject to China's national security directives. In China, the fiduciary profit motive is legally subordinate to a company's national security imperative; put simply, Chinese companies are expected to support the government's projects even if their cooperation costs them money. This dynamic illustrates how foreign companies can have different motives from Western corporations.

6.   Technology Could Be Used to Alter Discourse.

In each of the three scenarios, internet communications technology plays an important role in informing people, altering their views, and eliciting behaviors. This is true whether the outcome is bad or good for democracy. Alongside this use of internet communications, in each scenario, the government attempts to obtain data collected through incidental internet use. The government's intends to leverage the data to drive discourse in a variety of ways.

In Weiguo's story in the first scenario, Chinese AI monitors social media and targets certain messages for attack. The Chinese government's goal in that example is to control global discourse about itself and, to a lesser degree, about democracy. The CCP escalates a pressure campaign against messages like Weiguo's, using counter-narratives, internet trolling, commercial pressure against employers, and finally social credit score downgrading of people associated with disfavored messages.

Jennifer's story in the second scenario offers the clearest warning of how technology could be used effectively to alter discourse, mindset, and behavior. In Jennifer's scenario, the CCP uses internet data surveillance to capture sufficient personal data about Americans like Jennifer to build and expand individual profiles about them. It uses those profiles to select amenable targets for a series of radicalizing nudges. As continuous data surveillance of the subject shows the nudges succeed or fail, those nudges are tweaked in

an incremental, continuous improvement process, or hypernudge.[354] This hypernudge process results in irreparable damage to a U.S. federal election at the hands of Jennifer and several hundreds or thousands of people like her. It is unlikely most of these targets would have displayed these radical behaviors without China's technologically driven interventions.

Internet tools are not necessarily good or bad for democracy. Emil's story in the third scenario shows how a government can partner with business, using the tools of internet discourse to strengthen democracy. In the scenario, Emil Trask and others like him partner with Western governments to improve democratic discourse, inform citizens, and educate consumers about how much their internet devices shape their thinking and behavior. The public–private partners gamify this educational process, making the learning pleasurable and nudging more engaging with the positive, democracy-strengthening content.

B. CONCLUSIONS

The set of findings in the previous section provides answers to the set of questions posed by this thesis:

How could China use modern AI and data tools to nudge the United States away from liberal democracy?

1. Could a future adversary like China possess the technological tools to change American sociopolitical thought?

2. How could a country like China use modern internet communications technology to weaken American democracy?

3. To what extent are Americans susceptible to outside attacks on liberal democracy?

The following conclusions are organized to clarify the answers in an integrated way rather than addressing each question in turn. But the chief conclusion is that the threat

---

[354] Yeung, "Hypernudge."

exists. The level of risk associated with the threat is bounded by the three scenario variables: technological maturity, intent and aggressiveness of an attacker, and the resilience of American democracy.

1.   Intrusive Data Surveillance Is a Threat to Democracy.

The primary question of this thesis is how a foreign adversary could use internet technology to nudge American discourse. The answer is this: by leveraging the unique information that modern data surveillance tells the data collector about individuals. This information, often collected without the subject's knowledge, could be used to build a detailed, unique, and verifiable profile that predicts the subject's preferences, actions, and reactions to stimuli.

The literature review in Chapter I included a section on the power of surveillance technology, describing how internet businesses apply pervasive data surveillance. When paired with AI-driven data analytics, this surveillance enables new ways of motivating people to change their behavior. While the resulting virtual panopticon more often serves the imperatives of commerce than the demands of a government, some autocratic governments seek to change that. China, for example, works to connect user data profiles with physical surveillance from cameras, voice and facial recognition, and location tagging. If successful, this effort would allow the government to build detailed dossiers on the social, economic, and ideological behavioral patterns of individual people and companies. The Chinese ambition to create this ecosystem, known as the SCS, means that seeking anonymity or vanishing into the crowd may soon be impossible in many parts of the world.

One way this phenomenon could pose a risk to democracy involves the data being used by AI tools to predict and manipulate ideological behavior as well as commerce. Weiguo's and Jennifer's stories in the first and second scenarios both explore different ways that AI data analytics could be leveraged to alter discourse in the United States. The marriage of AI data analytics with attempts to motivate people's actions becomes a so-called hypernudge, a series of nudges that uses feedback mechanisms to improve

122

success.[355] These hypernudges can alter human thought, behavior, and values more effectively than mere propaganda.[356] Jennifer's descent into radicalism is an extreme example of how such hypernudges could fundamentally alter political discourse.

2. China Has Multiple Levers Available to Influence American Thought.

China also possesses less-technical means of influencing American discourse, including commercial pressure, family and cultural obligation, media pressure, and brute-force internet trolling. While this conclusion applies specifically to China (Iran and Russia, for example, lack the considerable commercial leverage that China can apply), it is worth noting given how impactful China's non-technological leverage is throughout the three scenarios.

The literature review detailed China's attempts to alter discourse and cataloged a long history of the CCP's using commercial pressure not only to censor domestic speech but also to seek control of overseas discourse about itself. Li Weiguo's story in the first scenario shows how the media and entertainment sectors can be particularly susceptible to this style of manipulation. No fictional narrative is necessary to highlight this point. Examples of China's attempts to control overseas discourse around taboo subjects include decades of Hollywood censoring, punishing companies for their leaders' statements, and organized boycotts of actors, musicians, and artists.[357] All three scenarios include this pressure to alter discourse.

The CCP also deploys family, social, and cultural obligations. The second scenario's story of the American agent, Marvin Chen, shows one of many ways Chinese leaders could influence the diaspora both directly and indirectly. According to Diamond and Schell, sometimes this influence comes from cultural or academic exchange groups or through CCP ownership of Chinese-language media in Western nations.[358] Other times, it

---

[355] Yeung, "Hypernudge"; Stuart Mills, "Finding the 'Nudge' in Hypernudge," *Technology in Society* 71 (2022): 102117, https://doi.org/10.1016/j.techsoc.2022.102117.

[356] Mills, "Finding the 'Nudge' in Hypernudge."

[357] Bartz et al., "China Pressures Foreign Companies to Fall in Line on Protests"; O'Connell, "Silencing the Crowd"; Schwartzel, *Red Carpet*.

[358] Diamond and Schell, *Chinese Influences & American Interests*, 39–50.

123

takes the form of a direct appeal to *guanxi*: social obligation to family, to a community, or to the greater good. Marvin Chen, the federal agent investigating Jennifer's group in the second scenario, experiences this pressure. So do students who come to the United States from China to conduct research only to be pressured to return their research and expertise to China.

Another method China uses to control overseas discourse is brute-force social media trolling. While Chinese trolling activity may be less aggressive than efforts from countries like Russia or Iran, China's 50 Cent Army is often effective at drowning out messages it prefers that others not hear.[359] Steve Bannon famously advocated a similar strategy for controlling the U.S. media by suggesting right wing propagandists and activists should "flood the zone with shit."[360]

All these levers are available to a Chinese adversary wishing to alter American discourse. None of them require new technological advances, but technology could strengthen them. The scenarios show how an aggressor could combine these levers with new technological tools like AI to more effectively change how Americans think and act.

3.   American Corporations Are Susceptible to Foreign Nudging.

The place and participation of corporations in American political life form a complex debate, covered broadly in Chapter V. Weiguo's employer, Skant, illustrates the risks posed by corporate motivations in the first scenario. Emil's companies in the third scenario offer a more hopeful counterpoint. Together, both scenarios show how America's largest businesses are uniquely situated both to help and to harm democracy.

The discussions of those two narratives in Chapters III and V described the debate among business theorists and teachers about the proper orientation of corporations vis-à-vis social responsibility. Most large American businesses will say they support social

---

[359] Fedasiuk, "A Different Kind of Army."

[360] Sean Illing, "'Flood the Zone with Shit': How Misinformation Overwhelmed Our Democracy," *Vox*, January 16, 2020, https://www.vox.com/policy-and-politics/2020/1/16/20991816/impeachment-trial-trump-bannon-misinformation.

responsibility and sustainable business practices.[361] But evidence suggests these lofty principles are regularly subordinated to short-term quarterly earnings.[362]

The practical effect of the debate between pursuing long-term sustainability versus chasing short-term profits influenced the scenarios in this thesis. Emil's actions in the final scenario suggest how business might positively impact society and democracy if that argument landed on the side of sustainability and social responsibility, while the outcome of the first scenario's status quo is more darkly ambiguous. There is space here for corporations to reorient and work with government to the mutual benefit of business and society, but it is by no means certain (or even likely) that this reorientation will happen any time soon.

4. Online Stimuli Could Prod Offline Actions.

These three scenarios indicate that AI/ML tools are changing how people experience the world. In the first scenario, text recognition AI alerts Chinese regulators to unfavorable content, and AI text generators are used to troll and drown out that content in the real world. Jennifer's story in the second scenario is the most dramatic example of AI's changing human interaction. Its marriage of AI-empowered social media to advanced augmented reality hardware causes profound changes in how Jennifer and thousands of people like her behave in the real world. Emil's experiences in the final scenario show how AI applications can be used to teach people better media consumption habits by deploying benevolent nudges and gamifying healthier media consumption habits.

Each of the three scenarios in this thesis contains some variant of online stimuli generating offline actions. In the first scenario, AI monitoring prods government officials to threaten Skant Media into silencing Weiguo. In the second scenario, Jennifer is radicalized, along with thousands of other Americans, to violently assault the workings of democracy. And the final scenario has two examples: Emil's O2O businesses and the American public–private response to China's online media manipulation.

---

[361] Tim Stobierski, "Types of Corporate Social Responsibility to Be Aware Of," *Business Insights* (blog), April 8, 2021, https://online.hbs.edu/blog/post/types-of-corporate-social-responsibility.

[362] Ghoshal, "Bad Management Theories."

125

This transition from online ideas to offline action is probably a morally neutral phenomenon, just as the printing press has produced both birth certificates and death warrants. But it informs a novel set of policy problems. People are moved by ideas, and the speed at which ideas now propagate online can cause headaches for governments when people are moved to act on them. That is especially true when the ideas being propagated are false or otherwise harmful, as many nations learned during the COVID-19 pandemic. Governments should remain keenly aware of that interplay between the virtual and physical worlds and work to anticipate and counteract negative impacts.

5. American Democracy Might Be as Vulnerable to Physical Attack as It Is to Ideological Attack.

One surprising finding, given the technologically focused problem space and research question, is that American elections might be vulnerable to a broadly coordinated physical attack. As Jennifer's story unfolds in the second scenario, it becomes clear that no consolidated kinetic defense exists at the American polls. There are efforts at federal, state, and local levels to plan for holding elections during negative events like natural disasters.[363] However, existing contingency plans for election disaster recovery may be insufficient to maintain public confidence when elections are inevitably disrupted physically by either a major disaster or widespread violence.

The narrative in Scenario Two is intentionally extreme and unlikely to occur precisely the way it is presented, but the danger of physical attacks on polling places and election counting is real and may be growing. In 2021, several men plotted to kidnap the governor of Michigan, try her for crimes against the U.S. Constitution, and overthrow state and local governments to build a self-sufficient society.[364] Armed vigilantes stalked the

---

[363] "Clearinghouse Resources for Election Officials: Disaster Preparedness and Recovery," U.S. Election Assistance Commission, accessed November 17, 2022, https://www.eac.gov/election-officials/disaster-preparedness-and-recovery.

[364] Bill Chappell, "Three Men Are Convicted of Supporting a Plot to Kidnap Michigan Gov. Gretchen Whitmer," NPR, October 26, 2022, https://www.npr.org/2022/10/26/1131607112/michigan-governor-gretchen-whitmer-kidnapping-convictions.

polls in parts of Arizona during the 2022 federal election.[365] And the husband of the speaker of the U.S. House of Representatives was beaten with a hammer in their home by a man apparently motivated by politics.[366] While the narrative story in Chapter IV is extreme, it simply amplifies an existing trend in American society toward political violence.

C. RECOMMENDATIONS

The scenarios in this thesis were designed to be an experimental framework for exploring plausible future events. Their purpose was not to accurately predict the future but to learn from what it could be. By using what happens in the scenarios to reframe current assumptions about the world, one might enable, predict, or discourage future possibilities with clarity and precision.

This thesis has shown several ways in which democracy in the United States is alternately strong and vulnerable in the face of a changing technological landscape. This section uses that deeper understanding of strength and vulnerability to produce a set of broad recommendations for facing new methods of attack on America's ideals and norms.

1. Continuously Educate Americans of All Ages to Improve and Maintain High Levels of Technological and Media Literacy.

The first and second conclusions are warnings: foreign adversaries have multiple ways to influence American thought, and many of those methods are accelerated by new media technologies. The people using these technologies need to understand their impact on individuals' thinking and behavior. The United States should invest in educating the public about technological and media literacy. The educational component of Emil Trask's story in the final scenario pays off by making the general population in the United States less susceptible to foreign attempts at changing their minds. The public–private effort is

---

[365] Rocio Fabbro, "Election Officials Combat Voter Intimidation across U.S. as Extremist Groups Post Armed Militia at Some Polls," CNBC, November 6, 2022, https://www.cnbc.com/2022/11/06/election-officials-facing-armed-militia-presence-at-some-polls.html.

[366] "Man Charged with Assault and Attempted Kidnapping following Breaking and Entering of Pelosi Residence," Department of Justice, October 31, 2022, https://www.justice.gov/opa/pr/man-charged-assault-and-attempted-kidnapping-following-breaking-and-entering-pelosi-residence.

primarily an investment in education, and it targets all media consumers, not just children. The United States should invest in a similar program. Any such investment should not be solely the type of primary and secondary civics education that stops at graduation. Peter Drucker is quoted as saying that "learning is a lifelong process of keeping abreast of change."[367] Learning is not something that ends with formal education, and the United States should invest in the lifelong education of its citizens. That can take a variety of forms outside of traditional classroom learning, some of which are suggested in Emil's story.

There is a staggeringly large and growing supply of information, misinformation, and disinformation on the internet and in modern media, so people need to understand how media can inform and how it can manipulate. People provide vast amounts of private and personal data to software companies in exchange for optimizing their daily lives. These three scenarios suggest that investing in better media and technological literacy can help people understand how these data they give up are used to manipulate as well as assist and how algorithms can nudge as well as inform. Jennifer's story shows how ignorance can lead to negative nudging while Emil's story shows the opposite effect.

2.   Regulate How Personal Data Are Used and Shared.

The data that people shed in their use of modern technology are pervasive and informative. What Shoshanna Zuboff calls data exhaust individuals often call private information.[368] Businesses, however, call it profitable, and some governments would call it leverage for control. The first conclusion calls the aggregate effect a threat to democracy. To counter this threat, the United States should create a stringent set of rules around how these data are collected, used, and provided to third parties. One conclusion of this thesis is that corporations are positioned to help or to harm democracy. That is in part due to their maintenance of this type of data. Setting standards around data use will help prevent this valuable information from being used in harmful ways.

---

367 "Leadership Now Remembers Peter F. Drucker (1909–2005)," Leadership Now, accessed May 2, 2023, https://www.leadershipnow.com/druckerremembered.html#:~:text=Education%3A%20%22We%20now%20accept%20the,thinker%20of%20the%20last%20century.%22.

368 Zuboff, *The Age of Surveillance Capitalism*, 67–70.

Chapter V described the problems with the Federal Trade Commission's current standard of notice and consent, or notice and choice. More robust alternatives to that regulatory framework could positively impact people's resistance to media manipulation powered by AI data analytics. This is one reason some jurisdictions have begun setting a more stringent control over how private data are used and shared. The European Union's GDPR and the State of California's CCPA are models of this movement. The United States should either adopt a similar standard or lead the world in creating a new and more resilient one, or both. This standardization of data privacy would benefit business by simplifying compliance across borders, and it would allow people more control over the information that companies and, possibly, governments use to manipulate them.

3.   Invest in American AI Research and Development.

Emil's story in the final scenario shows the consequences of China's falling behind the West in AI development, but that dynamic currently seems unlikely. China is accelerating investments in AI development. Both monetary investment and research submissions from China dwarf those from every other nation, including the United States, though U.S. research is still more often cited in literature.[369] Both local and national levels of government in China are providing deep subsidies to develop AI software and release China from its dependency on foreign semiconductors.[370] China is moving full speed ahead on scientific research, and the United States must make similar investments to keep up.

It is vital to take this step for several reasons. The first conclusion in this chapter is that AI-driven data technology is a threat. To be mitigated or met, that threat must be understood. Likewise, the fourth conclusion asserts that what one interacts with online often impels action in the real world. This could be in the form of O2O business, or it could drive people like Jennifer in the second scenario to act in extreme and uncharacteristic

---

[369] Daniel Zhang et al., *The AI Index 2022 Annual Report* (Stanford: Stanford Institute for Human-Centered AI, 2022), 17–40, https://aiindex.stanford.edu/wp-content/uploads/2022/03/2022-AI-Index-Report_Master.pdf.

[370] Smriti Mallapaty, "What Xi Jinping's Third Term Means for Science," *Nature* 611, no. 7934 (2022): 20–21, https://doi.org/10.1038/d41586-022-03414-z.

ways. Finally, corporations could be given incentives by the United States to help democracy just as surely as they could be given incentives by a foreign nation to harm it.

4. Lead the World in Supporting Free Discourse and Liberal Democracy.

The United States after the Second World War became the de facto "leader of the free world." One thing that set the United States of that era apart from other empires was that it led—not solely through military might but through a powerful moral example. The sources of its authority and success abroad have been rooted, at least in part, in the strength of its democratic institutions at home. The ending of Jennifer's story in the second scenario highlighted some ways that this domestic order could fray, and the literature review's section on American liberal democracy suggested how undemocratic actions at the subnational level have the potential to weaken the American system. It is vital to forestall any such regression of American democracy.

Stopping or slowing potential democratic backsliding can be accomplished through a variety of means. The first step is to reassert the democratic values on which the country was founded. American voters, leaders, and courts need to repudiate antidemocratic political tactics while recapturing a place of leadership and example to democracies abroad. Second, the United States should nurture a return to a more sustainable and socially responsible approach to business in corporate America. Fostering a healthier and more socially responsible relationship between business and government may lead to a synergy benefiting both. Finally, it ought to build a political climate that is policy focused rather than identity focused. U.S. elections have recently become less about competing policy agendas and more about party identification. Moreover, the choice in recent elections seems less about what policies the voter cares about and more about what the voter's choice says about his social identity. Implementing some version of these recommendations could help return American democracy to more reliable footing.

D. CODA

The future is unknowable, but this thesis has attempted to apply lessons from the future to inform the present. It has done so by focusing on what could plausibly happen in

130

the future rather than what is mathematically probable given possibly flawed present data. Setting different values for three critical uncertainties—technological maturity, foreign aggression, and American democratic resilience—this thesis tested alternative futures and, in so doing, explored the ways in which a foreign adversary like China could alter America's liberal democratic values.

Neither technological progress nor the state of democracy is static. The three very different outcomes to the scenarios in this thesis illustrate how technology and democracy each ebb and flow independently. The scenarios also show how technology and democracy are growing more enmeshed. For its part, democracy is in a constant state of progress or regress, as popular values change and intellectual fashions pass. And while technology generally only progresses, absent some global disaster causing technological regression, the rate of progress fluctuates.

Chapter II showed how using a scenario planning methodology to study a dynamic landscape such as this—so-called TUNA conditions—allows policymakers to avoid the trap of becoming wedded to only the most mathematically probable future. This thesis used three futures: one status quo, one worst case, and one better (but not best) case. Each of these scenarios has offered its own insights into the benefits, risks, and opportunities that could be realized, and the resultant findings and recommendations help to explain how democracy might thrive—or deteriorate—as new AI technologies grow more central to modern life.

131

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

Achen, Christopher H., and Larry M. Bartels. *Democracy for Realists: Why Elections Do Not Produce Responsive Government*. Princeton Studies in Political Behavior. Princeton: Princeton University Press, 2017.

Adjin-Tettey, Theodora Dame. "Combating Fake News, Disinformation, and Misinformation: Experimental Evidence for Media Literacy Education." *Cogent Arts & Humanities* 9, no. 1 (2022): 2037229. https://doi.org/10.1080/23311983.2022.2037229.

Albright, Madeleine, and William Woodward. *Fascism: A Warning*. New York: HarperCollins, 2019.

Alphabet. "Google Code of Conduct." October 12, 2017. https://web.archive.org/web/20180421105327/https://abc.xyz/investor/other/google-code-of-conduct.html.

Applebaum, Anne. *Twilight of Democracy: The Seductive Lure of Authoritarianism*. New York: Doubleday, 2020.

Baker-White, Emily. "TikTok Parent ByteDance Planned to Use TikTok to Monitor the Physical Location of Specific American Citizens." *Forbes*, October 20, 2022. https://www.forbes.com/sites/emilybaker-white/2022/10/20/tiktok-bytedance-surveillance-american-user-data/.

Baldassarri, Delia, and Andrew Gelman. "Partisans without Constraint: Political Polarization and Trends in American Public Opinion." *American Journal of Sociology* 114, no. 2 (September 2008): 408–46. https://doi.org/10.1086/590649.

Bartz, Tim, Dinah Deckstein, Kristina Gnirke, Simon Hage, Nils Klawitter, Michael Sauga, and Bernhard Zand. "China Pressures Foreign Companies to Fall in Line on Protests." *Der Spiegel*, August 28, 2019. https://www.spiegel.de/international/business/hong-kong-china-pressures-foreign-companies-on-protests-a-1283314.html.

Beauchamp, Zack. "Ron DeSantis Is Following a Trail Blazed by a Hungarian Authoritarian." Vox, April 28, 2022. https://www.vox.com/policy-and-politics/2022/4/28/23037788/ron-desantis-florida-viktor-orban-hungary-right-authoritarian.

Becerril, Anahiby. "The Value of Our Personal Data in the Big Data and the Internet of All Things Era." *Advances in Distributed Computing and Artificial Intelligence Journal* 7, no. 2 (2018): 71–80. https://doi.org/10.14201/ADCAIJ2018727180.

Ben-Ghiat, Ruth. *Strongmen: Mussolini to the Present*. New York: Norton, 2021.

Berggren, Karl, Qiangfei Xia, Konstantin K. Likharev, Dmitri B. Strukov, Hao Jiang, Thomas Mikolajick, Damien Querlioz et al. "Roadmap on Emerging Hardware and Technology for Machine Learning." *Nanotechnology* 32, no. 1 (October 2020): 012002. https://doi.org/10.1088/1361-6528/aba70f.

Bermeo, Nancy. "On Democratic Backsliding." *Journal of Democracy* 27, no. 1 (2016): 5–19. https://doi.org/10.1353/jod.2016.0012.

Biden, Joe. "Remarks to Mark One Year since the January 6th Deadly Assault on the U.S. Capitol." White House, January 6, 2022. https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/01/06/remarks-by-president-biden-to-mark-one-year-since-the-january-6th-deadly-assault-on-the-u-s-capitol/.

Binder, Sarah A. *Stalemate: Causes and Consequences of Legislative Gridlock*. Washington, DC: Brookings Institution Press, 2004. ProQuest Ebook Central.

Bond, Shannon. "Elon Musk Addresses Twitter Staff about Free Speech, Remote Work, Layoffs and Aliens." NPR, June 16, 2022. https://www.npr.org/2022/06/16/1105608659/elon-musk-twitter-employees.

Boyd, Aaron. "FTC Considering New Data Privacy Regulations That Go Beyond Asking Users for Consent." Nextgov.com, August 19, 2022. https://www.nextgov.com/emerging-tech/2022/08/ftc-considering-new-data-privacy-regulations-go-beyond-asking-users-consent/376081/.

Brady, Anne-Marie. "China's Foreign Propaganda Machine." In *Authoritarianism Goes Global: The Challenge to Democracy*, edited by Larry Jay Diamond, Marc F. Plattner, and Christopher Walker, 187–97. Baltimore: Johns Hopkins University Press, 2016.

———. "New Zealand and the CCP's 'Magic Weapons.'" *Journal of Democracy* 29, no. 2 (2018): 68–75. https://doi.org/10.1353/jod.2018.0026.

Brennan Center for Justice. "Voting Rights Litigation Tracker." May 24, 2021. https://www.brennancenter.org/our-work/research-reports/voting-rights-litigation-tracker.

Brown, Kelly. "A Terabyte of Storage Space: How Much Is Too Much?" *Information Umbrella* (blog), July 8, 2014. https://aimblog.uoregon.edu/2014/07/08/a-terabyte-of-storage-space-how-much-is-too-much/.

Brownlee, Jason, and Kenny Miao. "Why Democracies Survive." *Journal of Democracy* 33, no. 4 (2022): 133–49. https://doi.org/10.1353/jod.2022.0052.

Burkhardt, Joanna M. *Combating Fake News in the Digital Age*. Library Technology Reports 53, no. 8. Chicago: ALA TechSource, 2017.

Cain, Geoffrey. *The Perfect Police State: An Undercover Odyssey into China's Terrifying Surveillance Dystopia of the Future*. New York: Public Affairs, 2021.

Carey, Craig. "Breaking the News: Telegraphy and Yellow Journalism in the Spanish-American War." *American Periodicals* 26, no. 2 (2016): 130–48.

Chamberlain, Paul. "Knowledge Is Not Everything." *Design for Health* 4, no. 1 (2020): 1–3. https://doi.org/10.1080/24735132.2020.1731203.

Chappell, Bill. "Three Men Are Convicted of Supporting a Plot to Kidnap Michigan Gov. Gretchen Whitmer." NPR, October 26, 2022. https://www.npr.org/2022/10/26/1131607112/michigan-governor-gretchen-whitmer-kidnapping-convictions.

Chermack, Thomas J. *Scenario Planning in Organizations: How to Create, Use, and Assess Scenarios*. San Francisco: Berrett-Koehler, 2011.

China Global Television Network. "Where American Democracy Has Failed, as Told by Facts." July 8, 2022. https://news.cgtn.com/news/2021-12-09/Where-American-democracy-has-failed-as-told-by-facts-15QN13KVmBW/index.html.

Chinese International Education Foundation. "Confucius Institute Introduction." Accessed August 8, 2022. https://www.cief.org.cn/jj.

Churchman, C. West. "Guest Editorial: Wicked Problems." *Management Science* 14, no. 4 (1967): B141–42.

Cilingir, Zuhal, and Yaşar Gültekin. "5 Gamification Applications in Hospitality and Airline Industries: A Unified Gamification Model." In *Gamification for Tourism*, edited by Feifei Xu and Demetrious Buhalis, 83–99. Bristol: Channel View Publications, 2021. https://doi.org/10.21832/9781845418236-007.

Coco, Orazio. "Contemporary China and the 'Harmonious' World Order in the Age of Globalization." *Chinese Journal of Global Governance* 6, no. 1 (2020): 1–19. https://doi.org/10.1163/23525207-12340044.

Commission on the Practice of Democratic Citizenship. *Our Common Purpose: Reinventing American Democracy for the 21st Century*. Cambridge, MA: American Academy of Arts and Sciences, 2020.

Cull, Nicholas J. "'Public Diplomacy' before Gullion: The Evolution of a Phrase." *USC Center on Public Diplomacy* (blog), April 18, 2006. https://uscpublicdiplomacy.org/blog/public-diplomacy-gullion-evolution-phrase.

Dahl, Erik J. "Missing the Wake-up Call: Why Intelligence Failures Rarely Inspire Improved Performance." *Intelligence and National Security* 25, no. 6 (2010): 778–99. https://doi.org/10.1080/02684527.2010.537876.

Dahl, Robert Alan. *Democracy and Its Critics*. New Haven: Yale University Press, 1989.

———. *Polyarchy: Participation and Opposition*. New Haven: Yale University Press, 1971.

Dahl, Robert Alan, and Ian Shapiro. *On Democracy*. 2nd ed. New Haven: Yale University Press, 2021.

Dawson, Jessica, and Tarah Wheeler. "How to Tackle the Data Collection behind China's AI Ambitions." *Brookings Tech Stream* (blog), April 29, 2022. https://www.brookings.edu/techstream/how-to-tackle-the-data-collection-behind-chinas-ai-ambitions/.

Deibert, Ronald J. "The Road to Digital Unfreedom: Three Painful Truths about Social Media." *Journal of Democracy* 30, no. 1 (January 2019): 25–39. https://doi.org/10.1353/jod.2019.0002.

Department of Justice. "Man Charged with Assault and Attempted Kidnapping following Breaking and Entering of Pelosi Residence." October 31, 2022. https://www.justice.gov/opa/pr/man-charged-assault-and-attempted-kidnapping-following-breaking-and-entering-pelosi-residence.

Deterding, Sebastian, Dan Dixon, Rilla Khaled, and Lennart Nacke. "From Game Design Elements to Gamefulness: Defining 'Gamification.'" In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, 9–15. New York: Association for Computing Machinery, 2011. https://doi.org/10.1145/2181037.2181040.

Diamond, Larry. "Democratic Regression in Comparative Perspective: Scope, Methods, and Causes." *Democratization* 28, no. 1 (2021): 22–42. https://doi.org/10.1080/13510347.2020.1807517.

———. *Ill Winds: Saving Democracy from Russian Rage, Chinese Ambition, and American Complacency*. New York: Penguin Books, 2019.

Diamond, Larry, and Orville Schell. *Chinese Influence & American Interests: Promoting Constructive Vigilance*. Stanford: Hoover Institution Press, 2018. https://www.hoover.org/research/chinas-influence-american-interests-promoting-constructive-vigilance.

Economy, Elizabeth. "China's Assertive Authoritarianism." *Democracy*, no. S62 (2021). https://democracyjournal.org/magazine/62-special-issue/chinas-assertive-authoritarianism/.

———. "Xi Jinping's New World Order: Can China Remake the International System?" *Foreign Affairs* 101, no. 1 (2022): 52–67.

136

Eichensehr, Kristen E., ed. "United States Joins with Allies, Including NATO, to Attribute Malicious Cyber Activities to China." *American Journal of International Law* 115, no. 4 (October 2021): 715–21. https://doi.org/10.1017/ajil.2021.54.

Ekman, Alice, and Cristina de Esperanza Picardo. *Towards Urban Decoupling?: China's Smart City Ambitions at the Time of Covid-19*. Brief 10. Paris: European Union Institute for Security Studies, 2020. http://www.jstor.org/stable/resrep25030.

Election Infrastructure Subsector Government and Coordinating Council. *Election Infrastructure Security Funding Considerations*. Washington, DC: Cybersecurity and Infrastructure Security Agency, 2020. https://permanent.fdlp.gov/gpo147732/20_0311_cisa_eis-gcc-funding-considerations.pdf.

Executive Office of the President. *Big Data: Seizing Opportunities, Preserving Values*. Washington, DC: White House, 2014. https://www.hsdl.org/?abstract&did=752636.

Fabbro, Rocio. "Election Officials Combat Voter Intimidation across U.S. as Extremist Groups Post Armed Militia at Some Polls." CNBC, November 6, 2022. https://www.cnbc.com/2022/11/06/election-officials-facing-armed-militia-presence-at-some-polls.html.

Fasman, Jon. *We See It All: Liberty and Justice in an Age of Perpetual Surveillance*. New York: Public Affairs, 2021.

Fedasiuk, Ryan. "A Different Kind of Army: The Militarization of China's Internet Trolls." *China Brief* 21, no. 7 (2021): 8–18. https://jamestown.org/program/a-different-kind-of-army-the-militarization-of-chinas-internet-trolls/.

FiveThirtyEight. "60 Percent of Americans Will Have an Election Denier on the Ballot This Fall." September 6, 2022. https://projects.fivethirtyeight.com/republicans-trump-election-fraud/.

Floridi, Luciano, and Massimo Chiriatti. "GPT-3: Its Nature, Scope, Limits, and Consequences." *Minds and Machines* 30, no. 4 (2020): 681–94. https://doi.org/10.1007/s11023-020-09548-1.

Foa, Roberto Stefan, and Yascha Mounk. "The Democratic Disconnect." *Journal of Democracy* 27, no. 3 (July 2016): 5–17. https://doi.org/10.1353/jod.2016.0049.

Fost, Dan. "Digital Utopia: A New Breed of Technologists Envisions a Democratic World Improved by the Internet." *San Francisco Chronicle*, November 5, 2006. https://www.sfgate.com/business/article/DIGITAL-UTOPIA-A-new-breed-of-technologists-2547704.php.

Freymann, Eyck, and Yanzhong Huang. "Xi Won't Yield over Zero-COVID Pressures." *Foreign Policy*, June 8, 2022. https://foreignpolicy.com/2022/06/08/xi-china-zero-covid-policy-ccp-pressures/.

Fukuyama, Francis. *The End of History and the Last Man*. New York: Free Press, 2006.

Fuller, R. Buckminster. *Critical Path*. New York: St. Martin's Press, 1981.

Gallagher, Conor. "Government Seeks Answers from Chinese Embassy on 'Police Service Station' in Dublin." *Irish Times*, October 8, 2022. https://www.irishtimes.com/politics/2022/10/08/government-seeks-answers-from-chinese-embassy-on-police-service-station-in-dublin/.

Galston, William A. "The Populist Challenge to Liberal Democracy." *Journal of Democracy* 29, no. 2 (2018): 5–19. https://doi.org/10.1353/jod.2018.0020.

Ghoshal, Sumantra. "Bad Management Theories Are Destroying Good Management Practices." *Academy of Management Learning and Education* 4, no. 1 (2005): 75–91.

Global Security. "Deng Xiaoping's '24-Character Strategy.'" Accessed September 12, 2021. https://www.globalsecurity.org/military/world/china/24-character.htm.

Gruetzemacher, Ross, and Jess Whittlestone. "The Transformative Potential of Artificial Intelligence." *Futures* 135 (2022): 102884. https://doi.org/10.1016/j.futures.2021.102884.

Halpern, David, Owain Service, and Richard H. Thaler. *Inside the Nudge Unit: How Small Changes Can Make a Big Difference*. Revised ed. London: W. H. Allen, 2019.

Hamilton, Clive, and Alex Joske. *Silent Invasion: China's Influence in Australia*. London: Hardie Grant Books, 2018.

Hansen, Hans Krause, and Richard Weiskopf. "From Universalizing Transparency to the Interplay of Transparency Matrices: Critical Insights from the Emerging Social Credit System in China." *Organization Studies* 42, no. 1 (2021): 109–28. https://doi.org/10.1177/0170840619878474.

Henderson, Rebecca. "Business Can't Take Democracy for Granted." *Harvard Business Review*, January 8, 2021. https://hbr.org/2021/01/business-cant-take-democracy-for-granted.

Ho, Kelly. "Bookseller Gui Minhai Jailed for 10 Years in China for 'Illegally Providing Intelligence' to Overseas Parties." *Hong Kong Free Press*, February 25, 2020. https://hongkongfp.com/2020/02/25/bookseller-gui-minhai-jailed-10-years-china-illegally-providing-intelligence-overseas-parties/.

Hollands, Gareth J., Ian Shemilt, Theresa M. Marteau, Susan A. Jebb, Michael P. Kelly, Ryota Nakamura, Marc Suhrcke, and David Ogilvie. "Altering Micro-environments to Change Population Health Behaviour: Towards an Evidence Base for Choice Architecture Interventions." *BMC Public Health* 13 (2013): 1218. https://doi.org/10.1186/1471-2458-13-1218.

Holmes, Eric N. *California Dreamin' of Privacy Regulation: The California Consumer Privacy Act and Congress*. CRS Report No. LSB10213. Washington, DC: Congressional Research Service, 2018. https://crsreports.congress.gov/product/pdf/LSB/LSB10213.

Hong Kong Free Press. "Exclusive: Wanted by Beijing, Activist in-Exile Wayne Chan Says He Won't Stop Fighting for Hong Kong Independence." August 3, 2020. https://hongkongfp.com/2020/08/03/exclusive-wanted-by-beijing-activist-in-exile-wayne-chan-says-he-wont-stop-fighting-for-hong-kong-independence/.

Human Rights Watch. "China: Government Threats to Academic Freedom Abroad." March 21, 2019. https://www.hrw.org/news/2019/03/21/china-government-threats-academic-freedom-abroad.

Huntington, Samuel P. "Democracy's Third Wave." *Journal of Democracy* 2, no. 2 (1991): 12–34. https://doi.org/10.1353/jod.1991.0016.

Huq, Aziz Z., and Tom Ginsburg. "How to Lose a Constitutional Democracy." *UCLA Law Review* 65, no. 78 (2018). https://doi.org/10.2139/ssrn.2901776.

Illing, Sean. "'Flood the Zone with Shit': How Misinformation Overwhelmed Our Democracy." Vox, January 16, 2020. https://www.vox.com/policy-and-politics/2020/1/16/20991816/impeachment-trial-trump-bannon-misinformation.

International Crisis Group. *The U.S. Presidential Election: Managing the Risks of Violence*. Report No. 4. Washington, DC: International Crisis Group, 2020. JSTOR.

International Maritime Organization. "Brief History of IMO." Accessed November 16, 2022. https://www.imo.org/en/About/HistoryOfIMO/Pages/Default.aspx.

Jakob, Sarah. "The Corporate Social Credit System in China and Its Transnational Impact." *Transnational Legal Theory* 12, no. 2 (2021): 294–314. https://doi.org/10.1080/20414005.2021.1977019.

Jiang, Min. "A Brief Prehistory of China's Social Credit System." *Communication and the Public* 5, no. 3–4 (2020): 93–98. https://doi.org/10.1177/2057047320959856.

Kahn, Herman. *Thinking about the Unthinkable*. New York: Horizon Press, 1962.

Kahneman, Daniel, and Amos Tversky. "Prospect Theory: An Analysis of Decision under Risk." *Econometrica* 47, no. 2 (1979): 263–91. https://doi.org/10.2307/1914185.

Kaiser, Jonas, Adrian Rauchfleisch, and Yasodara Córdova. "Fighting Zika with Honey: An Analysis of YouTube's Video Recommendations on Brazilian YouTube." *International Journal of Communication* 15 (2021): 1244–62.

Kang, Cecilia. "Tech Industry Pursues a Federal Privacy Law, on Its Own Terms." *New York Times*, August 26, 2018. https://www.nytimes.com/2018/08/26/technology/tech-industry-federal-privacy-law.html.

Kapstein, Ethan B., and Nathan Converse. "Poverty, Inequality, and Democracy: Why Democracies Fail." *Journal of Democracy* 19, no. 4 (2008): 57–68. https://doi.org/10.1353/jod.0.0031.

Karnofsky, Holden. "Some Background on Our Views Regarding Advanced Artificial Intelligence." *Open Philanthropy* (blog), May 6, 2016. https://www.openphilanthropy.org/research/some-background-on-our-views-regarding-advanced-artificial-intelligence/.

Kendall-Taylor, Andrea, Natasha Lindstaedt, and Erica Frantz. *Democracies and Authoritarian Regimes*. Oxford: Oxford University Press, 2019.

Khan, Saif M., and Carrick Flynn. *Maintaining China's Dependence on Democracies for Advanced Computer Chips*. Washington, DC: Brookings Institution, Center for Security and Emerging Technology, 2020. https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_computer_chips_khan_flynn.pdf.

King, Gary, Jennifer Pan, and Margaret E. Roberts. "How the Chinese Government Fabricates Social Media Posts for Strategic Distraction, Not Engaged Argument." *American Political Science Review* 111, no. 3 (2017): 484–501.

Kissinger, Henry, Eric Schmidt, Daniel P. Huttenlocher, and Schuyler Schouten. *The Age of AI: And Our Human Future*. New York: Little, Brown and Company, 2021.

Kleinfeld, Rachel. "The Rise of Political Violence in the United States." *Journal of Democracy* 32, no. 4 (2021): 160–76. https://doi.org/10.1353/jod.2021.0059.

Knutsen, Carl Henrik. "A Business Case for Democracy: Regime Type, Growth, and Growth Volatility." *Democratization* 28, no. 8 (2021): 1505–24. https://doi.org/10.1080/13510347.2021.1940965.

———. "Playing the Long Game: Why Democracy Is Good for Business." *The Loop: ECPR's Political Science Blog*, June 30, 2021. https://theloop.ecpr.eu/playing-the-long-game-why-democracy-is-good-for-business/.

Kosters, Mark, and Jeroen Van der Heijden. "From Mechanism to Virtue: Evaluating Nudge Theory." *Evaluation* 21, no. 3 (2015): 276–91. https://doi.org/10.1177/1356389015590218.

Lamb, John Bahadur. "Death by Swat: The Three Elements of Swatting." In *Video Games Crime and Next-Gen Deviance*, edited by Craig Kelly, Adam Lynes, and Kevin Hoffin, 73–89. Bingley, UK: Emerald Publishing Limited, 2020. https://doi.org/10.1108/978-1-83867-447-220201005.

Lawrence, Susan V., and Michael F. Martin. *China's National Security Law for Hong Kong: Issues for Congress*. CRS Report No. R46473. Washington, DC: Congressional Research Service, 2020. https://crsreports.congress.gov/product/pdf/R/R46473/4.

Leadership Now. "Leadership Now Remembers Peter F. Drucker (1909–2005)." Accessed May 2, 2023. https://www.leadershipnow.com/druckerremembered.html#:~:text=Education%3A%20%22We%20now%20accept%20the,thinker%20of%20the%20last%20century.%22.

Lee, Kai-Fu. *AI Superpowers: China, Silicon Valley, and the New World Order*. Boston: Houghton Mifflin Harcourt, 2021.

Lee, Kai-Fu, and Qiufan Chen. *AI 2041*. New York: Currency, 2021.

Levitsky, Steven, and Daniel Ziblatt. *How Democracies Die*. New York: Crown, 2018.

Liang, Fan, and Yuchen Chen. "The Making of 'Good' Citizens: China's Social Credit Systems and Infrastructures of Social Quantification." *Policy & Internet* 14, no. 1 (2022): 114–35. https://doi.org/10.1002/poi3.291.

Lin, Faqin. "Estimating the Effect of the Internet on International Trade." *Journal of International Trade & Economic Development* 24, no. 3 (April 2015): 409–28. https://doi.org/10.1080/09638199.2014.881906.

Linz, Juan J. "The Perils of Presidentialism." *Journal of Democracy* 1, no. 1 (1990): 51–69.

Linz, Juan J., and Alfred C. Stepan. *Problems of Democratic Transition and Consolidation: Southern Europe, South America, and Post-Communist Europe*. Baltimore: Johns Hopkins University Press, 1996.

———. "Toward Consolidated Democracies." *Journal of Democracy* 7, no. 2 (1996): 14–33. https://doi.org/10.1353/jod.1996.0031.

Lipset, Seymour Martin. "Some Social Requisites of Democracy: Economic Development and Political Legitimacy." *American Political Science Review* 53, no. 1 (1959): 69–105. https://doi.org/10.2307/1951731.

Liu, Chuncheng. "Multiple Social Credit Systems in China." *Economic Sociology* 21, no. 1 (November 2019): 22–32. https://doi.org/10.31235/osf.io/v9frs.

Liu, Coco, and Zheping Huang. "China Deals Fresh Blow to Tech Giants in Reach for Data." Bloomberg, March 4, 2021. https://www.bloomberg.com/news/articles/2021-03-05/china-deals-fresh-blow-to-tech-giants-in-reach-for-data.

Liu, Yuanyuan. "Staging Repentance: A Discourse Analysis of Mediated Confession in Xi Jinping's First Five-Year Term." *Journal of Current Chinese Affairs* 47, no. 3 (2018): 17–45. https://doi.org/10.1177/186810261804700302.

Macy, Michael W., Manqing Ma, Daniel R. Tabin, Jianxi Gao, and Boleslaw K. Szymanski. "Polarization and Tipping Points." *Proceedings of the National Academy of Sciences* 118, no. 50 (2021): e2102144118. https://doi.org/10.1073/pnas.2102144118.

Major, David. "Panel II: Chinese Intelligence Collection Operations and Implications for U.S. National Security: Prepared Statement of Mr. David Major." In *Chinese Intelligence Services and Espionage Operations: Hearing before the U.S.–China Economic and Security Review Commission*, 77–93. Washington, DC: U.S.–China Economic and Security Review Commission, 2016. https://www.uscc.gov/sites/default/files/transcripts/June%2009%2C%202016%20Hearing%20Transcript.pdf.

Mallapaty, Smriti. "What Xi Jinping's Third Term Means for Science." *Nature* 611, no. 7934 (2022): 20–21. https://doi.org/10.1038/d41586-022-03414-z.

McDonald, Aleecia M., and Lorrie Faith Cranor. "The Cost of Reading Privacy Policies." *I/S: Journal of Law and Policy for the Information Society* 4 (2008–2009): 543.

McDonald, Joe, and Ng Han Guan. "China Sentences Canadian to 11 Years in Case Tied to Huawei." AP News, August 11, 2021. https://apnews.com/article/middle-east-canada-business-china-global-trade-2d3c30207dbfc80d1820771d291cec68.

McLaughlin, Timothy. "Cathay Pacific CEO Resigns amid Beijing Pressure." *Washington Post*, August 16, 2019. https://www.washingtonpost.com/world/cathay-pacific-ceo-resigns-amid-beijing-pressure/2019/08/16/cae03f26-c00c-11e9-a8b0-7ed8a0d5dc5d_story.html.

McNamee, Roger. *Zucked: Waking Up to the Facebook Catastrophe*. New York: Penguin Books, 2020.

Merchant, Normaan, and Matthew Lee. "Detainee Says China Has Secret Jail in Dubai, Holds Uyghurs." AP News, August 16, 2021. https://apnews.com/article/china-dubai-uyghurs-60d049c387b99b1238ebd5f1d3bb3330.

Meta Store. "Meta Quest Pro: Our Most Advanced New VR Headset." Accessed October 28, 2022. https://www.meta.com/quest/quest-pro/.

Mettler, Suzanne, and Trevor Brown. "The Growing Rural–Urban Political Divide and Democratic Vulnerability." *Annals of the American Academy of Political and Social Science* 699, no. 1 (2022): 130–42. https://doi.org/10.1177/00027162 211070061.

Mettler, Suzanne, and Robert C. Lieberman. *Four Threats: The Recurring Crises of American Democracy*. New York: St. Martin's Press, 2020.

Miller, Carly, Vanessa Molter, Isabella Garcia-Camargo, and Renée DiResta. *Sockpuppets Spin Covid Yarns: An Analysis of Pre-attributed June 2020 Twitter Takedown*. Stanford: Stanford Internet Observatory, 2020. https://stacks.stanford. edu/file/druid:zf032rd0838/20200611_China_Report.pdf.

Mills, Stuart. "Finding the 'Nudge' in Hypernudge." *Technology in Society* 71 (2022): 102117. https://doi.org/10.1016/j.techsoc.2022.102117.

Misawa, Daitaro, Jun Fukuyoshi, and Shintaro Sengoku. "Cancer Prevention Using Machine Learning, Nudge Theory and Social Impact Bond." *International Journal of Environmental Research and Public Health* 17, no. 3 (February 2020): 790. https://doi.org/10.3390/ijerph17030790.

Moghaddam, Fathali M. *Threat to Democracy: The Appeal of Authoritarianism in an Age of Uncertainty.* Washington, DC: American Psychological Association, 2019. https://doi.org/10.1037/0000142-000.

Mok, Charles. "Why Elon Musk's Twitter Purchase Is a National Security Concern." *Diplomat*, November 9, 2022. https://thediplomat.com/2022/11/why-elon-musks-twitter-purchase-is-a-national-security-concern/.

Moss, David A. *Democracy: A Case Study*. Cambridge, MA: Belknap Press, 2019.

Mounk, Yascha. "The Undemocratic Dilemma." *Journal of Democracy* 29, no. 2 (2018): 98–112. https://doi.org/10.1353/jod.2018.0030.

Mrkva, Kellen, Nathaniel A. Posner, Crystal Reeck, and Eric J. Johnson. "Do Nudges Reduce Disparities? Choice Architecture Compensates for Low Consumer Knowledge." *Journal of Marketing* 85, no. 4 (July 2021): 67–84. https://doi.org/ 10.1177/0022242921993186.

Mueller, Robert. *Report on the Investigation into Russian Interference in the 2016 Presidential Election*. Vol. 1 of 2. Washington, DC: Department of Justice, 2019. https://www.justice.gov/archives/sco/file/1373816/download.

Mulligan, Stephen P., and Chris D. Linebaugh. *Data Protection Law: An Overview*. CRS Report No. R45631. Washington, DC: Congressional Research Service, 2019. https://crsreports.congress.gov/product/pdf/R/R45631.

Münscher, Robert, Max Vetter, and Thomas Scheuerle. "A Review and Taxonomy of Choice Architecture Techniques." *Journal of Behavioral Decision Making* 29, no. 5 (December 2016): 511–24. https://doi.org/10.1002/bdm.1897.

Nakashima, Ellen, Jeanne Whalen, and Cate Cadell. "U.S. Imposes Tough Rules to Limit China's Access to High-Tech Chips." *Washington Post*, October 7, 2022. https://www.washingtonpost.com/technology/2022/10/07/china-high-tech-chips-restrictions/.

New America. "Statement of Concern." June 1, 2021. http://newamerica.org/political-reform/statements/statement-of-concern/.

Ni, Vincent. "China Attacks 'US-Style Democracy' prior to Biden Summit." *Guardian*, December 6, 2021. https://www.theguardian.com/world/2021/dec/06/china-attacks-us-style-democracy-prior-to-biden-summit.

Nichols, T. Philip, and Robert Jean LeBlanc. "Media Education and the Limits of 'Literacy': Ecological Orientations to Performative Platforms." *Curriculum Inquiry* 51, no. 4 (2021): 389–412. https://doi.org/10.1080/03626784.2020.1865104.

Nichols, Tom. *Our Own Worst Enemy: The Assault from Within on Modern Democracy*. New York: Oxford University Press, 2021.

Norden, Lawrence, and Marina Pino. "Election Deniers Running for Secretary of State Were This Election's Biggest Losers." Brennan Center for Justice, November 14, 2022. https://www.brennancenter.org/our-work/analysis-opinion/election-deniers-running-secretary-state-were-elections-biggest-losers.

O'Connell, William D. "Silencing the Crowd: China, the NBA, and Leveraging Market Size to Export Censorship." *Review of International Political Economy* 29, no. 4 (2022): 1112–34. https://doi.org/10.1080/09692290.2021.1905683.

Open AI. "Introducing ChatGPT." Accessed May 2, 2023. https://openai.com/blog/chatgpt.

Oster, Shai. "China Tries Its Hand at Pre-Crime." Bloomberg Businessweek, March 7, 2016. https://www.bloomberg.com/news/articles/2016-03-03/china-tries-its-hand-at-pre-crime#xj4y7vzkg.

Pepper, David. *Laboratories of Autocracy: A Wake-up Call from Behind the Lines*. Grove City: St. Helena Press, 2021.

Peterson, Rachelle. "The Confucius Institutes." *Academic Questions* 32, no. 2 (June 2019): 178–86. http://dx.doi.org/10.1007/s12129-019-09783-8.

Philbeck, Thomas, and Nicholas Davis. "The Fourth Industrial Revolution: Shaping a New Era." *Journal of International Affairs* 72, no. 1 (2018): 17–22.

Pildes, Richard H. "The Age of Political Fragmentation." *Journal of Democracy* 32, no. 4 (2021): 146–59. https://doi.org/10.1353/jod.2021.0058.

Pillsbury, Michael. *The Hundred-Year Marathon: China's Secret Strategy to Replace America as the Global Superpower*. New York: Henry Holt, 2015.

Plattner, Marc F. "Illiberal Democracy and the Struggle on the Right." *Journal of Democracy* 30, no. 1 (January 2019): 5–19.

Polyakova, Alina, and Chris Meserole. *Exporting Digital Authoritarianism*. Washington, DC: Brookings Institution Press. https://www.brookings.edu/research/exporting-digital-authoritarianism/.

Popper, Karl R. *The Open Society and Its Enemies*. One-volume ed. Princeton: Princeton University Press, 2020.

Przeworski, Adam. "The Poor and the Viability of Democracy." In *Poverty, Participation, and Democracy: A Global Perspective*, edited by Anirudh Krishna, 125–46. Cambridge: Cambridge University Press, 2008. https://doi.org/10.1017/CBO9780511756160.007.

Raghavan, Prabhakar. "How AI Is Powering a More Helpful Google." *The Keyword* (blog), October 15, 2020. https://blog.google/products/search/search-on/.

Raghothaman, Balaji. "Training, Testing and Validation Challenges for Next Generation AI/ML-Based Intelligent Wireless Networks." *IEEE Wireless Communications* 28, no. 6 (December 2021): 5–6. https://doi.org/10.1109/MWC.2021.9690485.

Ramírez, Rafael, Steve Churchhouse, Alejandra Palermo, and Jonas Hoffmann. "Using Scenario Planning to Reshape Strategy." *MIT Sloan Management Review*, June 13, 2017. https://sloanreview.mit.edu/article/using-scenario-planning-to-reshape-strategy/.

Ramírez, Rafael, and Angela Wilkinson. *Strategic Reframing: The Oxford Scenario Planning Approach*. Oxford: Oxford University Press, 2018.

Reich, Rob, Mehran Sahami, and Jeremy M. Weinstein. *System Error: Where Big Tech Went Wrong and How We Can Reboot*. New York: Harper, 2021.

145

Reilly, Jessica, Lyu Muyao, and Megan Robertson. "China's Social Credit System: Speculation vs. Reality." *Diplomat*, March 30, 2021. https://thediplomat.com/2021/03/chinas-social-credit-system-speculation-vs-reality/.

Repucci, Sarah, and Amy Slipowitz. *Freedom in the World 2021: Democracy under Siege*. Washington, DC: Freedom House, 2021. https://freedomhouse.org/report/freedom-world/2021/democracy-under-siege.

Ribeiro, Manoel Horta, Raphael Ottoni, Robert West, Virgílio A. F. Almeida, and Wagner Meira. "Auditing Radicalization Pathways on YouTube." In *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency*, 131–41. New York: Association for Computing Machinery, 2020. https://doi.org/10.1145/3351095.3372879.

Richardson, Brianna. "Axios/Momentive Poll: January 6th Revisited." SurveyMonkey. Accessed July 15, 2022. https://www.surveymonkey.com/curiosity/axios-january-6-revisited/.

Ridgwell, Henry. "China's 'Overseas Police Stations' Breach Sovereignty, Report Claims." Voice of America, October 11, 2022. https://www.voanews.com/a/china-s-overseas-police-stations-breach-sovereignty-report-claims/6785143.html.

Ringen, Stein. *The Perfect Dictatorship: China in the 21st Century*. Hong Kong: HKU Press, 2016.

Rittel, Horst W. J., and Melvin M. Webber. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4, no. 2 (1973): 155–69. https://doi.org/10.1007/BF01405730.

Rubin, Robert, and Erich Dierdorff. "Building a Better MBA: From a Decade of Critique toward a Decennium of Creation." *Academy of Management Learning and Education* 12, no. 1 (2013): 125–41. https://doi.org/10.5465/amle.2012.0217.

Ruth, Jennifer, and Yu Xiao. "Academic Freedom and China." *Academe* 105, no. 4 (Fall 2019): 39–44.

Safeguard Defenders. *110 Overseas: Chinese Transnational Policing Gone Wild*. Investigations and Briefings Series. Madrid: Safeguard Defenders, 2022. https://safeguarddefenders.com/sites/default/files/pdf/110%20Overseas%20%283%29.pdf.

Sarwar, Nadeem. "Nreal's Air AR Glasses Head to the U.S., Ready to Rock with iPhones." Digital Trends, September 27, 2022. https://www.digitaltrends.com/mobile/nreal-air-ar-glasses-united-states-launch-price-ios-support/.

Schafer, Bret, Amber Frankland, Nathan Kohlenberg, and Etienne Soula. *Influence-enza: How Russia, China, and Iran Have Shaped and Manipulated Coronavirus Vaccine Narratives*. Washington, DC: Alliance for Securing Democracy, 2021. https://securingdemocracy.gmfus.org/russia-china-iran-covid-vaccine-disinformation/.

Schilling, David Russell. "Knowledge Doubling Every 12 Months, Soon to Be Every 12 Hours." *Industry Tap* (blog), April 19, 2013. https://www.industrytap.com/knowledge-doubling-every-12-months-soon-to-be-every-12-hours/3950.

Schneier, Bruce. "Power in the Age of the Feudal Internet." Co:llaboratory, October 22, 2018. http://en.collaboratory.de/w/Power_in_the_Age_of_the_Feudal_Internet.

Schrader, Matt. "'Chinese Assistance Centers' Grow United Front Work Department Global Presence." *China Brief* 19, no. 1 (2019): 1–5. https://jamestown.org/wp-content/uploads/2019/01/Read-the-1-4-2019-CB-Issue-in-PDF.pdf.

———. *Friends and Enemies: A Framework for Understanding Chinese Political Interference in Democratic Countries*. Washington, DC: Alliance for Securing Democracy, 2020.

Schumpeter, Joseph A. *Capitalism, Socialism and Democracy*. New York: Harper Perennial, 2006.

Schwartz, Peter. *The Art of the Long View: Planning for the Future in an Uncertain World*. New York: Doubleday, 1991.

Schwartzel, Erich. *Red Carpet: Hollywood, China, and the Global Battle for Cultural Supremacy*. New York: Penguin Books, 2022.

Segev, Hiddai. "Smart Cities with Chinese Characteristics." *Strategic Assessment* 24, no. 3 (July 2021): 99–104.

Shahbaz, Adrian, and Allie Funk. *Freedom on the Net 2021: The Global Drive to Control Big Tech*. Washington, DC: Freedom House, 2021. https://freedomhouse.org/report/freedom-net/2021/global-drive-control-big-tech.

Smith, Allison G. *How Radicalization to Terrorism Occurs in the United States: What Research Sponsored by the National Institute of Justice Tells Us*. NCJ 250171. Washington, DC: National Institute of Justice, 2018. https://www.ojp.gov/pdffiles1/nij/250171.pdf.

Stobierski, Tim. "Types of Corporate Social Responsibility to Be Aware Of." *Business Insights* (blog), April 8, 2021. https://online.hbs.edu/blog/post/types-of-corporate-social-responsibility.

147

Stokes, Jonathan M., Kevin Yang, Kyle Swanson, Wengong Jin, Andres Cubillos-Ruiz, Nina M. Donghia, Craig R. MacNair et al. "A Deep Learning Approach to Antibiotic Discovery." *Cell* 181, no. 2 (2020): 475–83. https://doi.org/10.1016/j.cell.2020.04.001.

Strittmatter, Kai. *We Have Been Harmonized: Life in China's Surveillance State*. New York: Custom House, 2020.

Su, Alice, and David Rennie. "Xi Jinping Has No Interest in Succession Planning." *Economist*, October 20, 2022. https://www.economist.com/china/2022/10/20/xi-jinping-has-no-interest-in-succession-planning.

Sunstein, Cass R. *The Ethics of Influence: Government in the Age of Behavioral Science*. Cambridge Studies in Economics, Choice, and Society. New York: Cambridge University Press, 2016.

———. *Why Nudge? The Politics of Libertarian Paternalism*. Storrs Lectures on Jurisprudence. New Haven: Yale University Press, 2015.

Sutherland, Michael D. *China's Corporate Social Credit System*. CRS Report No. IF11342. Washington, DC: Congressional Research Service, 2020. https://crsreports.congress.gov/product/pdf/IF/IF11342.

Svolik, Milan W. "Polarization versus Democracy." *Journal of Democracy* 30, no. 3 (2019): 20–32. https://doi.org/10.1353/jod.2019.0039.

Taeihagh, Araz, M. Ramesh, and Michael Howlett. "Assessing the Regulatory Challenges of Emerging Disruptive Technologies." *Regulation & Governance* 15, no. 4 (2021): 1009–19. https://doi.org/10.1111/rego.12392.

Temple-Raston, Dina. "China's Microsoft Hack May Have Had a Bigger Purpose than Just Spying." NPR, August 26, 2021. https://www.npr.org/2021/08/26/1013501080/chinas-microsoft-hack-may-have-had-a-bigger-purpose-than-just-spying.

Thaler, Richard H., and Cass R. Sunstein. *Nudge*. Updated ed. New York: Penguin Books, 2021.

Thorndike, Anne N., Oliver-John M. Bright, Melissa A. Dimond, Ronald Fishman, and Douglas E. Levy. "Choice Architecture to Promote Fruit and Vegetable Purchases by Families Participating in the Special Supplemental Program for Women, Infants, and Children (WIC): Randomized Corner Store Pilot Study." *Public Health Nutrition* 20, no. 7 (May 2017): 1297–1305. https://doi.org/10.1017/S1368980016003074.

Topolsky, Joshua. "I Used Google Glass: The Future, but with Monthly Updates." Verge, February 22, 2013. https://www.theverge.com/2013/2/22/4013406/i-used-google-glass-its-the-future-with-monthly-updates.

Tucker, Patrick. "China's Aggressive Data Push Worries Military Intel Officials." Defense One, July 9, 2021. https://www.defenseone.com/threats/2021/07/chinas-aggressive-data-push-worries-military-intel-officials/183645/.

———. "Has Big Data Made Anonymity Impossible?" *MIT Technology Review*, May 7, 2013. https://www.technologyreview.com/2013/05/07/178542/has-big-data-made-anonymity-impossible/.

U.S.–China Economic and Security Review Commission. *2020 Report to Congress*. Washington, DC: U.S.–China Economic and Security Review Commission, 2020. https://www.uscc.gov/annual-report/2020-annual-report-congress.

U.S. Election Assistance Commission. "Clearinghouse Resources for Election Officials: Disaster Preparedness and Recovery." Accessed November 17, 2022. https://www.eac.gov/election-officials/disaster-preparedness-and-recovery.

U.S. Senate. Committee on Foreign Relations. *The New Big Brother: China and Digital Authoritarianism*. Washington, DC: U.S. Senate, 2020. https://www.foreign.senate.gov/imo/media/doc/2020%20SFRC%20Minority%20Staff%20Report%20-%20The%20New%20Big%20Brother%20-%20China%20and%20Digital%20Authoritarianism.pdf.

Vaidhyanathan, Siva. "The New Nightmare Scenario for the Media." *Slate*, May 21, 2021. https://slate.com/business/2021/05/att-warnermedia-discovery-hbo-media-concentration-facebook-google.html.

Van der Heijden, Kees. *Scenarios: The Art of Strategic Conversation*. 2nd. ed. Chichester: Wiley, 2010.

Verma, Sanjeev, Rohit Sharma, Subhamay Deb, and Debojit Maitra. "Artificial Intelligence in Marketing: Systematic Review and Future Research Direction." *International Journal of Information Management Data Insights* 1, no. 1 (2021): 100002. https://doi.org/10.1016/j.jjimei.2020.100002.

Vilmer, Jean-Baptiste Jeangene, and Paul Charon. "Russia as a Hurricane, China as Climate Change: Different Ways of Information Warfare." War on the Rocks, January 21, 2020. https://warontherocks.com/2020/01/russia-as-a-hurricane-china-as-climate-change-different-ways-of-information-warfare/.

Vojinovic, Ivana. "Ransomware Statistics in 2022: From Random Barrages to Targeted Hits." DataProt, November 16, 2022. https://dataprot.net/statistics/ransomware-statistics/.

149

Wack, Pierre. "Scenarios: Shooting the Rapids." *Harvard Business Review* 63, no. 6 (November–December 1985): 1–14.

———. "Scenarios: Uncharted Waters Ahead." *Harvard Business Review* 63, no. 5 (September–October 1985): 73–89.

Wee, Sui-Lee. "Giving In to China, U.S. Airlines Drop Taiwan (in Name at Least)." *New York Times*, July 25, 2018. https://www.nytimes.com/2018/07/25/business/taiwan-american-airlines-china.html.

Whittaker, Joe, Seán Looney, Alastair Reed, and Fabio Votta. "Recommender Systems and the Amplification of Extremist Content." *Internet Policy Review* 10, no. 2 (2021). https://policyreview.info/articles/analysis/recommender-systems-and-amplification-extremist-content.

Whittaker, Zack. "Grindr Sold by Chinese Owner after U.S. Raised National Security Concerns." *TechCrunch* (blog), March 6, 2020. https://techcrunch.com/2020/03/06/grindr-sold-china-national-security/.

Wong, Karen Li Xan, and Amy Shields Dobson. "We're Just Data: Exploring China's Social Credit System in Relation to Digital Platform Ratings Cultures in Westernised Democracies." *Global Media and China* 4, no. 2 (2019): 220–32. https://doi.org/10.1177/2059436419856090.

Wright, Adam. "Banned in China: Why Some of Music's Top Stars Are Blacklisted by Beijing." *South China Morning Post*, December 8, 2017. ProQuest.

Xi Jinping. *The Governance of China*. Vol. 2 of 3. Beijing: Foreign Languages Press, 2017.

———. *The Governance of China*. 2nd ed. Vol. 1 of 3. Beijing: Foreign Languages Press, 2018.

Xiang, Nina. *Red AI: Victories and Warnings from China's Rise in Artificial Intelligence*. Self-published, 2019.

Xing, Zhongwei. "The Impacts of Information and Communications Technology (ICT) and E-Commerce on Bilateral Trade Flows." *International Economics & Economic Policy* 15, no. 3 (July 2018): 565–86. https://doi.org/10.1007/s10368-017-0375-5.

Yan Xuetong. "Becoming Strong: The New Chinese Foreign Policy." *Foreign Affairs* 100, no. 4 (July/August 2021): 40–47. ProQuest.

Yau Tsz Yan. "Exporting China's Social Credit System to Central Asia." *Diplomat*, January 17, 2020. https://thediplomat.com/2020/01/exporting-chinas-social-credit-system-to-central-asia/.

Yeung, Karen. "'Hypernudge': Big Data as a Mode of Regulation by Design." *Information, Communication & Society* 20, no. 1 (2017): 118–36. https://doi.org/10.1080/1369118X.2016.1186713.

Zaid, Bouziane. "Internet and Democracy in Morocco: A Force for Change and an Instrument for Repression." *Global Media and Communication* 12, no. 1 (2016): 49–66. https://doi.org/10.1177/1742766515626826.

Zakaria, Fareed. "The Rise of Illiberal Democracy." *Foreign Affairs* 76, no. 6 (1997): 22–43. https://doi.org/10.2307/20048274.

Zhang, Daniel, Nestor Maslej, Erik Brynjolfsson, John Etchemendy, Terah Lyons, James Manyika, Helen Ngo et al. *The AI Index 2022 Annual Report*. Stanford: Stanford Institute for Human-Centered AI, 2022. https://aiindex.stanford.edu/wp-content/uploads/2022/03/2022-AI-Index-Report_Master.pdf.

Zuboff, Shoshana. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: Public Affairs, 2020.

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1.   Defense Technical Information Center
        Ft. Belvoir, Virginia

2.   Dudley Knox Library
        Naval Postgraduate School
        Monterey, California

WHERE SCIENCE MEETS THE ART OF WARFARE