

Cambridge University Press
978-1-108-42612-1 — Runaway Technology
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Excerpt
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PART I

KEEPING UP: LAW AS SOCIAL TECHNOLOGY

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1

Can Law Keep Up?

We need to talk. The future is coming fast, and we need to work together to decide how to meet the challenges of rampant technological progress. Talking is how humans cooperate. Cooperation, through language, is humans' superpower. Language is why humans, and not wolves, run this particular show. But there are two problems. First, we don't yet have the kind of language we need to talk about the problems of the future. Second, you and I don't yet have the kind of language we need to talk about how we will build the kind of language we need. In this book, I will try to build, between us, a language that will let us talk about the problems of the future.

"Wait," one might say. "What's all this about language? I thought this was a book about law!" It is. Law *is* language, a special kind. It is language that states how we have decided to live together. Law is the language that we need to build, to help us cooperate, in order to deal with the rapid changes introduced by technology. We need to develop language to permit us to talk about certain hard problems, and we need to do it quickly. That language is humanity's scratching at the surface of reality, building better social tools to handle what it finds.

The news is full of new challenges: dragnet surveillance,¹ artificial intelligence,² autonomous vehicles,³ biohacking,⁴ and 3D printing.⁵ If

¹ See, e.g., Raymond Zhong, *China Snares Tourists' Phones in Surveillance Dragnet by Adding Secret App*, N.Y. TIMES (July 2, 2019), www.nytimes.com/2019/07/02/technology/china-xinjiang-app.html; Jennifer Valentino-DeVries, *Tracking Phones, Google Is a Dragnet for the Police*, N.Y. TIMES (April 13, 2019), www.nytimes.com/interactive/2019/04/13/us/google-location-tracking-police.html; *Kyllo v. United States*, 533 U.S. 27 (2001); *United States v. Knotts*, 460 U.S. 276 (1983).

² See, e.g., Janosch Delcker, *Europe Divided over Robot "Personhood"*, POLITICO (Apr. 11, 2018), www.politico.eu/article/europe-divided-over-robot-ai-artificial-intelligence-personhood/; Zara Stone, *Everything You Need to Know about Sophia, the World's First Robot Citizen*, FORBES (Nov. 7, 2017), www.forbes.com/sites/zarastone/2017/11/07/everything-you-need-to-know-about-sophia-the-worlds-first-robot-citizen/#24f7c10846fa.

³ See, e.g., Peter Holley, *After Crash, Injured Motorcyclist Accuses Robot-Driven Vehicle of "Negligent Driving"*, WA. POST (Jan. 25, 2018), www.washingtonpost.com/news/innovations/wp/2018/01/25/after-crash-injured-motorcyclist-accuses-robot-driven-vehicle-of-negligent-driving/; Cleve Wootson Jr., *Feds Investigating after a Tesla on Autopilot Barreled into a Parked Firetruck*,

law becomes obsolete, lagging behind the ever-increasing rate of technological advances, what happens to individual rights and freedoms? If law evolves to grant increased flexibility to government, will those broader, more far-reaching powers upset the balance between citizen and state? Is there a way that law can keep pace with innovation while protecting and preserving the freedoms that create the necessary context for innovation? If law is to do this, it must not only change, but embrace the concept of ongoing change, interweaving flexibility and resilience with the more established concepts of order upon which society is built.

With the widespread adoption of any new technology, there is an assumption that the technology has created a space that law is unable to reach. Money, for instance, has morphed from dollars to checks to credit cards to cryptocurrencies like Bitcoin, all faster than regulators can react.⁶ With Apple's introduction of end-to-end encryption on cellular devices⁷ came then FBI Director James Comey's claim that the "Going Dark" phenomenon would leave the public at risk and law enforcement unable to thwart crime.⁸ Is technology doomed to always be regulated by out-of-date rules? Or, worse, is the world doomed to become lawless, as technology leaves dusty law codes behind?

The currently accepted narrative is that technology outpaces antiquated legal institutions in the blinding rush of progress. Lawyers and judges are deemed to be at technology's mercy. But there is another

WA. Post (Jan. 24, 2018), www.washingtonpost.com/news/innovations/wp/2018/01/23/a-tesla-owners-excuse-for-his-dui-crash-the-car-was-driving/.

⁴ See, e.g., Emily Baumgaertner, *As D.I.Y. Gene Editing Gains Popularity, "Someone Is Going to Get Hurt"*, N.Y. TIMES (May 14, 2018), www.nytimes.com/2018/05/14/science/biohackers-gene-editing-virus.html; Antonio Regalado, *In Blow to New Tech, European Court Decides CRISPR Plants Are GMOs*, MIT TECHNOLOGY REVIEW (July 25, 2018), www.technologyreview.com/the-download/611716/in-blow-to-new-tech-europe-court-decides-crispr-plants-are-gmos/.

⁵ See, e.g., Steve Henn, *As 3-D Printing Becomes More Accessible, Copyright Questions Arise*, NPR (Feb. 19, 2013), www.npr.org/sections/alltechconsidered/2013/02/19/171912826/as-3-d-printing-become-more-accessible-copyright-questions-arise; Michael D. Shear et al., *Judge Blocks Attempt to Post Blueprints for 3-D Guns*, N.Y. TIMES (July 31, 2018), www.nytimes.com/2018/07/31/us/politics/3d-guns-trump.html.

⁶ See, e.g., Peter J. Henning, *Policing Cryptocurrencies Has Become a Game of Whack-a-Mole for Regulators*, N.Y. TIMES (May 31, 2018).

⁷ Matt Apuzzo et al., *Apple and Other Tech Companies Tangle With U.S. over Data Access*, N.Y. TIMES (Dec. 7, 2015), www.nytimes.com/2015/09/08/us/politics/apple-and-other-tech-companies-tangle-with-us-over-access-to-data.html.

⁸ Hon. James B. Comey, Statement before the House Committee on Homeland Security (Washington, D.C., Oct. 21, 2015) (available at www.fbi.gov/news/testimony/worldwidethreats-and-homeland-security-challenges).

story. Law can keep up. Law itself is the social technology of regulating human behavioral change under conditions of technological development. Law is often far ahead of technology. Lawyers and judges must wait to regulate—often for years—until a technology matures. The sense here is that creating law too early will be a mistake. This story tells us that law is capable of being overhauled, that we might create systems that can keep up. However, unless we begin now, we will experience an ever-increasing disconnect between society and its tools, between democracy and technology.

This book examines what happens at the nexus of law and technology. It analyzes the interaction between the two, seeking a framework on which to build a set of principles to guide legal evolution in the coming years. It counters the technological fatalist narrative that law is simply too slow to incorporate technological change. It challenges received wisdom that law must trail technological change, and argues that law plays a critical role in anticipating and guiding, in naming and shaping, technological change.

Upon closer examination, the narrative that law can't keep up turns out to be not true, and is a particular problem tied to the United States—we could regulate these new technologies appropriately and responsibly if we decided to, and many countries do. Rather, the argument that law can't keep up is propaganda advanced by technology companies eager to avoid legal responsibility for the stunning damage their business models cause the surrounding society. Consider the role social media companies play in systematically profiting from compromising democratic elections, for example. The fact that such propaganda succeeds means there is a hole in our collective heads, a problem with how we talk about the problems of the future.

FAILING NARRATIVES

Bad narratives, like the one that law can't keep up, only live because of the absence of better ones. Our dominant narratives, the stories we use to organize meaning in our lives, are failing across the board. Consider the fact that right now, both science and religion are failing. Science fails to convince flat-earthers,⁹

⁹ Moya Sarner, *The Rise of the Flat Earthers*, SCIENCE FOCUS (Aug. 31, 2019), www.sciencefocus.com/the-human-body/the-rise-of-the-flat-earthers/ (last accessed Nov. 11, 2019); Matt J. Weber, *How the Internet Made Us Believe in a Flat Earth*, MEDIUM (Dec. 12, 2018), <https://medium.com/s/world-wide-wtf/how-the-internet-made-us-believe-in-a-flat-earth-2e42c3206223>.

anti-vaxxers,¹⁰ and racists.¹¹ Religion fails to convince an increasing share of the young¹² and highly educated.¹³ The question is why our dominant narratives are dying, leaving us at the mercy of the self-serving ad slogans of corporations and clickbait articles as our source of truth.

Religion is failing because religious language often lacks a valid epistemology: a way of knowing what is factual and what is not. As religious communities empty themselves of the young, the tolerant, and the educated at truly startling rates,¹⁴ those communities have come increasingly to understand their myths as representing some kind of pseudoscientific reality. Religion was never intended to tell us how the world worked, only how to orient ourselves within it. By making obviously false scientific claims in religious language, speakers of religious language have revealed that they have no way of determining facts about the world. Consulting one's feelings is not a measure of how the world is.

But if religion fails to convince for lack of valid epistemology, science is failing for a lack of guiding narrative. Science tells us *how* to do things, not *why* or *whether* to do them. As we will explore, scientists won't even admit that they lack a meta-narrative, a guiding story of why they should conduct some experiments over others, a reason to pursue some lines of research over others. The sad truth is that the current meta-narrative of science is that the experiments which scientists pursue are most often in the name of corporate profit, not human thriving—and the two are not at all the same thing. Science's false claims of neutrality: "we're just doing science!" is the same as technology's obviously false claims of neutrality: "we're just building technology!" Facebook is not neutral technology, and atom bombs are not neutral science. They are decisions in a direction. And if we do not straighten out *why* we do science, provide some account for *where we need to go* with scientific progress, we will end up continuing to blindly create technologies that harm our

¹⁰ Jan Hoffman, *How Anti-Vaccine Sentiment Took Hold in the United States*, N.Y. TIMES (Sept. 23, 2019), www.nytimes.com/2019/09/23/health/anti-vaccination-movement-us.html.

¹¹ Angela Saini, *Why Race Science Is on the Rise Again*, THE GUARDIAN (May 18, 2019), www.theguardian.com/books/2019/may/18/race-science-on-the-rise-angela-saini.

¹² *The Age Gap in Religion around the World: 2. Young Adults around the World Are Less Religious by Several Measures*, Pew Research Center (June 13, 2018), www.pewforum.org/2018/06/13/young-adults-around-the-world-are-less-religious-by-several-measures/.

¹³ *In America, Does More Education Equal Less Religion?*, Pew Research Center (Apr. 26, 2017), www.pewforum.org/2017/04/26/in-america-does-more-education-equal-less-religion/.

¹⁴ See, e.g., ROBERT P. JONES, DANIEL COX, BETSY COOPER, & RACHEL LIENESCH, *EXODUS: WHY AMERICANS ARE LEAVING THE CHURCH AND WHY THEY'RE UNLIKELY TO COME BACK* (2016).

democratic institutions and our long-term chances for survival on a dying planet. In the absence of a well-thought-out reason for our science, a guiding meta-narrative that keeps us alive, the current meta-narrative of our high priests of technology is this: we do whatever we want to, just because we can, hidden behind the propaganda that technology is neutral.

WHAT'S AT STAKE?

Why would I write this book, and why should you read it? Why try to preserve the rule of law in the face of technological change? The answer is that law plays a fundamental role in helping humans adapt to new circumstances. Humans upgrade their ability to cooperate in new circumstances by upgrading their social software, their language of cooperation, their law. The biggest change in our circumstances right now is technology. Law is the discipline that adapts human systems to technological shifts. If we give up on law, especially now, we're going to have a very hard time. Put simply, no state that fails to adapt the rule of law to new technology will survive as a liberal democracy.

Law helps us sort the difference between what governments *can* do and what they *actually* do. Natural sciences technology, or “hard” technology, has always upset that balance by increasing the range of things we can do. Law must adapt, to protect important social values. Consider the development of the sword or spear: with basic technology, we can deprive each other of life and limb. Thus law adapted rules to determine when this use of technology was considered by society to be just (too often, in a war) or unjust (a private murder). The development of a new technology is not enough. We must develop social technology: norms and rules surrounding its use that will help us survive and thrive. Unfortunately, we have moved into something dangerously close to a post-legal era, in which what we can do is very nearly equated with what we should do. Take, for example, the surveillance apparatus used by most modern surveillance states. Law does not seriously constrain states' snooping on their citizens, even when the citizenry is in broad agreement that it should.¹⁵ The *ability* to snoop is equated with its *legality*. This is a fundamental failure of law.

We also need a theory by which law can respond to technology because technology is increasingly putting law directly under attack. Technologies

¹⁵ See Jonathan Turley, *It's Too Easy for the Government to Invade Privacy in Name of Security*, THE HILL (Nov. 30, 2017), <https://thehill.com/opinion/judiciary/362500-its-too-easy-for-the-government-to-invade-privacy-in-name-of-security>.

have always caused new forms of politics. The development of agriculture shifted our form of life from herding and hunting to settled life and politics in the same way that the railroad changed the nature of cities and urbanization. Politics is often not pretty, but from its manure springs some greenery of democracy. The difficulty is that if technology poisons the ground, we'll get twisted fruit. If technology is permitted to dominate politics, and if politicians wish to do away with the rule of law, we will see the emergence of very bad societies. If we do not wish authoritarian nationalism to be the dominant political form of the twenty-first century, we are going to have to understand how to help the rule of law survive technological change.

LAW AND LANGUAGE

We can no longer afford to see law as a series of dry and dusty legal codes that, in the face of evolving technology, are already obsolete by the time the laws are printed. That vision of law is just going to have to go. We must learn to see the discipline of law as a method for adapting to technological change, not a series of presently existing rules. We must attend to change in law, rather than its present state. It's like driving a car: many people look at the speedometer to see how fast they are going. That's looking at the law as it is now. But we need to be looking at how fast we are accelerating. That's a different way to look at law, and one that is necessary if law is to keep pace with technology.

In order to accelerate law, we need to understand how law works—what fuel it runs on. Law runs on language. That language is used to create cooperative fictions like statutes, kingdoms, money, days of the week, contracts, and torts, but those are only snapshots of what law is.¹⁶ Law is a series of made-up systems, rules, norms—made up by people trying to cooperate. It is a cooperative fiction created by groups of humans to help them coordinate their actions at scale. Law bubbles up between us; when we interact with each other, we build rules and norms about relationships and resources. These rules and norms expand outward and interact with others, colliding and collaborating. Over time and across geography, rules and norms spread from relationships to communities to jurisdictions and become law.

Language is humans' superpower. Humans took over the planet because they stopped dealing with threats on an evolutionary scale and started solving problems collectively, through language, by upgrading their cultural and linguistic software instead of waiting for a genetic evolutionary upgrade.

¹⁶ YUVAL NOAH HARARI, *SAPIENS: A BRIEF HISTORY OF HUMANKIND* (2015).

Language is why humans can cooperate in numbers far greater than bees or ants.

Changing our language to develop cooperative symbols like the State of California or the Rule of Law, and cooperative fictions like “all [people] are created equal” or “next Tuesday” help us follow the laws of the State of California, to treat people decently under the law, and to make it to a meeting next Tuesday. We have adapted our language to stay ahead of our shifting technological circumstances since well before nomads became farmers, farmers became town dwellers, town dwellers organized into nations, and so on, and so on. Law is the cooperative fiction that lets us live together productively under conditions of constantly changing technological context. If anything can help stabilize our life together in the face of rampant technological change, it is our superpower.

Developing law requires developing language. So we need a clear idea of what language is, what it does, how it changes, and where it comes from. Language comes from use by a linguistic community located in a context. This apparently simple statement underlies a revolution in how we think about language, rules, and law. This revolution is badly needed. For the moment, law as a discipline has surrendered its essential function—the crafting of beautiful cooperative fictions like “all [people] are created equal”¹⁷—to become a not particularly useful subbranch of economics and empirical survey studies, as I will elaborate in Chapter 6. There is nothing wrong with the tools of math or microscope, but the legal profession and legal theorists have badly lost their way. They cannot create new and generous cooperative fictions that will help us coordinate in the face of technological change, because they think that their job is to be second-rate economists or laboratory scientists. Understanding the origins and role of language and law in human cooperation and survival may help law as a discipline reclaim its soul.

A CONVERSATIONAL METHOD

Law should be understood as a system for adapting human social technology to human physical technology. Law runs on language, and it upgrades according to the rules of language. So as we discuss those rules and the role they play in the development of law, I would like to *do* so at the same time.

¹⁷ Beautiful despite the multiple obvious problems in the original expression. I use “all people” to show that our foundational norms must continue to be updated, that the original expression of a foundational norm cannot be allowed to become a trap.

My aim is for this book to be an example of this method. This book tries to develop language we can use to talk about how to develop the kind of language (law) that will help us survive the future. I will try to state my understanding of how things are and how things ought to be straightforwardly. It is important to me to be clear enough to be understood where I am right, and identifiably wrong where I am wrong. But even if stated forcefully, everything I say here is to be taken provisionally, as an introduction to a conversation. That is because a book is only half a conversation. A book is only paper until read, and the reader brings more than half the meaning to the table. If I mean to say—as I do mean to say—that life-giving language arises from community and context, then I must admit that I am missing your half of the conversation. I wish that this book were closer in form to a conversation, such that you could respond to what I say here, and I could accept your criticism, and we could develop more precise and better language for talking about the issue. That is how we would make progress.

As for my part of the conversation: I'm a lawyer and the William D. Bain Family Professor of Law at Washington and Lee University School of Law, trained at the University of Chicago, with experience in both the law-and-economics and behavioral economics traditions. I have worked in the technology sector while helping to found the language-teaching startup Rosetta Stone. I also have extensive research experience as a legal academic writing about technology subjects, including online communities, the future of property, online currencies, and cryptocurrencies, virtual worlds, mixed and augmented reality, and a host of other technology issues. My prior book showed how norms of private property have been subverted by software developers: you don't really own or control Alexa. For several years I worked with the intelligence community on a range of cutting-edge technology issues and served as privacy and civil liberties counsel for intelligence community studies in online communities. My recent work has focused heavily on privacy and new applications of cryptocurrencies and decentralized ledger technology. I conducted the research for this book in the United States; Munich, Germany; and Florence, Italy, under generous invitations from the Max Planck Institute for Innovation and Competition in Munich and the European University Institute in Florence.

My method in this book is to start a conversation about the nature of law, technology, and language that will help us better understand the problems we face as we try to develop social rules that keep a grip on a fast-changing technological environment. That environment is changing us, and how we interact, and we have the opportunity to shape it in turn. The problem is a hard one, and goes to the root of what law and language are. So in this book you will