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## Technology ethics at a crossroads

Government can shape and use it
in both familiar and innovative ways

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There is a vital role for government to play in recognizing and steering an oft-overlooked aspect of technology: trustworthiness and ethics in the ways we develop and use it.

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# Introduction

**It's common to observe that technology influences almost every part of our daily lives. What's becoming just as evident is that government influences much of the technology people encounter, even in private life and private enterprise. Government research fuels innovation. Public funding incubates initiatives. Laws and regulations steer acceptable use. And of course, governments at all levels are major purchasers of technology, with all the influence that entails.**

That means there is a vital role for government to play in recognizing and steering an oft-overlooked aspect of technology: trustworthiness and ethics in the ways we develop and use it. That is always the case, but current events amplify the need.

Initiatives such as the Infrastructure Investment and Jobs Act[1] and the president's creation of a National Artificial Intelligence (AI) Research Resource Task Force[2] under the joint auspices of the White House Office of Science and Technology Policy (OSTP) and the National Science Foundation (NSF) all have the potential to shape America's technology stance for years to come. No matter what comes of those specific measures, the pace of innovation and government's influence on it is expected to remain substantial.

1. 117th Congress (2021–2022), _H.R. 368 – Infrastructure Investment and Jobs Act_.
2. White House, "The Biden Administration Launches the National Artificial Intelligence Research Resource Task Force," June 10, 2021.

Introduction

Developers are familiar with "DevSecOps," the principle that security must be built into a technology, not layered on at the end. So it is with ethics. If this moment presents a once-in-a-generation chance to "get technology right," it also represents a once-in-a-generation chance to build technology ethics into our policies and practices.

What is trustworthy and ethical technology? A technology is trustworthy when it operates as intended and protects against today's threats. A technology or its use is ethical when principled thinking has guided its technological design, delivery, and innovation. Failures of trustworthy and ethical technology aren't limited to deliberate acts; they can include racial and gender biases built into an AI system's data, accountability in financial recordkeeping, environmental effects from the operation of large data centers, or other unintended consequences. Nor are deliberate acts always explicitly defined: We know it's wrong for someone to falsify an image, for example, but what about an app design that's meant to manipulate people's attention?

Defined this way, trust and ethics in technology isn't an arena where static rules apply. It calls for awareness and vigilance, right from the source.

AI is one frontier where technology ethics is maturing before our eyes. But it isn't the only one. In parallel, levers like funding and regulation are among the most prominent tools government can use to infuse growing technologies with trustworthy and ethical principles, but they aren't the only ones either. At this crossroads, it's worth pausing to reflect on how broad the topic of technology ethics is and on the number of different ways in which the public sector can influence its adoption.

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# What are some ways federal agencies can promote trustworthy and ethical technology?

**A new frontier calls for new thinking. The ways in which government entities can promote trustworthy and ethical technology include time-honored means such as the purse and the rulebook, as the list below shows—but there are other, perhaps more far-reaching ways the public sector can use its influence to build a lasting foundation of leading practices.**

## Funding

From 19th-century railroads to NASA to DARPA[3] to COVID-19 vaccines, the public sector has often paid for the seeds that the private sector later nurtured into massive waves of societal innovation. That continues to be the case. In addition to direct funding of original research, government often supports pilot programs, public-private partnerships, task forces, and academic programs. As a major or sole funder, it sets the terms and the tone for that work. A government that understands and embraces trustworthy and ethical technology can use the power of the purse to spread that awareness throughout America's ecosystem of innovation.

3. Defense Advanced Research Projects Agency.
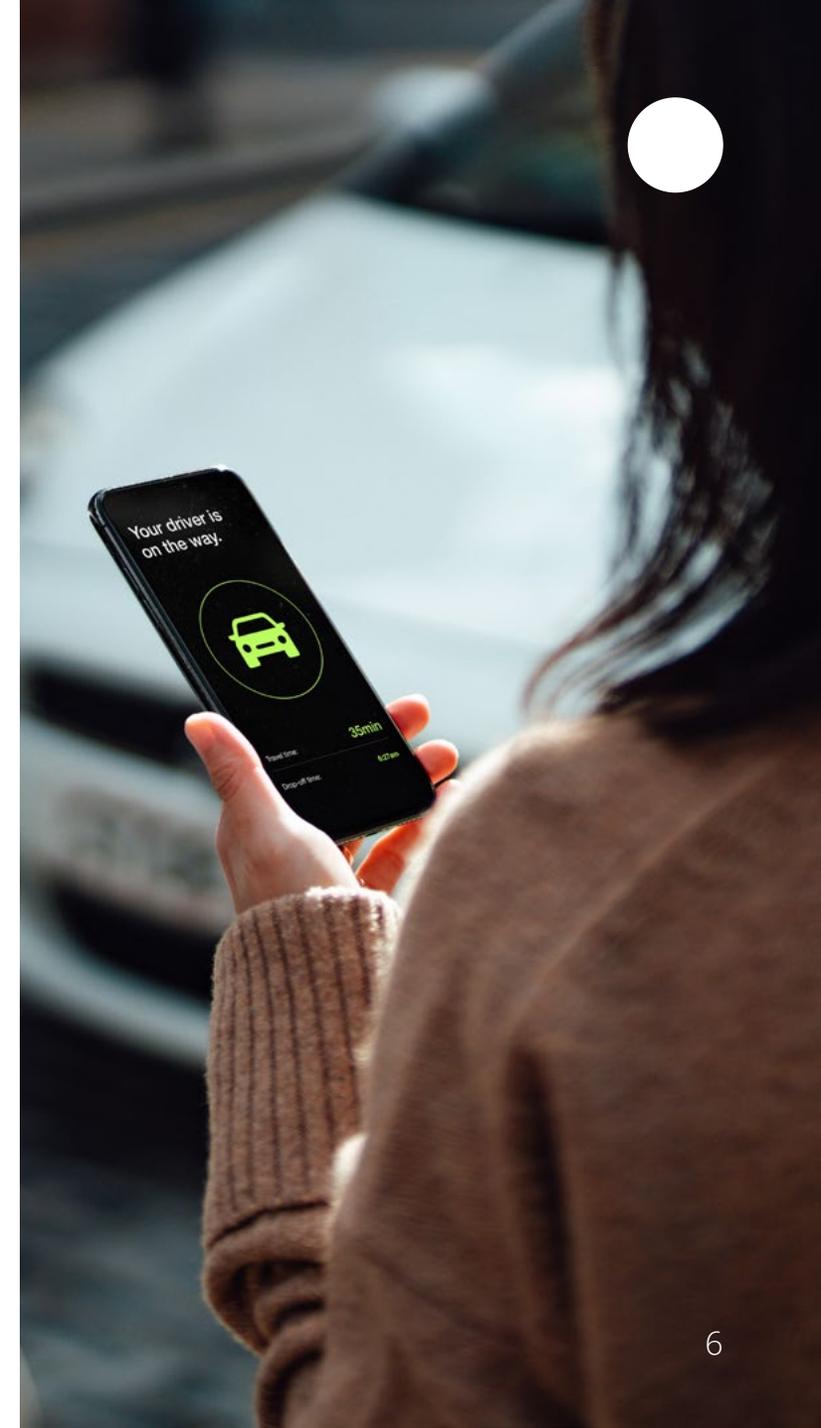
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### Regulation

Ask people about government regulation of technology, and the familiar instances will likely come up first: for example, the implications of Section 230 of the Communications Decency Act, or the privacy safeguards built into the Health Insurance Portability and Accountability Act (HIPAA). But lawmakers and agencies have far broader opportunities to shape technology toward more trustworthy and ethical uses.

### Infrastructure

A national commitment to ethical technology needs a national workforce that is attuned to recognize, develop, and demand it. That makes this a human capital challenge on a grand scale—one that will likely require new standards for training and education. Additionally, government owns or controls access to resources that many businesses, technologists, researchers, and others can use to advance and promulgate higher and more common standards. Or, in some cases, it may be the best-positioned institution to build new ones.

### Community education

The elements of a trustworthy and ethical technology future can be found scattered across many sources. Government can learn lessons from the private sector. The private sector can learn from government. Researchers in both spheres, in and out of academia, should collaborate with each other and the institutions they serve. Government can play a central role in establishing ways to share and multiply leading practices.

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### Roles of responsibility

There are watchdog and compliance positions in almost every part of government—think of inspectors general, forensic accountants, and similar roles. The future may find departments, agencies, and offices adding a "chief technology ethicist" or similar title to that roster. As a complement to whatever more central, senior authorities may reside within an administration or Congress, localized ethics officers have the potential to shape practices that conform to an agency's unique needs and to keep accountability closer to the work.

### Forging connections

Because there is more to trustworthy and ethical technology than core concerns about AI, inherent bias, and privacy, it could take a wide range of disciplines to inform long-term solutions and approaches. Government has the convening power to help everyone who works on this topic think bigger and see more broadly.

### Delegation and accreditation

Private and academic entities may have the knowledge and resources to develop guidelines and ethics for trustworthy and ethical technology. Consider as a parallel the trust consumers place in organizations such as UL (formerly Underwriters Laboratories), which performs safety tests with the authorization of the Occupational Safety and Health Administration (OSHA). Even if the guardrails for future technologies don't come from within government, government can still foster and oversee their development and application.

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# Why now?

**Neither technology nor ethics are new. But the place where they intersect has particular currency right now for a number of reasons.**

For one thing, work and life seem to be changing faster than ever, and almost every step in that process bears the influence of technology. The educational opportunities that shape a person's career options may be affected by the schools they attend, or even by the neighborhoods where their parents buy homes, which means any human biases inadvertently built into software at the agencies that oversee housing or education lending can shape people's lives.

There is similar potential for harm in many other areas where government's administration of benefits, health care, or other resources has a direct impact in people's lives and access to opportunities. Think about the post–COVID-19 workplace: People could change jobs more often and rely on remote technologies to do the jobs they have; does technology keep access to those opportunities fair? In places where visible, deliberate bias would bring down swift criticism, the use of technology may foster unintended inequities that have just as great an effect. Biases and inaccuracies that affect everyone aren't desirable, but ones that have a disparate impact require particular vigilance.

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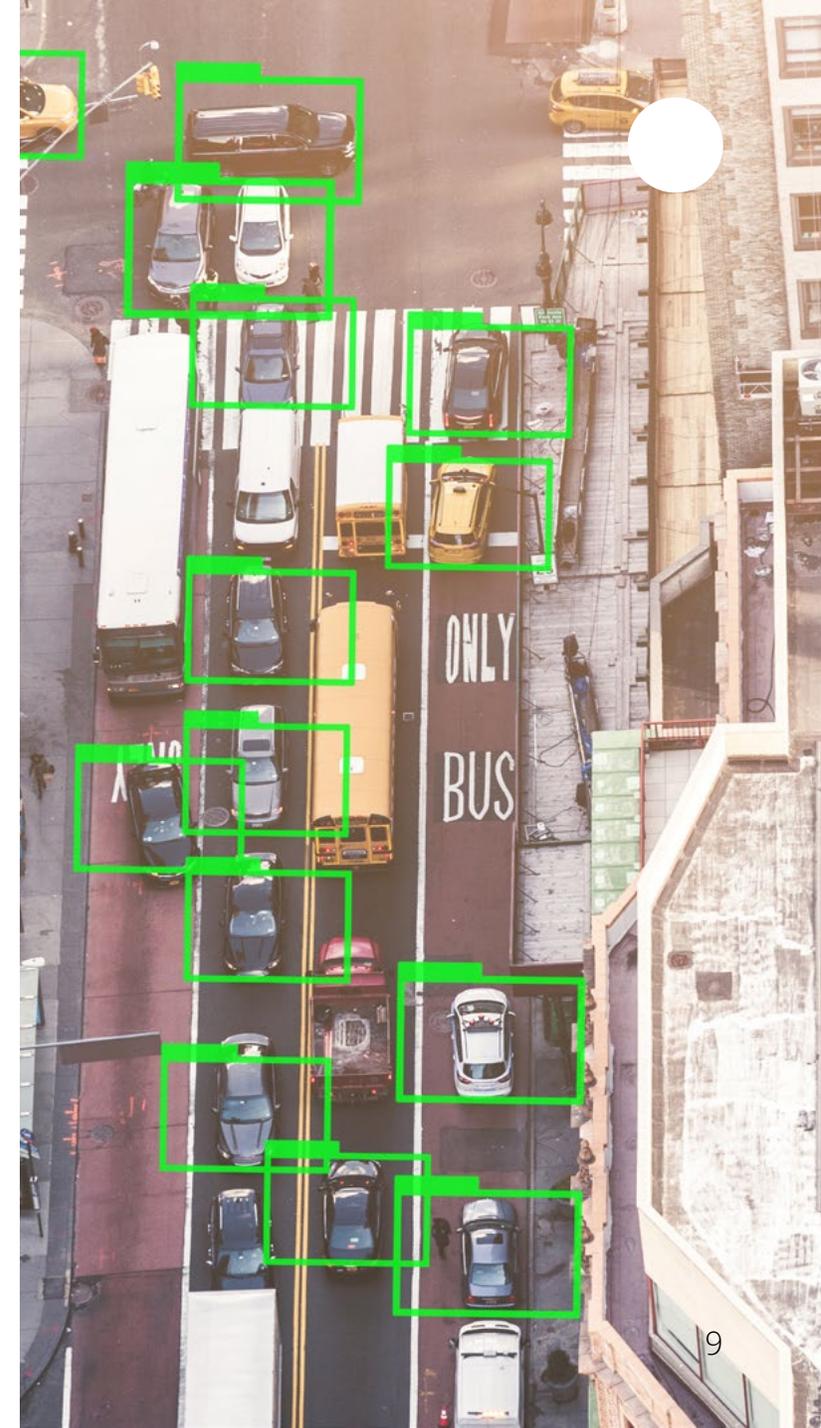
Why now?

To take another example, consider the electronic equipment commercial fishing companies use to find their catch. Because those tools make them more effective, competitive pressure makes the use of them effectively mandatory, but they are also costly. Does that represent a tacit barrier to entry to an industry whose commonly owned resource, the nation's fisheries, should be open to all? Regulation should take these downstream effects into account.

The deeper you look, the longer a list of examples like this can go on. Post–COVID-19 shifts in workforce alignment are only accelerating changes in the ways people depend on technology to work and live.

Technology's potential for ethical implications is always present and evolves along with its use. That means there is always a place for education, awareness, action, and oversight. Sometimes, biased outcomes are readily apparent. But as AI scales rapidly across every sector of the economy, less-visible inequities, like biases in the way models make inferences, can have deeper effects. In addition, these weaknesses can affect public trust in AI and other technologies just as they are becoming more vital. That means the people who create and implement technology need to be constantly mindful of the downstream impacts of their decisions and that the mechanisms that support their work, including education, training, and public-sector support, should take that into account.

There are also the more direct influences that government has on technology through its spending on and regulation of infrastructure. Legislative initiatives like the Infrastructure Investment and Jobs Act bring that influence into the spotlight from time to time. But because it takes other forms beside direct spending and rulemaking, government investment in and control over the progress of infrastructure and technology will likely always be an active topic.

Wherever and however government drives tech policy and adoption, the current momentum for big investment and the growing reliance on technology in everyday life could make this a once-in-a-generation chance to enact big changes—which means it's a once-in-a-generation chance to do it right.

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# A path forward:
# Steps to consider now

**If one accepts the core theses we present here—that trustworthy and ethical technology is a vital interest, that government has a responsibility to foster it, and that there are levers it can use beyond the traditional means of dollars and rules—what can decision-makers do to implement these insights?**

This is an arena whose specifics emerge and evolve every day. To prepare for the required decisions, the real call to action is about awareness and attitude.

## Embrace urgency

Events that unfold in the months to come have the potential to lock in a lot of decisions for a long time. Remember the parallel with DevSecOps: If we don't "bake" trustworthy and ethical principles into technology from the start, it can be difficult to impose them on finished policies and products later. Now is the time to commit.

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### Embrace nuance

Trustworthy and ethical technology is about AI and a thousand other things. It will require some clear rules and standards, as well as other practices and attitudes that defy formal codification. The risks of inaction and the benefits of action should be easy to see—except when they aren't. The mandate: Make ethical technology a mindset, and think deeply across all technologies and applications.

### Work with partners

Some of the most advanced thinking on government and technology ethics is happening outside government and alongside industry. Government agencies seldom go it alone when they confront more traditional challenges, and this one is no different.

Through its Trustworthy and Ethical Technology practice, Deloitte is taking a leadership role in fostering necessary conversations, convening stakeholders, and establishing leading practices across public and private spheres of achievement. We are using our industry knowledge, technology implementation experience, and convening power to help define and implement trustworthy and ethical technology in all its implications so that people and organizations everywhere can enjoy a technology-enabled future that delivers more benefits and fewer harms.

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# Power and potential

In an arena as pervasive and influential as emerging technologies, government's direct and indirect influence puts it in a position to shape the forces that shape…practically everything else. There is no practical likelihood that anyone or anything can slow the pace of innovation. But there's more to progress than velocity. A technology future that serves everyone fairly and faithfully will require guidance as well. For the planners, visionaries, procurers, and rulemakers who embody the power of government, today offers an opportunity to take creative steps whose effects are expected to resonate for years to come.

# Acknowledgments

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