



Office of Technology

UNITED STATES OF AMERICA
Federal Trade Commission
WASHINGTON, D.C. 20580

**Remarks from the Office of Technology
Chief Technologist, Stephanie T. Nguyen
At a Convening for MIT's Internet Policy Research Initiative at the
Computer Science and Artificial Intelligence Lab**

Three Sharp Thorns: On Tech Innovation and Regulation

May 17, 2023

Good afternoon, and thanks for joining me to learn more about tech at the FTC. Before I begin, I want to note that my comments today are my own and do not necessarily reflect the position of the Federal Trade Commission or any individual Commissioner.

It's great to be back at MIT, surrounded by so many sharp scholars who want to both advance technology and protect against unfair business practices and unfair methods of competition.

I'm Stephanie T. Nguyen, Chief Technology Officer at the Federal Trade Commission. I'm the daughter of Vietnamese refugees. I grew up in a household deeply rooted in the pursuit of opportunity to innovate for a better future. I've taken a winding path to this position with stops along the way in government, advocacy, industry, and academia. And there's been a common thread across these roles. I've spent thousands of hours on the ground in communities to understand how technology can both help and hurt people and how it can both grant and deny opportunities along with what role our government can play.

I've seen how first-generation students who never graduated have been crushed by opaque, unauthorized charges from their loan servicers. I've worked alongside rural clinicians and their staff who have poured hundreds of labor hours into paper forms documenting quality metrics to submit medical claims. I've seen how new restaurant owners who sign up for food delivery services may be ransacked by junk fees.¹

When using a new product or service, users are often met with some version of notice and consent, which thrusts people straight into a labyrinth of legalese and hidden schemes. Consumers are bound to a lifetime of being tracked in their digital and physical lives. Scammers thrive in hidden corners of the market to feast upon those who are in desperate need of information or resources. Giant corporations with armies of lawyers and lobbyists do whatever it takes to protect the bottom line at the expense of everyday people.

¹ Press Release, Fed. Trade Comm'n, Federal Trade Commission Explores Rule Cracking Down on Junk Fees (Oct. 20, 2022), <https://www.ftc.gov/news-events/news/press-releases/2022/10/federal-trade-commission-explores-rule-cracking-down-junk-fees>.

I'm here to share my thoughts on some of the biggest problems we have yet to solve and outline what's next for the Office of Technology.

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On Innovation and Regulation

First, I'd like to share a bit more about the Federal Trade Commission. Our mission is to enforce competition laws and prevent unfair or deceptive practices in the marketplace. The agency uniquely oversees broad areas of the economy, and for years, the FTC has continued to refine its investigatory tools and skillset to parallel technological developments in the marketplace.² Technologists have worked at the FTC for over a decade and have been laying the foundations to apply technical skills in the context of a regulatory agency.³

One vision for this work is marked by a vibrant economy fueled by fair competition and robust consumer protections. I want our agency to contribute to the dynamism and strength of the marketplace so that new companies can develop, scale, and compete on an equal footing. I want to see the next generation of technologies emerge and ensure that existing dominant players cannot stifle emerging competitors. I want to be a part of a mission that encourages the next generation of innovators to dream big, allowing new businesses to thrive and valuable technological advancements to flourish.

When companies face less competition, they have less incentive to innovate and improve. Government regulators can step in and help restore vibrant, competitive markets. As Chair Khan wrote in the *New York Times*, it was in fact “government action [that] required AT&T to open up its patent vault [...] unleash[ing] decades of innovation and spurred the expansion of countless young firms.”⁴

Today, AI companies are accelerating the shift from curation of existing content—such as recommendations for videos, music, and movies—to using data inputs to create new content through voice cloning, deepfake videos, and analyzing information. These systems can also be used to automate critical decisions with little oversight.⁵ Here begins a possible race to the bottom—where companies will be pressured to develop and deploy faster, landgrab more users and their data, and shut out their competitors—all to boost their bottom line. These accelerated experiments rolled out to hundreds of millions of people in a matter of months, which can force people to absorb the outcomes of harm with little to no choice.

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² Stephanie T. Nguyen, *A Century of Technological Evolution at the Federal Trade Commission*, TECH@FTC (Feb. 17, 2023), <https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2023/02/century-technological-evolution-federal-trade-commission>.

³ These technologists include Aaron Alva, Lerone Banks, Joe Calandrino, Min Hee Kim, and Phoebe Rouge.

⁴ Lina M. Khan, *We Must Regulate A.I. Here's How.*, N.Y. TIMES (May 3, 2023), <https://www.nytimes.com/2023/05/03/opinion/ai-lina-khan-ftc-technology.html>.

⁵ The Ezra Klein Show, *Ezra Klein Answers Listener Questions on A.I.*, N.Y. TIMES, <https://www.nytimes.com/2023/04/07/podcasts/ezra-klein-show-ama-april2023-transcript.html>.

Three Sharp Thorns

I want to draw out three persistent themes of problems, many of which have been highlighted by recent FTC cases.

First, design is a downstream reflection of business models. Over the last year, the FTC⁶ considered initiating a rulemaking proceeding on “commercial surveillance,” which underscores the connection between corporate incentives and product design.⁷ Design—whether deceptive, manipulative, or coercive—is inextricable and flows directly from the business models and the executives behind them. Seemingly innocuous design tactics—from a tiny button or icon to the choice to implement infinite scroll or to autoplay videos—must be viewed as part of the broader system that fuels how a company makes profit or sustains its dominance in the market. A product ostensibly designed as a photo sharing platform may in fact be riddled with countless features designed to collect data on user behavior and in turn sell that data for ads.

The FTC brought cases against BetterHelp⁸ (with a case team led by attorneys Miles Plant, Manmeet Dhindsa, and Ryan Mehm) and GoodRx⁹ (led by attorney Ronnie Solomon), two digital healthcare platforms, for allegedly sharing user health data with third parties for advertising.¹⁰ Both cases highlight the use of third-party tracking pixels, which are both invisible and by default, enable platforms to amass, analyze, and infer information about user activity. The remedies in these cases include strong bans that place strict, comprehensive limits on whether and how certain user information may be disclosed for advertising—signaling our commitment to tackling problems upstream.

Second, default product and system choices are often optimized for companies, not people. Many companies structure their products and services to collect unnecessary data from consumers by default. And even when consumers indicate that they consent to data collection, that data is often used, distributed, and sold far beyond the scope of what consumers expect. For a product to work, some information may be required, but that does not mean it is necessary to collect a heatmap of all your mouse clicks. In fact, agency staff have approached cases relating to

⁶ Trade Regulation Rule on Commercial Surveillance and Data Security, 86 Fed. Reg. 51,273 (Aug. 22, 2022), <https://www.federalregister.gov/documents/2022/08/22/2022-17752/trade-regulation-rule-on-commercial-surveillance-and-data-security>.

⁷ In the FTC’s Advance Notice of Proposed Rulemaking, “commercial surveillance” refers to the collection, aggregation, analysis, retention, transfer, or monetization of consumer data and the direct derivatives of that information. *See id.*

⁸ Fed. Trade Comm’n, Press Release, FTC to Ban BetterHelp from Revealing Consumers’ Data, Including Sensitive Mental Health Information, to Facebook and Others for Targeted Advertising (Mar. 2, 2023), <https://www.ftc.gov/news-events/news/press-releases/2023/03/ftc-ban-betterhelp-revealing-consumers-data-including-sensitive-mental-health-information-facebook>.

⁹ Fed. Trade Comm’n, Press Release, FTC Enforcement Action to Bar GoodRx from Sharing Consumers’ Sensitive Health Info for Advertising (Feb. 1, 2023), <https://www.ftc.gov/news-events/news/press-releases/2023/02/ftc-enforcement-action-bar-goodrx-sharing-consumers-sensitive-health-info-advertising>.

¹⁰ FTC Office of Technology, *Lurking Beneath the Surface: Hidden Impacts of Pixel Tracking*, TECH@FTC (Mar. 16, 2023), <https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2023/03/lurking-beneath-surface-hidden-impacts-pixel-tracking>.

default design choices through Frostwire,¹¹ Facebook,¹² Vizio,¹³ and Venmo.¹⁴ and have seen how companies can use account security data to sell targeted ads.¹⁵ Moreover, the sale of sensitive data places consumers at significant risk, as reflected in Kochava,¹⁶ a case filed in federal court by attorneys Brian Shull and Julia Horwitz. It's not just consumer-facing products, either: the way cloud service providers design their systems can make it easy for customers to introduce vulnerabilities, which eventually end up putting consumers at risk.¹⁷

This year, the agency secured a record-setting order¹⁸ against Epic Games, creator of a popular online video game *Fortnite*, resolving numerous privacy allegations—including that Epic harmed kids and teens by matching them to strangers in *Fortnite* with on-by-default voice and text chat. Led by attorney Andrew Hasty, the FTC alleged that kids and teens have been bullied, threatened, and harassed, including sexually, through the game's default settings, and were exposed to dangerous and psychologically traumatizing issues such as suicide and self-harm.¹⁹ Going forward, the order requires Epic to adopt strong privacy default settings for children and teens, and delete personal information that Epic had allegedly unlawfully collected from children through *Fortnite*.

Third, seismic technological shifts can go unnoticed by consumers in the moment, but can introduce systemic risks to the economy or innovation. Therefore, we need to pay greater attention to how tech changes those dynamics. In the early 2000's, the proliferation of mobile devices led to an ecosystem change where initially, virtually every phone manufacturer

¹¹ Fed. Trade Comm'n, Press Release, Peer-to-Peer File-Sharing Software Developer Settles FTC Charges (Oct. 11, 2011), <https://www.ftc.gov/news-events/news/press-releases/2011/10/peer-peer-file-sharing-software-developer-settles-ftc-charges>.

¹² See *In re Facebook, Inc.*, <https://www.ftc.gov/legal-library/browse/cases-proceedings/092-3184-182-3109-c-4365-facebook-inc-matter>.

¹³ Fed. Trade Comm'n, Press Release, VIZIO to Pay \$2.2 Million to FTC, State of New Jersey to Settle Charges It Collected Viewing Histories on 11 Million Smart Televisions Without Users' Consent (Feb. 6, 2017), <https://www.ftc.gov/news-events/news/press-releases/2017/02/vizio-pay-22-million-ftc-state-new-jersey-settle-charges-it-collected-viewing-histories-11-million>.

¹⁴ Fed. Trade Comm'n, Press Release, PayPal Settles FTC Charges that Venmo Failed to Disclose Information to Consumers About the Ability to Transfer Funds and Privacy Settings; Violated Gramm-Leach-Bliley Act (Feb. 27, 2018), <https://www.ftc.gov/news-events/news/press-releases/2018/02/paypal-settles-ftc-charges-venmo-failed-disclose-information-consumers-about-ability-transfer-funds>.

¹⁵ Fed. Trade Comm'n, Press Release, FTC Charges Twitter with Deceptively Using Account Security Data to Sell Targeted Ads (May 25, 2022), <https://www.ftc.gov/news-events/news/press-releases/2022/05/ftc-charges-twitter-deceptively-using-account-security-data-sell-targeted-ads>.

¹⁶ Fed. Trade Comm'n, Press Release, FTC Sues Kochava for Selling Data that Tracks People at Reproductive Health Clinics, Places of Worship, and Other Sensitive Locations (Aug. 29, 2022), <https://www.ftc.gov/news-events/news/press-releases/2022/08/ftc-sues-kochava-selling-data-tracks-people-reproductive-health-clinics-places-worship-other>.

¹⁷ Remarks from the Deputy Chief Technology Officer Alex Gaynor at the FTC Panel Event on Cloud Computing: Taking Stock and Looking Ahead (May 11, 2023), <https://www.ftc.gov/news-events/news/speeches/remarks-deputy-chief-technology-officer-alex-gaynor-ftc-panel-event-cloud-computing-taking-stock>.

¹⁸ Fed. Trade Comm'n, Press Release, Fortnite Video Game Maker Epic Games to Pay More Than Half a Billion Dollars over FTC Allegations of Privacy Violations and Unwanted Charges (Dec. 19, 2022), <https://www.ftc.gov/news-events/news/press-releases/2022/12/fortnite-video-game-maker-epic-games-pay-more-half-billion-dollars-over-ftc-allegations>.

¹⁹ Complaint, *United States v. Epic Games, Inc.*, No. 5:22-cv-00518 (E.D.N.C Dec. 19, 2022), https://www.ftc.gov/system/files/ftc_gov/pdf/2223087EpicGamesComplaint.pdf.

had their own operating system and now, there are significantly fewer.²⁰ These shifts can take place at different layers composing a product or service—including computer chips,²¹ cloud computing infrastructure, or algorithms—which can significantly alter the trajectory of a technology as well as impact supply chains in the economy.

- **Semiconductor chips** play a vital role in a broad array of tech development. In 2021, the FTC sued to block the merger of Nvidia and Arm,²² in what would have been the biggest semiconductor merger ever. The complaint alleged that the merger would have locked up key inputs that threatened innovation. These issues could create vulnerabilities in the supply chain like we saw during the pandemic²³ or prevent the development of next-generation technologies—from super-efficient and secure cloud data centers to self-driving cars.
- **Cloud computing** has transitioned storage and computational power from physical servers to virtual infrastructure which has enabled startups to innovate at a faster pace without sizeable investments in datacenters.²⁴ Cloud computing is expected to generate \$591 billion in revenue in 2023²⁵ and is increasingly a central part of the economy, as computationally intensive novel technologies powered by large language models proliferate. As Chair Khan recently observed, “the FTC wants to make sure we fully understand what factors lead to the market being so concentrated in the hands of a few companies, and what are some of the downstream risks associated with that concentration.” To name just one concern: this concentration could create single points of failure²⁶ where outages can down large swaths of the internet for hours at a time.²⁷
- **Models and algorithms** can drive innovation by determining how new functionalities and features are developed for quality and effectiveness. We know that unrepresentative

²⁰ See, e.g., Maurizio Naldi, *Concentration in the Mobile Operating Systems Market*, arXiv (May 16, 2016), <https://arxiv.org/abs/1605.04761>; Kaloyan C., *Gone But Not Forgotten; A Brief History of Failed Smartphone Operating Systems*, PhoneArena (Feb. 3, 2017), https://www.phonearena.com/news/Gone-but-not-forgotten-a-brief-history-of-failed-smartphone-operating-systems_id90517/page/3.

²¹ Fed. Trade Comm’n, Press Release, FTC Settles Charges of Anticompetitive Conduct Against Intel (Aug. 4, 2010), <https://www.ftc.gov/news-events/news/press-releases/2010/08/ftc-settles-charges-anticompetitive-conduct-against-intel>.

²² Fed. Trade Comm’n, Press Release, FTC Sues to Block \$40 Billion Semiconductor Chip Merger (Dec. 2, 2021), <https://www.ftc.gov/news-events/news/press-releases/2021/12/ftc-sues-block-40-billion-semiconductor-chip-merger>.

²³ Samuel K. Moore, *How and When the Chip Shortage Will End, in 4 Charts*, IEEE SPECTRUM (Mar. 28, 2023), <https://spectrum.ieee.org/chip-shortage>.

²⁴ See Alex Gaynor, *supra* note 17.

²⁵ Cloud Computing Market Size, Share & Trends Analysis Report, Grand View Research, <https://www.grandviewresearch.com/industry-analysis/cloud-computing-industry>.

²⁶ A Treasury report highlighted concerns about the potential for “cascading impact across the broader financial sector” from vulnerabilities or incidents at a major cloud provider. Press Release, U.S. Dep’t of the Treasury, New Treasury Report Assesses Opportunities, Challenges Facing Financial Sector Cloud-Based Technology Adoption (Feb. 8, 2023), <https://home.treasury.gov/news/press-releases/jy1252>. See FTC Office of Technology, An Inquiry Into Cloud Computing Business Practices: The Federal Trade Commission is Seeking Public Comments, TECH@FTC (Mar. 22, 2023), <https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2023/03/inquiry-cloud-computing-business-practices-federal-trade-commission-seeking-public-comments>.

²⁷ See *id.*

datasets and faulty classifications, however, can lead to massive discriminatory outcomes²⁸ that can have irreversible outcomes for consumers like being denied healthcare, housing, or employment.²⁹

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Next Steps

I've outlined a few ways our team is thinking about sharp thorn problems in technological markets. So, what's next our team?

We are building capacity. We're onboarding the best technologists in the country with expertise across a range of topics like browser security, social scoring, app store payment fraud, and genetic data privacy.

Being knowledgeable about tech is baseline critical. We're also hiring people relentlessly focused on having an impact and enforcing the law. We want researchers with killer instincts to follow every crumb and crack down on companies that will do anything to shield their outsized power. We want software engineers who can surgically pry back the intricate machinery of "the black box algorithm" and ask for the inputs, variables, and parameters of those algorithms. We want user researchers who can connect with communities and humans to translate the complex, lived experience of immutable harms from illegal conduct. Our technologists are nimble enough to sharply follow changing developments in the market and help mobilize these findings into our work.

Integrating technologists has increasingly become part of the DNA of the FTC. As Chair Khan as observed, the creation of this office was "a natural next step in ensuring we have the in-house skills needed to fully grasp evolving technologies and market trends as we continue to tackle unlawful business practices and protect Americans."

We're working in lockstep with staff across the agency on sustainable ways to augment our work and continue to build momentum for many years to come.

Technologists are deeply focused on delivering on the mission. The FTC is a law enforcement agency and our technologists are here to support and strengthen how the FTC enforces the law. Every technologist is working on critical casework and investigations across competition and consumer protection matters. The team works with case staff to ask precise tech questions and think through remedies to get at the root causes of harm.

²⁸ Emily M. Bender, Timnit Gebru, Angelina McMillan-Major & Shmargaret Shmitchell, *On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?*, PROCEEDINGS OF THE 2021 ACM CONFERENCE ON FAIRNESS, ACCOUNTABILITY, AND TRANSPARENCY 610 (2021), <https://dl.acm.org/doi/10.1145/3442188.3445922>.

²⁹ Fed. Trade Comm'n, Press Release, FTC Report Warns About Using Artificial Intelligence to Combat Online Problems (June 16, 2022), <https://www.ftc.gov/news-events/news/press-releases/2022/06/ftc-report-warns-about-using-artificial-intelligence-combat-online-problems>.

Technologists are using our subject matter expertise to help highlight and translate the shifts in business models, like the shift from third-party to first-party data in the ad ecosystem that could further entrench large tech companies.³⁰ Companies can already build a detailed user profile of people using publicly available data, which can further be exacerbated with large language models.

And we won't wait for harms to fester. Our team is using our tools to amplify how we use our research functions to stay on top of market changes. We're regularly conducting briefings with staff on key topics of interest. Staff recently launched a request for information on cloud computing³¹ and worked with our Bureau colleagues to hold a public panel³² to amplify the drumbeat on these issues and engage with others who may be exploring similar questions.

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In summary, as the Office of Technology looks to our next steps, we are committed to:

1. Thinking critically about systemic harms and impacts.
 - a. Design is a downstream reflection of business models
 - b. Default product and system choices are often optimized for companies, not people
 - c. Seismic technological shifts can introduce systemic risks to the economy or innovation
2. Building capacity across the agency.
3. Delivering on the agency's mission.

I'm grateful to be here with you all today—to connect with sharp researchers, practitioners, and academics who are determined to have an impact alongside the work we're doing.

There's much to do at the FTC and we have clear statutory authorities to block anticompetitive deals and crack down on consumer harms. I believe in competitive markets and protecting consumers. I believe when companies don't compete, they have less reason to innovate and improve. As we continue to think about our role in fostering a vibrant American economy—with fair competition and an empowered public—this is a value that we aim to keep close as the Office of Technology charts forward. Thank you.³³

³⁰ FTC Office of Technology, *supra* note 10.

³¹ Fed. Trade Comm'n, Press Release, FTC Seeks Comment on Business Practices of Cloud Computing Providers That Could Impact Competition and Data Security (Mar. 22, 2023), <https://www.ftc.gov/news-events/news/press-releases/2023/03/ftc-seeks-comment-business-practices-cloud-computing-providers-could-impact-competition-data>.

³² Fed. Trade Comm'n, Press Release, FTC to Host Virtual Panel Discussion on Cloud Computing, Extends Comment Deadline (May 4, 2023), <https://www.ftc.gov/news-events/news/press-releases/2023/05/ftc-host-virtual-panel-discussion-cloud-computing-extends-comment-deadline>.

³³ Thank you to my colleagues for their help and support with these remarks: Alex Gaynor, Josh Goodman, Hillary Greene, Andrew Hasty, Julia Horwitz, Zehra Khan, Nick Jones, Sam Levine, Kevin Moriarty, John Newman, Miles Plant, Ronnie Solomon, Olivier Sylvain, Holly Vedova, and Daniel Zhao.