Building Tech Capacity in Law Enforcement Agencies

On strengthening foundations and pathways for public interest technologists in government

Acknowledgements

Office of Technology ("OT") was founded in 2023 with the purpose of strengthening and supporting law enforcement investigations and actions, advising and engaging with FTC staff and the Commission on policy and research initiatives, and engaging with the public and relevant experts to understand trends and to advance the Commission's work. A year after OT's founding, this report describes why and how the FTC continues to amplify its mission by hiring tech expertise.

This report is meant to establish a shared context and serve as a resource for building technical capacity in government agencies, highlighting how OT applies subject matter experts in regulatory and enforcement contexts. OT notes that there are many successful models and approaches both at the FTC[2] and at other agencies[3] to consider. The scope of this report is focused on OT's model.

First, this report introduces the technological moment in which the FTC finds itself. It then explains how the increased integration of technology into the economy has caused regulators and law enforcers across the world to draw on technologists to advance the public interest. Next, it describes past eras of technological change, and gives examples of how the FTC adapted to some of those changes.

The paper's core then describes the structure of OT, its work within the agency, and considerations for other governmental arms seeking to integrate technologists into their work. Finally, we include a pocket guide outlining a sample position description for consideration by agencies hiring technologists.

Section 1: An Economy Driven by Technology

Congress established the Federal Trade Commission in 1914. Nearly 110 years later, swaths of the American economy rely on technologies that did not exist at the inception of the agency. Digitization has touched every aspect of the US economy, including health, art, manufacturing, and journalism. Digitization has also catalyzed new forms of scientific discovery, driven efficiencies, and expanded communications capabilities. Chair Khan acknowledged this history of innovation in her November 2023 speech at Stanford's Institute for Economic Policy Research[4] where she described how a commitment to free enterprise and fair competition "has allowed the United States to harness the talents of its citizens, reap breakthrough innovations, and lead as an economic powerhouse."

Amidst this extraordinary increase in digitization, the Commission has protected consumers from unlawful conduct across sectors as diverse as digital advertising, social networking, and e-commerce. In recent decades, for example, some corporations em

over key services and locking in business models that come at extraordinary cost to our privacy and security," Chair Khan wrote recently regarding the "Web 2.0" digital economy.[6]

Too often, corporate actors have provided an illusion of choice to their customers,[7] or have employed harmful defaults and design patterns that put their bottom line above individual autonomy, and, in many cases, the law.[8] The rise of the surveillance economy,[9] and its attendant concentration[10] have demonstrated that the American public requires well-equipped regulators and law enforcers who understand the digital economy.

In this particular moment, the growth of Artificial Intelligence ("AI") – and generative AI in particular – demonstrates how a new platform shift can "turbocharge fraud, automate discrimination, and entrench surveillance, putting people in harm's way."[11] Users for some generative AI services have increased from zero to hundreds of millions in just months.[12] At the sa se(11)Tjgfe, concern about harms from these new technologies seems to be increasing outside of the scholarly, technical, or advocacy circl11s where such harms have been studied and understood for years.[13]

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[6] Chair Khan, *We Must Regulate A.I. Here's Ho*   The New York Times (May 3, 2023), https://www.nytimes.com/2023/05/03/opinion/ai-lina-khan-ftc-technology.html
[7]

The generative AI space also sees many of the same concerns around concentration that Web 2.0 experienced.[14] Concentration seems to increase as one moves further down the tech stack[15] – and business and individuals have voiced the impacts on their work and opportunity to compete.[16]

The Response

Some have highlighted[17] that an approach using self-regulation to prevent such harms is untenable.[18] Regulators and law enforcers around the world are studying potential concentration and anti-competitive practices across the AI tech stack, including in hardware and infrastructure,[19] data and models,[20] front-end applications[21] – and for other products across the digital economy.[22] Regulators can act faster and more effectively with an increased understanding of digital market dynamics; in order to do so, government enforcers across the world need to continue to strengthen this expertise. There is much more to be done to understand how to effectively recruit, onboard, and structure teams of technologists across policy and enforcement processes.

Now is a critical moment for law enforcers and regulators to commit to bolstering internal technology expertise. The FTC's counterparts seem to agree: In conjunction with the release of this report, the Office of Technology worked with a number of international partners in acknowledging the importance of technology capacity-building in enforcement agencies.[23] Separately, a number of federal and state agencies released agency-specific action statements on tech capacity. These statements reflect concrete action to increase tech capacity, including actively hiring technologists.

Technology may evolve – generative AI being replaced by a new fundamental shift in the next year, or in the next decade – but the increasing digitization of the entire economy is here to stay. Over a

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[14] Chair Khan,

century after it was founded, the FTC continues to shape the movement for public interest technologists in law enforcement agencies around the world.

Section 2: The persistent and increasing need for technology capacity in law enforcement agencies: experimentation with different models or institutional structures.

As technology evolves, so do the needs and goals of government law enforcers. "The FTC's functions have changed as Congress passed new laws and as social trends changed," explained a former FTC economist who held a variety of roles at the agency.[24] Responding to the changing market, agencies across the U.S. and around the world have set up technical teams to support the mission and mandate of these agencies – providing industry-relevant, practical, and hands-on knowledge about the new mediums and mechanisms used to engage in potentially harmful business practices. This section highlights the prior and existing efforts from the FTC and government pra lly cti21.5.6 (media(li)-6.ke)-5.2 (e)1.3 (d go02.96c 0008 Tw -19. FTC (h)2.1 n)-10m-5.6st, nmhss FTCxistibat the agenc

momentum and progress they continue to build. With regard to the scope of this report, it is notable that a number of these agencies have established their own unique tech, data, or digital markets units and mandates in which technologists serve as subject matter experts or help strengthen their respective agency missions, including by working alongside lawyers and policymakers to enforce the law and regulate the market.[50] OT recognizes the experience these partners shared that impacted the FTC's technologist capacity-building efforts.[51]

Digital Capacity Building in the FTC: For the FTC specifically, the agency has, over the decades, hired experts to build out the agency's Bureau of Economics[52] with economists and data analysts who analyze the economic impact of government regulations on businesses and consumers. There are also technologists embedded in the agency's Division of Litigation Technology & Analysis[53] to work with attorneys to assess case needs, manage the technological tools used to conduct investigations and litigation, and evaluate and implement technologies. Moreover, the agency's Division of Consumer Response and Operations collects and analyzes data to target law enforcement and education efforts and measure the impact of activities related to the FTC's consumer protection mission, including managing the Consumer Sentinel

not aim to be fully comprehensive of the agency's very detailed history, it outlines a handful of technological developments over the past several decades and illustrates how the FTC adapted its structure along the way.

Radio: Amidst a backdrop of global economic and political crisis, powerful labor unions,[56] and an era that "emphasized simplicity and thrift,"[57] by the 1930's radio broadcasting had become a critical factor in people's social, political and economic lives – bringing world news, music, and other forms of entertainment into family living rooms. In 1934, the FTC was "determined to take steps looking to closer scrutiny and more rigid regulation of the large volume of radio advertising."[58] The agency had created the Special Board of Investigation in 1929 to review the advertisements in periodicals, and in 1934 this Board began reviewing radio advertisements as well.[59]

Television: Around the late 1940s,[60] television's emergence as a national medium brought live broadcast programming across the country, which became a critical mass medium for entertainment, advertising, and news. Similar to radio, this impacted the way the FTC had to adapt to a new device, along with new forms of scrutiny and analysis. In 1938, the FTC created the Division of Radio and Periodical Advertising to replace the Special Board of Investigation, enabling the agency "more effectively to discharge the additional dutie552.-4.6 singTJset4 (e 1196iodie(e)3.8 d in)on7 (e agec.5 (,)2d2rion)-5.8 (the)-5 h,

scope – in 1950[67] it became the Division of Medical and Chemical Opinions, and in 1953[68] it became the Division of Scientific Opinions to "furnish scientific facts and opinions concerning the composition and efficacy of foods, drugs, medical devices, cosmetics," "analyze and test samples of products under investigation," and "gather information with respect to their composition, nature, effectiveness and safety."

The Internet: The 1980s and 1990s brought a "rise of a new digital generation,"[69] ushering in an era in which people could browse virtually any topic, blogging and forums highlighted fresh ideas, and consumers began seeing the benefits of online commerce. The agency kept up with the fast pace of technological development with organizational changes and some technological improvements of its own. To help combat telemarketing fraud, it implemented[70] "a nation-wide computer network for consumer complaints, with widespread participation by state Attorneys General and local law enforcement agencies" in 1987. In 1999 the FTC launched the Internet Lab: "Equipped with state-of-the-art personal computers, the Lab is a resource for ongoing efforts to educate ourselves about the new media and to search for fraud and deception in a secure environment. It provides the necessary equipment and software to capture Web sites and preserve them as evidence for presentation in court."[71] Over time, the Internet Lab evolved into the BCP Tech Lab[72] to further their mission of providing Internet access, devices, software, and other technological tools to conduct investigations and research in support of the FTC's consumer protection mission.[73]

Mobile Devices: The 1990s and early 2000s witnessed the massive rise of mobile phones; by 2014, the number of smartphones worldwide reached over 1 billion.[74,75] In the midst of this boom, in

data by smart-TV manufacturers. OTECH and the Division of Privacy and Identity Protection also launched PrivacyCon, the FTC's annual conference that examines the latest research and trends related to consumer privacy and data security.

Over the decades, beyond creating hubs for new technological developments, testing, or analysis, the FTC instituted legal divisions with a tech focus, including the Division of Privacy and Identity Protection in the Bureau of Consumer Protection (2006) and the Technology Enforcement Division in the Bureau of Competition (2019). Additionally, throughout its lifetime stretching back in multiple forms through the agency's history,[77] the Bureau of Economics has brought to bear its expertise in a breadth of industries.

In 2011, the Commission created a Chief Technologist position, which has since been held by eight individuals with various fields of expertise in technology and computer science.[78] Chief Technologists have served as strategic thought leaders on agency work related to technology, as well as advisors on enforcement matters.

Section 4: FTC's Office of Technology – Establishment, Mandate, and Structure

In February 2023, the agency officially voted to establish[79]

Advise and engage with staff and the Commission on policy and research initiatives:
The office works with FTC staff and the Commission to provide technological expertise on non-enforcement actions including 6(b) studies, reports, requests for information, policy statements, congressional briefings, and other initiatives.

Highlight market trends and emerging technologies that impact the FTC's work:
The office engages with the public and external stakeholders through workshops, research conferences, and consultations and highlights key trends and best practices.

Sample case study: Cases and Investigations. In a hypothetical example, the agency is investigating a digital platform to determine whether the company is engaging in unlawful conduct. An OT technologist might help the case team ask appropriate technical questions to support a case, such as:

- To what extent does the platform share first-party data among its various business lines, and how does that usage relate to the original purposes for which such data was collected?
- Do entities that handle sensitive data (e.g., health, browsing, financial, location, etc.) make use of third-party tools provided by the platform, like pixel tracking, in ways that risk exposing that data?
- How is the platform developing and implementing algorithmic pricing models? What are the inputs, variables and parameters of those algorithms?
- How does the platform (claim to) anonymize data and where does that anonymization happen? Does the platform collect identifiable data and then anonymize it or does it only collect anonymized data?
- Can the platform provide the cryptography or security protocols applicable to the collection and transfer of personal information – including how and where encryption or decryption keys are stored?

What OT is generally not – While this report outlines the structure of OT and how staff in the Office work, it may be useful to explain what OT does not generally do. Agencies have built out different models of technologist involvement based on their needs, and the FTC itself has technologists working on critical areas all across the agency. The services OT provides to the FTC may not be what other agencies need. Indeed, while OT consists of subject matter experts and tech practitioners that are embedded on enforcement work, investigations, policy, and research across the agency, other critical technologist roles across the governmental ecosystem include:

Data acquisition and data science. This includes finding various methods to acquire and handle big data and using data science to deliver new insights for cases. This area also includes using machine learning to understand and detect certain trends and problems.

Building and improving tools and software. This includes tool and software development and building efficiencies, such as using natural language processing for extensive document review.

Compliance and managing and servicing information technology. This includes procuring assets and promoting the efficiency and effectiveness of operations.

2. Structure – Technologists with a similar mandate to OT's may be housed in agencies in a number of different ways, depending on the specific resources, needs, and culture of the agency. Some examples of structures, which are certainly not exhaustive, include:

3. Skills and Expertise –

2) **Agency and staff needs.** What problem(s) would this solve? What are the agency's mission and authorities? Which agency teams are working on tech-related markets or products? Do those teams have technology experts in-house, and if not, would they be useful? What types of expertise would agency staff need in-house to better understand these technologies?

3) **Agency resources.** Government resources are often limited across staff, budget, and time. How can teams use existing resources and establish low-cost, experimental pilot programs with quick iteration to demonstrate clear successes for technologists working in policy and enforcement? How can technologists be placed to best support the agency's mission? How can teams use what resources and options they have now to meet their mission and mandate?

4) **Agency history and culture.** How have existing technologists functioned at the agency? What has been effective, and what could be improved?

5) **Agency workflow.** How do things get done? How do teams communicate? How do decisions get made?

6) **Agency sustainability.** Which structures and models will allow technologists to continue to contribute to agency priorities for years to come? Which structures and models will allow technologist contributions to evolve as technology evolves?

Conclusion + Looking ahead

The FTC's Office of Technology is part of a larger movement of technologists and government agencies around the world joining together to ensure that the global digital economy respects the law and enriches society. The FTC, through its history of evolving with technology, is fortunate to be joined by peer agencies around the globe as together and individually we are in the pursuit of better practices.

While there is much more work to do, the agency will continue to iterate and improve to protect consumers and competition. It is hoped that this report will provide one roadmap for other agencies to recruit and deploy teams of technologists in strategic planning, policy development, and enforcement – and that it serves as a call to technologists to join this exciting field.

Pocket Guide: Sample Position Description

What this is: This section outlines a sample position description which is aggregated based on publicly available materials from the Federal Trade Commission, the Consumer Financial Protection Bureau, and other agencies that have hired similar roles (sources cited below). Note: The descriptions below have been edited for clarity, applicability, and brevity.

- The Consumer Financial Protection Bureau: https://www.consumerfinance.gov/about-us/careers/cfpb-technologist/
- The Federal Trade Commission: https://www.ftc.gov/technologists
- General Services Administration: https://digital.gov/resources/sample-position-descriptions-for-digital-government-jobs/
- United States Digital Service:
    - Sample competencies: https://smeqa.usds.gov/toolkit/job-analysis/sample-competencies-proficiencies.pdf
    - Toolkit: https://smeqa.usds.gov/hiring-phases/job-analysis/
- 18F: https://github.com/18F/join.tts.gsa.gov/tree/main/positions

What this is NOT: This sample position description is not designed to be "ready to publish" as is, so teams will need to modify to meet their needs. Depending on the definition of "technologist," not all of the content here will be relevant or useful for every agency.

Who is this for? This resource aims to be helpful for agencies or organizations who are considering hiring a "technologist" and need to write and post a position description. As outlined in the report, many agencies have different definitions of the role of a "technologist."

How to use this section: Copy and paste specific bulleted text that would be useful for your position description, as needed.

High level description
Technologists are senior technology and digital service subject matter experts, who work alongside attorneys and economists to hold companies accountable for wrongdoing and ensure the marketplace is vibrant and fair for all Americans. Technologists apply their technical expertise to help the government conduct law enforcement investigations, advocate for consumer needs in policy, and research initiatives to help promote competition and consumer protection.

Qualifications
- Has specializ reds in policmarketbl60ttiet (e.g. 0.0r 1 (tivch,Tw 7 (eds ice)-4w 0 -1.2esign(att)-3.2)1.3 (pl)-60

- Has experience executing technology projects, products, platforms, or services using expertise in software development, design, product management, data science, and data engineering.
- Has experience in the full product or project lifecycle from initial launch to optimization to sun-setting.
- Has experience advising senior leaders and stakeholders on technical concepts to achieve organizational or project objectives.
- Has both lead and built projects with cross-functional, collaborative technical teams multiple times and in diverse organizations.

Skills & Expertise

- **User research** – Expertise using agile or lean expertise to align cross-functional teams around a shared vision, strategy and user needs. Experience in Product delivery, product strategy, and/or capacity building.
- **Product design and user experience** – Expertise applying siexper.219 TD$rw 6.04k5.7 mhe full2 Tc 0oTc -0.Cti

- **Duties:**
  - Identifies, analyzes, and summarizes economic, social, and financial data using technical expertise to inform senior officials to develop, modify, or enhance agency investigative or policymaking efforts.
  - Leads projects that may inform investigation or litigated matters, using a range of technical approaches or human-centered design methods and involving quantitative and qualitative data collection efforts.
  - Assists fellow technologists and/or senior leadership to quickly grasp key issues, understand available principles and practices of the digital age to improve how government serves the public and make decisions related to technical strategies that could effectively protect consumers and regulate the use of emerging technologies.
  - Maintains sufficient documentation to verify any analysis included in the materials and to reproduce the analysis, if required.
  - Collects, processes, and performs statistical analysis of data without supervision.
  - Can both leverage existing and create new data sources as appropriate.
  - Leverages existing data sources and creates new data sources as appropriate while anticipating changes to project or case requirements.
  - Evaluates and governs the use of new data technologies and architectures.
- **Core competencies:**
  - Employs analytical thinking and has a range and depth of experience doing so.
  - Anticipates the need for certain information, and analysis early in the project discovery and design process and carries metrics through iterations.
  - Demonstrates a superior ability to analyze situational dynamics in a fast-paced environment and to leverage this observational awareness to solve complex

- o Designs, creates, and tests systems to support investigations.
- **Core competencies:**
  - o Ability to clearly communicate complex topics to a variety of stakeholders and

o Views developing people as well as dealing with low performers and challenging management situations as a core responsibility, and can communicate team needs and wins both up and down their chain of command.
o Functions as a partner with technologists in all technical products and projects in which they are involved.
o Effectively makes prioritization decisions and manages to deadlines, working closely with colleagues in an iterative environment.

Engaging with stakeholders: Engage the public and relevant experts to understand trends.

- **Duties:**
  o Proactively engages with external stakeholders to identify emerging technologies that implicate the agency's mandates, and use these findings to advance the agency's work.
  o Leads or supports formal workshops, research conferences, and briefings or consultations. Technologists may also help to engage the public and relevant experts with agency staff to highlight key trends and encourage best practices.
  o Collaborates with technologists or agency management to identify emerging issues in their technical area of expertise and make recommendations on potential policy or investigative approaches.
  o Establishes and maintains contacts with technical experts at state, local, federal, and international government partners to implement a more systematic, government-wide approach to advancing the agency's mandate.
  o Provides guidance and explanations about technical strategies to staff attorneys and economists to help them understand key aspects of products or services that could assist an investigation or litigation.
- **Core competencies:**
  o Navigates both structured and ambiguous environments, with the ability to sort out a variety of problems, and is eager to help the government keep pace with the private sector.
  o Always considers effective organizational structures, and thinks beyond the scope of their team or teams.

User focused research and stakeholder engagement: Can agency compete with consumers, **x**