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Digital Surveillance of Workers: Tools, Uses, and Stakeholder Perspectives

GAO-24-107639 (Accessible Version)

Q&A Report to Congressional Requesters

August 28, 2024

Why This Matters

A range of digital surveillance tools have been developed, and employers across various industries are increasingly using them to monitor their workers. Although digital surveillance tools can provide employers with information to help improve their operations, some worker advocates are concerned that these tools can be used in ways that negatively affect workers. We were asked to examine the kinds of digital surveillance tools employers use and how such surveillance affects workers.

This report summarizes 217 public comments submitted to the White House Office of Science and Technology Policy's request for information regarding use of automated digital surveillance tools to monitor workers and the effects of such surveillance on workers. Stakeholders submitted these comments from May to June 2023. We identified 211 stakeholders who submitted comments: 91 workers, 19 advocacy organizations, 16 researchers and research organizations, 12 unions, 10 trade associations, eight technology developers, one coalition comprised of advocacy organizations and a union, and 54 unspecified stakeholders.

These stakeholders submitted comments regarding various topics such as worker productivity, privacy, and safety.

Key Takeaways

- The digital surveillance tools most frequently mentioned by stakeholders that employers use include cameras and microphones, computer monitoring software, geolocation, tracking applications, and devices worn by workers (wearables).

- Employers use digital tools to monitor (1) productivity and efficiency, (2) worker performance, (3) safety and health, and (4) workplace security.

- Stakeholders' views differed regarding the effects of digital surveillance on worker productivity and worker well-being.

- Workers and stakeholders from unions commented that digital surveillance may discourage workers from unionizing, make workers feel distrusted by their employers, and decrease workplace morale.

- Privacy was the most frequently raised concern by stakeholders and the potential for discrimination or bias was also a frequently raised concern.

What kinds of digital surveillance tools did stakeholders describe?

Stakeholders described an array of digital surveillance tools employers used to monitor workers across various industries (see fig. 1).[1]

Figure 1: Kinds of Digital Surveillance Tools Used in Various Workplaces
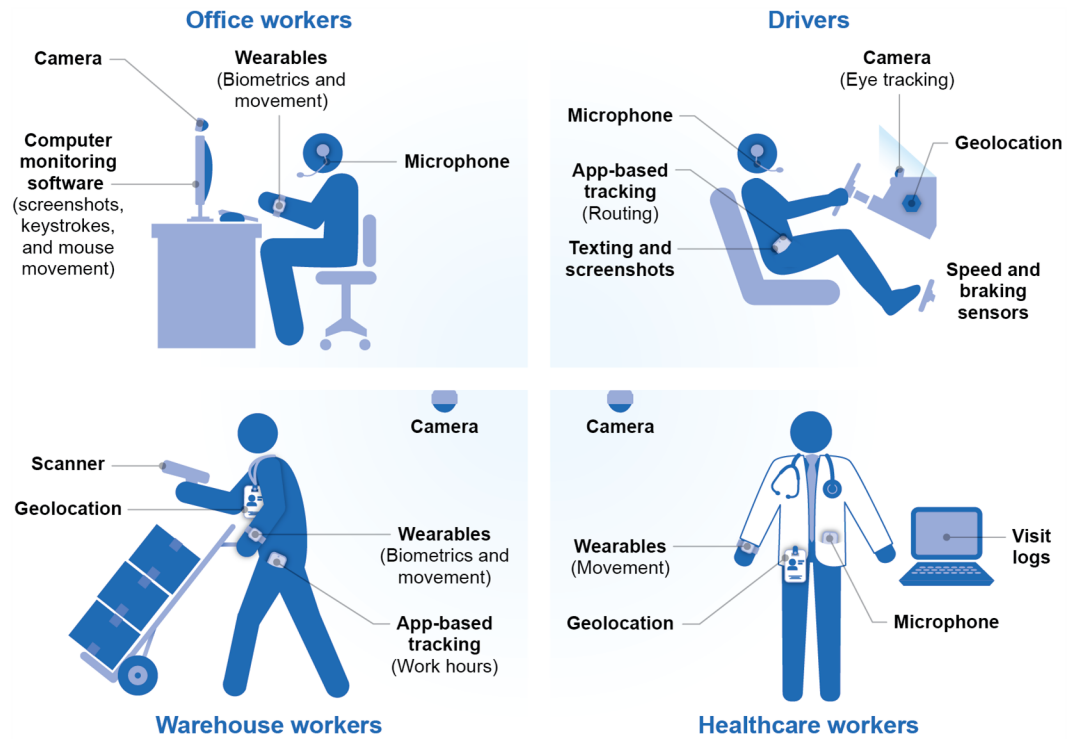
Source: GAO analysis of public comments submitted to the White House Office of Science and Technology Policy; GAO (icons). | GAO-24-107639

Accessible Text for Figure 1: Kinds of Digital Surveillance Tools Used in Various Workplaces

Office workers

- Camera
- Wearables (Biometrics and movement)
- Computer monitoring software (screenshots, keystrokes, and mouse movement)
- Microphone

Drivers

- Camera (Eye tracking)
- Microphone
- Geolocation
- App-based tracking (Routing)
- Texting and screenshots
- Speed and braking sensors

Warehouse workers

- Camera
- Scanner
- Geolocation
- Wearables (Biometrics and movement)
- App-based tracking (Work hours)

Healthcare workers

- Camera
- Wearables (Movement)
- Geolocation
- Visit logs
- Microphone

Source: GAO analysis of public comments submitted to the White House Office of Science and Technology Policy; GAO (icons). | GAO-24-107639

- **Cameras and microphones.** These video- and audio-monitoring tools were the most commonly mentioned by stakeholders. Specifically, 51 stakeholders commented that employers use cameras to monitor workers. Additionally, 22 commented that employers use audio-monitoring tools for purposes such as monitoring calls while at work (11 stakeholders mentioned both cameras and audio-monitoring tools). For instance, a company may record service representatives' phone calls for training purposes. These surveillance tools are used in sectors like warehousing, retail, healthcare, domestic service, call centers, and trucking.

- **Computer monitoring software**. This was the second most common type of digital surveillance tool, mentioned by 42 stakeholders. This software allows employers to track workers' keystrokes, mouse movements, eye movements, texts, and screenshots. In addition, stakeholders commented that the software allows employers to track workers' browser history, locations, attendance, and work activities. Stakeholders generally commented that this software is used to monitor office workers.

- **Geolocation software**. Thirty-three stakeholders commented that employers use this software to track their workers' location. This software can be installed on workers' personal phones to track their movements throughout the workday. It can also monitor vehicle speed, driving behavior, and routing. Geolocation tracking is used in industries such as long-haul trucking, delivery services, rideshare, gig work, healthcare, domestic service, and construction.

- **Tracking applications.** Thirty stakeholders commented that some employers use application-based tracking tools. These tools monitor workers' start and end times for work, body movements, speed of work, and activities. In these instances, employers require workers to download an application onto either their personal or company-provided cellphones or tablets. These applications give employers immediate information about workplace activities. According to stakeholders, application-based tracking is found in industries such as rideshare, warehousing, retail, and healthcare.

- **Wearables**. Twenty-seven stakeholders commented that employers may require workers to attach various forms of wearable technology to themselves for monitoring purposes. Electronic sensors embedded in these wearable devices track body movements, conversations, order processing, and biometric health data such as heart rate and blood pressure.[2] These tools can be found in warehouses, heavy industry, healthcare, and office settings.

What do these tools monitor?

Stakeholders commented that employers use digital tools to monitor (1) productivity and efficiency, (2) worker performance, (3) safety and health, and (4) workplace security (see fig. 2).

Figure 2: Example Uses of Digital Surveillance
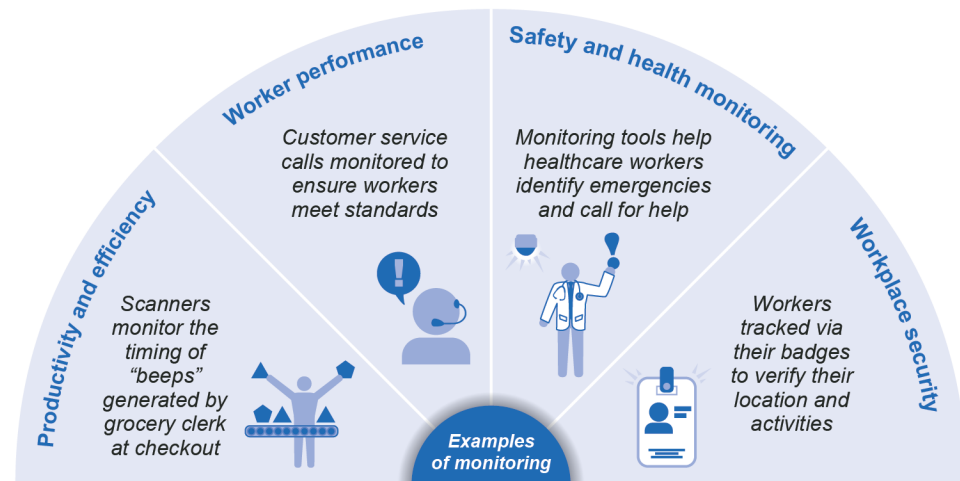
Source: GAO analysis of public comments submitted to the White House Office of Science and Technology Policy; GAO (icons). | GAO-24-107639

Accessible Text for Figure 2: Example Uses of Digital Surveillance

Examples of monitoring

- **Productivity and efficiency:** Scanners monitor the timing of "beeps" generated by grocery clerk at checkout
- **Worker performance:** Customer service calls monitored to ensure workers meet standards
- **Safety and health monitoring:** Monitoring tools help healthcare workers identify emergencies and call for help
- **Workplace security:** Workers tracked via their badges to verify their location and activities

Source: GAO analysis of public comments submitted to the White House Office of Science and Technology Policy; GAO (icons). | GAO-24-107639

- **Productivity and efficiency.** Seventy-six stakeholders commented that digital surveillance could be used to monitor worker productivity and efficiency. Productivity monitoring includes measuring the amount of work completed and whether workers are on task. For example, stakeholders from one research organization noted that increasing remote and hybrid work arrangements had raised employer concerns of workers avoiding their responsibilities. They commented that these changes had led employers to track keystrokes and webcams to evaluate productivity. Efficiency refers to whether workers are optimizing company time, money, and other resources. For example, one trade association commented that employers used digital surveillance to help establish economical work practices (see text box).

> **Comment from a trade association:**
> "Some [app-based] delivery platforms use [a worker's] location information as a tool for businesses, workers, and consumers. By leveraging such location information, from restaurant pick-up to customer dropoff, the platforms help drivers ensure they are in the right location and restaurants are able to time preparation more accurately."

Source: White House Office of Science and Technology Policy. | GAO-24-107639

- **Performance.** Sixty-four stakeholders commented that digital surveillance tools are used to determine the quality of work completed and whether workers are fulfilling their responsibilities appropriately and accurately. For instance, stakeholders from one union commented that some truck drivers may be monitored for their driving behavior, such as whether their hands are on the wheel or if their eyes are facing forward. This data can be used to

evaluate drivers' performance and may be used for disciplinary purposes in cases of distracted driving or if drivers do not complete their routes on time.

- **Safety and health.** Thirty-one stakeholders commented that employers may use digital surveillance to ensure worker safety and prevent accidents. Nine stakeholders commented that employers may use digital surveillance tools to assess their workers' health as they complete their responsibilities. For instance, stakeholders from a union commented that some employers require workers to wear monitors to collect data on workers' heart rate or blood pressure to evaluate mental or physical stress levels.

- **Security.** Thirteen stakeholders commented that digital surveillance can also be used to maintain security—ensuring only authorized personnel enter the workplace and preventing loss, theft, or waste of resources. For example, a researcher reported that facial recognition technology can monitor workers handling sensitive information and send alerts if an unauthorized person accesses the information.

How does digital surveillance affect worker productivity?

Stakeholders' views differed regarding the effect of digital surveillance on worker productivity. Researchers and stakeholders from unions and advocacy organizations commented that it is difficult to know its effects because digital surveillance tools may not accurately measure productivity. However, other stakeholders offered differing views on how digital surveillance affects worker productivity. For example, trade associations and researchers commented that digital surveillance increases worker productivity. In contrast, other stakeholders said that it reduces worker productivity.

- **Possible inaccurate measures of productivity**. Thirty-one stakeholders, including researchers and stakeholders from unions and advocacy organizations, commented that digital surveillance tools may provide an incomplete or inaccurate measure of productivity. For example, stakeholders from a research organization and an advocacy organization commented that employers may not be fully capturing workers' performance because some tasks may be completed offline or are not easily traced. Also, a worker advocacy organization commented that digital surveillance tools that measure how long a worker takes to complete tasks may not accurately account for things such as breaks and accommodations needed for injuries.

- **Differing views about effects on worker productivity.** Sixteen stakeholders, including trade associations, researchers, and a technology developer, commented that digital surveillance increases worker productivity. For instance, stakeholders from one trade association commented that digital surveillance allows employers to identify specific areas for improvement and provide targeted coaching, training, and other support. In contrast, nine stakeholders, including those from advocacy organizations, workers, and researchers, commented that digital surveillance reduces productivity. For example, a researcher commented that workers frequently take on insignificant or meaningless tasks to meet metrics that make them appear productive. This can include jiggling a mouse so it is registered by monitoring software.

How does digital surveillance affect workers' relationships with their employers?

Workers and stakeholders from unions commented that digital surveillance may discourage workers from unionizing and make workers feel distrusted by their employers. They also commented that it can decrease workplace morale.

- **May discourage unionizing efforts.** Thirty-one stakeholders, including workers and stakeholders from unions and research organizations, commented that digital surveillance may discourage unionizing efforts. One researcher commented that by monitoring and collecting data on workers, employers compile information that can be used to deter unionization. Several stakeholders from unions, advocacy organizations, and research organizations commented that employers in many industries use digital surveillance tools to identify and monitor workers who engage in labor organizing and union activity.

- **Feeling distrusted by employers.** Twenty stakeholders commented that digital surveillance may make workers feel distrusted by employers, with nine workers specifically commenting they felt that their employers did not trust them. Stakeholders from an advocacy organization, a union, and a researcher commented that due to monitoring, some workers have become more hesitant to voice their concerns about workplace issues, fearing that their digital activity will be used against them. One researcher highlighted a "negative spiral" in which employer distrust demotivated workers and adversely affected productivity.

- **Decreased workplace morale.** Nineteen stakeholders, including several unions, commented that digital surveillance can have a negative effect on workers' morale. For example, a researcher commented that workplace morale decreases when workers who are monitored worry about how their productivity scores will affect their pay. One union said that heightened expectations on employees combined with frequent and secretive surveillance has had significant negative impacts on their morale.

How does digital surveillance affect worker well-being?

Stakeholders commented that digital surveillance has mixed effects on worker well-being. Workers and researchers commented that digital surveillance tools had negative effects on mental health and generally negative effects on workplace safety. In contrast, stakeholders, including researchers and stakeholders from advocacy organizations, commented that these tools had a positive effect on workplace security. Additionally, stakeholders, including trade associations, commented that these tools had a positive effect on preventing illness.

- **Negative effects on mental health.** Fifty-nine stakeholders, including workers, researchers, unions, and advocacy organizations commented that digital surveillance decreased workers' mental health (see text box). Workers reported that digital surveillance increased stress and fear. Advocacy organizations also said that digital surveillance increased anxiety and depression among workers. A researcher commented that performance-scoring technologies can increase workers' stress and the risk of mental health problems. Specifically, they commented that when an employer turns productivity-scoring systems into "games" that pit workers against each other by making their productivity metrics public, workers' stress increases.

Comment from a call center agent:
"All of these tools are often used to drive an unrelenting push for sales . . . This pressure to sell and the various ways that managers can monitor me creates an enormous amount of stress. Over the past few years in this position, the stress has made me sick to my stomach and unable to get out of bed in the morning to do my job. I've started taking [medical leave] as a result of missing workdays due to stress."

Source: White House Office of Science and Technology Policy. | GAO-24-107639

- **Generally negative comments about effects on workplace safety.** Forty-nine stakeholders, including workers and stakeholders from advocacy organizations, commented that digital surveillance tools can reduce safety. For example, some stakeholders commented that these tools increase the pace at which workers must complete tasks, and therefore can make tasks more dangerous. Conversely, 15 stakeholders, including an advocacy organization and several trade associations, commented that digital surveillance tools can increase safety by reducing accidents and injuries. For instance, stakeholders from a trade association commented that employers may use digital surveillance tools, such as wearable technology, to detect ergonomic risks, toxic or combustible liquids or gases, and other hazards.

- **Positive effects on workplace security.** Twelve stakeholders, including researchers and stakeholders from trade associations, unions, and an advocacy organization, commented that digital surveillance tools improved workers' well-being by preventing workplace violence and increasing workplace security (see text box). One of these stakeholders commented that digital surveillance tools, such as those that detect intruders, can protect workers from harm and improve emergency responses. For example, rideshare platforms monitor for instances of unusual activities, such as long stops, which may be an indication of an emergency. A trade association also commented that digital surveillance tools can enhance workplace security by deterring potential criminal activity such as workplace violence, theft, and security breaches.

> **Comment from a labor union:**
> "[The union] has also negotiated to ensure that hotel housekeepers have GPS-enabled panic buttons to alert hotel security if they feel unsafe or threatened, a not uncommon occurrence for housekeepers who have faced sexual harassment and assault from hotel guests."

Source: White House Office of Science and Technology Policy. | GAO-24-107639

- **Positive effects on illness prevention.** Four stakeholders—two trade associations, a union, and an advocacy organization—commented that employers use digital surveillance tools to prevent or reduce illness. One trade association commented that digital surveillance enabled employers to enforce relevant health protocols during the COVID-19 pandemic (see text box). Another trade association commented that digital surveillance tools, such as heat stress monitors, can reduce workers' risk of heat-related illnesses.

> **Comment from a trade association:**
> "During COVID-19, the use of automated systems has enabled individuals to work safely by helping employers utilize cameras, sensors, and augmented reality to create important social-distancing tools and enforce relevant health protocols."

Source: White House Office of Science and Technology Policy. | GAO-24-107639

What concerns did stakeholders report about the use of these tools regarding privacy?

Stakeholders generally described privacy concerns regarding the information employers collect on workers' digital activities (digital privacy) and bodies (bodily privacy). Privacy was the most frequently raised concern by stakeholders, with 87 stakeholders commenting about this issue.

- **Digital privacy.** Seventy-three stakeholders, including workers, researchers, and stakeholders from unions and advocacy organizations, commented that

digital surveillance tools can monitor workers' digital information through their personal or company-owned devices. Stakeholders from a union federation described some employers requiring remote workers to download software that gave managers access to their computer cameras and microphones while they were at home. A worker reported being fired from a large technology company after raising concerns about the company's privacy policy, which empowered managers to access, search, monitor, archive, and delete data stored on any worker's devices. Four stakeholders, including one researcher, two advocacy organizations, and a union, commented that employers may monitor workers' social media posts to identify workers who may be involved in labor organizing activities.

- **Bodily privacy.** Thirty-three stakeholders, including workers, unions, researchers, and advocacy organizations, commented that employers collect information related to workers' bodies. This could include biometric measurements or recordings of voices. For example, some employers record videos, watch employees via cameras, access their microphones, or record their voices on personal devices. Others collect biometric and health data through wearable technology or phone applications, including those that can track menstruation. While some stakeholders from trade associations commented that biometric data collection can help improve workplace safety and employee well-being, unions, workers, and advocacy organizations commented that such surveillance violates workers' privacy.

What concerns did stakeholders report about the potential for discrimination or bias due to the use of digital surveillance?

The potential for discrimination or bias was also among the most frequently raised concerns by stakeholders. Sixty-three stakeholders, including advocacy organizations, researchers, and unions, identified the potential for such discrimination or bias based on several characteristics including race, gender and pregnancy, or disability.

- **Race.** Twenty-nine stakeholders commented that digital surveillance could lead to potential discrimination or bias toward workers based on race. Stakeholders from an advocacy organization commented that when digital surveillance is used to monitor employee performance—especially if it requires customer reviews—racial bias can lead to negative outcomes for racial minorities. This organization also commented that rideshare drivers rely on online customer ratings to earn wages and maintain their employment on application-based platforms. Additionally, if a driver consistently receives low customer service ratings due to potential racial bias from passengers, the driver risks getting removed from the rideshare platform. Further, this advocacy organization commented that minority drivers are more likely to be suspended from rideshare platforms due to customer service complaints.

- **Gender and pregnancy.** Twenty-one stakeholders commented that digital surveillance could lead to potential discrimination or bias against women or pregnant workers. For example, stakeholders from one research and one advocacy organization commented that a wellness app used by employers gathered information about menstruation, fertility, and pregnancy. Stakeholders from the advocacy organization commented that an employer with access to that information could terminate or fail to promote an individual before they disclose their pregnancy status to their employer.

- **Disability.** Twelve stakeholders commented that digital surveillance could lead to potential discrimination or bias toward workers with disabilities. Stakeholders commented that workers with disabilities may need more time to complete tasks, and digital surveillance that monitors their productivity may

flag them as low performers. According to stakeholders from an advocacy organization, individuals with certain disabilities or chronic illnesses that cause delays in cognitive processes and physical activities may require more time to complete tasks (see text box). Other stakeholders commented that employers using digital surveillance often consider whether the worker can maintain the pace of work in their role when evaluating productivity and performance. One stakeholder commented that time used for a bathroom break is considered by employers to determine productivity. This could negatively affect the perceived performance of workers with disabilities, who may require more time for bathroom breaks.

> **Comment from a coalition of worker advocacy organizations:**
>
> "[Electronic surveillance combined with automated management] poses unique risks that threaten to exacerbate the disadvantages that pregnant and disabled workers already face. One of the most common uses of [this technology] is to increase the pace of work, discouraging workers from taking breaks or downtime and often penalizing them for doing so. Such practices may discriminate against disabled and pregnant workers, who may be more susceptible to new and aggravated injuries and illnesses in the workplace and are expected to comply with arbitrary, automatically enforced standards that do not consider disability- and pregnancy-related needs that may require opportunities for rest, flexibility, and supportive work environments. Workers with gastrointestinal and urinary tract disorders, for example, may need to use the restroom more frequently or at unpredictable times."

Source: White House Office of Science and Technology Policy. | GAO-24-107639

What concerns did stakeholders report about workers' knowledge of how employers use data collected through digital surveillance?

Advocacy organizations, researchers, unions, and workers commented that workers do not understand how employers use data they collect from digital surveillance to make decisions.

- **Lack of transparency**. Forty-five stakeholders, including workers, advocacy organizations, researchers, and unions, commented that there is a lack of transparency about employers' use of digital surveillance (see text box). For example, eight workers commented that their employers are not forthright about how they use workers' data to evaluate them or make job-related decisions. Two workers and a research organization commented that even when they are required to download digital surveillance tools onto their personal devices, employers are not transparent about what information they collect or how they use the information.

> **Comment from a technology worker:**
>
> "I was sent a company computer with a webcam and required to have it on at all times (except for breaks). The computer requires me to log in to my user profile . . . I am required to scan my facial biometrics. Once the lengthy verification login process is done, I am on camera all day. The webcam monitoring software uses [Artificial Intelligence] AI to track what is caught on camera, looking for violations. Certain violations are known to us, such as pointing [a] phone at [the] screen or leaving the desk, but no further information is told to us about all violations the AI is looking for and what else is the AI tracking."

Source: White House Office of Science and Technology Policy. | GAO-24-107639

How GAO Did This Study

We analyzed public comments submitted to the White House Office of Science and Technology Policy (OSTP) in response to a request for information regarding experiences with the use of automated worker surveillance and management.[3] OSTP requested information from the public—including private and public sector workers—to better understand the prevalence, uses, purposes, and deployment of automated digital surveillance tools, including effects of these tools on workers' physical and mental health, privacy, and ability to exercise workplace rights.

OSTP's comment period ran from May 3 through June 29, 2023. In its request for public comments, OSTP noted that it was particularly interested in hearing from workers who have experienced automated digital surveillance; unions and advocacy organizations; employers, operators of virtual platforms, and other entities that match workers with opportunities to generate income; trade and business associations; researchers; and developers and vendors who manufacture or sell this type of technology, among others.

This report is the first of two reports on digital surveillance of workers. It summarizes 217 public comments submitted to OSTP through a request for information on the use of automated digital surveillance tools to monitor workers and the effect of such surveillance on workers. In the second report, we will incorporate stakeholder interviews and a literature search to enhance the information related to the impacts and uses of digital surveillance. Additionally, we will address how federal agencies oversee employers' use of digital surveillance technology.

For this report, we used a multistep process to analyze stakeholders' comments. This included: transferring the comments into a qualitative analysis software program; identifying themes in the comments and creating categories based on these themes; establishing agreement among the three analysts who reviewed the comments about how to categorize them into these themes; and having a fourth analyst verify that the comments were categorized correctly. We analyzed these comments to identify the types of digital surveillance tools stakeholders reported using. We also analyzed the comments to examine the types of workers who were monitored with these tools, how these tools were being used, and their effect on workers.

We conducted our work from June 2024 to August 2024 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for the information we report in this product.

List of Addressees

The Honorable Robert P. Casey, Jr.
Chairman
Special Committee on Aging
United States Senate

The Honorable Robert C. "Bobby" Scott
Ranking Member
Committee on Education and the Workforce
House of Representatives

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 29 days from the report date. At

that time, we will send copies to the appropriate congressional committees and other interested parties. In addition, the report will be available at no charge on the GAO website at https://www.gao.gov.

GAO Contact Information

For more information, contact: Thomas Costa, Director, Education, Workforce, and Income Security, CostaT@gao.gov, (202) 512-4769.

Sarah Kaczmarek, Acting Managing Director, Public Affairs, KaczmarekS@gao.gov, (202) 512-4800.

A. Nicole Clowers, Managing Director, Congressional Relations, ClowersA@gao.gov, (202) 512-4400.

Staff Acknowledgments: Mary Crenshaw (Assistant Director), Hedieh Fusfield (Analyst in Charge), Sarika Akula, James Bennett, John Bornmann, Dustin Cohan, Yasmine Evans, Lauren Kirkpatrick, Gabriel Nelson, Stacia Odenwald, Aaron Olszewski, and Kathleen van Gelder.

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Endnotes

[1] We counted stakeholders as workers if they identified themselves as a worker or we inferred that they were a worker based on their comment. Specifically, we inferred that they were workers if they described their experiences or perspectives about digital surveillance that they encountered at work.

[2] For more information on wearable technology, see GAO, *Science & Tech Spotlight: Wearable Technologies in the Workplace,* GAO-24-107303 (Washington, D.C.: March 2024). We reported that certain wearables could reduce the risk of injuries from strenuous work or worker-equipment collisions and may improve response time to emergencies but concerns about privacy, cost, and ease of use may hinder widespread adoption.

[3] Request for Information; Automated Worker Surveillance and Management, 88 Fed. Reg. 27,932 (May 3, 2023).