

# Digital Surveillance: Potential Effects on Workers and Roles of Federal Agencies

GAO-25-107126 [Accessible Version]

Q&A Report to the Ranking Member, Committee on Education and Workforce, House of Representatives  
September 2, 2025

Revised December 10, 2025 to correct Appendix I on page 11. The corrected section should read: "Centre for Research into Information, Surveillance and Privacy, University of St Andrews."

## Why This Matters

Employer surveillance of workers has become more widespread as the number of people working remotely has increased and the types of surveillance technologies available have expanded. Sometimes referred to as "bossware," digital surveillance tools can provide employers with information to help improve their operations. Some worker advocates, however, have questioned whether employers can use these tools in ways that negatively affect workers.

This report follows one we issued in 2024 on digital surveillance of workers. In that report, we provided stakeholder views on the most frequently used digital surveillance tools, including cameras, microphones, and computer monitoring software. We also provided stakeholder views on how digital surveillance tools affect productivity, and concerns about workers' privacy, among other issues.

For this report, we were asked to examine the potential effects of digital surveillance on workers' physical health and safety, mental health, and employment opportunities, as well as federal agencies' oversight of employers' use of this technology. Our work is based on interviews with stakeholders from 11 organizations: two trade associations, three advocacy organizations, and six research organizations. It is also based on a review of 122 studies that met our standards for methodological quality. We discuss our methodology for selecting these studies and their limitations at the end of this report.

## Key Takeaways

- Digital surveillance can both positively and negatively affect workers' physical health and safety, according to stakeholders we interviewed and studies we reviewed. For example, digital surveillance tools can identify cardiac issues, an indication of potential heart disease. Conversely, it can increase workers' risk of injuries by pushing them to move faster to meet productivity metrics.
- Digital surveillance can both positively and negatively affect workers' mental health, according to stakeholders and studies. Positive mental health effects can include increasing workers' sense of safety. Negative effects can include increased stress and anxiety. These effects can depend on employers' practices, including how transparent they are about what information they collect.
- The design or incorrect use of some digital surveillance tools could limit their ability to accurately assess performance. For example, digital surveillance tools may use flawed productivity benchmarks, may not account for the full

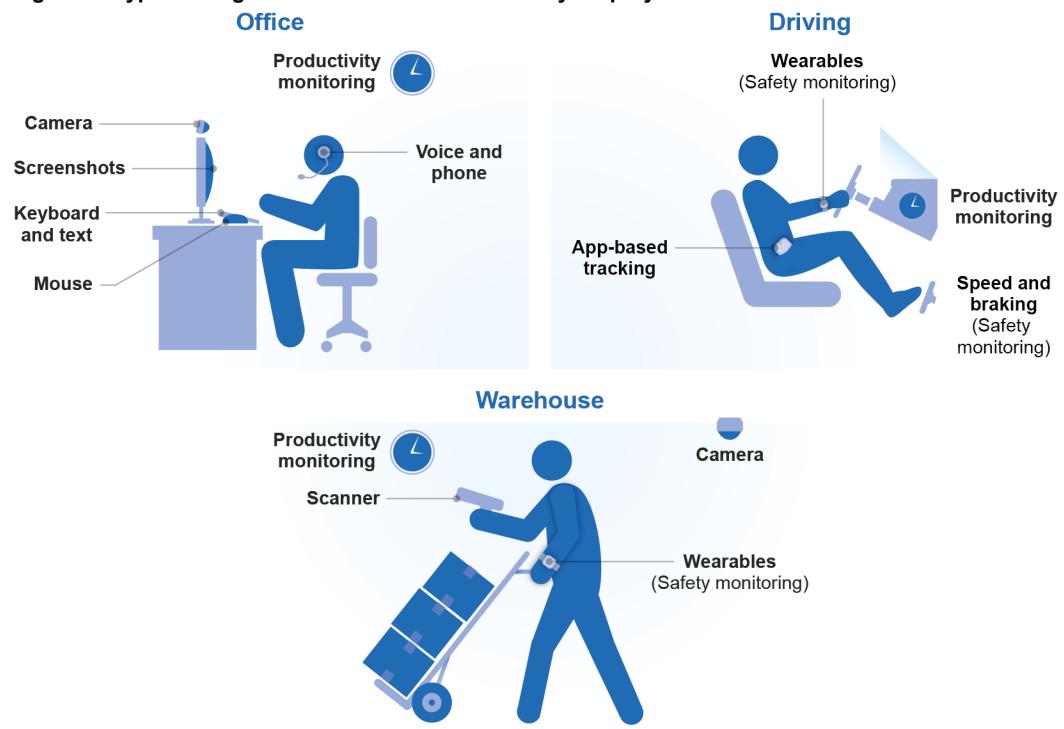
range of worker tasks and responsibilities, or may be used by the employer for unintended purposes. These types of limitations could make some workers more prone to experiencing negative effects on employment opportunities such as low performance evaluations, lower pay, disciplinary actions, or termination, according to stakeholders and studies.

- The Equal Employment Opportunity Commission (EEOC), National Labor Relations Board (NLRB), and Occupational Safety and Health Administration (OSHA) investigate claims that could involve digital surveillance. Several federal agencies have also provided guidance or resources to employers about the use of digital surveillance but have either rescinded these prior efforts or are reassessing their alignment with the current administration's priorities.

## How can employers' use of digital surveillance affect workers' physical health and safety?

Digital surveillance can positively or negatively affect workers' physical health and safety depending on how employers use the technology, according to stakeholders we interviewed and studies we reviewed. We reported in prior work that employers use various types of digital surveillance tools (see fig.1).<sup>1</sup>

Figure 1: Types of Digital Surveillance Tools Used by Employers



Source: GAO. | GAO-25-107126

Accessible Data for Figure 1: Types of Digital Surveillance Tools Used by Employers

Office	Driving	Warehouse
<ul style="list-style-type: none"> <li>• Camera</li> <li>• Screenshots</li> <li>• Keyboard and text</li> <li>• Mouse</li> <li>• Productivity monitoring</li> <li>• Voice and phone</li> </ul>	<ul style="list-style-type: none"> <li>• Wearables (safety monitoring)</li> <li>• App-based tracking</li> <li>• Productivity monitoring</li> <li>• Speed and braking (safety monitoring)</li> </ul>	<ul style="list-style-type: none"> <li>• Productivity monitoring</li> <li>• Scanner</li> <li>• Camera</li> <li>• Wearables (safety monitoring)</li> </ul>

Source: GAO. | GAO-25-107126

## Examples of potential positive effects

- **Increased awareness of physical health and safety.** Ten of the 11 stakeholders we spoke with said that digital surveillance tools can alert workers about potential physical health and safety problems when used for that purpose. For example, a researcher said that assembly line workers, such as those in factories or warehouses, may use wearables that notify them when their heart rate is too high, signaling that they should take a break. Another researcher said wearables used by oil and gas workers can detect chemicals or other workplace hazards, such as extreme heat. Also, 36 of the studies we reviewed specifically looked at physical health and safety. Thirteen of these studies found that digital surveillance tools can alert workers about potential physical health and safety problems.<sup>2</sup> For example, one study found that a digital surveillance tool containing sensors in the steering wheel of a car or truck could identify if drivers are experiencing cardiac issues and sleepiness, indicators of potential heart disease and sleep apnea.<sup>3</sup>
- **Decreased risk of injuries.** Eight stakeholders said that digital surveillance tools can decrease workers' risk of injuries when they are used to monitor workers' safety. For example, one researcher said that tools that scan the workplace for hazards can identify spills and thus reduce slip hazards. Another researcher said that some technology detects warehouse workers' locations and delivers objects to them, which may reduce injuries for some workers, including older workers and workers with disabilities. Additionally, 13 studies found that digital surveillance can decrease the risk of injury.<sup>4</sup> For instance, one study found that wristband sensors that may be worn by workers in the construction industry can identify unsafe behavior, helping to reduce physical injuries.<sup>5</sup> Previously, we reported that wearables could reduce the risk of injuries from strenuous work or workers colliding with equipment, and may improve response time to emergencies.<sup>6</sup>

## Examples of potential negative effects

- **Increased risk of injuries.** Seven stakeholders said that when employers use digital surveillance tools to monitor productivity (i.e., the amount of work that workers complete), they may push workers to move faster, which may increase their risk of injury. For example, one researcher said that digital surveillance tools can create unrealistic time frames for delivery drivers that do not account for factors such as traffic, the driver's physical condition, or the delivery location. To meet these time frames, delivery drivers may take risks that result in accidents and physical injuries. Four studies also found that digital surveillance increased workers' risk of injury.<sup>7</sup> Previously, we reported that the rate of injury can increase when employers use surveillance tools to monitor workers' productivity and push them to work faster.<sup>8</sup>
- **Increased physical ailments.** Three stakeholders said that when employers use digital surveillance tools to monitor productivity, workers' physical ailments could be exacerbated. One researcher said that digital surveillance can make workers feel as if they cannot take breaks, which can cause physical stress. According to another researcher, the strain from digital surveillance can cause headaches, and a decreased ability to recover from illnesses. Additionally, three studies found that digital surveillance can contribute to greater fatigue among workers.<sup>9</sup>

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## How can employers' use of digital surveillance affect workers' mental health?

The way in which employers use digital surveillance can positively or negatively affect workers' mental health, according to stakeholders we interviewed and studies we reviewed.

### Example of a potential positive effect

Three stakeholders said that employers' use of digital surveillance tools to monitor for safety can increase workers' sense of safety. For example, one trade association representative said that when workers know their workplace is being monitored for security purposes, it can reduce their fear of workplace violence. Similarly, a researcher and representatives from another trade association said digital surveillance tools may reduce anxiety for workers who work by themselves in remote locations when they know that their company will be aware if a situation arises where they need help or are not safe. Additionally, two of the 38 studies we reviewed about mental health found that workers feel safer when employers use digital surveillance for this purpose.<sup>10</sup>

### Examples of potential negative effects

Stress, anxiety, depression, and other negative mental health effects can result from lack of transparency, continuous surveillance, and productivity monitoring.

- **Lack of transparency.** Seven stakeholders said that employers' lack of transparency about digital surveillance can increase workers' stress and anxiety. This lack of transparency can include workers not knowing what information employers collect about them, who has access to that information, and how that information is used. Additionally, six studies found that a lack of transparency regarding how employers use digital surveillance negatively affects workers' mental health.<sup>11</sup> For example, one study found that workers may feel demoralized when employers do not explain their intent for monitoring workers.<sup>12</sup>
- **Continuous surveillance.** Six stakeholders said that continuous surveillance may negatively affect workers' mental health. For example, one representative from an advocacy organization said that workers may experience anxiety and stress when they are continuously monitored. Additionally, eight studies found that constant surveillance negatively affects workers' mental health.<sup>13</sup> For example, one of these studies found that workers who were continuously monitored reported feeling anxious and demoralized.<sup>14</sup> Another study found higher rates of depression among gig workers who were constantly tracked through platforms.<sup>15</sup>
- **Productivity monitoring.** Five stakeholders said that workers may experience negative mental health effects when employers use digital surveillance tools to monitor their productivity. For example, a trade association representative said that when this happens, workers may feel stressed because digital surveillance tools do not detect the underlying reasons for dips in productivity. Two researchers explained that productivity monitoring often makes workers feel forced to move faster. This may lead workers to cut their break time, which exacerbates job strain and triggers negative mental health effects. A study also found that when digital surveillance is used to monitor workers' productivity, workers feel pressured to work faster, increasing stress and making them feel like they do not have control over their work.<sup>16</sup>

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## How can limitations in digital surveillance tools affect workers' performance evaluations?

Limitations in digital surveillance tools due to flaws in productivity benchmarks or productivity measures can negatively affect workers' performance evaluations, according to stakeholders we interviewed.

- **Flaws in productivity benchmarks.** According to seven stakeholders, employers can use flawed productivity benchmarks that may not represent performance across their whole workforce. Benchmarks are set by analyzing the productivity of a group of workers. However, the sample used to set the benchmark might not be representative of the full workforce, containing fewer workers with disabilities, older workers, or female workers, for example, according to two researchers. This might set productivity levels that are not representative of the larger workforce.
- **Flaws in productivity measures.** Four stakeholders said that productivity measures can have design flaws when they do not account for the full range of workers' tasks. For example, one researcher said that to accurately measure workers' productivity, digital surveillance tools must measure tasks that workers are expected to perform. However, some tools do not measure offline activities that are harder to track, such as time spent on research, reading, or helping others. In such cases, digital surveillance tools can make workers appear less productive for spending time on tasks that may be important but are harder to measure.

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## How could employers' misinterpretation or misuse of data from digital surveillance affect employment opportunities for workers?

When employers misinterpret or misuse data collected by digital surveillance tools, workers' employment opportunities could be negatively affected, according to stakeholders we interviewed. These negative effects could include reprimands, low performance evaluations, lower pay, reduced work hours, or termination.

### Examples of potential misinterpretation

- **Not understanding workers' responsibilities.** All 11 stakeholders said that employers could misinterpret data about workers' productivity, which could stem from a lack of understanding about workers' full range of tasks and responsibilities. For example, one researcher said that digital surveillance tools could misread a worker's productivity if certain tasks are not measured or if off-screen time for research, reading, thinking, or mentorship is not accounted for. Also, employers who assess workers' productivity solely using data from digital surveillance tools may improperly label workers as unproductive. This can occur when employers do not understand their workers' responsibilities or how their digital surveillance tools measure productivity, according to another researcher.
- **Believing tools do not make mistakes.** Three stakeholders said some employers believe that digital surveillance tools do not make mistakes. One researcher said employers' overestimation of the accuracy of these tools may lead them to trust the tools over their employees. Similarly, another researcher said that employers take the data collected through digital surveillance at face value, not understanding that these tools could underestimate workers' performance. For example, a researcher said that tone recognition software used in call centers could penalize workers if their tone is not cheerful, even if a cheerful tone is inappropriate for the nature of the call. Such software can also wrongly penalize workers with accents. Without looking more closely at the data or understanding its limitations, a manager may accept biased results that do not accurately capture the workers' performance. Additionally, two studies found that employers could

have an overly optimistic view of data collected from digital surveillance tools and not fully understand their limitations.<sup>17</sup>

### Examples of potential misuse

- **Making employment decisions without human review.** Eight stakeholders said that employers could misuse data collected from digital surveillance to make employment decisions without human review. This could negatively affect workers' employment opportunities. A researcher said that when workers are managed by digital surveillance tools, they have fewer opportunities to speak to a supervisor about issues that affect their performance. For example, a housekeeper may not be able to finish preparing a hotel room when towels are not available. When the housekeeper is being managed through digital surveillance, rather than an onsite supervisor with whom she can discuss the issue, the housekeeper may get reprimanded. Additionally, one study found that about a third of participants expressed concerns that employers could misuse digital surveillance to make employment decisions such as firing or denying benefits and promotions to workers.<sup>18</sup>
- **Using tools for unintended purposes.** Seven stakeholders said that employers could misuse digital surveillance tools by using them for unintended purposes. For example, trade association representatives said that most digital surveillance tools were designed to monitor workers' safety and security, and therefore could do a poor job when used to measure productivity. This could lead employers to use inaccurate data to make employment decisions.

### Which groups of workers may experience negative effects on employment opportunities from employers' use of digital surveillance?

According to stakeholders we interviewed and studies we reviewed, certain groups of workers may be more likely to experience negative effects on employment opportunities—such as low performance evaluations, lower pay, disciplinary actions, or termination—from employers' use of digital surveillance. These groups include:

- **Workers of certain races and ethnicities.** Seven stakeholders said that employment opportunities for workers of certain races and ethnicities may be negatively affected by employers' use of digital surveillance tools. For example, one researcher said that emotional monitoring technology, which some employers use to evaluate workers, may disproportionately misidentify workers of some races as expressing negative emotions. Also, two studies found that some digital surveillance tools could inaccurately assess the performance of Black workers.<sup>19</sup> Additionally, another researcher said that workers of certain ethnicities may be more vulnerable to the negative effects of digital surveillance tools because they disproportionately have jobs that rely on the tools to assess their performance. Since digital surveillance tools could be prone to errors, workers of certain races and ethnicities may be more likely to experience negative effects on their employment opportunities. These negative effects could include disciplinary actions, poor performance evaluations, and decreased advancement opportunities.<sup>20</sup>
- **Female workers.** Six stakeholders said that digital surveillance can negatively affect female workers' employment opportunities. Digital surveillance tools may not measure complex yet important contributions, according to four stakeholders we interviewed. For example, one researcher

told us that digital surveillance tools cannot measure building relationships and working collaboratively, contributions often made by women. Given the inability of digital surveillance tools to measure this kind of leadership activity, women may be passed up for promotions. Additionally, five of the 26 studies about the effects of digital surveillance on employment opportunities found negative effects for women.<sup>21</sup> One study found that some digital surveillance tools could feed into employers' existing stereotypes about women's behavior in the workplace.<sup>22</sup> For example, according to the study, tools that monitor workers' emotions could flag women as behaving inappropriately if they disagree with their manager. Employers could then use this data as justification for firing female workers while shielding themselves from potential discrimination claims, according to the study's authors.

- **Workers with disabilities.** Six stakeholders said that workers with disabilities may also face negative effects on their employment opportunities when employers use digital surveillance tools.<sup>23</sup> For example, a researcher said that when employers use digital surveillance tools to monitor workers, workers with disabilities are disproportionately disciplined and receive negative performance evaluations. This can lead to lower pay and fewer career advancement opportunities. Additionally, representatives from an advocacy organization said that some workers with disabilities may be afraid to ask for reasonable accommodations and could get characterized as low performers as a result.
- **Older workers.** Five stakeholders said that older workers' employment opportunities may be negatively affected by employers' use of digital surveillance. For example, a researcher said that older workers who may need frequent breaks during the day for health reasons may skip breaks to avoid being flagged as unproductive. Additionally, two studies found that digital surveillance can negatively affect older workers' employment opportunities.<sup>24</sup> For example, one study found that older workers could have difficulty meeting productivity metrics because these benchmarks may have been developed without accounting for enough older workers in the workforce.<sup>25</sup> This could put these workers at a disadvantage in terms of receiving promotions or rewards when employers use digital surveillance tools.
- **Workers with accents.** Four stakeholders said that digital surveillance tools that are used to monitor speech can negatively affect employment opportunities for workers with accents.<sup>26</sup> These tools may have difficulty detecting the speech and tone of workers with accents. For example, a researcher said that workers with accents might be penalized for lacking clarity if an employer uses voice monitoring software to evaluate performance. A researcher said that surveillance tools in call centers may incorrectly register higher error rates for workers with accents for not complying with call scripts. This can lead to reprimands or terminations.

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## What federal and state requirements may affect employers' digital surveillance of workers?

Some federal and state requirements may affect employers' digital surveillance of workers.

- **Federal.** Title III of the Omnibus Crime Control and Safe Streets Act of 1968, as amended by Title I of the Electronic Communications Privacy Act of 1986 (known as the "Wiretap Act") generally prohibits intentionally intercepting wire, oral, or electronic communications by using an electronic, mechanical, or other device unless one party consents.<sup>27</sup> For example, intercepting

workers' personal phone calls without their consent could violate the Wiretap Act. The Act provides for certain exceptions, however, such as when a provider of electronic communication services intercepts communications in the normal course of business (e.g., for quality control purposes). The Act does not apply to other forms of monitoring that do not intercept wire, oral, or electronic communications, such as tracking devices.

- **State.** Some states have laws that may affect employers' use of digital surveillance. For example, such laws include requiring consent by both parties (the employee and employer) for interception of certain communication, restricting the placement of digital surveillance tools, and prohibiting employers from monitoring employees' private conversations.

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## What role do federal agencies have in investigating workers' complaints regarding digital surveillance?

Certain federal agencies are statutorily required to investigate claims from workers that involve their area of oversight, including claims that may stem from employers' use of digital surveillance. Agency officials told us that they enforce relevant laws but do not track which specific claims involve the use of digital surveillance.

- **Equal Employment Opportunity Commission (EEOC).** The EEOC enforces federal laws that prohibit employment discrimination by investigating charges of discrimination related to workers' race, color, religion, sex, national origin, disability status, age, or genetic information. In some cases, this could include charges involving the use of digital surveillance.<sup>28</sup>
- **National Labor Relations Board (NLRB).** The General Counsel of the NLRB enforces the National Labor Relations Act by investigating allegations of unfair labor practices brought by workers, unions, or employers. In March 2023, the General Counsel of the NLRB and the Director of the Consumer Financial Protection Bureau (CFPB) signed a memorandum of understanding to share information to support their respective missions, which could include addressing practices involving employer surveillance of workers.<sup>29</sup> This memorandum remained in effect as of July 2025, according to NLRB officials.
- **Department of Labor's (DOL) Occupational Safety and Health Administration (OSHA).** OSHA's mission is to ensure the safety and health of workers. In June 2025, OSHA officials said that they would investigate complaints regarding adverse effects on employees' health or safety, including those stemming from digital surveillance.

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## What information have federal agencies provided to employers to reduce the potential negative effects of digital surveillance?

The NLRB, DOL, EEOC, and CFPB have taken various steps to reduce the potential negative effects of digital surveillance on workers. This includes providing guidance or resources for employers. Since January 2025, these agencies have either rescinded these past efforts or are currently reviewing them to ensure that they align with the current administration's priorities. In addition, in 2023, OSTP collected information from the public about workers' experiences with digital surveillance but has since removed this information from its website.

### Past efforts to develop guidance

- **Guidance on the right to unionize.** In October 2022, the General Counsel of the NLRB issued a memorandum explaining that digital surveillance may

infringe on workers' right to organize under the National Labor Relations Act. Specifically, the memo stated that digital surveillance could severely limit or prevent employees from organizing and keeping their efforts confidential from their employer. The General Counsel, when reviewing charges and issuing complaints, planned to urge the Board to adopt a framework to apply the Act to protect employees from intrusive or abusive electronic monitoring and automated management practices that could interfere with certain rights under the Act. In February 2025, the NLRB's Acting General Counsel rescinded the October 2022 memorandum after a review of active General Counsel memoranda. NLRB officials said that this was done as part of an initiative to refocus resources on the agency's core mission.

- **Best practices for worker well-being.** In October 2024, DOL published best practices for employers' use of digital surveillance tools with artificial intelligence (AI) components to monitor employees. These best practices included (1) having human oversight of surveillance tools; (2) being transparent with employees about the use of digital surveillance, the information that is collected, and procedures for employees to correct the data used to make important employment decisions; and (3) ensuring that digital surveillance does not unfairly disadvantage certain groups of workers with regard to employment decisions.

In January 2025, DOL had removed the best practices from its website. In June 2025, DOL officials told us that they are reviewing all materials on their website to make sure that they align with the new administration's priorities.

- **Guidance on digital surveillance for workers with disabilities.** Through its initiative on accessible technology, DOL identified ways that digital surveillance can create the risk of discrimination against workers with disabilities and encouraged employers to develop best practices to reduce these risks. In June 2025, DOL officials told us that they had removed this resource from the agency's website as part of their review to ensure that available resources align with current policy. They said that when this review is complete, they will determine what resources to make available on their website.

Additionally, in 2022, the EEOC issued technical assistance to employers regarding promising practices they can implement to comply with the Americans with Disabilities Act when using algorithms, which may include digital surveillance tools, to make employment-related decisions. For example, employers can develop alternative ways to evaluate workers when the current evaluation process is inaccessible or otherwise unfairly disadvantages someone who has requested a reasonable accommodation because of a disability. EEOC officials told us that they removed this document from their website while officials assess its compliance with an Executive Order that was issued in January 2025.<sup>30</sup>

- **Guidance on consumer protections for workers.** In October 2024, the CFPB issued guidance explaining that longstanding consumer protections may apply to consumer reports about workers that are obtained through digital surveillance, like they are for traditional credit reports.<sup>31</sup> Specifically, the guidance explained that companies using third-party consumer reports about their workers for employment purposes—including background dossiers and surveillance-based scores—have obligations under the Fair Credit Reporting Act. These generally include obtaining a worker's consent, providing notice about data used in adverse employment decisions, and providing notice of how to dispute inaccurate information. The CFPB

rescinded this and other guidance in May 2025, citing efforts to reduce compliance burdens among other reasons.<sup>32</sup>

### **Past efforts to collect information**

In May 2023, the White House Office of Science and Technology Policy (OSTP) had 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. In 2024, OSTP published responses to its request for information regarding experiences with the use of automated worker surveillance and management.<sup>33</sup> As of July 2025, the responses are no longer available on OSTP's website.

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### **Agency Comments**

We provided a draft of this report to the CFPB, DOL, EEOC, and NLRB for review and comment. We received technical comments from each of these agencies, which we incorporated as we deemed appropriate.

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### **How GAO Did This Study**

To describe the effects of digital surveillance on workers, we interviewed stakeholders and reviewed studies and relevant GAO reports. We interviewed stakeholders from 11 organizations: two trade associations, three advocacy organizations, and six research organizations (see app. I for a list of the organizations). We identified these stakeholders based on their published research or advocacy in this area and the recommendations of other experts. We also consulted with GAO technologists and data scientists about how digital surveillance tools are developed, the limits they may have, and how they can be misused.

Additionally, we reviewed studies about the effects of digital surveillance on workers' mental and physical health and the potential effects on employment opportunities that may result from the use of these tools. Some questions in this report do not include a discussion of studies because we did not identify studies that pertained to those specific topics.

We followed a rigorous process to identify and assess the studies. To identify studies, we conducted keyword searches of various databases, such as Scopus, ABI/Inform, ProQuest Research Library, and Social SciSearch. We searched for phrases such as "automated surveillance of workers," "algorithmic management," "digital surveillance of workers," and "electronic surveillance." We also asked the stakeholders we interviewed to recommend studies. We limited our studies to those that were published from 2020 through 2024 to (1) capture the increase in telework that occurred after the onset of the COVID-19 pandemic and (2) obtain recent information concerning the use of digital surveillance technology given its rapidly evolving nature. Through this process, we identified 249 studies. Of these, we determined that 67 studies were not germane to our report.

Next, we assessed the methodological quality of the remaining 182 studies. To start, one GAO analyst reviewed the studies to determine whether they met GAO's minimum standards for inclusion in our report. A knowledgeable GAO expert then reviewed the studies' findings and methods to ensure the methodologies were appropriate and sufficiently rigorous. Following this assessment, we removed 60 studies because we determined that their methods were not sufficiently appropriate or rigorous.

The remaining 122 studies met our criteria for methodological rigor and are used in this report as supporting evidence for our findings. We used qualitative software to analyze them and identify themes across their findings. While these studies had certain limitations, we determined that they were sufficiently robust for inclusion. Some of these limitations include:

- Limited scope: studies that do not examine different ways technology can be implemented are limited in their ability to account for potential differences of the effects of these technologies under varied circumstances.
- Reliance on self-reported information: studies that rely on self-reported information can introduce bias and limit the use of these data for causal inference. Examples of self-reported information include responses to surveys and interviews.
- Limited number of clinical studies: studies that do not use clinical measures to study the effects on physical and mental health limit the ability to assess clinical effects. There were only a small number of clinical studies in the articles we analyzed.
- Lack of longitudinal analysis: studies that do not follow people over time are limited in their ability to identify long-term effects or changes in people's behavior.

We also reviewed relevant GAO reports to provide further context about the effects of digital surveillance on workers.

To describe federal oversight of digital surveillance and guidance provided to employers, we interviewed knowledgeable officials from the CFPB, DOL, EEOC, NLRB, and OSTP and requested updated information from them in spring 2025. Additionally, we reviewed relevant information published by these agencies, including best practices, a memorandum of understanding, and descriptions of their oversight or investigation activities regarding digital surveillance. We also reviewed relevant laws and regulations pertaining to the use of digital surveillance technology to monitor workers.

We conducted this performance audit from October 2023 to September 2025 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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### List of Addressees

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

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 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>.

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## Appendix I

### Stakeholder Organizations Interviewed by GAO

- Advocacy Organizations
  - Technology Institute of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO)
  - American Civil Liberties Union
  - Coworker.org
- Research Organizations
  - Center for AI and Digital Policy
  - Centre for Research into Information, Surveillance and Privacy, University of St Andrews
  - Human-Computer Interaction Institute, Carnegie Mellon University
  - Partnership on AI
  - School of Human Resources and Labor Relations at Michigan State University
  - University of California, Berkeley Center for Labor Research and Education
- Trade Associations
  - Electronic Security Association
  - Security Industry Association

## Endnotes

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<sup>1</sup>GAO, *Digital Surveillance of Workers: Tools, Uses, and Stakeholder Perspectives*, GAO-24-107639 (Washington, D.C.: August 2024). This report summarized public comments submitted to OSTP through a request for information on the use of automated digital surveillance tools to monitor workers and the effects of such surveillance on workers. (Request for Information; Automated Worker Surveillance and Management, 88 Fed. Reg. 27,932 (May 3, 2023)).

<sup>2</sup>Devanash Atray and Rejesjwar Dass, "Employee Health Monitoring System for Industry 4.0," in *Emergent Converging Technologies and Biomedical Systems*, ed. Shruti Jain, Nikhil Marriwala, C. C. Tripathi, and Dinesh Kumar (Springer, 2022), 255–265; Srikanth Bangaru, Chao Wang, and Fereydoun Aghazadeh, "Automated and Continuous Fatigue Monitoring in Construction Workers Using Forearm EMG and IMU Wearable Sensors and Recurrent Neural Network," *Sensors*, vol. 22 (2022); Jordan Cahoon and Luis Garcia, "Continuous Stress Monitoring for Healthcare Workers: Evaluating Generalizability Across Real-World Datasets," in *BCB '23: Proceedings of the 14th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics*, (2023); Caroline Clingen et al., "Monitoring Health Care Workers at Risk for COVID-19 Using Wearable Sensors and Smartphone Technology: Protocol for an Observational mHealth Study," *JMIR Research Protocols*, vol. 10, no. 5 (2021); Jennifer Cori et al., "An Evaluation and Comparison of Commercial Driver Sleepiness Detection Technology: A Rapid Review," *Physiological Measurement*, vol. 42, no. 7 (2021); Shanley Corvite, Kat Roemmich, Tillie I. Rosenberg, and Nazanin Andalibi, "Data Subjects' Perspectives on Emotion Artificial Intelligence Use in the Workplace: A Relational Ethics Lens," *Proceedings of the ACM on Human-Computer Interaction*, vol. 7, no. 124 (2023); Carly Harrison, Scott Ruddock, Paul O'Halloran, Susan Mayes, Jill Cook, and Mandy Ruddock-Hudson, "Wellness Monitoring for Professional Ballet Dancers: A Pilot Study," *Journal of Dance Medicine & Science*, vol. 25, no. 2 (2021); Abdullahi Ibrahim, Muhammad Khan, Chukwuma Nnaji, and Amanda Koh, "Assessing Non-Intrusive Wearable Devices for Tracking Core Body Temperature in Hot Working Conditions," *Applied Sciences*, vol. 13, no. 6803 (2023); Muhammad Khan, Abdullahi Ibrahim, Chukwuma Nnaji, and Ashrant Aryal, "Developing Prediction Models for Monitoring Workers' Fatigue in Hot Conditions," *Computing in Civil Engineering* (2023); Yun-Soung Kim et al., "Soft Wireless Bioelectronics Designed for Real-Time, Continuous Health Monitoring of Farmworkers," *Advanced Healthcare Materials*, vol. 11, no. 13 (2022); Eric Kirkendall et al., "Feasibility, Acceptability, and Performance of a Continuous Temperature Monitor in Older Adults and Staff in Congregate-Living Facilities," *Journal of the American Medical Directors Association*, vol. 23 (2022); Wonil Lee, Ken-Yu Lin, Peter W. Johnson, and Edmund Y. W. Seto, "Selection of Wearable Sensor Measurements For Monitoring and Managing Entry-Level Construction Worker Fatigue: A Logistic Regression Approach," *Engineering, Construction and Architectural Management*, vol. 29, no. 8 (2022); and A. Ojha, S. Shakerian, M. Habibnezhad, and H. Jebelli, "Feasibility Verification of Multimodal Wearable Sensing System for Holistic Health Monitoring of Construction Workers," in *Proceedings of the Canadian Society of Civil Engineering Annual Conference 2021*, ed. Scott Walbridge et al., vol. 239 (2023), 283–294.

<sup>3</sup>Cori et al., "An Evaluation and Comparison of Commercial Driver."

<sup>4</sup>Ana Arboleya, Jaime Laviada, Yuri Álvarez-López, and Fernando Las-Heras, "Real-Time Tracking System Based on RFID to Prevent Worker–Vehicle Accidents," *IEEE Antennas and Wireless Propagation Letters*, vol. 20, no. 9 (2021); Oscar Arias, James Groehler, Mike Wolff, and Sang D. Choi, "Assessment of Musculoskeletal Pain and Physical Demands Using a Wearable Smartwatch Heart Monitor among Precast Concrete Construction Workers: A Field Case Study," *Applied Sciences*, vol. 13, no. 2347 (2023); Kirstie Ball, *Electronic Monitoring and Surveillance in the Workplace: Literature Review and Policy Recommendations*, Publications Office of the European Union (Luxembourg: 2021); Bangaru, Wang, and Aghazadeh, "Automated and Continuous Fatigue Monitoring"; Aarti Bansal, Rajesh Khanna, and Surbhi Sharma, "Platform Tolerant RFID Tag Antenna Design for Safety and Real-Time Tracking of On-site Workers at Riskier Workplaces," *International Journal of Antennas and Propagation*, vol. 2023 (2023); Cori et al., "An Evaluation and Comparison of Commercial Driver"; Suyra Garimella, Ahmed Senouci, and Kyungki Kim, "Monitoring Fatigue in Construction Workers using Wearable Sensors," *Construction Research Congress* (2020); Harrison, Ruddock, O'Halloran, Mayes, Cook, and Ruddock-Hudson, "Wellness Monitoring for Professional Ballet Dancers"; Mohamed Zul Fadhl Khairuddin et al., "Occupational Injury Risk Mitigation: Machine Learning Approach and Feature Optimization for Smart Workplace Surveillance," *International Journal of Environmental Research and Public Health*, vol. 19, no. 13962 (2022); Khan, Ibrahim, Nnaji, and Aryal, "Developing Prediction Models"; Kim et al., "Soft Wireless Bioelectronics"; Lee, Lin, Johnson, and Seto, "Selection of Wearable Sensor Measurements"; and Ojha, Shakerian, Habibnezhad, and Jebelli, "Feasibility Verification."

<sup>5</sup>Ojha, Shakerian, Habibnezhad, and Jebelli, "Feasibility Verification."

<sup>6</sup>GAO, *Science & Tech Spotlight: Wearable Technologies in the Workplace*, GAO-24-107303 (Washington, D.C.: March 2024).

<sup>7</sup>Ball, "Electronic Monitoring and Surveillance in the Workplace"; Bangaru, Wang, and Aghazadeh, "Automated and Continuous Fatigue Monitoring"; Saeed Jaydarifard, Krishna Behara, Douglas Baker, and Alexander Paz, "Driver Fatigue In Taxi, Ride-Hailing, and Ridesharing Services: A Systematic Review," *Transport Reviews*, vol. 44, no. 3 (2023); and Zoey Laskaris et al., "A Price Too High: Injury and Assault Among Delivery Gig Workers in New York City," *Journal of Urban Health*, vol. 101, (2024).

<sup>8</sup>GAO, *Workplace Safety and Health: OSHA Should Take Steps to Better Identify and Address Ergonomic Hazards at Warehouses and Delivery Companies*, GAO-24-106413 (Washington, D.C.: September 2024).

<sup>9</sup>Jaydarifard, Behara, Baker, and Paz, "Driver Fatigue"; Laskaris et al., "Injury and Assault Among Delivery Gig Workers"; and Kat Roemmich, Florian Schaub, and Nazanin Andalibi, "Emotion AI at Work: Implications for Workplace Surveillance, Emotional Labor, and Emotional Privacy," in *CHI '23: Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*, ed. Albrecht Schmidt et al., (2023).

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<sup>11</sup>Ball, “Electronic Monitoring and Surveillance in the Workplace”; Bowell, Smith, Pechenkina, and Scifleet, “Subjective Experiences of Workplace Tracking”; Tingru Cui, Barney Tan, and Yunfei Shi, “Fostering Humanistic Algorithmic Management: A Process Of Enacting Human-Algorithm Complementarity,” *Journal of Strategic Information Systems*, vol. 33 (2024); Mareike Möhlmann, Carolina Alves de Lima Salge, and Marco Marabelli, “Algorithm Sensemaking: How Platform Workers Make Sense of Algorithmic Management,” *Journal of the Association for Information Systems*, vol. 24 no. 1 (2023); Bradley Pitcher, Ahleah Miles, Peter Mancarella, and Tara Behrend, “Socioeconomic and Job Status Differences in the Experience of Perceived Unacceptable Electronic Performance Monitoring,” *Technology, Mind, and Behavior: Special Collection: Technology, Work, and Inequality* (2022); and Angie Zhang, Alexander Boltz, Chun-Wei Wang, and Min Kyung Lee, “Algorithmic Management Reimagined For Workers and By Workers: Centering Worker Well-Being in Gig Work,” in *CHI '22: Proceedings of the CHI Conference on Human Factors in Computing Systems*, (2022).

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<sup>14</sup>Bowell, Smith, Pechenkina, and Scifleet, “Subjective Experiences of Workplace Tracking.”

<sup>15</sup>Maya De Los Santos, Kimberly Do, Michael Muller, Saiph Savage, “Designing Sousveillance Tools for Gig Workers,” *CHI '24: Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems*, no. 384 (2024), 1-19.

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<sup>17</sup>Panagiota Koukouvinou and Jonny Holmström, “AI Management Beyond Myth and Hype: A Systematic Review and Synthesis of the Literature,” *Pacific Asia Journal of the Association for Information Systems*, vol. 16, no. 2 (2024); and Peter Mantello, Manh-Tung Ho, Minh-Hoang Nguyen, and Quan-Hoang Vuong, “Bosses Without a Heart: Socio-Demographic and Cross-Cultural Determinants of Attitude towards Emotional AI in the Workplace,” *AI and Society*, vol. 38 (2023).

<sup>18</sup>Corvite, Roemmich, Rosenberg, and Andalibi, “Emotion Artificial Intelligence Use in the Workplace.”

<sup>19</sup>Corvite, Roemmich, Rosenberg, and Andalibi, “Emotion Artificial Intelligence Use in the Workplace”; and Roemmich, Schaub, and Andalibi, “Emotion AI at Work.”

<sup>20</sup>Corvite, Roemmich, Rosenberg, and Andalibi, “Emotion Artificial Intelligence Use in the Workplace”; and Roemmich, Schaub, and Andalibi, “Emotion AI at Work.”

<sup>21</sup>Ball, “Electronic Monitoring and Surveillance in the Workplace”; Corvite, Roemmich, Rosenberg, and Andalibi, “Emotion Artificial Intelligence Use in the Workplace”; Behnoush Jovari, “Artificial Intelligence Ethics in Organizational Human Resources Management,” *International Journal of Management, Accounting and Economics*, vol. 11, no. 7 (2024); Roemmich, Schaub, and Andalibi, “Emotion AI at Work”; and Jennifer Jiang, Isabell Lippert, and Armin Alizadeh, “Workers’ Perceived Algorithmic Exploitation on Online Labor Platforms,” in *Forty-Fourth International Conference on Information Systems, Hyderabad* (2023).

<sup>22</sup>Roemmich, Schaub, and Andalibi, “Emotion AI at Work.”

<sup>23</sup>We did not identify any studies in our review that met our standards for methodological quality and explicitly addressed the effects of digital surveillance on employment opportunities for workers with disabilities.

<sup>24</sup>Ball, “Electronic Monitoring and Surveillance in the Workplace”; and Jovari, “Artificial Intelligence Ethics.”

<sup>25</sup>Jovari, “Artificial Intelligence Ethics.”

<sup>26</sup>We did not identify any studies in our review that met our standards for methodological quality and explicitly addressed the effects of digital surveillance on employment opportunities for workers with accents.

<sup>27</sup>See 18 U.S.C. §§ 2510–2521.

<sup>28</sup>As of January 28, 2025, the EEOC no longer has a quorum of its leadership panel of Commissioners. Although it has no quorum, the EEOC continues to enforce federal antidiscrimination laws, according to agency officials. Officials also told us that the lack of a quorum does not impact the EEOC’s intake, processing, investigation, or resolution of charges of discrimination.

<sup>29</sup>The CFPB was created to provide a single point of accountability for enforcing federal consumer financial laws and protecting consumers in the financial marketplace.

<sup>30</sup>Specifically, the EEOC cited Exec. Order No. 14,179, 90 Fed. Reg. 8741 (Jan. 23, 2025).

<sup>31</sup>Consumer Financial Protection Bureau, *Consumer Financial Protection Circular 2024-06: Background Dossiers and Algorithmic Scores for Hiring, Promotion, and Other Employment Decisions* (Oct. 24, 2024).

<sup>32</sup>See 90 Fed. Reg. 20,084 (May 12, 2025).

<sup>33</sup>Request for Information; Automated Worker Surveillance and Management, 88 Fed. Reg. 27,932 (May 3, 2023).