AI in contact centers

Artificial intelligence and algorithmic management in frontline service workplaces

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Introduction

Contact centers[1] have long been lead innovators in adopting new technologies to restructure jobs and manage workers. Between the 1990s and 2000s, the first wave of digitalization transformed what were then called 'call centers' through innovations in call volume tracking, automatic call distribution, and electronic monitoring and performance management.[2] The growth of the internet and fiber-optic digital networks enabled the relocation of jobs far from customers through outsourcing and offshoring.

Since the mid-2010s – and accelerating in the early 2020s – a new set of technologies have been transforming contact center jobs. This second digital transformation is based on advances in artificial intelligence (AI), enabled by faster network speeds and cloud computing. A range of new AI-based tools are being used to automate customer service and sales via chatbots and voicebots, to perform a growing range of back-office tasks, and to enable more intensive and tailored forms of remote monitoring, coaching, training, and scheduling.

In this report, we summarize initial findings from research on how these AI-based tools are being used in contact centers, and their impacts on work and workers. The study focused on contact centers in the US, Canada, Germany, and Norway. We carried out matched case studies in all four countries, including interviews with managers, worker representatives, and employees. We also conducted matched contact center worker surveys in the US (N=2891) and Canada (N=385) between December 2022 and January 2023. In the US, we conducted a survey in 2017 on a similar sample of contact center workers, with some identical questions – allowing us to also describe changes in average responses between these two time periods.[3] (See Appendix 1 for research methods)

The questions guiding this study included:

1. What AI-based technologies are currently being used in contact center workplaces? How (and why) does AI adoption differ across companies, industry segments, and countries?

2. How are these technologies affecting employment, skills, and working conditions? Where are these effects more positive for workers, and where are they more negative?

3. What challenges do these technologies pose for worker representation and worker voice, particularly in unionized workplaces? How are unions and other representatives responding to these challenges?

4. What are best practices for realizing 'mutual gains' in adoption and use of new AI-based technologies in contact centers—supporting improved efficiency and customer service while also encouraging high quality and secure jobs?

We find that new AI-based innovations can be tools for improving work and customer service. Contact center agents are often strongly motivated to provide high quality customer service, and they embrace these technologies where they are adopted in a way that supports employees, allowing them to better apply or develop their skills and to be more effective in their jobs. This is more likely where workers have a voice in how these tools are used at work.

At the same time, we identify many problems in how AI is adopted in contact centers. AI-based tools are often used to replace rather than complement existing jobs and skills, increasing job insecurity and work intensity; to intensify monitoring, through AI-enabled cameras and perpetual 'real time' coaching; and to deskill work, through more tightly enforced scripting and recommendation-based agent support systems.

These trends have a number of negative consequences. They are bad for workers, as they drive up stress and burnout, increase insecurity, and decrease satisfaction at work. They are bad for customers, as they can result in even more challenges receiving straightforward resolutions to problems or requests. And they are bad for companies, via lost opportunities for making more productive use of new technologies to improve customer service and sales.

In this report, we document these negative uses and impacts of AI. However, we also focus on positive examples from our research, where we observe creative alternative strategies based on a high road approach that puts worker voice and involvement at the center of decisions to implement AI in the workplace.

Overview of Findings

This report begins with background on AI-based tools in contact centers. We then move on to our survey findings from the US and Canada, which provide a detailed descriptive picture of how contact center workers experience these tools. We conclude with a discussion of how labor unions and other worker representatives are seeking to address potential problems and improve outcomes associated with AI.

Artificial intelligence in contact centers

- *Work automating AI* tools directly automate contact center tasks or support agents, improving their efficiency. Examples include chatbots and voicebots, back-office software bots, agent assistance tools, end-to-end diagnostics, and predictive call routing. These tools can impact the number of jobs, skills, work intensity, and customer service quality.
- *Management automating AI* tools are used to support management decision-making in a range of areas, from the use of predictive analytics in workforce management to AI-enabled remote monitoring through cameras or speech analytics and automated real time coaching. These tools can impact data privacy, worker discretion, and fairness at work.

Workers' experience with AI-based tools (US and Canadian worker surveys)

- A majority of survey respondents reported some experience with AI-based tools in US and Canadian contact centers – with only 12% in the US and 20% in Canada reporting no experience with these tools. However, reported use was higher in the US. For example:
    - 67% of respondents in US contact centers reported use of AI to help find product or customer information during calls or chats compared to 48% of Canadian contact center respondents.
- In the US, more respondents 'disagreed' than 'agreed' that most AI-based tools made employees work faster, made work easier, made work more interesting, or improved customer service – with close to 50% agreeing that most AI tools made work more stressful. Canadian responses were similar, but slightly more positive or neutral overall. For example:
    - 68% of US and 63% of Canadian respondents agreed that the use of AI to automate monitoring of employees' workspace made work more stressful, while 56% of US and 44% of Canadian respondents agreed that automated coaching and feedback made work more stressful.
- Employees were more positive about the impact of *work automating AI* on their jobs, particularly about the use of AI to find customer information during calls and chats; and were more negative

about *management automating AI*, particularly for workspace monitoring and automated feedback (e.g. on voice tone, pace, and script adherence). For example:

- 53% of US respondents agreed that the use of AI to find customer information improved customer service and 40% agreed that it made work easier. In contrast, only 19% of US respondents agreed that the use of AI to provide automated feedback improved customer service and 12% agreed that it made work easier.

Outcomes associated with AI use and AI intensity (US and Canadian worker surveys)

- A majority of respondents reported that it was somewhat or very likely that software automating contact center support work (59% US, 61% Canada) and the increased use of chatbots and voicebots (65% US, 63% Canada) could lead to layoffs at their contact center or employer within the next 2 years. In our 2017 US contact center survey, 50% of respondents reported that layoffs were likely to result from new technology.
- Employees reporting higher intensity AI – or experience with a larger number of eight different AI-based tools – also on average reported greater work intensity, more monitoring, and more frequent mistreatment by frustrated or angry customers. For example:
  - Employees reporting no AI indicated that they spent on average a lower percentage of their working time interacting with customers (69% US, 56% Canada) compared to those reporting high-intensity AI (88% US, 83% Canada).
  - A higher proportion of employees reporting no AI agreed that they had enough time between calls (33% US, 24% Canada) compared to those with high-intensity AI (14% US, 5% Canada).
  - A higher proportion of those with high-intensity AI in the US (80%) or moderate-intensity in Canada (67%) reported frequent to constant recording of voice interactions with customers compared to those reporting no AI (36% US, 48% Canada).
  - A higher proportion of employees reporting high-intensity AI in the US (68%) or moderate-intensity AI in Canada (51%) reported that customers 'often or frequently' blamed them for something beyond their control compared to those reporting no AI (42% US, 20% Canada).
- Employees reporting a higher intensity of *management automating AI* also reported more negative perceptions of the workplace climate, based on the extent to which they agreed or disagreed that metrics are reasonable, compensation is fair, scheduling is flexible, workers conform to ethical standards, and privacy is protected. For example:
  - A higher proportion of employees reporting no experience with *management automating AI* agreed that workers' rights to personal privacy were protected (48% US, 58% Canada) compared to those reporting high-intensity *management automating AI* (39% US, 37% Canada).

- A higher proportion of employees reporting no *management automating AI* agreed that compensation was fair (40% US, 44% Canada) compared to those reporting high-intensity *management automating AI* (29% US, 25% Canada).

- AI intensity was associated overall with lower employee well-being, measured using scales for job satisfaction and 'emotional exhaustion'. However, differences were more pronounced in Canada than in the US. For example:
  - In Canada, 57% of those reporting no AI agreed that they were satisfied in their jobs, compared to 37% reporting high-intensity AI. The differences were smaller in the US: 52% of those reporting no AI were satisfied, compared to 47% of those reporting high-intensity AI.
  - In Canada, 38% of those reporting no AI reported feeling emotionally drained from their work 'a few times a week or daily' compared to 63% reporting high-intensity AI. In the US, the figures are 43% (no AI) and 59% (high-intensity AI), respectively.
- AI intensity was associated with higher absenteeism rates, but only very small differences in turnover intentions. For example:
  - Canadian respondents experiencing no AI reported 1.5 days of absences in the past four weeks compared to 2.9 days among those with high-intensity AI. In the US, the figures are 1.7 days (no AI) and 2.2 days (high-intensity AI), respectively.

The role of labor unions

- Collective agreements negotiated by labor unions and works councils in the US, Canada, Germany, and Norway are being adapted to shape new AI-based technology adoption and deployment decisions, as well as their impacts on workers. Examples include provisions strengthening job security, investing in training, limiting the intensity and frequency of performance monitoring, encouraging the use of monitoring information for training rather than discipline, and providing sufficient breaks and control over working time.
- Worker representatives can also support employee voice in the design of AI tools, to encourage deliberation on how they are used and to anticipate implementation problems. Case study evidence suggests that where workers are integrated into decision-making, they can contribute to alternative approaches to AI adoption that improve organizational performance, customer service quality, and worker well-being.

Contents

1. Artificial intelligence in contact centers

'Artificial intelligence' refers to computer systems that can perform tasks traditionally requiring human intelligence, including advanced pattern recognition and problem-solving. The OECD defines an AI system as 'a machine-based system that is capable of influencing the environment by producing an output (predictions, recommendations or decisions) for a given set of objectives.'[4]

AI-based tools have different capabilities and capacity to learn from experience and without human supervision (See Appendix 2 for a glossary of AI terms). Increasingly technologies integrate robotic process automation, which is used to automate repetitive, rule-based tasks (based on structured data inputs and logic) with machine learning, which can identify patterns in unstructured data and improve its accuracy over time – for example, through neural or deep learning networks. 'Generative AI' tools such as ChatGPT have attracted particular attention as a class of machine learning technologies that generate new content based on this analysis of patterns in data.

Below, we focus on two main categories of AI-based technologies that are becoming widely used:

Work automating AI, in which AI-based tools are applied to either directly automate tasks previously performed by contact center agents, or to support these agents in their work – thus improving their efficiency.

Management automating AI**,** in which AI-based analytics and algorithms are used in traditional management tasks, including hiring, monitoring, coaching, training, and scheduling hours and breaks.

1.1. Work automating AI

Work automating AI has had the most significant impact in contact centers – via its influence on both customer facing and back office work. Some examples include:

- **Chatbots and voicebots:** The most basic version of these enter into a dialogue with customers using natural language, powered by AI; and can be 'trained' to understand and respond to selected topics over voice channels and through chats. Increasingly, these are able to carry out tasks for customers, such as paying bills or making changes to their plans.
- **Back-office bots**: 'Software bots' or RPA digital robots use robotic process automation to automate simple tasks that an agent would previously have to complete during or as follow up after a call – or that would have been handled separately by back office employees. Some examples are transferring data from one system to another or comparing customer data between the systems. They can also check connections, create invoices, process contract

changes and terminations, return devices, or automatically send written completion reports to customers. Increasingly, software bots can automatically complete work steps in the background during customer calls, that in the past employees would have had to carry out manually – for example, checking the customer's device or transferring data.

- **Agent assistance tools**: These use machine learning to provide agents with information and recommendations relevant to calls through a real-time digital assistant. The AI-based model is typically trained on support logs – allowing it to 'learn' through connecting past questions customers have asked (and the phrasing of these questions) with the information that has helped to resolve them. These often draw on the same data or knowledge base as customer-facing chatbots. Agent assist can then 'listen' to conversations as they are happening (using natural language processing) and make real time recommendations – through combining live information on a customer's reasons for calling and sentiment analysis with historic data from both the current customer and other past customers who had similar requests or questions.
- **End-to-end diagnostics:** These tools are essentially a sub-category of agent assistance tools, but with the specific application to help technicians find and fix network or equipment faults. If customers call their telecommunications provider, for example, to report a fault, technicians (or customer advisors with some technical training) are guided by a software system that uses algorithms to decide on the next questions or next steps. While decision trees are developed based on past data (on similar faults and how they were resolved), these tools are increasingly combined with machine learning to improve accuracy over time.
- **Intelligent or predictive call routing:** AI is used to analyze data on past agent performance and on the customer, and then to match customers with the 'right agents' who can help resolve their problem or request. The goal is to optimize routing using predictive analytics, and thus increase efficiency, first call resolution, or sales.

The rapidly expanding adoption of this kind of front and back-office AI-based automation has several potential impacts on contact center jobs.

- **Job loss vs. job creation**: Most basically, these tools take over tasks from agents or back-office staff and increase their efficiency - which means that fewer workers are needed overall. For customer service, simple requests are increasingly handled by bots, which also direct customers to self-service channels. Routine jobs or tasks are also cut in back-office processing and business service functions. At the same time, if many of these simple or routine tasks had previously been outsourced or offshored, the impacts on the internal workforce may be less significant. Companies sometimes apply cost savings from automation to internal investments in infrastructure or customer service quality, which may stabilize or increase the number of these inhouse jobs.
- **Deskilling vs. increased complexity:** On the one hand, agent assistance and end-to-end diagnostics tools can reduce the need for extensive initial and ongoing training in products,

services, or technical expertise. On the other hand, agents may be handling more complex calls and tasks; and AI-based tools may enable 'universal agents' to answer a wide range of customer calls, reducing the need for routing calls between different agents or departments.[5] As easy customer requests are handled through chatbots or self-service, the calls that make it to agents are likely to take more time and knowledge to resolve.

- **Work intensification vs. work support:** The peeling off of simpler work can increase the demands or intensity of remaining jobs – particularly in customer service roles. There is also less down-time for employees to carry out follow-up paperwork or to search through databases, as these simpler tasks are increasingly automated. However, workers may also find that new AI-based tools make their jobs easier, or support them in being more effective - e.g., in resolving customers' problems.
- **Customer mistreatment vs. customer satisfaction:** Customers often take out their frustrations on agents through mistreatment or abuse; particularly when they have first had to navigate a complex system of chatbots, interactive voice response (IVR) systems, and self-service options. On the other hand, where these systems are designed in a way that helps customers to navigate quickly to the channel that can efficiently resolve their questions or requests, they are likely to be more satisfied and provide positive feedback to agents. Past research has found that customer mistreatment harms service worker well-being[6] and can increase quit rates.[7] Thus, the effectiveness of these technologies in getting customers to the right 'channel' can be crucial for contact center agents' experience of stress and burnout, or job satisfaction.

The above discussion suggests that the impact of work automating tools in contact centers on both workers' job quality and the quality of customer service are strongly affected by management choices concerning how these tools are applied in the workplace. The case study of Deutsche Telekom in the text box below demonstrates a high road approach to implementing these tools.

Case study: Automating work at Deutsche Telekom

Deutsche Telekom has applied AI to automate a range of work processes in its contact centers and back-office support. In 2015, Deutsche Telekom partnered with ALMATO to implement around 400 software bots, or **RPA digital robots** to automate back office or follow up tasks. The company reported in 2016 that they succeeded in automating more than 40 processes, working across over 30 applications (e.g. email management, SAP, routing and ticketing), to complete 320,000 business transactions a month.[8] By 2018, DT was using over 1500 bots to support 4 million transactions per month, performing tasks like checking connections, entering orders, creating invoices, and processing cancelations.[9]

In addition, an **agent assistant tool** called 'Pia' uses partial automation to support customer advisors, providing tailor-made suggestions to customer service or sales agents on how to answer a customer request. This means agents often do not have to manually search multiple databases and can provide

answers or make offers more quickly. Agents were given the choice on whether to use Pia, as some found it to be distracting – due to the way in which it would guide agents through steps or recommendations in answering calls. However, a majority chose to use the tool, as it was generally seen as helpful for resolving calls. At the same time, multiple customer service interfaces were unified into one, providing a simpler dashboard that could be used across different customer groups. This supported an initiative to bring together teams formerly dedicated to different customer groups, creating more multi-skilled agents who could handle a range of customer requests – for example, mobile and fixed line.

End-to-End diagnostics are used in Deutsche Telekom's 'E2E' system, which supports employees handling customer calls related to network or service disruptions, using algorithms to lead them through each question to ask and the diagnosis of the problem. This allows technical service advisors to more efficiently determine the cause of a telephone, internet or television fault themselves: for example, whether the problem is on one of the customer's devices or along the network. In the past, service advisors had to call in a diagnostics expert; with the E2E system, a technical customer service agent would either directly resolve the problem (following instructions from the diagnostic system) or dispatch a field technician.

Deutsche Telekom also used AI in **intelligent call routing**. First, a system was designed internally to make 'intent predictions' – to be able to predict why a certain customer is calling, based on available information. For example, if a recent change was made in a customer's bill, they would first be asked: 'did you call for billing?' rather than going through a menu of options. Second, AI was being applied to predict not only the correct team for a call, but also the best individual matches between agents and customers - for example, between 'technically inclined' customers (based on product mix and transcripts from earlier conversations with customer service agents) and agents with this expertise. An ongoing challenge with individual matching was to ensure that the highest performers were not getting all of the most difficult calls; and that the distribution of calls continued to be balanced across employees.

These applications of AI had saved costs, improved efficiency, and improved customer service through more than doubling first call resolution. They were also viewed positively by agents, for two reasons. First, employees had job security. An agreement between the union and management established that subcontractors would be cut to realize efficiency gains from automation, with internal employment protections. Second, employees were involved in decisions about how these technologies were adopted and used in their workplace (see textbox, pp. 48-50). Both helped to ensure AI was adopted in a way that maximized 'mutual gains' for the employer and employees.

1.2. Management automating AI

Another group of AI-based tools are management automating. These are part of a broader category of 'algorithmic management' tools that use software algorithms to enable automated or semi-automated management decision-making.[10] Examples include:

- **Workforce management:** These tools use predictive analytics to hire, evaluate performance, determine training needs, allocate work, or schedule hours and breaks. For example, workflow algorithms can be used to match workloads with employee schedules. Analytics tools also allow management to evaluate programs and inform decisions related to training, employee advancement, and equity and diversity goals. Machine learning is increasingly integrated into these tools, which further enables 'autonomous' decision-making.
- **AI-enabled remote monitoring – through cameras:** Traditional monitoring tools in contact centers are increasingly AI-enabled. One set of technologies combine cameras with visual pattern and facial recognition software to identify anomalies or policy violations in employees' workspaces – including their homes, where they are in remote working arrangements. The contact center subcontractor Teleperformance, for example, was requiring its employees in some countries to install webcam systems that used AI to regularly scan the workspace and report breaches like unauthorized use of mobile phones to supervisors (see text box below).[11]
- **AI-enabled remote monitoring – through speech analytics:** The more common use of AI in contact centers is to apply speech analytics to traditional monitoring technologies that record workers' calls. Speech analytics software uses natural language processing and machine learning to extract, transcribe and analyze voice conversations. Agent calls first must be automatically recorded and transcribed, and then AI combs through or mines the transcripts to look for patterns. These patterns can concern agent behavior and dialogue: where they followed a script, where they deviated, or what common mistakes they made. Another set of patterns that are useful to companies concerns the content of customer calls: what kinds of questions were coming in at a particular time, or what were common complaints. This data then can be used for coaching employees, or to spot patterns in customer calls and take quick action to reduce call volume or improve satisfaction.
- **Automated 'real time' coaching:** As described above, speech analytics is integrated into agent assistance software. However, these are not only used to help find information useful for resolving a call; but also to automatically track agents' adherence to a script (flagging words or phrases they missed) and to report on customer and employee emotion or sentiment during the call. Thus, this software serves as an 'algorithmic manager', providing automated coaching and direction during calls; while also generating performance data (for example, based on adherence to a script or a sentiment analysis-based evaluation of customer satisfaction) that can influence variable pay, training, or disciplinary recommendations. The case study of Cogito in the text box below is one example of widely used AI-based coaching software.

Case study: Real-time coaching and guidance through Cogito

Cogito was founded in 2007 as a spinout from the MIT Media Lab. Its software applies AI through behavioral and speech analytics to track the voice patterns of customer and agents, and to give 'real-time' feedback or suggestions to agents during the conversation. Its Cogito Dialog software monitors subtleties in speech, identifying whether customers are confused or annoyed based on the speed at which they talk, whether they are interrupting, or the length of pauses. On the agent side, the tool tracks speech pace, confidence, and expressions of empathy.

If it detects potential problems on either side, Cogito will give agents advice on how to respond – for example, with an 'empathy cue' illustrated with a heart to suggest they express empathy for the customer's situation, a coffee cup suggesting they pep up their tone, or notifications if the caller and agent are talking at the same time.

New features apply generative AI to give supervisors real-time alerts after every customer interaction, with information on which agents are experiencing below or above average employee and customer experience scores (EX and CX scores); as well as tracking operational problems with call routing or system issues. These tools thus can be used for post-call analysis and coaching.[12] They can also be used to monitor employee well-being, providing alerts to team leaders when the software identifies potential fatigue or burnout, or when agents are interacting with difficult or abusive customers.[13]

An article in Time Magazine summarizes the experience at 10 MetLife contact centers that adopted Cogito:

'managers say that the program improved first call resolution metrics by 3.5% and customer satisfaction by 13%, and helped agents (who take an average of 700 calls a week) to have more "human" conversations. One employee says that Cogito helped her cut her average call time nearly in half, while another said that it helped her slow down when she was speaking. [….] Cogito also gives managers vastly expanded insight into — and control over — their employees.' [14] **– de la Garza, Time**

These management automating AI tools raise a variety of further concerns for contact center workers.

- **Data privacy:** One concern is that these tools rely heavily on comprehensive access to employee data. Thus, data privacy may be at risk, particularly if there are no guidelines concerning which kinds of employee data the software can access and how it will be used.

- **Discretion:** Tools using speech analytics enable constant monitoring of employee performance, while AI-based coaching technologies often require employees to follow tight scripts or to receive constant feedback about their performance. This may make it more difficult for employees to use their knowledge and skills to successfully resolve customer calls – as they may fear they will be punished for deviating from a scripted conversation, even if it does not fit the context.
- **Fairness:** Algorithmic management tools could potentially help to improve the fairness or transparency of management decisions, through giving workers objective data on their performance or applying clearer, universally applied criteria for scheduling and training decisions. However, workers may also experience more constraints on their ability to complain or contest unfair decisions made by an algorithm rather than by a human. At the most extreme, algorithms can be used to automate performance evaluations, training requirements and delivery, work allocation, and hiring and firing decisions. Where these tools are trained on biased data, they can contribute to discrimination. This is particularly a problem where the criteria for decision-making are based on deep learning – resulting in 'black box' models that arrive at conclusions based on data dispersed across deep networks of tens of thousands of artificial neurons.

Past research has shown that management practices based on intensive monitoring, restricted control over work, and perceived lack of transparency and fairness in work allocation or performance evaluation decisions are connected to worker stress and burnout.[15] Thus, these tools pose a potential added risk to worker health and well-being – depending on how they are adopted and used. In addition, they may contribute to entrenched discrimination and threaten data privacy.[16] These problems can potentially be minimized through human oversight and supervision, as well as clear rules concerning how AI-based management tools are introduced or used.

Case study: Teleperformance

Teleperformance is a large multinational BPO (Business Process Outsourcing) company providing a range of outsourced contact center services, from telemarketing and debt collection to customer service support. A 'success story' write-up by Genesys from 2015 describes how Teleperformance used the Genesys Observer platform to remotely monitor employees via live, continuous audio, video, and desktop feeds. They write:

***'Clients can access all components of agent interactions and view contact floor activity from controllable, aerial cameras while analyzing real-time call activity, capacity, and emotion states.'* - Genesys[17]**

Teleperformance moved 240,000 of its 380,000 employees to work from home contracts by 2021, using its 'TP Cloud Campus' platform.[18] The company was subsequently investigated by NBC and the

Guardian for its home surveillance practices for this workforce. In the UK, staff were informed in 2021 that specialized webcams would be used to check for home working infractions, via an AI system that randomly scanned for violations of company policies, such as leaving the desk without notice, eating during a shift, or violating clean desk rules.[19]

UK employees were later told that they would not be required to use the home webcam system. However, these technologies continued to be used in other countries. In Albania, Teleperformance workers filed a complaint to the Information and Data Protection Commission, protesting the proposed use of home video monitoring. The ruling of the commission held that this practice violated data protection rules, and was thus not allowed.

In Columbia, contact center employees were asked to sign new contracts in 2021 that included home surveillance rules, including the continuous recording and monitoring of workers via video cameras.

'The document asks workers to agree to having video cameras installed in their home or on their computers, pointing at their workspace, to record and monitor workers in real time. It also states that workers agree to Teleperformance using AI-powered video analysis tools that can identify objects around the workspace, including mobile phones, paper and other items that are restricted by Teleperformance's security policies. They must also agree to sharing data and images related to any children they have under the age of 18 — who might get picked up by video and audio monitoring tools — and to sharing biometric data including fingerprints and photos. There is also a clause that requires workers to take polygraph tests if requested.' **– Olivia Solon, NBC News[20]**

Intensive monitoring practices fueled union organizing in Columbia, through the 'Utraclaro 7 TIC union'. Workers submitted a set of demands, including less intrusive surveillance, longer breaks between calls, and clearer disciplinary rules and processes.[21] In 2022, Teleperformance signed an agreement with UNI global union guaranteeing worker rights to form a union.[22]

The above summary and case studies demonstrate the wide range of AI applications in contact centers, as well as potential positive and negative impacts of these technologies on workers. In the next section, we summarize our survey findings on the impact of AI on contact center jobs and workers in the US and Canada. We then discuss our qualitative case study findings concerning the role of labor unions in addressing the negative impacts of AI-based tools and promoting more positive outcomes.

2. Survey Findings on AI at work - US and Canada

In our survey of US and Canadian contact center workers, we asked respondents whether computer algorithms or AI-based software was used for different purposes in their jobs. A substantial minority answered that they did 'not know' for each category (31-49% - see endnote for details).[23] Below we report percentages who answered 'yes', out of all respondents indicating either 'yes' or 'no'.

For **work automating AI**, we asked whether AI was used:

- to route calls to agents based on fit with customer or past call performance (***call routing***)
- to help find and fix network or equipment faults (***tech support***)
- to help find product or customer information during calls or chats (***product & customer info***)
- to help fill in online forms or follow up after calls or chats (***forms & follow-up***)

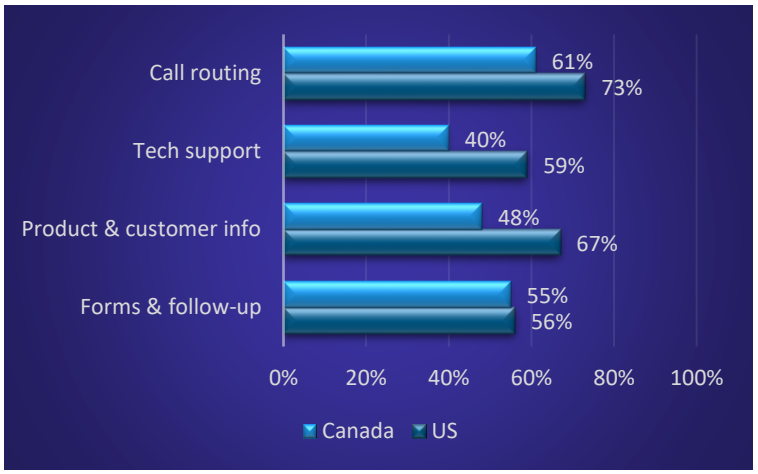


Figure 1: *% reporting their employer uses work automating AI – Call routing [US (N=1049) and Canada (N=148)]; Tech support [US (N=914) and Canada (N=133)]; Product & customer info [US (N=1042) and Canada (N=156)]; Forms & follow-up [US (N=897) and Canada (N=154)]*

For **management automating**, we asked whether AI was used:

- to schedule hours and breaks (***scheduling***)
- to help with training and development (***training***)
- to automate monitoring of employees' workspace (***workspace monitoring***)
- to give automated feedback on voice tone, pace, script adherence, or call content (***feedback***)

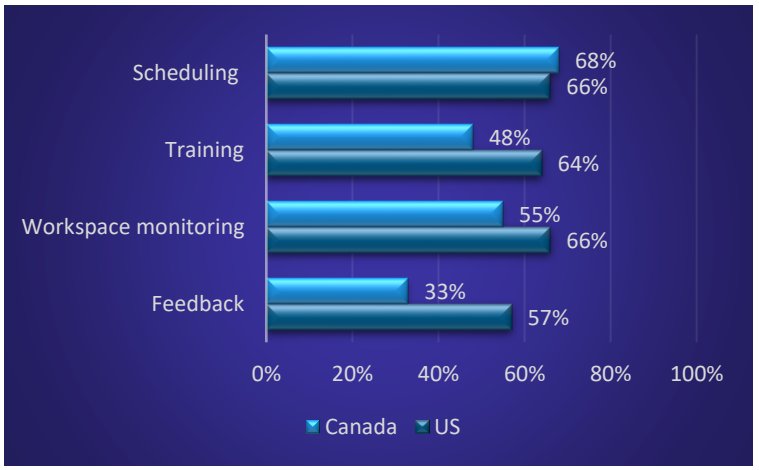


Figure 2: *% reporting their employer uses management automating AI – Scheduling [US (N=992) and Canada (N=136)]; Training [US (N=922) and Canada (N=129)]; Workspace monitoring [US (N=804) and Canada (N=120)]; Feedback [US (N=927) and Canada (N=129)]*

Figures 1 and 2 show overall more experience with AI among the US compared to the Canadian contact center employees surveyed. In all eight categories, a majority of US respondents who answered 'yes' or 'no' reported that their employer used AI in that category; while in Canada this was only the case for four categories (call routing, forms and follow-up, scheduling, and workplace monitoring).

Another measure of AI use is **AI intensity** – or how many of these tools employees indicated they had experience with in their jobs.

Here we divide respondents into groups by **no AI** (0 tools), **low-intensity** (1-3), **moderate-intensity** (4-6), and **high-intensity** (7-8).

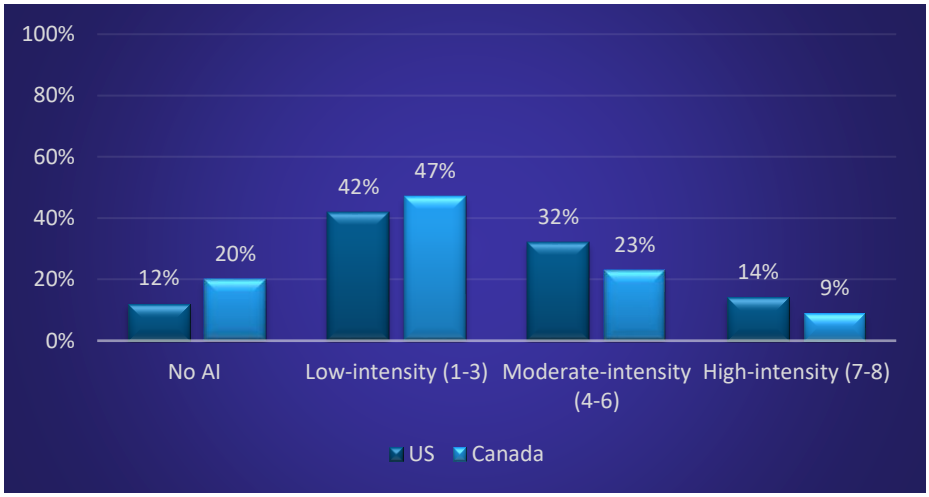


Figure 3: *% categories of AI Intensity – US (N=1387) and Canada (N=209)*

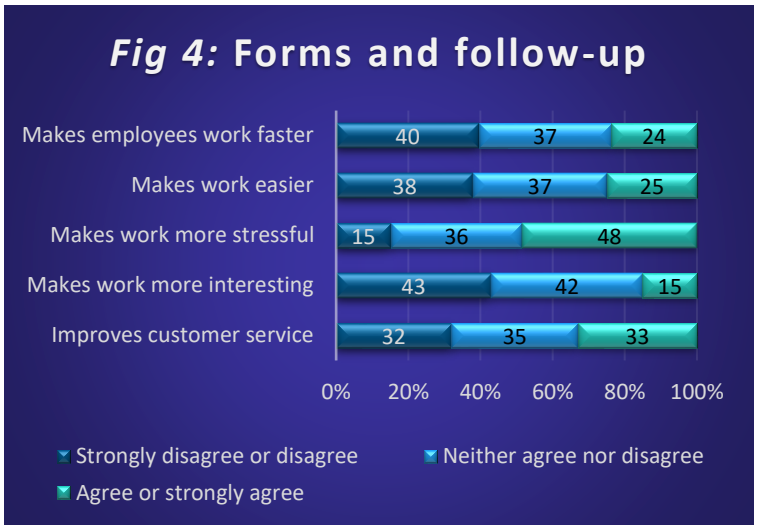
Findings show that the largest group reported low-intensity AI adoption; while only a small proportion reported high-intensity. In Canada, 20% reported no AI use at their employers, compared to 12% in the US.

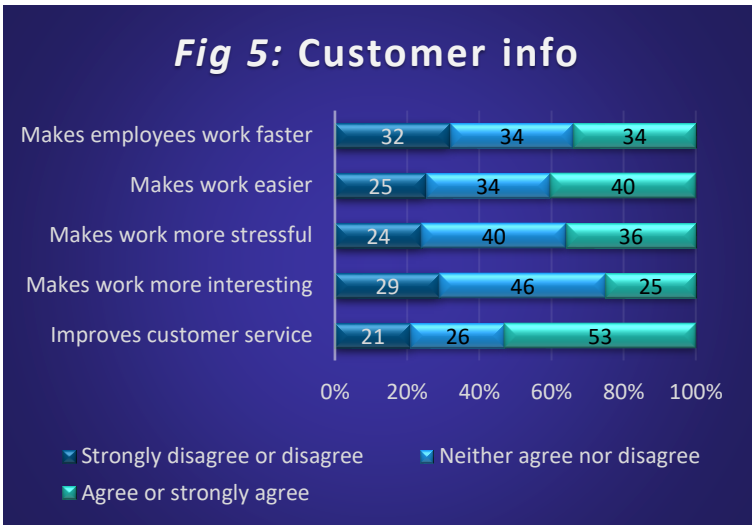
Finally, we asked employees to report on whether they were currently **working from home.** A large proportion of employees responding to our survey in both countries were working from home: 60% in the US and 64% in Canada. We might expect employees in home office arrangements to experience more intensive AI use – particularly for monitoring purposes. We found overall no substantial difference in the intensity of AI adoption and (particularly interesting) slightly less reported use of AI to monitor employees' workspace. However, a higher percentage of employees working from home reported use of work automating AI, especially to help find product or customer information during calls or chats.

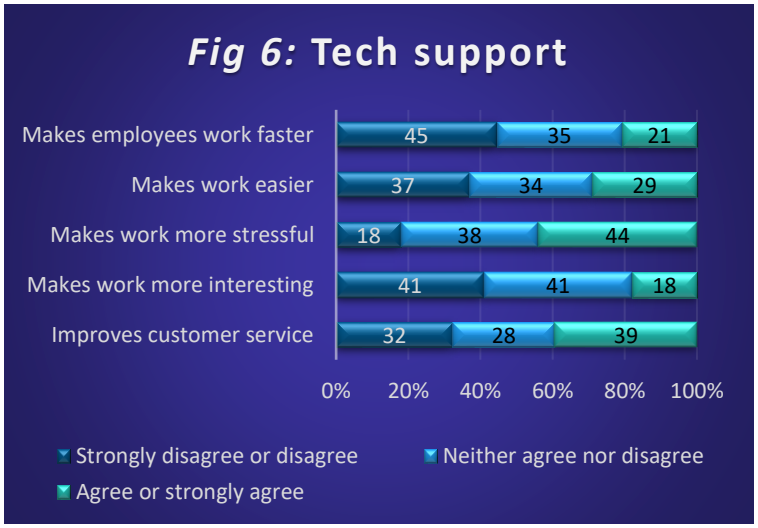
2.1. Workers' experience with AI-based tools

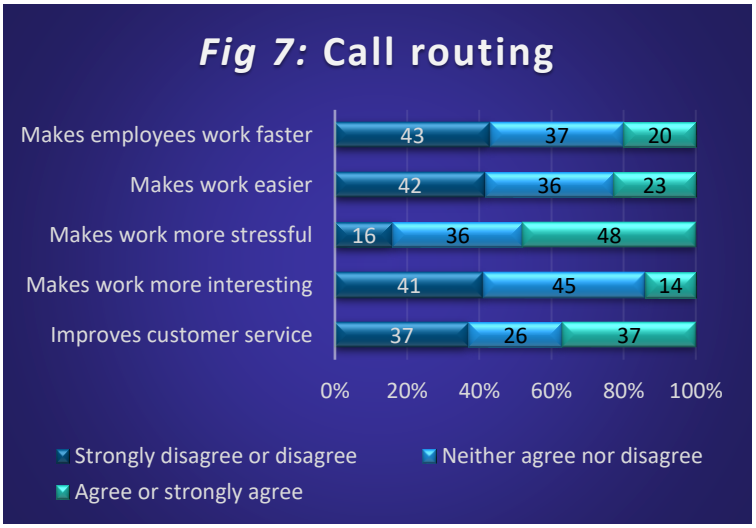
We also asked about respondents' experience with each AI application that they indicated was used in their workplace.

Figures 4-7 below show the % of respondents to the US survey indicating that they disagreed, were neutral, or agreed that each form of **work automating AI** had different effects on their work or performance.[24]









Figures 4-7: *% reporting different experiences with work automating AI – US (N=448-700)*

In the US, more respondents 'disagreed' than 'agreed' that these tools made employees work faster, but also that they made work easier, more interesting, or improved customer service – with close to 50% across most questions agreeing or strongly agreeing that these work automating AI applications made work more stressful.

The one question with somewhat different responses concerns the use of AI to find customer information during calls or chats: a higher proportion of respondents (compared to the other AI tools) agreed that these AI applications made employees work faster (34%), made work easier (40%), made work more interesting (25%), and improved customer service (53%)–and a lower proportion agreed that they increased stress (24%).

In Canada, contact center workers reported similar but slightly more positive experiences with these tools.[25] A smaller share of respondents agreed that AI used for forms or follow-up (44%), fixing network and equipment faults (37%), and call routing (44%) were making work more stressful. And a larger share agreed that AI used to fix faults improved customer service (44%), made work more interesting (30%), made work easier (40%) and made employees work faster (38%).

Quotes from survey respondents illustrate their experiences with work automating AI. We asked them to describe the technology that had the biggest impact in their work, and why**.**

Some of the negative experiences include job cuts, deskilling work, more time interacting with customers and more call complexity, difficulty doing their jobs due to faulty technology, and higher stress from unfair and unpredictable AI-based routing and angry customers due to their own negative experiences with routing, chat bots, and self-service. We summarize indicative quotes from each topic in Table 1 below.

***Table 1. Survey respondents' negative experiences with work automating AI*[26]**

Job cuts	***US:*** *AI takes over jobs, so the company needs less employees.* *Automated systems have taken most of the workforce. There is minimal need for workers due to increased technology.* *Automating job functions. It takes the work away from humans and the computers don't get it right a lot of the time.* *Automation has taken away my job accommodation for my brain injury by getting rid of types of work I could perform.* ***Canada****: It may take work from me in the future as technology keeps growing. Soon everything will be automated and will not need Customer service agents or clerks* *New loading tool for cable dispatch. A lot of my team feels that if it gets corrected that it will take away our jobs and we will be surplused.*
Deskilling work or removing discretion	***US:*** *Every call has a wizard flow that they require you to follow. It is supposed to walk you through every scenario for every call. But it's horribly set up - with incorrect and inefficient wizard flows... I have so many calls that I could fix the problem but they have removed my ability to modify equipment or processes.*

	Automated guidance and decision making while working with a customer. Little technical input is done by the CSA taking the call. Very little ability to make decisions. *Technology, especially automation and AI, helps with increased productivity. However, it also stupefies the workforce, and any out of box problem easily becomes unsolvable. Pick your poison…* *The system in which we use to troubleshoot is 90% automated and does not allow me to think or assist the customer for myself.* *Troubleshooting with the bot is scattershot at best … I know the solutions to most problems. If it needs a reset, I need to be able to skip the garbage. If it needs to have calls unblocked from settings, then let me do it rather than trying to reset.* ***Canada**: "Buzz" tickets. This "tool" has removed direct contact between myself and the technicians that my job is to assist. Where there was once a direct line of conversation to problem solve, there is now guess work and no confirmation.* *Flow charts do not allow us to make our own judgement call. Every conversation is different with EVERY customer. Negative because everything now is in a box and opinions are coming from people that I wholeheartedly believe have not worked in our shoes or taken calls in the last 36-48 months.*
More time interacting with customers - more call complexity	***US:** And most of the way they are automating is to make the time between calls disappear. I need that time to collect myself. 15 seconds isn't a hard ask, I am a human being.* *The automation will do work that is "easy" and the more complicated work is left for us but the time given to complete the task is not based on the more complicated work…It is harder to meet the numbers set due to automation working through the less complicated orders.* *Call requirements say we must use CTI, customer information that pops up on our screen as the call comes in … it's wrong at least 75% of the time and thus takes more time while the customer corrects me.* *Customer based self-help tools. We now teach customers how to use their devices, along with how to use the software.* ***Canada**: The companies bringing in a technology that well, springs up in front of our screens, and we're expected to work on that in a timely fashion, and then, as soon as that is done, another one comes in right afterwards, the cents, more stress to the individual because the longer the clock ticks, the more stressful it becomes.*

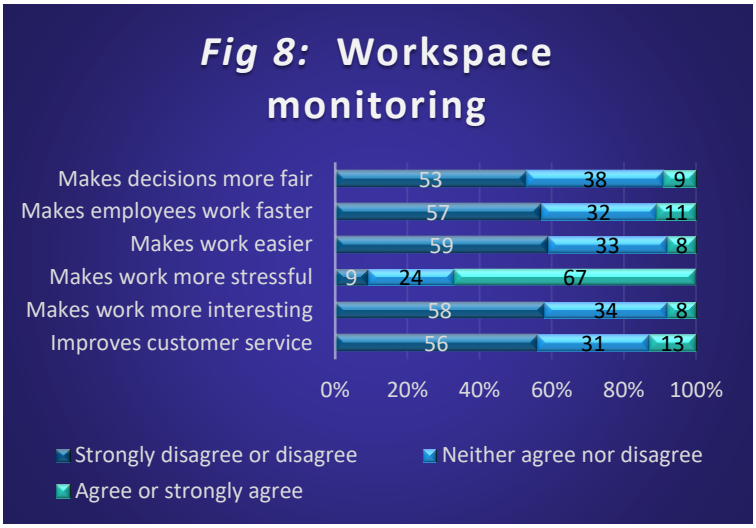
Decreased efficiency due to faulty technology	***US:*** *Automated notes. It makes doing the work longer, cumbersome and it is repetitive with having to tab and/or copy/paste.* *Automation with incorrect data has made my work more time consuming and challenging than if it were performed by a knowledgeable person. Too much time is spent making and waiting for corrections.* *The scheduling system constantly having errors and changing my schedule day of, as in breaks suddenly disappear and exchange time hours do not come with breaks even if you exchange a break with it.* *We have an automated troubleshooting system that runs before we can run standalone commands or tests, it doubles the time of each call.*
Unfair and unpredictable call routing	***US:*** *AI- routing calls is completely unfair, bias[ed] and racist.* *AI and skill based call routing. It has caused disparity in call routing. It has dropped me from top performer to bottom performer. Made me lose all interest in my job. It is very stressful, and I have lost a lot of my income. My job makes me feel depressed and hopeless.* *Routing of calls does not fairly route calls at all. The same people get the same calls making sales objectives increasingly hard to achieve. The same workers are making numbers due to getting "sales" calls, while others are not meeting their numbers for getting "junk" calls."* *The automated routing system. […] A pilot program now delivers me almost 95% billing issues and I am supposed to do technical support which drains me and makes me consider looking for a new job.*
Angry customers take out frustrations on agents [customer mistreatment]	***US:*** *Call trees and chat bots have made my job harder & more stressful- often mis routes pisses customers off, so [it's] harder to talk to them and sell services.* *The IVR [interactive voice response] system is not effective. Customers consistently complain about [being] misrouted and are very upset by the time the[y] reach the representative. This causes a poor experience for both agents and customers.* *VRU [voice response unit – another term for IVR] made things worse. Customers don't get routed correctly and it upsets customers as well as employees. It also reduces the workforce and puts more stress on employees.* *Automation that seeks to route customers to the correct department. It overwhelmingly routes customers to technical support when that is not the group that the caller needs. These customers can be frustrated and sometimes take this frustration out on me. This can potentially mess up my day.* ***Canada:*** *The automated tool for workload distribution has been a failure for all of the employees. It looks for certain phrases to distribute work and is usually wrong. Getting tasks reassigned can be difficult as the "programmers/assigners" listen to the AI rather than the humans. Employees and customers hate the AI tool and the lack of human interaction.*

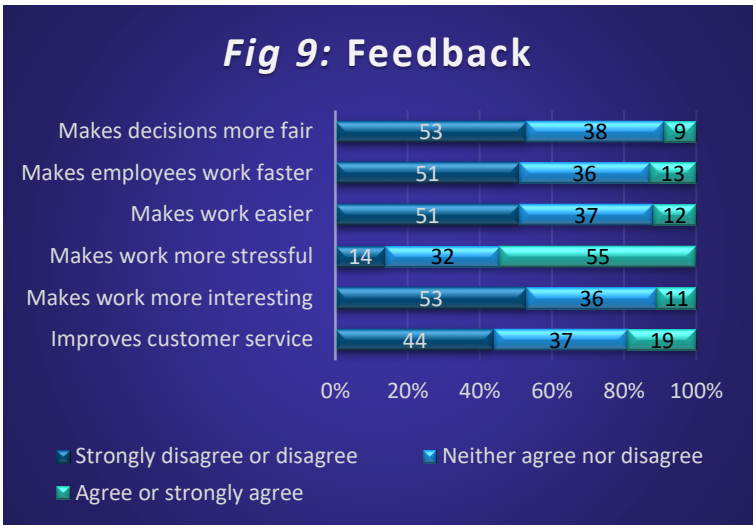
On the other hand, survey respondents also described positive experiences with 'work automating' tools – particularly where they are a resource for solving customer problems more efficiently. The quotes below in Table 2 show that employees value technologies where they feel they can use them to work more efficiently and to improve customer service.

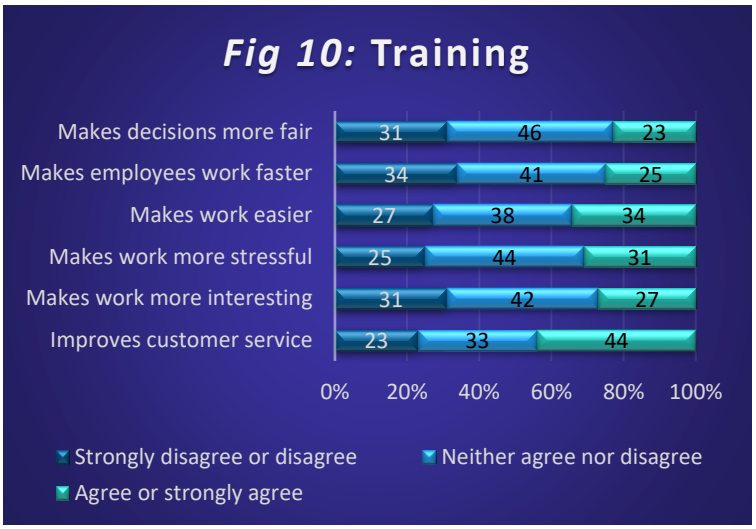
Table 2. Survey respondents' positive experiences with work automating AI

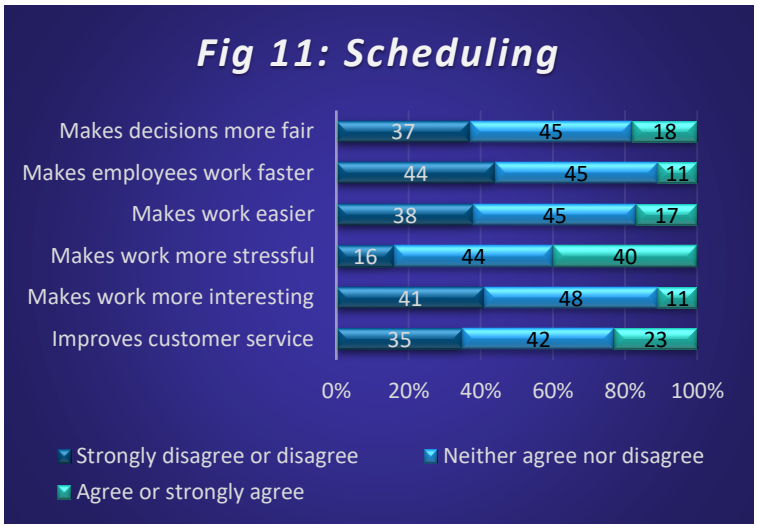
Increased efficiency, improved customer service	***US:*** *We have a restrictive wizard. It's great when you get a customer with an issue you're unfamiliar with, in that it can save time educating you on how to fix it, if it can be.* *Automated bot helps screen out potential work that can be completed.* *[Product & customer info tool]: gives scripts to help when stuck.* *New [Product & customer info tool] allows us access to more information to assist a customer.* *Chats/bots to help direct agents to the right department.* *Automated fill in and network fix ...helps to provide better customer [service] to focused directly on resolution without a lot of multitasking. I am more efficient in accuracy and more productive due to shorter time spend per chat.* *We have a bot system that aids in different tasks that is much quicker than using the usual systems for those tasks.* *Automation and bots make job easier and simpler.* *Automated testing in our main technical support tool. Even though it doesn't always work it is a time saver so I'm not having to hunt different tests 100% of the time and run them individually.* ***Canada:*** *Technical support troubleshooting tools/apps. They help to resolve customers' issues. It has a positive impact.* *Training & learning tools to help assist you completing a request. Finding more detailed information & the correct process to follow. It makes your job much easier.*

Respondents reported more negative experiences with **management automating AI** (US results: Figures 8-11).[27] They were most critical of the impact of AI used for monitoring and coaching purposes (Figures 8 and 9). In both countries, a majority (67% US, 63% Canada) reported that the use of AI to automate monitoring of employees' workspace made work more stressful, while 55% in the US and 44% in the Canadian sample reported higher stress from automated coaching and feedback. Respondents in both countries also tended to disagree that AI-based monitoring tools made decisions more fair, made work easier or more interesting, or improved customer service – and a majority also disagreed that they made employees work faster. This suggests that most employees do not perceive these tools as helping to improve their performance or efficiency.









Figures 8-11: *% reporting different experiences with management automating AI – US (N=463-598)*

Respondents were overall more neutral or positive on the use of AI for training and development – with 44% in the US and 37% in Canada agreeing that AI-based training improves customer service. They were also somewhat less negative about the use of AI for scheduling hours and breaks; although 40% in the US and 53% in Canada agreed that the use of AI for this purpose increased stress.

Qualitative responses in the survey again help to interpret these statistics. In Table 3, we give examples of employees' responses to the question concerning the technology that had the most significant impact on their work (and why), where they described tools that were 'management automating'. We divide these into four main themes: intensified monitoring and privacy concerns; reduced discretion or control from tighter scripting; the reduced ability to contest or grieve unfair decisions; and discrimination due to unfair or biased algorithms.

Table 3. Survey Respondents Negative Experiences with Management Automating AI

Intensified monitoring & data Privacy	***US:*** *Web cam desk inspections stresses me out and feels like an invasion of my privacy.* *Workforce management times every task down to the second I am working. Sometimes I feel like it makes me work faster and make mistakes.* *[Feedback/coaching tool]. This tool monitors every second for what status our phone is in and generates pop ups anytime it doesn't like the status.* *We have a system called [Feedback/coaching tool]. It monitors everything. My revenue. Every call I take. W[h]e[n] I take breaks and lunches…* *[Feedback/coaching tool] metrics tracking system that works only 70% of the time causing unnecessary stress regarding individual performances.*
Tighter scripting and control - unfair discipline	***US:*** *The voice algorithm is telling us we talk to[o] fast, when to be excited, when to be quiet etc. It is usually wrong and has nothing to do with the call.* *[Feedback/coaching tool] it is an AI basically telling us what to say and when, it is ridiculous.* *Hold assistant pops up when a customer has been on hold for 2 mins and prevents me from clicking on anything in that area of the screen until I check it off, it'[s] annoying and harassing and takes time away from what I am doing.* *The AI program that supposing to provide guidance of the call but it is more distracting and we get disciplined if not followed the system guidance.* *The automatic feedback on Excitement [e.g. 'excitement' in agent's or customer's tone], talking to[o] long, silence etc, is never accurate. I try to not put customers on hold & advise them, and the silence can be me looking at something, talking to[o] long is usually doing COMPANY disclaimers, or explaining something.* ***Canada:*** *[Feedback/coaching tool] is an attempted to automate our job, and provide a form of scripting, and call guidance. However it is so badly designed that it's a hindrance, yet we get punished for not working it. It's frustrating, and insulting to our intelligence.*
Remove decisions from humans – lack of oversight or understanding of results	***US:*** *[Feedback/coaching tool] down grades things on calls that are not associated with the particular call and nothing can be done regarding the score.* *The use of Technology based scheduling, HR services, time off services, knowledge base, are all difficult to use and/or presented to us without proper training. The point base system for work start and clock outs arbitrarily causes us to get points. There's no human element. And then the company depends on those numbers to discipline you or stress you out with the threat of possible termination.* ***Canada****: The keystroke monitoring. It's useless and doesn't work properly yet [is] still in use. I have voiced my concerns but still can't get a proper report to show me it's actually accurate*

	A program called [Feedback/coaching tool] -our statistics are rated in that system. The problem is it isn't accurate, and yet disciplinary letters are determined by those stats. Those letters say that if you don't improve those stats you could lose you job.
Discrimination in algorithms	***US:*** *The use of artificial intelligence systems [hiring tool] prescreening candidates for job openings has been flawed and known to discriminate if the applicant wears glasses or doesn't use hand gestures while interviewing. Lots of online information about it's usage and several lawsuits.*

Survey respondents also shared some (although not very many) positive experiences with these management automating tools (Table 4). Again, these focused on their role in improving customer service; but also on improvements in training or scheduling.

Table 4. Survey Respondents Positive Experiences with Management Automating AI

Improves customer Service	***US:*** *WFE [Workforce Engagement] has been impactful in getting the job done efficiently thus reducing customer wait time.*
Better and more tailored training, coaching and scheduling	***US:*** *Chat Bots and algorithms, gives coaching real-time on possible positive responses.* *The automated training popups are helpful.* *We have scheduled PLEs [personalized learning environments] that help us learn new methods or understand old ones.*
More fair	***US:*** *However, software that makes the tours and schedules has become useful because it takes the ability of manager to use favoritism to make selections out of the way.*

Together, these findings suggest that contact center employees have widely varying experiences with these AI-based tools, which they perceive as having uneven effects on both performance and job quality. Respondents were overall more positive about work automating than management automating technologies. Even if these new tools potentially contribute to job insecurity, agents appreciate being able to more efficiently and competently resolve customer requests or problems.

However, survey respondents also described major problems and frequent errors associated with both work and management automating technologies. They can reduce employees' ability to use their knowledge and experience to correct problems, which are exacerbated when they provide wrong answers or incorrect information. Errors in misrouting customers or organizing schedules can increase stress via angry customers and unpredictable work loads or working time. Mistakes made by monitoring, coaching, and workforce management tools have direct impacts on workers' performance evaluations – and thus often pay, discipline, or even termination.

2.2. Outcomes associated with AI intensity

In this section, we investigate the relationship between **AI intensity** (or how many of these tools employees indicated they had experience with in their jobs) and different outcomes for workers. These include layoff fears, work intensity and working time, discipline and monitoring, customer mistreatment, climate at work and employee well-being, and absenteeism and turnover intentions. Overall, conditions and outcomes tended to be viewed more negatively where AI intensity was higher. However, these patterns differed across measures and between the US and Canada.

2.2.1. Layoff fears

The most discussed potential impact of AI-based tools is on the overall number of jobs. We cannot estimate the total number of jobs lost as a result of these technologies based on a worker survey. However, we can compare workers' perception of how different technologies may influence the likelihood of future layoffs; as well as how these perceptions differ based on their experience with the technologies in their workplaces.

We asked employees ***'How likely do you think it is that the following could lead to layoffs at your contact center/employer within the next 2 years?'*** – with sub-questions concerning:

1) software that automates contact center support work [**contact center automation**]

2) the increased use of **chat & voice bots**

3) the increased use of **self-service options**

4) **outsourcing** of calls to domestic vendors [in the US or Canada]

5) **offshoring** of calls to vendors [outside the US or Canada]

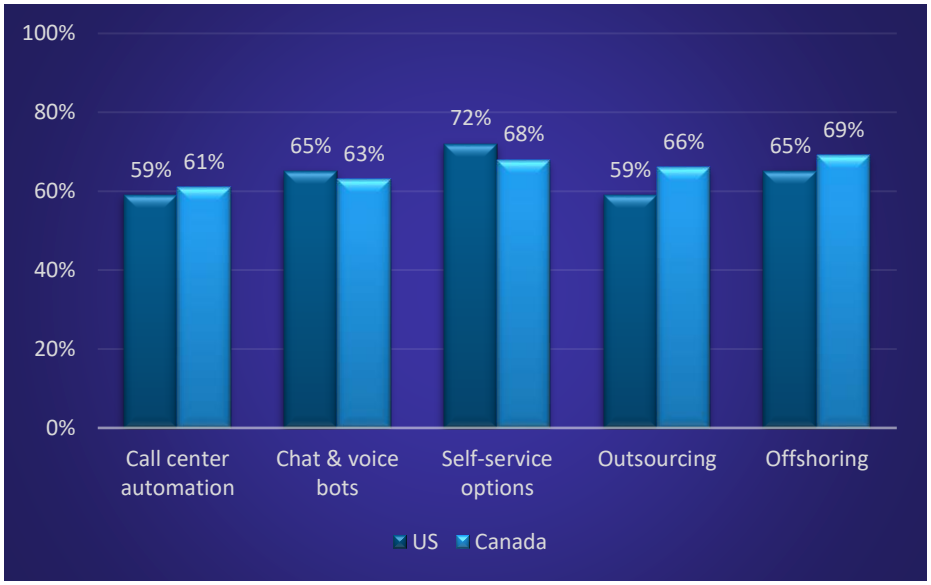


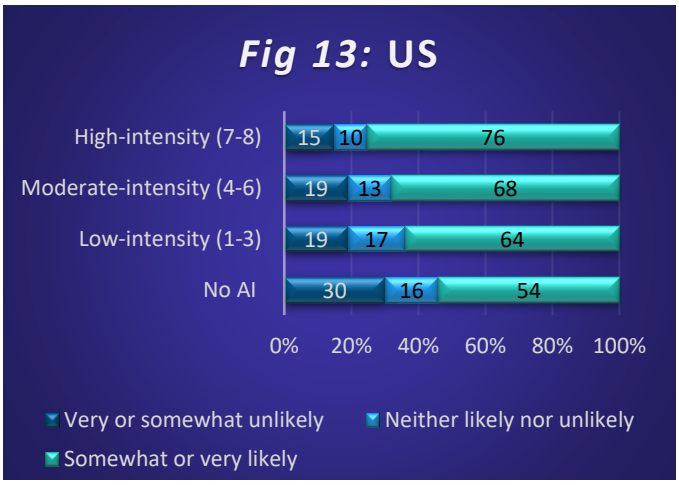
Figure 12: *% reporting layoffs are somewhat or very likely [US (N=1587-1599) and Canada (N=241-244)]*

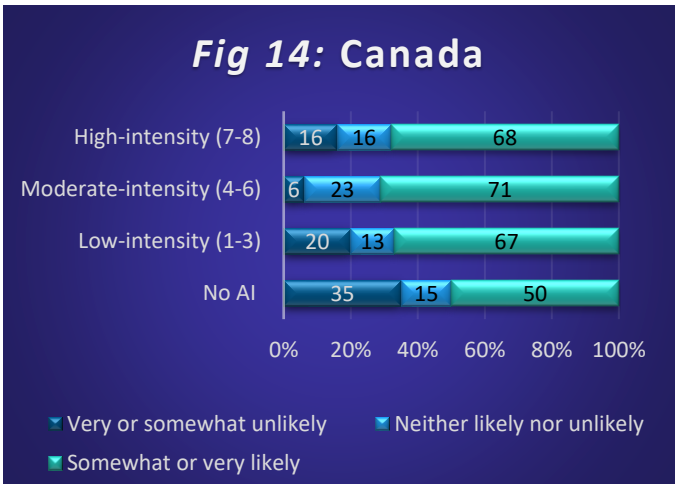
Figure 12 shows that a majority of respondents in both countries reported that it was somewhat or very likely that each of these five technological or technology-enabled developments could lead to layoffs. While answers were in a similar range, a slightly (within 5%) higher proportion of the US

respondents were concerned with the impact of self-service options on their job security (72%), while Canadian respondents were slightly more worried about domestic outsourcing (66%) and international offshoring (69%).

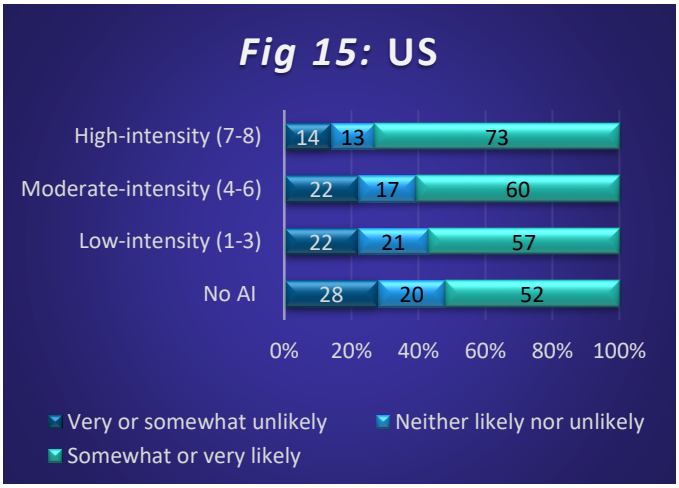
These layoff fears appear to have changed over time. In our 2017 US survey, we found that employee fears of outsourcing and offshoring were higher, but those associated with technological change were lower: close to 80% felt that it was likely that there would be layoffs at their contact centers associated with domestic outsourcing (compared to 59% in 2023) or offshoring (compared to 65% in 2023); while around 50% of workers felt layoffs were likely to result from 'new technology' (compared to 59-72% for more differentiated categories of technology in 2023).

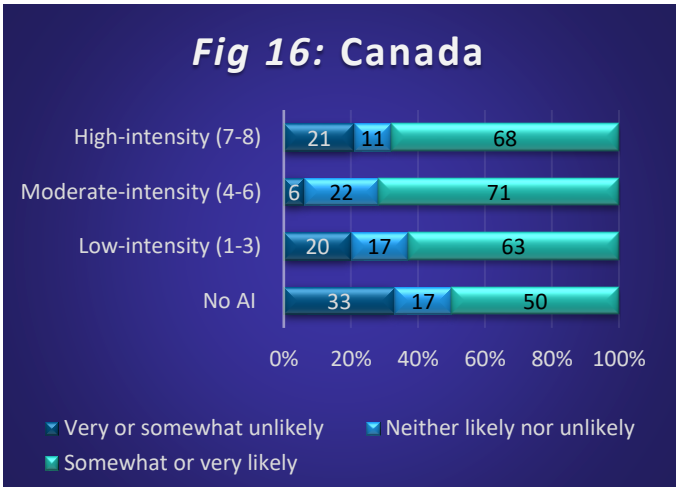
We also looked at the association between AI intensity and layoff fears. Figure 13-16 below illustrate these results for the US and Canada sample, focusing on chat and voice bots (Fig 13-14) and software automating contact center support work (Fig 15-16).





Figures 13-14: *% reporting layoffs unlikely or likely due to* ***chat and voice bots*** *by AI intensity –US (N=1371) and Canada (N=206)*





Figures 15-16: *% reporting layoffs unlikely or likely due to* ***contact center automation*** *by AI intensity – US (N=1376) and Canada (N=209)*

US contact center employees responding to our survey were more likely to anticipate layoffs where they also experienced a high intensity of AI use in their workplace. Both for chatbots and voicebots (Figure 13) and for technologies automating contact center work (Figure 15), close to 75% of employees experiencing high AI intensity believed layoffs for these reasons were likely in the next two years, compared to around 50-55% reporting no experience with AI-based tools. Interestingly, the difference between groups is more stark for layoffs due to increased use of self-service options, with 81% of those experiencing high-intensity AI fearing layoffs compared to 58% with low-intensity AI.

The Canadian results differed somewhat. While those experiencing no AI in their jobs also felt more secure, those reporting high-intensity AI actually reported lower layoff fears in each category (68%) compared to those reporting moderate-intensity (71%). However, these differences are only within a few percentage points.

2.2.2. Work intensity and working time

As discussed above, one possible effect of AI-based technologies in contact centers is to increase work intensity, through increasing the number of call types they are expected to handle, replacing the 'down time' workers would have handling paperwork or wrapping up calls, and increasing the efficiency of their interactions with customers. Thus, we ask how different measures of call complexity, working time, and the experience of having time between calls differ between workers with lower or higher intensity AI use in their jobs.

Employees were asked to indicate the kinds of calls or customer interacts their job involved – with options including **customer service** (81% US, 63% CA), **inbound sales** (54% US, 32% CA), **outbound sales** (8% US, 13% CA), **technical or IT support** (35% US, 30% CA), **customer retention** (36% US, 25% CA), **dispatch services** (18% US, 22% CA), **business customers** (17% US, 23% CA), **sign language translation** (1% US, 1% CA), **bilingual calls** (6% US, 18% CA), **instant messenger or text-based chat** interactions (7% US, 1% CA), **email interactions** (18% US, 33% CA), **collections** (16% US, 15% CA), and **international calls or texts** (11% US, 6% CA).

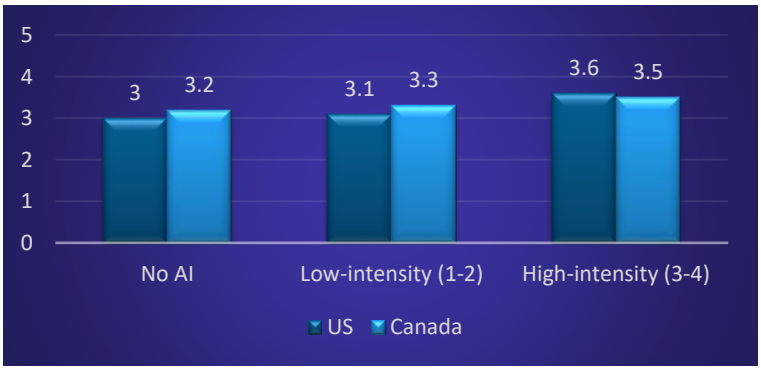


Figure 17: *Number of different types of calls by* ***work automating AI*** *intensity, US (N=1300) and Canada (N=178)*

We then looked at the number of different types of calls performed by AI intensity. In the US, overall higher intensity AI is associated with a larger number of call types performed; but the association is weaker in Canada. However, when we look at just work automating AI (Figure 17), we see in both countries that workers on average answer more call types where they experience more of these technologies.

This is consistent with the expectation that AI-based tools that automate work tasks or make it easier to find information relevant to the call can enable agents to answer more different kinds of calls. If we look specifically at the category of AI used 'to help find product or customer information during calls or chats', we find that agents answering 'yes' handled more call types on average (3.5 in US, 3.6 in Canada) compared to those answering 'no' (3.3 in US, 3.3 in Canada).

We asked employees to report the percentage of their working time in a typical week that they spent interacting with customers and with coworkers, as well as the total minutes in a typical week that they received for 'closed key time' – or time when they 'are on the clock working but not required to interact with customers'.

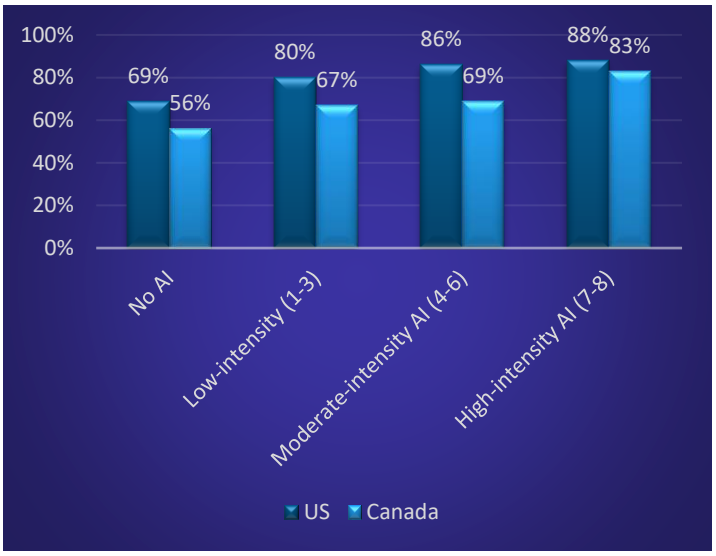


Figure 18: *% of working time interacting with customers by AI intensity -- US (n=1312) and Canada (n=198)*

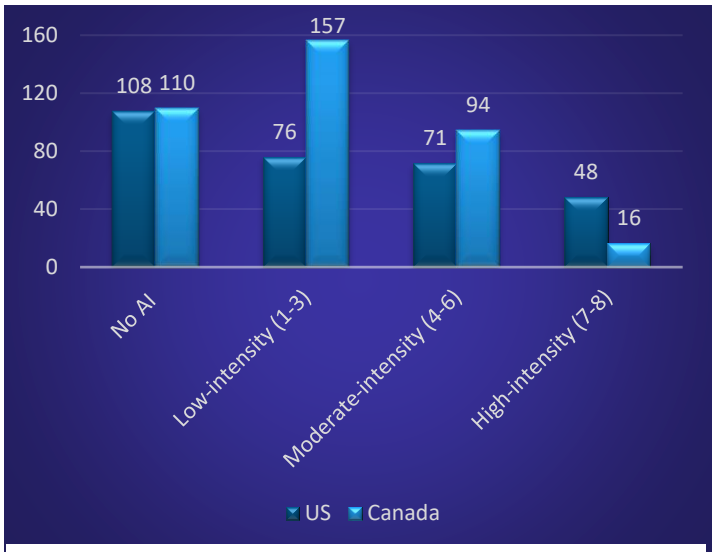
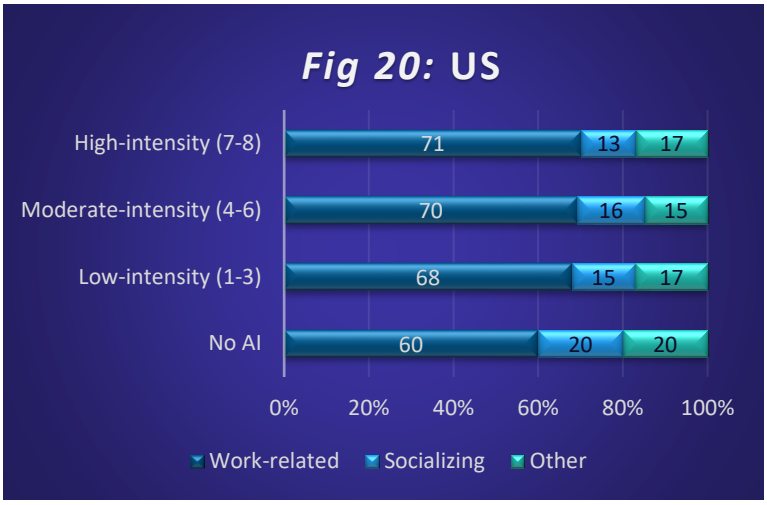


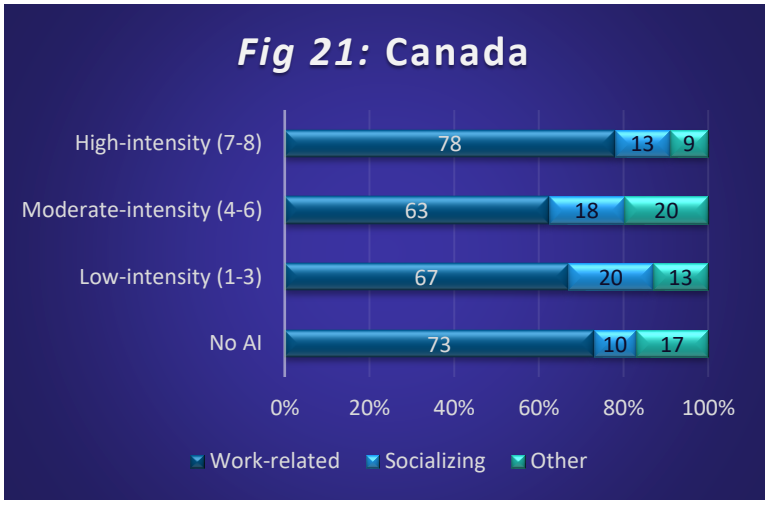
Figure 19: *Minutes closed key time by AI intensity – US (N=1089) and Canada (N=144)*

Figures 18 and 19 show that employees experiencing a higher intensity of AI in their jobs also reported spending a higher proportion of their working time interacting with customers and having less closed key time. Customer interactions made up 69% (US) and 56% (Canada) of the working time of a respondent reporting 'no AI', compared to 88% (US) and 83% (Canada) for those reporting high-intensity AI. The average minutes of closed key time are 108 in the US and 110 in Canada where there is no AI, compared to 48 in the US and 16 in Canada where there is high-intensity AI. The two samples do show some differences: with overall lower reported percent of time interacting with customers in Canada and a more U-shaped pattern of closed key time – with higher rates among contact center respondents with low-intensity AI.

In the US, respondents reporting high-intensity AI also took on average more minutes in unpaid breaks (66.5 minutes – compared to 57.6 minutes where no AI) and worked more overtime hours (2 hours – compared to 1.4 hours where no AI). Differences in breaks were largest between high-intensity and no AI for work automating AI; and differences in overtime most noticeable for management automating

AI intensity. In Canada, we found no pattern for breaks and a reverse pattern for overtime. Neither country showed a clear pattern of 'paid break' times by the intensity of AI use.

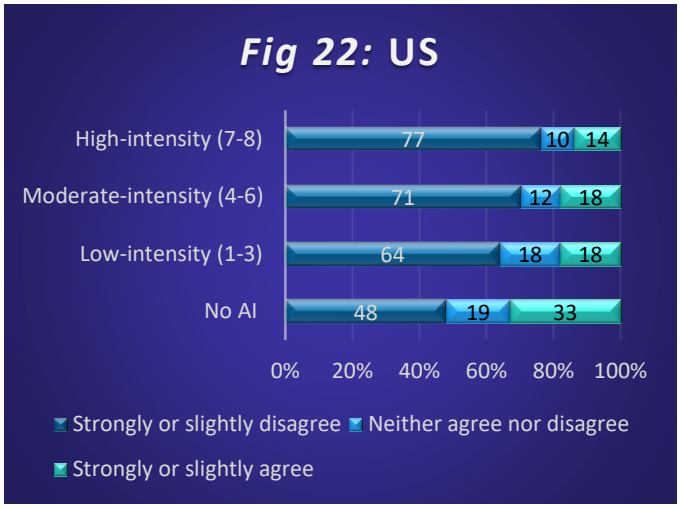


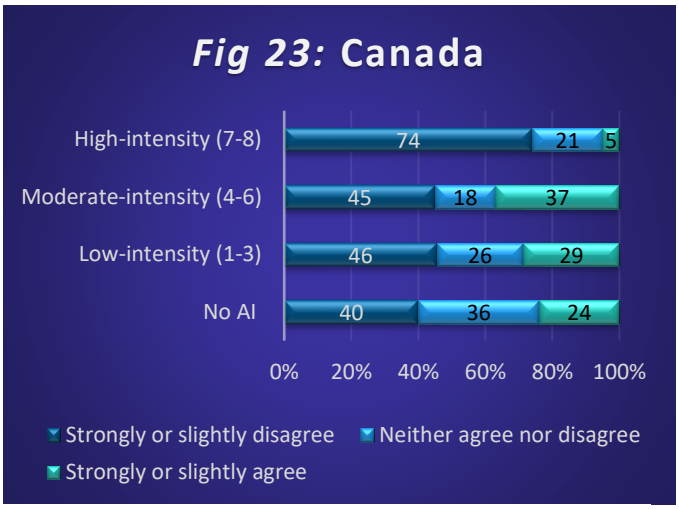


Figures 20-21: *% time interacting with coworkers, work-related vs. socializing – US (N=941-955) and Canada (N=206-209)*

Figures 20 and 21 compare the percent of time interacting with coworkers that involves 'helping co-workers with their calls or answering work-related questions' compared to the percent of time socializing. Overall, respondents reported spending a similar average percentage of their time interacting with co-workers regardless of AI intensity: in the US, 37% for both the 'no AI' and high-intensity AI groups; in Canada, 30% among those reporting no AI and 27% reporting high-intensity AI. However, the breakdown of that time into social or work-related interactions shows different patterns (Figures 20-21). In the US, a higher percentage of employee interactions were work-related where more AI tools were used; while the pattern is more U-shaped in Canada, with both high-intensity and 'no AI' groups reporting that over 70% of their time interacting with co-workers involved work-related topics.

We also asked respondents to indicate the extent to which they agree or disagree that that they have enough time between calls (Figures 22-23). Here we again see a clear pattern in the US, with a much higher proportion agreeing they had enough time where they reported having no experience with AI (33%) compared to those with high-intensity AI (14%). In Canada, a higher proportion of those with moderate-intensity AI reported having enough time between calls (37%); while those with high-intensity AI had a very small proportion (5%) of respondents agreeing.





Figures 22-23: *% agree or disagree to having enough time between calls by AI intensity – US (N=1372) and Canada (N=208)*

2.2.3. Discipline and monitoring

A major concern with AI-based tools is that they can be used to intensify discipline and monitoring.

We asked employees to indicate which of eight common contact center monitoring technologies were used in their workplace; as well as the frequency with which each was used. These include: 1) **recording voice** interactions with customers; 2) **tracking keyboard strokes**; 3) **tracking text or chat** interactions; 4) **screen grabs** and shots; 5) **monitoring online** activity; 6) monitoring **tone** of voice **and emotion**; 7) **camera recording** you while you work; 8) **live** or real time **monitoring**

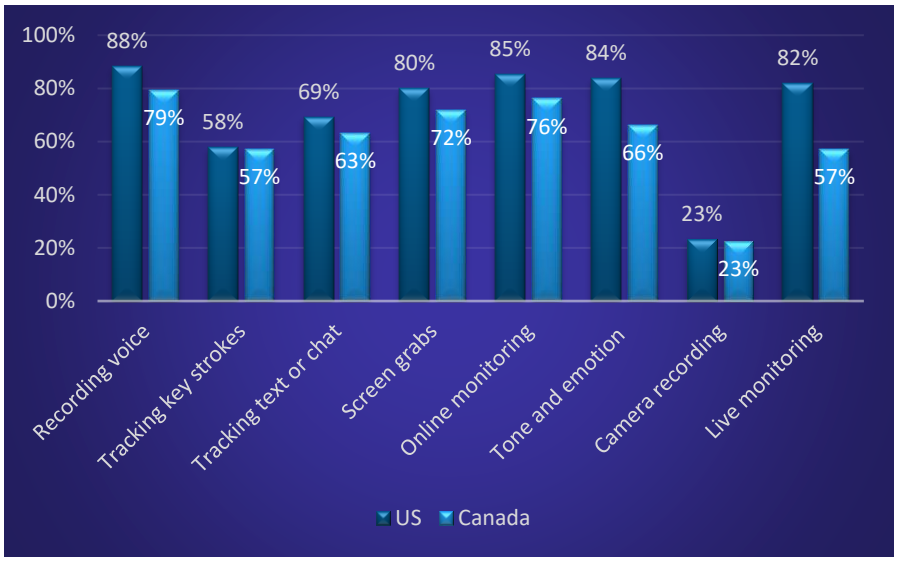
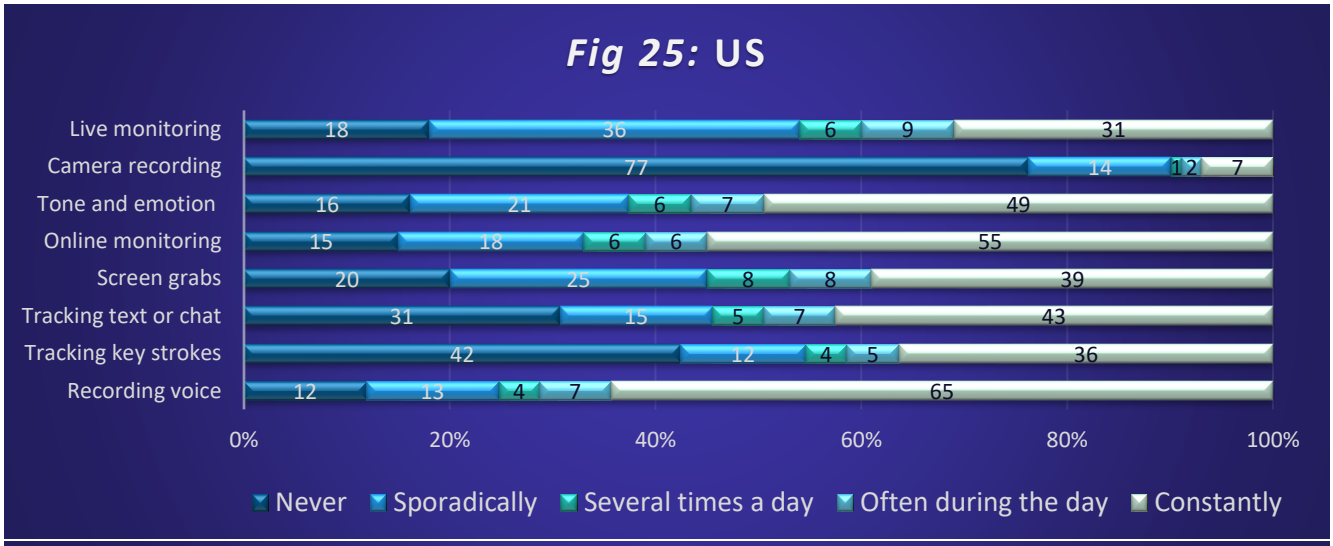
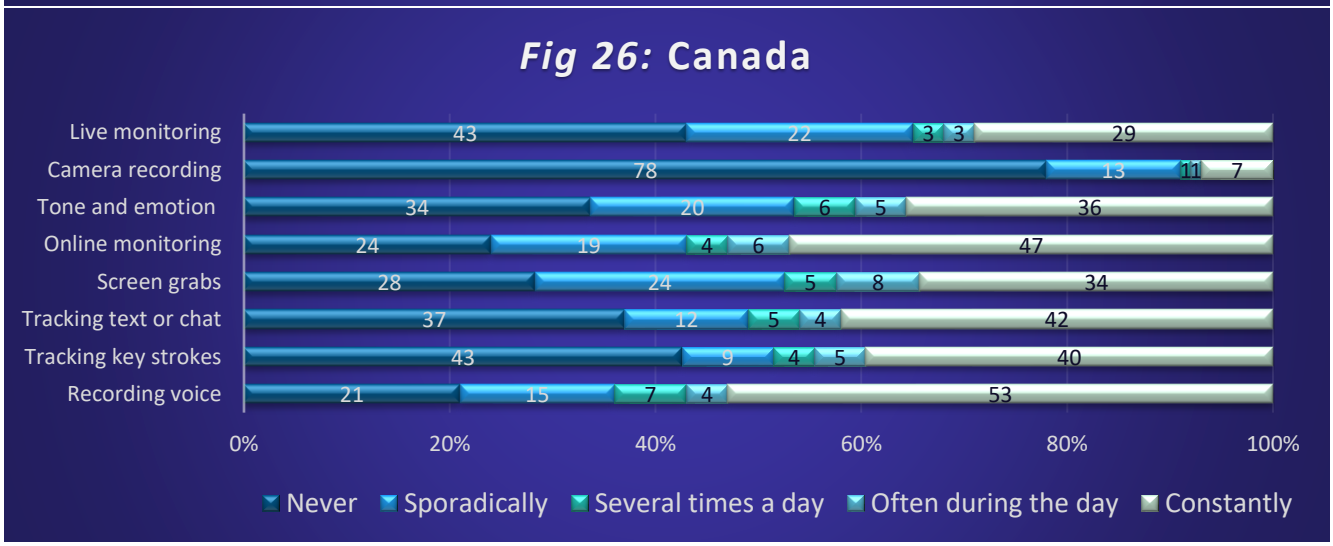


Figure 24: *% reporting use of each monitoring technology in their workplace – US (N=2414) and Canada (N=334)*

Patterns of employee experiences with these technologies are remarkably similar for both the US and Canadian surveys. Figure 24 shows that nearly every monitoring technology – with the exception of camera recording (23%) – was experienced by a majority of respondents in both countries. The largest differences were in monitoring voice tone and emotion (84% US, 66% Canada) and live monitoring (82% US, 57% Canada).

We also compared the percentage of employees reporting experience with monitoring technologies in our 2017 survey of US contact center workers.[28] In general, monitoring rates went up: key strokes from 34% to 58%; text or chat from 28% to 69%; online monitoring from 68% to 85%. Screen grabs were similar (79% in 2017, 80% in 2023), while voice recording went down (from 98% to 88%). We did not ask respondents about monitoring that tracked tone and emotion, camera recording, or live monitoring on our 2017 survey – although 2% of those respondents reported live monitoring as a write-in the 'other' category. In addition, in the 2017 sample, employees reported experiencing an average of 3 monitoring methods in their workplace – compared to 5 in 2023.





Figures 25-26: *% frequency of different monitoring technologies – US (N=1596-1662) and Canada (N=239-252)*

In Figures 25 and 26, we show employee responses concerning how frequently they experience each of these eight monitoring methods. Responses are based on a 5 point scale from 'never' to 'constantly'.

This again shows similar patterns in the US and Canada. One interesting comparison is in live monitoring: while the proportion of employees experiencing any live monitoring are different in the two countries, those reporting 'constant' live monitoring are similar (31% US, 29% Canada). The main differences concern voice recording: which is experienced constantly by 65% US compared to 53% Canadian respondents – and monitoring tone of voice and emotion (constant for 49% in US compared to 36% in Canada).

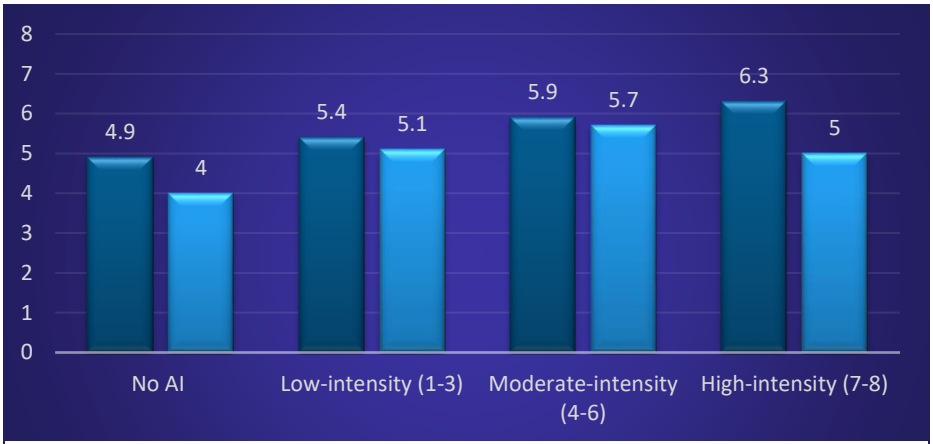
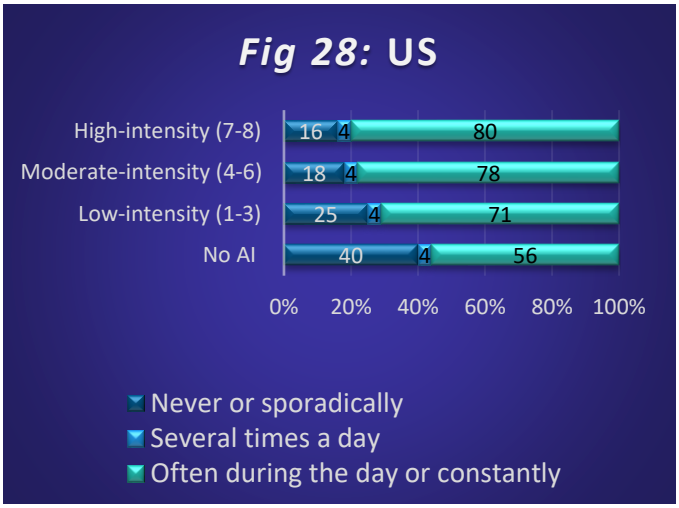
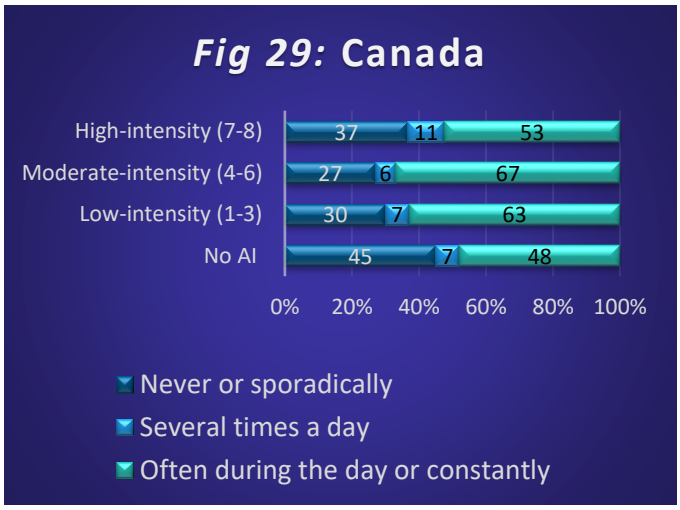


Figure 27: *total monitoring technologies by AI intensity – US (N=1378) and Canada (N=208)*

Figure 27 shows that respondents reporting high-intensity AI use (in the US) or moderate-intensity AI use (in Canada) reported a larger average number of 'types of electronic monitoring' occurring in their workplace compared to those with no experience of AI.

In Figures 28 and 29, we compare employees' answers concerning the frequency that voice interactions with customers were recorded.

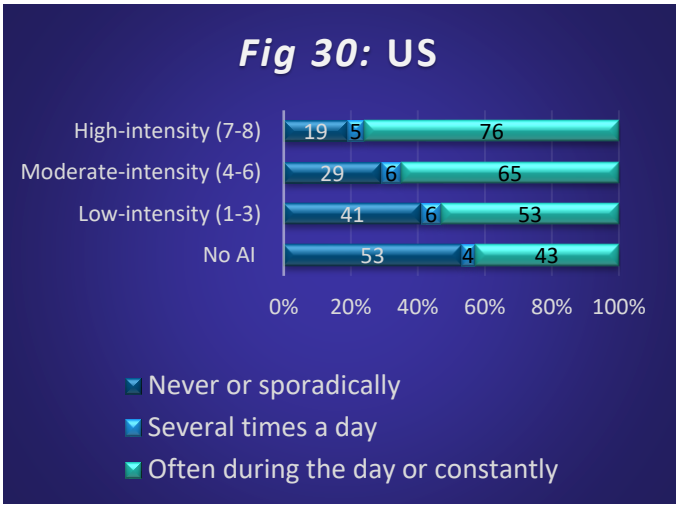


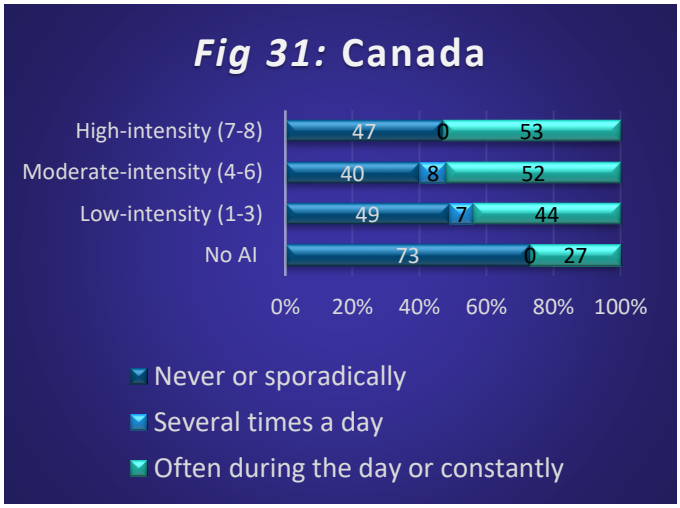


Figures 28-29: *% frequency of recording voice interactions by AI intensity – US (N=1365) and Canada (N=207)*

A higher proportion of those with high-intensity AI in the US (80%) or moderate-intensity in Canada (67%) reported frequent to constant recording compared to those with no AI (56% US, 48% Canada). As speech analytics-based tools often require recording all calls, we would expect higher rates in particular where employers use AI for giving automated performance feedback. And indeed, we find

that a larger percentage of employees who report the use of **AI-based feedback** in their workplace also report that **monitoring of tone of voice and emotion occurs 'constantly'** (74% US, 63% Canada), compared to employees who report their employers do not use AI for this purpose (63% US, 45% Canada).





Figures 30-31: *% frequency of monitoring tone of voice and emotion by AI intensity – US (N=1340) and Canada (N=202)*

Figures 30 and 31 show that workplaces with overall higher intensity use of AI are also more likely to track tone of voice and emotion, with a particularly stark pattern of difference in the US: 76% report that this form of monitoring occurs often or constantly where AI intensity is high compared to 43% where no AI is reported.

We also asked employees to indicate how much discretion they had in making customer-related decisions. We expected to find reduced discretion where AI intensity was higher. However, here we found no clear pattern in either country: in the US 28-33% reported 'no discretion' or 'little discretion' across categories, while a slightly lower percentage (24%) with no AI reported having 'significant' or 'complete' discretion compared to those reporting high-intensity AI (27%). Results were similar across work automating and management automating AI.

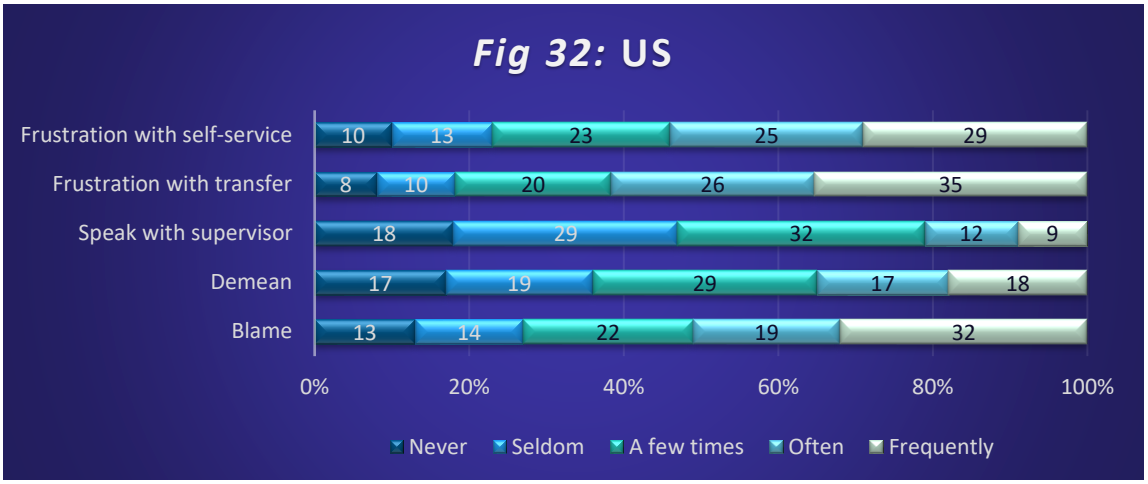
Finally, we asked the extent to which employees agreed with two statements: 1) the information from electronic monitoring is used to help develop your skills and abilities; and 2) electronic monitoring is used primarily for disciplinary purposes. Overall, 54% of respondents in the US and 53% in Canada agreed (slightly or strongly) that monitoring was used primarily for discipline. A smaller proportion agreed that monitoring was used to develop skills and abilities (31% in the US and 25% in Canada). In both cases, there were no meaningful differences between groups reporting higher or lower AI intensity.

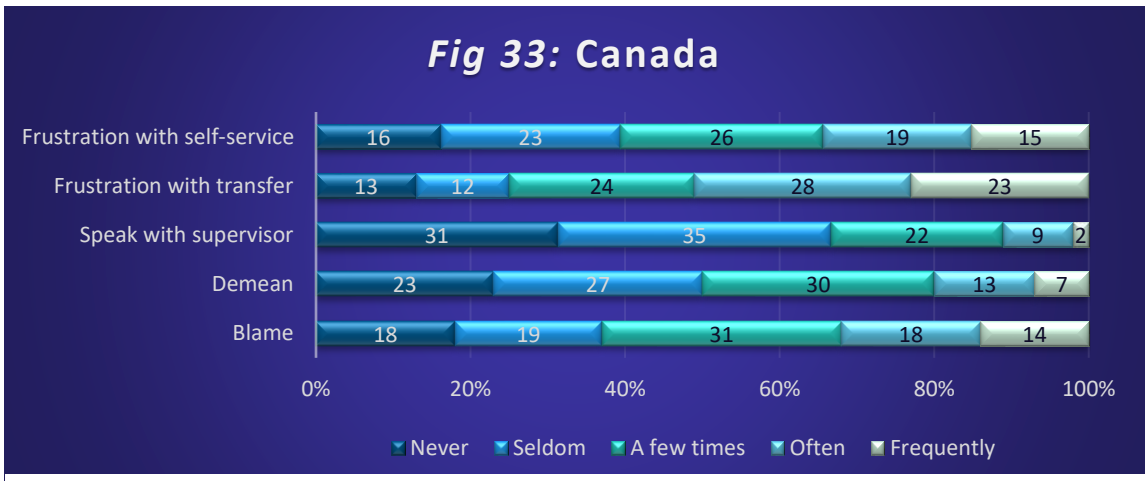
2.2.4. Customer mistreatment of contact center agents

A common source of stress for contact center employees involves their experiences interacting with frustrated or angry customers. Quotes from employees (see Table 1 above) suggest that this can be exacerbated by certain AI-based technologies: particularly where they do not work well. For example, customers may be automatically routed to the incorrect department; automated tools to find customer information or to help fix network or equipment faults may provide incorrect data; and monitoring and feedback tools may misread interactions.

On the other hand, if these AI-based tools work well, they may improve the quality and efficiency of customer service, and thus reduce the frequency with which employees are mistreated by customers.

We asked respondents to indicate the frequency over the past four weeks that customers engaged in five forms of behavior: 1) **Blamed** you for something beyond your control; 2) **Demeaned** you; put you down; or used condescending language; 3) Insisted on **speaking with a supervisor**; 4) Expressed **frustration at being transferred** between different departments or agents; 5) Expressed **frustration with self-service** technologies on websites or apps.





Figures 32-33: *% frequency of customer mistreatment – US (N=1775-1786) and Canada (N=258-264)*

The average responses for each item in the US and Canada are reported in Figures 32 and 33.

These show overall that US respondents report more frequent experiences with customer mistreatment in all areas compared to Canadian respondents. For example, 32% in the US report that customers frequently blame them for something beyond their control, compared to 14% in Canada. One common experience in both countries is customer frustrations with being transferred: with 61% in the US and 51% in Canada reporting that they have experienced this often or frequently over the last four weeks.

Interestingly, these patterns show some improvement in the US compared to findings from our 2017 survey of contact center employees. At that time around 80% of respondents reported that customers often or frequently blamed them for something beyond their control (compared to 51% in 2023) and expressed frustration at being transferred between departments or agents (compared to 67% in 2023).

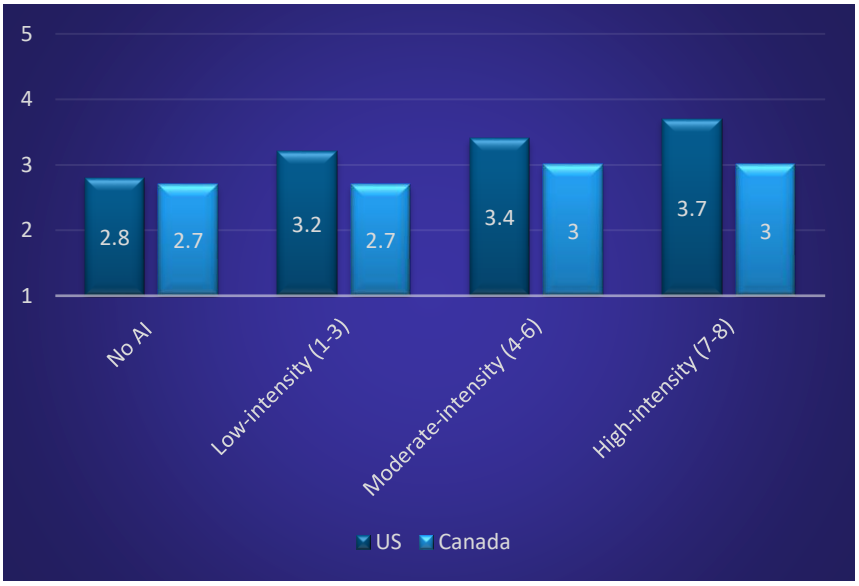
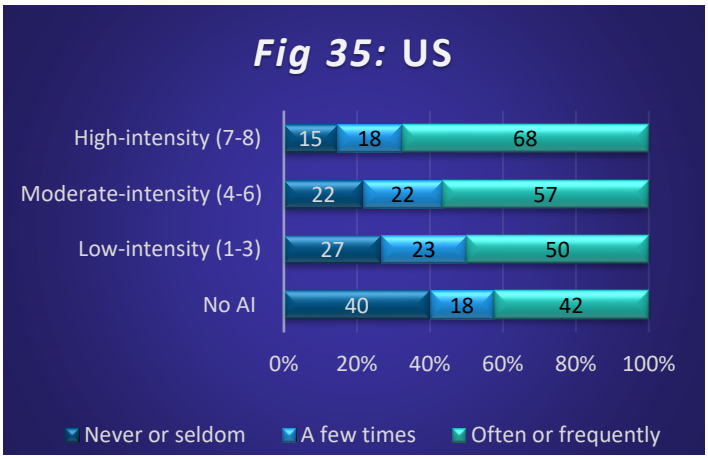
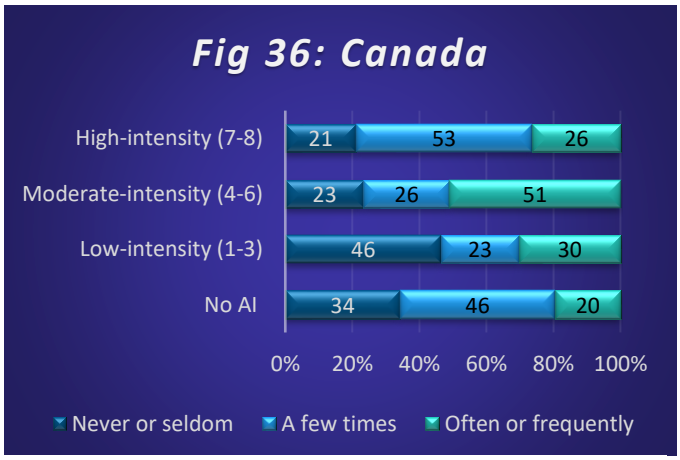


Figure 34: *Customer mistreatment scale (1-5), average by AI intensity – US (N=1378) and Canada (N=207)*

In Figure 34, we compare average scores for the frequency of customer mistreatment, based on a 1-5 scale variable combining responses to all five forms summarized above (with 1=never and 5=frequently). This shows that respondents overall reported higher rates of customer mistreatment where AI intensity was higher in both countries – although the differences in Canada are smaller.

We also compare responses to individual items in the scale that are most closely related to how employers deploy AI in managing employees' interactions with customers. In Figures 35 and 36, we compare the percentage of respondents reporting that customers blamed them for something beyond their control. This shows that compared to those reporting no AI, employees reporting high-intensity AI in the US (68% - compared to 42% with no AI) and moderate-intensity AI in Canada (51% - compared to 20% with no AI) experienced higher rates of this form of customer mistreatment.



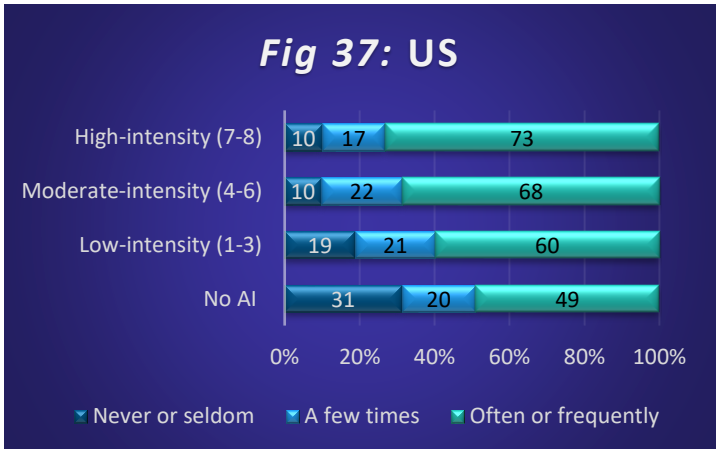


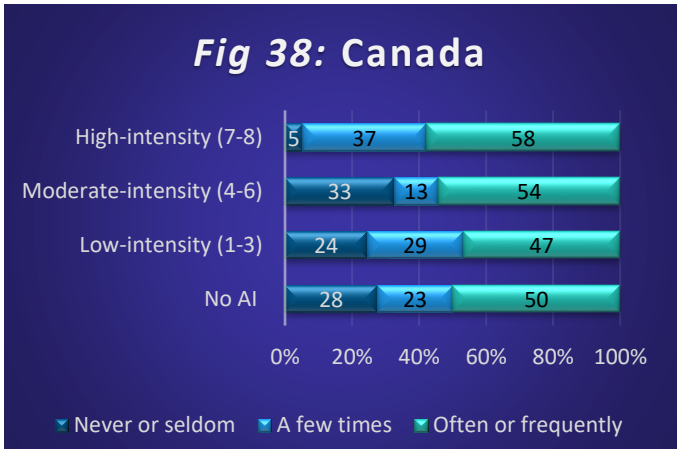
Figures 35-36: *% reporting customers blamed them for something beyond their control by AI intensity – US (N=1373) and Canada (N=206)*

Quotes from union representatives show some examples of how employers' use of AI-based tools can generate problems beyond the control of workers – which then escalate into customer mistreatment:

> ***"There is a cause and effect: if the AI cannot pick up an accent it will frustrate that customer to repeat over and over again what they're actually trying to call in for. It's when they actually get to a representative, they [are] already in fumes by the time we are actually on the phone, which makes it harder to take that call and solve that customer's issue." (US Workshop)***
>
> ***"If I'm getting you after you played around [with] the IVR, you're already pissed off, because it reset the wrong box, may have wiped your service out, could have reset your router, […] you know, a million different things that screwed up something […] by the time you get to me." (US Interview)***

The differences between categories are less extreme for the scale item concerning customer frustration at being transferred (Figures 37 and 38). However, they also do show a pattern of higher rates of customer abuse where AI use is more intense – particularly notable in the US sample.

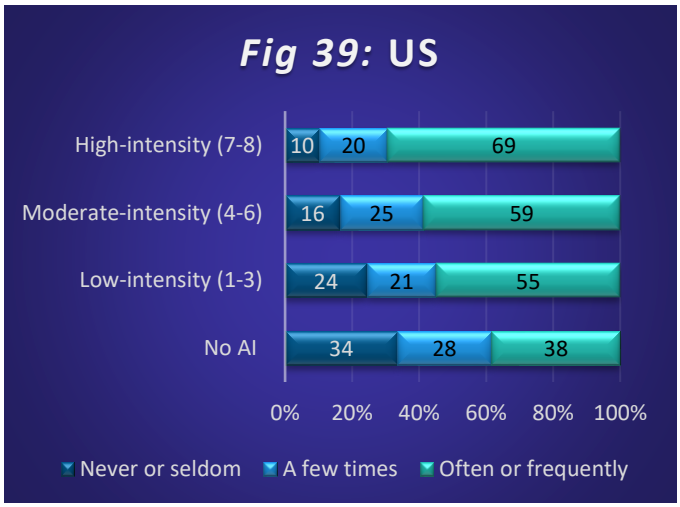


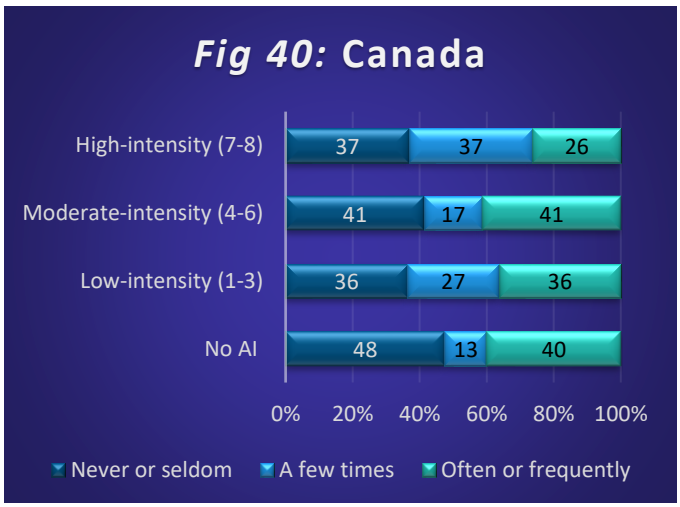


Figures 37-38: *% reporting customers expressed frustration at being transferred by AI intensity – US (N=1371) and Canada (N=203)*

As the quotes emphasize specific issues with call routing, we compared employees who reported that AI-based software was used in their job for call routing purposes (i.e. intelligent routing) with those who reported it was not used. We found only slightly higher rates: in the US, 66% those who did report the use of this software reported that customers 'often' or 'frequently' expressed frustration; compared to 61% who reported AI-based software was not used for this purpose; while in Canada the difference was 57% (with AI-based routing) compared to 47% (without). Given that AI-based routing is intended to more efficiently match customers with agents who can resolve their problems, these figures suggest at the very least that these technologies are not yet (on aggregate) improving customers' ability to get their calls resolved efficiently.

Finally, we look at employees' experience with customers expressing frustration with self-service technologies – for example, paying bills, answering technical support questions, or ordering products and services online. We included this item in our survey because it was mentioned in interviews as a growing issue contact center employees were facing – as they are increasingly required to direct customers to self-service options to complete transactions or get special discounts; and as customers are increasingly required to navigate through chatbots or algorithms that direct them to predicted answers to their questions before they are able to access a customer service agent. Figures 39 and 40 show that US respondents with more high-intensity AI in their workplaces also report more frequent customer frustration with self-service technologies – 69% 'often' or 'frequently' for high-intensity, and 38% for no AI. Interestingly, there is no clear pattern in the Canadian sample.





Figures 39-40: *% reporting customers expressed frustration with self-service technologies by AI intensity – US (N=1373) and Canada (N=204)*

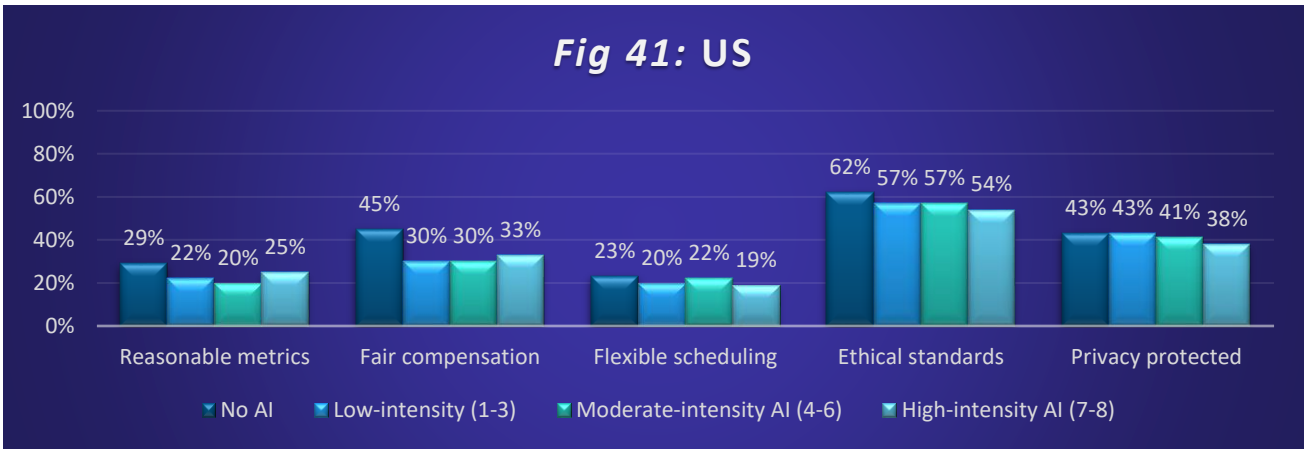
We also asked respondents to indicate whether they are 'required to direct customers to self-service options (including company website or mobile app)' through three different methods. The percentage answering 'yes' to each were higher in the US: 1) **mentioning the availability** of a self-service option (76% US, 62% CA); 2) **directing customers** to a self-service option to complete their

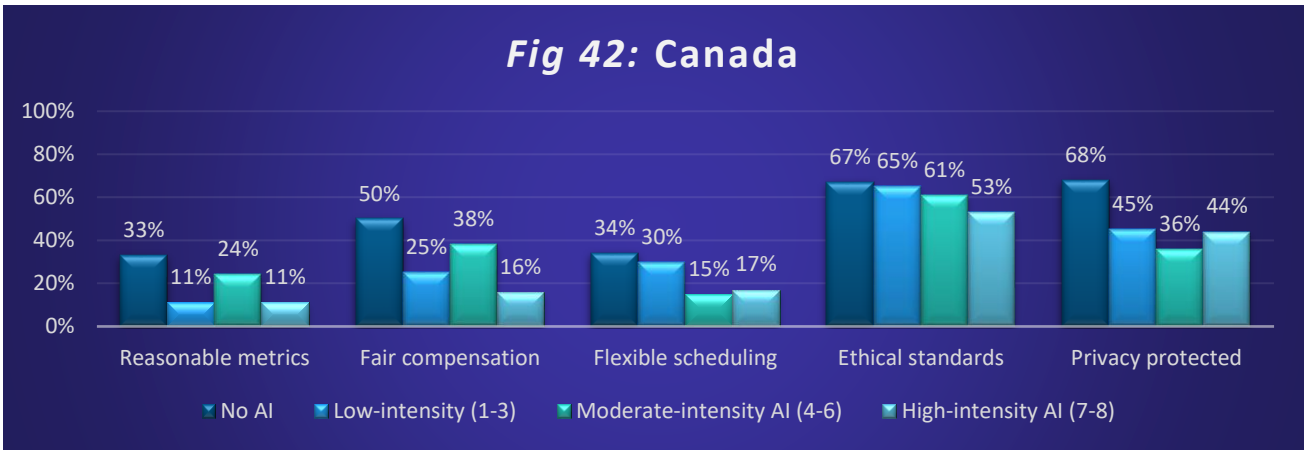
transaction or service request (37% US, 27% CA); 3) **providing instruction** to customers on the use of self-service options (51% US, 39% CA). We looked at how these percentages differed based on AI intensity, and found no clear patterns.

2.2.5. Climate at work and employee well-being

Findings presented so far suggest that employees who report more intensive AI use in their workplaces are also more likely to experience intensification of work, monitoring, and customer mistreatment. Past research suggests that all of these measures will be associated with reduced well-being. In this section, we look at the association between AI intensity and well-being, as well as employees' perceptions of the overall climate in their workplace.

Respondents were asked the extent to which they agreed or disagreed (based on a 5-point Likert scale) with the following statements pertaining to the 'climate at work' at their contact center or employer: 1) **metrics are reasonable**; 2) **compensation is fair**; 3) **scheduling is flexible**; 4) workers generally conform to **ethical standards**; and 5) workers' rights to **personal privacy are protected**. We also included 'we have enough time between calls' in this question block – but this is reported in the section on work intensity above.

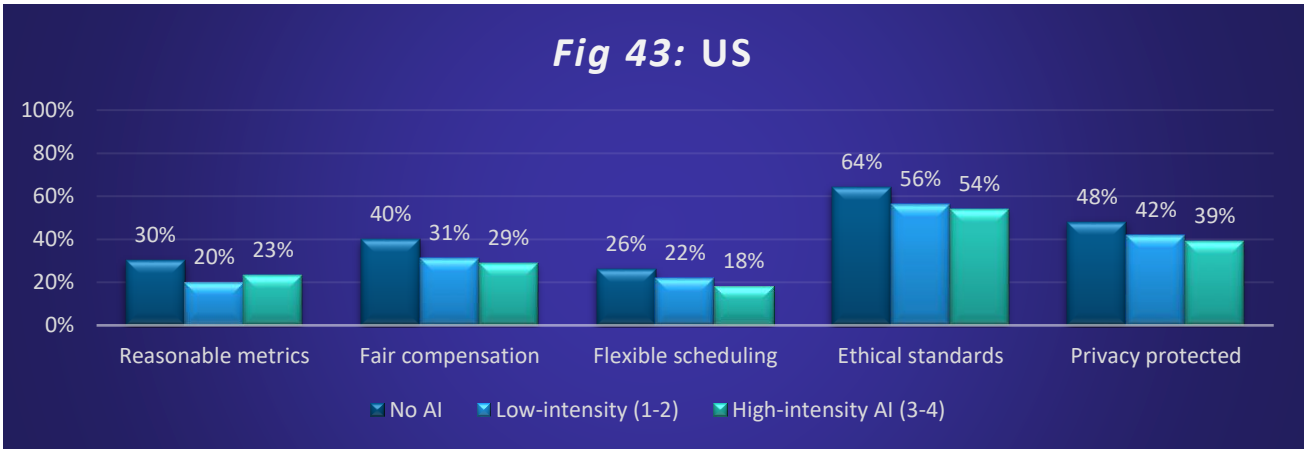


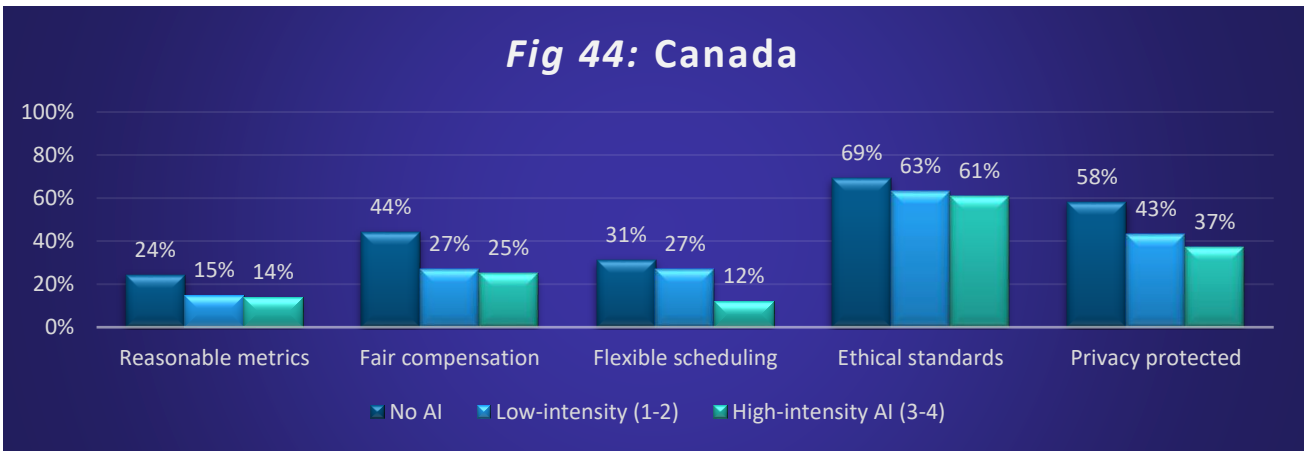


Figures 41-42: *% that strongly or slightly agree - work climate questions, US (n=1372-1377) and Canada (n=205-209)*

Figures 41 and 42 show that in general, a minority of workers agree that these elements of a positive work climate are present in their workplace – with the exception of 'ethical standards'. We also see some variation by AI intensity. Differences are generally small in the US sample, but with a pattern of more positive answers where no AI is reported. In Canada, respondents reporting having no AI answered all questions more positively than those with high-intensity AI. The question concerning whether workers' rights to personal privacy are protected is particularly interesting, given debates over the invasive nature of many AI-based technologies. Here also the Canadian sample shows a large difference in responses, with 68% of those reporting no AI agreeing that their privacy is protected, compared to between 36% and 44% in the other categories. Interestingly, there is only a very small difference in the US sample.

As many of these outcomes may be more directly linked to management automating AI, we calculated the percentages separately for the intensity of the four tools in this category: used to give automated feedback on voice tone, pace, script adherence, or call content; to automate monitoring of an employee's workspace; to help with training and development; and to schedule hours and breaks (Figures 43 and 44).





Figures 43-44: *% that strongly or slightly agree - work climate questions,* ***management automating AI,*** *US (n=1224-1227) and Canada (n=181-184)*

This shows more consistent patterns, with higher intensity management automating AI use in both countries associated with more negative perceptions of all five measures of workplace climate.

We looked more closely at specific associations between individual AI tools and outcomes we might expect to be connected to their use: e.g. coaching and monitoring tools on perceptions of fairness and privacy; and scheduling tools on perceptions of scheduling flexibility.

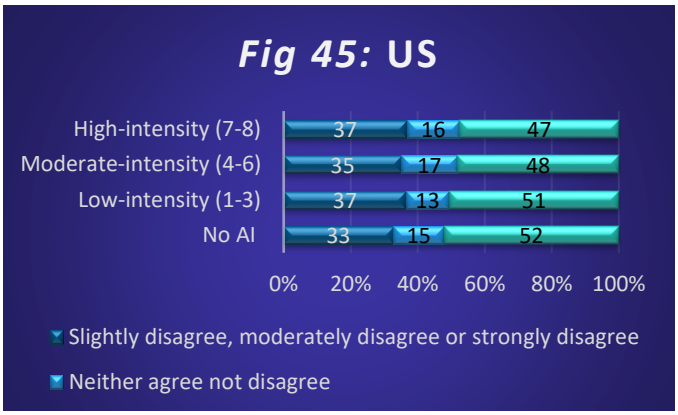
First, among those employees who report experience with **AI-based coaching tools** (i.e. that give automated feedback on their voice tone, pace, script adherence, or call content), 30% agree that *metrics are reasonable*, compared to 34% without experience with automated coaching; while 37% agree that *privacy is protected*, compared to 47% without automated coaching. The differences between these groups were even larger in Canada: 15% (with) vs. 50% (without) agree *metrics are reasonable*; and 42% (with) vs. 55% (without) agree *privacy is protected*.

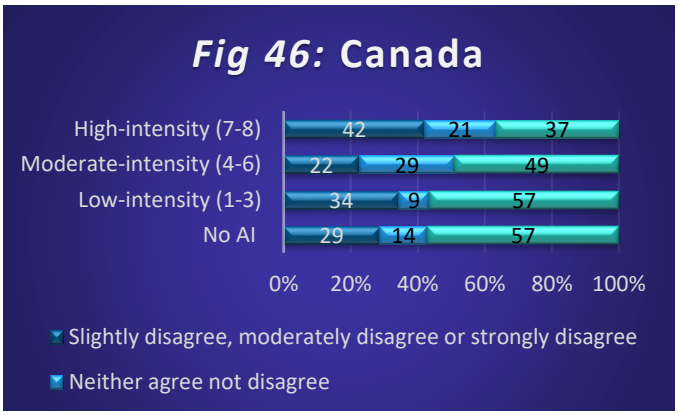
Second, among those US employees who report experience with **automated monitoring** of their workspace, 28% agree that *metrics are reasonable*, compared to 35% without experience with these tools [Canada: 26% (with) vs. 36% (without)]; and 37% agree that *privacy is protected*, compared to 50% without automated monitoring [Canada: 34% (with) vs. 59% (without)].

Third, among employees reporting use of **AI-based scheduling tools**, 20% agree that *scheduling is flexible*, compared to 25% without these tools [Canada: 22% (with) vs. 37% (without)].

We also look at measures of **employee well-being**, including scales for job satisfaction and 'emotional exhaustion' – which is a component of employee burnout, representing the outcome when employees have been repeatedly exposed to stress.[29]

First, for **job satisfaction**, we use a seven-point Likert scale ranging from 'strongly disagree' (1) to strongly agree' (7) in response to the question: 'Please indicate your level of agreement with the following statements: All in all, I am **satisfied** with my job; Most days I am **enthusiastic** about my work; Each day at work seems like it will **never end**; I find real **enjoyment** in my work; I consider my job to be rather **unpleasant**; I **look forward** to coming to work every day. A comparison of answers to these six questions show similar results across each question and between the two countries.





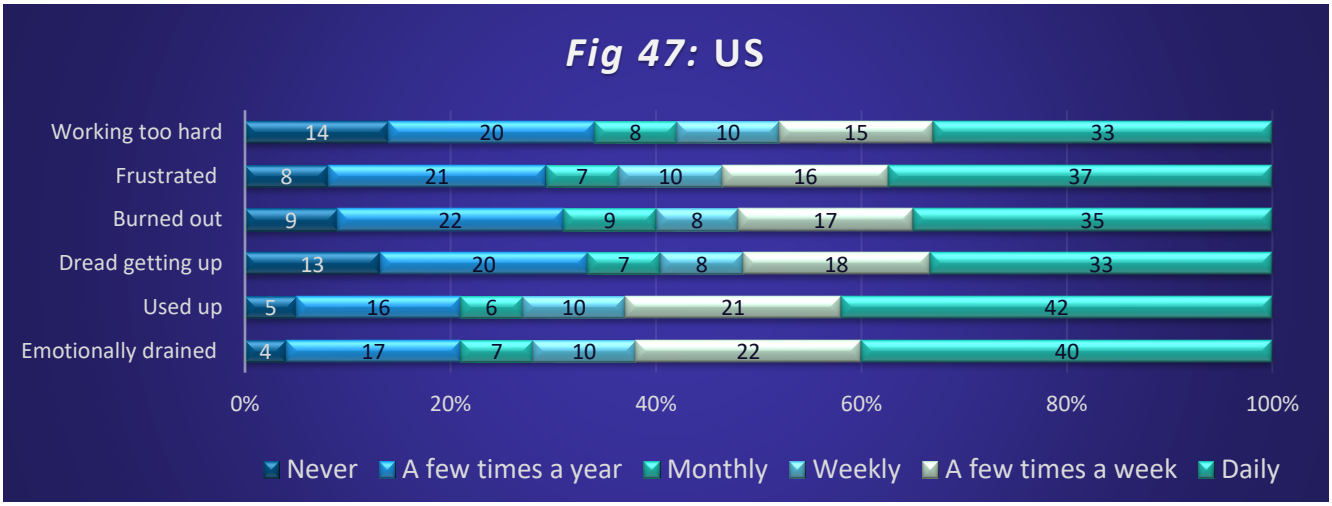
Figures 45-46: *% reporting agree or disagree "All in all, I am satisfied with my job" by AI intensity – US (N=1379) and Canada (N=209)*

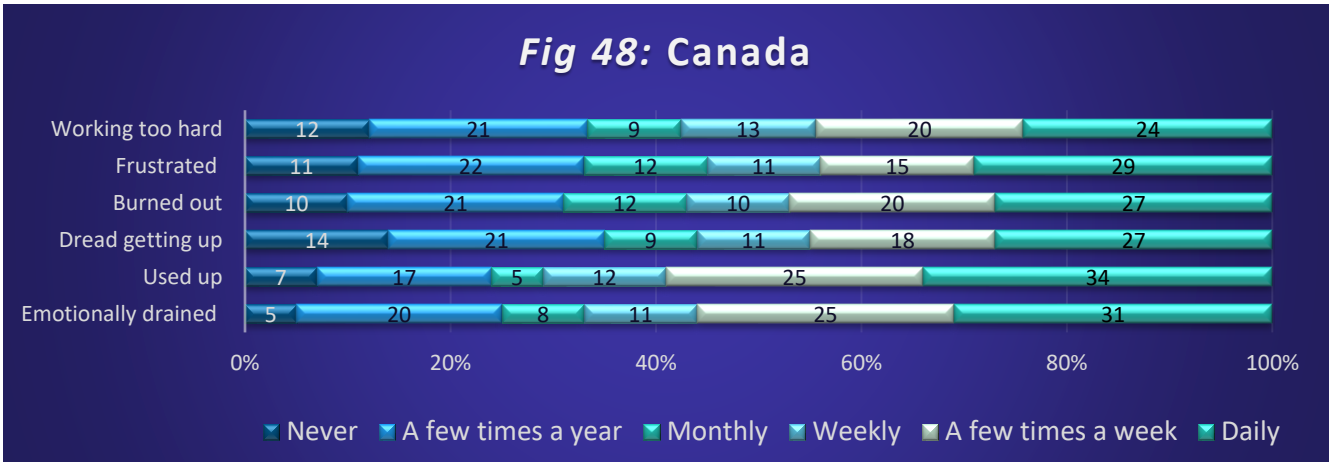
Figures 45 and 46 show that the differences in job satisfaction by AI intensity are small in the US, and somewhat more pronounced in Canada, where 57% of those reporting no AI or low-AI intensity agreeing that they are satisfied in their jobs, compared to 37% with high-intensity AI. Results are similar across the individual 'satisfaction' questions in the US; but results are more mixed in Canada.

We also investigated the association between a scale variable of AI use and the job satisfaction scale in the US sample; as well as between each of the 8 individual AI measures and the job satisfaction scale. A simple linear regression analysis showed that **the sum of AI tools was significantly associated with lower job satisfaction overall**. However, the use of AI to **find products** and for **training** were each associated with **higher satisfaction**, while use for **monitoring the workspace** was associated with **lower satisfaction**. The other individual AI tools had no significant association.

To measure **emotional exhaustion**, we use a six-point Likert scale ranging from 'never' (1) to 'daily' (6) in response to the question: 'Please indicate how often you have felt this way while at work: I feel **emotionally drained** from my work; I feel **used up** at the end of the work day; I **dread** getting up in the morning and having to face another day on the job; I feel **burned out** from my work; I feel **frustrated** by my job; I feel I'm **working too hard** at my job.

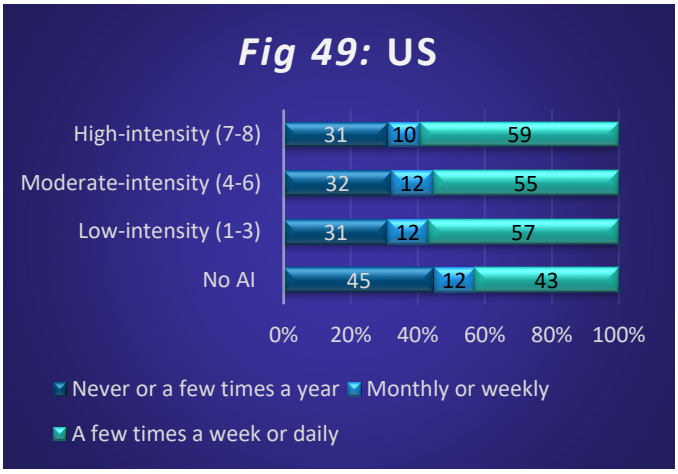
Figures 47 and 48 show that overall, employees in the US sample reported higher rates of emotional exhaustion across measures. Mean values of the scale responses for each question were higher; and a higher percentage of US respondents answered 'daily' to each – ranging between 33% and 42% (compared to 24-34% in Canada).

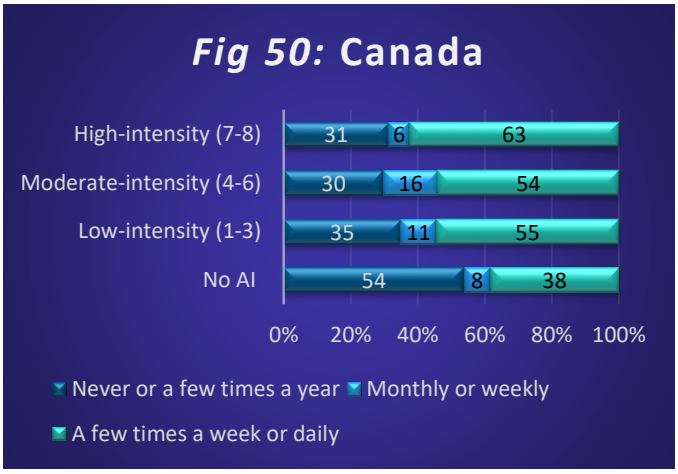




Figures 47-48: *% frequency of emotional exhaustion measures – US (N=1583-1603) and Canada (N=240-243)*

We also looked at the association between AI intensity and individual 'emotional exhaustion' scale items. Figures 49 and 50 show that in both countries, respondents with higher intensity AI report higher frequency of feeling emotionally drained from their work.





Figures 49-50: *% reporting agree or disagree "I feel emotionally drained from my work" by AI intensity – US (N=821) and Canada (N=145)*

We found overall similar patterns for the other measures in the US, although with smaller differences between categories; while in Canada the 'moderate-intensity AI' group reported the highest frequency for some other items (e.g. feeling burned out, feeling frustrated). Finally, we found a positive and significant association between AI intensity and the scale variable measuring 'emotional exhaustion' (combining all six items) in the US sample; but not in the Canadian sample.

2.2.6. Absenteeism and turnover intentions

Finally, we compare employees' self-reported absenteeism and turnover intentions. **Absenteeism** is based on responses to the question: How often were you absent (not including vacation days) a) in the past 4 weeks and b) in the past 12 months? Respondents reported being absent on average 1.9 days in the US sample and 1.8 in Canada (in the past 4 weeks) and 12.2 days in the US and 12.1 in Canada (in the past 12 months).

Figures 51 and 52 show that employees with higher intensity AI reported on average a higher number of absences – for example, Canadian respondents reported 1.5 days absence in the past four weeks where they experienced no AI compared to 2.9 days with high-intensity AI. However, the patterns vary across country – e.g. in Canada the 'low-intensity' group reported more absences on average than the 'moderate-intensity' group.

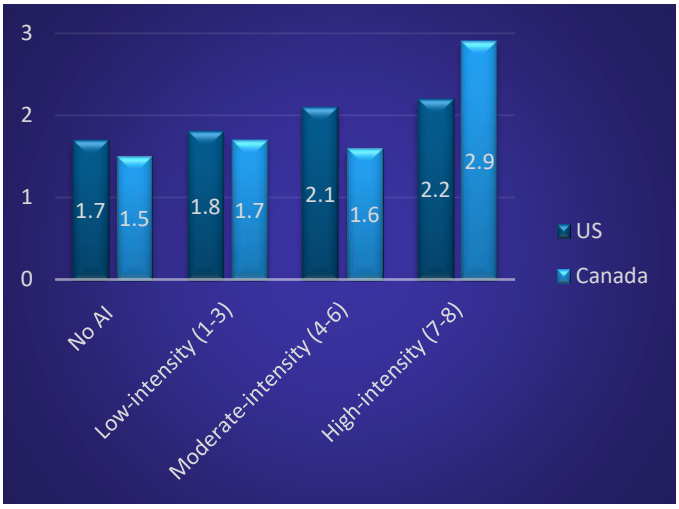


***Figure 51:** # of days absent in past 4 weeks by AI intensity – US (N=1290) and Canada (N=198)*

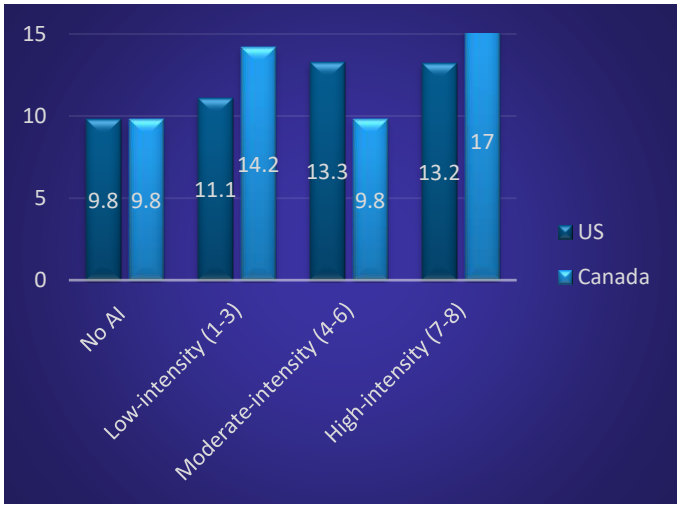
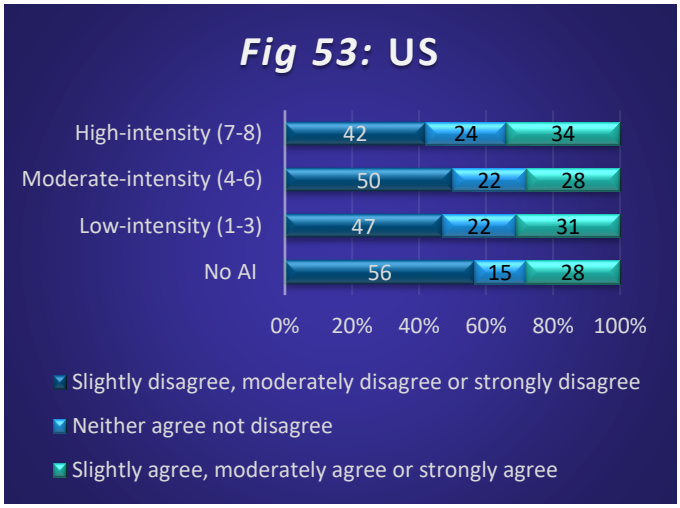
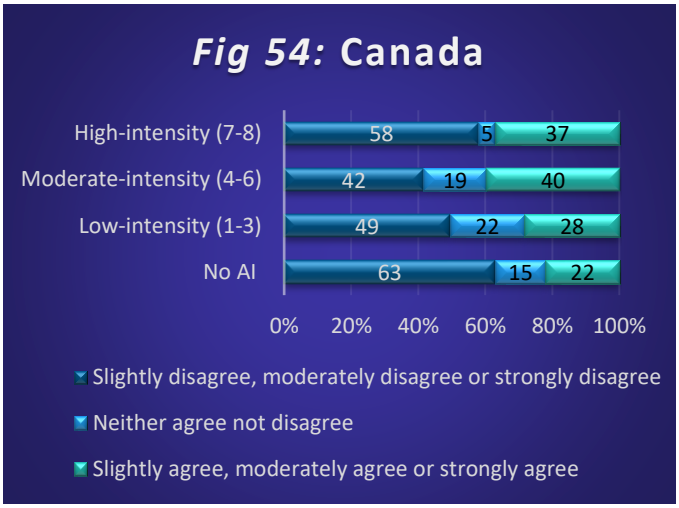


***Figure 52:** # of days absent in past 12 weeks by AI intensity – US (N=1281) and Canada (N=199)*

We also compared answers to the scale question, 'I will probably look for a new job in the next year' – providing a measure of **turnover intentions**. Overall, 16% in the US and 10% in Canada 'strongly agreed'; while 36% in both the US and Canada 'strongly disagreed'.

Figures 53 and 54 show that the differences in turnover intentions across AI-intensity groups are small. However, US respondents reporting high-intensity AI and Canadian respondents reporting moderate-intensity AI were somewhat more inclined to agree that they would leave their job compared to those with no AI.





Figures 53-54: *% reporting turnover intention by AI intensity – US (N=1368) and Canada (N=207)*

2.2.7. Summary

The findings presented in this section suggest that overall, contact center employees who interacted with more AI-based software tools in their workplaces also reported more negative outcomes. More intense AI use was generally associated with more layoff fears, higher work intensity, more intensive monitoring, higher levels of customer mistreatment of agents, a more negative view of the work climate, and lower employee well-being. However, there were some differences in these patterns across questions and between the US and Canada.

3. The role of labor unions

Labor unions or other worker representatives are seeking to address the potential problems we identify above with AI in contact centers. In this section, we report findings primarily from our comparative, qualitative research in the US, Canada, Germany, and Norway. Unions in all four countries are seeking to improve job security, address work intensification, protect employees from invasive monitoring, and support employee voice in AI design. However, they have different tools to do so, due to distinct labor laws, bargaining rights, and employment protections.

1. Improve job security and retraining – address automation fears

Job security provisions in collective agreements help to address contact center worker fears that they will be replaced by work automating AI. In the US and Canada, collective agreements typically include layoff protections, including 'no layoff' provisions prohibiting layoffs for the term of the agreement; agreements allowing redundant employees close to pensionable age to stay on the payroll; or provisions requiring management to offer workers a job they are qualified for at another location when there are layoffs.

In Germany, employment protections are stronger at the national level, but also further supplemented by collective agreements. For example, at Deutsche Telekom (see text box below), an agreement commits the company to realize efficiency gains from automation through reducing the use of subcontractors. Works councils are involved in projects to encourage retraining and creation of 'skills maps' to support employees' ability to transfer from occupations and jobs that are shrinking due to automation to those that are growing.

2. Address work intensification

A major concern associated with AI in contact centers is its role in shrinking down time between calls and increasing the intensity of customer interaction – a concern that is born out in the survey findings presented above. In the US and Canada, union agreements provide protections against disciplining employees if they do not meet certain time-based measures, such as adherence to schedule or average call handling time. This is important because it provides a source of protection from unfair discipline as contact centers adapt to changes in call volume and length. In addition, contract language protecting time for paid breaks provides a tool to moderate the growing intensity of time on calls or screens. 'Closed key time' is protected time to follow up after calls in many contracts. As AI-based tools reduce the need for follow up work, ensuring adequate rest from customer interactions via breaks is increasingly important.

In Germany, employees are legally required to have five minutes of breaks per hour where they are working with screens, for health and safety reasons. These are typically codified in collective agreements. In addition, joint labor-management committees at many telecommunications and contact center companies establish a process for employees to contest sales or average call handling time goals that have become difficult to reach.

3. Protect employees from intensive monitoring

As AI is integrated with electronic monitoring, coaching, and performance evaluation, employers have expanded access to data on employee behaviors and customer interactions. As discussed above, however, the combination of bugs in the software and lack of transparency in how these tools are applied can lead to unfair or biased outcomes. One quote from a US union representative illustrates the way in which new tools can be used to get around contractual provisions requiring call observations by supervisors to be random:

> ***"I know with my folks I deal with ongoing issues regarding the AI system. A lot of them is when the employees being investigated on for customer abuse, or it could be that they didn't make their numbers for that month and the manager would go in and cherry pick and instead of actually listening to a call, they'll pull up that system and see which call had high reds or greens or show the different flow of the call. And they'll say, okay, I'll pick that one. And of that one this month or that, and then that employee ends up being disciplined for it." (US workshop)***

Provisions in collective agreements that protect employees from monitoring abuse can be adapted to this new environment. For example, in the US and Canada, provisions require notification when call sampling is taking place and prevent employers from disciplining employees as a result of call sampling or recorded calls and screens. One contract in the US requires that half of the call observations are chosen by the employee and half by the manager. Language often specifies that recording technologies should only be used for training purposes – which can then provide a basis for a grievance when employees are disciplined based on transcripts of calls analyzed by speech analytics tools or by statistics provided by automated coaching software. For employees on work from home contracts, provisions can establish how cameras are used – for example, prohibiting them from being used as monitoring tools to collect data that can be used to discipline workers or for surveillance purposes.

A further problem is the application of coaching tools to measure (more precisely than was possible in the past) contact center agents' adherence to scripts. Protections against using adherence as a sole or primary basis for discipline can help to protect employees from sometimes arbitrary sanctions or dismissal connected to a reasonable deviation from a script to address a customer concern or de-escalate a conflict.

In Germany and Norway, workers have additional privacy protections through the EU's General Data Protection Regulation (GDPR) of 2018, which codifies individual rights and controls over the use of personal data. This can also be used as a tool for limiting monitoring. For example, a union at a Norwegian telecom company opposed the use of video monitoring, and when management refused to end the practice, the union brought a complaint to the national Data Protection Agency – which held that this system violated employees' privacy rights. The union subsequently negotiated an agreement associated with the introduction of speech analytics to prohibit the use of predictive algorithms to analyze the 'employee side' of customer interactions, effectively prohibiting its use in individual monitoring and performance evaluation.[30]

In Germany, works councils – elected by workers at workplace and company level – enjoy strong co-determination rights to negotiate agreements with management over how technology is used in any performance management function, with many agreements banning the collection of individual performance data. As gathering this data is necessary for speech analytics tools or workforce management software, managers have a strong incentive to work closely with worker representatives to use these tools in a way that is acceptable to both sides. Germany's Works Constitution Act was amended in 2021 to ensure that works councils' consultation rights on new technologies extended to plans to adopt AI. It also extended co-determination rights over selection guidelines for hiring, transfers and terminations to include situations in which AI is used, and it requires companies to fund an expert (engaged by the works council) to consult on proposed changes or policies involving AI. This different legal environment gives worker representatives strong tools to negotiate restrictions on how new AI-based monitoring and coaching tools are used in the workplace (see Deutsche Telekom case study below).

Case study: Negotiating a high road approach to AI at Deutsche Telekom Germany

Deutsch Telekom is headquartered in Germany, with around 20,000 contact center employees located in the country. Typical of Germany, it has a 'dual channel' system of collective bargaining, with works councils that negotiate agreements at the company and workplace level; and separate (but coordinated) agreements with the labor union ver.di.

An agreement, first negotiated in 2010, states that jobs lost from automation are first cut from subcontractors. Internal employees who are affected by automation are trained for new jobs. This has led to a drastic decline in contact center and back office outsourcing.

Deutsche Telekom's works council organised a project 'PAKT 2020' in 2016 to analyse how digitalisation was affecting employees and strategize their response. They carried out surveys, focus groups, and workshops with employees, works councilors, and team leaders. A series of agreements came out of this 8-month project, and have provided a framework of rules around using digital and AI-based technologies.

First, a works agreement on **IT systems** establishes a process through which management consults with the works council before purchasing new technology. Based on an evaluation of the risk to employees, they decide whether formal negotiations were needed. An important criterion for evaluating 'risk' is whether the software can record or track data on individual employees – as all performance metrics must be aggregated to groups of five employees or more.

Second, in a works agreement on **digitalization,** management committed to drawing a roadmap of digitalisation measures ('digi-road map') planned for the next few years. The works council and management then discuss the potential impacts on employment numbers, service quality, and work content, feeding into strategic planning on new agreements to regulate specific technologies. The agreements provide a framework for evaluating technologies that are not covered by formal co-determination rights but that could significantly impact job numbers and quality.

Third, a pilot agreement on **workforce analytics** states that these tools should be used to improve the working environment and support management decisions. It prohibits using analytics to monitor individual employee performance or behaviour or to make automated decisions without human oversight. Databases must be designed so that all data are anonymous, and no conclusions can be drawn about individual employees. Transparency under data protection laws must be ensured, particularly regarding mathematical-statistical (or algorithmic) processes. Special measures are required for certain categories of personal data, with reference to the GDPR. The agreement establishes a 'Workforce Analytics Expert Group' with equal works council and employer representation. It reviews the use of employee data and AI-enabled analytics tools, holding regular evaluation workshops and including provisions for training employees (with works council involvement) to use workforce analytics responsibly.

Fourth, the works council drafted an **AI ethics manifesto** stipulating how AI would be used and recommending that an expert group [*Expertenkreis*] be established to ensure adherence to the manifesto's principles. The manifesto's purpose was to promote trust in AI systems by increasing transparency. It has several key provisions:

-- Interactions between employees and 'learning machines' should be designed so that employees know they are interacting with a machine.

-- The company's works agreements should extend to machine-based performance control and unauthorised use of employee data.

-- Human decision-makers must make personnel-related decisions that have legal effects on employees or significantly influence them.

-- Employees indirectly affected by AI can request that the responsible person check the systems used: 'When employees say: you've now used AI to produce a result that may concern me—they have the right to have this decision checked by a human being' (Works councillor, October 2021).

-- Certain uses of AI are prohibited, including gathering personal information about employees, such as their political opinions, philosophical beliefs, union membership, or sexual orientation; or seeking to analyse or influence employees' emotions or mental state. Thus, the employer cannot require employees to use technologies that ascribe personality traits or use biosensors.

Collective agreements at Deutsche Telekom have historically limited the use of remote monitoring technologies, prohibiting use of speech analytics to monitor employee emotions or direct

implementation of AI-enabled coaching apps. An important provision is that individual performance data can be gathered only for groups of at least five employees. Employees can see their own performance data but choose whether to share this with team leaders, who are prohibited from requesting it.

Further workforce management tools have been regulated under the above framework agreements. For example, managers cannot access employees' Outlook calendars, only information that is important for projects. WebEx videoconference tools cannot measure working time. Employees are not required to turn on their cameras for meetings, and there can be no recording of team meetings and training. Agreements regulate when team leaders listen to employee calls and for how long.

The framework protects employees from invasive monitoring or privacy abuses from algorithmic management. The works council established a process for co-determination and oversight over the future adoption of workforce analytics and other tools based on clear principles and an expert-based review process. This process also reduced the risk of works council opposition to expensive IT systems, standardising the co-determination process and improving workforce trust in how managers were using potentially controversial tools, particularly employee call recording. The company had taken a leadership role in digital ethics, creating a small department to work on these issues and a set of AI principles for its internal procedures and suppliers.

4. Support employee voice in the design of AI tools

The above discussion focuses on how unions are negotiating protections against the negative impacts of these AI-based tools on workers – on their job security and job quality. However, our findings also suggest that there is significant potential for mutual gains in an approach to AI in contact centers that integrates employee voice and experience into improving how these new technologies are used. Employees see some benefits from software that helps them to do their jobs more effectively, as well as the potential for more fair and transparent management decisions – for example, on scheduling and training. Unions and works councils can also help to improve how these tools are adopted in contact center workplaces, to encourage more careful deliberation on their purposes and potential problems, and to co-design a model that centers on improving service quality in a way that also complements enhanced employee well-being.

In the US, past experiments with 'Technology Change' committees may provide a forum for more organized worker input into how these tools are used. However, it is important to acknowledge that these efforts should be backed by mutual commitments: to strengthening job security and to achieving a balance between performance improvements and protections against work and monitoring intensification. The example of Deutsche Telekom shows that this approach can benefit employers, workers, and customers through a more intelligent approach to combining human knowledge and experience with the rapidly expanding possibilities of artificial intelligence.

Conclusions

The above analysis suggests three sets of conclusions.

First, overall contact center workers have mixed responses to AI-based tools. Respondents were more positive about *work automating AI* – and shared their views about the beneficial aspects of these tools, which some felt could help them do their jobs more effectively or help them to provide higher quality customer service. However, this was dependent on the effectiveness of these tools in helping them to provide better customer service and resolve customers' problems or requests. Where they were implemented in a way that substituted for (rather than complemented) employee knowledge and skills – or just did not work as they were intended -- they were viewed more negatively. Employees were more critical of *management automating AI*, particularly applications giving automated feedback or coaching.

Second, the intensity of AI use was generally associated with worse working conditions and poorer outcomes for customers and firms. This included increased work and monitoring intensity, customer mistreatment, and layoff fears; as well as decreased well-being. Patterns differed somewhat across the US and Canada, as well as for individual measures. However, broadly we can conclude that the general experience with AI in these contact center workplaces is more negative than positive.

However, third, the high variation in outcomes suggests that some workplaces are doing a better job than others at adopting these tools in a way that supports workers. Case study findings suggest that companies can successfully work together with worker representatives to co-design management practices that emphasize employee skills and autonomy rather than using technology to more tightly control and monitor workers and deskill jobs. We give examples of how labor unions in the US, Canada, Germany, and Norway have sought to encourage this high road approach, which both the current study and past research suggest can produce positive 'mutual gain' outcomes. Partnerships with unions over the adoption of AI in this space can be a resource for improving customer service and the efficiency and productivity of these tools, while also ensuring they are a complement rather than a substitute for the humans on the other end of the phone.

Appendix 1: Research Methods

The findings in this report are based on comparative qualitative and survey research conducted in the US, Canada, Germany, and Norway. Our research was funded by grants from the Social Sciences and Humanities Research Council of Canada (SSHRC) [grant numbers 430-2020-00045 and 1008-2020-0007], the Research Council of Norway [grant numbers NFR # 295914 and NFR # 314801], the AFL-CIO Technology Institute; and a DAAD Research Award.

Between 2021 and 2022, in the initial phases of our research, we conducted interviews with managers, worker representatives, workers, and AI technology vendors in Canada (46 interviews), the United States (60 interviews), Germany (37 interviews), and Norway (8 interviews).

Based on our initial interview findings, we designed survey questions designed to capture employees' experience with work from home arrangements and the AI-based technologies commonly used in contact centers, as well as the concerns raised by interviewees about the impact of work from home and AI in their companies and workplaces. We also included questions – e.g. on monitoring technologies, climate at work, employee well-being, and layoff concerns – that we had previously included in a 2017 survey of US contact centers, which used a similar methodology and sampling strategy to the current survey.[31] In 2023, after administering the surveys, we conducted seven workshops with worker representatives at major call center employers in the US, which allowed us to validate and update our findings. There were 114 participants in these workshops. In total, there were 257 participants in the qualitative components of our study.

US and Canadian contact center surveys

The US survey was administered between December and January 2023, in collaboration with the Communications Workers of America (CWA). It was distributed through a central mailing list by the union's research and communications departments, and by 30 union locals. We received 2891 responses from contact center workers. The total number of the union's members in contact centers was approximately 34,097; but the number in the 30 locals that reported having sent out the survey was approximately 9,883. Thus, our response rate is 8% based on a more conservative estimate (the full population); and 29% if we consider only the locals that sent out the survey.

The Canadian survey was administered from the end of January to early March 2023, in collaboration with UNIFOR. It was translated in French and English, and distributed by a subset of union locals. We received 385 responses from contact center workers. The total number of the union's members in contact centers was approximately 6,450; but the number in the locals that reported having sent out the survey was approximately 2,730. Thus, our response rate is 6% based on a more conservative estimate (the full population); and 14% if we consider only the locals that sent out the survey.

Table 1 below compares the demographic characteristics of the US and Canadian respondents to our surveys, as well as those of 'customer service representatives' in the US, as reported by the US Bureau of Labor Statistics. This comparison shows that most characteristics are similar between the US and Canadian

respondents, including age, education level, and children living at home. Canadian respondents have slightly higher average tenure in contact centers and at their current employer, and a higher percentage are white and male. The US BLS statistics for customer service representatives show broadly similar characteristics to the US survey; although they are slightly younger, have less formal education beyond high school, and have a somewhat different racial and ethnic background.

Table 1: Demographic characteristics of the US and Canadian survey samples

	US survey	Canada survey	US BLS 'customer service rep'
Tenure and age			
tenure at current employer	12	14	
tenure in contact centers	16	19	
age	48	47	40
Children			
children living at home	48%	47%	
children age 0-6	34%	28%	
Education			
some high school or diploma	11%	16%	31%
vocational or some college	42%	40%	30%
2-year college degree	17%	18%	12%
4-year college degree	22%	21%	23%
graduate training or degree	8%	4%	5%
Gender			
Female	65%	60%	65%
Race and ethnicity			
Black, Afro-Caribbean, or African-American/Canadian	29%	9%	18%
White/European	56%	73%	73%
Latina/o/x or Hispanic	13%	1%	20%
East Asian or Asian American/Canadian	2%	6%	
South Asian or Indian	1%	5%	5% ['Asian']
Middle Eastern	0%	2%	
Native American, Alaskan Native, Indigenous (First Nations, Métis, Inuk/Inuit)	3%	0%	
Refused	1%	1%	

Appendix 2: Glossary of AI terms

The terms below are organized by theme rather than alphabetically.

Artificial intelligence (AI): 'An AI system is a machine-based system that is capable of influencing the environment by producing an output (predictions, recommendations or decisions) for a given set of objectives. It uses machine and/or human-based data and inputs to (i) perceive real and/or virtual environments; (ii) abstract these perceptions into models through analysis in an automated manner (e.g., with machine learning), or manually; and (iii) use model inference to formulate options for outcomes. AI systems are designed to operate with varying levels of autonomy.'(OECD, 2023)

Algorithm: A process or set of rules for solving a problem or performing a calculation. Advanced algorithms use conditionals to execute code through different routes, based on a set of 'if-then' statements. The term 'AI algorithm' is often used to describe the use of algorithms in machine learning – or the set of instructions or rules that enable machines to analyze data and make decisions based on that analysis. Algorithms are often described as the building blocks of AI.

Robotic process automation (RPA): A technology using software robots to automate repetitive, rule-based tasks. This may include copying data between systems, generating reports. RPA is sometimes considered a form of artificial intelligence. A key distinction from ***machine learning*** is that RPA uses structured (as compared to more unstructured) data inputs and logic – following pre-programmed rules to execute tasks. The term **intelligent automation (IA)** or Intelligent process automation is sometimes used to describe applications or tools that combine ***machine learning*** and ***robotic process automation***.

Machine learning: A branch of ***AI*** that uses data and ***algorithms*** to imitate the way that humans learn, in a way that improves its accuracy over time. There are three subcategories:

- **Supervised learning**: 'Models are trained with labeled data sets, which allow the models to learn and grow more accurate over time.' (Brown, 2021) Labeled data can be used to predict outcomes for other data.
- **Unsupervised learning**: 'A class of machine learning that learns without human supervision, drawing from data that is both unstructured and unlabeled.' (Benbya et al., 2021) 'Unsupervised machine learning can find patterns or trends that people aren't explicitly looking for. For example, an unsupervised machine learning program could look through online sales data and identify different types of clients making purchases.' (Brown, 2021)
- **Reinforcement learning:** 'A technique that teaches an AI model to find the best result by trial and error, receiving rewards or punishments from an algorithm based on its results. This system can be enhanced by humans giving feedback on its performance, in the form of ratings, corrections and suggestions.' (Pasick, 2023) 'Reinforcement learning can train models to play

games or train autonomous vehicles to drive by telling the machine when it made the right decisions, which helps it learn over time what actions it should take.' (Brown, 2021)

Neural network: 'A commonly used, specific class of ***machine learning*** algorithms. Artificial neural networks are modeled on the human brain, in which thousands or millions of processing nodes are interconnected and organized into layers. In an artificial neural network, cells, or nodes, are connected, with each cell processing inputs and producing an output that is sent to other neurons. Labeled data moves through the nodes, or cells, with each cell performing a different function. In a neural network trained to identify whether a picture contains a cat or not, the different nodes would assess the information and arrive at an output that indicates whether a picture features a cat.' (Brown, 2021)

- **Deep learning networks**: 'Deep learning networks are ***neural networks*** with many layers. The layered network can process extensive amounts of data and determine the "weight" of each link in the network — for example, in an image recognition system, some layers of the neural network might detect individual features of a face, like eyes, nose, or mouth, while another layer would be able to tell whether those features appear in a way that indicates a face. Like neural networks, deep learning is modeled on the way the human brain works and powers many machine learning uses, like autonomous vehicles, chatbots, and medical diagnostics.' (Brown, 2021)
- **Generative AI:** 'Technology that creates content — including text, images, video and computer code — by identifying patterns in large quantities of training data, and then creating original material that has similar characteristics.' (Pasick, 2023) The key distinction from ***traditional machine learning*** is that generative AI is designed to create new data (e.g. images, text, music) – not just make predictions based on a given dataset. It uses ***neural networks*** and ***machine learning algorithms*** trained on large datasets of existing content.

Types of AI systems based on deep learning or generative AI:

- **Large language model (LLM):** 'A type of ***neural network*** that learns skills — including generating prose, conducting conversations and writing computer code — by analyzing vast amounts of text from across the internet.' (Pasick, 2023) 'An LLM can be trained by giving it access to a large corpus of text […] and using that input text to learn to predict the next word in a sequence, given what has come before.' They can also be fine-tuned by human evaluators, who rank outputs by LLMs to prioritize certain responses over others, improving model quality. (Brynjolffson et al., 2023) LLMS are the basis for ChatGPT.
  - **Natural language processing**: 'Techniques used by ***large language models*** to understand and generate human language, including text classification and sentiment analysis. These methods often use a combination of machine learning algorithms, statistical models and linguistic rules.' (Pasick, 2023) 'This allows machines to recognize language, understand it, and respond to it, as well as create new text and translate between languages. Natural language processing enables […] chatbots and digital assistants.' (Brown, 2021)

- **Computer vision:** A field of AI 'that enables computers and systems to derive meaningful information from digital images, videos and other visual inputs — and take actions or make recommendations based on that information. If AI enables computers to think, computer vision enables them to see, observe and understand.' It uses cameras, data, and algorithms to apply ***deep learning*** and a ***convolutional neural network*** *(CNN).*
    - **Convolutional neural network (CNN):** 'A CNN helps a machine learning or deep learning model "look" by breaking images down into pixels that are given tags or labels. It uses the labels to perform convolutions (a mathematical operation on two functions to produce a third function) and makes predictions about what it is "seeing." The neural network runs convolutions and checks the accuracy of its predictions in a series of iterations until the predictions start to come true. It is then recognizing or seeing images in a way similar to humans.' (IBM, 2023)
    - **Recurrent neural network (RNN):** For video applications, a recurrent neural network (RNN) is used to develop an understanding of how pictures are related to each other across frames. (IBM, 2023)

Sources and Further Reading for Glossary of AI Terms:

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Endnotes

[1] The term 'contact center', rather than 'call center', is increasingly used to describe the customer service and sales centers we examine in our research, as they often include not just voice-based channels, but also text- and email-based forms of customer contact.
[2] GOLDMAN, D. 2024. *Disconnected: Call Center Workers and Their Fight for Good Jobs in the Digital Age*, University of Illinois Press.
[3] Our findings from the 2017 study are reported in: DOELLGAST, V. & O'BRADY, S. 2020. Making call center jobs better: The relationship between management practices and worker stress
[4] OECD. 2023. *AI Terms and Concepts* [Online]. https://oecd.ai/en/ai-principles
[5] A recent study by Brynjolfsson et al. (2023) found that the staggered introduction of an agent assistant tool significantly increased the productivity of customer support agents; but that these impacts were concentrated among less experienced or lower-skilled workers. The authors conclude that the tool disseminates knowledge from more experienced workers – who have less to gain from following the AI-based tool's recommendations. BRYNJOLFSSON, E., LI, D. & RAYMOND, L. R. 2023. Generative AI at work. National Bureau of Economic Research. Working Paper 31161, DOI: 10.3386/w31161
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[21] *Ibid*
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[23] In calculating the %, we only include respondents who indicated '*yes'* or '*no'* for each category of response – as this provides a more accurate measure of workers' direct experience with AI. The % responding *'don't know'* to each item follows: **Work automating**: 1) forms & follow-up: 42% US, 35% Canada; 2) product & customer info: 32% US, 34% Canada; 3) tech support: 40% US, 43% Canada; 4) call routing: 31% US, 37% Canada. **Management automating**: 1) feedback: 39% US, 46% Canada; 2) monitoring: 47% US, 49% Canada; 3) training: 39% US, 46% Canada; 4) scheduling: 35% US, 42% Canada.

[24] The number of respondents for each question displayed in figures 4-7 are as follows: Fig 4: N=448-453; Fig 5: N=631-635; Fig 6: N=472-482; Fig 7: N=694-700

[25] The number of respondents for each question in Canada are as follows: forms and follow up (N=78-81), customer info (N=71-72), tech support (49-50), call routing (83-85)

[26] We have lightly edited the qualitative survey responses for misspellings and punctuation errors

[27] The number of respondents for each question displayed in figures 8-11 are as follows: Fig 8: N=480-483; Fig 9: N=463-465; Fig 10: N=512-521; Fig 11: N=590-598

[28] DOELLGAST, V. & O'BRADY, S. 2020. Making call center jobs better: The relationship between management practices and worker stress
https://ecommons.cornell.edu/bitstream/handle/1813/74307/Doellgast28_Making_call_center_jobs_better.pdf

[29] We use a six-item scale (Cronbach's alpha .94) used by Wharton (1993) to measure 'Job-Related Emotional Exhaustion' (p.213) and applied by van Jaarsveld et al. (2010) in a survey of call center workers. Questions were adapted from the Maslach Burnout Inventory (MBI)'s subscale measuring emotional exhaustion (Maslach & Jackson 1981).

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[31] Details on the 2017 survey, including methodology and findings, can be found in this report: DOELLGAST, V. & O'BRADY, S. 2020. Making call center jobs better: The relationship between management practices and worker stress
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