March 2019

Technology and Disruption:

Workers' Predictions on the Future of Retail

THE CENTER FOR POPULAR DEMOCRACY

FAIR WORKWEEK INITIATIVE

OUR UNITED FOR RESPECT

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Acknowledgments

This report was written by Maggie Corser. It was edited by Carrie Gleason, Emily Gordon, and Lily Wang.

The Center for Popular Democracy is a nonprofit organization that promotes equity, opportunity, and a dynamic democracy in partnership with innovative base-building organizations, organizing networks and alliances, and progressive unions across the country.

The Fair Workweek Initiative, a collaborative effort anchored by the Center for Popular Democracy, is dedicated to restoring family-sustaining work hours for all working Americans. We partner with diverse stakeholders to advance an integrated set of strategies that include policy advocacy, public education and grassroots engagement.

Organization United for Respect (OUR) elevates the voices of those employed by America's largest low-wage retail corporations and leverages technology—social media and our digital platform, WorkIt—to support people working in retail and bring them into community with one another. Through our online peer networks and on-the-ground base-building strategies, we are building a multiracial, women-led movement to move the nation's largest corporations and our elected officials to make retail jobs good jobs — ones that can support our families.

Retail is undergoing a period of significant disruption as technology transforms the sector.

Though e-commerce is only 9% of all retail sales, this figure doubled in the last seven years and is steadily rising. Technology is changing the nature of retail, sparking a national debate on whether the sector will continue to add jobs or whether millions of jobs will be lost to automation. Industry analysts are still forecasting whether and how technology will replace entire jobs, like cashiers, or streamline tasks, like pill counting at pharmacies. Yet all agree that the future is unfolding right now in the service sector – and the jobs employing the nation's largest service-sector workforce could be radically altered in the years to come. While many business executives, industry analysts, technologists, and journalists make predictions on the future of retail, very few forecasts have engaged frontline retail workers for their insights on the ground.[1]

Surveying 1,100 retail workers employed **across major employers and within key retail economies**, we launched the first national opinion polling of the retail workforce. The survey aimed to understand their views on the future of work. This report offers insights from retail workers on the technologies currently used in their stores, as well as their own predictions on the opportunities and threats presented by technology.

The stakes are high for America's nearly 16 million retail workers.

Technology is just one force transforming an already volatile retail industry. After the 2008 financial crash, retailers seeking to cut labor costs doubled down on "just-in-time scheduling." This moved full-time workers to part-time work, with schedules that fluctuated with demand. Companies now automate workers' schedules using algorithms that forecast demand by the hour. These volatile hours strain working families and have exacerbated financial insecurity for millions of low-income households. Far from a temporary response to an economic downturn, ten years after the crash involuntary part-time employment is still elevated and low pay, with unstable hours and few benefits, is still the norm in retail jobs.

In response to this crisis hurting working families, cities and states across the country are raising wages, restoring a fair workweek, and guaranteeing earned sick time along with paid family leave. However, those gains are now threatened.

As a result of lagging public policy in financial regulation, retail chains are buckling under heavy debt and closing stores, primarily from risky leveraged buyouts by private equity firms.[2] Meanwhile Amazon dramatically expanded, emerging as the second largest retail employer in America and a corporate monopoly that threatens our economy.[3] These forces of financialization and corporate concentration will impact how retail adapts to the rise of e-commerce and integrates new technologies. Meanwhile policymakers are expanding their push for family-sustaining jobs and going beyond labor standards to pursue policies that would deliver financial reform, curb corporate monopolies, and address job displacement from automation and bankruptcy.

MAJOR FORCES SHAPING THE RETAIL INDUSTRY

With the rise of behemoths like Amazon and the collapse of well-known brands like Toys R Us, the retail industry is facing a crisis. Technology will not be the only force shaping the future of retail. In addition to the spread of e-commerce and new technologies, retail is also being shaped by:

A sharp increase in corporate concentration. Retailers like Amazon and Walmart are growing bigger, more profitable, and wielding more market power each year. What used to be a sector filled with many small to mid-size businesses is now dominated by large firms. The four largest U.S. retailers now earn 90% of total profits.[4]

The growing dominance of Wall Street in retail. In the wake of the Great Recession, private equity firms began acquiring struggling retailers in deals that led companies to take on large amounts of debt. These firms promised to fix a company's problems, make it more efficient, and eventually sell at a profit. In practice, major retail brands have continued to struggle with mounting debts. The spike in retail bankruptcies because of these deals is leading to large job losses for workers, but profitable payouts for Wall Street executives.

Given the rapid transformation and growing volatility in retail, what are the opportunities and challenges presented by emerging technologies? This report both offers a brief synthesis of retail industry predictions on automation, job displacement and e-commerce, and then turns to key insights from our survey of the frontline retail workforce. Our data reveals workers' own predictions on what the future will hold and sheds new light on the breadth of technologies currently used in stores.

The Future of Retail

New technology is radically changing how the retail industry does business and how millions of retail workers do their jobs. Some predict that in the future of retail, e-commerce will replace most brick and mortar stores, cashiers will be replaced by self-checkout kiosks, delivery drones will deliver to your door in an hour, and robots will stock shelves in growing warehouses for online goods. Although retailers already use technologies like mobile devices, self-checkout, digital kiosks, and workforce management systems, it remains an open question which technologies will be adopted by retailers, how quickly new technologies will be integrated into retail operations, and how working people will be impacted. In the coming years, retail will likely be shaped by technologies that integrate e-commerce and brick and mortar retail, as well as technologies that reconfigure or automate specific tasks currently performed by millions of retail workers.

Rapid Growth of E-Commerce Is Blurring the Lines Between Online and Brick and Mortar Retail

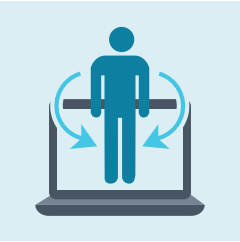
The rapid growth of e-commerce has led some to predict the death of traditional brick and mortar retail. In reality, most retailers are striving to expand online while achieving an "omni-channel" shopping experience that integrates online, mobile apps, and the physical store. This approach can include enabling customers to see if an item is in stock at local stores, order online then pick up in a store, or use mobile apps while in a store to scan barcodes or place an order for delivery. In a recent survey of 1,700 retail executives, nearly 80% said it was business critical to integrate omni-channel technologies into their stores.[5]

Retail giants like Target and Walmart are now using Google Express to allow voice-activated purchases for delivery or in-store pick up.[6] At 120 Walmart stores (out of 4,700 US stores), shoppers can now scan items and pay for them on their smartphones—an employee then checks receipts as they walk out.[7] E-commerce is expanding into brick and mortar with Amazon launching its first Amazon Go store in 2018. Customers scan an Amazon app and leave the store with products without being rung up by a cashier.[8] These omni-channel trends are likely to continue and accelerate in the coming years.

Predictions on the Pace and Scale of Automation

Many industry analysts predict that retail jobs will be susceptible to wide scale automation. **Automation occurs when technologies replace all or part of a workers' job duties.** Though the Bureau of Labor Statistics projects that by the year 2024 the retail workforce will grow to over 16,100,000 workers, many industry predictions assume a significant number of jobs will be automated.[9] These predictions often imagine a future with very few human workers. While sales associates with product information may support customers, retailers would shift to self-checkout or app-based checkouts. In the long-term, robots might take inventory and stock shelves in the store, and robots in warehouses and distribution centers might pack and load goods onto self-driving trucks.

What are the leading industry predictions on automation in retail?



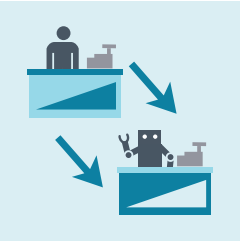
Scenario #1

Widespread automation with most retail jobs replaced by technology: One study out of the Oxford Martin School estimated that 47% of total U.S. employment is at risk of computerization. For certain roles, like retail salesperson, they estimate 92% of jobs are at risk.[10]

Using this study, Cornerstone Capital Group estimates that

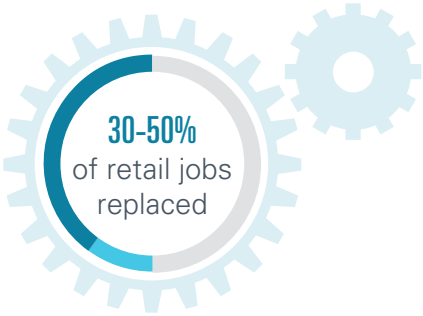
7.5 million retail workers

are at high risk of losing their jobs in the next 10 years.[11]



Scenario #2

Between one-third and one-half of retail jobs replaced: The World Economic Forum estimates that 30-50% of retail store jobs are at risk of automation once technology is incorporated into the day-to-day operations of stores.[12]



Scenario #3

About half of retail tasks replaced: The business consulting firm McKinsey predicts that with current technologies, less than 5% of all jobs can be fully automated. However, about 53% of the activities retail workers are paid to perform can be automated.[13]

Under this model, not all jobs have the same risk of automation. For instance, McKinsey calculates that **"47 percent of a retail salesperson's activities have the technical potential to be automated—far less than the 86 percent possible for the sector's bookkeepers, accountants, and auditing clerks."**[14]

What should we make of these differing predictions?

There is no consensus on the speed and scale of automation in retail. While some argue 92% of retail salesperson jobs will be fully replaced by technology, others estimate 47% of these worker's daily activities will potentially be automated. These predictions present radically different futures for retail workers. In the most dramatic scenario, the majority of workers will be out of a job. In the more moderate scenario, a retail worker's daily experience and tasks would change—though it is also likely that less workers would be needed to complete those new tasks.

These predictions assume retailers will be able to afford large-scale capital investments.

In order to automate skills or jobs, companies need to make massive capital investments in hardware and software. The immediate and long-term costs of acquiring and implementing new technologies is significant. Major capital investment is at a historic low in this country, because many companies cannot secure funds to invest in new technologies.[15] Retail, in particular, was not even in the top ten U.S. industries attracting venture capital in 2017.[16] Given retail's already slim profit margins, large retail chains may be the only companies able to afford investments in full automation.[17] However, mounting debts and the growing number of retail bankruptcies will likely slow the adoption of technology among many retailers. The retail industry will need to stabilize in order to create the pathway for the capital investments needed for wide scale automation.

These predictions assume policymakers and other stakeholders will have no role in the adoption of new technologies.

Amazon acquired the robotics company Kiva in 2012. Many assume Amazon has plans to eventually automate its warehouse distribution centers.[18] At the same time, cities around the country are offering billions in tax breaks and incentives to persuade Amazon to build its newest headquarters in their communities.[19] With growing corporate concentration, retailers like Amazon and Walmart have an outsized influence in the retail economy. These retailers set the direction of the retail industry, from technological innovation to labor standards. Businesses, including Amazon, make choices on how to invest in, adopt, and deploy new forms of technologies. Policymakers are well-positioned to regulate these businesses to ensure their practices promote the common good.

These predictions highlight the importance of distinguishing daily tasks from jobs.

Across the range of work performed by retail workers, some job duties are easier than others to automate. A retail worker might answer questions from customers, stock shelves, and use a cash register which are all job duties that require different skills.[20] Packing merchandise in a box is easier to automate than talking to a customer about what kind of shoes to buy, which requires judgement and emotional intelligence. Walmart CEO Doug McMillon recently echoed the idea that technology will more likely replace tasks:

> "There are things about retail that are not enjoyable. Finding inventory in the backroom is not always a joy. There are things that you don't like. Some of those things can be automated — think task level rather than job level. As we eliminate those [tasks], what we would like to do is have jobs that pay more, that work more on customer service and merchandising."[21]

These predictions may be underestimating the complexity of working in retail.

MIT economist Daron Acemoglu has argued that retail has seen less automation than other industries because the tasks retail workers perform are more complex, for instance assisting customers, answering questions, and restocking products.[22] Skills that are difficult to automate include: problem solving, coordinating with others, critical thinking, creativity, people management, negotiation, quality control, emotional intelligence, service orientation, judgment and decision making, and active listening.[23] It is possible that industry predictions do not fully grasp the range of skills retail workers use in their jobs.

These predictions do not factor in whether these technologies will work well and be widely adopted.

In 2000, many predicted a Radio-frequency identification (RFID) revolution in retail. In theory, RFID would automate the job of scanning products and enable retailers to track merchandise through the retail supply chain, from the warehouse to the store.[24] In practice, to realize the potential of the technology, it required integration across the supply chain while also offering too much granular data that didn't translate into greater efficiency, productivity, or profit. New cloud-based technologies offering a better return on investment took off instead.

At the same time, these predictions underscore the reality that certain jobs will likely be vulnerable to automation.

Some technologies like self-checkout kiosks, will likely see even wider adoption as the technology rapidly improves. Self-checkout kiosks have not replaced cashiers in the twenty years since their introduction--customers frustrated by self-checkout technologies often rely on a worker to complete the transaction.[25] However, technologies are being refined at a more rapid pace each year. As technology improves and becomes less expensive, it is increasingly likely to replace many cashiers. In addition, as mobile apps enable customers to pay for goods automatically, "cashier-less" or "scan and go" technologies will pose a real threat to cashier jobs.[26]

Though many retail jobs are threatened by new technologies, we are seeing technology first reconfigure frontline retail roles, replacing tasks at a greater scale than replacing jobs.

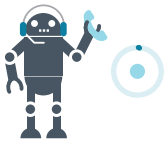
How is Technology Currently Used?

Before we look at workers' predictions about the future, let's understand how workers use technology today. Based on our survey of 1,100 retail workers at major corporate retail chains, nearly all people working in retail use some form of technology in their job. There is widespread use of computers, iPads and other handheld devices to provide product information. Nearly half of workers surveyed report some form of omni-channel retail at their company, where customers can order online and pick up purchases in the store.

One in three retail workers' are in stores with self-checkout kiosks. Yet the survey results indicate the current use of robots and artificial intelligence is minimal. Only 2% of workers report robots stocking shelves in their stores or providing some form of customer service.

What kind of technology is used in retail today?

31%
A machine that counts money



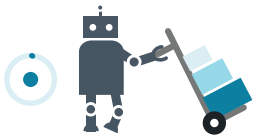
2%
Robots provide customer service

15%
Self-checkout app for smartphones

32%
Self-checkout kiosks

60%
Computer kiosks, iPads, or hand-held devices to provide product information

48%
Websites or apps where customers can order online and pick up in the store



2%
Robots stock shelves or move boxes

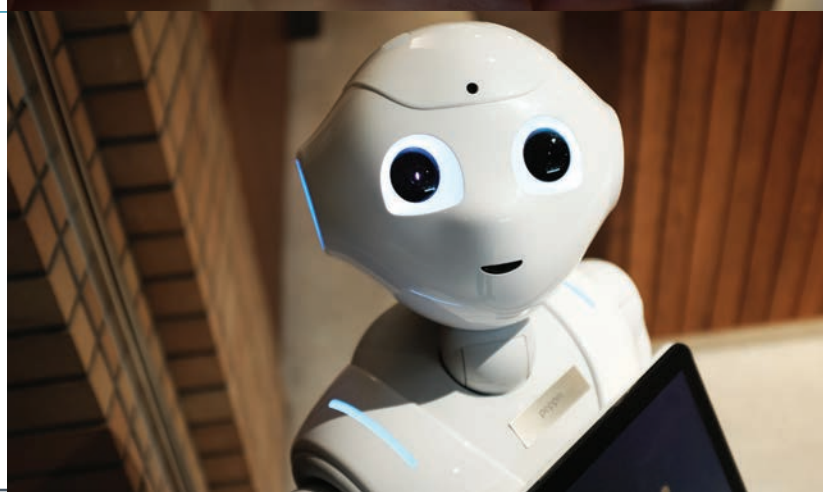
15%
iPads or hand-held devices to check-out customers

Omni-channel technologies are the most common form of technology in use – Over 60% of survey respondents work in stores where computer kiosks, iPads, or hand-held devices are used to provide product information. Nearly half of workers surveyed report their stores have websites and apps where customers can buy online and pick up in the stores.

Self-Checkout Apps
Only 15% of retail workers are in stores with self-checkout apps. Self-checkout apps are most common at Big Box and Department Stores. Workers in Appliance and Electronics, Home and Garden, Grocery, and Clothing stores also report self-checkout apps.

Self-Checkout Kiosks
One in three retail workers are in stores with self-checkout kiosks. 80% of the stores with self-checkout kiosks are in Big Box, Department, Grocery, or Home and Garden stores. Among workers in stores with self-checkout kiosks, one-third are Walmart workers. Other common stores include Home Depot, Lowe's, Target, and grocery chains like Kroger and Meijer.

Robots
Among the very small share of survey respondents who indicated that robots provide customer service (2%) or move boxes (2%), nearly half are in E-commerce or Appliance and Electronics stores.



So What Do Retail Workers Think About the Future of Work?

Technology presents both opportunities and risks for retail workers:

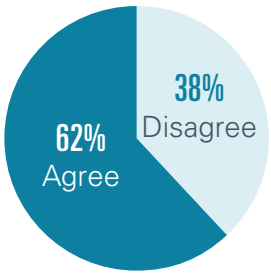
While many retail workers feel optimistic that the growth of e-commerce and new technologies will give them new opportunities, two out of three retail workers predict some of their current job duties will be replaced by technology in their lifetime.

The majority of workers predict technology will reconfigure their job rather than completely replace it:

On the question of automation, only one-third of frontline workers think technology will completely replace their job in their lifetime. Among those who predict that their jobs will be replaced, the majority are in roles, such as cashiers, that many predict will be most vulnerable to automation.

Frontline Retail Workers' Opinions

The growth of online retail and new technologies will create new job opportunities for people working in retail.

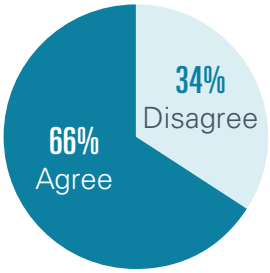


Retail workers who agree technology will create new job opportunities:

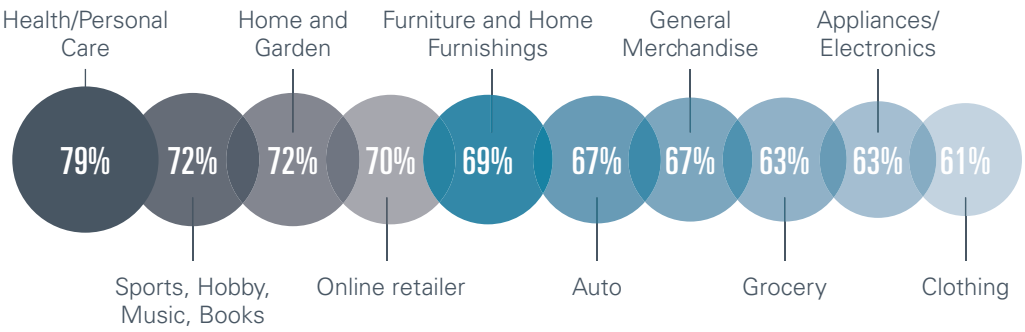
- **94%** E-Commerce
- **73%** Auto
- **70%** Appliances/Electronics
- **66%** General Merchandise
- **65%** Health and Personal Care
- **62%** Grocery
- **59%** Home and Garden
- **57%** Clothing
- **54%** Sports, Hobby, Music, Books
- **38%** Furniture/Home Furnishing

Percent of workers who hold this opinion by subsector.

Some of my retail job duties will be replaced by technology (computer, online shopping, robot, etc.) in my lifetime.

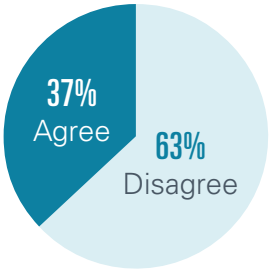


Retail workers who agree some of their job duties will be replaced by technology:

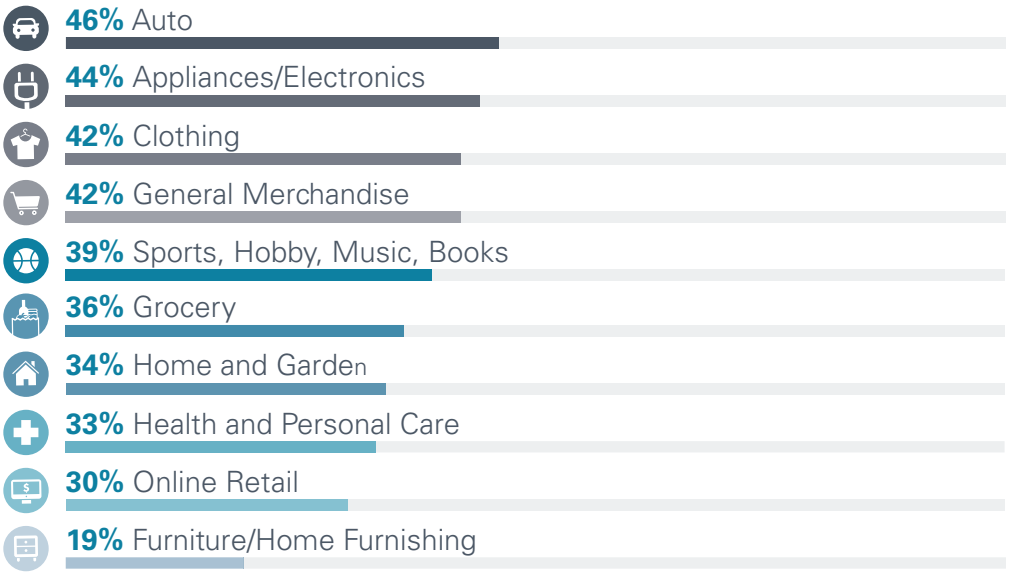


Percent of workers who hold this opinion by subsector.

My current retail job will be fully replaced by some form of technology (computer system, robot, etc.) in my lifetime.



Retail Workers who agree their jobs will be replaced in their lifetime



Percent of workers who hold this opinion by subsector.

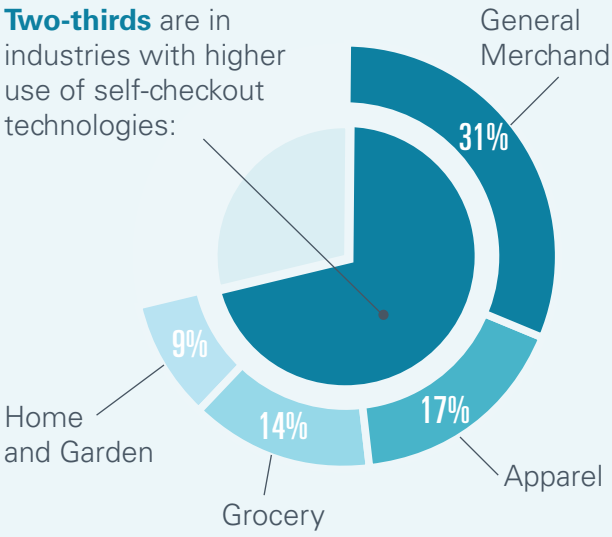
Retail workers who predict automation will replace their job

Job title:

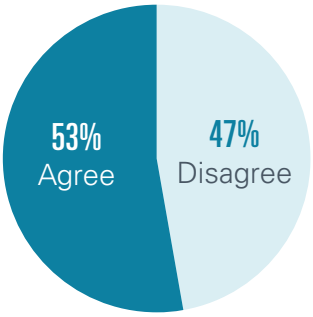
Sales Associates or Cashiers

Customer Service Representatives

Two-thirds are in industries with higher use of self-checkout technologies:



New technology will have a negative impact on the quality of my job (such as wages, hours and benefits) in the next 10 years.

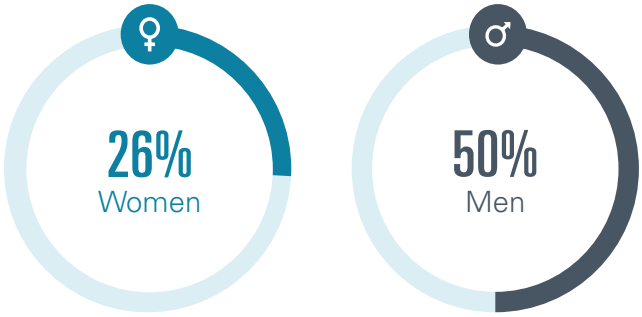


How do Worker's Opinions Compare to Industry Projections?

Despite industry predictions that women will face the most technology-driven job loss in the retail industry, women working in frontline retail jobs are much less likely to feel that their jobs will be automated:

78% of women respondents do not think their jobs will be replaced by technology, compared to 50% of male respondents.

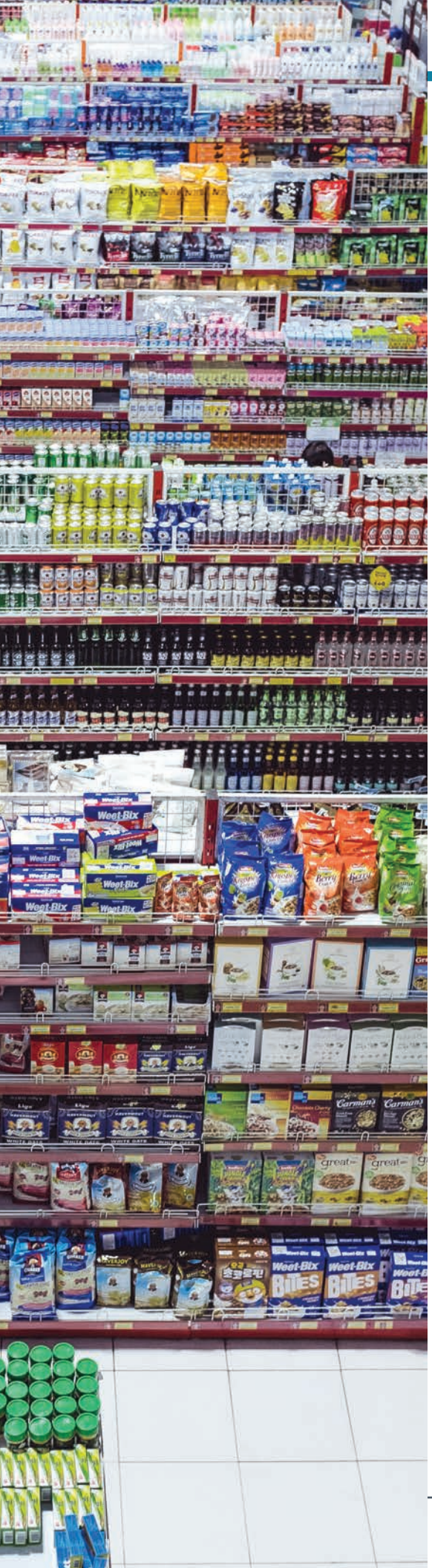
Put another way, only **26% of women** respondents feel their jobs will be fully replaced by technology compared to **half of male** respondents.



This stands in stark contrast to industry predictions that women will face the most job loss in retail. Cashiers are considered one of the easiest jobs to automate. Seventy-three percent of cashiers are women, which means large-scale automation in retail would disproportionately impact women.[27] Based on the Oxford Martin School study, women have almost 60% of the jobs with very high risk of computerization in the U.S.[28] The World Economic Forum's "Future of Jobs" report notes that:

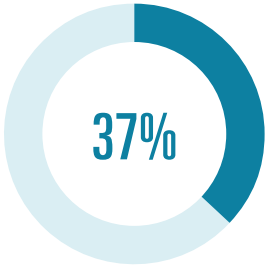
> "while men will see approximately one job gained for every three lost over the next five years, women face more than 5 jobs lost for every one gained."[29]

While further research is needed to understand this disconnect, one possible explanation is that women recognize that the types of skills that are harder to automate—including engaging people, quality control, emotional intelligence, service orientation, and active listening—are skills they currently bring to their workplace. Numerous studies show women score more highly in workplace emotional and social intelligence than men.[30] These skills include conflict management, empathy, adaptability, emotional self-awareness.

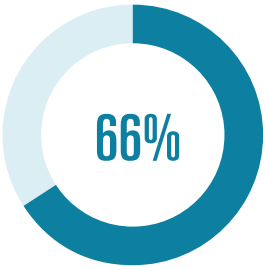


Retail workers felt that tasks, rather than full jobs, are more likely to be replaced by technology

While only 37% of respondents predict their jobs will be fully automated, a large share (66%) feel some specific job duties will be replaced. This is consistent with McKinsey's predictions that specific tasks are more vulnerable to automation than full jobs.



Predict their jobs will be fully automated



Predict specific job duties will be replaced

Exposure to technology in the workplace appears to impact views on the future

Only one-third of workers predict their jobs would be fully automated in their lifetime. That is significantly less than the most dramatic industry estimate of 92% of retail salespeople being out of a job in the future. However, workers in stores with self-checkout kiosks and self-checkout apps are more likely to assume all or part of their job will be replaced. Among the very small number of survey respondents in stores with robots doing logistics or customer support, the majority predict their jobs will be fully automated.
It is possible that as new forms of technology are adopted in stores, workers' predictions on the future will change.

1/3 of workers predict their jobs will be fully automated in their lifetime

92% of retail salespeople will be out of jobs in the future according to an industry estimate

Retail Managers' Opinions on the Future of Work

Our survey also polled a number of retail managers to understand their predictions on the future. Managers and frontline retail workers have equal levels of optimism that new technologies will create more jobs. Two out of three managers predict new job opportunities for people working in retail. However, managers are less optimistic about the overall impact of technology. Surprisingly, managers are slightly more likely to predict that part or all of their jobs will be automated and that new technology will negatively impact their job quality in the future:

Managers are slightly more likely to predict that some of their job duties will be replaced by technology (including computers, online shopping, robots, etc.):

MANAGERS
72%

FRONTLINE WORKERS
66%

More managers think their jobs will be fully replaced by some form of technology in their lifetime:

MANAGERS
41%

FRONTLINE WORKERS
37%

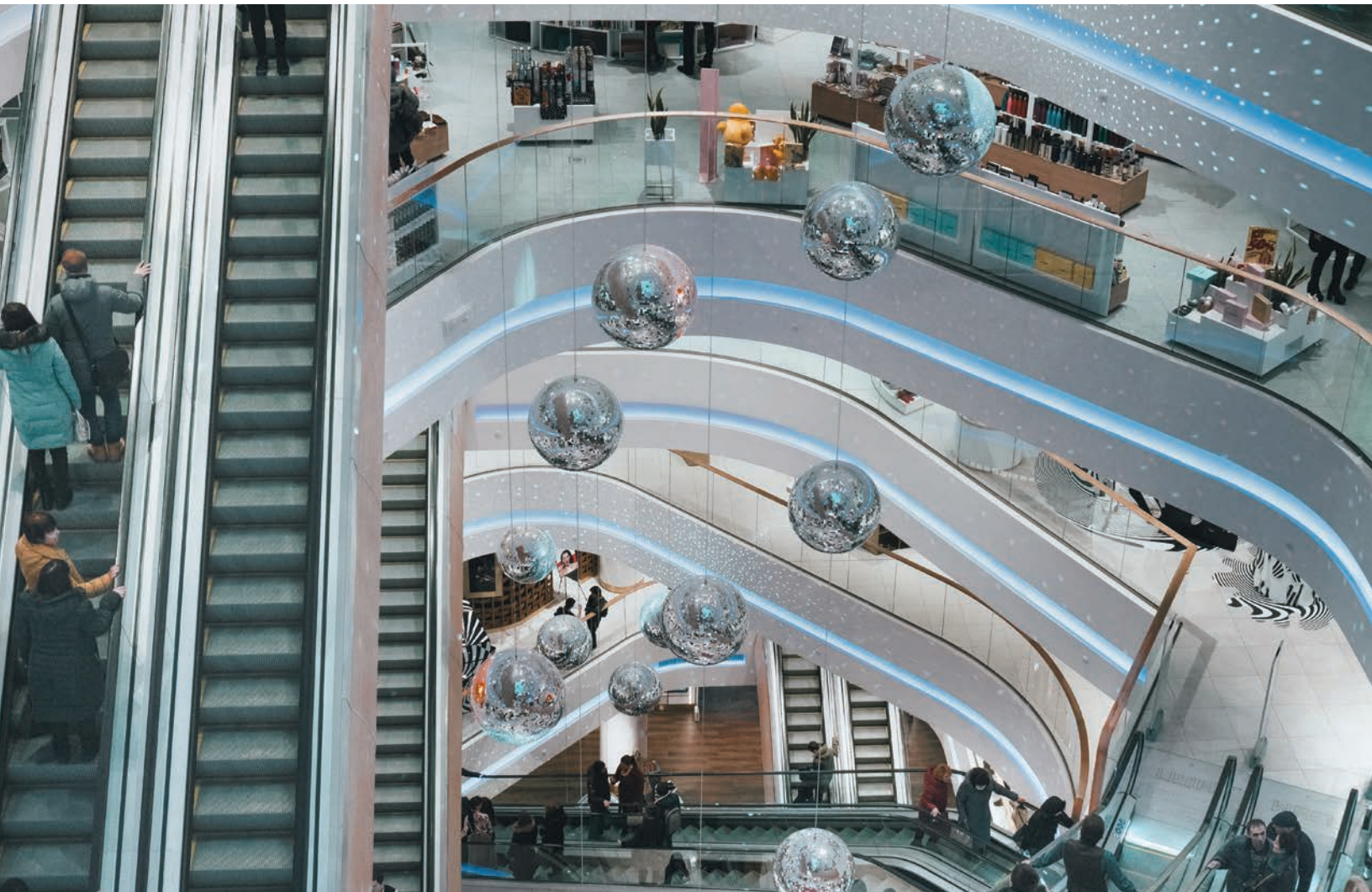
Slightly more managers feel new technology will negatively impact the quality of their job (58%), compared to frontline retail workers:

MANAGERS
58%

FRONTLINE WORKERS
53%

Looking Forward

Will millions of retail workers be out of work or will their jobs be reconfigured to harness new technology? It is still an open question what the immediate and long-term impacts of technology will be on the massive retail workforce. This will depend on many interrelated factors: which retailers can afford large-scale capital investments in technologies, the pace and scale of technological adoption, whether companies choose to deploy technology in ways that automate or reconfigure work, consumer preferences and spending patterns, and, critically, how policymakers regulate the adoption of new technologies. This brief offers unique insights from 1,100 frontline retail workers who see both opportunities and risks in emerging technologies for their future of work. The majority of workers predict technology will reconfigure their job rather than completely replace it. Industry analysts predict wide-scale automation and retail job loss which, if correct, would impact millions of American families. Although the future impact of technology remains to be seen, it is critical for working people's voices and perspectives to be included in the debate. This will better inform retail companies and policymakers in order to support the retail workforce now and in the future.



Who We Talked To: Survey Sample At-A-Glance

The survey sample is robust and broadly representative of the retail workforce in the United States. It mirrors both the demographics of the workforce as well as the retail sub-sectors that make up the industry. While the retail workforce overall is 65% white and 35% people of color, some sub-sectors like General Merchandise and Clothing are 45% people of color.[31] We worked to ensure a broadly representative cross-section among the 13 major sub-sectors. We chose to oversample respondents of color in order to understand the experiences of workers in these sub-sectors as well as the workers most likely to face poor job quality and lower levels of career advancement. This survey sample represents a larger share of General Merchandise and Clothing retailers and smaller share of Grocery and Automotive retailers, relative to their share of U.S. retail employment. The remaining nine sub-sectors are representative of their share of total U.S. retail employment. We sought to ensure a balance of frontline retail workers and managerial positions to understand career pathways and barriers to upward mobility.

Endnotes

1 U.S. Census Bureau, "E-Commerce Retail Sales as a Percent of Total Sales", retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/ECOMPCTSA.

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