

Automation from the Worker's Perspective: How can new technologies make jobs better?

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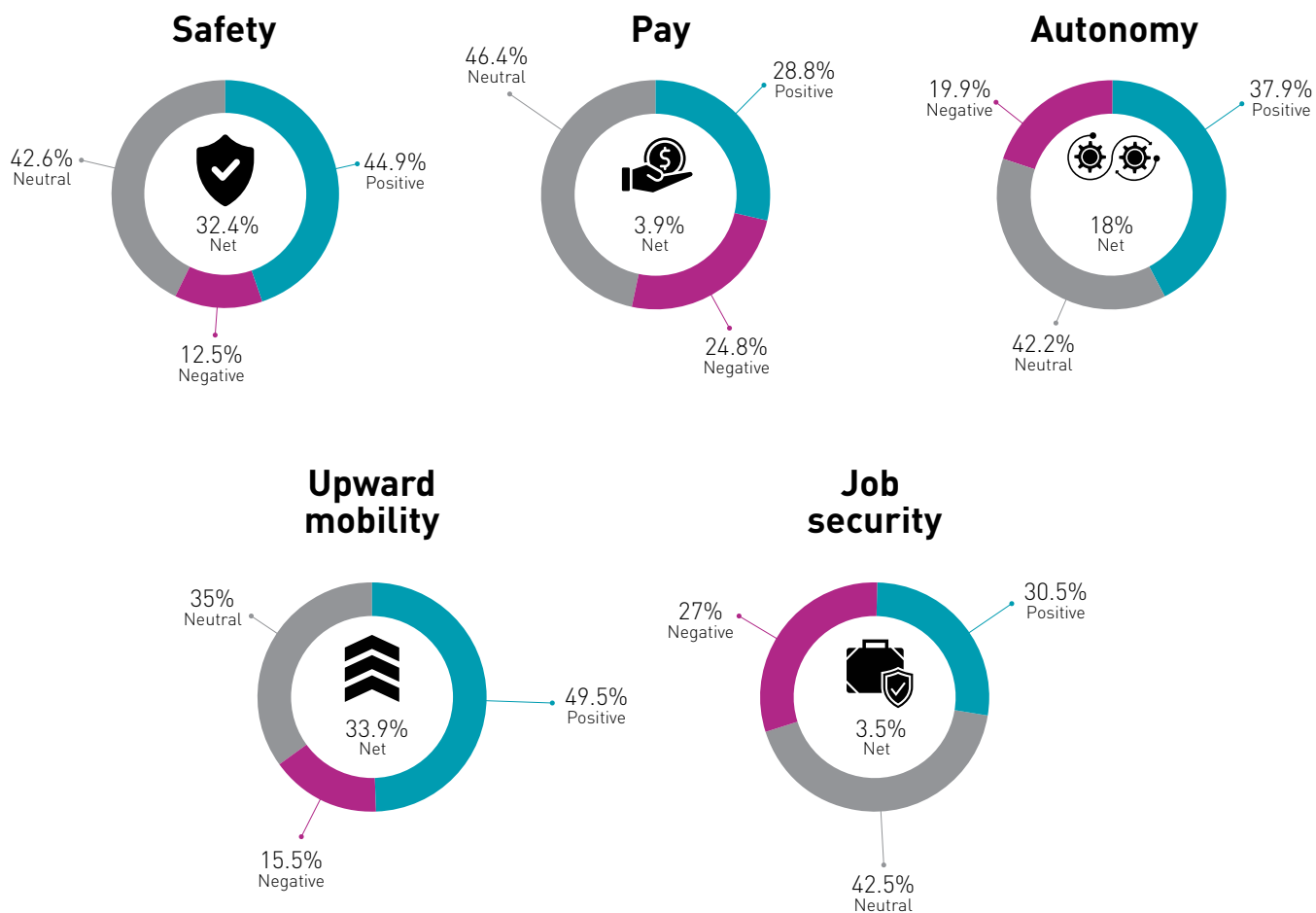
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Executive Summary

Common narratives about automation often pit new technologies against workers. The introduction of advanced machine tools, industrial robots, and AI have all been met with concern that technological progress will mean fewer jobs. However, workers themselves offer a more optimistic, nuanced perspective. In our 2024 survey of more than 9,000 workers across nine countries, more workers report potential benefits from new technologies like robots and AI for their safety and comfort at work, their pay, and their autonomy on the job than report potential costs.

Where workers stand on new technologies depends on the type of work that they do, the relationship they have with their employer, and what motivates them about their job. Workers with jobs that ask them to solve complex problems, workers that feel valued by their employers, and workers who are motivated to move up in their careers are all more likely to see new technologies as beneficial.

Figure 1
Workers' perceived impact of automation on dimensions of their jobs



Why the Worker Perspective Matters

For policymakers and the public, there is a shared interest in achieving positive-sum automation: technological progress that improves productivity for firms and job quality for workers. Any attempt to design or implement worker-friendly technologies should begin by understanding how workers and their employers think about automation.

For employers, there is a paradox when it comes to adopting new technologies to improve performance. When companies adopt robots and automation at scale, they are consistently more productive and competitive – and end up hiring *more workers*. Moreover, workers in careers

requiring more digital tasks typically earn higher wages. However, robot adoption – and the adoption of other advanced technologies – remains low.

Why have so few companies scaled up their use of advanced technologies despite their benefits? One explanation is that implementing automation requires workers to champion new technology tools, learning how they work and figuring out how to deploy them in their job environment. Growing the pool of technology champions requires understanding why some workers have more favorable attitudes toward new technologies than others.

The Data

To understand how workers think about automation, we surveyed more than 9,000 workers across 9 countries (Australia, France, Germany, Italy, Japan, Poland, Spain, the United Kingdom, and the United States). The survey included more than two hundred questions divided across four sections:

- i. **Work environment.** What is the worker's industry and role? What tasks do they typically perform at work (e.g. collaborating with others, routine tasks, solving complex problems), and how much do they enjoy those tasks? What is their relationship like with their employer? Do they feel like a valued employee? To what extent is their employer investing in their safety and comfort, autonomy, or upward mobility at work?
- ii. **Technology interaction on the job.** What technologies do workers interact with on the job, and how do they engage with those technologies? Are they designing technologies for others to use, or troubleshooting technologies designed for them?
- iii. **Attitudes towards work and technology.** What do workers think constitutes a good job? To what extent do pay, safety and comfort, autonomy, and upward mobility matter to them? How do workers react when a new technology is introduced? Are they an early adopter? How much time do they spend on screens?
- iv. **Impact of technology on work.** What impact do workers perceive automation and new technologies having across five aspects of their jobs: i) safety and comfort, ii) productivity, iii) control over what you do and when you do it, iv) pay, and v) job security. How do financial incentives and opportunities for workers to provide input shape how they perceive the impact of new technologies?

Key Findings

1. Cross-national variation. *Perceptions of automation are broadly positive across countries, although Americans are most pessimistic.* The pessimistic attitude toward new technology among Americans is surprising given historically optimistic attitudes toward innovation and technological change among U.S. companies. In countries with strong social safety nets such as

France, Germany, Italy, and Spain, the perceived impact of automation on wages and job security was most positive, whereas in the most liberal market economies – Australia, the United Kingdom, and the United States – the perceived impact of automation on job security and pay was neutral or negative.

Table 1

Net impact of automation on aspects of work by country

Country	Workers	Safety	Pay	Autonomy	Upward mobility	Job security
Australia	502	32.3%	3.6%	23.3%	37.3%	1.4%
France	506	28.7%	4.9%	16.0%	22.9%	9.1%
Germany	505	32.7%	9.5%	19.6%	34.9%	10.9%
Italy	511	45.6%	17.8%	40.3%	35.8%	14.5%
Japan	510	34.1%	6.9%	15.9%	25.1%	2.0%
Poland	500	48.4%	16.8%	25.4%	43.4%	48.6%
Spain	500	36.6%	13.2%	29.6%	37.0%	19.6%
United Kingdom	501	29.1%	3.2%	19.0%	34.3%	0.8%
United States	4833	30.4%	-0.6%	13.8%	35.0%	-4.6%

Net impact: percent workers reporting positive impact minus percent workers reporting negative impact

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2. **Job tasks.** Workers performing jobs that require complex problem solving or new ideas tend to be more positive about automation. Although economists have long identified workers in routine jobs as most vulnerable to automation, workers' level of routine tasks does not seem to be the strongest predictor of how they think about the impact of automation on their work. Instead, workers report doing a variety of tasks as part of their jobs with complex problem-solving tasks and new idea generation tasks as the best predictors of workers championing new technologies.
3. **Education and race play a role.** Although new technologies are often presented as "skill-biased," benefitting more educated workers, perceptions of automation follow the opposite pattern. Workers with less formal education are often more optimistic about the impact of automation on their job security. Also, African-American and Hispanic workers in the United States are far more optimistic about the impact of automation on their jobs than workers of other racial and ethnic backgrounds.
4. **Employers matter.** Workers who feel like their employer values them and is invested in their safety are more optimistic about the impact of automation at work. Workers' job satisfaction and level of trust are also highly predictive of their attitudes toward automation.
5. **Attitudes toward work.** Workers who are motivated to learn and grow in their careers are more likely to champion automation as a positive force at work. A minority of workers report that upward mobility is a key factor to making a good job, but a high share of workers report that employers do not invest sufficiently in learning and growth opportunities. Those workers for whom upward mobility is important are more optimistic about new technologies and automation than their peers.

Table 2

Net impact of automation on aspects of work by job type

Job type	Routine tasks	Problem solving	Workers	Safety	Pay	Autonomy	Upward mobility	Job security
Office	low	low	2066	31.4%	5.3%	20.8%	37.1%	5.4%
Physical	low	low	562	32.6%	0.9%	18.3%	32.6%	1.6%
Office	high	low	1692	29.7%	-6.4%	11.0%	27.8%	-5.4%
Physical	high	low	736	32.1%	-6.8%	6.7%	16.8%	-5.6%
Office	low	high	855	38.9%	13.6%	28.4%	47.5%	8.8%
Physical	low	high	168	41.1%	15.5%	24.4%	47.0%	11.9%
Office	high	high	678	43.4%	24.9%	33.3%	44.5%	24.6%
Physical	high	high	242	32.6%	26.9%	25.2%	32.6%	21.5%

Net impact: percent workers reporting positive impact minus percent workers reporting negative impact

Lessons for Employers, Policymakers and the Public



Job design

Create roles that allow workers to solve complex problems by design.



Career ladders

Ensure that workers in automated environments have access to career ladders.



Trust

Invest in ensuring employees feel valued and see employer investments in using technology to improve safety and comfort – not just productivity.



Financial incentives

Workers respond positively when they are incentivized to use technology to improve their productivity. An experiment embedded in the survey showed that when workers are presented with a bonus opportunity linked to their use of new technologies, they are more optimistic about the impact of automation on their job security and job overall. Targeted incentives linked to technology use and productivity gains can grow the pool of technology champions at work.

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