

**Interdisciplinary Term Paper**

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# **How Can Manufacturing Organizations Address the Conflicting Psychological, Legal, Sociological, and Economic Impacts of AI and Automation to Effectively Reduce Job Insecurity Among Employees?**

## **Introduction**

Imagine showing up to work and not knowing if your job will be around next year, or even next month. That is what many workers in the manufacturing industry are experiencing. Artificial intelligence (AI) and automation are changing the ways factories operate. It is not necessarily a bad thing as it offers exciting new opportunities, but it has resulted in a lot of anxiety for workers. Workers worry that they will be replaced by a machine, an algorithm, or be pushed into a role for which they have little or no education or training. Some lose sleep and have high stress, not sure if they will be able to put food on the table and provide for their families. The impact of AI and automation affects legal rights, mental health, and the entire structure of society. The main question addressed in this paper is: How can manufacturing organizations address the conflicting psychological, legal, sociological, and economic impacts of AI and automation to effectively reduce job insecurity among employees. The paper will explore how manufacturing organizations can help workers in this new environment, using research from psychology, law, sociology, and economics.

## **Background**

Recent research on AI and automation shows how important it is to approach workplace change from more than one angle. Psychologists often use survey and experimental data to see how workers feel about AI and automation. Economists turn to big datasets and statistical models to track patterns like job loss, shifting wages, or changes in employment. Legal scholars focus on

court cases and regulations. Sociologists, meanwhile, use interviews and case studies to understand workplace culture, inclusion, and fairness.

Companies mostly saw technology as a way to get ahead, and to make more with less. But things are not so simple. Employee satisfaction matters as much as production numbers. On factory floors and in plants, workers face new forms of stress: one from the fear of layoffs, and from the ongoing pressure to learn new skills and keep up with machines and software. Much of this stress comes from unpredictability. Roles that used to feel stable, like full-time jobs with good benefits, now feel uncertain. Studies reveal that the arrival of AI brings higher levels of job instability and stress, often leading to mental health problems. For instance, Ali et al. (2024) used surveys to show a strong link between exposure to AI at work, job insecurity, and negative mental health outcomes. Legal, social, and economic frameworks are also struggling to keep up. Many of the rules around fair pay or privacy were written long before these technologies existed (Bales & Stone, 2020). As AI changes how work is done, it also changes social relationships on the factory floor. Because these challenges cross so many boundaries, solutions must come from more than one field. That is why addressing job insecurity and well-being in manufacturing requires a combination of insights from psychology, law, sociology, and economics.

### **Insights from Each Discipline**

- **Psychology**

Research in psychology has shown a set association between AI-induced job insecurity and negative consequences for workers. Wadhwa et al. (2025) used cross-sectional surveys with validated scales to measure job insecurity, psychological well-being, and performance. They identified workplace organizational factors that impact mental health and promote resilience.

Exposure to automation mechanisms can result in negative job security perceptions, leading to heightened levels of stress, anxiety, and burnout. If workers feel insecure, their overall well-being is compromised, and their performance may decline. Nazareno and Schiff (2021) also used longitudinal survey data to show that while not always, automation leads to negative impacts on mental health for all workers, even those who remain in employment. Psychological well-being serves as a buffer; workers who have higher levels of psychological well-being tend to adapt well, while workers who feel challenged and engaged in poor mental health contexts tend to demonstrate a relationship with poor performance or disengaged behavior.

- **Law**

Legal scholars highlight that AI and surveillance have outpaced labor law. Bales and Stone (2020) used legal analysis to show how electronic monitoring and AI can undermine privacy, deter unionizing, and create new forms of discrimination. Hartley (2025) and Kelley (2023) both analyze case law and statutes to argue that current protections are inadequate for AI management and pay systems. AI now is being used to surveil and track employees, collect private information about them, glean their personal and job-related online behavior, predict their future performance, and they do so often without the workers knowledge. The laws that were supposed to protect employees from unfair treatment might not work as intended in an automated environment.

- **Sociology**

Sociologists look at the broader scope of the situation and show how AI and automation affect social relationships at work and in society. They point out how the trend toward technology-driven workplaces often deepens social divides, making it harder for certain groups

to advance. Challoumis (2025) uses case studies to argue that AI changes how workers are treated and which groups benefit. Vicsek (2021) applies scenario analysis to explain how visions of AI's future influence present decisions. These researchers emphasize that ethical integration matters. Simply adopting new tools or algorithms is not enough, and organizations need to think about fairness, and inclusion. Sociologists warn that visions of AI's future can become self-fulfilling as they dictate present policy and behavior. As technology changes work, sociologists ask to know who benefits and who is excluded.

- Economics

Economists examine job trajectories by analyzing data on employment, wages, and skills. Gathmann et al. (2024) show that while AI may displace certain tasks, it can create new job types, often in a different sector or requiring new skills. Their study measured these effects using administrative data and task reclassification, and it shows that AI reduces some routine tasks, increases demand for monitoring tasks, causes low-skilled workers to lose wages, and gives high-skilled workers wage gains. Most workers do adapt, through finding new jobs, learning new skills, or transitioning to less-exposed industries, but adaptation is not always easy for all workers. Through a policy review, Tyson and Zysman (2022) argue that AI may increase wage gaps and reduce jobs of the middle-income workers. Such trends contribute to inequality in the labor market. Still, economists believe that retraining and mobility can help workers adapt, though not all workers will benefit equally.

### **Disciplinary Conflicts**

When talking about job insecurity caused by AI and automation in the manufacturing industry, it becomes obvious that psychology, economics, sociology, and law are rarely on the

same page. If any, their disagreements are where the most important questions live. Some of these disagreements run deep, almost as if the fields are talking about different problems, even when using the same words. To move forward, manufacturing organizations need to understand both what each field suggests, and why the insights clash and where the real sticking points are.

Starting with economics, economists tend to see technological change as a cycle. Their models show that when jobs disappear in one area, others open elsewhere, sometimes with better pay or working conditions. Gathmann et al. (2024) state that, although AI-driven automation erases some old roles, workers will eventually adapt, find new jobs, or re-skill. They see job displacement as a kind of bump in the road, with retraining and labor market flexibility as the solution. From this view, the anxiety people feel is a temporary state, a hurdle on the way to a more productive, even more interesting, future.

But sociologists push back, often hard. Chaloumis (2025) and Vicsek (2021) point out that these economic models treat all workers as if they have equal access to retraining or new jobs. In reality, some groups, like older workers, people with less formal education, or minority groups, struggle to find their footing after displacement. Sociological research tracks real people and real stories, not only data points. It shows that some communities get left behind entirely. For these groups, the idea that the market will sort it out rings hollow. They may not have the resources, networks, or time to re-skill. Even worse, when organizations talk about opportunity, it often feels like an empty promise if the systems in place continue to reinforce old inequalities. The very programs that economists believe will help can, in practice, exclude the people who need them most.

This brings us to psychology, where the main concern is how all these changes hit workers on a personal level, sometimes immediately and with real consequences. Psychologists like Ali et al. (2024) and Wadhwa et al. (2025) have documented how the fear of losing a job, not only the loss itself, can spike anxiety and create mental health issues long before any retraining can even begin. From this perspective, telling workers that new jobs will appear, or that retraining is on the way does little to address the sleepless nights, the depression, and the daily uncertainty they experience when they see machines or algorithms replacing their colleagues. Economic optimism and sociological analysis can feel detached from the raw, human side of workplace change. Workers might know, in theory, that the job market will recover, but this does not calm the immediate panic or solve the real pain of not knowing if they will still be needed next month.

The legal angle introduces another layer of tension. Law is slow. Bales and Stone (2020) show that new workplace technology is almost always ahead of the legal protections meant to keep workers safe, fairly treated, or even simply informed. Surveillance and algorithmic management can creep into factories and warehouses long before lawmakers update privacy rules or discrimination policies. As a result, even when companies follow the current law, employees can find themselves vulnerable, especially as AI systems begin making decisions about hiring, promotion, or discipline in ways that are hard to challenge or even understand. The law often reacts only after harm is done, and even then, the solutions are rarely fast enough to matter for today's workforce.

What is the most interesting aspect of these tensions is not that they exist, but that each field is missing something essential about what being a worker means in a changing

manufacturing work environment. Economists want to smooth things out and see progress, sociologists study who gets left behind and why, psychologists study uncertainty and fear in the day-to-day experience, and legal scholars worry about the holes in the safety net. Each insight, taken alone, would lead to a solution that overlooks something important: retraining programs that forget about mental health, counseling services that do not address systemic exclusion, anti-surveillance rules that do not consider economic realities, and so on.

### **Finding Common Ground**

Despite their differences, each discipline brings its own set of insights, and sometimes their solutions overlap. Wadhwa et al. (2025) show that open communication and strong support networks help workers manage stress. This psychological insight pairs well with legal advice from Bales and Stone (2020), who argue for stronger transparency policies about data, privacy, and surveillance. Manufacturing companies should follow the law as well as adopt clear, voluntary policies about how AI affects hiring and evaluation. Sociologists like Vicsek (2021) and Challoumis (2025) push for inclusive workplaces where all voices matter, especially those of the most vulnerable. Their work shows how power imbalances grow when employees are not consulted about changes. These insights encourage organizations to involve workers in AI decisions, something that was exclusive to top executives.

Economists such as Gathmann et al. (2024) recommend long-term investment in training, supporting mobility, and creating safety nets for those who struggle to adapt. These ideas work best when aligned with psychological support and legal protection. By combining training with mental health services and ethical policies, companies can respond to the full impact of AI.

Working across disciplines helps generate more complete solutions. For example, psychologists stress the importance of worker well-being (Wadhwa et al., 2025), but legal experts like Hartley (2025) show how mental health protections can be built into formal policy, not seen as a suggestion that can be left out. Sociologists identify which workers face the biggest risks and suggest strategies to make sure policies are actually fair in practice, as they are in theory (Vicsek, 2021). Economists, with its focus on incentives, help design training programs and benefits that encourage workers to learn new skills (Gathmann et al., 2024), while legal policies ensure these opportunities are equally accessible (Bales & Stone, 2020).

The conflicts across disciplines can serve as starting points for real common ground rather than being obstacles. Common ground does not mean taking the easy way out by saying every field is right. It means facing the friction head-on. For example, when economists argue for retraining, sociologists and psychologists can help reshape those programs so that they are accessible, and also emotionally supportive and open to everyone. When legal scholars highlight gaps in regulation, economists and sociologists can use their data and findings to push for changes that protect vulnerable groups faster and more effectively. Even the issue of stress and anxiety that psychologists highlight can become a signal for organizations to look closer at who is struggling and why, instead of assuming that the market or the law will take care of things.

In practice, finding common is not easy, it is an ongoing process. It is about organizations recognizing the value of tensions, using disagreement as a way to design better, more complete solutions. Instead of picking a single path, the best answers come from combining these insights: retraining programs that offer real support, legal policies that adapt quickly, open conversations about mental health, and a genuine effort to make sure new opportunities are shared, not

hoarded. Only by acknowledging and working through these conflicts can manufacturing organizations build workplaces where technology and people move forward together.

When companies act on all these fronts, emotional, legal, structural, and economic, they create workplaces that are stable as well as efficient. That kind of integration leads to greater job satisfaction, stronger loyalty, and fewer discrimination claims. In the end, the real strength comes not from choosing between disciplinary insights, but from building something new from the places where those insights collide.

### **Recommendations for manufacturing organizations**

Based on research from all four disciplines, several key recommendations stand out. Make ongoing training a central part of company culture, not an afterthought; provide access to mental health services and make sure workers know how to access them; be clear and transparent about how AI and automation are used, especially when it affects pay, job roles, and privacy; update policies to protect workers' rights, which include the right to organize or speak up about problems; and include employees in decision-making about technology, not only managers or outside experts.

It is also important to keep an eye on equity. Regularly, review who is benefiting from new opportunities and who is not. Target support to those who need it most, such as workers with less formal education or those in roles most at risk. Work with organizations that are community-oriented or training-providers to create pathways for any displaced worker due to technology. Take the long view, build systems that work for today's challenges as well as can adapt to technology.

### **Conclusion and reflection**

Looking at everything covered, it is clear that job insecurity caused by AI and automation in manufacturing goes deeper than most headlines suggest. A real solution requires much more than quick fixes or more training. Manufacturing organizations need to treat workers as partners in change rather as people who need to catch up. That means making learning ongoing, but it also means involving workers in decision-making about how technology is used and who it impacts. Policies around data, privacy, and surveillance cannot stay static. They must keep up with how technology evolves and must be open to real feedback from those affected.

What stands out most after reviewing research across psychology, law, sociology, and economics is that each field alone is not enough. If organizations only focus on economic outcomes, they risk missing out on the well-being of their workforce. If they only see mental health as a secondary concern, the stress and anxiety that build up can quietly erode morale and productivity. Even legal compliance is not a guarantee that workplaces will be fair or inclusive. The best answers seem to come when all these perspectives work together, pushing companies to rethink what it means to create a fair workplace.

No strategy works if it is used alone. The most effective organizations seem to be those that build systems flexible enough to change as technology changes. They keep asking who benefits and who gets left out, and they act on that knowledge repeatedly. It is not about avoiding change but about shaping it so that workers are part of the future, not casualties of the progress. This approach does not erase all anxiety or risk, but it does give people a sense that their work, and their voices, matter. In the end, that is how manufacturing organizations and workers can face the future and its challenges with confidence, one practical step at a time.

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