



// PUTTING PEOPLE FIRST: POLICIES AND PROGRAMS FOR HEALTH AND EQUITY WITH FREIGHT AUTOMATION // //

Automation in the freight industry has already affected the economic security and health of frontline workers in warehousing, trucking, rail, and at ports across the country. Such impacts will only accelerate as automation grows. Automation will also significantly affect the lives and livelihoods of frontline communities, who are primarily communities of color, because the expanding technology will create ripple effects with consequences for the health, safety, and economic security of communities across the country. Policymaker choices will determine whether current and future impacts are positive or negative.

POLICY RECOMMENDATIONS

Engage frontline workers and fence-line communities in automation decisions.

- Decision makers at all levels of government should ensure that automation-related policy and program decisions reflect the input and perspectives of frontline workers and fence-line communities
- Leaders in businesses considering automation should also engage workers in thinking through automation-related decisions and impacts.

Support frontline workers.

- Plan for automation that advances frontline workers, not just technology.
- Strengthen workers' rights to organize for fair wages, benefits, and a say in automation-related decisions.
- Enforce and improve safety standards for workplace conditions to prevent the negative affects of automation on worker safety and health.
- Reinvigorate and expand programs to meet the needs of frontline workers displaced by automation.
- Correct worker-status misclassification of truck drivers and other freight workers to promote livable wages and benefits.
- Implement broader policies and programs that address automation's impact across the entire U.S. economy.

Support frontline workers and fence-line communities.

- Require automation impact reports to better understand and mitigate automation's effects on health and equity.
- Prohibit the use of public funding for any freight automation that may have negative impacts on worker and community health.
- Accelerate efforts to shift freight transportation to a zero-emission system through incentives, regulations, and permitting decisions.
- Implement federal policies to prioritize the safety of freight drivers and other road users.

Support additional research on employment, air quality, and traffic safety impacts. ■



We have the opportunity to deploy technology to create healthier, more equitable communities if stakeholders make choices centered on health and equity.

When warehouse worker Maria observes her community, she sees industrial and commercial facilities, a railyard, and a freeway. She notes her two daughters have asthma, as do many of her coworkers. “La realidad es que hay una necesidad de trabajo y por el otro lado es lo que te está perjudicando, la salud tuya y de tu familia.” [*The reality is that there is a need to work and on the other hand the work is hurting you, your health, and your family.*]

It's also the reality that it doesn't have to be this way. Policymakers and industry stakeholders made policy and program decisions that have shaped a large portion of the pollution, accidents, and other freight impacts Maria sees day in and day out. Where choices have created problems such as health inequities, different choices can create healthier, more equitable solutions. Implemented thoughtfully, some types of freight automation have the potential to support the health and safety of low-income workers and people of color who compose significant portions of the freight workforce and fence-line communities. For example, an automatic braking system that reacts far faster than any driver to prevent collisions makes our highways safer. If coupled with zero-emissions technology, automated freight equipment can reduce air pollution and noise that fills worksites and adjacent communities. Where freight automation supports these types of changes, it can serve as a tool to advance public health, workers' dignity and rights, racial justice, and a “just transition” to a carbon-free economy. These benefits serve frontline workers and fence-line communities and the broader public.

Some of these choices will happen at the organizational level; when automation eliminates jobs, management can choose to retain and retrain staff for new roles. However, we cannot and should not leave the future of automation's impacts to individual companies. Public policies and programs enacted by decision makers at multiple levels of governance are critical to ensuring the future of freight automation is one that promotes health and equity rather than sustaining and worsening problems inherent with the freight system.

Policies and programs should help mitigate current harms created by a system that relies heavily on low-wage workers and creates pollution, noise, and safety problems for nearby communities; new harms need to be prevented as well. In addition, policies and programs needed for freight automation should not undercut solutions to current problems that can be enacted now: an overworked warehouse employee shouldn't have to wait for tomorrow's automation to spare her back when helpful changes like rotating task stations can be put into practice today.

To that end, we propose a series of recommendations to address identified impacts and mitigate harms. Paramount across all of these recommendations is particular attention to the needs of the people and communities of color who are most affected by freight automation, either as frontline workers or as residents in fence-line communities.

Our recommendations are divided into three interconnected sections:

- The critical role of community engagement in policy and program decision-making
- Policy and programs focused primarily on frontline workers
- Policy and programs that will benefit *both* frontline workers as well as fence-line communities

These recommendations are geared toward a broad category of policymakers responsible for freight automation, including elected and administrative officials at local, state, and federal levels of government.



Engaging Frontline Workers and Fence-Line Communities in Automation Decisions

Automation-related policy and program decisions should reflect the input and perspectives of frontline workers and fence-line communities who bear the brunt of freight's current impacts, and who will continue to be most affected by decisions that shape future automation. Such input will promote government and corporate accountability and help ensure healthy and equitable outcomes.

Decision makers at all levels of government should ensure that automation-related policy and program decisions reflect the input and perspectives of frontline workers and fence-line communities.

Although public decision-making processes typically include some method by which stakeholders can share their opinions, they often do not account for the fact that some community members face significant barriers to engaging fully, including language differences, access to relevant information, limited ability to participate in public meetings held during traditional work hours, and more. Policymakers need to surmount these barriers to ensure that workers and community members are meaningfully involved in decision-making processes.

Across the country, policymakers and community leaders are demonstrating what this engagement can look like. At the state level, in California, policies require government agencies to pursue various environmental justice principals in their decision-making, including “[a]t a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions.”¹²⁷ In addition, in 2017, the state adopted legislation (Assembly Bill 617) to establish the Community Air Protection Program. Designed to reduce pollution in the most heavily affected communities, the Program mandates stronger connections between regional air-quality agencies and community organizations.¹²⁸ Although advocates point out the intended community engagement has been very uneven across the state, there are bright spots. For instance, in heavily industrialized West Oakland, the Bay Area Air Quality Management District and the West Oakland Environmental Indicators Project collaborate on all aspects of the program, and leadership and decision-making are shared.¹²⁹ These approaches can and should serve as models for the type of worker and community engagement needed in automation-related decisions.

Leaders in businesses considering automation should also engage workers in thinking through automation-related decisions and impacts.

Some of this engagement, of course, is a requirement (e.g., the negotiations that take place between labor unions and management). In other circumstances, however, business leaders have a choice in the matter and should choose to engage workers early and often.

James, who has about 16 years of experience working in rail, including as a conductor with Union Pacific, thinks that questions related to automation should receive much more input from workers who are closer to the issues in play:

I don't think the people further up have a clue because they don't see it. [There are] people way above making decisions that don't have a clue what is going on at the bottom. It has to be someone closer to the workers for them to know what is actually happening. For instance, they hire people straight out of college; like I said nothing against them, I support everyone going to school to get their education, but if you haven't worked out there before or actually been out there before, then you don't know, it doesn't work that way. They think they can figure out a faster way to do things. Everything is about speed out there; they want to move stuff as fast as possible. But their way is not the best way. We are out there and us workers know how to do things most efficiently.



Policy and Programs to Support Frontline Workers

“If you automate terminals and you take away the jobs and the human factor, that’s less revenue, less taxes, less payroll, less going back into the community.”

– Vivian Malauulu, ILWU Local 13 Registered Longshore Worker and Benefits Officer

Millions of people could lose their jobs if freight automation displaces human workers. Wages and benefits in remaining jobs may decline. Worksite injuries due to freight automation are already happening, and may increase as automation spreads. All these impacts will be felt disproportionately by the workers of color who are predominately represented in the freight industry. To counter the host of possible risks posed by escalating use of freight automation, we recommend the following policies to uplift the economic security, health, and overall well-being of frontline workers.

Plan for automation that advances frontline workers, not just technology.

At the national level, policymakers should create a National Council in Innovation and Freight Employment to bring together diverse stakeholders across the freight sector, including workers, employers, engineers, frontline community members, policymakers, and technology experts. The Council should develop and implement an action plan for “career pathways and training/job-matching programs for incumbent, dislocated and future workers.”¹⁶ The plan should also have a strong racial equity component to ensure, for example, that high-paying automation-related jobs benefit workers of color and current low-income workers.

States can also take aggressive action to plan for automation in ways that support frontline workers. For example, in California, Governor Gavin Newsom created a Future of Work Commission tasked with identifying and addressing how new technology will affect employment and economic forces, as well as the physical and social needs of workers who are losing human connection and interaction because of increasing automation in their industries.¹³⁰ Transportation planning also needs to highlight automation: the *California Freight Mobility Plan 2020*, for example, briefly notes some of the positive and negative impacts of increased automation.¹³¹

Both federal and state efforts should also have a strong stakeholder education component that alerts workers, communities, and industry to trends in automation and their potential effects on workers and communities.

Strengthen workers' rights to organize for fair wages, benefits, and a say in automation-related decisions.

Some of the pitfalls of automation can be prevented by ensuring a strong voice for workers in automation decisions. The most effective way to ensure a strong voice is to strengthen workers' abilities to organize and shape business operations. Specific policies to focus on include restricting so-called right to work laws, increasing penalties for employers who violate current labor laws, and expanding National Labor Relations Act protections to include currently excluded workers, such as independent contractors. Other policies worth exploring and implementing, such as those proposed in *Clean Slate for Worker Power: Building a Just Economy and Democracy*,¹³ include federal and state actions to:

- Create a system of collective bargaining across industrial sectors (rather than by organizations)
- Increase worker-selected representation on corporate boards
- Require that corporations attend to the interests of workers in addition to shareholders
- Expand the types of issues covered by collective bargaining, such as environmental and community impacts

These policies will help build the “collective economic and political power necessary to build an equitable economy,”¹³² where business decisions reflect and respond to a wider range of critical stakeholders.

Enforce and improve safety standards for workplace conditions to prevent the negative effects of automation on worker safety and health.

The increased pace expected of workers laboring alongside robots and automated equipment has resulted in and will likely result in more accidents, deaths, and the onset of other chronic medical conditions. There is a clear role for federal and state policymakers to protect frontline workers. Examples of actions for the federal and state governments include:

- Creating and improving workplace safety standards
- Enforcing those standards in a timely and effective fashion
- Protecting workers who report unsafe conditions
- Funding research and interventions to eliminate occupational-related health disparities

Another recommendation is to enact state and federal policies that hold companies responsible when entities with whom they subcontract or outsource for workforce support violate the health and safety of their workers.¹³³ Such policies would be particularly helpful across the freight sector, which often relies on such third-party arrangements. Finally, policymakers should address the potential for technological malfunctions with automation applications.

Reinvigorate and expand programs to meet the needs of frontline workers displaced by automation.

Workers need retraining so they are prepared for jobs that may emerge due to automation. The National Council in Innovation and Freight Employment, noted above, should also focus on “the creation of safety-net programs to support transitions within and out of the industry, including work-sharing initiatives [ie, short-term, limited reductions in worker hours combined with unemployment benefits to prevent permanent layoffs], supplemental and flexible unemployment insurance, and retirement packages.”¹⁶ Given the inequitable consequences workers of color are likely to face due to displacement from automation, these efforts should have a strong racial equity component.

Correct worker-status misclassification of truck drivers and other freight workers to promote livable wages and benefits.

Workers in the freight industry deserve employee rights and just wages. Workers erroneously categorized as independent contractors are denied basic labor protections because various standards do not apply to them. States and the federal government should address misclassification through a combination of better enforcement of existing laws as well as developing new ones.¹³⁴ These approaches are particularly critical to support workers in the trucking industry, where many drivers are currently misclassified as independent contractors—a trend that automation risks exasperating. Properly classifying drivers as employees, rather than independent contractors with limited labor protections, can serve as a backstop against this trend. It can also help reduce pollution and other environmental harms. As one researcher noted, drivers classified as employees create “economic incentives for trucking firms to use their labor efficiently. With less time wasted idling engines, and paired with clean electric trucks, this approach would reduce congestion and pollution in surrounding communities.”¹⁶



Implement broader policies and programs that address automation's impact across the entire US economy.

Job losses and other employment changes within freight transportation are likely to occur against the backdrop of automation-driven changes across a wide range of sectors in the US economy. Although the aforementioned interventions need to be targeted for the freight sector, they will be more effective when coupled with state and federal policies and programs designed for these large-scale, cross-sector changes.

Examples of such broader policies, as identified by the Aspen Institute's Future of Work Initiative,¹³⁵ include federal and state actions to:

- Promote employer engagement and investment through a worker-training tax credit, expansion of apprenticeships, and new sector and regional workforce partnerships
- Encourage employers to adopt a multistakeholder approach to automation decisions by promoting new forms of worker voice and ownership (e.g., profit-sharing compensation for all workers) and developing proactive strategies to identify and address impacts in advance
- Increase wage subsidies (e.g., the Earned Income Tax Credit) and the minimum wage, while creating more economic opportunities by promoting entrepreneurship
- Support local economic development and improve regional competitiveness through sector-based development strategies and investment in digital infrastructure
- Provide key stakeholders with better information on the effects of automation by collecting data on technological advancements, adoption rates, and workforce impacts.

Policy and Programs to Support Both Frontline Workers and Fence-Line Communities

"Automation could be devastating for the local community."

– Roberto Clack, Associate Director, Warehouse Workers for Justice

Increasing automation will create risks for fence-line communities as well as frontline workers. Some of that risk is economic, because increasing automation that reduces the current workforce will have ripple effects across local economies that are tightly intertwined with the freight system. But there are other dangers, including the continued pollution created by the freight system, as well as traffic safety and noise and vibration risks. We recommend the following policies to protect frontline workers as well as the communities in which they work.

Require Automation Impact Reports to better understand and mitigate automation's effects on health and equity.

The National Environmental Policy Act requires federal agencies to examine the environmental effects of proposed actions before those agencies make decisions.¹³⁶ California uses the California Environmental Quality Act to achieve similar goals, often through Environmental Impact Reports, for a wide range of projects.¹³⁷ Automation projects should have a similar level of scrutiny when subject to public review. Automation Impact Reports (AIRs) would help reveal a wide range of automation-related effects as well as potential mitigations. Although similar to Environmental Impact Reports, AIRs should be broadened beyond air quality, noise, vibrations, and their associated respiratory, cardiovascular, and cancer-related risks. Automation Impact Reports should also address traffic safety and employment and workplace impacts, and include a focus on effects on racial equity across all topic areas. To be effective, AIRs should be conducted by independent parties and include effective worker and community engagement. Examples of when AIRs could be used include a port terminal project or a warehouse development.

Prohibit the use of public funding for any freight automation that may have negative effects on worker and community health.

Public dollars should yield a public benefit, and public funding for freight infrastructure improvements (including direct subsidies and tax incentives) should not accelerate job losses, contribute to poor air quality, or incentivize development that leads to any of the negative effects detailed in this report. As one model example, the federal Climate Smart Ports Act (authored by Congresswoman Barragán) proposes significant investment of public dollars into zero-emission port projects—with a particular focus on air quality improvements—but only with guarantees that the funding won't be used to displace workers.¹³⁸

Accelerate efforts to shift freight transportation to a zero-emission system through incentives, regulations, and permitting decisions.

Automation alone will not lead to any significant improvements in air quality. Electrification, with or without automation, is key to improving air quality. Such changes will also have the added benefit of modest noise reductions. Shifting freight transportation to a zero-emission system requires scaling up government incentive programs to encourage the freight industry to implement zero-emissions technologies. The shift also requires adopting and implementing aggressive regulatory measures at the federal and state levels to mandate and monitor the adoption of clean technologies. Also, where public entities provide approvals for the development of private projects, decision makers should insist on the use of zero-emission equipment.

Implement federal policies to prioritize the safety of freight drivers and other road users.

There is a clear and compelling role the federal government should play to ensure that vehicle-related automation promotes safety and health. Voluntary consensus standards and guidance are useful, but mandates are also critical. Proven safety features, such as automated emergency braking, should be required for new vehicles. Other emerging technologies—from driver supports to high-level automation systems requiring no driver involvement—should all be rigorously and transparently tested for safety in a variety of driving conditions before commercial use. In late 2020, a group of more than 50 public health, medical, consumer, law enforcement, and safety groups and insurance companies released the Autonomous Vehicle Tenets, outlining the federal government’s robust role in ensuring autonomous vehicle safety.¹³⁹ Although the Tenets are specific to passenger vehicles, the principals provide a roadmap for improving the safety of freight vehicles through oversight, testing, performance standards, and more.

Additional Research Needed

Although many of the health and equity impacts of freight automation are clear, others are not. Specific questions, by category, identified in the development of this report include:

Employment:

- What percentage of displaced freight workers will be able to transition into new positions created by automation?
- Which current positions might translate easily to a more automated industry? Which will be more difficult?
- Is there any emerging evidence indicating 5G’s effects on worker health?

Air quality:

- What amount of pollution can be reduced with the widespread use of platooning?
- To what extent will the increased use of platooning result in more trucking operational changes, which, in turn, could counteract any pollution reductions?
- Will the increased use of platooning result in faster-traveling trucks, which risks fuel and pollution reductions?

Traffic safety:

- How will platooning trucks and passenger vehicles interact? Does the chance of collisions increase?
- What are the health and safety issues where humans are still required to monitor and engage with higher levels of truck automation?

- What are the safety implications of trucks self-driving in ever-more complicated roadway conditions?
- How would the reduction in train crew size affect traffic safety in a variety of real-world conditions?

We recommend that additional research be undertaken to answer these questions so that policymakers, industry stakeholders, frontline workers, and fence-line communities can better understand a full range of freight automation's consequences.

Policies and programs to promote healthy automation should build on other freight efforts, unrelated to automation, to promote worker and community health.

It is critical that policies and programs aimed at promoting health and equity with automation build on and augment policies and programs that mitigate the current negative effects of freight transportation on frontline workers and fence-line communities, including those independent of automation.

For example, policymakers' inequitable land use and transportation planning decisions have put freight facilities and thoroughfares near housing, and vice versa, often near and in communities of color. In response, policymakers can better support public health through buffer zones, sound barriers, quiet zones, and other interventions, and can take steps to help people currently in harm's way (e.g., by retrofitting windows and heating, ventilation, and air-conditioning systems for pollution mitigation).

Advocates, stakeholders, and policymakers are increasingly recognizing the need to address pollution from a *cumulative* perspective. Most pollution regulations currently focus solely on the tailpipe or a smokestack, while failing to consider the levels of pollution in which such sources will operate. That's slowly starting to change: for example, the Newark Municipal Council adopted an Environmental Justice and Cumulative Impacts Ordinance to address long-standing health disparities;¹⁴⁰ the Minnesota Pollution Control Agency considers cumulative levels of various air pollution sources before issuing new permits in specific areas of South Minneapolis, because of the history of environmental injustices in the area¹⁴¹; and the Environmental Justice for All Act, introduced in 2020 by congressmen Raul Grijalva and Donald McEachin, includes policies on cumulative impacts.¹⁴² ■