



CALIFORNIA FUTURE OF WORK COMMISSION

Technological Change and its Impact on Work

Synthesis of Convening 2 | October 10, 2019 | Stanford, California

About the California Commission on the Future of Work

The overarching goal of the Future of Work Commission is to develop a new social compact for California workers, based on an expansive vision for economic equity that takes work and jobs as the starting point. The Commission’s primary mission is to study, understand, analyze, and make recommendations regarding:

- ▶ The kinds of jobs Californians could have in the decades to come.
- ▶ The impact of technology on work, workers, employers, jobs and society.
- ▶ Methods of promoting better job quality, wages and working conditions through technology.

- ▶ Modernizing worker safety net protections.
- ▶ The best way to preserve good jobs, ready the workforce for jobs of the future through lifelong learning, and ensure prosperity for all.

The key questions guiding the commission are:

- ▶ What is the current state of jobs and work in California?
- ▶ What factors have created these conditions?
- ▶ What is our vision for work and jobs in the future?
- ▶ How can we chart a path to reach that vision?

Commissioners Attendance at Convening 2 | October 10, 2019

Visit the Commission [website](#) for more information on its [members](#), [agendas](#) and [onboarding materials](#).

Mary Kay Henry, Co-Chair
 James Manyika, Co-Chair
 Roy Bahat
 Doug Bloch
 Dr. Soraya Coley
 Lloyd Dean*

Hon. Jennifer Granholm*
 Lance Hastings
 Carla Javits
 Saru Jayaraman
 Tom Kalil
 Asm. Ash Kalra

Stephane Kasriel
 Dr. Fei-Fei Li
 John Marshall
 Art Pulaski
 Maria Salinas*
 Peter Schwartz

Sen. Henry Stern
 Mariana Vitorro
 Hon. Betty Yee

*Absent

About Institute for the Future (IFTF)

Institute for the Future (IFTF) is working with the California state team to coordinate the Commission. IFTF draws on its 50 years of research and experience in convening discussions of urgent future issues to support the efforts of the Commission to build a strong vision for the future of work in the state. IFTF has been a leading voice in discussions about the future of work for the past decade, seeking positive visions for a workforce undergoing transformational change. As a facilitator of the Commission’s work, IFTF will help guide the convenings, establishing the comprehensive understanding necessary to build a world-class workforce of the future. IFTF will draw on the work of its Equitable Futures Lab to frame these discussions of future jobs, skills, and labor policy in terms of creating an equitable economy where everyone has access to the basic assets and opportunities they need to thrive in the 21st century. The Equitable Futures Lab at IFTF combines expertise in social science, quantitative research, policy analysis, and public engagement with proven foresight methodologies to develop and prototype innovative solutions for an equitable future.

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Introduction

Fears of a robot-driven jobs apocalypse are overblown. While both general-purpose and sector-specific technologies will change the nature of work, jobs, and organizations, the factors determining how that change will affect workers are the same as those that shaped worker lives in previous industrial revolutions: government regulation and enforcement of standards, organized worker power, and cooperation between the state, industry, and labor.

This convening of the California Future of Work Commission focused first on the technological changes that are, and will be, shifting the nature of work and jobs. The commissioners debated the theoretical and practical effects of an aging workforce shrinking the supply of labor; unpacked the most consequential work-adjacent factors on workers' quality of life and workforce participation; and looked at the likely distribution of technology-driven disruption across demographics and geography in our state.

Expert panelists and commissioners illuminated the necessity of a worker-inclusive, human-centered approach to workplace technology development—and the obstacles to the realization of that vision. Panelists described the contemporary and projected impacts of technology on manufacturing, trucking, and white-collar work. Calling attention to workers who are not protected by the social safety net reinforced the urgency of achieving a new social compact for work in the state of California. The rapid pace of change has dissolved protections for Californian workers that have been in place since the New Deal. This conversation was juxtaposed with a portrait of a social safety net and labor market system strikingly different from ours—that of Denmark.

Throughout, participants challenged assumptions regarding technological inevitability, a future of job shortages, and the implicit assumption that workers' rights and innovation, are contradictory or mutually exclusive. By integrating worker voices into technology development, funding research and partnerships focused on inclusive innovation, and reimagining the social safety net to promote both security and flexibility for workers, California can guide the path of technological change toward a future of justice, equity, and inclusion. Some recurring themes through the first two convenings have been an emphasis on improving job quality and explicitly confronting racial disparities—themes that the Commission will return to in forthcoming convenings

Note: the sections in this synthesis attributed to panelists, commissioners, and public commenters have been lightly paraphrased for concision and clarity. This document is intended purely to summarize the public convening of October 10, 2019, and does not represent the consensus view of the commission, nor are any recommendations listed to be considered official recommendations of the commission.



DEMOGRAPHIC SHIFTS THEORY & PRACTICE IN LABOR MARKETS

Hal Varian, panelist: We need to contextualize projections of the effects of technology disruption in labor with other factors, especially demographics. As the boomers age out of the workforce in the 2020s, we're going to see a radical reduction in the supply of labor, a trend that will continue for 15 to 25 years. Economists believe that this tight labor market should result in wage growth.

Mariana Vitturo, commissioner: What about the relationship of worker shortages to wages right now? There's already not enough workers in the homecare industry, and this is the fastest-growing job sector. Raising wages is not discussed as a solution to this shortage.

John Marshall, commissioner: This comes down to a question of power. The labor supply and demand curves should be contextualized with the shifts in labor's share of power. How can we change the mindset of our corporate leaders and create institutions that share power?

Saru Jayaraman, commissioner: We, in hospitality and food, have the tightest labor market we've ever seen. Back-of-house (BOH) work and front-of-house (FOH) work are severely segregated. In FOH, tips subsidize low wages. In the BOH, it doesn't help. Workers of color in the back of house are suffering.

Doug Bloch, commissioner: I want to challenge an underlying assumption about the correlation between wages and supply/demand in the labor market. The idea that a lower supply of labor will raise wages rests on an assumption that employers make rational economic decisions. We must dispense with the notion that capitalism functions in a rational way that is inclusive of workers. We're here because the system doesn't work.

WORK-ADJACENT FACTORS OVERCOMING FRICTION FOR WORKERS

What are the biggest frictions for workers? How can we resolve these frictions through technology and policy solutions?

Susan Athey, panelist: We need a worker-focused transportation policy to ease the suffering of two-hour commutes and expand the amount of relevant housing stock for people working in major metropolitan areas. Our existing social programs can do a better job meeting people where they are through the technology platforms they already use. If you've grown up in a disadvantaged community, you may not know how to write business emails, or other soft skills.

Jed Kolko, panelist: The biggest issue for the future of work in California is housing. High housing costs create long commutes, price people out of areas with jobs, and price jobs out of California. This is the area where California is the most extreme outlier relative to the rest of the country.

Stephane Kasriel, commissioner: We need more care-workers and they need to be paid better but the people who are paying them now don't have the means to pay them more. There's a role here for the state.



DISTRIBUTION OF TECHNOLOGICAL DISRUPTION BUILDING RESILIENCE

Jed Kolko, panelist: The intensity and nature of job disruption due to technological change is uncertain. More clear is the projected distribution of this disruption. Within California, differences in vulnerability between geographic areas is quite large, with the Central Valley most vulnerable to disruption. On an individual basis, the strongest predictor of exposure to disruption is educational attainment; the more educated an individual, the less likely

they are at risk of negative disruption from technology. Agriculture is one example of an industry vulnerable to technological disruption. Because California's agricultural workforce is disproportionately Hispanic/Latinx, these individuals are at a higher than average risk of disruption. We should be thinking about ways to ease transitions in and out of the workforce rather than to slow the growth of technology.

EXAMINING VALUES ELEVATING CARE-WORK

Anne-Marie Slaughter Care work is expanding. Physical care is a platform for the real value of care work -- working with the very young and the elderly to develop and maintain capacity for thought and learning. Coaching and mentoring are also growing areas of work.

How does technology make all this better? Big Data can help surface high-impact opportunities for care intervention/advising. Robotics can make some of the most onerous physical aspects of care-giving easier.

Saru Jayaraman In restaurant work as in care work, we keep coming back to this idea of low-skill when what we mean is low-wage/high-skill. I see the effects of a historical political strategy to devalue women's work. In the restaurant industry, we didn't see tipping come into this country until a national strike of male waiters during Emancipation. They were replaced en masse by women, who were paid wage zero, plus tips. It's intentional to keep women's work low-wage. There's a number of ways in which we could shift the public narrative around this work.

Mary Kay Henry I've also been in relationship with Medicaid providers doing work that they love and consider a profession. They would love to have access to tech that the government can't afford but that would create a sea change in their ability to do their job. This is a workforce with a median age of 52, disproportionately women of color.

Fei-Fei Li How does technology help care workers to refocus on the patients? The health insurance system does not incentivize efficiency, better care, patient-focus. It rewards the number of surgeries you do, the amount of drugs you prescribe. I think the problem here is not on the technology side, it's about perverse incentives.

Anne-Marie Slaughter It makes just as much sense to invest dollars in our children as our weapons systems from a national security perspective. What do taxpayers really want? I think a different care infrastructure. Think of it as individual development, and 'health, not healthcare'. You could use Medicare Advantage dollars to give homecare workers tablets. Here in California, you can bring innovative industry to the table in a set of pilots.



INDUSTRY CASE STUDIES

Lisa Campbell, panelist: We're seeing four critical trends in advanced manufacturing:

- ▶ **Manufacturing x Construction:** This includes trends like prefab housing. Not only are new technologies being developed in this area, but new skill sets. It's important to enable workers to keep up.
- ▶ **Manufacturing on demand:** Rotterdam, for instance, has built a manufacturing facility adjacent to their port. They do novel additive and traditional subtractive methods to manufacture parts as needed.
- ▶ **Manufacturing as a service:** This includes small run, rapid turnaround work that leverages digital design tools.
- ▶ **Machine learning:** Human-machine partnerships are making design more accessible to those without a specialized background and opening up new possibilities for all designers.

Our data shows that 2.4 million US manufacturing jobs will go unfilled through 2028. We think this comes down to public perceptions around manufacturing as “dark, dirty, and dangerous.” That’s the past of manufacturing, but not its present and certainly not its future. We need to make people aware of these advances, and we need accessible and affordable training. We’re looking at badges and credentialing as ways to motivate people through training programs and assist in job placement. Academia can also make a difference with industry partnerships.

Steve Viscelli, panelist: The trucking industry has been transformed over the last several decades. It hasn't been good for many workers. For those whom it has been good, policy and labor voice have been determinant. With the rise of e-commerce, the overall volume of package shipping is growing. The big question is, what does last-mile delivery look like? Because of the difficulty automating high-dexterity tasks like package handling, we'll likely have more jobs moving freight in 20 years than today. But will these be quality jobs? There are many problems to overcome:

- ▶ Workers are subsidizing the cost of their own training and are taken advantage of through deceptive and/or misleading job ads.
- ▶ Workers are being misclassified as independent contractors and are subjected to abuse, including wage theft.

Melissa Valentine, panelist: The nature of firms and white-collar work is poised to change dramatically. Our social safety net developed around the container of the organization, but that format is changing, and our social safety net needs to change with it. The overall population of corporations has shrunk since 1995, and they employ fewer workers overall. Corporations used a vast scale of operations with large workforces of white-collar workers who coordinated these vast operations. Now, however, the technologies that corporations use for decision-making and coordination have reduced the amount of labor (and the number of jobs) necessary to operate.



INDUSTRY CASE STUDIES (continued)

Here are three examples of how corporations as an organizational model, and coordination in general, have shifted:

- ▶ Functions like inventory, fulfillment, human resources, IT management, customer service, have all been taken up by technology platforms that facilitate as-needed access to functionality through APIs.
- ▶ The new wave is API-level access to labor through platforms that assemble flash teams of relevant workers/experts to perform the necessary work and then dissolve.
- ▶ Decisions within a given firm used to be distributed through an organizational chart with different teams responsible for different areas. You might have a management algorithm exploring the entire possibility space for all areas of decision-making simultaneously, modeling potential outcomes before making a decision.

As a result of these factors, the number of white-collar workers necessary to administrate a firm drops precipitously. How do we ensure that the next generation of organizations is good for workers? A useful framework is design justice. It's a framework for thinking with workers; anyone who is being designed for should be a collaborator.

The new coordination and automation technologies are disrupting on-the-job learning. Without the container of a firm, workers may end up without a sense of a ladder to climb, a sense of belonging and embedded relationship within an organization. From the perspective of an entrepreneur, the parts needed to create a business today are like Lego blocks that can be snapped together and reconfigured at will. That's great for entrepreneurs. For labor, it's awful—no stability, no social benefits, no safety net. How do we reimagine social benefits around new containers? Do we need new forms for worker voices and worker power within these frameworks?

Susan Athey, panelist: It's good news that a handful of competing firms have created offerings like cloud computing capabilities that lower the bar for new entrepreneurs to enter various marketplaces, since they don't have to develop these basic capabilities themselves. However, keeping those firms who develop and provide these capabilities competitive is extremely important. If there became, for instance, only one major robotics firm that would be disastrous.



HUMAN-CENTERED & INCLUSIVE TECHNOLOGY AS COMPLEMENTARY PARTNER

Ken Goldberg, panelist: We're far from robotics achieving parity with humans in complex and dynamic environments and in dexterity. We won't see that for a while. AI systems are good at calculation, precision, objectivity. We're good at understanding, dexterity, empathy and collaboration. That makes AI and humans fantastic partners.

The skills that managers say they need to succeed have to do with creativity and social understanding. An important part of developing workplace technology with equitable outcomes is inclusivity. Augmentation and automation technologies have to be developed in partnership with workers.

Fei-Fei Li, commissioner: How do we focus technological development to be more human-centered? That seems to come from the entire pipeline, from guidelines to research to design to deployment. We can aspire to lead on that front. We look to agencies like the National Science Foundation and others to support efforts to ask questions like, what are the ethical guidelines here? What are the human factors that are considered in the design of these projects? Do we have an Institutional Review Board equivalent? How are we measuring human impact and social impact, what are the metrics of privacy, fairness, inclusiveness and diversity?

Dawn Gearhart, panelist: Workers are disempowered by monopsony platforms. Those platforms establish standards, pay, and more, unilaterally for an entire occupation. This results in lower wages, worse conditions, and a lack of agency for workers. While worker classification is important, it is even more urgent to pass policy guaranteeing gig workers the right to organize and collectively bargain.

Gig workers should not only be supplying labor but also providing input on the design and governance of platforms. There's a false dichotomy between workers' rights and innovation. We've seen where workers are a part of the conversation, they aid in the innovation. Venture capitalists and other investors have a real opportunity for impact here. If a startup is asking you for investment, you can say, "I won't give you any money unless you enshrine basic principles of worker dignity and worker representation in your term sheet." The fundraising stage is when you have all the leverage.

Carlos Ramos, public commenter: I've been a Lyft driver for the past three years, and I'm an organizer with Gig Workers Rising. I've seen the benefits that technology can contribute to the workforce. I have a better work-life balance. I've also seen the dangers of unregulated platforms. I've experienced working a 70-hour week while sleeping in my car. I've gone from being a worker to being a number on someone's spreadsheet. I'm here today because we need to weigh in on our future. We need to make sure that we can trust that the jobs of tomorrow will be good jobs. Workers need to be part of that decision-making process to make sure that these technologies are deployed with the worker in mind.



FLEXICURITY

THE SCANDINAVIAN MODEL

Katrine Joensen, panelist: Nine out of ten Danes are not afraid of losing their jobs to automation technologies. And this isn't out of ignorance; we created something called the Disruption Council designed to bring this debate to the public. So why are we optimistic? You can look to our model for labor markets, which we call "flexicurity." This model includes: flexible labor regulation; income support during unemployment; active labor market policy; and vocational and adult education. The flexicurity model demonstrates the false dichotomy between flexibility and security.

In Denmark, we have no minimum wage by law. Wages are structured on a per sector basis, based on agreements between unions and employers. It's easy for companies to hire and fire workers. We have a flexible labor market, lots of people moving between jobs on a regular basis.

Unions are okay with this kind of hiring and firing because of our high level of unemployment support. When you are unemployed, you get enough support to live on. After two years of unemployment support, you're cut back a bit, but then you've got that level of support indefinitely, so long as you are actively seeking employment.

We spend a lot of money on helping people get back into the workforce. You get a case worker who helps you make an individualized work/career plan. We also have a lot of investment in vocational training.

Robots and automation have been used in our industries for many years. Workers don't miss the days when they had to do backbreaking work. Our public sector, which is huge, most of the communication between the private and public sector is digital/online. While technology may have shifted some tasks for workers, it's really been shifting the nature of work to allow workers to focus on the human aspects of their job.

