

Use Meaningful Work-Based Learning

Prepare Workers for Contingent Work

Businesses are Advisors

Invest in Talent Development

DEVELOPING FUTURE TALENT

Employability Skills are Essential

Created Policy Framework

How We Can Prepare for the Future of Work and Business

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INTRODUCTION

The “future of work” is an evolving concept with wide-reaching implications for the economy, workforce, education, and society—including workers, business owners, students, and the people who serve them. The impact from these changes brings a sense of urgency to stay a few steps ahead and address systems’ gaps and faulty machinery that threaten to put low-income workers and students at a disadvantage. More well-resourced individuals will always have multiple options for overcoming challenges such as these; those with less resources and more barriers will have a much more difficult time.

The phrase *future of work* may bring various concepts to mind, such as artificial intelligence (AI), the gig economy, or virtual and augmented reality. The positive implications from these developments, such as improving efficiency for business and convenience for consumers, is evident. However, there is a pressing need to think more concretely and take action in workforce and education, particularly where they serve low-income workers.

To begin developing practical concepts that address these issues, JFF designed a project with local partners in the San Bernardino and Tulare-Kings regions of California and the state's Employment Training Panel (ETP). Both regions were interested in identifying new approaches to business engagement through the lens of a changing business and employment landscape. In this project, businesses were convened to discuss how general economic trends, such as automation and the use of contingent workers, are affecting their talent needs now and into the future.

This brief will provide an overview on the changing nature of employment relationships that have implications for low-wage workers. It will also feature recommendations to help education and workforce development practitioners and policymakers address the demands of the future economy, including recommendations for new approaches to business engagement.

State of California's Employment Training Panel (ETP)

The ETP provides funding to employers to assist in upgrading the skills of their workers through training that leads to good-paying, long-term jobs. The ETP was created in 1982 by the California State Legislature and is funded by California employers through a special payroll tax.

Businesses in California find the ETP to be an invaluable resource to fund training of incumbent workers. ETP funds has a wide variety of employers of various sizes from multiple sectors, including manufacturing, health care, and technology. The panel consists of professionals from education, workforce, and government who make decisions on funding allocation based on applications from businesses. The ETP's participation in this project helped with accessing business partners in the regions and allowed the ETP to better understand the talent needs of business as well.

Two Key Trends in the Future of Work

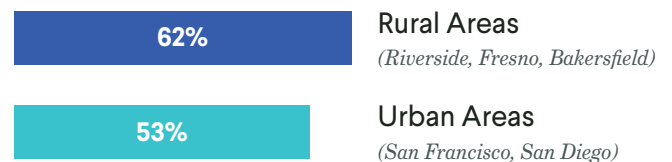
While there are a number of possible trends related to current and future changes in the US workforce to evaluate, we will focus primarily on two: automation and the changing nature of the employment relationship. These two trends are well researched and cover a lot of ground in terms of changes we see happening already. While there is debate in the public space about what the impacts will be, in our analysis, both point to the fact that we're in the midst of a transformation that could negatively impact low-income workers and students.

AUTOMATION

Our economy is potentially headed for significant changes in the coming years; what makes this wave of technology different is the scope and speed in which it may happen. Research by McKinsey & Company found that up to 50 percent of time spent on job activities across all sectors could be automated with current technology.¹ McKinsey also found that jobs that have highly repetitive physical tasks, require less expertise, and are more limited in interpersonal communication—such as food services, manufacturing, and transportation—are at high risk for being eliminated or significantly reduced by automation.

Automation may have more devastating impacts in rural areas and for underrepresented workers. The Institute for Spatial Economic Analysis (ISEA) published a study combining data from Oxford on the likelihood of particular occupations being automated and compared it to Bureau of Labor Analysis (BLS) data on jobs common to specific regions.² They found that rural regions have a higher share of automatable jobs.

Share of Jobs Facing Automation Risk by 2035



Using a similar approach, the Kellogg School of Management had comparable results.³ The ISEA also found that Latino/a workers are 25 percent more likely to lose their jobs due to automation, compared to white people; African Americans are 13 percent more likely.⁴

In terms of the speed of change, there are several examples of how AI and machine learning are quickly advancing. The speed of data processing has increased exponentially; as an example, processes run in one day by today's top systems would have taken 250,000 years on 1990's best machines.⁵ Ninety percent of today's digital data was created in the last two years, and algorithms' accuracy has improved tenfold. Driverless cars have logged hundreds of thousands

of miles on the road in 2017 alone.⁶ These advancements are indicative of how much smarter and capable the current generation of machines and programs are compared to previous smaller-scale innovations. It may be the beginning of an exponential growth curve for technology's utility.

We need to start preparing right now—but almost nobody does.

Why will the robot revolution be different? Because the digital revolution

and the internet revolution already were different from earlier technological advances. While labor productivity increased, real median family income has stagnated and even fallen at times during the last two decades. This will accelerate during the robot revolution, as robots—maintained by highly educated employees—will take on repetitive, blue-collar jobs mostly held by less-educated workers.

We expect change to happen more swiftly than in earlier technological revolutions, due to the four S's: speed of technological development, size of the sectors and corresponding number of jobs that can be taken over by robots, the scale of robot and AI device production that follows, and the large number of substitution technologies.

Johannes Moenius

Founding Director of the Institute for Economic Spatial Analysis (ISEA)

CHANGING NATURE OF THE WORK RELATIONSHIP

There are a couple of indicators that demonstrate the change in the relationship between a business or organization and its labor force. One is the growing use of contract workers as a substitute for permanent employees. There's evidence that this trend is on the rise, and it's an issue for low-wage workers and those with barriers to employment.⁷ Many workers in a contingent working arrangement, particularly contract workers, usually receive limited or no benefits, very limited or no healthcare coverage, and have limited training and upskilling options.⁸ In these situations, the normal balance of risk between employer and employee is tipped against the workers, who can find themselves trapped in these unfavorable work situations because of their need to earn income.

It is still an ongoing debate whether there's an increase in contract work happening or not. A recent 2018 data release by the BLS showed that contingent workers overall dropped slightly from 4.1 percent of total employment in 2005 to 3.9 percent in 2017.⁹ What this data doesn't include is people who act as independent contractors as a side job; it only included those who work as contractors as a primary source of income. It also leaves out those who may

have been in between contract jobs when they were surveyed.¹⁰ Given these caveats to the recent BLS data and other research referenced above, there is still good reason to pay close attention to the prevalence of independent contractor use in the private sector and how it affects low-wage workers.

A second indication of the changing nature of the employment relationship is younger generations' attitudes about work. Younger workers are increasingly attracted to working for socially responsible businesses as work becomes more personal; a 2012 survey of students showed 58 percent would take a 15 percent pay cut in order to work for an organization with values similar to their own.¹¹ Also, younger generations build a more fluid and dynamic career path; loyalty to a single employer is less of a priority. A 2018 Deloitte survey found 43 percent of millennials (those born from 1983–1994 in this instance) and 61 percent of Generation Z (1995–1999) planned to leave their employer in the next two years.¹²

Unfortunately, businesses appear to be investing in their workforce less by increasing the use of contractors. Younger workers are responding by becoming less loyal—particularly to businesses that don't fit their social expectations. This change

in the work relationship, coupled with the rapid spread of automation across industries, could lead to considerable new challenges for low-income populations if our education and workforce systems are not prepared to adapt.

Talent Development Discussions with Business

JFF designed a research project to learn from businesses about how these trends of automation and the changing nature of the employment relationship are affecting their talent needs now and in the future. As noted, the goal was to use this information to develop new approaches for education and workforce practitioners to engage businesses. Given that there is particular concern with how automation will impact rural areas, the San Bernardino and Tulare-Kings regions were selected for discussions with businesses.¹³

“I was surprised by how common many of these issues are to other businesses in the region. The people in the discussion seemed really interested in solving problems together.”

Stanley Chapman

Faraday Future, Business Participant

The goal in these discussions was to hear and understand how the trends described above are changing the way businesses approach their talent development strategies and needs. A special “fishbowl” format was used, which featured businesses in a center roundtable. Workforce and education partners were invited to attend and listen in on the roundtable but not participate in the discussion. The intention of this setup was to distill the business voice and perspective. In order to prime their thinking and set the context about these trends, each discussion featured an opening speaker who covered research on automation and new technologies that are changing the economy.

SAN BERNARDINO

The meeting held in the City of San Bernardino occurred in February 2018, hosted in partnership with the San Bernardino County Workforce Development Board and Economic Development Agency. It included businesses from a mixture of local industries, including manufacturing, health care, engineering, and logistics. Parul Batra, formerly of McKinsey & Company shared recent automation research she co-authored as an opening presentation to prime thinking about the businesses’ talent development needs in the future of work.

Overall, the first part of the discussion seemed to indicate a wide variance of the businesses’ use and understanding of automation. A local engineering firm shared that automated systems already implemented have allowed it to hire an additional 25 engineers over the last several years without losing any employees.

San Bernardino County

Located at the heart of southern California, an economy of 22 million people, the County of San Bernardino is the largest county in the United States. Its vast borders stretch from the greater Los Angeles area to the Nevada border and the Colorado River, encompassing a total area of 20,160 square miles. Comprised of 24 cities, the County of San Bernardino is home to more than two million residents. Manufacturing and trade, transportation, and utilities make up nearly a third of the county’s employed workforce.

[From San Bernardino County Economic Development Agency](#) and [California Employment Development Department](#)

The HR director of this firm also shared that these jobs require the ability to communicate across departments and a capacity for high-level problem-solving. Another business was still exploring—the director of operations for an injection molding company noted that they see the need to invest in automation in order to grow long term. This won't necessarily mean workers will be replaced because he has found humans are sometimes more efficient than machines. However, he doesn't see the talent he needs coming from the education and workforce system neither currently or in the future.

The group also tackled questions related to recruitment and their use of contract workers. Several found staffing agencies to be insufficient for their needs and used in-house recruiters to mine talent online and at in-person events.¹⁴ Another complaint about workers from staffing agencies was that these workers don't have the work ethic and reliability businesses need. A large business representing retail and logistics noted that while its warehouses were once largely staffed with contract workers, it has since started hiring employees directly because they were found to be more loyal and invested in the company. In summary, the group did not seem to currently use (or plan to use) a high number of contractors and instead

had more experience with another type of contingent worker—those from staffing agencies.

TULARE-KINGS

The second discussion among businesses took place in March 2018 in Visalia, California, hosted in partnership with the Workforce Investment Board of Tulare County. It included primarily manufacturing and industrial businesses from across the Tulare and Kings counties region. This meeting began with a presentation about automation by Gurminder Sangha, sector navigator for the California Community Chancellor's Office.¹⁵ The focus was on his area of specialty, advanced manufacturing, including insight into technology being implemented in the field.

Similar to San Bernardino, most businesses in the group had some experience with automation but varied in their understanding and implementation. One small manufacturing representative shared that he couldn't make the large investment for automated systems because the return would not be fast enough. Another larger manufacturer in the food processing industry shared that it has made steady progress into "Industry 4.0," meaning each aspect of the business is partially automated and connected to other systems

in the plant. A representative from a second large food processing business shared how they are starting to be able to monitor the entire plant's operations digitally, including how the "business" side (likely referring to sales, supply chains, sales and distribution, etc.) is interacting with manufacturing operations in real time. The conversation demonstrated an interest in automation among most of the businesses but a need for better understanding—particularly in terms of how to prepare their workforce for it.

In some cases, this group noted a loss of jobs or significant shift in skills needed by workers. One business shared that, in its operation, three manual saws were once operated by three individual workers and now one worker oversees three automated saws. Another shared a story of two painting operations at the same car manufacturer: one with dozens of employees across shifts and another that was fully automated, employing only a handful. Both had comparable outputs, implying that it may only be a matter of time before the second would be fully automated. Finally, several noted the difference in skills needed by workers in an automated environment; machinists were used as an example of those who had difficulty moving from hands-on work to overseeing machines that do the work instead. One employer was struggling to

Tulare & Kings Counties

Tulare County has a population of 442,179, and Kings County has 149,537. Centrally located in the lower part of California's Central Valley, they are both largely rural communities. The median age of Tulare County residents is just 28.5 years old—one of the youngest regional populations in California. Kings County boasts an affordable cost of living with a median home sale price of \$213,500, compared to the California average of \$546,430. Besides farming, which is a large sector in both counties, manufacturing, trade, transportation, and logistics make up between a fourth and a third of all employment.

From [Kings County Economic Development Corporation](#), [Tulare County Economic Development Office](#) and the [California Employment Development](#)



San Bernardino businesses discuss automation, contingent work and talent development.

help his current workforce develop the skills they needed to operate the new technology. He even created his own curriculum to support them and still finds it to be a challenge.

When the discussion turned to contract workers, there was mostly agreement that hiring through staffing agencies didn't meet the changing, skill-specific needs of their workplaces. However, a local consumer packaged goods company stated that it hires 90 percent of its workers through staffing agencies. It was also noted that sometimes it's more economical to hire a contractor with the knowledge and skills you need to perform maintenance rather than training your employees to do it (conceivably referring to maintenance tasks that are ordinarily performed by employees). This group also focused more on staffing agency workers than contract workers and didn't appear to be making a shift toward more contractors.

KEY THEMES

Across the two discussions, a few key themes emerged. While the groups represented two regions with different characteristics, there were similarities in their views on automation and contract work.

Most businesses didn't have a specific plan for automation.

It was clear from the discussion that while some businesses have begun automating processes, others had only begun exploring the possibility, and in many cases, the plans didn't appear definitive. For the smaller businesses in particular, there is hesitation because of the upfront costs associated with incorporating automation and the training costs that would be incurred as well. Even if workers are replaced, the new skills needed would demand a more highly qualified, and thus more expensive, worker. It was apparent that they would like to retain their current workers if possible and that they

could benefit from strategic support on how to approach the opportunities and challenges of automation.

Contract workers were not in wide use.

At least from these two groups of businesses, utilizing 1099 contract workers didn't appear to be a significant part of their workforce strategy. In one case, as noted above, the business has actually been decreasing its use of contract workers. The businesses primarily focused on another type of contingent worker: those employed by staffing agencies, which were not found to be a good source of talent by the businesses questioned here.

Despite the lack of evidence for an increased use of contract workers, there is still use of contingent workers among these groups, specifically staffing agency workers. These workers face some of the same issues as contractors in terms of unreliable work schedules, lack of or minimal benefits, etc.

Employability skills are in high demand (and will likely continue to be).¹⁶

The businesses agreed that skills such as communication, problem-solving, perseverance, and adaptability were critical skills in both the current and future workforce. In addition, several noted the need for technical skills and an

understanding of how systems work and connect across a business and a larger ecosystem. The research bears this out as well, as noted earlier: automation is more likely to replace activities and jobs that are simple, repetitive, and don't require interpersonal communication.

There is a demand for conversations between businesses about talent development.

There was widespread agreement that focusing the discussion just among businesses, with education and workforce partners listening, was effective. Businesses felt they were able to learn more from one another, and the observers felt they learned more about businesses too. The businesses in attendance at both meetings understood the need for engagement in workforce and education to produce quality talent and expressed an interest in continuing similar engagements. In Tulare-Kings, the discussion was used to kickstart an ongoing industrial business advisory group.

“Now we're taking mechanical processes and automating them. I want a technician to be able to build a process through an interface screen or software.”

Dan Martin

Nestlé, Business Participant



The potential for major negative impact to low-income workers from automation and a shift to contract and contingent work should inspire action. These recommendations may help education and workforce systems and businesses facing a unique challenge: The talent needed by businesses is changing quickly, and talent development requires new approaches to meet these needs. The six concepts in this section serve as a starting point for practitioners to explore how to approach automation and the changing nature of the employment relationship when designing programming, partnering with businesses, and advocating for policy.

Some of these concepts may lend themselves more toward particular audiences, but generally they all apply to K-12, postsecondary, adult workforce development, the business community and policymakers.

RECOMMENDATION 1

APPROACH BUSINESSES AS BUSINESS ADVISORS

In addition to the uncertainty we have with an employment landscape that's changing drastically and quickly, there is a second perennial challenge for workforce and education practitioners: developing deep, lasting, and fruitful relationships with businesses. And yet, together, these two issues may provide an opportunity to engage with businesses in a new and, hopefully, deeper and sustainable way.

The Shift Commission released a 2017 report detailing several future of work scenarios, one of which was the "Go Economy."¹⁷ This scenario envisions a future where technology and workers create opportunity together; instead of replacing labor, automation enhances it. Roy Bahat of Bloomberg Beta, one of the Commission's co-chairs, made the argument during a panel presentation that we all have a role to play in how business adopts automation.¹⁸

Workforce development and community college staff who work closely with businesses should rethink their roles not just as partners or service providers but as **business advisors**. It's likely that many businesses in the US, particularly small to mid-size ones, need help developing upskilling strategies to prepare their workforce for the impact of automation,

making informed decisions about their use of contingent workers, and generally creating positive work environments that promote learning and advancement. These professionals can be equipped to help in a way that benefits both businesses and the students and workers they serve.

Workforce and community college professionals who work with business can arm themselves with a deeper understanding of these areas and therefore become problem solvers. This may be just a subtle change to the way staff present themselves to business after gaining new knowledge on the subjects below, or it could be a full overhaul of the organization's business services. The specific steps here will vary by situation but would likely start with surveying your local business needs followed by adjusting the engagement approach, including staff training and professional development.

Resources

There are a number of resources that can help workforce and education professionals learn more about current technologies and contingent workers.

Automation

- ▶ McKinsey Global Institute conducted detailed research about how it will affect specific sectors, jobs, and job activities in the report [Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Change](#).

- ▶ Harvard Business Review identifies an approach to analyzing automation needs within a workforce [in this article](#).

Contingent and Contract Workers

- ▶ The City of San Francisco offers a [Freelancer/Independent Contract Starter Kit](#) to help interested workers navigate multiple aspects of operating a business, from taxes to business registration and marketing their services.
- ▶ [Oracle created a guide](#) for developing and managing a contingent workforce that includes the importance of engagement and training.

Understanding New Technologies

- ▶ Internet of Things (IoT): [Cisco lists several case studies of IoT use here](#). They also offer a foundational course in IoT as part of the Cisco Networking Academy.
- ▶ Enterprise resource planning (ERP) are systems and software packages used by organizations to manage day-to-day business activities, such as accounting, procurement, project management, and manufacturing. [Coursera offers a course](#) that covers the fundamentals of ERP that can be taken for free.
- ▶ EdX (MIT) offers a [free, self-paced introductory course to AI](#).

RECOMMENDATION 2

RECOGNIZE AND PROMOTE EMPLOYABILITY SKILLS AS ESSENTIAL SKILLS

If automation and AI replace repetitive, simple tasks that don't require human creativity and interpersonal communication, then human workers will need to master the skills that machines aren't yet capable of (e.g., creative thinking, collaboratively working, and others, collectively known as "employability skills").

In 2018, LinkedIn found that 57 percent of the managers they surveyed thought soft skills were more important than hard skills.¹⁹ In a prior survey, the top desirable soft skills included adaptability, collaboration, and leadership.²⁰ Given this, as well as the findings from our discussions with business, it's clear that these skills are essential in both education and workforce training programs. Automated systems are currently unable to adapt to new situations, solve novel problems, collaborate, or show empathy in the way that humans can. Thus, it is more important than ever for workers to demonstrate employability skills; they'll be what keeps workers relevant in the future of work.



Industrial Automation Academy | West Hills College Lemoore

Today's industrial mechanic and electrician are required to have knowledge of the old mechanical systems, electrical wiring methods, and relay logic systems, as well as keeping up with the advancing electronic and robotic technologies. The West Hills College Industrial Automation Academy program has designed a solution for these new required skills. The foundation courses incorporate extensive hands-on troubleshooting that allows students to develop troubleshooting and analytical thinking skills, including introducing them to programmable logic controllers (PLCs), which are widely used in manufacturing.

As the program continues, students will be challenged with more in-depth studies of AC/DC electrical systems with extensive

lab work, allowing them to strengthen their problem-solving and analytical thinking skills. The second year of the program introduces students to process systems, advanced PLC programming, and tying electrical, mechanical, and fluid power technologies together using a mechatronics learning system (multiple, connected PLC systems incorporated with a robot).

The second year also focuses on developing the system-level thought process. The goal is to provide a strong theoretical base and exposure to many different systems, manufacturers' components, and technologies. This allows students to easily adapt when they're introduced to a new system, component, or technology on the job.

Finally, incorporating “systems thinking” into training and curricula is something to explore. Business partners in this project expressed the need to have workers see the bigger picture: how individual systems interact with one another, internally and externally. While it may be unrealistic for every student or trainee to have the 30,000-foot view, even understanding some basics may add value to their work. A good example of how curricula is evolving to incorporate big-picture thinking alongside the technical skill development is the Industrial Automation Academy at West Hills College in Lemoore, California.

Resources

For more information about employability skills, including definitions, curricula, and trainings, we recommend a few sources:

- ▶ [The National Network’s Common Employability Skills](#)
- ▶ [Framework for 21st Century Learning \(P21\)](#)
- ▶ [Department of Education’s Definition of Employability Skills](#)
- ▶ [MHA Labs’ Skill Building Blocks](#)
- ▶ [New World of Work’s 21st Century Employability Skills](#)
- ▶ [Center for Curriculum Redesign’s Skills for the 21st Century](#)

RECOMMENDATION 3

BUSINESSES NEED TO INVEST IN BOTH INTERNAL AND EXTERNAL TALENT DEVELOPMENT

Businesses continue to voice that they want to keep their current workforce *and* have a pool of talent to recruit from on a regular basis. This pool is shrinking while their internal talent is also falling behind. Solving this requires business communities to make a deeper investment in incumbent worker training and in education and workforce systems. They can create programs that develop new talent on a regular basis and create entry points to career paths for marginalized populations with little opportunity to enter the competitive workforce.

Secondly, investing in workforce and education systems can add to the positive social impact that a business creates for the local community. As noted earlier, younger generations are interested in working for socially responsible businesses with values like their own. There’s also mounting evidence that socially responsible business practices are something both customers and investors are interested in.^{21,22} Businesses that don’t invest in making a positive social impact and improving workforce diversity risk losing top talent, customers, and forward-thinking investors.

A deeper investment in talent development by business can include:

- Reviewing, advising, and providing feedback on the development of curriculum in schools, colleges, and workforce training programs to ensure current relevance to the industry
- Offering teacher externships and training opportunities for workforce development staff
- Offering a range of work-based learning (WBL): guest speakers, job shadows, workplace tours, and, particularly, intensive WBL, such as internships and apprenticeships
- Giving priority hiring to graduates of local education and training programs
- Investing financially in internal training that offers flexibility and external training (paid internships, hosting apprentices, on-the-job training contracts, etc.)
- Purchasing or donating equipment to schools and colleges, leading to augmented program and education budgets

Both workforce and education professionals may consider using these concepts to advise businesses. They can assist businesses in a way that doubles the return on investment: building reliable, diverse sources of talent that reduce training and recruitment costs while building social capital and trust, therefore

attracting top talent and securing market share.

Resources

In addition to the references above which can be used to convince businesses to invest in talent development, JFF has two new resources that speak directly to potential business partners:

- ▶ [Work-Based Learning: A Talent Development Opportunity](#)—describes to potential small business partners the “why” and “how” to engaging with education and workforce organizations in work-based learning.
- ▶ [Small Business Engagement: Pitch Deck](#)—a PowerPoint template for business engagement staff to use to create pitch decks for small businesses.

RECOMMENDATION 4

MEANINGFUL WORK-BASED LEARNING IS CRITICAL - EVEN MORE SO THAN BEFORE

In a rapidly changing economy, entry-level jobs are disappearing, eliminating the on-ramps that allowed people with no experience or skills to gain them on the job. Work experience must now happen during education and training programming through WBL. If students complete their education without any work experience, they will be behind

when they graduate. If trainees don't get a chance to apply their learning to real-world contexts, they will be passed over for those who have that experience.

Thus, it is critical that students and trainees get access to work-based learning in all education and workforce training programs. Experiences in high school (or even earlier) should at a minimum include career awareness and exposure-type events, such as job shadows, industry-advised class projects, and workplace tours. Ideally, high school students would also receive career preparation experiences, such as paid internships. Postsecondary and adult workforce training programs should include deeper career preparation and training experiences, such as co-op programs and apprenticeships (see the first resource on the next page for more detail).

Resources

JFF and its partners have several work-based learning resources to assist education and workforce practitioners across systems.

- ▶ [Making Work-Based Learning Work](#) offers a broad overview of the topic, with specific examples of work-based learning in the field for both youth and adults, and presents the seven guiding principles according to our experience and work in the field.
- ▶ For K–12 school districts, the [Work-Based Learning System Development Guide](#) offers an approach to analyzing and building out a work-based learning system, along with several tools for designing, delivering, and tracking work-based learning experiences.
- ▶ For postsecondary institutions, the [Work-Based Courses Toolkit](#) can assist in the design of courses that incorporate work-based learning.
- ▶ For workforce intermediaries, [Making Apprenticeship Work for Opportunity Youth](#) offers some practical models for setting up an apprenticeship program that targets young adults with barriers to work and education.
- ▶ For even more resources, JFF's [Center for Apprenticeship and Work-Based Learning](#) is an extensive base of knowledge and tools for this subject.

RECOMMENDATION 5

PREPARE STUDENTS & TRAINEES FOR CONTINGENT WORK

Contingent work is on the rise and includes inherent barriers and pitfalls for workers as noted earlier.

In order to survive as a contractor working gig to gig, workers must be entrepreneurial, understand the tax obligations of an independent contractor,

be able to market themselves, etc. While postsecondary institutions may need to help address these needs, it may be more often that workforce development programs are closer to the issue.

While resources for this area are still limited, promising practices for supporting contingent workers include:

- The California Community College system [recently announced](#) “Self-Employment Pathways” across the system to prepare workers to become independent contractors.
- Discussions around [portable benefits](#) that offer paid leave, health coverage, retirement savings, and other benefits for workers independent from a particular employer, which may be beneficial for contingent workers.
- The [Freelancers Union](#) provides resources to independent workers of various types to access benefits, advocate for policy change, and connect with other independent workers across the country.
- [Samaschool](#) trains low-income workers on how to prepare for, secure, and succeed in independent contractor roles. Their curricula include courses such as Introduction to Freelancing and Succeeding on the Job.
- New partnerships between businesses and education providers, such as

[Guild Education](#), are beginning to offer educational advancement opportunities to contingent workers.

- [Beyond Jobs](#) has thoroughly researched the subject in both the UK and U.S. and has developed a solution that meets the needs of both workers and businesses that is currently being tested in the Los Angeles area.

RECOMMENDATION 6

CREATE A POLICY FRAMEWORK TO SUPPORT A RAPIDLY CHANGING ECONOMY

Our approach to changes in the workforce due to automation and the evolving nature of the employment relationship will likely require sound policy solutions to accompany programmatic ones like the ones we’ve suggested here. A policy framework that encourages support for low-income workers displaced through automation and contingent workers is necessary to support programmatic approaches.

We’ll first note our recommended framework elements, followed by conceptual framework elements proposed by professional colleagues from the field that are worthy of continued conversation and consideration.

RECOMMENDED FRAMEWORK ELEMENTS

Supporting Reskilling and Lifelong Learning

Federal and state postsecondary policies are built around outdated ideas of what typical college students need. The rapidly changing nature of work will require all workers to become lifelong learners—continuously receiving new skills development over the course of their careers. Policy needs to support workers through this shift by making federal and state financial aid policies more flexible, supporting stackable credentials, and removing barriers to new models of delivery in higher education.

Connecting Learning to Work

Work-based learning provides students with real work experiences and employability skills needed for career and economic success. Starting in high schools, policy should incent the integration of work-based learning experiences and career exposure into educational curricula. In higher education, federal and state work-study programs should be designed to reach students who can benefit the most, improve linkages to career-relevant work experiences, and encourage off-campus job placements with local employers.

Policy should also support the expansion of pre-apprenticeship and apprenticeship opportunities in high-growth fields and occupations, especially for underserved communities. Both states and the federal government may consider developing an Office of Work-Based Learning to coordinate efforts across departments to deliver work-based learning experiences to students and trainees.

CONCEPTUAL FRAMEWORK ELEMENTS

Tax Incentives

A common way to incentivize businesses is through the use of tax breaks and credits. Tax incentives could be offered by federal, state, or local governments for verified and significant engagement with education and workforce systems, such as offering WBL through internships or apprenticeships to students or co-developing curricula with instructors. At the local level, cities could offer additional “points” in the competitive bidding process for contracts when proposals include an offer to invest in education and workforce in similar ways. Finally, tax incentives could also be offered to businesses who invest in upskilling incumbent workers, perhaps preparing them for new technology that will augment their work and increase productivity.

Disincentives

Some have suggested a need for a “stick” in addition to the “carrots” mentioned above. Robert Shiller of Yale suggests “a temporary tax that merely slows the adoption of disruptive technology seems a natural component of a policy to address rising inequality”—an idea also supported by innovator and technologist Bill Gates.^{23,24} Other economists argue that taxing technological advances may just stifle necessary innovations and push jobs offshore.²⁵ One thing we know about our education and workforce systems is that they don’t change very quickly, yet they attempt to keep up with a business world that does. While taxing automation may be one possible option to be investigated, overall, slowing the pace of automation to make adjustments and innovations to workforce and education systems may help.

A New Classification for Workers

There is currently an ongoing legal battle to properly and fairly classify workers, particularly those in the “gig economy,” where the old legal standards may be inadequate.²⁶ To address the need for businesses to have flexibility in their workforce in a way that doesn’t shortchange workers, some have proposed a new classification for workers. The concept has been proposed by lawmakers like Senator Mark Warner and economists Alan Krueger and Seth Harris.^{27,28} Krueger and Harris call it an “independent worker,” which would allow for benefits that an employee has, such as employer contributions to payroll taxes and civil rights protections, but not necessarily other benefits like health coverage nor overtime or minimum wage requirements. A new classification may provide an option to businesses that increases flexibility and lowers costs in their workforce but offers a better deal to workers than the independent contractor status currently used. Again, this may be a concept worthy of more investigation.



A rapidly changing workforce brings both peril and possibility for low-income workers. Automation is poised to make significant changes to jobs across industries, if not eliminate a large number of them. Contingent work, with less benefit to workers, could also be on the rise. Low-skilled, repetitive work may be at the highest risk while middle-skill jobs may also become scarcer. Conversations with businesses in two different regions of California shed light on how the business community thinks about automation and contingent workers in terms of their talent needs. From the conversations and current research, JFF developed six concepts for workforce and education systems to begin taking action and preparing for current and future changes to the economy.

Additional research and discussions with businesses, workforce, and education professionals in more places across the US will help us learn more and test these concepts. It is important to deepen our understanding of talent development from the business perspective, particularly given automation and contingent work arrangements, now more than ever. We look forward to continuing this work and encourage our partners and colleagues to join us.

Discussion Questions

Automation Adaptations & Going Digital

- What's one example of how you are deploying automation technologies in your business?
- What other changes in automation might be coming soon, and what's even further out on the horizon?
- What are the implications of the Internet of Things and smart devices for your business, if any?
- If you had to speculate, do these changes mean more jobs? Fewer jobs? Different jobs? How might the new jobs look?
- What operations, processes, tools, assets, etc., are being digitized in your company or in your industry?
- Where might opportunities lie for new startups or other entrepreneurial activity that would fill a need in your business?
- Given these coming changes to the economy, what's a new skill that will become increasingly important in your workplace?

Alternative Work Arrangements

- Does your business rely on contract workers? Is this trend increasing or decreasing?
- How is the nature of the work that needs to be done changing, and what alternative work arrangements are you using or have tried with your current labor force?
- What's one example of other ways you are reformulating your business or manufacturing processes in a way that affects the type work required?

Talent Recruitment

- How are you currently attracting the talent you need?
- To what degree do you rely on LinkedIn or other online talent platforms?
- To what extent do you still use connections through your current workforce to recruit? Do you recruit through professional or industry associations?
- What skill shortages require you to look beyond the immediate labor market, if any?
- What technical skill do you look for in all your recruits (coding software, etc.)?
- For those that offer training and upskilling to your workforce, what are some examples of the skills you are aiming to develop?

Business-Led Initiatives

- What discussions have occurred within your business or industry that address a more active role you want or need to play with education and training providers in this area?
- How can you imagine getting involved or taking the lead to help develop career pathways that will keep your business competitive?
- Overall, what needs to change in workforce and education systems to better prepare workers for the future of work?

List of Interviewees

1. **Parul Batra**
LinkedIn
Formerly McKinsey & Company
2. **Angie Nett**
Sorenson Engineering
3. **Johannes Moenius**
Institute for Spatial Economic Analysis
4. **Dan Martin**
Nestlé
5. **Stanley Chapman**
Faraday Future
6. **Robert Scott**
Land O'Lakes
7. **Stewart Knox**
Employment Training Panel
8. **Adam Peck and Jennie Bautista**
Workforce Investment Board of
Tulare County
9. **John Baker**
Core Factors
10. **Annelies Goger**
Social Policy Research Associates
11. **Gurminder Sangha**
California Community Colleges
Chancellor's Office
12. **Reg Javier, Miguel McQueen and
Curtis Compton**, San Bernardino
County Workforce Development Board
13. **Kim Victorine**
Plastics Plus

ENDNOTES

1. <https://www.mckinsey.com/~media/mckinsey/featured%20insights/Future%20of%20Organizations/What%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20wages/MGI-Jobs-Lost-Jobs-Gained-Report-December-6-2017.ashx>
2. Data on California rural areas is the average of Riverside-San Bernardino-Ontario Area (62.6%), Fresno (north of Tulare-Kings) (61.5%), and Bakersfield (south of Tulare-Kings) (62.4%). Data on California urban areas is the average of San Francisco (50.5%) and San Diego (56.5%). Exact figures for San Francisco and San Diego approximated from map at <https://www.iseapublish.com/index.php/2017/05/03/future-job-automation-to-hit-hardest-in-low-wage-metropolitan-areas-like-las-vegas-orlando-and-riverside-san-bernardino/>
3. <https://insight.kellogg.northwestern.edu/article/how-will-automation-affect-different-united-states-cities>
4. <https://www.iseapublish.com/index.php/2017/06/26/automation-expected-to-disproportionately-affect-the-less-educated/>
5. <https://hbr.org/2017/07/whats-driving-the-machine-learning-explosion>
6. https://www.dmv.ca.gov/portal/dmv/detail/vr/autonomous/disengagement_report_2017
7. Eli Dourado and Christopher Koopman of George Mason University studied US tax returns in 2015 and saw a 22 percent increase of 1099-MISC filings (independent contractor) and a 3.5 percent decrease in W-2 filings (regular employee) from 2000–2014. Lawrence Katz and Alan Krueger had similar findings, looking at Schedule C filings instead of 1099-MISC: <https://www.mercatus.org/publication/evaluating-growth-1099-workforce> https://krueger.princeton.edu/sites/default/files/akrueger/files/katz_krueger_cws_-_march_29_20165.pdf
8. The definition of contingent worker typically includes temporary employees, 1099 contractors, and employees of contracting/staffing firms.
9. <https://www.bls.gov/news.release/conemp.nr0.htm>
10. <https://apnews.com/9aa702871bda4b-c3ba0369b04e2a2722>
11. <http://www.pointsoflight.org/sites/default/files/resources/files/what-workers-want-2012-summary.pdf>
12. <https://www2.deloitte.com/global/en/pages/about-deloitte/articles/millennialsurvey.html>

13. For a list of questions asked in the discussions, please see Appendix A, interviewees are listed in Appendix B
14. Note that workers from staffing agencies are usually employees of the staffing agency and not contract workers.
15. The California Community College's Strong Workforce Program includes industry-specific experts known as sector navigators who work with colleges and regional workforce development partners on programming: <http://doingwhatmatters.cccco.edu/StrongWorkforce.aspx>
16. Collectively, skills such as communication, problem-solving, collaboration, perseverance, and adaptability are sometimes referred to 21st century skills, deeper learning competencies, soft skills, or employability skills. Except when referring to a specific study's term, the authors use employability skills throughout in order to signal the central nature of these skills to an individual's ongoing employment and advancement.
17. <https://www.newamerica.org/new-america/policy-papers/shift-commission-report-findings/>
18. Roy Bahat, The Future of Work Symposium, Stanford University, Aug 30, 2017.
19. <https://business.linkedin.com/talent-solutions/blog/trends-and-research/2018/the-most-in-demand-hard-and-soft-skills-of-2018>
20. <https://economicgraph.linkedin.com/research/LinkedIns-2017-US-Emerging-Jobs-Report>
21. <http://www.conecomm.com/research-blog/2017-csr-study>
22. <http://www.tandfonline.com/doi/pdf/10.1080/20430795.2015.1118917>
23. <https://www.theguardian.com/business/2017/mar/22/robots-tax-bill-gates-income-inequality>
24. <https://qz.com/911968/bill-gates-the-robot-that-takes-your-job-should-pay-taxes/>
25. https://www.washingtonpost.com/opinions/picking-on-robots-wont-deal-with-job-destruction/2017/03/05/32091f08-004b-11e7-8ebe-6e0dbe4f2bca_story



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