

The Future of the Workforce

APPROACHES TO INCREASING ACCESS & INCLUSION

Options for State Policymakers Across Three Emerging Issues

PRELIMINARY FINDINGS DRAFT

Executive Summary

It is undisputable that the nature of work has changed and continues to change at a rapid rate. What is less certain is how the American workplace can ensure that it is accessible to all—including people with disabilities and others who have traditionally faced barriers to employment—in the context of these dramatic shifts.

Yet, determining how to ensure access has never been more imperative. Today, a combination of historically low unemployment and heightened global competition is creating a high demand for skilled workers. Increasing access to employment and training services for people with disabilities and other underrepresented populations is key to making America's strong economy even stronger. It is also key to delivering on America's promise of opportunity for all.

In 2019, the Council of State Governments (CSG) convened The National Future of the Workforce Task Force to explore this urgent intersection of issues. The name selection for the task force was strategic, reflecting the group's decision to focus on the future of the *workforce*, not *work itself*, in order to ensure its discussions and resulting recommendations were focused on individuals first and foremost.

Over the course of its discussions, the task force found that in the years ahead, state policymakers have the opportunity to leverage social and technological innovations to vastly improve the lives of their constituents. Whether increasing access to employment services through universally designed programming, working with the technology industry to promote accessibility in product development or ensuring that workforce policy protects the most vulnerable populations, states are the natural place to test a wide range of ideas that can serve as models for potential replication. As with other policy areas, when it comes to workforce development, states can serve as “laboratories of democracy.”

To structure its work and resulting recommendations, the task force focused on three primary issues that impact the future of state workforces and, by extension, the nation's workforce at large:

1. Advances in automation and technology
2. The rise of the gig economy
3. The changing nature of apprenticeship

Within this three-part framework, the task force identified key issues that create both challenges and opportunities for improving employment for people with disabilities and other underrepresented populations. For advances in automation and technology, these issues include web-based systems, artificial intelligence, autonomous vehicles, 5G technology and “smart” states and cities. Related to the rise in the gig economy, these issues include worker classification, civil rights and worker protections, portable benefits, informed choice of worker status and data collection. Related to the changing nature of apprenticeship, these issues include technological advancement and resulting industry diversification, globalization, structural flexibility, worker migration, education and transportation.

Based on its findings, the task force developed recommendations and compiled best practices and policy and program options for state policymakers to consider as they look to the future of their workforces.

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Increasing Access & Inclusion, by Design

Today, rapid changes in automation and technology, as well as a growing polarization between high- and low-skilled jobs, are reshaping the labor market and changing the nature of work (McKinsey Global Institute, 2017). Understanding these shifts and how they interact with and impact each other is key to developing a strong workforce for the future at both the state and national levels.

For example, new technologies have the power to increase creativity and productivity, encourage economic growth, improve individual and organizational performance and provide more opportunities for underrepresented populations—including people with disabilities—to join and remain in the workforce. However, these advances also affect the workforce by automating previously manual jobs and changing where and when individuals engage in work as well as the skills needed to succeed (McKinsey Global Institute, 2017).

Such changes not only affect individual workers and organizations; they also impact state and local economies. Policymakers, individuals and business leaders must work together to ensure that workforce policy supports the most accessible and inclusive environments that foster skill and educational development in order to facilitate access for the most diverse range of people possible, including people with disabilities and other underrepresented populations. Universal Design principles are the key to doing so.

Universal Design is a strategy for designing places, products, environments, operational systems and services that are accessible, understandable and usable to the most diverse range of people possible, regardless of ability. Its key principles are simplicity, flexibility and efficiency. The benefits of Universal Design principles are already visible in many aspects of daily life, from sidewalk curb cuts (essential to people who use wheelchairs but also beneficial to people pushing carts or strollers) to voice-activated commands on mobile phone applications (critical to people with limited dexterity but also beneficial to people who want to type hands-free). Although more commonly used for places and products, Universal Design can also be applied to policy and is an effective strategy for increasing inclusion of public policy generally and specifically in the workforce environment.

2019 Disability Employment Statistics

(ages 16 years and over)

Labor Force Participation



20.6%

People with disabilities



68.7%

People without disabilities

Unemployment Rate

6.1% People with disabilities

3.2% People without disabilities

Nationally according to the U.S. Department of Labor as of September 2019

UNDERSTANDING THE IMPERATIVE

Increasing access is an issue of both pragmatism and principle. Global competition, combined with low unemployment, has created a high demand for skilled workers. The disability community offers a large untapped pool of potential candidates, but a significant percentage of people with disabilities are not working. In September 2019, 68.7% of working-age individuals without a disability were participating in the labor force, compared to only 20.6% of individuals with a disability (ODEP, 2019).

Further, individuals with disabilities are disproportionately affected by changes in the labor market. For example, individuals with disabilities are likely to bear higher economic burdens as the structures

In 2018, the employment-population ratio for persons with a disability was 19.1% compared to 65.9% for those without a disability.

Top 5 occupations employing individuals with disabilities:

% of workers with a disability

1. **Sales and office** (23.1%)
2. **Service** (19%)
3. **Production transportation and material moving** (13.9%)
4. **Office and administrative support** (12.6%)
5. **Natural resources, construction and maintenance** (10.3%)

Employed persons with a disability were more likely to be self-employed than those with no disability.

In 2018, 31% of workers with a disability were employed part time, compared with 17% for those with no disability.

Across all educational attainment groups, jobless rates for persons with a disability are higher than those for persons without a disability.

Source: The Bureau of Labor Statistics: <https://www.bls.gov/news.release/disabl.nr0.htm>

of pensions, disability benefits, and insurance schemes, among other worker protections, change to reflect the shift from traditional employment systems to more task-oriented gig economies (The World Bank Group, 2015).

A THREE-PART OUTLOOK

While it is impossible to know the exact changes on the horizon, change itself is a given and leaders in public policy and workforce development can work together to implement programs and processes that support the success of both businesses and workers in their communities. In this spirit, The Council of State Governments (CSG) formed the National Future of the Workforce Task Force to identify options to expand and enhance employment opportunities for people with disabilities, as

CSG formed the National Future of the Work Force Task Force to identify options to expand and enhance employment opportunities for people with disabilities, as well as other underrepresented populations, in an era of rapid change.

well as other underrepresented populations, in an era of rapid change.

As noted in the executive summary, the task force made a strategic decision to consider the future of the *workforce*, rather than *work*. This distinction is important because for many people with disabilities, environmental or systemic barriers hinder access to employment or opportunities to prepare



The task force identified three main areas of high potential impact on access to the workforce for individuals with disabilities:

1. Advances in automation and technology
2. The rise of the gig economy
3. The changing nature of apprenticeship

Themes for state policymakers to consider:

- Universal and inclusive design
- Access to transportation
- Data collection
- Addressing algorithm bias
- Cross-stakeholder engagement

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1. Advances in automation and technology
2. The rise of the gig economy
3. The changing nature of apprenticeship

While not an exhaustive list of issues impacting the employment of people with disabilities, task force members deemed these topics particularly relevant given the continual advances in technology and societal expectations of work and workers as well as implications for policy innovation, especially at the state level. Through each corresponding subcommittee, members pinpointed challenges and opportunities for increasing workforce inclusion within the context of these topics. This report outlines key considerations for policymakers and highlights a number of best practices and strategies states can consider to better the future of employment for individuals with disabilities and, by extension, their state workforces.

Several recurring themes emerged across all three topic areas that state policymakers can consider:

- Incorporating Universal Design principles into both policymaking and the design of products and places.
 - Part and parcel of this is inclusive design, through which people with disabilities and other populations are engaged in developing products and services for them. This reflects the principle of “nothing about us without us.”
- Improving access to and accessibility of transportation because it is a critical employment support for many people, including but not limited to people with disabilities.
- Facilitating data collection and dissemination to gauge success and identify areas in need of improvement.
- Creating expectations for the technology industry to actively prevent and repair algorithm bias.
- Ensure cross-stakeholder engagement to understand how changes impact all sectors, since there is typically no one-size-fits-all solution.

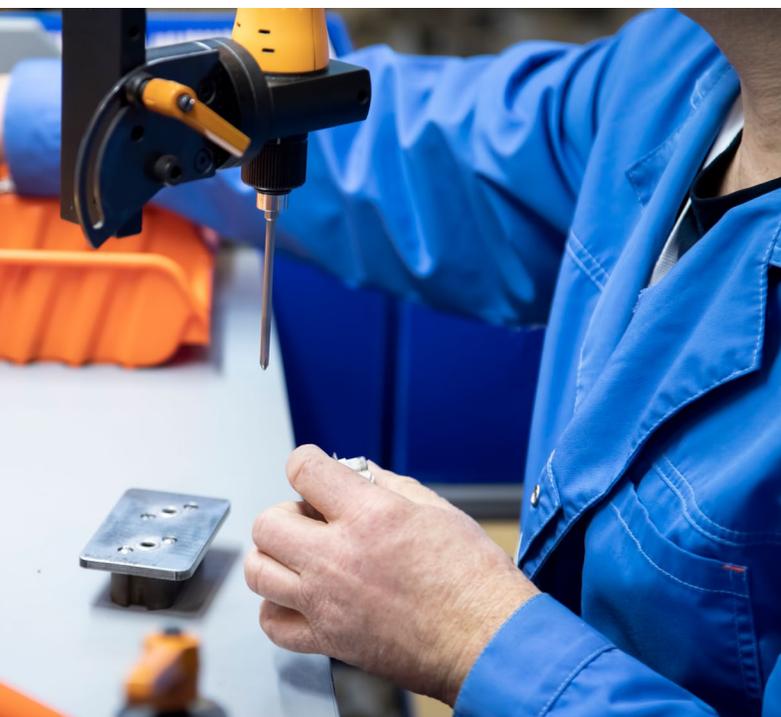
FOCUS AREA 1
**Advances in
Automation
& Technology**

UNDERSTANDING THE LANDSCAPE

What is Meant by Automation & Technology?

Automation is a broad term describing the use of technology to perform a process or procedure with minimal or reduced human input. Because technology makes automation possible, the two terms go hand in hand. Advancements in automation and technology have always significantly impacted the type, quality and number of jobs available in America, spurring the nation's transition from a primarily agrarian to industrial economy. More recently, automation and technology have given birth to the "digital economy." This shift also has implications on the nature of work as well as the skills workers need to succeed on the job.

From the internet and online mobile apps to artificial intelligence, nearly all workplaces have been transformed by advances in automation and technology in recent decades. What's more, new and emerging examples such as home automation and autonomous vehicles are changing the supports, such as accessible technology, that actually make employment possible for most people, as well as significantly improve their productivity.



THE STATE PERSPECTIVE: IMPLICATIONS FOR THE FUTURE OF THE WORKFORCE

Technological advances have proven to be a positive force for our economy, businesses, states and workers. New and emerging technologies have the potential to further increase creativity and productivity, encourage economic growth, improve the performance of employees and employers and provide increased employment opportunities for underrepresented populations, including individuals with disabilities. Although powerful, these advances can create unintentional barriers in addition to positive advances. State policymakers must stay informed in order to develop policies that remove the barriers and promote the opportunities.

The Intersection of Automation, Technology & Inclusion

Within the workplace, Universal Design strategies can help states and businesses serve the most customers, facilitate opportunities for collaboration and coordination, promote the development of higher quality products and create greater alignment between workforce development and economic growth (NCWD, 2007). Additionally, when accessible, technology can help empower individuals with disabilities to gain employment and provide employers a more direct pipeline of talent. This is due to the growing role of technology in performing certain jobs and accessing critical supports that facilitate employment for many people with disabilities, including transportation, housing and other aspects of independent living.

The key to Universal Design is ensuring the needs of people with disabilities are taken into consideration from the start. State policymakers play an important role in promoting such inclusive plans. Policymakers may want to consider implementing principles of Universal Design into the policymaking and workforce development process. The "Universal Design for the Workforce Development System Toolkit" was designed by the now disbanded National Center on Workforce and Disability to create and promote a workforce development system that is responsive to local needs, including those of diverse industries and individuals seeking employment. It

offers concrete strategies to guide strategic planning efforts, including partnerships, capacity building and administration, management and evaluation.

Further, design teams should be as diverse as possible and include individuals from all sectors of the population, particularly individuals with disabilities. This inclusion should occur as early as possible in the design process to ensure products are as accessible as possible from the onset. Additionally, individuals with disabilities should be included in the policymaking process surrounding these new technological innovations, as their lived experiences provide unique insights that can inform public policies, programs and accommodations.

Impacting Issues

Through the course of its discussions, the task force subcommittee identified a number of key issues at the intersection of advances in automation and technology and workforce inclusion through the adoption of Universal Design features. These include:

- Cloud-based systems
- Artificial intelligence
- Autonomous vehicles
- 5G technology
- “Smart” states and “smart” cities

Cloud-based Systems

Websites, online systems, mobile apps and other forms of information and communication technology that provide information, data, services and employment opportunities are considered web-based systems. For example, employers use internal websites, often called intranets, to conduct job-related testing, train employees and share information about fringe benefits and employer-sponsored events and activities. Additionally, these systems, paired with other assistive technologies, can empower people with disabilities to participate in the workforce in non-traditional ways, such as telecommuting.

Artificial Intelligence

This area of computer science emphasizes the creation of intelligent machines that work and react like humans (Rouse, 2018). Employers are

In 2019, the Employer Assistance and Resource Network on Disability Inclusion developed a set of guiding principles to be used by employers to ensure that artificial intelligence systems facilitate the inclusion of individuals with disabilities:

- Artificial intelligence systems should include Universal Design features.
- Artificial intelligence should facilitate the diversity and inclusion of individuals with disabilities in the workplace.
- Businesses should not design or procure artificial intelligence technology that discriminates on the basis of disability.
- Artificial intelligence should be used in the workplace to directly benefit individuals with disabilities by providing effective and meaningful opportunities to perform essential job functions.
- Accessibility should be embedded in the structure of companies and serve as an integral part of technological development. Companies should employ and engage people with disabilities.
- Given the potential impact of artificial intelligence on the future of work, particularly its impact on job automation and the development of new industries, there is a need for training in new opportunities to be inclusive for individuals with disabilities.

Source: Employer Assistance and Resource Network on Disability Inclusion, 2019

increasingly using artificial intelligence to screen applicants, streamline the application process, provide on-the-job training, disseminate information to employees and enable workers to become more productive. Artificial intelligence can be a facilitator of employment opportunities for individuals with disabilities. Features like predictive text, speech-to-text transcription and voice and visual

The State Exchange on Employment and Disability (SEED) identified the following 14 guiding principles related to autonomous vehicle policy and practice:

1 Inclusive Licensing: Licensing laws should not prevent people with disabilities from using autonomous vehicles (Level 4 and Level 5). This principle is important because people with certain disabilities do not qualify for driving licenses.

2 Universal Design: Manufacturers of all new autonomous vehicle technology should adopt the principles of Universal Design.

3 Interpretation of Existing Disability Rights and Privacy Laws: State and federal civil rights laws covering people with disabilities should be interpreted to require accessible autonomous vehicles and ensure privacy and confidentiality.

4 Accessibility for All Types of Common and Public Use Autonomous Vehicles: Procurement policies should ensure that all types of common and public use autonomous vehicles are fully accessible to people with disabilities.

5 Anti-discriminatory Insurance and Liability Policies: If passengers of fully autonomous vehicles are required to obtain insurance, rates and coverage must not discriminate against those who may not otherwise drive.

6 User Interface Systems: All user interface systems on fully autonomous vehicles should be accessible to people with diverse disabilities, consistent with Universal Design principles. For example:

- For individuals who are blind, low-vision or who have limited fine motor control, interface systems should include equivalent audio and/or non-visual methods of communication.
- For individuals who are deaf, hard of hearing or have difficulties with speech, interface sys-

tems should include equivalent visual and/or textual methods of communication.

- For individuals with cognitive impairments, systems should include minimally complex directions and control identifiers.

7 Information and Communication Technology: All information and communication technology products, including online systems should be required to comply with standards set out in Section 508 of the Rehabilitation Act, particularly with the Web Content Accessibility Guidelines (WCAG) 2.0, Levels A and AA.

8 Hardware: The vehicle should include space to stow a wheelchair (if transferring), be able to lower floors to accommodate wheelchairs, have a lift/ramp and accessible securement system, and have accessible door handles and storage spaces.

9 Manage Emergencies: Highly automated vehicles should be capable of informing the passenger in a way that allows the system to return to minimal risk condition automatically and independently or build in teleoperation (remote control) functionality.

10 Activities Beyond the Car: Automation should be applied to include the full spectrum of activities beyond the car such as door-to-door planning (and driverless vehicle dispatch), passenger wayfinding to pick-up/parking, vehicle ingress, passenger seating, securement and belting, en route troubleshooting, vehicle egress, parking/drop off and additional wayfinding to destination. Also, automation should provide information about the environment surrounding the vehicle such as location, route, landmarks, road conditions, accidents, deviations from route or why the ride may be stopping.

11 Infrastructure Development: Infrastructure development (e.g., signage, accessible sidewalks, curb cuts, transit stops and stations, audible pedestrian signals and crosswalks) must keep pace with the proliferation of fully automated vehicles.

12 Meetings Among Stakeholders: Dialogue among key stakeholder groups, state legislatures and public agencies should include representation by disability groups. Policies should be developed with input from the disability community and should not impose limitations on people with diverse disabilities to the fullest extent possible.

13 Disability Advisory Committee: A disability advisory committee for automation should be created. The committee should represent the broad and diverse spectrum of disabilities, including physical, mobility, sensory, mental and cognitive impairments.

14 Funding for Research and Development: All requests for proposals that provide funding for the research and development of autonomous vehicles or their components should include a requirement that respondents demonstrate that any products resulting from their research or development incorporate accessibility and that all resulting products are fully accessible. Research should also address liability issues (e.g., who is liable if the wheelchair securement did not function properly; who is liable if the vehicle left a passenger off at an unsafe or inaccessible location; who is liable if an assistive device is damaged as a result of a crash?)

For more information, visit seed.csg.org to read the SEED Autonomous Vehicles State Policy Development Brief.

recognition have enabled many individuals with disabilities—including individuals with intellectual, visual, hearing and physical disabilities—to communicate, find information and manage their schedules. Other device features such as facial and fingerprint recognition have been important developments as well, increasing personal privacy and security for users with disabilities (Fry, O’Flynn, & Brennan, 2018).

Overall, artificial intelligence can improve communication skills, ensure safety, allow for individuals to navigate the physical and virtual worlds better and provide more independence for individuals with disabilities (Cognylitica, 2018). However, algorithm bias and lack of quality data in artificial intelligence is creating barriers to employment for these individuals. Algorithms may fall susceptible to a bias, which is systemically favorable to individuals within a particular group over another due to unrepresentative or incomplete data, personnel design bias or reliance on information that may reflect historical inequality (Lee, Resnick, & Barton, 2019).

Autonomous Vehicles

These self-driving vehicles use various in-vehicle technologies and sensors, including adaptive cruise control, active steering (steer by wire), anti-lock braking systems (brake by wire) and GPS navigation technology, to move the vehicle from one location to another either independently or with moderate engagement by the driver (Gartner, 2019). The Society of Automotive Engineers (SAE) defines six levels of driving automation ranging from 0 (fully manual) to 5 (fully autonomous), which have been adopted by the U.S. Department of Transportation. Level 1 refers to vehicles with assisted automation features, such as cruise control, while Level 5 would refer to vehicles that can drive themselves safely in all driving conditions (Taeihagh & Si Min Lim, 2018).

The advent of autonomous vehicles will have a substantial impact on employment for people with disabilities. These individuals often encounter significant barriers to transportation, including a lack of accessible public transportation and associated high financial burdens. According to a 2017 study by the Ruderman Foundation, miti-

gating these transportation obstacles would enable employment for 2 million individuals, save \$19 billion annually in health expenditures from missed appointments and potentially provide \$1.3 trillion in savings from productivity gains, fuel costs and accident prevention, among other sources.

5G Technology

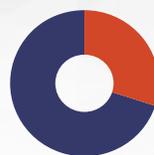
Fifth generation (5G) wireless technology targets high data rates, reduced latency, energy savings, cost reductions, higher system capacity and massive device connectivity. 5G offers opportunities for new, innovative devices with enhanced accessibility features that can potentially be customized for different levels of vision, hearing, physical, cognitive and speech abilities. As high-speed networks allow for faster data flow and enable technology to function more accurately and precisely in real time, 5G services can allow people with disabilities to live independently in more connected smart homes with enabled services such as virtual assistance services, virtual reality, smart home automation systems and talk-to-text services (CNET, 2018).

Internet of Things

The Internet of Things (IoT) is the term for the network of technologies and devices that can communicate and exchange data via the internet. IoT includes any technology with an internet connection ranging from smartphones and virtual assistants to smart cars and autonomous vehicles. IoT has the added potential to increase efficiency, productivity, and quality of life for individuals with disabilities by providing assistive features that offer seamless access to supportive technologies. For example, through voice activation, touch screens, and connectivity, smart home devices can help with navigation and control the lights, thermostat and other things in their personal environment as well as set reminders and appointments, look up information, order products online, and communicate with colleagues, friends, and family (Bureau of Internet Accessibility, 2018).

Smart States and Cities

A smart state or city is a community that uses information and communication technologies to increase operational efficiency, share information with the public and improve citizen welfare. Utilizing a combi-



30% of inner-city traffic is comprised of drivers looking for a parking space.

nation of artificial intelligence, the Internet of Things, and eventually autonomous vehicles, smart communities leverage emerging and connected technologies that can help reduce barriers to employment for individuals by making daily life more intelligent, sustainable, efficient, transparent and accessible. Smart cities depend on technology, such as global information mapping system software, to contextualize data in order to increase efficiency of energy, transportation, public safety and emergency management (Amazon). Through increased connectivity and real-time monitoring of public utilities, such as traffic lights or public spaces, and their interactions with personal devices, smart states and cities can provide an assessment of community conditions, which can improve navigability, livability and accessibility. As a result, this can improve independent living conditions for individuals with disabilities and provide access to increased job opportunities and employment supports, such as accessible transportation options or teleworking infrastructure (Korngold, Lemos, & Rohwer, 2017).

As an example of how smart cities work, according to AbilityNet, 30% of inner-city traffic is comprised of drivers looking for a parking space (Christopherson, 2016). Smart cities may have parking meters equipped with smart sensors to know which bays are empty and where, combined with the infrastruc-

AT&T and Business for Social Responsibility outline four keys to success to ensure that smart cities are also inclusive cities (Chris Penrose, 2016):

1. Design for inclusion
2. Engage partners and stakeholders
3. Promote adoption of technology
4. Encourage innovation and entrepreneurship

ture to guide drivers to spots and pay for parking, which can be especially helpful in locating spaces designated for individuals with disabilities that may be limited and difficult to find (Korngold, Lemos, & Rohwer, 2016).

POLICY & PROGRAM OPTIONS

In order to ensure that advances in technology promote and do not inadvertently create barriers to employment opportunities for individuals with disabilities, state policymakers may want to consider the following policy options:

1. Establish a commission or committee on automation and technology and the impact on the state, which includes a disability perspective.
2. Mandate a study on the effects of automation and technology on the state. Studies may focus on broader statewide effects of artificial intelligence or, more specifically, on sub-populations or sectors, such as the intersection of disability and artificial intelligence in workforce development or transportation.
3. Develop a strategic plan or roadmap for the use of emerging technologies and include individuals with disabilities in its development.
4. Conduct data collection efforts to understand the rates at which individuals in the state understand, have access to and utilize technology and web-based applications.
5. Invest in research and development of technologies that are accessible and use the principles of Universal Design.
6. Incentivize the creation and adoption of emerging technologies that empower businesses to deliver profits to owners and investors, while maximizing accessibility and income for individuals with disabilities.

Examples in Action

Web-based Systems

“Work Matters: A Framework for States on Workforce Development for People with Disabilities,” a publication of The Council of State Governments

and National Conference of State Legislatures, highlights several state policy initiatives that promote website accessibility. (Whitehouse, Ingram, & Silverstein, 2016). More recently, initiatives have been enacted by states including California and Utah. **California** Assembly Concurrent Resolution 222 (2018) called on all state agencies to advance with great urgency the task of making all information on their websites accessible to California residents and businesses providing goods or services to the residents of California to make their online content accessible to their customers and recognized May 17 as Global Accessibility Awareness Day in California. **Utah** House Bill 284 (2019) authorized the state’s Department of Technology Services to coordinate with executive branch agencies to provide basic agency website standards that address common website design and navigation.

During a convening in Asilomar, CA in 2017, 23 principles were endorsed by over 3,800 experts in AI, economics, law, ethics and philosophy.

Artificial Intelligence

In January 2017, a collaboration of artificial intelligence researchers, economists, legal scholars, ethicists and philosophers met in Asilomar, **California**, to address research issues, ethics and values and longer-term issues related to artificial intelligence (Future of Life Institute, 2018). The outcome was a set of 23 principles as guiding values for the development of artificial intelligence and related public policy (ACR-215 23 Asilomar AI Principles, 2018). Currently, several states are considering bills that address the implications of artificial intelligence in the workplace. Other initiatives under consideration include: establishing a commission (**Alabama, Massachusetts**), convening an advisory committee (**Hawaii**) and mandating a study (**Connecticut**).

In 2017, the **New York** City Council passed Law 2018/049, an algorithmic accountability bill which required “the creation of a task force that provides recommendations on how information on agency automated decision systems may be shared with

the public and how agencies may address instances where people are harmed by agency automated decision systems.” (The New York City Council, 2018)

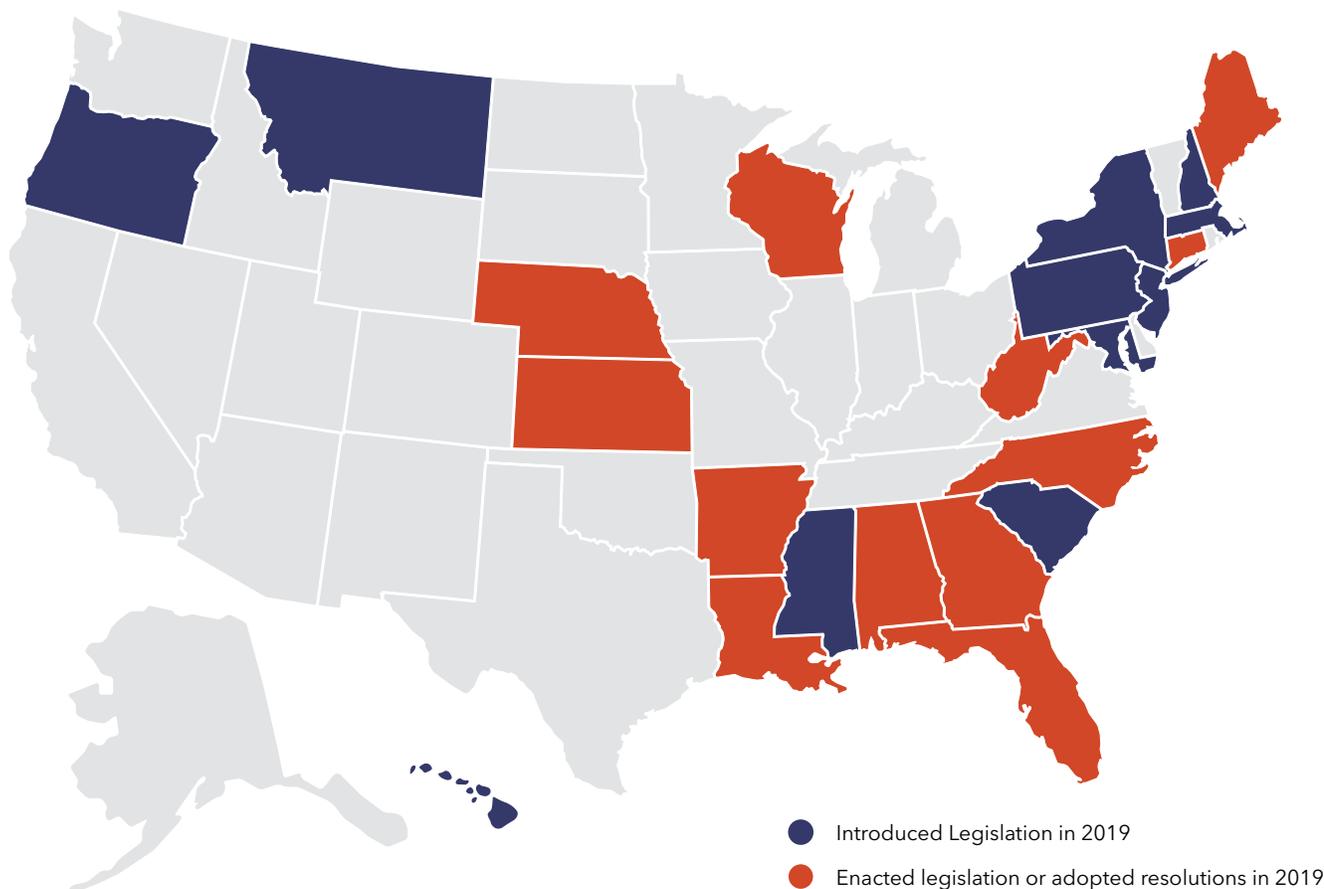
The **Alabama** Commission on Artificial Intelligence and Associated Technologies was created to study the growth potential of artificial intelligence in the state, the probable economic impact on public and private sectors and the potential effects on the quality of life for residents including opportunities for improving education (Bailey, 2019). The intent of the commission is to ensure that the state’s workforce is ready for artificial intelligence and legislators are able to formulate policies that promote transformative technologies of artificial intelligence in a responsible way (Thornton, 2019).

In 2019, **Hawaii** passed Senate Resolution 142 requesting the state convene an Artificial Intelligence Advisory Committee to investigate how to implement, develop and regulate artificial intelligence in the state. The committee is composed of the direc-

tor of Business, Economic Development and Tourism, the chief information officer, a representative from the U.S. Department of Defense Joint Artificial Intelligence Center and a number of other experts and stakeholders (Hawaii State Legislature, 2019).

In 2018, **California** created an artificial intelligence roadmap, which includes policy recommendations intended to “grow the state’s economy, take advantage of artificial intelligence to enhance services to Californians, reconfigure its educational institutions to provide necessary education and training, improve data collection and sharing while protecting sensitive data and promote privacy, transparency and accountability in the development and use of AI.” Many of the recommendations include the development of new advisory positions intended to ensure effective coordination between the artificial intelligence industry and state agencies (Milton Marks Commission on California State Government Organization and Economy, 2018).

5G & Small Cell Legislation in the States



Autonomous Vehicles

Colorado's SB 17-213 (2017) authorizes the testing and use of Level 4 and 5 autonomous vehicles. Under the terms of the bill, the General Assembly finds that the use of automated driving systems will help people who may have difficulty driving, including people who are elderly and/or have disabilities, gain access to goods and services essential for daily life, (Colorado General Assembly, 2017).

The **District of Columbia's** B22-0922, at page 112 (2018), requires an evaluation of the effects and impacts of autonomous vehicles on several areas, including the district's disability community, (The Council of the District of Columbia, 2018)

Nevada's AB 69 (2017) revises existing requirements for the testing or operation of autonomous vehicles, authorizes the use of a fully autonomous vehicle to provide transportation services in certain circumstances and regulates autonomous vehicle network companies. The following provisions relate either directly or indirectly to people with disabilities:

- Autonomous vehicle network companies are prohibited from imposing any additional charge for providing transportation services to a person with a physical disability because of the disability and are required to adopt a policy that prohibits discrimination against a passenger or potential passenger on account of a disability.
- Autonomous vehicle network companies are required to provide passengers the opportunity to indicate that they require transportation in a fully autonomous vehicle that is wheelchair accessible. If the company cannot provide the passenger with transportation services in a fully autonomous vehicle that is wheelchair accessible, the company must direct the passenger to an alternative provider or means of transportation that is wheelchair accessible, if available.
- The bill states, "no motor vehicle laws or traffic laws of this State shall be construed to require a human driver to operate a fully autonomous vehicle which is being operated by an automated driving system, and that the automated driving system of a fully autonomous vehicle shall, when engaged, be deemed to fulfill any physical acts

which would otherwise be required of a human driver except those acts which by their nature can have no application to such a system." (Nevada Electronic Legislative Information System, 2017)

Maine's H.P. 1204 (2018) establishes the Commission on Autonomous Vehicles, which includes a representative from the Office of Aging and Disability Services within the Department of Health and Human Services, appointed by the Commissioner of Health and Human Services, (Maine Legislature, 2018).

Similarly, **Massachusetts** created the Commission on the Future of Transportation to explore anticipated changes in technology, climate, land use, the workforce and the economy to better understand potential impacts on transportation between 2020 and 2040. The commission conducted research, engaged in scenario planning and made a number of substantial recommendations on state priorities and sectors that need investment (Commission on the Future of Transportation in the Commonwealth, 2018).

Some states have begun to create relationships with industry leadership to pilot autonomous vehicle technology and to address the future of mobility in their state. For example, **Michigan's** Future of Mobility Council was created in 2016 through SB 995 to make statewide policy recommendations and encourage innovation relating to autonomous vehicles, (Maine Legislature). One of the council's strategic goals is to promote equitable access to future mobility options for the disability community and seniors. Currently, the council recommends that the disability community be involved in the debate surrounding autonomous vehicles and that pilot programs be developed with the goal of improving mobility and fostering independence for persons with disabilities.

5G Technology

Currently, 21 states have enacted legislation to enable the use of 5G technology, set a standard regulatory process for installing 5G infrastructure, or created a loose framework to guide local governments (Dean, 2018). Though 5G regulations are uniquely suited to address each state's needs, the majority are consistent with wireless industry standards and include:



- Streamlined applications to access public rights of way
- Caps on costs and fees
- Streamlined timelines for the consideration and processing of cell siting applications

While these regulations are not specific to individuals with disabilities, these low barriers to access mean individuals with disabilities are more able to access assistive and innovative technologies that can empower them to work.

Smart States and Cities

In 2016, Illinois became the first to declare its intent to become a smart state. It began by transforming state government to operate more efficiently, supporting the development of smart cities through policies and funding and creating smart and connected regional clusters for economic development (Clarke, 2016).

Commissions for Understanding the Effects of Automation and Technology

Alabama, California, Hawaii, Massachusetts, Michigan and Vermont have developed commissions that focus more broadly on the future of automation and technology to help state leaders

set priorities, identify where to allocate funding and better understand the potential effects of automation and technology.

Prior to establishing a standing committee or commission, states may authorize studies on the effects of automation and technology in their state and the potential need of regulatory frameworks. Studies may focus on broader statewide effects of artificial intelligence or more specifically on sub-populations or sectors, such as the intersection of disability and artificial intelligence in workforce development or transportation. For example, in 2019, the **Connecticut** General Assembly Proposed Bill 6187, an Act requiring:

“That the Departments of Economic and Community Development, Consumer Protection and Transportation jointly study the potential commercial and practical applications and consequences of artificial intelligence, including, but not limited to, foreseeable human workforce displacement and issue a report with recommendations on possible regulatory frameworks related to artificial intelligence to the joint standing committees having cognizance of matters relating to commerce, consumer protection and labor not later than February 1, 2020.” (Rep. Maclachlan, 2019)

FOCUS AREA 2
**The Rise of the
Gig Economy**

UNDERSTANDING THE LANDSCAPE

What is the Gig Economy?

The term gig economy describes the increasing trend of people working as independent contractors rather than traditional employees, especially related to temporary projects. These individuals frequently engage in short-term jobs, working on a project-by-project or client-by-client basis, and they often sell services and goods on web- or app-based platforms. Commonly known examples include ride-sharing services such as Uber or Lyft and the household chores service TaskRabbit.

Demand for these kind of employment arrangements is growing as customers appreciate the increased availability and convenience of services (Dokko, Mumford, & Schanzenbach, 2015). Many workers appreciate the flexibility that this type of work offers as some may use it to supplement income from traditional employment, while others make it their sole source of income. Still others might use it to earn income during gaps in traditional employment. However workers engage, the gig economy is a digital age adaptation of Americans' long-standing embrace of self-employment.

Business models in the gig economy vary substantially. While some companies maintain control over price setting, project allocation and hours worked, others allow workers to set their own prices and select projects (Donovan, Bradley, & Shimabukuro, 2016). Furthermore, many individuals still engage in independent contractor work that is not app based, taking on discrete projects for clients who need skills across the occupational spectrum, from writing to construction.

THE STATE PERSPECTIVE: IMPLICATIONS FOR THE FUTURE OF THE WORKFORCE

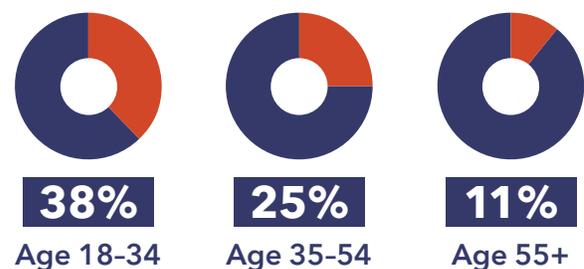
The rise of the gig economy impacts the American workforce in several ways by creating more complexity and fluidity in how people work and earn and, in turn, how they pay taxes and receive benefits. It is estimated that about 36% of people in the U.S. participate in the gig economy in some capacity. About 10% of workers rely on temp agency, on-call, contracted and freelance work as their primary income, and 1% use apps to arrange full-time work (Gig Economy Data Hub, 2017; Byrne-Haber). Use of these apps, which has expended significantly in recent years, connects gig workers to customers seeking to hire freelance or contingent workers to perform one-time or temporary tasks or projects.

For 44% of gig workers, gig work is their primary source of income.

For MORE THAN HALF of gig workers (53%) age 18-34, gig work is their primary source of income.

80% of gig employees whose gig work is their primary source of income say that an unexpected expense of \$1,000 would be difficult to pay.

Likelihood of Engaging in Gig Work



85% OF GIG EMPLOYEES whose gig work is their primary source of income say they worry about how an economic recession in the U.S. would affect them.

Source: <http://www.edisonresearch.com/wp-content/uploads/2019/01/Gig-Economy-2018-Marketplace-Edison-Research-Poll-FINAL.pdf>

The Intersection of the Gig Economy and Inclusion

Because of its flexibility, the gig economy has the potential to expand employment options and increase earning potential for people with disabilities, including those who have faced difficulty finding or retaining traditional employment and/or who want to have more control over where, when and how they work. This increased decision-making power and ability to work on their own terms can positively affect the emotional health of self-employed individuals with and without disabilities.

What's more, gig work typically offers more flexibility than traditional self-employment with less overhead and fewer start-up costs. For example, instead of having to establish and market their new business, gig workers can leverage existing platforms such as Uber, Airbnb and TaskRabbit, among others, to quickly connect with customers looking for services. In many cases, these opportunities, when developed on accessible platforms using Universal Design concepts, can remove traditional barriers to employment for people with disabilities. For instance, the practice of entering the ride destination within the Uber application has allowed deaf individuals to overcome the traditional barrier of verbal communication with patrons by providing the route via GPS (Glenn, 2018).

While self-employment in the gig economy has its benefits for people with disabilities, there are also significant challenges and concerns. Among these are the accessibility of platforms, as well as the lack of worker protections such as the Fair Labor Standards Act, workers' compensation and equal opportunity laws, the Americans with Disabilities Act (ADA) and state-level nondiscrimination laws.

Impacting Issues

The rise of the gig economy can offer opportunities for increased workforce participation for people with disabilities and other groups that may, on average, seek more flexibility than traditional employment may provide. The task force subcommittee exploring this topic identified a number of key considerations related to the gig economy and workforce inclusion:

Factors of Employee Status from the U.S. Department of Labor Wage and Hour Division

The U.S. Department of Labor Wage and Hour Division released opinion letter FSLA 2019-6, which responds to the question of whether service providers working for a virtual marketplace company are employees or independent contractors under the Fair Labor Standards Act. The opinion notes that the touchstone of employee versus independent contractor status has been "economic independence," as determined by six key factors:

1. The nature and degree of the potential employer's control
2. The permanency of the worker's relationship with the potential employer
3. The amount of the worker's investment in facilities, equipment or helpers
4. The amount of skill, initiative, judgment or foresight required for the worker's services
5. The worker's opportunities for profit or loss
6. The extent of integration of the worker's services into the potential employer's business

Source: U.S. Department of Labor, 2019

- Worker classification
- Civil rights and worker protections
- Portable benefits
- Informed choice of worker status
- Data collection

Worker Classification

This refers to an individual's classification as employee or independent contractor. If an individual is classified as an employee, the hiring employer bears the responsibility of paying federal Social Security and payroll taxes, unemployment insurance taxes and state employment taxes, providing

Employee Status Determined by the ABC Test

Many states have adopted the ABC Test to determine a worker's status. The ABC Test, originally used in Massachusetts, begins with the presumption that workers are employees. In order to overcome the presumption, a company must prove each of the following (Pinsof, 2016):

1. The individual is free from control and direction in connection with the performance of the service, both under his/her contract for the performance of service and in fact
2. The service is performed outside the usual course of the business of the employer
3. The individual is customarily engaged in an independently established trade, occupation, profession or business of the same nature as that involved in the service performed

workers' compensation insurance and complying with numerous state and federal statutes and regulations governing the wages, hours and working conditions of employees. If an individual is classified as an independent contractor, the business does not bear any of those costs or responsibilities and the worker is not entitled to numerous labor law benefits and equal employment opportunity protections.

Civil Rights and Worker Protections

Title I of the Americans with Disabilities Act (ADA) prohibits discrimination on the basis of disability when there is an employer-employee relationship. However, Title I of the ADA does not cover independent contractors. If an individual with a disability is not an employee, he/she is not covered by Title I's nondiscrimination provisions. If the individuals are considered independent contractors and the companies are not considered employers subject to Title I of the ADA, there is a question as to whether the company that retains the independent contractor's services in the gig economy is still required to ensure nondiscrimination and equal

opportunity when selecting his/her services, (Americans with Disabilities Act, 2009).

It is important to note that an individual with a disability who alleges that a company failed to consider him/her as an independent contractor for a task may still allege discrimination against the company in its capacity as a public accommodation under Title III of the ADA. This interpretation that Title III of the ADA covers individual workers in the gig economy is important because individuals with disabilities may experience higher rates of discrimination than their counterparts without disabilities. For example, individuals with disabilities may experience lower scoring and higher rates of cancellations than their non-disabled counterparts (Taylor, 2017; Korosec, 2018).

Portable Benefits

A system of portable benefits is one in which workers have access to benefits outside a traditional employer-employee relationship and are able to take these benefits with them from job to job. Portable benefits can be accessed through online marketplace platforms that facilitate the health care/benefit services by service providers to customers seeking such services. Portable benefits allow individuals with disabilities to have more employment mobility without losing critical services. Further portable benefits can make it easier for workers to move from job to job if necessary and can reduce costs through group purchasing power (Reder, Steward, & Foster, 2019). The Aspen Institute's 2019 report, "Designing Portable Benefits," provides policymakers with a guide for designing portable benefits systems within their state.

Informed Choice of Worker Status

While the gig economy currently generates about \$204 billion dollars globally, few individuals actually understand it and know whether they are a part of it (Mastercard, 2019). Workers' lack of knowledge about their status in the gig economy can result in a failure to purchase individual forms of insurance because workers do not view themselves as self-employed (Pinsof, 2016). Further, these individuals may not be able or willing to pay the high costs of insurance premiums.

Public education on gig economy worker status and the benefits available to workers who qualify can help

protect individuals in this new digital age of self-employment. Education can be provided to the general public in a number of ways:

- **Ensure that individuals seeking employment in the gig economy are making informed decisions** by providing participants with information on the Federal Insurance Contributions Act (FICA), Social Security and unemployment, how to obtain medical insurance, the difference between employees and independent contractors, as well as the financial risks involved in participation.
- **Provide in-person or online classes regarding work in the gig economy.** For example, classes on worker classification, how to build and develop one's reputation, how to identify the best medical policies and how to ensure financial protections in the event of not being able to work.
- **Set up online state exchanges that educate individuals on the use of the gig economy, and facilitate access to opportunities and platforms.** These exchanges can function like job centers—not providing employment, but rather aggregating information on different platforms, providing literature on costs and benefits and offering financial tools. Users could use the exchange like job search websites, inputting their skills and location to identify potential gig economy options. A state exchange may also increase accessibility to users with disabilities by not only ensuring the exchange is accessible, but also requiring companies to have nondiscrimination policies if they choose to participate in the platform.
- **Work with gig companies to identify underutilized populations that may benefit from gig employment within the state,** acting as an intermediary between people and the platform.
- **Provide individuals with a place to share their knowledge and experiences of working in the gig economy.** An online- or in-person structure for exchange of best practices can help workers improve how they conduct business and provide goods and services in a gig economy. Individuals with disabilities considering entry into a specific type of work can also find peer mentors.

The Institute for the Future, in its 10 Strategies for a Workable Future Report, identified helpful design strategies related to platform ownership, transparency, privacy, benefits provision and skill development, many of which are also applicable to developing inclusive workforce policy:

1. Combine the best of investor-owned and commons-based platform models
2. Solve for both transparency and privacy
3. Integrate marginalized workers in a sustainable economy
4. Ensure opportunities for workers to advance outside of traditional organizational hierarchies
5. Support worker-owned identities
6. Create ways for workers to bring their voices together
7. Reinvent benefits to follow workers everywhere
8. Integrate learning and work
9. Prepare youth for engagement
10. Champion a good work code

Source: Institute for the Future, 2015

- **Invest in the development of a calculator tool to help individuals identify whether participation in the gig economy is financially beneficial to them,** whether investing in gig assets is financially feasible and how to identify costs associated with the work.
- **Introduce the potential for gig employment as a viable option for students as early on as high school,** whether through the provision of internship credit for a number of tasks completed or increased awareness and education on the gig economy and encouragement of its use.

Portable Benefits Models Appeal Across Stakeholder Groups

Workers

Opportunity to accrue not only income but also benefits across sources of income

Ownership of benefits makes it easier to move from job to job

Reduced cost through group purchasing power

Worker Advocates

Opportunity to build a constituency and revenue model around provision of benefits

Could serve groups such as domestic workers, who have been working without a functional set of benefits/protections for many years

Could create benefits access for workers at small businesses currently excluded from many benefit mandates

Policymakers

Broader benefits coverage would reduce burden on public safety net programs

Opportunity to improve worker security across work arrangements

Address long-term economic concerns associated with retirement and health-care costs

Employers

Limits administrative burden and requires less specialized in-house expertise (especially for small businesses)

Potential to attract and retain talent in a competitive employment market

Source: https://assets.aspen-institute.org/content/uploads/2019/06/Designing-Portable-Benefits_June-2019_Aspen-Institute-Future-of-Work-Initiative.pdf

Data Collection

Due to the nature of the gig economy, gathering data on the prevalence of work and relationships within it has been challenging. Further, individuals may fear identifying themselves as people with disabilities for fear of low ratings due to discrimination. This lack of data has also hindered improvements in programming, as well as in the implementation of policies to support participants in the gig economy, particularly in removing barriers for individuals with disabilities. As a foundational step, states may want to standardize the fundamental definition of gig economy workers in an effort to begin to better track engagement. (Employer Assistance and Resource Network on Disability Inclusion, 2019).

POLICY & PROGRAM OPTIONS

In order to ensure that individuals with disabilities are able to participate in the gig economy, state policymakers may want to consider the following policy options:

1. Establish a task force on the gig economy and its impact on the state that includes perspectives from the disability community.
2. Establish a task force that focuses on the classification and misclassification of workers as independent contractors or employees. This focus could be incorporated into the mission of an overall task force on the gig economy.
3. Clarify the implications for gig economy workers as they relate to determination of a worker's classification using the traditional ABC Test.
4. Clarify worker protections under existing state civil rights laws prohibiting discrimination on the basis of disability by public accommodations. This includes the applicability of laws to workers participating in the gig economy as well as the accessibility and usability of websites and mobile apps.
5. Incentivize the creation and adoption of platforms embedded with protocols and practices that em-

power businesses to profit and maximize income as well as promote positive conditions for those who depend on them for employment.

6. Adopt a system of portable benefits for gig economy workers.
7. Conduct initiatives to educate workers with disabilities about the implications of their status in terms of benefits and worker protections—or lack thereof—so they can make informed decisions.
8. Collect data in order to understand the rates at which individuals engage in the gig economy as well as what types of platforms and skills are used.
9. Provide a conflict resolution process for gig economy workers and companies and act as in-house alternative to litigation and provide options for adjudication.

Examples in Action

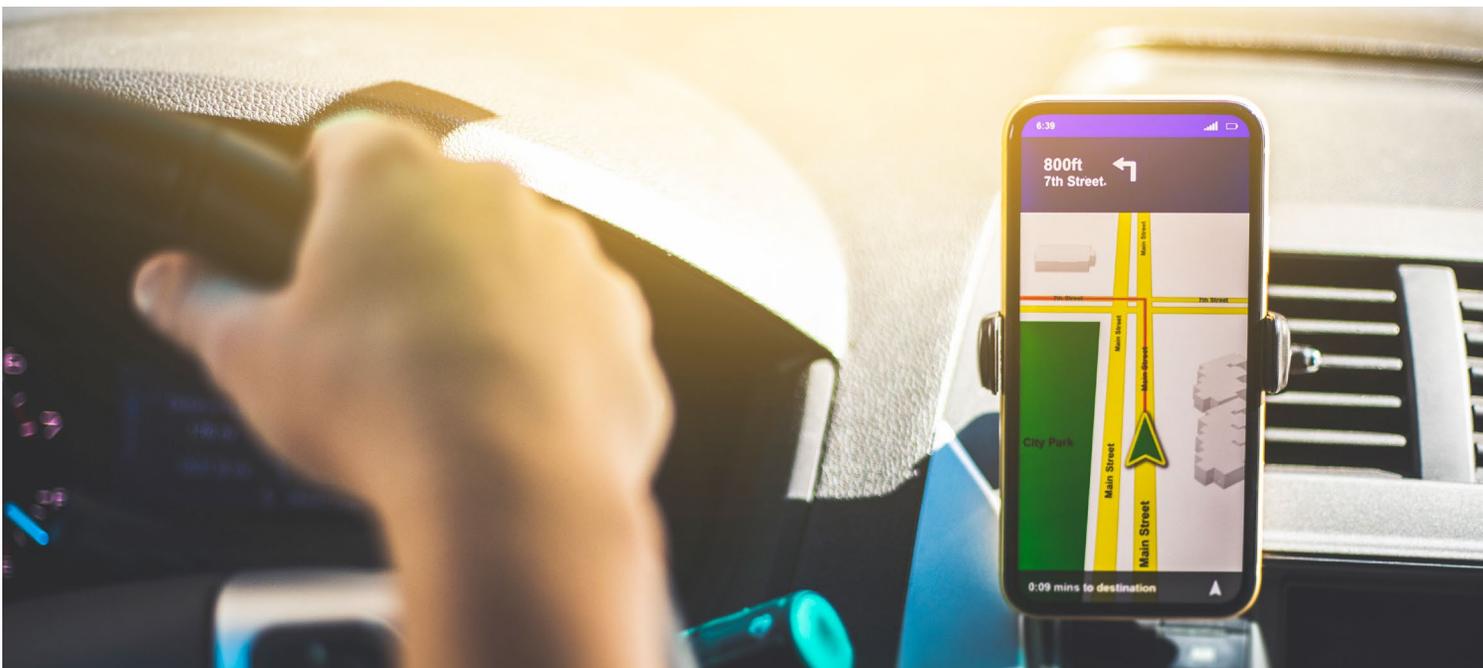
Commissions for Understanding the New Economy

States have begun to explore the most effective strategies for approaching the new economy through the development of employment and workforce taskforces or commissions. For example, a bill introduced in **New York** in 2019, SB 2650, would have established a Task Force on Jobs and the New Economy to address these topics. More specifically, the duties of the task force would have included:

- Examining the nature of newly created jobs and economic sectors in the 21st century, including on-demand employment and jobs related to or created by electronic application marketplaces
- Reviewing existing laws and regulations as they pertain to employers, employees and the new economy

WHAT IS THE GIG ECONOMY?

This term describes the increasing trend of people working as independent contractors rather than traditional employees, especially related to temporary projects. These individuals frequently engage in short-term jobs, working on a project-by-project or client-by-client basis, and they often sell services and goods on web- or app-based platforms.



- Assessing state laws on employment status and determining whether workers in new economic sectors are properly classified as employees or independent contractors, including whether changes to state law are necessary to properly classify employment status among workers in new economic sectors
- Assessing state laws on portable benefits and determining whether the state can and should provide a mechanism to allow for portable benefits among workers in new economic sectors (The New York State Senate, 2019)

In 2016, Gov. Andrew Cuomo of **New York** issued Executive Order No. 159, which establishes a Joint Task Force on Employee Misclassification and Worker Exploitation. The duties of the task force include identifying potential statutory, regulatory or other actions that would strengthen enforcement and education efforts, including clarifying any existing legal or procedural ambiguities or inconsistencies.

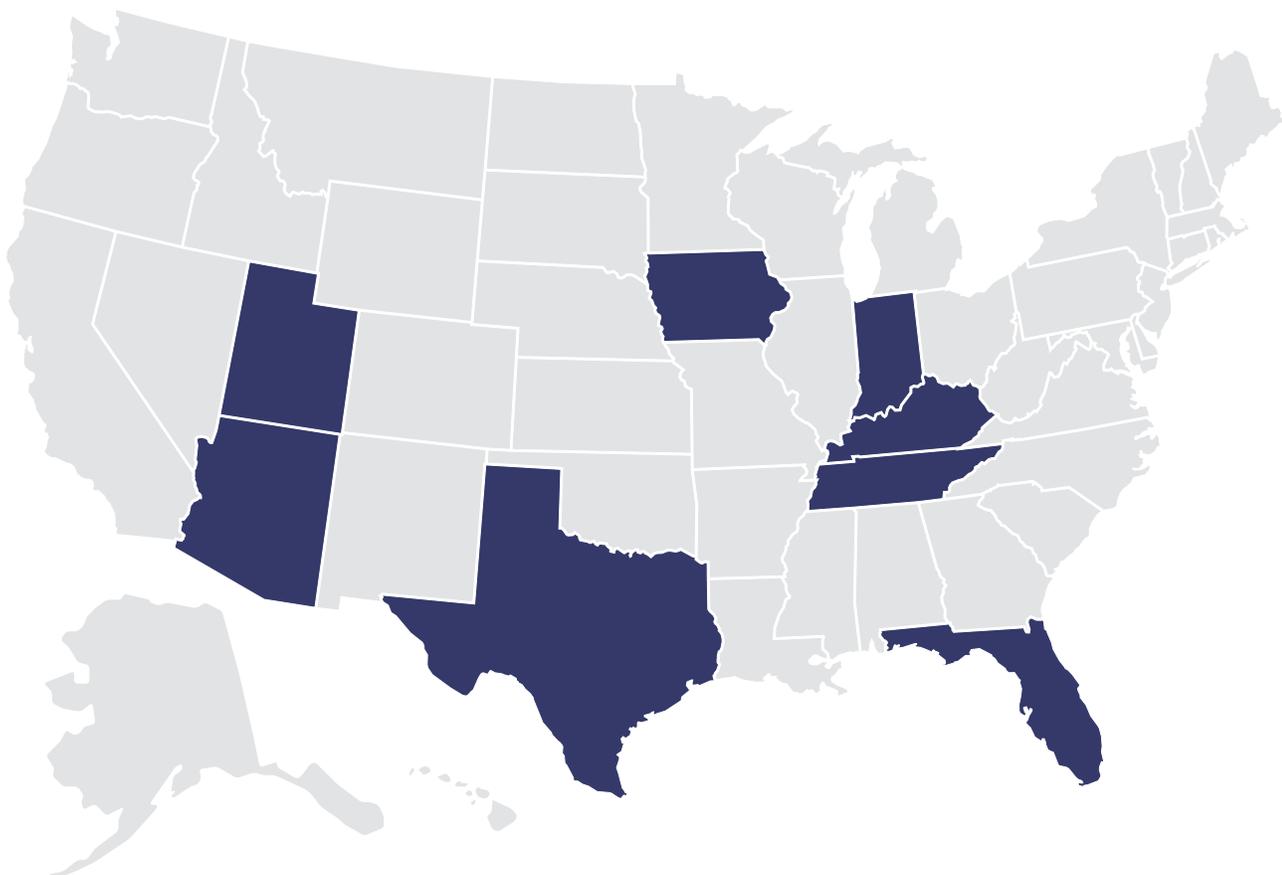
Employee Status Determined by the ABC Test

More than 20 states, including **Alabama, Arizona, Delaware, Illinois, Maine, Massachusetts, Maryland, New Mexico, Vermont,** and **Washington** utilize some form of the ABC test, (Smith, R., 2019).

The recent **California** Supreme Court case of *Dynamex Operations West, Inc. v. Superior Court of Los Angeles* (2018) 4 Cal.5th 903 (Dynamex), interpreted the California version of the ABC Test to create a presumption that a marketplace worker who performs services for a hirer is an employee for purposes of claims for wages and benefits arising under wage orders issued by the Industrial Welfare Commission, (California Legislative Information, 2019).

In September 2019, **California** lawmakers enacted AB 5, which amends both the Labor Code and Unemployment Insurance Code to state that “a person providing labor or services for remuneration shall be considered an employee rather than an inde-

States where marketplace workers are independent contractors



pendent contractor unless the hiring entity demonstrates that the person is free from the control and direction of the hiring entity in connection with the performance of the work, the person performs work that is outside the usual course of the hiring entity's business, and the person is customarily engaged in an independently established trade, occupation or business." (California Legislative Information, 2019)

The bill specifies the intent of the legislature to codify the decision in the Dynamex case and clarify its application. The bill provides that the factors of the ABC Test in existing law be applied in order to determine the status of a worker as an employee or independent contractor for all provisions of the Labor Code and the Unemployment Insurance Code, unless another definition or specification of "employee" is provided. This bill directly affects companies such as Uber and Lyft, requiring the corporations to treat contract workers like employees. While the bill may have positive impacts on millions of gig economy employees, it may also financially burden gig economy companies, potentially leading to reduced flexibility for drivers.

In contrast to the approach taken in California, a number of states—**Arizona, Florida, Indiana, Iowa, Kentucky, Tennessee, Texas and Utah**—have adopted specific policy pronouncements applicable to the ABC Test that a marketplace contractor must be treated as an independent contractor and not as an employee of the marketplace platform for all purposes under state and local laws and regulations consistent with specified criteria. In a sense, these laws create a presumption that a marketplace worker is an independent contractor rather than an employee, (Smith, 2018).

Portable Benefits

Alabama, California, Connecticut, Hawaii, Illinois, Massachusetts, New York, New Jersey, Nevada, Washington and Oregon have all introduced legislation that would establish some kind of portable benefits for workers not classified as employees (Sullivan Z. , 2019).

To encourage state experimentation, on Feb. 25, 2019, U.S. Sen. Mark Warner introduced S. 541, Portable Benefits for Independent Workers Pilot Program Act. This bill requires the U.S. Department

of Labor to award grants on a competitive basis to states, local governments or nonprofit organizations to support broad innovation and experimentation with respect to portable benefits. The grants must be used for: (1) the evaluation or improvement to the design or implementation of existing models or approaches for providing portable benefits; or (2) the design, implementation and evaluation of new models or approaches for providing such benefits. The grants may not be used for a model or approach that provides only retirement-related benefits, (U.S. Congress, 2019). The Government Accountability Office must evaluate and report to Congress on the outcome of the grants awarded pursuant to this bill.

A few state legislatures are considering bills establishing portable benefits systems. In **Alabama**, state Sen. Arthur Orr introduced SB 363 on March 13, 2018, which authorized marketplace platforms to provide portable benefit plans to certain independent contractors that contract with marketplace platforms; to define a marketplace platform as a digital application that facilitates the provision of services by contractors to customers seeking such services; and to define the independent contractor status between a marketplace platform and a contractor who provides services through the platform, (Orr, 2019).

During the 2017-2018 legislative session, **Washington** state Reps. Monica Stonier, Mike Sells and Gerry Pollet sponsored a bill to create a portable benefits system. The bill, HB 2812, builds on the work of similar legislation that was introduced by former Washington state Rep. Jessyn Farrell in 2017. The bill would require businesses to make contributions to "benefit providers" for the purpose of providing benefits to workers. The businesses covered in the bill include any entity that "facilitates the provision of services by workers to consumers seeking services and where the provision of services is taxed under 1099 status." The benefit providers are required to provide workers' compensation and, based on worker input, can provide a range of other benefits including health insurance, paid time off and retirement benefits. Benefit providers are allowed to use up to 10% of contributed funds for administrative costs, (Washington State Legislature, 2017).

HB 2812 also includes two provisions that were not included in the 2017 version. First, the bill would promote a greater understanding of the independent workforce by requiring eligible businesses to submit annual reports to the Washington State Department of Labor that disclose specific data about the business, its worker beneficiaries and the consumers of services provided by the workers. Second, the bill would reform the state's misclassification laws by prohibiting the actions such as misclassifying an employee and charging a fee, (Washington State Legislature, 2017).

On Feb. 16, 2018, **California** Assemblyman Evan Low introduced Assembly Bill 2765 to address the issue of portable benefits. AB 2765 defined a "digital marketplace" as an organization that (1) operates a digital internet website or digital smartphone application that facilitates the provision of services by marketplace contractors to individuals or entities seeking those services, and (2) does not accept service requests by telephone, fax or in person at physical retail locations. Under the bill, digital marketplaces may elect to contribute to a marketplace contractor benefit plan to help pay for benefits like medical care, liability insurance, retirement benefits and paid leave benefits. The bill provides that a participating marketplace shall contribute a yet-to-be-determined percentage of the contractor fee for each transaction. The plan would be portable and allow the participant to transfer accrued benefits from plan to plan as their "gig" changed. In addition, the bill would prevent a digital marketplace

from discriminating on the basis of protected categories, including disability, (California Legislative Information, 2018a).

On Jan. 9, 2018, **New Jersey** State Sen. Troy Singleton introduced S. 67, which would establish a system for the provision of portable benefits to workers who provide services to consumers through contracting agents. The bill defined a contracting agent as a business entity that facilitates the provision of services by workers to consumers seeking the services and makes payments to workers, and the provision of services is taxed as an independent contractor. It required contracting agents that have facilitated the provision of services by at least 50 individual workers in a consecutive 12-month period to contribute funds to qualified benefit providers to provide benefits to the workers of the contracting agents. In addition to workers' compensation insurance, qualified benefit providers must provide some or all of other optional benefits. Qualified benefit providers must solicit input from workers on their benefits and allow workers to choose from available benefits or allocate the contributions among the following benefits:

- Health insurance, including but not limited to subsidies to purchase health insurance
- Paid time off
- Retirement benefits
- Other benefits determined by the qualified benefit providers on behalf of the workers (New Jersey State Legislature, 2018b).

FOCUS AREA 3

The Changing Nature Of Apprenticeship

UNDERSTANDING THE LANDSCAPE

What is Apprenticeship?

Apprenticeships allow individuals to earn money and learn through technical instruction and hands-on training. Throughout the duration of the job, apprentices receive a paycheck guaranteed to increase as their training progresses. Additionally, the combination of job-related instruction and hands-on training at the job site leads to a nationally-recognized, portable credential. As a result, completion of an apprenticeship can lay the foundation for a career with a competitive salary and little, if any, educational debt. According to the U.S. Department of Labor, the average annual salary for a fully proficient worker who completes an apprenticeship program is \$60,000 (2019).

For employers of apprentices—sometimes called sponsors—apprenticeships are a business-driven investments in the future. They facilitate flexible training within a company’s own culture. Because

REGISTERED APPRENTICESHIPS

While apprenticeship as a concept has existed for hundreds of years, a formal structure for managing them—known as a Registered Apprenticeship—took root in the U.S. just in the last century. Registered Apprenticeship programs meet national standards established by the U.S. Department of Labor or federally recognized state apprenticeship agencies. This makes their credentials portable and recognizable to employers nationwide. The first Registered Apprenticeship program was created by Wisconsin in 1911, and by the mid-1940s there were more than 6,000 programs across 26 states. While these programs originally existed mainly in manufacturing, construction and utilities, following World War II, the model was adopted for training firefighters, police, emergency medical technicians and other health and safety workers (U.S. Department of Labor Employment and Training Administration, 2019).

Since 2013, apprenticeship has increased by 56%

282,000

PARTICIPANTS GRADUATED

10,800

PROGRAMS CREATED

Source: ODEP, 2018

sponsors customize programs to meet identified business or industry workforce needs, apprenticeships vary in length typically ranging from one to six years, depending on various factors such as the occupation and nature of work. Apprenticeship sponsors develop their own minimum qualifications related to education and the ability to perform essential job functions. For a qualified apprentice with a disability—just as with any qualified employee with a disability—the sponsor must provide a reasonable accommodation if requested unless doing so would cause an undue burden. An applicant for an apprenticeship may also require a reasonable accommodation to assist in applying and interviewing for an apprenticeship.

The benefits for sponsors include enhanced retention, increased productivity and lower recruitment costs. In many industries, apprenticeships have also been shown to improve safety, reducing workers’ compensation costs and improving employee health and well-being. Opportunities for apprenticeship extend beyond the traditional trades—today the apprenticeship model is increasingly used in a host of high-growth industries including technology, health care and energy.

THE STATE PERSPECTIVE: IMPLICATIONS FOR THE FUTURE OF THE WORKFORCE

In recent years, implementation of apprenticeship programs has been used as an effective workforce development strategy. Since 2013, apprenticeship participation has increased by 56%, with 282,000 participants graduated and 10,800 new

programs created (ODEP, 2018). What's more, in June 2019, stemming from the recommendations in the final report of the Task Force on Apprenticeship Expansion, the U.S. Department of Labor announced a Notice of Proposed Rulemaking to establish a process for development of high-quality, industry-recognized apprenticeship programs. Additionally, there has also been significant investment in apprenticeship by the federal government, which has funded a variety of grant opportunities for states to develop programs or enhance and expand existing ones, including programs specifically targeting individuals with disabilities and other underrepresented populations, (U.S. Department of Labor, 2019b). This state empowerment around the apprenticeship model is reflective of the local and regional workforce needs. Also, in many cases, apprenticeship programs are overseen at the state level and/or implemented in coordination with local educational institutions. This surge in funding and increased focus on inclusive apprenticeships from the federal government has significant implications at the state level in relation to workforce inclusion.

The Intersection of Apprenticeship and Inclusion

Given the increasing number of apprenticeships, there are new and growing opportunities for people with varying skill levels and educational experiences, including people with disabilities. As businesses expand their pools of apprentices and increase the diversity of their workforce, they will benefit not only from the skills of these employees, but also from a broader range of perspectives on how to confront challenges and achieve success. Having a more inclusive and diverse workforce can lead to increases in productivity, creativity and profitability, as inclusive employment allows employers to build a positive reputation and attract new staff and customers (Diversify Your Workforce, n.d.).

States can ensure that individuals with disabilities are getting excellent workforce training by promoting participation in registered apprenticeships. The U.S. Department of Labor protects applicants and current participants in Registered Apprenticeship programs from discrimination on the basis of disability as well as other diversity factors. Moreover,

under regulations that went into effect in 2016, Registered Apprenticeship programs are required to take proactive steps to recruit people with disabilities and other diverse populations into their programs. For state economies, more registered apprenticeships hold promise of increased labor participation and long-term career development with higher earning potential. Apprenticeships could potentially represent a growing workforce, reduced unemployment rates, economic growth and higher quality training for employees (U.S. Department of Labor, 2019). As laboratories of democracy, states are able to target specific communities and populations in their state and create apprenticeship programs to suit their specific community skills and needs.

Impacting Issues

Because the model can and is increasingly being applied across industries and occupations, apprenticeship can be an effective strategy for increasing not just workforce readiness, but also inclusion. Through the course of its discussions, the task force subcommittee identified a number of key issues around the changing landscape of apprenticeship and workforce inclusion.

- Technological advancement and resulting industry diversification
- Globalization
- Structural flexibility
- Worker migration
- Education
- Connection with workforce systems
- Transportation

Technological Advancement and Resulting Industry Diversification

Improved technology, including web-based platforms, artificial intelligence, autonomous vehicles, smart cities and other innovations, has radically changed existing occupations (Smith, E., 2019). While some fear advances in technology may result in a displacement of workers, others suggest the main consequence is likely to be an upskilling across all occupations. This will require individuals

The national non-profit Jobs For the Future's Center for Apprenticeship and Work-Based Learning found eight common issues and strategies used by grantees to connect with employers in the technology industry in particular:

1. Information technology employers need to be educated about apprenticeships.
2. Common apprenticeship myths must be dispelled in order to appeal to tech employers.
3. There is a need for industry outreach in order to develop apprenticeship programs.
4. There is a need for partnerships with local technology councils.
5. Programs should be developed to fit the employer's workforce needs.
6. Flexible programming is key to meeting information technology employer and participant needs.
7. Employers must be incentivized to use apprenticeships.
8. There is a need for a group sponsorship model, through which groups of companies, educational institutions, unions and public agencies work together to develop and encourage apprenticeships.

to seek further training and employers to attract higher quality applicants to learn how to perform rapidly evolving jobs (Yuen, 2017; Dreher, 2017). Apprenticeships should extend beyond traditional industries such as plumbing and metalworking to industries such as health care, information technology, financial services, civil service and hospitality. Incorporating apprenticeships into new industries and higher levels of education allows companies to build and train the highly skilled workforce they need (ODEP 2019).

Globalization

Apprenticeships are, by design, often rooted in the local industry and culture (Deissinger 2007;

Smith 2019; Jackson, 2016). However, the global economy has become increasingly interconnected, and over the past several decades, many jobs in the U.S. may be for corporations that are not U.S.-based. In the future, states may have the opportunity to attract these multinational employers and increase workforce development by investing in apprenticeship programs that meet training and experience requirements for a wider range of workforce needs.

Structural Flexibility

The growth of new industries will certainly enable the expansion of apprenticeships into unexplored sectors (Smith, 2019). It may also be valuable to introduce apprenticeships in existing industries to increase the quality of workers and set standards for participating in a certain profession. However, it is important that states and stakeholders consider which professions are appropriate for the apprenticeship model and whether one set of standards is rigorous enough or too stringent for including an occupation (Smith, 2019). If requirements are developed to reflect the principles of Universal Design, they can encourage participation by a wider range of people, including people with disabilities.

Worker Migration

With the emergence of new industries, technologies and opportunities in new states and sectors, Americans have become and will continue to be increasingly mobile. One of the most critical barriers imposed by current apprenticeship certification and licensure requirements is the inability to transport qualifications across state lines (The Council of State Governments, 2019). As individuals continue to move and the popularity of telecommuting increases, there is a need for apprenticeship reciprocity agreements that allow individuals to transfer their apprenticeship certificates across state lines based upon an agreed upon set of qualifications, education requirements and testing regulations.

Education

The majority of employment opportunities and apprenticeships require a minimum of a high school diploma and often do not recognize alternative education programs, which may present a significant barrier for some people with disabilities (Eco-



conomic Systems Inc, 2015). To overcome the need for a high school degree, states can encourage the development of pre-apprenticeship, school-to-apprenticeship and youth apprenticeship programs as early as middle school and high school. The integration of apprenticeships into education early on can provide students with soft skills, employment experience, new technical skills and opportunity to earn credits towards a college degree, therefore increasing the likelihood of acceptance into an apprenticeship programs or employment later on (Lynn & Mack, 2008). Further, states may want to encourage the development of apprenticeships in new industries and growing fields like STEM and coding to meet with the emerging needs of new automation and technology programs. These programs should be established through intensive coordination between state and local officials, educational institutions and industry members and ensure that that youth and young adults who have traditionally had challenges in obtaining employment are considered as new apprenticeship programs are developed.

The changing nature of apprenticeships provides students who may have traditionally faced barriers because of these educational requirements with alternative opportunities to gain the skills and experiences needed for jobs in the future. Automation, technology and the gig economy provide an opportunity to rethink the relationship between education,

the workforce system and employers. Youth and young adults who have traditionally experienced challenges must be taken into account as new apprenticeship programs are developed.

In contrast to apprenticeships for youth populations, adult apprenticeships can provide a pathway to up-skilling and career change for individuals who are over the age of 18. Whether individuals are just entering the workforce or re-entering after a period of illness or injury, apprenticeships can provide training to enter a new career path, potentially dealing with the need for new, higher-skill jobs that the future may bring.

Connection with Workforce Systems

As we look to the future of apprenticeships, there is a greater opportunity for closer collaboration between state government agencies, educational entities—such as community colleges, technical schools, universities and high schools—and industries, which may reduce training costs and expand employer outreach. Encouraging enhanced partnerships and collaboration between the Workforce Investment System and Registered Apprenticeship programs provides policy guidance, information and examples designed to support the full integration of Registered Apprenticeships into state and local workforce system activities. Some recommendations include:

- State leadership should use their positions to communicate the value of Registered Apprenticeships and the importance of collaboration. Leaders can include secretaries of labor, members of chambers of commerce and veterans' affairs leaders, among others
- Better alignment of performance measures between apprenticeships and the workforce system to encourage Registered Apprenticeships
- A stronger education system on the effective implementation of Registered Apprenticeships in the workforce
- Provision of grant funds for businesses to engage in Registered Apprenticeships
- Multi-stakeholder collaboration and working plan development

Transportation

Access to transportation is a fundamental challenge for individuals with disabilities. If no consistent and reliable mode of transportation is available, individuals with disabilities may find it challenging to commute from educational institutions to apprenticeships or other work-based learning opportunities. While people in some densely populated urban areas may have access to buses and ride-share services, transportation may pose an especially difficult challenge in rural areas. States can encourage transportation for participants by the companies through subsidies and financial incentives (Internal Labour Organization, 2018). Furthermore, advancements in automation and technology, including the availability of autonomous vehicles, may serve to promote participation in apprenticeship programs by reducing barriers to participation. Once autonomous vehicles are broadly in use, it is important that policymakers ensure that autonomous vehicles, including buses and vans, are publicly available to individuals with disabilities to ensure access to these new modes of transportation.

POLICY & PROGRAM OPTIONS

To ensure individuals with disabilities are able to participate in apprenticeships and other work-based learning opportunities, state policymakers may want to consider the following policy options:

1. Establish a task force to develop a plan to diversify apprenticeships into new industries based on current and predicted state workforce needs.
2. Invest in the development of apprenticeship programs by coordinating with industry and educational institutions to ensure that training and experience requirements are met.
3. Work with other states and industry leaders to establish apprenticeship reciprocity agreements.
4. Coordinate with educational institutions to establish pre-apprenticeship, school-to-apprenticeship and youth apprenticeship programs as early as middle school and high school.
5. Transition apprenticeship programs from time-based models to competency-based apprenticeship models.
6. Establish a position focused solely on transition readiness and connecting students to resources.
7. Establish a position focused on encouraging apprenticeships for adult populations, including apprenticeships as a return-to-work tool.
8. Invest in apprenticeships by providing financial incentives for companies utilizing innovative and inclusive models.
9. Act as a model employer by connecting individuals with disabilities to jobs in state government and offering opportunities for work-based learning.
10. Ensure better access to public transportation for individuals with disabilities to participate in apprenticeships and other work-based learning opportunities, and ensure that policy related to emerging transportation options takes into account the needs of people with disabilities.

Examples in Action

New Jersey's SB3067 establishes a five-year Apprentice Assistance and Support Services Pilot Program. The purpose of the program is to address two significant barriers to individuals participating in apprenticeships: lack of affordable and reliable transportation and lack of childcare services. The

bill provides subsidies for individuals participating in apprenticeships (Senate, No.3067, 2018).

Michigan House Bill 4579 establishes a local workforce development board that is tasked with establishing a peer-to-peer apprenticeship mentoring program for women, minorities and individuals with disabilities. This bill is intended to establish employee resource groups and diversify the workforce (Michigan Legislature, 2019). Similarly, **New Jersey** SB 3064 establishes a task force to develop a statewide plan to diversify apprenticeships (New Jersey State Legislature, 2019).

Kentucky has implemented a Civil Service Apprenticeship to include public service apprenticeships as part of the Kentucky Personnel Cabinet job classification system (The Lane Report, 2019). Kentucky has utilized the apprenticeship model to fill workforce pipelines with highly skilled, diverse and productive workers. Apprenticeship opportunities include positions like direct support specialist, help desk technician and automotive tech specialist.

The **Rhode Island** Governor's Workforce Development Board granted five organizations grants to develop innovative non-trade apprenticeship programs. Non-trade apprenticeship models fall outside traditional trades in new areas such as information technology and healthcare. The grants formed apprenticeship programs in the marine industry, hospitality, healthcare and customer service (Governor's Workforce Board, 2018).

Working Toward the Future

Clearly, the future of work is rapidly changing. In turn, so is the future of the workforce. If approached with an inclusive, universal mindset, these shifts—in how, where and when work is done and the ways in which people connect with training and employment opportunities—have the power to open doors to opportunities for people with disabilities across the U.S. They also have the power to meet the workforce needs of the nation’s employers in this era of historically low unemployment and global competition.

Artificial intelligence can improve communications, increase safety, allow individuals to better navigate the world and provide more independence for individuals with disabilities (Cognylitica, 2018). Autonomous vehicles can provide employment for 2 million individuals, save \$19 billion annually in health expenditures from missed appointments and potentially provide \$1.3 trillion in savings (Ruderman Foundation, 2017). The gig economy can provide individuals with disabilities with flexible schedules, increased earnings and the ability to utilize their unique skills. Further, apprenticeships not only provide learning and training opportunities, but the opportunity for long-term gainful employment.

Within the increasingly complex global economy, building a strong, inclusive workforce is vital to an individual state’s economic success. States with strong economies translate into a strong national economy. State policymakers have the power to transform the state workforce and to drive its economic success, and a key part of the solution is considering the needs, perspectives, challenges

and skills of people with disabilities, including veterans with service-connected disabilities and those who acquire disabilities through illness or injury.

In developing inclusive policy for the future workforce, state policymakers may want to consider:

- Encouraging the use of Universal Design principals in both policymaking and product design to ensure that all individuals have access to products and services.
 - Part and parcel of this is encouraging inclusive design processes to ensure that “nothing about us without us” principles are met.
- Improving access to and accessibility of transportation, whether through design of infrastructure or new, emerging technologies and products.
- Engaging in data collection efforts to increase effective service provision and support for employees with disabilities. While it may be challenging to ensure that individuals with disabilities disclose their disabilities due to their fear of discrimination, states can take steps to incentivize data collection with sensitivity and anonymity.
- Requiring incentivizing technology industries to actively work against the presence of algorithm bias on their platforms. Data collection and inclusive design can help ensure that individuals with disabilities are treated equally when using online platforms.
- Recognizing that there are no-one-size-fits-all solutions and engaging representatives from all sectors of society in the policymaking process.

In working toward the future, it is critical for policymakers to create accessible and inclusive environments that foster the necessary skill, educational development and career pathways to enable all citizens to contribute to America’s workforce. These environments promote greater workforce participation and employment success for everyone, including individuals with disabilities, strengthen state economies and support our nation’s contributions to the global economy.

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Resources

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