The Changing Texas Transportation Workforce

White Paper

Developing a Resilient Workforce that Meets the Future's Needs

In the wake of major shifts— new work-life norms, automation, digitization, and a growing gig economy—how can Texas ensure that transportation workers and businesses thrive?

In May 2020, roads are almost empty. Businesses are closed. And at least 973 Texans have died from complications related to COVID-19.[1] *The non-essential workers who are fortunate enough to still have jobs are working remotely; deliveries of personal protective equipment are being made with automated trucking; and gig workers have reinforced the front lines to make vital grocery trips for seniors. It is difficult to plan ahead during the chaos and collective grief of this moment; in spite of this, policymakers have much to consider with respect to its workforce and reshaping the transportation system to meet its new needs. With support, Texas workers can emerge safer, more productive, and more resilient.*

This paper focuses on four areas of change that will have, or are having, effects on the transportation workforce and on those who commute more broadly. First, **telework** is not only protecting workers during the current pandemic, but it is reducing overall Vehicle Miles Traveled (VMT) and associated injuries. This paper will explore opportunities that exist to permanently include telework in VMT reduction strategies. Second, **vehicular automation** has high safety upside but is concerning to industry-specific workers such as drivers and mechanics who worry that their jobs will be permanently replaced. The paper assesses the effects that automation will have on these jobs, and what can be done to support affected workers. Third, **new technical skills** are needed to understand new developments in cybersecurity, privacy, and data collection. The paper outlines these needs for Texas public agencies' upskilling and recruitment efforts. Fourth and finally, **worker classification in the gig economy** has raised new policy considerations regarding worker classification. This paper provides an outline of the current legal battles around designating workers as contractors instead of employees.

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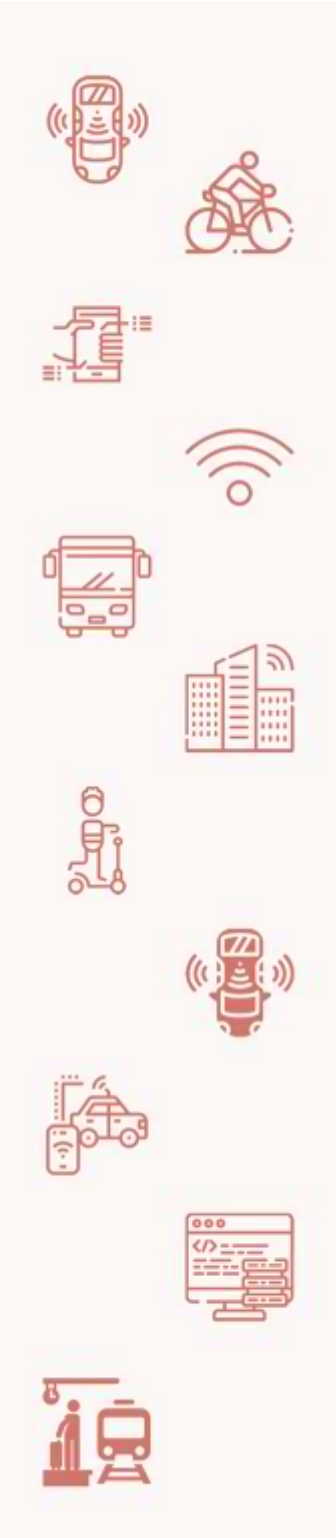

KEY TAKEAWAYS

01 **Craft policies that would enable state agencies to expand teleworking.** State agencies have limited ability and technologies in place to extend teleworking to their workforce. Texas should formulate best practices and consider updating state policies to meet productivity, accountability, and emergency preparedness needs.

02 **Proactively create transportation workforce development initiatives that focus on workers who are most vulnerable to automation.** With vehicle automation, truck and bus drivers are at risk of job dislocation. There are opportunities to partner with state agencies, local workforce development boards, and community colleges to mitigate future unemployment.

03 **Upskill the workforce to fuel the growing demand for data science, privacy, and cybersecurity professionals.** Transportation agencies are seeking to leverage new data sources as well as prepare for growing privacy and security concerns. Education and training programs can create a talent pipeline that address this growing skills gap.

04 **Consider new worker classifications and portable benefit models to support the rising number of gig workers.** To protect its workforce, Texas should evaluate the advantages and disadvantages of the current employee and contractor model, assess the true size of the gig economy, and craft appropriate policies for its future workforce.

05 **Consult Texans with greatest job insecurity for workforce strategic planning.** Ensure that a broad set of interest groups are in the room while strategic planning is taking place. Texas' diverse populace is a resource; by engaging with all of its constituent groups, Texas can lead the nation in developing a resilient workforce.

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INTRODUCTION

Four major shifts are currently underway:

- Broad-scale adoption of telework,
- Rise in automation,
- Increasing detail in available data, and
- Growth of the gig economy.

Virtual communications technologies have advanced to make teleworking viable; COVID-19 made it necessary. Before the coronavirus crisis hit the U.S., employees at Texas state agencies were required to request written permission from the agency head and, once approved, were restricted to normal work hours. Telework has been shown to increase employee satisfaction, alleviate congestion, and most recently proved essential for protecting workers and society at large during a pandemic[2,3]. Texas state agencies should recommend to legislators that workplaces offer a telework option and include it in best practices for disaster response.

Vehicular automation could remove human input from some or all parts of vehicular travel, potentially saving lives. While automation does not yet enable driverless vehicles to navigate complex environments with the same facility as a human being, the potential for artificial intelligence to safely operate a vehicle could potentially replace the jobs of drivers in the future. Government agencies and companies with an interest in maintaining quality jobs must plan for this possibility by retraining their workers, partnering with educational institutions to create a talent pipeline, and creating new jobs such as safety or tele-operators to offset any potential job loss.

Smartphone adoption and technology-based platforms have spawned a new and growing share of the economy. Gig workers now have the ability to find quick and temporary work with companies such as Uber, Lyft, DoorDash, GrubHub, and others. These companies have ballooned, often outcompeting their predecessors and absorbing their workers and customers. The gig economy expansion has brought with it legal challenges related to the worker classification of drivers as *contractors* rather than *employees*—a label that allows employers to offer low fares while not providing driver benefits. Evolving litigation and legislation on gig worker classification will have massive impacts on state transportation ecosystems, of which ride-hailing and on-demand delivery companies are now a large part. Texas should stay abreast of national developments and consider new models that would enable the state to protect gig workers while remaining economically competitive.

As the Internet of Things (IoT) has emerged, new sensors, telecommunications technologies, and transportation modes are generating significant amounts of data. While this data is valuable for planning and operations, the geolocation data contains sensitive and proprietary information. In order to effectively manage, process, and protect the data, public agencies need to begin upskilling their workforce with the capacity for data management and develop an education pipeline for in-demand privacy and cybersecurity professionals.

By synthesizing case studies from public transportation administrators, state agencies, and transportation workers, this white paper contextualizes the challenges facing the future transportation workforce and provides recommendations for how Texas can formulate a proactive workforce development strategy.

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THE FORCES OF CHANGE IN TEXAS

Several interrelated forces are driving the changes in the Texas workforce: rapid urbanization, shifting demographic patterns, and economic drivers. As the economy transitions into a high-tech, knowledge-based global marketplace, the Texas workforce will need to respond with higher levels of technical training and a more robust education system. The following sets the stage by describing three major forces at work in Texas.

Rapid Urbanization

First, the population of Texas is projected to grow from 29.4 million in 2020 to 47.4 million by 2050, with the majority of growth taking place in the counties surrounding the large urban centers[4]. People are moving to the cities because they promise jobs and economic opportunity. Employers are often clustered—as in Houston's energy sector, Dallas's finance industry, and Austin's creative class—enabling workers to more easily match their skills to in-demand career opportunities. However, rapid urbanization is generating pressures in other areas.

With the population boom, cities are experiencing an affordable housing crisis and traffic gridlock. The percentage of Texans who rent instead of own their home is rising at a faster rate than the state's population; in fact, the number of renter households is growing at twice the rate of owner households. Furthermore, the number of households exceeding the recommended 30% of income on housing costs, or cost-burdened households, is also on the rise[5]. Residents are being pushed to the periphery to find affordable neighborhoods, and as a result of the spatial mismatch between jobs and housing, commute times over 30 minutes are also increasing. The trifecta of jobs, housing, and transportation will continue to affect Texas workforce discussions going forward as the state seeks to remain economically competitive and support a sustainable cost of living.

Shifting Demographic Patterns

Several demographic shifts are also taking place. The population and workforce have been growing older as the Baby Boom generation ages. The population age 65 and older is expected to grow from 3.5 million in 2020 to 8.3 million in 2050[4]. As this large cohort reaches retirement age, the workforce will be impacted in profound ways. An increasing number of mature workers are choosing to delay retirement[6,7]; however, as they retire, the transportation sector could lose specific skills, experiences, and a deep institutional knowledge base. Compounding this issue is the fact that many employers, such as in the freight and transit industries, are already experiencing labor shortages, even as additional jobs are being threatened with automation.

In terms of composition, a movement is underway to achieve a more diverse and inclusive workforce. Women are increasingly participating in the

workforce, yet the inability of the transportation sector to attract and retain women remains a challenge. As of 2017, women accounted for less than 15% of the transportation workforce[8]. To engage women in transportation, a combination of outreach efforts, educational programs, and leadership development are needed.

Furthermore, Texas is becoming more racially and ethnically diverse. Houston, for example, has become a melting pot with 60% of its residents being communities of color and was recognized as the sixth-highest market for diversity among tech hubs[9]. Many organizations have adopted diversity and inclusion policies, and studies have shown that there is a positive correlation between more diverse tech company workforces and higher revenues, profits, and market value[10]. Projections also indicate that the gravest disruptions from automation in the coming decades will affect men, young workers, and underrepresented groups. As the economy relies more heavily on technology, Texas should consider aligning its outreach, education, and leadership development programs to support those at high risk of displacement from future technologies.

Opportunity Factors

Education is a key determinant of economic success. The occupations requiring a postsecondary degree or certificate are surging, yet only 23% of Texas eighth graders from 2007 had completed a postsecondary program within six years of high school graduation[11]. Texas also has one of the highest poverty rates in the country, with 20.9% of all Texas children living in poverty[12]. Children in families living below the poverty line tend to perform worse on standardized tests, struggle to complete high school, attend college at lower rates, and have lower earnings as adults. These underlying factors were further compounded in 2011 when the Texas Legislature cut the public education budget by $5 billion, lowered standards, and reduced support for struggling students. Texas has worked to turn these trends around in recent years.

In 2016, Governor Abbott established the Tri-Agency Workforce Initiative to focus on academic and career preparedness. The Texas Higher Education Coordinating Board, Texas Education Agency, and Texas Workforce Commission joined forces to develop a strong pipeline to prepare students to be successful in education and the workforce. They set forth the 60x30TX, which aims for 60% of 25-34-year-olds to hold either a certificate or degree by 2030[13]. In addition, the 86th Texas Legislature passed House Bill (HB) 3, which heavily restructures how the state finances public P-12 education. HB3 infused over $11 billion into the public-school system, providing funding for low-income students, professional development for personalized learning, and dual language programs.

Another important trend is job polarization, or the vanishing of middle-skill jobs. Due to advancements in technology, outsourcing of jobs, and contractions in manufacturing, the share of middle-skill jobs has shrunk while both high-skill and low-skill jobs have expanded[14]. Texans will continue to either be pushed upwards by obtaining more education and acquiring new skills, or downwards into low-skill jobs. Both trajectories further erode the middle-class demographic and magnify income inequality. To correct course, Texas will need to retain and redeploy middle-skilled workers. As Texas develops training and education programs, the focus should be on skills that cannot be easily automated—technical, leadership, communications—to nurture its future workforce.

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TEXAS WORKFORCE DEVELOPMENT

The Texas workforce development system consists of education, training, guidance, and career development programs. A combination of federal, state, local, and non-profit sources provides funding for these programs and enables Texas to prepare its current and future workforce. Generally, the federal government is the primary source of funding for training programs serving adults, while a mix of state and federal funding sources support workforce development for youth. The following section summarizes the Texas workforce development programs and functions, describing their interrelationships with one another.

State Workforce Programs

Workforce development programs in Texas are administered by eight state agencies, the Texas Association of Workforce Boards, 28 Local Workforce Development Boards (LWDBs), and over 20 diverse programs led by academic institutions, school districts, and adult education groups[15]. The agency partners in Texas's workforce system include:

TWIC Member Agencies

1. Economic Development and Tourism
2. Texas Higher Education Coordinating Board
3. Texas Education Agency
4. Texas Health and Human Services Commission
5. Texas Workforce Commission

Additional Workforce Agencies

6. Texas Department of Criminal Justice
7. Texas Juvenile Justice Department
8. Texas Veterans Commission

Texas Workforce Investment Council (TWIC)

The Texas Workforce Investment Council (TWIC) was established by the Texas Legislature in 1993 and is charged with assisting the Governor and Legislature with the strategic planning for and evaluation of the state's workforce system. It serves as the federally mandated state workforce board. TWIC is composed of 19 members—14 governor-appointed members representing business, organized labor, education, and community-based organizations; and five ex-officio representatives from the member agencies.

TWIC's role is strategic; it does not operate programs or directly manage funding, but rather concentrates on workforce development services. TWIC carries out four primary functions: 1) strategic planning, 2) evaluation/performance measurement, 3) research and continuous improvement, and 4) review of state and local plans set forth by the LWDBs to recommend final approval to the Governor. TWIC oversees 23 workforce and academic programs.

Texas Workforce Commission (TWC)

The Texas Workforce Commission (TWC) is the primary state agency overseeing workforce development services to employers and job seekers. It was established in 1995 when the State Legislature signed a bill consolidating 28 workforce and related programs from 10 separate agencies into a new state agency[16]. The Governor appoints three full-time commissioners, one each representing employers, labor, and the public.

TWC receives federal funds and manages 28 programs that include all Department of Labor activities, state and federal training programs, and state childcare initiatives. The programs serve high school students, incarcerated adults and youth, community college students, and veterans.

Three such programs could serve transportation sector employees[17]:

The Skills Development Fund (SDF) serves employed adults with outdated skills and adults who have employment lined up after SDF training. Transportation employees could look to the SDF as a means to acquire new skills (e.g., data science) or upgrade existing skills to advance their careers, and transportation employers could create new jobs (e.g., autonomous vehicle safety operator) and improve the skills of their current workforce.

The Dislocated Workers, Workforce Innovation and Opportunity Act Title I program serves workers who have been laid off, or received notice of a potential layoff, and have very little chance of finding employment in their current occupation when attempting to return to the workforce. This funding is important during economic recessions as well as major industrial shifts, such as the dramatic changes that occurred in manufacturing. Supplemental funding or programming for transportation workers vulnerable to dislocation by automation may be incorporated here to develop job search assistance and new skills training.

The Apprenticeship Program serves employers and job seekers by training workers for well-paying jobs with a combination of classroom instruction and on-the-job training. As transportation employers seek to hire new employees, especially in areas where educational curricula have not kept pace (e.g., jobs specializing in automated vehicles or cybersecurity), they should consider developing a registered apprenticeship program.

Local Workforce Development

A key component of the workforce development system is the 28 LWDBs, who together comprise the Texas Association of Workforce Boards. These collaborative organizations are governed by local elected officials and responsible for meeting the needs of regional employers and job seekers. Texas Workforce Solutions is an extension of the 28 LWDBs—including the TWC, contracted service providers, community partners, and unemployment benefits tele-centers. In other words, Texas Workforce Solutions serves as the operational arm and retail space of the LWDBs, offering a one-stop-shop environment, often with multiple offices in each region. For example, the Gulf Coast Workforce Board and its operating affiliate Workforce Solutions support the 13-county Houston-Galveston region with 27 full-time career offices and 10 part-time offices.

Each LWDB develops a local workforce plan and submits it to TWIC for final approval by the governor. A survey of the local workforce development plans reveals that very few regions are aware of or focused on the transportation sector shifts that are well underway. In addition, the LWDB engagement apparatuses are largely focused on major employers and have limited engagement with small businesses, such as the independently owned auto repair shops, who may be impacted the most. Furthermore, the process is heavily employer-driven rather than employee-based. When it comes to planning for automation and job loss, if workers are not in the room, it is unlikely their needs will be met.

SECTION SUMMARY

- Workforce planning should include small businesses and those who are vulnerable to job dislocation from automation.
- There are state workforce programs in place to retrain transportation workers.
- Local workforce development should shift from employer-driven to employee-based.

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BROAD-SCALE TELEWORK ADOPTION

Communications technology has advanced to the point that video calls and remote data sharing are commonplace. Telework is a flexible work arrangement that uses technology to allow an employee to work during any part of regularly paid hours at an approved alternative worksite (e.g., home, co-working space, etc.). Employers and employee alike have realized the benefits of teleworking—improved employee morale, increased productivity, and emergency preparedness. As a result, telework has become an increasingly important topic for public agencies seeking to attract digital natives and the tech-savvy workforce. The following section examines lessons learned from other states and identifies strategies Texas can take to prepare its future workforce.

Arizona: Improving Air Quality

Arizona has been experimenting with telework arrangements since the 1990s. While telework provides employees with the option to build a work environment that suits their needs, it has other benefits, notably improved air quality. In Arizona, poor air quality from large amounts of single-occupancy-vehicle (SOV) trips led to a state statute requiring major employers to have no more than 60% of employees commuting by SOV trip (ARS 49-588). That statute became the basis for a 2003 executive order expanding the preexisting telework program to all state agencies in service of this goal.[18]

In Arizona, what may have started out as an air quality improvement strategy was soon recognized for its economic value. State surveys of teleworking employees and their supervisors found that both parties perceived an increase in employee productivity. This was attributed to time and energy saved from not commuting, an employee's ability to create a suitable environment, and their ability to work on their own rhythms.[19] If an employer measures productivity by results, then they can easily compare an employee's performance while teleworking. In addition, teleworking provides supplementary positive benefits to morale, retention, and recruitment.

Case Study: Increase in Employee Productivity

One state agency in particular – the Arizona Health Care Cost Containment System, or AHCCCS – implemented a structure known as a virtual office. In this setup, employees work predominantly from home. The agency retains a brick-and-mortar office that they use for meetings and activities that require physical presence. AHCCCS employees consistently report the highest levels of employee engagement on state surveys, and – critically – AHCCCS employees have the lowest rate of work-related SOV travel among all state agencies. In the past five years, only half of all weekly trips taken by AHCCCS employees were by SOV. Combined, all other state agencies take SOV trips for about 70% of weekly work activities.

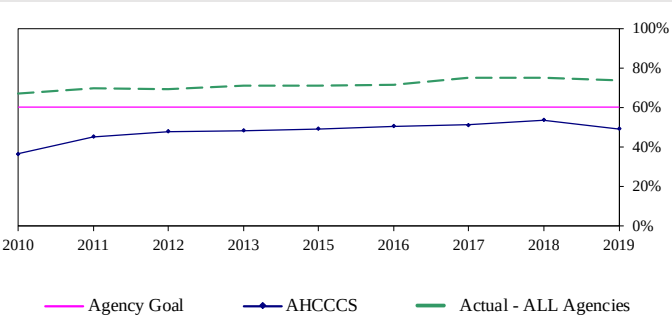

Figure 1: Weekly SOV Trip Rate for Arizona State Agencies.

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Colorado: Instilling Accountability

Since 2006, the Colorado Department of Transportation (CDOT) has offered employees a telework option. Its objectives include concern for air quality, raising employee productivity, and improving retention. Eligibility is simple; employees are required to have completed at least one year on the job and have duties such that they will not inconvenience coworkers or customers with their absence. The employee chooses an alternate work location, which the employer must inspect and approve. Assuming that performance metrics are based on employee output, the employee will be evaluated the same as they would in the office.

Leadership can make a big difference when it comes to accountability and increasing employee commitment. For example, CDOT's Oversize/ Overweight Permits Manager developed and implemented a teleworking program for his unit, enabling employees to work from home[2]. To assess productivity among team members, a performance metric framework was established comparing working from home to working in the office. Data spanning 2015–2016 found that when working from home the number of oversize/overweight permits issued was slightly higher (0.50%); turnaround times were 48% faster; and the number of phone calls handled was 5% higher.

Texas: Alleviating Congestion

Texas is one of the fastest growing states in both population and traffic congestion. More and more employers are offering telework options, in fact Texas ranks second in the country regarding private-sector teleworking with 4.1% of job listings having available teleworking options. State agencies, however, have had greater difficulty in adopting agency-wide policies. Current law—Texas Government Code, Chapter 658—authorizes state agencies to extend various teleworking arrangements; however, state employees must gain written approval from the agency head on a case-by-case basis and are restricted to normal office hours. These provisions discourage state agencies from adopting telework policies that could reduce congestion, improve employee retention, and impart economic benefits. There have been some unique initiatives as well as policy efforts seeking to provide teleworking greater momentum.

South by Southwest

A presidential visit to Austin demonstrated what flexible scheduling can do for cities. In 2016, President Obama came to speak at South by Southwest. The lead-up to his visit sparked worries of a traffic doomsday scenario for the chronically congested city. On March 11, the day of his visit, a strange thing happened: congestion fell. Travel times fell by 22% downtown and 50% on US-183. So many people decided to work from home, take transit, or commute at off-peak times that the roads were considerably emptier.

Austin, Don't Rush!

Second, Austin's mayor attempted to replicate that outcome with an initiative called "Austin, Don't Rush." On May 11, commuters were encouraged to use one of the options that removed cars from the road at peak hours. All public bus and rail fares were waived to encourage participation. While "Austin, Don't Rush" did not achieve the same traffic outcome as the March 11th miracle, commuters did show a willingness to change travel behavior under the right conditions.

Government Holidays

Third, the movement to enable state employees to telework is supported by traffic analysis on federal holidays such as Memorial Day or Veterans Day. When state employees have the day off, Texas A&M Transportation Institute (TTI) found a 19% reduction in overall congestion and a 40% reduction on I-35

traffic[20]. These findings, combined with the expectation that traffic congestion will only worsen, make telework an increasingly attractive option for traffic management.

State Legislative Efforts

In the 84th Texas Legislative Session, Senator Kirk Watson introduced Senate Bill (SB) 1032 and Representative Celia Israel sponsored the bill, which would allow a state agency head to adopt a department-wide policy authorizing a supervisor to permit an employee to work remotely. In addition, it agreed to compensate employees for work completed outside of the regular agency working hours of 8:00 a.m. to 5:00 p.m. The bill was vetoed by Governor Abbott, citing concerns over reduced accountability, inconsistent application, and greater potential for abuse. Objections were also raised around the legitimate record-keeping and management concerns for overtime and compensatory time.[21]

In 2017, the Legislative Budget Board conducted a survey of 13 state agencies regarding the extension and use of nonmonetary benefits, including wellness programs, flexible scheduling, employer-sponsored training and professional development, and teleworking. State agencies who participated reported telecommuting participation in the ranges of 0.5% to 24%, with TxDOT reporting 7% participation (see Figure 3)[15].

In the 86th Texas Legislative Session, Sen. Watson and Rep. Israel again introduced respective bills, SB 271 and HB 270, which similarly recommended that direct supervisors be empowered to authorize telework for state employees. The legislative session adjourned *sine die* and lawmakers will revisit the issue in its next session.

COVID-19

In December 2019, a novel coronavirus surfaced in Wuhan, China. The first case in the U.S. was confirmed in January 2020 in Washington; Texas saw its first cases in early March, and on March 11 the World Health Organization classified COVID-19 global pandemic. Governor Abbott declared a state of disaster on March 13, including a directive to state agencies to provide flexible work and teleworking policies for employees. The preparation of state agencies varied widely. Those who were less prepared did not have clear directives related to the relationship of teleworking to paid time off, identification of essential personnel, or

AGENCY	TELECOMMUTING	COMPRESSED WORK WEEK	FLEXIBLE SCHEDULING
Comptroller of Public Accounts	27.4%	Offered (1)	Offered (1)
Department of Information Resources	64.0% combined rate for all three categories		
State Preservation Board		Offered (1)	Offered (1)
Texas Veterans Commission	10.0%		
Texas Department of Family and Protective Services	3.8%	Offered (1)	Offered (1)
Health and Human Services Commission	3.9%	Offered (1)	Offered (1)
Texas School for the Blind and Visually Impaired	Offered (1)		
Texas Department of Criminal Justice			Offered (1)
Texas Department of Agriculture	0.5%	8.0%	37.0%
Texas Department of Housing and Community Affairs	17.5%	62.0% (3)	
Texas Department of Transportation	7.0%	21.0%	Offered (1)
Texas Workforce Commission	24.0% (2)	52.0% (3)	
Texas Department of Licensing and Regulation	13.0%	56.0% (3)	

Figure 2: Telecommuting and Alternate Work Schedule Participation Rates by Agency, Fiscal Year 2017.

technologies readily in place to support widescale remote operations. TxDOT, who has provided teleworking as an option for its employees for several years, was able to move swiftly and responded with an updated policy requiring its office-based employees to telework beginning the Monday following the Governor's declaration[22]. As Texas reexamines its teleworking policies in the next legislative session, it should consider both the benefits during everyday operations as well as during states of emergency.

SECTION SUMMARY

- Teleworking improves air quality, productivity, and travel demand.
- Texas lawmakers can make telework permanent fixture at state agencies
- COVID-19 has shifted work paradigms; teleworking is key to preparedness.

THE RISE IN AUTOMATION

There is a long history of automation, going back to the steam engine, mechanized weaving looms, and the agricultural revolution. At its core, automation is designed to replace human labor with machines, with the goal of increasing quality and quantity of output at a reduced cost. The advent of automated vehicles (AVs) poses significant upside to society. With 94% of all serious vehicle crashes involve human error, AVs could significantly reduce and mitigate the majority of crashes.[23,24] These transformations, however, will also bring changes to the workforce. On one hand, automation enables workers to increase their productive capacity, spurs the economy, and raises the standard of living; on the other hand, automation can displace workers and disrupt industry sectors.

This white paper examines the impacts of both job loss and job creation. First, vehicle automation—from passenger cars to freight trucks and city buses—has the potential to significantly disrupt the driver workforce. In addition, automation will impact other jobs, such as those in manufacturing and repair shops. Second, automation is expected to generate economic benefits and create new jobs. With wage gains and more disposable income available, workers can increase consumption and thereby employment in other industries. Workers may also have additional capacity to develop new ideas and innovations. The following section describes the rise of vehicle automation and investigates the potential threats and opportunities that automation presents to the transportation sector.

Vehicular Automation

The progression of AV technology development is expected to accelerate over the next decade. The most commonly used system for describing vehicle automation level was developed by the Society of

Automotive Engineers (SAE). The classification system has six levels that range from Level 0 (no automation) to Level 5 (fully automated, no driver needed). As of June 2019, more than 80% of the vehicles on the road remain at Level 0 autonomy, and Level 3 AVs are the most advanced vehicles that are sold commercially.[25] Higher levels of automation are expected to bring increased benefits (fewer crashes, reduced congestion, and improved fuel usage); yet, the freight, public transit, and taxi/ride-hail industries employ a large workforce based around vehicles with no-to-low automation.

Anticipating the impacts of the transition to AVs is crucial to preparing the driver workforce for the future. However, much uncertainty surrounds the timeline for when AVs will become a reality and what form they will take. Nationwide, there are

about 176,000 fixed-route bus drivers, about 2.4 million truckers and 780,000 taxi/TNC drivers.[26,27,28] Recent projections assert that the transportation workforce will begin feeling impacts from automation in the 2030s and will experience the most severe impacts in the 2040s.[23] Preparing now for the changing workforce demands can enable Texas to mitigate worker displacement and bolster its economy.

The Preexisting Driver Shortage

The conversation about automation and job replacement is taking place during a preexisting driver shortage in freight and public transit. In 2018, the American Trucking Association estimated a shortage of 60,800 drivers with the potential to reach 160,000 by 2028. Several factors contribute to this shortage, which is a function of applying qualified drivers and the quantity of goods that need to be moved. The current driver stock is aging out as the industry is growing. In addition, trucking companies are selective, and the job is dangerous—840 drivers died on the job in 2017.[29] The long stretches of travel also take their toll on the drivers' lifestyle, making it difficult to exercise, eat healthy, or spend time with family, and lead to high turnover rates.

Transit is also currently experiencing a labor shortage. For bus drivers, the hours are long while the pay and benefits are limited. Further impacting the shortage are the large numbers of transit workers expected to retire in the next decade, creating a brain drain. In addition, transit is now having to compete with other sectors, such as trucking, taxis, motorcoach, school buses, and more recently transit network companies (TNCs). In both the trucking and transit sectors, modern methods are needed to attract and retain new recruits to the profession.

Job Displacement & Creation

Several theories attempt to predict how automation will affect the transportation sector. Some studies say that automation will hollow out the driving sector, completely replacing the driving task with AVs and leading to permanent job loss (i.e., following the manufacturing industry). Others say that automation will create as many jobs as it removes, transmuting them into new positions requiring new skills (i.e., following the banking industry). One projection is that the transportation sector would see anywhere from 200,000 to 1,350,000 workers displaced during the peak of automation.[23]

These outcomes require different strategies and policies. If automation replaces jobs without creating new ones, workers are at risk of possessing obsolete skills and unemployment will rise. Policymakers will need to focus on reducing unemployment and encourage employers to consider passing savings from automation on to the workers that are dislocated. If automation offsets job losses with new jobs, workers will need to take advantage of retraining opportunities to remain employable. Meanwhile, policymakers will need to work with employers to minimize the transition period and connect dislocated workers to these new jobs without traumatic stints of unemployment in between.

So, who is at risk of displacement and when will these impacts be felt? One group is the 3% of Texas workers who are employed as drivers—long-haul truckers, bus drivers, or taxi drivers—making automation a potentially huge disruptor to the Texas workforce.[30] On a national level, one estimate states that automation will displace between 350,000 and 750,000 workers each decade from 2020 until 2050, with effects concentrated in the later decades.[23] Large displacement in a short span

of time can overload the market's ability to reintegrate workers.[23] The following examples illustrate two pathways for guiding technology's impacts on the transportation sector:

Banking: Technology Enhancing Jobs

Technology may serve as a complement to the workforce, handling specific tasks and increasing worker productivity. For example, the banking industry experienced a rapid period of automation beginning in the mid-1990s. Interestingly, since the invention of the ATM, the number of tellers has actually remained roughly constant, mainly because they were needed to handle the nonroutine aspects of customer service in a growing number of branches. As transportation undergoes a similar period of disruption, shifting workers into a customer service role such as safety operators on automated public transport, or preparing them for new roles such as traffic management for autonomous systems may help to ease risks of displacement.

Manufacturing: Technology Replacing Jobs

Far from the banking industry, manufacturing has been impacted in very different ways. Just as new technologies have unforeseen positive benefits, they may also impart unexpected disadvantages. In the 1980s, increased automation, combined with the low transportation costs and transfer of jobs overseas, contributed to the flight of manufacturing jobs from the U.S.; these jobs have not been

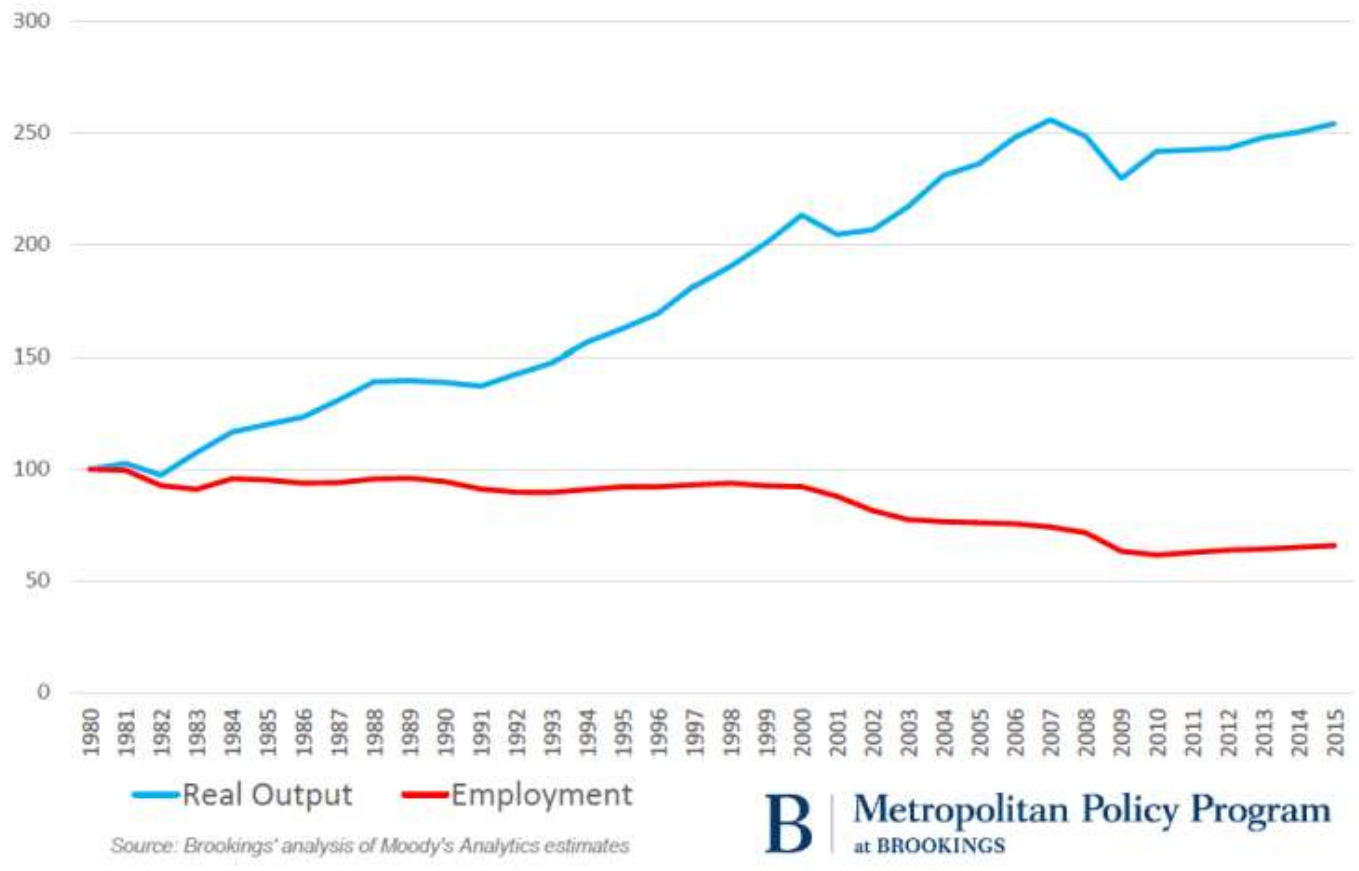

Figure 3: Manufacturing Jobs from 1980 to 2015

replaced with jobs of similar quality. Similarly, automation may create unexpected challenges for the transportation workforce.

The theory that new technologies will temporarily disrupt but eventually result in equivalent employment does not hold up when it comes to manufacturing, as Figure 3 illustrates.[23] In Ohio, for example, analysts estimate that automation was responsible for 718,000 of 1,228,000 manufacturing jobs lost between 1967 and 2014. This data, and Chris Arnade's vivid accounts of the Rust Belt's dislocated workers[31], do not support the idea that manufacturing automation eventually created new jobs into which dislocated workers could transition. Despite an economy that has fully recovered from the economic recessions, many Ohio communities are lagging. Instead, Ohio has recovered only about 90,000 of the 400,000 factory jobs that were lost between 2000 and 2010.[32]

Freight

The future of trucking will offer new employment opportunities for today's drivers, but it will require a new set of skills. More and more driving tasks are being automated. Beginning with exit-to-exit highway driving as well as last-mile delivery, drivers are being shifted into a role of safety operator, monitoring the systems behind the wheel, prepared to take over as needed. As technology becomes more sophisticated, companies may graduate to a teleoperator model where "drivers" can operate the vehicles remotely from a centralized command center. This transformation could open up significant employment opportunities and the ability for trucking companies to attract a younger, more diverse workforce—a population that has been reluctant to pursue a career in driving due to the arduous lifestyle.

In addition, ecommerce has increased the demand for goods as well as the expectation of faster delivery times. It is likely that more drivers will be needed to deliver a larger volume of goods at faster rates; automation and technology could alleviate the job shortage by making it easier and safer to operate a vehicle as well as appealing to a new generation of workers. The proliferation of telework may increase freight ordered to the door, which may create opportunities in unmanned aerial delivery systems. It is also important to note that some driving tasks may take significantly longer to automate or may never be automated, such as driving in complex urban environments, adverse weather conditions, and disaster response. As automation progresses, trucking companies will need to consider shifting drivers to specialty roadway segments, upskilling workers with the knowledge of autonomous technologies, and seeking out new talent. Telework's proliferation could increase the amount of freight being shipped to the door.

Case Study:
AV Trucking

AV trucking companies can take the lead in this space. TuSimple, a self-driving trucking company, and Pima Community College have established the first Autonomous Vehicle Driver and Operations Specialist Certificate Program. Together, they have created a curriculum, comprising five classes, that teaches experienced truck drivers how to operate and work with autonomous trucks in one semester. The program requires a Class A Commercial Driver's License prior to enrollment and builds on their traditional trucking knowledge. In conjunction with the program, TuSimple prioritizes hiring graduates of the certificate program for jobs at its Tucson, AZ testing and development center. As autonomous vehicle companies choose to locate offices in the state, Texas has an opportunity to smooth the

transition for its drivers through similar partnerships with local community colleges.

Transit

Transit automation is moving forward along three fronts. First, automated bus development is being advanced by the Automated Bus Consortium—an association of transit and transportation agencies who are collaborating to design, implement, and scale the creation of a full-sized, full-speed accessible automated bus. Second, automated transit shuttles, accommodating 12 passengers, are being developed by companies such as EasyMile and Navya. While they currently operate at speeds typically under 35 mph in limited circulator routes, they present a first-/last-mile solution that may be integrated with fixed line transit. Last, TNCs and on-demand rideshare services are also rapidly developing their own autonomous technology. For example, Uber's Advanced Technologies Group (ATG) is testing in Pittsburgh and Dallas; Lyft has developed an open platform for AV partners to use and is creating its own self-driving systems through its Level 5 lab; and companies such as Drive.ai, Aurora, Cruise, Argo, and others are also piloting around the country.

As in freight operations, the transit driver is beginning to shift into the role of safety operator. The next step is serving as a safety chaperone, where the operator moves from the driver's seat to the passenger's seat. The last step is when the driver is removed completely, and vehicles are supervised from a remote site. The timeframe for automation is still unclear, as is the market forces determining whether these services will compete and/or complement one another.

For private companies, many consider the end goal to be complete removal of the driver. Without a driver, the cost of the services would decrease and TNCs could aim to become profitable. Workers may potentially be shifted into more customer-facing roles and specialize in services where a higher level of human touch is needed. Lyft Concierge, for example, enables organizations to schedule and cover the cost of a ride that passengers cannot request for themselves. Services such as these could assist hospitals who want to provide transportation to/from medical appointments, riders with disabilities, and passengers without smartphones.

When it comes to public transit drivers, total job replacement also seems unlikely. While the driving task may become automated, bus drivers have long served in ways beyond driving. Bus drivers are a tangible part of the customer experience of public transit. They serve an important role as a social contact for seniors, assist persons with disabilities in accordance with the Americans with Disabilities Act (ADA), provide directions and navigation assistance, deescalate conflicts, and forge personal relationships with passengers.[33]

Bus drivers can also serve as important disaster responders. Houston METRO regularly sends buses to provide refuge or transportation during catastrophes.[34] In the response to Hurricane Harvey, for example, Houston METRO orchestrated thousands of transports for people seeking emergency shelter, moving supplies for the Red Cross, taking people to the pharmacy, sustaining paratransit services, and offering a voice of calm in the storm. In January 2020, when the U.S. saw its first cases of COVID-19 confirmed, transit workers became frontline workers. Transit services enabled the transport of medical workers and other essential personnel, helped to shuttle seniors and those with disabilities to safety, and provided low-income riders with necessary transport to work and grocery stores. The presence of public servants in public transit is an important social good, and regardless of

how advanced automation becomes, the need for a human workforce will continue.

Other Types of Jobs

Automation is also expected to impact workers beyond drivers, including workers in vehicle maintenance, repair, part supply, and cleaning. Both public and private sector workers will have to adapt to new technologies. In particular, the shifts towards connected, automated, and electric systems require new technical skills and hands-on job training. Small businesses, such as independent auto repair shops, will struggle to fund and access the retraining that their employees will need to remain competitive in a new transportation environment. Auto repair for connected and automated vehicles may be primarily done by manufacturers. As major employers begin adopting these technologies, there is an opportunity to pool resources and invest in common educational and training programs to develop a more robust, technically skilled talent pool.

Collateral Impacts

Vehicle automation is a nascent industry that has the power to impact some of the most prevalent industries in today's economy and create others. In manufacturing the vehicles, OEMs are relying more heavily on software engineers as well as their Tier-1 suppliers to produce semiconductors, circuits, and communications equipment. In addition, a new market for high-definition (HD) maps has become one of the most attractive segments in the market. The global HD map for autonomous vehicle market is estimated to be $1.3 billion in 2020 and projected to reach $20.4 billion by 2030[35]. Other industries will experience significant shifts in how they do business. Auto insurance, for example, may see a shift in how they evaluate liability, offer products, or generate revenue. Texas should identify each of these industries early and involve them in formulating workforce development programs.

Divergent Futures

Automation also has the potential to lead to divergent futures. In a best-case scenario, AVs can provide value in many ways: improving fuel efficiency, reducing stress and freeing up time for more productive activities, creating time-savings due to reduced congestion, and increasing access to affordable housing and employment. With these cost savings, it is reasonable to expect that people may spend more money on consumer goods. There is also speculation that AVs will provide greater transport access to disabled and elderly travelers, enabling them to participate in the workforce when they have previously been marginalized.

On the other hand, AV implementation may create unintended travel behavior consequences, with travelers embarking on trips that would not have been taken otherwise, or on longer trips than they would have tolerated previously. The technology could also lead people to order more items to be shipped, generating higher volumes of freight traffic. In these scenarios, the transportation industry is expected to expand, requiring employees in maintenance, supply chain, software engineering, and administration.[23]

Job Quality Considerations

While jobs may be created to offset those that are eliminated, there is no guarantee that these new jobs will not deteriorate in quality. Consider public bus drivers, for example. Quality here can refer to benefits, hours, safety risk, agency, and pay. If most of the driving tasks are automated, then employers could conceivably reduce compensation; or they could reduce hours such that workers are no longer eligible for benefits. This would be a pyrrhic victory of job creation. The nationwide downward trend in job quality observed since 1990[36] suggests that

employers are increasingly offering low-quality jobs even in a relatively 'strong' economy. There is little reason to think that workers will not be impacted in a similar way without protective policies and development programs that workers are meaningfully involved in creating. Creating policy that empowers workers will ensure that the system we create with automation will protect workers, employment, and quality of living into the unknown future.

SECTION SUMMARY

- Automation will both displace workers and create new jobs; Texas should focus on training to mitigate displacement.
- Automated trucking companies can partner with educators to develop a new pipeline for safety operators.
- While some parts of transit may become automated, a public transit workforce is still essential for disaster response, paratransit, and customer interaction.

THE PROLIFERATION OF DATA

The rise of new mobility data sources and information technologies will affect employees, their jobs, and how departments of transportation (DOTs) do business. Knowing how to leverage these technologies can bring significant improvements. From reducing traffic incidents to optimizing delivery routes, data is a powerful tool that is reshaping the workforce of the future.

DOTs in the IT Era

DOTs are undergoing a digital transformation, where the types of jobs and skills required are evolving. The impacts are three-fold: 1) enhancing traditional jobs such as construction, maintenance, and planning, 2) creating new opportunities related to big data management, connected vehicles, and data sharing, and 3) displacing workers with administrative tasks. As DOTs develop their training and hiring practices, it will be important to focus on workers who are at higher risk of displacement and bolster the agency with new skills.

DOTs, however, are struggling to remain competitive with their private-sector counterparts when it comes to hiring data scientists. The private sector is often able to offer higher wages, greater benefits, and more robust career development plans. The forward-looking public agencies are investing in data scientists, sometimes partnering across departments or agencies to pool resources. For example, the City of Louisville has established a cross-departmental Data Governance team that includes over 60 employees who work with data and represent every city department. TxDOT may consider leveraging its Information and Technology Division to support initiatives across divisions, districts, and with partnering agencies.

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Developments to Anticipate and Integrate

Several new technology developments are impacting both DOTs and the broader workforce. The following highlights a few growing developments and workforce strategies to consider:

Internet of Things (IoT) & Connected Vehicles (CVs). IoT describes information generated by abundant data-gathering sensors that now exist in cars, mobile devices, and computers. With CVs generating data at 10x per second, this data holds tremendous potential for safety and mobility applications; it also brings major management challenges. To maximize the potential utility of new data to serve the public good, public agencies must develop infrastructure and a workforce that can steward this data.

Artificial Intelligence (AI). The broad science of AI, including machine learning and deep learning, is enabling machines to perform increasingly sophisticated tasks. Applied well, it could enable transportation agencies to identify safety hotspots, transit service gaps, and transportation patterns for future planning endeavors.

Telecommunications. Advancements in telecommunications have progressed the development of 5G, supported dedicated short-range communications (DSRC) technologies, and expanded access to broadband. This digital infrastructure is enabling CVs, telehealth, and teleworking applications.

While the volume and character of data that public agencies will steward in the coming years is still unclear, there is a growing need to protect the privacy and security of that data.

Third-Party Data Aggregators. With more data being generated, a new market of third-party data aggregators has arisen. In this model, these firms serve as middlemen, where a private entity gives data to the third party, and the public entity submits a query to the third party, which then processes it and returns anonymized, actionable information. In the future, there will likely be more data aggregator jobs as well as skills required related to data processing and visualization.

Cloud Computing. Part of the digital infrastructure, cloud computing provides a combination of data storage, computing power, and network resources to meet the vast data demands. These jobs are growing faster than average and public agencies are integrating these skills into their information technology divisions.

TNCs and Scooters. New mobility modes, including TNCs and scooters, are a new data source that can feed into transportation planning and operations. New data standards and corresponding privacy and security policies will be needed to integrate this valuable information stream into public data management.

The Need for Privacy & Security Officers

While the volume and character of data that public agencies will steward in the coming years is still unclear, there is a growing need to protect the privacy and security of that data. Having key staff in place who are responsible for developing the policies and strategies of the agency is important for managing risks related to sensitive information and being responsive should a breach take place. To address these needs, several public agencies are establishing Chief Privacy and Security Officer positions who are responsible for overseeing practices related to the collection, use, and disposal of data.

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Case Study:
Mobility Data Specification (MDS)

One area of high concern is around geolocation data. While this data does include valuable information for transportation planning and operations, it also poses a privacy and security risk. TNCs, scooters, CVs, and other devices that are monitoring GPS coordinates also contain personally identifiable information (PII). The ongoing debate between the public and private sectors regarding the appropriate level of data sharing and management practices was brought to light most notably in the lawsuit over the Mobility Data Specification (MDS) between Los Angeles DOT and Uber. Additionally, the California Legislature recently passed the Consumer Privacy Act that addresses several items, including how data is collected, used, disclosed, and sold; data portability; and subject access requests. Furthermore, several government data breaches have occurred in recent years—including 22 Texas government entities in 2019.

At a time when these risks are proliferating, there is unfortunately a lack of qualified workers available and intense competition for those who are. The United States has an estimated shortage of 498,480 cybersecurity professionals. Increasingly, organizations are hiring candidates who have good problem-solving skills but are not certified and lack specific privacy or cyber expertise. Tactics to address this gap include forging a more deliberate talent pipeline and developing market-sensitive pay structures for employees that more closely align public and private sectors.

New Jobs & New Skills

Though the volume and granularity of data that public agencies will be responsible for is still unclear, having a workforce that is capable of applying and protecting the data is essential. Texas has an opportunity to equip its workforce with the knowledge and skills related to data science, database management, privacy, and cybersecurity. While larger agencies may be better positioned, this will be difficult for many smaller public agencies who lack the funds for adequate hardware or for data-fluent workers who are pursued by the private sector. Key strategies that can help public agencies of any size include developing privacy and security training programs, incentivizing employers to establish leadership roles, and forming more structured programs such as apprenticeships in concert with educational institutions.

SECTION SUMMARY

- There are more and more new mobility data sources becoming available for transportation agencies to harness.
- Chief Privacy and Security Officers are positions that will have a greater role going forward in transportation.
- There is a talent gap in data science, privacy, and security skills; the Texas workforce is in need of education and training programs to meet the growing demand.

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THE GROWTH OF THE GIG ECONOMY

With the advent of smartphone technology, the way that people view and perform work has altered over the past decade. For example, DoorDash is a smartphone-app-based platform that lets customers order food to be delivered. The customer inputs an order from an area restaurant, and DoorDash offers the gig to its workers, who can choose to accept, deliver the food, and get paid.[37] What is different about this model is that a 'gig' worker is paid by the task, not by the hour or by a salary. 'The gig economy' is made up of three main components: 1) the independent workers, 2) the consumers who need a specific service, and 3) the companies that connect the worker to the consumer in a direct manner.[38] Companies such as Uber, Lyft, Airbnb, Etsy, or DoorDash enable workers to find a quick, temporary job; however, they have also raised new policy and regulatory concerns.

How Big Is the Gig Economy?

While the gig economy is consuming a larger and larger share of the U.S. workforce, estimating the precise number of gig workers is a challenge (Figure 2 charts the estimated numbers). The Bureau of Labor Statistics (BLS) has no distinct definition for the gig economy or its workers, but it does have a category for 'contingent' workers—captured in the Contingent Worker Supplement—who are knowingly engaged in temporary work that will not exceed one year in duration.[39] This category includes freelancers, contractors, temporary workers (temps), as well as workers who provide services through online intermediaries (gig workers).

The IRS collects some information pertaining to the gig economy through its tax forms. While individuals may report phrases or company names through their Schedule C and 1099 information returns, no standardized codes are in place and many categories are lumped together (e.g., taxi, limousine, and rideshare are a single category). As a result, IRS data likely represent an undercount of the true number of individuals who participate in the gig economy and additional surveys are needed to home in on the number of gig workers. Surveys of U.S. workers report that 24 to 30% are employed in some way in the gig economy, and that 10 to 13% rely on the gig economy as their primary source of income. Zeroing in even further on the online platforms, such as Uber, Lyft, TaskRabbit, and DoorDash, roughly only 1% of workers use online platforms to arrange work[40]. For policymakers interested in planning for the recent technology-driven shifts in workforce behavior, Texas should consider a combination of IRS tax return analysis and use supplementary surveys as a way to achieve fine-grained, accurate data.

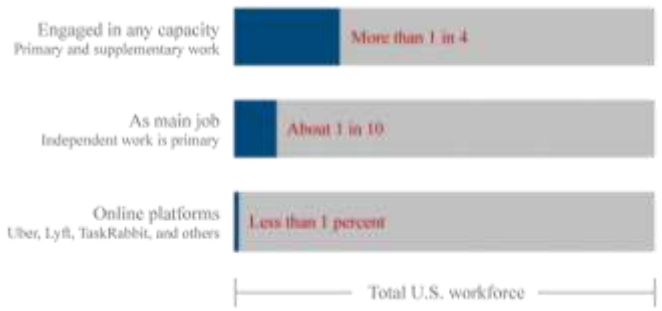

Figure 4: Number of Gig Workers

Who Are Gig Workers?

Generally, gig workers can be classified into two broad categories—labor providers such as drivers and delivery workers, and goods providers such as artists and craftsmen. Labor providers are typically lower-income and less-educated workers who rely on gig work for their entire livelihood; goods providers are typically higher-income and more-educated workers who supplement their income and have another full-time job.

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Worker Designation: Contractor vs. Employee

Much of America's current workforce policies were developed in the early 20th century with a different work culture mindset. In particular, the Federal Insurance Contributions Act (FICA) governs employee and contractor classification requirements. For employees, FICA requires companies to pay a portion of taxes on employee wages, including taxes for Social Security, Medicare, and unemployment. In addition, employees are subject to labor laws governing overtime, family and medical leave, and minimum wage. Contractors, however, are responsible for both portions of FICA taxes and are not subject to labor laws.

Fast-forward to today, and the worker culture has significantly shifted. Rather than working for one company until retirement and receiving benefits from that company, workers are choosing freelance and contract-based work—valuing the flexibility and freedom provided through the gig economy. Worker classifications, however, have not caught up and gig workers are still considered independent contractors. As a result, gig workers do not receive benefits, like health insurance, from technology platform companies; rather they must procure them independently. As the gig economy is still a category of work that is largely undefined and unrecognized, policymakers are considering new labor laws.

Determining Status

The surge of gig economy jobs is bringing national attention to worker classification. In transportation, TNCs and on-demand delivery services have become the center of much debate. The following describes different ideas currently in circulation:

Gig Workers Should Remain Classified as Contractors. In the current system, technology platform companies are connecting service providers directly to customers. For example, TNCs are providing the means for drivers and passengers to find one another via their platform; driving is not their business, but rather software. Thus, drivers who use their app are considered independent contractors and not employees. This model provides low fares, flexible hours, and competitive incentives for drivers during peak periods.

Gig Workers Should Be Reclassified as Employees. Some argue that workers are not being protected as contractors and that reclassification is necessary to level the playing field. To increase labor protections, some states are considering reclassifying gig workers as employees. Under this new model, TNCs would be required to comply with federal and state rules about benefits, health insurance, worker's compensation, minimum wage, and other mandates. This change could also impact taxi workers who were shifted to contract workers due to increased insurance costs. To support and finance these new worker protections, companies would likely pass the costs on to the consumer—driving up fares and capping hours worked each week.

Gig Workers Warrant a New Worker Classification. New provisions that would modernize employment and labor protections to fit today's culture are also under consideration. A possible new worker classification of "Dependent Contractor" is under consideration for how to describe gig workers. Freelancers who receive the majority of their income from a specific company would fall under this category, and the company would be required to provide benefits and follow certain labor laws. For example, New York City established a minimum wage for TNC drivers, and state lawmakers introduced the Dependent Worker Act, which would direct the state Department of Labor to study extending certain rights as minimum wage, overtime pay, and collective bargaining. Another concept that is gaining traction is portable benefits,

which are benefits owned by employees and taken with them to each new job they have. Companies that hire gig workers as employees would contribute to these benefits based on the prorated amount of work performed for the company.

Worker Classification in California

Determining contractor status has historically involved inconsistent and subjective methods. Different federal agencies, states, and even agencies within states have employed a variety of criteria. In addition, contractor status must be argued by the company and not the worker, making it more difficult for gig workers to voice their needs. California has emerged as a state willing to champion worker protections and set new precedent.

To determine contractor status, California originally used the Common Law Test. The test was based on the S.G. Borello & Sons, Inc. v. Dep't of Indus. Relations decision in California state court and set forth nine criteria. This test, however, was found to be ambiguous and employers frequently found workarounds in the system.

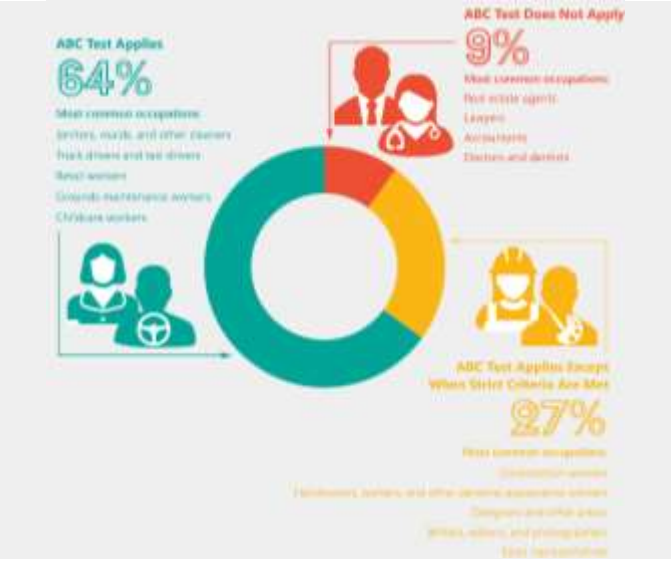

Figure 5: California AB5 Coverage of Workers who Are Independent Contractors at their Main Job

Case Study:
The ABC Test

In 2018, the Common Law Test was replaced with the ABC Test set forth by Dynamex Operations West, Inc. v. Superior Court of Los Angeles. The case dealt with legal violations of the California Industrial Welfare Commission (IWC) Wage Order and simply states that an employer must meet the following three criteria to designate a worker as a contractor:[41]

A. that the worker is free from the control and direction of the hiring entity in connection with the performance of the work, both under the contract for the performance of the work and in fact

B. the person performs work that is outside the usual course of the hiring entity's business

C. that the worker is customarily engaged in an independently established trade, occupation or business of the same nature as the work performed

The ABC test removed a measure of judicial subjectivity and made it slightly harder for employers to assign contractor status. Most states since have adopted some from of the ABC test.

Recently, the State of California made headlines for elevating worker classification to a state level. In September 2019, Governor Newson signed Assembly Bill 5 (AB5), which applied the ABC Test across all labor sectors in the state, not just to the IWC. Months after AB5 became law, Uber and Postmates sued the State of California to challenge the AB5's constitutionality.[42] The lawsuit is not expected to succeed: in February 2020, a judge denied the plaintiffs an injunction against AB5's implementation.[43]

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Worker Classification in Texas

The TWC recently crafted a rule clarifying worker status in app-based companies. The rule states that these workers are independent contractors with respect to unemployment insurance.[44] Previously, the TWC would evaluate status in these cases with a 20-factor test, but the new rule supersedes the test result. If a company and its workers are consistent with the TWC's definition of 'marketplace platform,' 'marketplace contractor,' and 'digital network,' and meet nine additional criteria, then the rule applies, rendering the worker ineligible for unemployment insurance (but does not exclude the worker from other state and federal labor protections).[45]

1. All or substantially all of the money paid to the marketplace contractor is based on a per-job or per-transaction basis.
2. The marketplace platform does not unilaterally prescribe specific hours during which the contractor must be available to accept service requests from the public (including third-party individuals and entities) submitted through the marketplace platform's digital network.
3. The marketplace platform does not prohibit the marketplace contractor from using a digital network offered by any other marketplace platform.
4. The marketplace platform does not restrict the contractor from engaging in any other occupation or business.
5. The marketplace contractor is free from control by the marketplace platform as to where and when the contractor works and when the contractor accesses the marketplace platform's digital network.
6. The marketplace contractor bears all, or substantially all, of the contractor's own expenses that are incurred by the contractor in performing the service or services.
7. The marketplace contractor is responsible for providing the necessary tools, materials, and equipment to perform the service(s).
8. The marketplace platform does not control the details or methods for the services performed by the marketplace contractor by requiring the contractor to follow specified instructions on how to perform the services.
9. The marketplace platform does not require the marketplace contractor to attend mandatory meetings or mandatory training.

Future Considerations

As the gig economy continues to grow, Texas will need to ensure that its workers are being both protected and that businesses are retaining the flexibility to innovate. While the Texas law only applies to workers unemployment insurance, it is worth examining the legal precedents being established in places such as California and New York. New "dependent contractor" worker classifications, portable benefits, and other flexible arrangements may be the creative tools needed for Texas to offer its workers a versatile culture and emerge as a titan of the new gig economy

SECTION SUMMARY

- The expanding gig economy offers more flexible work arrangements; worker protections have not kept pace with new developments.
- Developing criteria to classify workers as employees or contractors is a complex process; the ABC Test has emerged as a simple precedent.
- States are exploring new dependent worker classifications and portable benefit models to provide gig workers with the appropriate protections.

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OPPORTUNITIES FOR TEXAS

Proactively create transportation workforce development initiatives that focus on workers who are most vulnerable to automation. By focusing on workers in industries such as freight, transit, taxis, ride-hailing, and auto repair, public agencies can craft workforce development that connects at-risk workers with new jobs created by automation. Texas has an opportunity to work with and incentivize companies that utilize automation to develop educational and training programs, ensuring these workers can transition to new positions. By preparing for the disruption ahead, Texas can retrain, upskill, and redeploy workers in such a way as to minimize economic impacts.

Upskill the workforce to fuel the growing demand for data science, privacy, and cybersecurity professionals. In anticipation of the large volumes of data that will be generated, Texas should be a leader in developing the existing public workforce by funding upskilling in data management. In addition, agencies can invest in their future workforce by developing privacy and cybersecurity professional programs and opening apprenticeship programs with high schools and community colleges. This will allow the public sector to provide jobs to local Texans while securing a capable workforce for the future.

Consider new worker classifications and portable benefit models to support the rising number of gig workers. In such an undefined space, Texas should consider a combination of IRS tax form analysis and supplemental surveys to understand the true scope and needs of its gig workers. This information will enable Texas agencies and lawmakers to plan appropriately and provide more information as to how new worker classification and benefits models may impacts its workforce.

Craft policies that would enable state agencies to expand teleworking. As case studies indicate that telework will powerfully advance goals for Vision Zero, alleviate traffic congestion, and support emergency preparedness, telework is worth pursuing. In the wake of COVID-19, Texas state agencies should consider joining forces and working with the Governor's Office to establish best practices and make a recommendation to the state legislature regarding needed policy clarifications and updates.

Forge a diverse and inclusive process to conduct workforce strategic planning. Diversity is the backbone of the Texas economy, yet the strategic planning process does not reflect the varied and nuanced needs of Texas workers. As the demographic patterns of the state shift, Texas should consider expanding its workforce strategic planning process to include more perspectives. By collaborating with local business, unions, women, seniors, underrepresented minorities, and community groups when preparing for job retraining, Texas can lead the nation in formulating forward-thinking workforce solutions. By using the workers' own wealth of knowledge about workforce needs and choices, Texas can mitigate automation-driven displacement, develop a data-oriented talent pool, protect its growing gig economy, and modernize its workforce through telework.

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