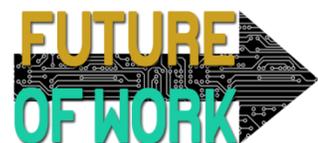# Future of Work Task Force 2019 Policy Report

Exploring and Developing Policies for Shared Prosperity among Washington's Businesses, Workers, and Communities

Future of Work Task Force 2019 Policy Report

Table of Contents

Future of Work Task Force 2019 Policy Report

December 1, 2019

Dear Honorable Governor Inslee and Legislators,

I am pleased to submit the report from the Future of Work Task Force, established by SB6544, and supported by staff of the Workforce Training and Education Coordinating Board.

The Task Force was charged to develop policy recommendations to establish the conditions for true and equitable shared prosperity across the state for the foreseeable future. This was a monumental task, as the "future of work" policy arena is broad and complex, the research is inconclusive, and no other state had yet begun this exploration. Washington is paving its own path forward.

This Task Force report is testament to the tremendous amount of work, passion, and thoughtfulness of all the business, labor, and legislative members of the Task Force, and the two co-managers who staffed their efforts. They considered research, data, and perspectives from a broad array of stakeholders, think tanks, and others to accomplish their charge. This investigation yielded not only examples of what's working, but cautionary tales of what's not.

Members struggled together to find common ground to answer difficult questions: Will there/Can there be enough good jobs in every Washington community? Will Washington's businesses—big and small, urban and rural—be able to effectively harness technology to compete and thrive? Will every Washingtonian, regardless of gender, race, age, ability, and zip code have access to high-quality, family-sustaining jobs, and be able to maintain economic security for their lifetime?

The report before you is the work of more than a year of research and stakeholder engagement across the state, nation, and world, as well as robust, deliberative negotiation towards consensus. The Task Force narrowed its focus to five general policy areas to help "futurize" Washington's communities and economy:

- Enhance worker training, so employees can be "upskilled" as technology evolves.
- Understand and set guidelines on the deployment of advanced technology in state agencies.
- Examine the public worker support and protection systems for modernization opportunities.
- Re-imagine career and credentialing pathways, validated by improved labor market data, to provide continuous momentum for workers, and a reliable talent pipeline for employers.
- Deploy economic development and other state resources to support small and midsize businesses and create family-sustaining jobs in every region of our state, and to ensure equitable access to those jobs.

I encourage you to review the report of the Future of Work Task Force, and to consider both their recommendations for action and their insights on the need for further exploration of specific topics. Please don't hesitate to contact us with questions and comments.

Sincerely,

Eleni Papadakis
Executive Director, Workforce Training and Education Coordinating Board

Workforce
Training & Education Coordinating
Board

Executive Summary

Washington at the Forefront

The only certainty of the future is change. The rapid pace of technological innovation and its adoption in the 21st century is disrupting the way people live, work, and interact with each other in profound ways. While this progress brings hope and optimism through lofty ambitions, such as curing disease and traveling to other planets, it conversely fuels concerns of a dystopian future where workers are displaced by machines and societal inequities are exacerbated.

Researchers, think tanks, media pundits, futurists, and many others are investigating and projecting what the future might hold for the world of work. While there are differences between and among them, they share an understanding that this is not just about technological disruption. This "4th industrial revolution" is driven by our ability to digitize almost anything into useable bits of information, to collect, process and analyze limitless amounts and types of data, to remove the boundaries of traditional disciplines, sectors, and geography, and all at breakneck speed. Yet, these forecasters differ in their vision of the future, what is necessary to thrive in the future, and the recommended methods to achieve future prosperity.

Seeking to bring together diverging viewpoints and priorities on how to best foster *shared* prosperity for all stakeholders, Washington's 2018 Legislature created and funded the Future of Work project. It's the first of its kind in the United States, and puts Washington in the spotlight as a thought leader through the creation of a 16-member, tri-partite Task Force made up of legislators, business, and labor leaders. The Task Force was charged with developing a set of policy recommendations that will benefit both Washington's workers and businesses, with the goal of shared gains for all of the state's diverse populations and communities.

Arriving at these recommendations proved to be a daunting, time-intensive task. The Future of Work Task Force, with staff support from the Workforce Training and Education Coordinating Board (Workforce Board), pored over a broad spectrum of research and reports from around the world, met with researchers and futurists working at the national and international levels, and engaged hundreds of stakeholders across the state. The Task Force examined some of the state's most pressing current issues, and committed to developing meaningful policy recommendations to prepare all Washingtonians, regardless of zip code, for what lies ahead, and leave no one behind in an increasingly high-skill, high-tech economy.

This report is the result of these efforts, culminating in the identification of five priority policy areas and 17 specific recommendations within those areas. The Task Force made these recommendations keeping the following key interests in mind:

- Mitigate income disparity across populations, geography, and business sectors.
- Address the changing relationship between businesses and workers on issues including: workplace training, alternative work arrangements, length and nature of tenure, and employer-sponsored benefits.
- Ensure equitable access to resources that support economic vitality, innovation, skills development, and talent in all areas of the state.
- Identify skills and competencies needed for workers to attain and perform quality jobs aligned with the current and future needs of business, and the most effective mechanisms for workers to obtain these competencies.

A Guide to This Report

This report is intended as an outline detailing Washington's efforts to proactively address the future of work. The report is written with a broad range of audiences in mind, including, but not limited to, policymakers, research institutes, public institutions, academics, and others with a vested interest in the future of work. The report provides an overview chronicling how the Task Force arrived at its final policy recommendations, supported by detailed information related to each policy recommendation and its relevance to the future of work.

The 17 policy recommendations developed over the Task Force's work are listed here in the executive summary. The full recommendations and desired outcomes are detailed later in the report under each of the five policy chapters. These chapters provide supporting research, data, and other information to give context to the underlying problems the recommendations are intended to address, before moving to the actual recommendations at the end of each chapter.

To assist the reader who may be unfamiliar with some of the terms or phrases related to the future of work, or when multiple definitions exist in this report, we've included a glossary of relevant terms. The appendices also include details of stakeholder engagement efforts, a bibliography, and supporting materials on some of the policy areas.

Future of Work Task Force 2019 Policy Report

Policy Recommendations

Comprehensive Worker Upskilling and Lifelong Learning

1. (a) Support the Workforce Board's request for additional funding for incumbent worker training.

   (b) Extend the State Board for Community and Technical Colleges (SBCTC) Customized Training Program.

   (c) Establish a requirement for a worker-management oversight body for each awardee of state incumbent worker training funds.

   (d) Add and evaluate new outcome metrics on the Job Skills and Customized Training programs.

2. Remove the six-credit eligibility requirement from the Washington College Grant program for students co-enrolled in High School+ and I-BEST who do not have a high school diploma or equivalent.

3. (a) Fund the Lifelong Learning Accounts (LiLA) program, where employers and employees jointly fund an employee-owned educational savings account, as written in state statute (RCW 28C.18.180).

   (b) Provide funds to establish a career and education counseling network to support LiLA account holders and other workers who are planning for professional development and economic opportunity.

Use and Adoption of Technology in the Workplace

1. Perform a worker-impact audit on the selection and adoption of Artificial Intelligence (AI) and other advanced technologies within Washington State government.

2. Develop a methodology for assessing and evaluating advanced technology within state government.

Improved Labor Market Data and Credentialing Transparency

1. Extend and utilize the Workforce Board's Career Bridge-Credential Engine project on credential transparency and competency-based credentialing as a learning laboratory among the higher education community.

2. Add a new occupation data field to Unemployment Insurance Wage Reports, provided by employers for each W-2 employee.

Modernized Worker Support System

1. Analyze the impact of existing worker benefit and protection structures, and provide recommendations to better support workers as the nature of work changes.

Equal Access to Economic Development Resources Across Washington

1. Prioritize the use of state-funded economic, workforce and community development resources to support and generate family-wage jobs, with a focus on rural vitality.

2. Continue funding rural broadband efforts and seek out similar initiatives that may constitute best practices in other areas of the nation.

3. Enlist libraries to become greater hubs for community training, credentialing, and entrepreneurship/small business development.

4. Fund the development of accessible collaborative applied research (CAR) models that will bring two- and four-year college faculty and students together with small and midsize businesses and their workers to invent or adopt new technology or processes.

5. Reinstate a state office of employee ownership.

Workforce
Training & Education Coordinating
Board

Task Force Meetings
(Limited by legislation to four meetings per year.)

2018
1. **October 8, 2018**
- MacDonald-Miller Facility Solutions, Seattle
2. **October 29, 2018**
- Highline College, Des Moines
3. **November 26, 2018**
- UW Professional Development Center, Tacoma
4. **December 17, 2018**
- State Board for Community and Technical Colleges, Olympia

2019
1. **May 9, 2019**
- Central Washington University, Ellensburg
2. **August 8, 2019**
- Spokane Workforce Council, Spokane
3. **October 10, 2019**
- International Brotherhood of Electrical Workers, SeaTac
4. **November 7, 2019**
- State Board for Community and Technical Colleges, Olympia

Task Force meetings were open to the public, and included a public comment period at each meeting.

Future of Work Task Force 2019 Policy Report

Future of Work Task Force Composition
Task Force Members:

Legislature	
Senator Mona Das, D - 47	**Representative Larry Hoff, R - 18**
Senator Hans Zeiger, R - 25	**Representative Vandana Slatter, D - 48**

Business	Labor
Amy Anderson Association of Washington Business	**Annette Bernhardt** UC Berkeley Labor Center
Stephanie Beers Microsoft	**Marcus Courtney** President Emeritus of WashTech / CWA Local 37083
Machelle Johnson Pearson Packaging	**Joe Kendo** Washington State Labor Council
Lisa Perry Sierra Pacific	**April Sims** Washington State Labor Council
Richard Rhodes New York Life	**Rebecca Smith** National Employment Law Project
Mark Smith Providence St. Joseph Health	**Stan Sorscher** Society of Professional Engineering Employees in Aerospace (SPEEA) (ret.)

Other Task Force Participants
Senator Maralyn Chase, D – 32 (ret.)
Original Legislative Task Force member (2018); primary legislative sponsor of Senate Bill 6544
Representative Matt Manweller, R – 13 (ret.)
Original Legislative Task Force member (2018)
Jack Chen
Microsoft (2018)
Lynne Dodson
Washington State Labor Council (2018)
Bill Messenger
Alternate for Labor Delegation

Task Force Staff	
Lewis McMurran Task Force Co-Manager	**Joseph Wilcox** Task Force Co-Manager
Chris Dula Research Investigator	**Caroline Metzger** Task Force Administrative Assistant
Nova Gattman Workforce Board Deputy Director for External Affairs	**Eleni Papadakis** Workforce Board Executive Director

Workforce Training & Education Coordinating **Board** WASHINGTON

Future of Work Task Force 2019 Policy Report

Introduction

Self-driving cars. Cashierless checkout. Algorithms that perform the tasks of lawyers, accountants, journalists, musicians, and personal assistants. Robots and software programs, fueled by advances in artificial intelligence (AI), are becoming increasingly proficient at performing an array of tasks more efficiently and accurately than the humans who created them. The collection and analysis of a dizzying volume of data is providing new ways to conduct business and even understand human behavior. Once the domain of science fiction, new technology is dramatically reshaping our environment, the economy, and the way we live. While the nature of many jobs will change, and others will be relegated to the dustbin of history, new jobs will be created. As in past periods of technological upheaval, the introduction of new technology into our lives has engendered reactions of fear and resentment, as well as hope and optimism for the possibilities of what may come. What makes this new 4th industrial revolution different is that the pace of change is much faster and more widespread than in previous periods of technological upheaval.

Past advances in technology produced dynamic social and economic changes, resulting in greater productivity, fewer repetitive tasks, and in some cases social turmoil. Incandescent lightbulbs and electricity made lamplighters, who lit gas streetlamps each evening, obsolete. The invention of the printing press spelled the beginning of the end for scribes who had painstakingly transcribed manuscripts by hand. The Luddites—19th-century weavers and textile workers—famously revolted against the usage of the mechanized loom, heaping destructive retribution upon the machines threatening their livelihood.

As production and efficiency increased in many cases, new jobs were created to replace obsolete ones. Yet not all were able to benefit equally from these changes, and many workers suffered from poor working conditions. Concerted social pressure and government action ushered in broader improvements such as reduced work hours per week, workplace safety, and the creation of child labor laws, among other changes.

This marked a significant shift by the government in taking a more active role in social and economic arenas, as manifested in landmark policies such as the Social Security Act, Wagner-Peyser Act, OSHA and the National Labor Relations Act. Even with these broader government workplace protections and the promise of a basic national pension, some segments of the workforce still struggled with low wages, uneven work opportunities, and significant periods of underemployment or unemployment. These challenges persist, and are magnified today, as the workforce and economy continues to transition. A modernized worker support system will need to better reflect the changing nature of work, and evolving relationships between workers, businesses, and communities.

Today's economy—and the role of workers— is evolving as advances in technology enhance worker productivity and boost output. An increasing number of jobs now call for a higher level of skills and education, and workers must maintain pace with these changes or risk

being left behind. This intersection between machines and human workers has hastened the creation of new jobs, and the need for expanding skills. New jobs are being created each day, and the skills required within existing occupations are increasingly fluid as technology changes. Meanwhile, new occupations, yet to be created, are on the horizon.

Seeking to study, predict, and adapt to this rapidly evolving future, public and private bodies are scrambling to make sense of how these changes will affect workers, businesses and communities. Futurists, think tanks, and research institutions attempt to divine the world of tomorrow. Data scientists crunch numbers seeking to calculate the formula that will provide insights into the future. Politicians and policymakers debate the value of policies to bring about change for a better tomorrow.

Although the exact nature and scope of change that will affect different occupations is speculative at best, and scaremongering at worst, the fact remains that many workers will need to upgrade their skills to remain relevant in tomorrow's workplace. But the skill needs of businesses are changing as rapidly as the technology is being created and adopted. The education and training systems that prepare workers don't yet have the capacity to revise curricula on the fly, and any wholesale changes could be premature with industry in the throes of transformation.

New channels of communication between industry and education, with reliable, actionable information about skills, competencies, and emerging career pathways, will bring the talent-pipeline development into closer alignment with the current and future workforce needs of business. Competency-based credentialing will also help by validating skills learned in any modality (college, registered apprenticeship, on-the-job, online, self-taught), providing momentum towards higher-level credentials. What's clear is that for the worker, simply obtaining skills will not be enough as industry and occupations continue to transform. Workers will need better, more reliable labor market information to make wise decisions about educational investments and which career steps to take.

Technological innovations—both existing and on the horizon—can negatively impact the work and home life of individual workers, and inadvertently cause negative business consequences. The effects of AI, workplace and communications monitoring software, hiring algorithms, worker privacy, data collection, usage and sharing, and other issues raised by technology all need to be identified, measured, and evaluated. New technology in and of itself is generally benign. But its implementation and use has the potential for both negative and positive consequences for workers, employers, and communities. As such, transparency in management decision-making on new technology, and engagement and persistent vigilance by all parties is important to ensure that the full range of consequences—both intentional and unintentional—are monitored and understood.

Technology has certainly spurred U.S. productivity, boosting corporate and shareholder prosperity. Yet, worker wages have stagnated for decades even as the economy has experienced strong growth and unemployment has receded to record lows. Some populations have been particularly marginalized by these trends, and large metropolitan areas likewise account for the lion's share of economic growth compared to their rural counterparts. As a result, workers, businesses, and the government are all debating how to best address growing wealth inequality in the country and the hollowing out of a once-vibrant middle class.

This is more important than ever as wealth inequality intensifies across the state, and is disproportionately impacting underrepresented populations. Training needs to bolster workers against the tide of technological innovation in the workplace, providing them with in-demand skills for quality jobs that provide family wages, personal fulfillment, and opportunities for advancement.

So where does this leave Washington's workers and businesses? Will all the state's communities be able to benefit economically? Businesses, workers, and many communities are already feeling the impact of this 4th industrial revolution; some in positive ways, some quite negative. Policymakers cannot afford to wait and find out what happens next. Washington will need to take tangible steps now to plan for a future that helps our workforce, businesses, and all its communities prosper together.

The good news is that these vast challenges represent equally immense opportunities. But most solutions require a change in mindset and innovative strategies, and a disruption to the status quo.

Future of Work Task Force: Washington Leads the Way

Background

The Future of Work Task Force was created by legislation sponsored by former Senator Maralyn Chase (SB 6544)[1] in 2018. The Workforce Board was funded to provide staff support to the Task Force. The enabling law charged the group with developing policy recommendations to better prepare Washington's businesses, workers, and communities for economic prosperity as the world of work changes through rapid advances in technology.

The Task Force is comprised of six members from business, six from labor, and four legislators—one from each legislative caucus. The Workforce Board, directed to appoint the private sector members of the Task Force, requested the Association of Washington Business and the Washington State Labor Council nominate their sector's respective candidates. Legislative leadership of each caucus selected their respective legislative members.

Task Force meetings provided members with a chance to learn about and discuss the broad implications of the future of work, as well as a forum to focus and deliberate on issues facing the state. Members heard from a range of speakers, including (but not limited to) national and international think tanks, public and private universities and colleges, community advocates, and business and labor representatives.

> **Task Force Member Insights:**
>
> **"Our work was coming together with business, labor and elected officials to examine the future of work. We realized that advancing technologies are already transforming the workplace and workforce. The future of work is here now. The Task Force should continue its efforts as it is a place to help ensure we design policies on behalf of Washington workers which improve well-being and outcomes."**
>
> *- Marcus Courtney, President Emeritus of WashTech / CWA Local 37083*

Paring Down Priority Areas

The Task Force held four meetings in 2018, between October 8 and December 17. These meetings culminated in the development of an initial report required by the enabling legislation.[2] The report outlined 10 priority policy areas for future research and exploration, with the intent to further refine them throughout 2019. The Task Force

---

[1] Future of Work Task Force. SB 6544. Ch. 294, Laws of 2018, 65th Legislative Session.

[2] Wilcox, J., & McMurran, L. (2018). Plan of Action for 2019: Exploring and Developing Policies to "Future Proof" Washington's Workers and Businesses. Olympia, WA: Workforce Training and Education Coordinating Board.

worked throughout 2019 to distill that list to a more focused set of priorities, including policy issue areas, and specific recommendations reflected in this report.

For efficiency, and to be able to use limited meeting time for Task Force deliberations, staff used online surveys to gauge Task Force member interest in particular topics, establish priority issues, and receive member feedback on policy drafts. Survey data from members was used to dig deeper into policy ideas and recommendations, and allow the Task Force to narrow and hone a policy framework. To foster shared understanding of issue areas, staff held group meetings and individual interviews with hundreds of stakeholders from across the state.

Because the Task Force was limited by legislation to four meetings each year, it formed an executive committee consisting of two members each from the business and labor delegations to further distill and discuss complex topics.

Executive Committee	
Business	**Labor**
Rich Rhodes	**April Sims**
Mark Smith	**Rebecca Smith**

The Task Force also created a pair of issue-focused committees to explore and assess two significant priority areas. These committees were focused on the following issues:

- Establishing pathways to create an adaptable and skilled workforce.
- Removing systemic barriers and inequities in order to promote widespread prosperity.

The committees were staffed by the Workforce Board's Future of Work Co-Managers, and included three members each from the business and labor delegations.

Focus Committees	
Establishing pathways to create an adaptable and skilled workforce	**Removing systemic barriers and inequities in order to promote widespread prosperity**
April Sims	**Annette Bernhardt**
Mark Smith	**Stephanie Beers**
Amy Anderson	**Joe Kendo**
Lisa Perry	**Rich Rhodes**
Stan Sorscher	**Rebecca Smith**
Marcus Courtney	**Machelle Johnson**

Workforce
Training & Education Coordinating
Board

Both committees met over the spring of 2019 to discuss issues and policy ideas. The committees reported out their deliberations at the first Task Force meeting of 2019, held in Ellensburg in May. This work helped to shape many of the Task Force's final recommendations. A later section of this report includes research findings centered on income disparities, which was generated by the committees, and focused on removing systemic barriers and inequities.

2019 Task Force Meetings Lead to Key Policy Recommendations
The Task Force shared information, deliberated, and received public comment during the four meetings in 2019, creating policy recommendations that addressed the following considerations:

- Futurize Washington's workforce, and help ensure economic prosperity for both businesses and workers in every region of the state.
- Consider subjects that merit further research and attention.

In addition to face-to-face meetings, two webinars were held to further educate Task Force members on key issues. Both of these were open to the public, moderated by Workforce Board staff, and included panels of experts from around the country. The first of these, held July 22, 2019, covered the topics of credentialing transparency and competency-based credentialing, from the business, labor, and public policy perspectives. The Task Force also convened a response panel to discuss the credential webinar at its August 8, 2019 meeting that featured representatives from the public two- and four-year colleges, the Independent Colleges of Washington, and the Northwest Career Colleges Federation. Presenters supported the need for credentialing pathway reform in Washington, but also provided input on the necessary steps and potential hurdles to achieve true transparency. Transparency in performance outcomes would allow students and returning adults to see whether particular education pathways and credentials actually lead to higher-wage employment in the fields for which they trained.

The second webinar focused on the pros and cons of employee ownership models, and the processes and resources required to implement these models. Importantly, national experts also presented solid evidence of positive economic and competitive impacts on employee-owned businesses and their workers. This webinar took place September 25, 2019.

Working Together Makes a Difference, Despite Differences
Task Force meetings were open to the public, and deliberations were transparent and wide-ranging. Topics were researched extensively by staff and members, and

deliberated on at length by Task Force members. Members often agreed on larger themes, but had different perspectives and priorities on the details. However, the two delegations and legislative members worked collaboratively to flesh out points of consensus as they developed policy recommendations. The result was a majority consensus on the recommendations presented in this report.

The Task Force discussed a number of issues and policies within the purview of a number of state agencies, and was sensitive to the need to include those partner agencies and organizations in deliberations.

Labor members stressed "job quality" as a priority, and helped inform the full Task Force of the various definitions, complexities, and current trends and research on this broad topic. Available definitions of job quality were often subjective, but there was general agreement among Task Force members that a quality job included good pay, benefits, opportunities for advancement and learning, retirement options, and clean and safe working conditions.

Business members were concerned about the ability of companies to staff their businesses with skilled and available workers. They highlighted the disconnect between the talent development pipeline and the skills needs of businesses, and how current labor market information does not consistently provide an accurate picture of workforce trends.

Task Force members spent considerable time discussing both current and advanced technology, grappling with how to craft consensus recommendations around job quality, and the impacts of technology on workers. Labor members expressed concerns over current technology deployed in the workplace related to scheduling, monitoring, and platform apps that allocate work. Business members expressed concerns over how to reasonably adopt advanced technology, and how to train workers to deploy and use these new tools.

While there were clear differences in perspective among the members, there was also agreement on a number of public policy priorities. Business and labor members agreed on the need to:

- Address diversity, equity, and inclusion in all policy areas and recommendations.
- Create a skills and competency classification system shared by industry and education to streamline communications and facilitate co-investment in developing the state's talent pipeline.

- Establish lifelong learning accounts co-funded by employers and employees to help finance skill and career development.
- Examine the public benefit system as more people hold temporary or contract jobs without health insurance and other supports.
- Expand incumbent worker training, but with greater accountability and transparency for positive worker, business, and community outcomes.
- Improve labor market data collection to better pinpoint supply, demand, and changing training needs.
- Promote economic development policies that lead to more family-wage jobs across the state.

Task Force Activity
Stakeholder Engagement
Since the Task Force's inception, its members have engaged in conversations with multiple stakeholders representing a broad range of interests and industries from all corners of the state. In total, the Task Force and staff gathered input through meetings, forums, presentations, and other avenues from hundreds of stakeholders that included underrepresented populations and regions around the state to identify solutions that benefit each group. These stakeholders included:

- Workforce development and economic development organizations.
- County and municipal governments.
- Individual businesses of all types and sizes, and industry associations.
- Labor unions.
- Policymakers.
- Chambers of Commerce.
- Community- and faith-based organizations.
- Schools and colleges.
- Organizations representing diverse populations, including those underrepresented in the workforce and economy.
- State agencies that administer services to a range of stakeholder groups.

(See Appendix 1 for an expanded list of stakeholder meetings.)

Presentations and Outreach Events
Workforce Board staff co-managing the Future of Work project and Task Force participated in numerous outreach and information gathering efforts. Staff attended, moderated, and presented at numerous events around the state and nation, helping shape conversations and shed light on Washington's progress in investigating future economic and workforce trends. (*See Appendix 2 for full details.*)

Task Force communication and outreach efforts were supplemented by the Workforce Board's communications team, along with key staff members, who used social media, and a widely read statewide workforce and education newsletter to promote agency efforts. Staff created the **#futureofworkwa** hashtag and used it as part of **@WorkforceWash** tweets to amplify the message on social media. The agency's communications team also worked closely with TVW, the state's public affairs network, to provide televised coverage of Task Force meetings, whenever possible. At a 2018 Task Force meeting in Tacoma, TVW journalists interviewed noted economist Peter Creticos, who had traveled to the meeting from Chicago to share his insights with the Task Force. The interview aired on the "The Impact," news show.

The Future of Work project's Co-Managers also partnered with other Workforce Board staff to help convene four rural economic vitality forums in Colville, Toppenish, Quincy, and Aberdeen in the spring of 2019. Attendees were asked to share their lived experiences as businesses, workers, and public service providers from rural communities. Community members also discussed their hopes for the future of their region, and their concerns and fears about what might deter economic vitality. These questions generated rich dialogue and meaningful input into the policy deliberations of the Task Force.[3]

Research

The significance of this 4th industrial revolution is now the focus of a growing body of research around the world by governments from the local to national level, leading research institutions and think tanks, and other groups and individuals. Some of these efforts produce peer-reviewed research, others do not. Some appear to be motivated to reach specific conclusions. Some are produced from a conservative point of view, others lean more liberal. While estimates and projections vary greatly about how jobs will change, how many will be impacted by automation or replaced by machines, or when that will occur, there is general consensus on the broader effects technology will have on workers. Most experts believe that:

1. The majority of workers and occupations will not be directly taken over by machines, but rather the nature of the job and the skills needed to do it will change over time.
2. Repetitive, manual tasks will be automated more rapidly and with greater frequency.
3. Demand for advanced cognitive and emotional skills will increase in the future across all industries and in all economies, from emerging to advanced.
4. Workers will increasingly need lifelong learning opportunities to develop a more diverse skill set that responds to occupational changes as they occur.

---

[3] Information about the Rural Vitality Forums can be found at https://www.wtb.wa.gov/wp-content/uploads/2019/12/WTB-Summary-Rural-Community-Vitality-Forums.pdf

Task Force staff supplemented input and feedback from stakeholder engagement efforts by collecting and analyzing hundreds of reports, data sets, websites, and other relevant documents related to all aspects of the future of work. This research helped formulate cumulative knowledge of current and future trends detailed throughout the report.

Research topics included:
- 4th industrial revolution.
- Data availability, usage, evaluation, and sharing.
- Diversity, equity and inclusion.
- Wealth and income disparity by race, disability, gender, and location.
- Employment relationships including hiring and promotion practices.
- Environment and climate change.
- Infrastructure.
- International trade policy.
- Local, regional, state, national, and global economy.
- Numerous industries including technology, communications, healthcare, aerospace, agriculture, maritime, warehousing and logistics, transportation, energy, and manufacturing.
- Public worker support systems.
- Public and private postsecondary education.
- Rural development.
- Economic development.
- Skills and credentials identification and career guidance.
- Workforce development.

What Does Job Quality Mean to Washington Workers in the Digital Age?

The nature of "job quality" has been discussed and debated at the state level, nationally, and even internationally. Job quality is a broad category encompassing a wide range of characteristics—from pay, hours worked, and job safety, to career advancement prospects and interpersonal relationships between workers, co-workers and employers, among many others. Individual workers and employers may define and prioritize what constitutes "job quality" differently.

The Future of Work Task Force identified six subcategories of job quality that influenced their discussions on this topic. Some are reflected in policy recommendations. Others need further study, perhaps as a project for the next iteration of the Task Force. These topics are as follows:
- Wage growth and Wage Disparity.
- Worker Voice, Self-Determination, and Job Autonomy.
- Employment Structure, Relationship, and Benefits.
- Supervision, Surveillance, and Scheduling Software.
- Job De-Skilling.
- Accessible Career Pipeline.

Wage Growth and Wage Disparity
Recent data indicates the median wage has increased across Washington, but when disaggregated, wage growth is seen primarily among the highest and lowest earning workers.[4] At the lower-paying entry-level positions, much of these gains can be attributed to recent increases in the state minimum wage. However, when broken down by race, disability, gender, and place of origin, even these higher wages reveal wage disparity, at all occupational levels, across all sectors.

While productivity and corporate earnings have grown steadily over the past five decades, non-supervisor worker income has remained largely static. In industries such as IT, workers at all levels have benefited from revenue gains; however, there is disparity between the earnings growth of the highest quintile versus the lowest.[5]

What defines a livable wage is different for each worker, and is often dependent on family size and obligations, outside interests, and a connection or desired connection to further

---

[4] Washington State Employment Security Department. (2018). *2018 Labor Market and Economic Report.* Olympia, WA: Washington State Employment Security Department.
[5] Fontenot, K., Semega, J., & Kollar, M. (2018). *Income and Poverty in the United States: 2017.* Washington DC: U.S. Census Bureau.

Workforce
Training & Education Coordinating
Board

education. But there are standards for what costs are included in calculating a livable wage. Washington is fortunate to have a "self-sufficiency calculator"[6] developed and operated by the Workforce Development Council of Seattle-King County, in partnership with eight other local workforce development councils, primarily for career counseling purposes. It provides up-to-date information on the costs of living in each region of the state, by hundreds of different family types and sizes. There is also a national Living Wage Calculator,[7] developed and operated by the Massachusetts Institute of Technology.

> **Task Force Member Insights:**
>
> **"Labor is most concerned about job quality in an ever-changing economy. The Task Force delved into tough topics and came out with some good ideas that are easily implemented by the legislature."**
>
> *- Joe Kendo, Washington State Labor Council*

Opportunity for wage progression is also assessed differently by each worker and their employer. Conditions for wage progression are not always transparent to the worker. Factors such as seniority on the job, acquiring new credentials, or taking on new responsibilities may influence successful wage progression. Portability and stackability of credentials and experiences help workers navigate and negotiate within their current workplace or across multiple employers toward progressively higher earnings.

Worker Voice, Self-Determination, and Job Autonomy

The ways workers engage in making decisions about their work and their workplace is critical to their production, autonomy, and personal investment in the workplace. Questions centered on how much supervision or direction is the right amount, and how much autonomy is needed or desired to perform job functions well, are job quality considerations for many workers, and may also be points of negotiation between workers and employers. Some workers find the culture of an organization is an influencing factor in their job satisfaction; while others focus on the satisfaction their own job provides them. Wage progression or a worker's ability to influence or determine their own career path and earning potential is also a job quality factor. In any event, most workers report job satisfaction is elevated when they are able to provide input into their work.

There are a number of conflicting reports about whether worker autonomy and self-determination are being enhanced or eliminated in the digital age. Harvard Business Review has run a series of articles about technological adoption in business, and concluded that worker engagement in the decision-making process about which technologies to bring on

---

[6] Flow Simulation Limited. (2018). *calculator.org*. Retrieved November 25, 2019, from calculator.org: https://www.calculator.org/

[7] Glasmeier, A. (2019*). Living Wage Calculator*. Retrieved November 25, 2019, from Living Wage Calculator: https://livingwage.mit.edu/states/53/locations

Workforce Training & Education Coordinating **Board**

and how to facilitate successful adoption is one of, if not the, major influencing factor in the success of technological change efforts.[8]

Employment Structure, Relationship, and Benefits

There is great debate about whether more jobs are transitioning from permanent full-time to contingent and/or part-time. While the percentage of workers utilizing contingent and alternative work as their primary source of income in the larger workforce has remained steady at roughly 10 percent for the past few decades, the number of individuals taking up other forms of contingent and independent work such as freelance, side-gigs, and other non-traditional forms of work, is growing.[9] There is also a recent proliferation of "gig" platforms, such as TaskRabbit and Uber, providing new employment options. However, the effects of these work arrangements on workers and employers are not yet fully understood and merit further exploration.

There are at least two sides to this story, and there are significant differences in the perceptions and satisfaction levels of independent workers, depending on their role (independent contractor, contingent, alternative, temporary, gig, freelance, etc.) and financial security. Some media reports have highlighted workers who are struggling financially and with family life because their jobs were made contingent, while others highlight workers attracted to the accessibility, flexibility, and independence these arrangements afford them. The truth is likely more nuanced, and hinges on worker self-determination; whether or not workers engage in these arrangements by choice or necessity, and if they feel empowered over their own earning potential, or beholden to their jobs in spite of a mix of any or all of the following: low pay, inadequate benefits, or limited opportunity for upward mobility.

For workers who are engaged in alternative work to supplement income, and may already receive benefits through other means, the many opportunities available through on-demand work represents an avenue to economic security. Those who choose to engage in independent work are generally more satisfied with their jobs than those working in similar conventional arrangements by necessity, and even score higher in job satisfaction than their counterparts working in traditional jobs.[10]

Regardless of the situation, access to health and retirement benefits is a significant concern to contingent workers.[11] This is followed by uncertainty regarding the lack of financial

---

[8] Fountaine, T., McCarthy, B., & Saleh, T. (2019, July-August). Building the AI-Powered Organization.

[9] Ozimek, A. (2019). *Freelancing and the Economy in 2019*. Retrieved November 12, 2019, from Upwork:https://www.upwork.com/press/economics/freelancing-and-the-economy-in-2019/

[10] Manyika, J., Lund, S., Bughin, J., Robinson, K., Mischke, J., & Mahajan, D. (2016). Independent Work:Choice, Necessity, and the Gig Economy. Washington DC: McKinsey Global Institute.

[11] Bureau of Labor Statistics. (2017). *Contingent and Alternative Employment Arrangements*. WashingtonDC: Bureau of Labor Statistics.

support during low earning cycles, as some segments of these workers are not eligible for Unemployment Insurance (UI),[12] and are often above income thresholds for food assistance, childcare, housing, and other public supports. These challenges are not soley faced by contingent workers, but also for other populations segments such as students and those with low income levels.

Supervision, Surveillance, and Scheduling Software

Use of new supervision, surveillance, and scheduling management tools to reduce the cost of labor is growing across almost all sectors. Technology can support managers to track and improve work performance as well as maintain efficient operations. Business today operates 24/7, and in certain industries, staffing and scheduling is enormously complex, requiring sophisticated software and algorithms to ensure facilities are staffed safely or meet regulatory requirements. Logistics/warehouse, long-term care, retail, and hospitality industries are examples where staffing patterns are complex, and where scheduling software is used extensively.

However, some stakeholders expressed concerns that these tools may not factor in worker needs. While creating greater predictability for companies about production and customer flow, these tools may have reduced scheduling predictability for workers and their families, straining parenting responsibilities, caring for aging or disabled family members, or engaging in community responsibilities. Without a predictable schedule, workers also cannot engage in education and training opportunities that would help them improve their skills and provide more employment choices.

In order to ease transitions into new workplace technology for both workers and employers, two-way communication between both parties can play an important role in alleviating wide-ranging, and sometimes unforeseen, negative consequences of adopting new technology into the workplace. When employees understand why an employer is using technology related to their performance or scheduling, they may be more receptive to that technology. When a business is considering adopting new technology, engaging employees in the conversation, especially about technology that directly impacts their work, may help with implementation and effectiveness.

Job De-Skilling

Technology is very often used to enhance a particular job function by automating rote and, sometimes, unsafe activities. Seemingly, this leaves the worker with the more thoughtful, creative, and interesting parts of a job. But technology can also remove the need for frontline worker judgement and decision-making. With the advent of AI, technology can use numerous data sets to make on-the-spot decisions with greater precision than even the most experienced workers. While enhancing reliability and reducing risk for employers,

---

[12] Smith, A. (2016). *Gig Work, Online Selling and Home Sharing*. Washington DC: Pew Research Center.

some workers may feel the impact of technology on their work as drudgery—they are supporting, rather than being supported by, the technology. The self-checkout clerk in the grocery store is one of the most visible examples. But this technology-based de-skilling is moving into every industry sector and at all levels, as exhibited by prescription-filling robots completing tasks previously done by trained pharmacists.

Accessible Career Pipeline
Having the choice to move beyond a current employment situation is a key factor influencing a perception of job quality. New learning is often required to advance to the next opportunity. A number of questions must be explored to establish viable career pathways for Washington's workers. Do we need to modernize current career pathway programs? Are new skills needed for existing occupations, and what are they? Are new occupations being created? Do the state's education programs reflect up-to-date technology and processes to prepare individuals for these occupations? Do workers know what upskilling or reskilling is needed to take advantage of new opportunities? If so, do they have access to the right programs to gain a marketable skill set employers need? Do employers provide sufficient support and training to prepare their workers for new opportunities?

Career advancement and skill-building also depend on a worker having reliable and relevant information to make good decisions about their career path. While some workers can avail themselves of worker-supported education and training, most must finance their education themselves. More granular information about the labor market, which jobs are in demand, and what skills they call for, along with a better understanding of the value of various credentials in the job market, can help Washington's workforce make informed decisions towards advancing their career.

Conclusion
The Task Force spent a great deal of time deliberating over the concept of "job quality," how to define it, and what it means as the nature and structure of employment changes in the future. From the idea of livable wages and benefits to the notion of how scheduling algorithms can cause disruption to workers, job quality covers many different issues.

The Task Force addressed several of these issues in its policy recommendations around competency-based credentialing, modernizing the worker support system, and increasing support for worker training and upskilling.

If the nature of the worker-employer relationship continues to evolve from a formal, long-term arrangement to a more hybrid scenario that includes an expectation of greater employee mobility and job churn, the subject of job quality could very likely remain a pivotal, and potentially contentious, issue. Other disruptive trends affecting worker-employer dynamics such as short-term, contracted work, and increased automation that

impacts both worker productivity and autonomy, will likewise remain a focal point for future job quality consideration. This issue requires thoughtful policy review and a deeper level of exploration, including identifying promising practices across industry sectors.

Policy Recommendation Areas

Comprehensive Worker Upskilling and Lifelong Learning
Overview

Today's economy and workplace put more demands on workers as the nature of work evolves at ever-increasing rates with the advent and implementation of new technology in the workplace. At the same time, market forces such as private equity buyouts of traditional brick-and-mortar stores, outsourcing, and international trade are compounding these technological challenges for workers.

To remain relevant in this competitive environment, workers increasingly require new training and skills development or risk being displaced. Estimates vary widely in terms of how much and which jobs can, or will, be automated, yet clear trends are emerging that the nature of many jobs are changing with advancements in technology. These trends have both negative and positive consequences for the future, depending on how businesses, policymakers, and workers themselves promote and support quality job growth. Historically, innovation has led to larger overall economic growth and job creation, albeit with periods of large-scale worker dislocation in the process.

Most of these changes are happening in one of two ways: first the activities workers perform in their jobs are changing as technology takes over certain tasks, and second, some jobs will be completely eliminated due to automation or obsolescence. In order to safeguard workers against these trends, Washington needs training programs which can react rapidly to the changing skill needs of workers utilizing matching funds from all stakeholders. The need for upskilling and reskilling already extends across a wide swath of industries and jobs. Even occupations that historically have provided high-quality jobs for workers who may not have an education past high school are requiring more education and new skills for their workers.
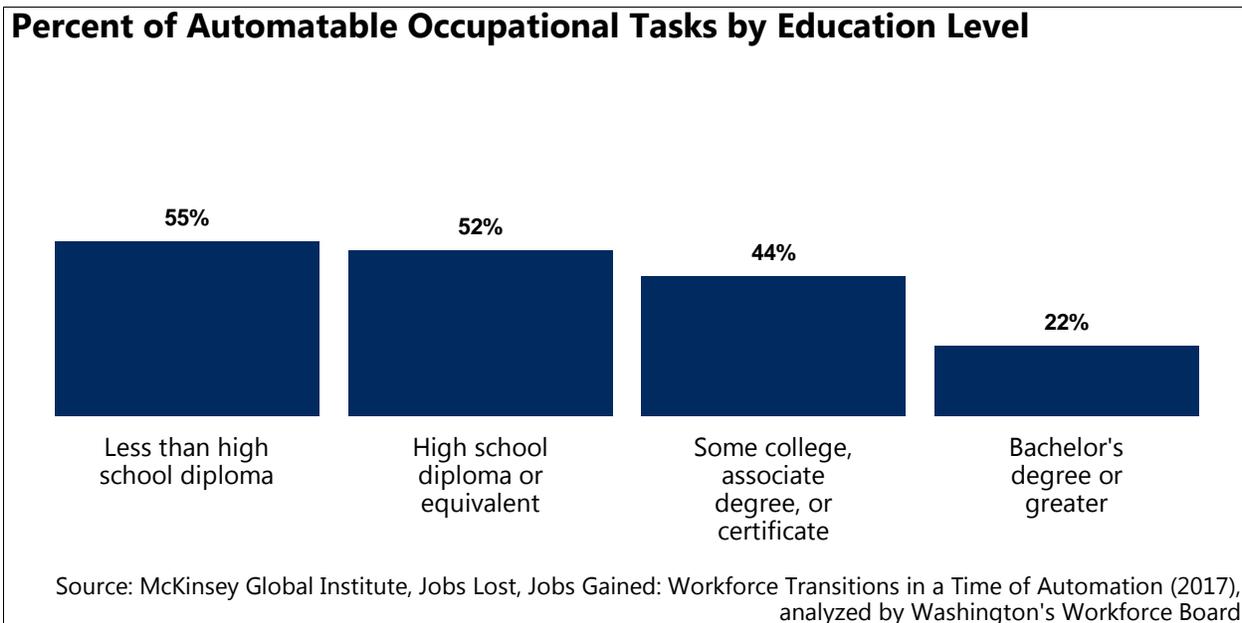
Changing Living Wage Jobs

In Washington, close to half of work (44.5 percent) could be automated by adapting currently demonstrated technology, according to one estimate by think tank McKinsey Global Institute.[13] This is particularly important for lower-skill, lower-paying jobs, which often are at the greatest risk of automation. Retail personnel, for instance, are already being displaced by online shopping, automated customer service applications, and other technology innovations. According to McKinsey, this represents the single largest occupation group in terms of potential lost wages due to automation in Washington, with $1.79 billion worth of lost income generated from the automation of tasks equivalent to

---

[13] McKinsey Global Institute. (2018, October 1*). Technical automation potential and wages for US jobs by state and metropolitan statistical area.* Retrieved October 17, 2019, from Automation and US Jobs: https://public.tableau.com/profile/mckinsey.analytics#!/vizhome/AutomationandUSjobs/Technicalpotentialforautomation

126,970 full-time jobs at risk. The average technical automation potential for the occupation was estimated at 46.8 percent of tasks. Software and artificial intelligence are already creating significant disruption in offices. An estimated 61.5 percent of work done by office clerks is automatable, the equivalent of 74,240 full time employees with combined associated wages of $1.58 billion. Other jobs highlighted by McKinsey in Washington threatened by high levels of potential job task loss due to automation include production (i.e. manufacturing) with 86.3 percent of work automatable, along with food preparation and serving (68.8 percent), transportation and moving occupations (62.9 percent), and farming, fishing and forestry (56.4 percent).

Percent of Automatable Occupational Tasks by Education Level

Less than high school diploma	High school diploma or equivalent	Some college, associate degree, or certificate	Bachelor's degree or greater
55%	52%	44%	22%

Source: McKinsey Global Institute, Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation (2017), analyzed by Washington's Workforce Board

The manufacturing sector, long a bastion for reliable, well-paying jobs that do not require advanced education, is a prime example of shifting skill requirements. One Georgetown University study concluded that manufacturing workers with only a high school education represented 43 percent of the sector's workforce in 2016, down from 79 percent in 1970.[14] Over the same time period, the share of middle-skilled manufacturing workers within the industry (those who have a mix of education and training beyond high school but no bachelor's degree) doubled. Workers in this sector with a bachelor's degree have similarly grown from 8 percent in 1970 to 21 percent in 2016.

The case for continuous training is even stronger when accounting for "good jobs," defined in the Georgetown study as minimum earnings of $35,000 for workers age 25 to 44, and $45,000 for workers age 45 and older. From 1991 to 2016, the number of workers with associate's degrees who had good jobs climbed from 750,000 to nearly 1 million, while the

---

[14] Anthony Carnevale, N. R. (2019). *Upskilling and Downsizing in American Manufacturing.* Washington D.C.: Georgetown University Center on Education and the Workforce.

Workforce
Training & Education Coordinating
Board

number of workers holding at least a bachelor's degree with good jobs increased from 2.8 million to 3.6 million. These gains came in spite of the fact that the domestic manufacturing industry shed 1.6 million jobs from 1991 to 2016.

In Washington itself, production occupations were projected to experience the single largest decrease by shares of employment of any major occupational group in 2019.[15] These jobs are being eroded on both ends of the spectrum, as demand for better educated workers increases at the higher end, while tasks that may be done by machines deskill jobs, further displacing middle–class jobs.

Annual Earnings by Gender, Race & Ethnicity
Real median earnings in Washington

	Women	Men
American Indian or Alaska Native	$26 K	$27 K
Native Hawaiian or other Pacific Islander	$23 K	$34 K
Black	$27 K	$34 K
Two or more races	$26 K	$37 K
Hispanic	$28 K	$36 K
White	$32 K	$48 K
Asian	$34 K	$57 K

Source: U.S. Census Bureau, 2017 American Community Survey (5-year data), inflation adjusted to 2018 dollars, analyzed by Washington's Workforce Board

Taking these trends into account, one model developed by the World Economic Forum projected that by 2020, more than one-third of the core skill sets of most occupations will be skills that are not considered crucial to today's workforce, and that nearly two thirds (or 65 percent) of children entering elementary school now will ultimately end up working in completely new job types that don't yet exist.[16] By 2025, 70 percent of projected statewide job openings will require some postsecondary education, yet some 685,000 Washingtonians have education levels that fall below this threshold.[17] The crux of the issue, then, is how to

---

[15] Washington State Employment Security Department. (2019). *2019 Employment Projections*. Olympia: Washington State Employment Security Department.

[16] World Economic Forum. (2016). *The Future of Jobs: The Future of Jobs, Employment, Skills and WorkforceStrategy for the Fourth Industrial Revolution*. Geneva: World Economic Forum.

[17] 70% - A Skilled and Educated Workforce 2017 update by the Washington Student Achievement Council, State Board for Community and Technical Colleges, and Workforce Training and Education Coordinating

create systems which support quality jobs and career paths towards upward mobility for these high-demand jobs in the future.

Investing in Workers

As a whole, businesses are investing in worker training far less than in years past, with some notable exceptions. Many large corporations invest heavily in employee upskilling as a way to retain or recruit talented employees. However, some businesses are wary of investing heavily in an employee only to see them become more marketable, and walk into the hands of a competitor. This is a very real concern in today's modern workplace, where lifetime employment is far less common than in the past, and workers more frequently change employers and even occupations. Small and mid-sized businesses with fewer resources often cannot afford extensive training programs or educational benefit programs. The cumulative result of these trends is a 42 percent decline in employer-sponsored training from 1996 to 2008 alone as the percent of workers receiving worker-paid training dipped to 11.2 percent in the final year of the study.[18] On-the-job training likewise declined 36 percent over the same time period.[19] For those workers who do receive employer-sponsored training, investments generally increase with an employee's level of education. Lower-skilled workers in entry-level positions, on average, receive less training.[20]

When viewed through an accounting lens, worker training and skills development is considered an expense, rather than an asset that accrues returns over time. There is no federal tax benefit as there is with capital expenditures. On the other hand, businesses are generally eligible for more generous tax breaks to automate or buy machines rather than to upskill their workers. One effort to address this issue currently under exploration is to treat employees as assets on the balance sheet, with tax breaks for investing in workers in the same manner as investing in capital infrastructure.

This model was introduced to Congress in February 2019, in a bill sponsored by Senator Mark Warner of Virginia. Referred to as the "Investing in American Workers Act," the bill would provide a credit for employer-provided worker training. The credit would apply to expenditures for the training of non-highly compensated employees.[21] A similar proposal for a worker training tax credit was proposed by the Aspen Institute in 2017, which built in methodology intended to curb utilization of public funds if a business would have otherwise provided training without public assistance.

Board. 685,000 – SBCTC research division calculation from the 2010-2014 American Community Survey Estimates.

[18] Fitzpayne, A., & Pollack, E. (2017). Worker Training Tax Credit: Promoting Employer Investments in the Workforce. Washington DC: The Aspen Instutue.

[19] See Fitzpayne, A. (2017). Reference 18.

[20] Conway, M., Blair, A., & Gibbons, C. (2003). Investigating Demand Side Outcomes: Literature Review and Implications. Washington D.C.: The Aspen Institute.

[21] Investing in America's Workers Act, Senate Bill 538 of 2019.

Workforce
Training & Education Coordinating
Board

The federal government's role in promoting and paying for the upskilling of the American workforce is most notable in the success of the G.I. Bill, which President Roosevelt signed into law in 1944 at the end of World War II, to help returning veterans re-enter civilian life and contribute to the economy. It enabled nearly eight million veterans returning from war to be retrained or attend college,[22] and helped fuel a new era of prosperity in the country.

Playing Catch-Up

Dramatic shifts in employment are by no means a new phenomenon, as industrial economies have remade the composition of their workforce many times over. In the United States, the share of workers in the agriculture sector declined from 60 percent in 1850 to less than 5 percent by 1970.[23] Conversely, the introduction of the personal computer led to the creation of 15.8 million new jobs in the U.S. since 1980, even after accounting for jobs displaced.[24]

For workers and policymakers in Washington, a key takeaway from these trends is that job changes are inevitable, and that with these changes, or outright elimination of jobs, workers need opportunities to increase their skills or retrain for quality jobs. Currently, the state oversees multiple workforce programs that help workers gain education and skills. But their current size, scope, and level of funding is inadequate to effectively assist the number of workers projected to need retraining in the coming years. This is crucial because some state-funded programs rely on matching public funds with worker and/ or employer investments. Washington is in the bottom quintile of states that invest in upskilling its current workforce through incumbent worker training, with an allocation of about $6.45 million for the 2019-2021 budget cycle. The state's current investment in this strategy over two years includes $5.45 million for the State Board for Community and Technical Colleges Job Skills and Customized Training programs, and approximately $1 million for the Department of Commerce's WorkStart program.

(For further details on the Job Skills and Customized Training programs, see Appendix 3.)

States with similar economies to Washington, such as Massachusetts, New Jersey, and Maryland, each spend substantially more each year using a combination of direct grants and tax incentives. In 2019 alone, Massachusetts allocated $24 million for its 2019 Workforce Training Fund.[25] Several other states have provided or proposed business cash or tax incentives for training investments, including Connecticut, Georgia, Kentucky, Mississippi,

---

[22] Goldin, C. (1998). America's Graduation From High School: The Evolution and Spread of Secondary Schooling in the Twentieth Century. Journal of Economic History, volume 58, number 2.

[23] See Manyika, J. (2016), reference 10.

[24] See Manyika, J. (2016), reference 10.

[25] Massachusetts Budget and Policy Center. (2018, September 6). *Analyzing the State Budget for FY 2019*. Retrieved December 2, 2019, from Massachusetts Budget and Policy Center: http://massbudget.org/report_window.php?loc=Analyzing-the-State-Budget-for-FY-2019.html

Rhode Island, and Virginia. These incentives range between 5 percent and 50 percent of training expenses.[26] California is the largest investor in upskilling and reskilling workers, with a combination of grants from state general funds and from additional fees collected through the unemployment insurance system.

Anticipating Workforce Needs

The Workforce Board is statutorily charged with tracking labor market skill gaps, and coordinating development of policies and practices to fill those gaps. The Workforce Board's current initiatives and legislative proposals seek to augment and refine current labor market and credentialing information to better track which education and training programs lead to in-demand jobs. Information on business trends and credential value in the marketplace will better align public workforce development investments.

A significant boost to these efforts is the proposed purchase of proprietary Dun and Bradstreet information by the Workforce Board in its 2020 legislative requests. Dun and Bradstreet's EconoVue service includes up-to-date business-to-business transactions, financial services data, financial risk or growth analysis, and would include information on over 400,000 businesses across Washington. Custom research that correlates D&B data with state data sets can support the state's resource deployment decisions for worker upskilling or reskilling, preparation of new entrants to the job market, and business development services. Nine other states currently use EconoVue and other related D&B products to directly inform workforce and economic development-related decisions and investments.

In addition to tracking trends and job skills in the private sector around the state, Dun and Bradstreet data is also useful in averting potential layoffs before they occur by analyzing financial stressors on businesses. Gathering, analyzing, and acting upon data which identifies a business in financial distress will allow the state to proactively offer business and worker assistance, and ultimately the opportunity to keep workers on the job and businesses open. This is particularly important in rural areas, where the closure of even one business can send ripple effects through a community, from which it can be difficult to recover. This data also has enormous potential as inputs into a potential data dashboard that could measure and track business and employment trends, and businesses' use of public workforce services.

Quality Control

Accountability and transparency of publicly funded training is important to build confidence with policymakers and taxpayers that training leads to better outcomes for businesses and workers. Measuring the success of incumbent worker training investments has proven difficult, though, as there are few standardized success indicators, and businesses often

---

[26] See Fitzpayne, A. (2017), reference 18.

prefer not to share information that they consider proprietary or outside of their personnel data privacy parameters.

Assessing training impact is confounded by the various reasons that might impel public investments in incumbent worker training. Preserving jobs in a down economy is as important as helping businesses expand in a growing economy. In the event that a lay-off can't be averted for a company in distress, pre-layoff preparation for workers can aid in a transition to another employer. Each scenario is important, but many of the effects will be measured differently.

While many different incumbent worker training performance models have been tried, only those that evaluate an intervention at the company level have stood the test of time. More specifically, the most meaningful evaluations begin with identifying both the business and worker indicators of success, and designing performance accountability for those indicators, called *Return on Expectations* (ROE) indicators, developed by training researcher Don Kirkpatrick.[27] Dr. Kirkpatrick identified four distinct, increasingly rigorous levels of incumbent worker training impact: employer and worker satisfaction, worker knowledge attainment, workers' behavioral changes, and business and worker outcome results. For the business, desired outcomes may include productivity, efficiency, workforce stability, etc. Workers may assess training by the impact on wage gains, promotions, and job security, to name a few.

The State Board for Community and Technical Colleges (SBCTC), which administers the state's most well-known incumbent worker training programs, has faced this accountability challenge directly, by requiring that each applicant identify the project-specific performance objectives for a training grant. Objectives include both worker and business impact measures. They also provide a report to the legislature each year that aggregates the total number and amount of grants awarded, whether they were provided to individual companies or an employer consortium, and the number of workers impacted, by industry sector.

Impact information is used during the grant selection process by SBCTC's Customer Advisory Committee (CAC) to evaluate the scope and quality of potential projects. The Task Force is appreciative of this rigorous and transparent selection process, and recommends that such rigor be used for monitoring and evaluating the effectiveness of the grant-funded intervention in two additional ways:

- Enhanced Worker Involvement—The Task Force would like to see an assurance that the ROE of workers, as well as the employer, is included in the design of the grant proposal, and that their expectations are included in the performance accountability

---

[27] Kirkpatrick, D. L., & Kirkpatrick, J. (2006). Evaluating Training Programs: The Four Levels. San Francisco, CA: Berrett-Koehler.

structure of the program. Workers who will be impacted by the training must also have a voice in how the training is offered, what will be learned, and the effectiveness of knowledge delivery. The Task Force recommends that a joint worker-management oversight body be required for every recipient of these grants, and that evaluative grant reports are reviewed by this body prior to submission to SBCTC.

- Economic Impact Reporting—The Task Force acknowledges that evaluating the economic impact of any one intervention is difficult, but may have meaning when those interventions are aggregated. Understanding how investments might influence the economic stability and growth of key economic sectors, underserved communities, and the state as a whole will inform policymaking and future investments in incumbent worker training.

Worker-Management Collaboration

There is little doubt that many current and future jobs will require continuous upskilling across a broad range of industries. Businesses of all sizes, operating in all sectors, and in all areas of the state, require a range of training services, both publicly and privately funded, or in combination. While training programs run the gamut between in-house training at multi-national corporations, to state-subsidized job skills training for small businesses in rural Washington, both workers and business should reasonably expect a worthwhile return on their investments.

Management and workers may disagree on what the most effective and relevant training may be, but collaborative, joint worker-management approaches (in unionized occupations known as labor-management) have been shown to improve outcomes for both businesses and their employees.[28] These worker-management efforts also positively address important business concerns and maximize training investment financial returns. These include employee retention and the ability to fill open positions in a timely and cost-effective matter, improving work quality, boosting productivity, strengthening employee relations, and institutionalizing practices that will both encourage employee advancement through education and training, and sustain multi-employer coalitions.[29]

There is a proven history of success with this collaborative model, which has served as a base for mutual benefit of both employers and employees. These models have been successful across a wide range of industries, including high-demand and at times high-turnover fields such as healthcare and hospitality, where retention and career progress are particularly important. Case studies of worker-management partnerships in the healthcare industry have found they are correlated with positive outcomes in four key areas: (1) clinical

---

[28] Klingel, S., & Lipsky, D. (2013). *Employer Motivations for Participation in Multi-Employer Labor-Management Health Care Worker Training Programs*. Ithaca, NY: Cornell University.

[29] Acemoglu, D., & Pischke, J. (1999). Beyond Becker: Training in Imperfect Labour Markets. *The Economic Journal*, F112-F142.

processes, including patient outcomes, (2) workplace environment, (3) labor relations, and (4) cost savings.[30] Other examples of tangible training outcomes and utilizing worker-management partnerships include:

- The Culinary Academy of Las Vegas, Nevada, was created in 1989 as a labor-management training trust negotiated by the Culinary Workers Union/UNITE HERE Local 226, Bartenders Union/UNITE HERE Local 165, and Local 26 with owners of properties on the Las Vegas Strip. The Academy is the largest provider of training for entry-level and incumbent workers in the Las Vegas hospitality industry and has trained over 35,000 workers.

- The International Association of Machinists (IAM)/Boeing Joint Programs have operated as a worker/company partnership for close to three decades. For the IAM Joint Programs, paid training (funded by Boeing) is available across a wide range of occupations to help workers prepare for new, better skilled and better paid jobs. In 2017, 1,100 employees within IAM Local 751 transferred into higher-skilled positions as a result of the programs.[31] Generally 20-25 percent of the workforce takes advantage of upskilling programs, which allows them the first chance at new jobs.

- The Society of Professional Engineering Employees in Aerospace (SPEEA) and Boeing collaboratively launched the Ed Wells Partnership (EWP) discretionary employee training program in 1996. Training covers two career bands: technical and professional. Oversight is provided by a combined SPEEA – Boeing joint policy board, with at least 84 percent of SPEEA members participating in training for any given year.[32]

- Kaiser Permanente has engaged with a group of unions employed in its medical facilities in a labor-management partnership since 1997 as a strategy for frontline worker engagement, workplace innovation, and performance improvement. In May 2018, the parties agreed to a new agreement which included enhanced training benefits, including $3,000 per person annually for education, training, professional development and degree, certification or licensing needs.[33]

While notable that all of these examples include union participation, this is not a prerequisite for successful worker-management partnership models. Unionized environments already support worker management collaboration on a number of issues.

---

[30] Lazes, P., Figueroa, M., & Katz, L. (2012). *How Labor-Management Partnerships Improve Patient Care, Cost Control, and Labor Relations*. Ithaca: Cornell University.

[31] Holden, J. (219, June 14). President IAM Local 751. (J. Wilcox, Interviewer)

[32] DiLeonardo, J. (2019, June 18). Program Administrator, Ed Wells Partnership. (J. Wilcox, Interviewer)

[33] Kaiser Permanente. (2019). *2018 Alliance National Agreement*. Retrieved November 4, 2019, from Labor Management Partnership: https://www.lmpartnership.org/2018-alliance-national-agreement

There is an opportunity to promote such incumbent worker training collaborations, as nearly 20 percent of Washington's workers are unionized (19.8 percent), far higher than the national average of 10.5 percent.[34] There are also many grant-funded demonstrations of success in non-unionized businesses.

Removing barriers

Those who have education that goes beyond high school are less likely to be unemployed and more likely to earn higher wages and benefits. That postsecondary advantage is increasingly important in today's modern economy. Yet barriers still exist for many underrepresented population groups to increase their education—whether it's community college or university, a private career school, registered apprenticeship, or other post-high school training options. One barrier facing individuals without a high school diploma or equivalency is the requirement to compete six college credits before they are eligible for state and federal financial aid. By definition, this presents a barrier to education and a viable career, specifically for those most in need of support: under-educated, low income individuals. It is also a barrier for immigrants and refugees who do not have access to, or proof of, their high school credential.

The removal of this roadblock is more timely than ever following the 2019 retooling of the state's need-based higher education financial aid program. The 2019 Legislature passed a bill[35] enhancing Washington's largest financial aid program, the State Need Grant. Now called the Washington College Grant, eligibility has been expanded to cover applicants up to 100 percent of the state's median family income. The Washington College Grant was crafted to ensure access to postsecondary education and training for all Washingtonians in need of, but not able to afford participation in these programs. The six college credit requirement will limit the benefit of this program for those most in need. The Task Force recommends this credit requirement be removed. This proposal is contingent on utilizing I-BEST and HS+ for orientation, tutoring, counseling, education and career goal planning, assessment, and follow-up on student progress purposes.
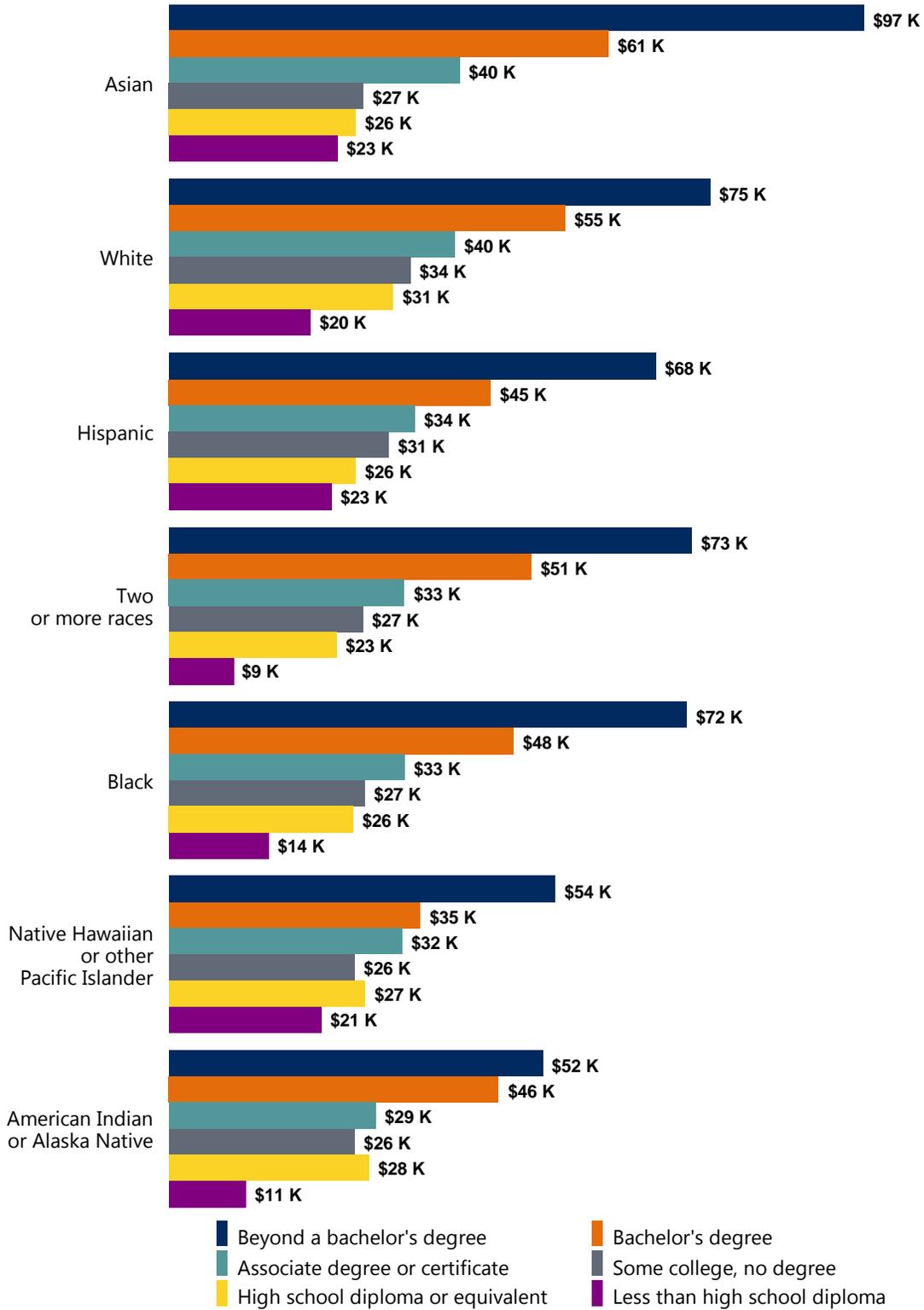
---

[34] Bureau of Labor Statistics, U.S. Department of Labor. (2018, February 22). *Hawaii and New York had highest union membership rates, the Carolinas the lowest*. Retrieved November 20, 2019, from The Economics Daily: https://www.bls.gov/opub/ted/2019/hawaii-and-new-york-had-highest-union-membership-rates-the-carolinas-the-lowest-in-2018.htm

[35] Creating a workforce education investment to train Washington students for Washington jobs. (2019). E2SHB 2158. 66th Legislature, Regular Sess.

Annual Earnings by Race & Ethnicity, Education

Real median earnings in Washington

Asian
- $97 K
- $61 K
- $40 K
- $27 K
- $26 K
- $23 K

White
- $75 K
- $55 K
- $40 K
- $34 K
- $31 K
- $20 K

Hispanic
- $68 K
- $45 K
- $34 K
- $31 K
- $26 K
- $23 K

Two or more races
- $73 K
- $51 K
- $33 K
- $27 K
- $23 K
- $9 K

Black
- $72 K
- $48 K
- $33 K
- $27 K
- $26 K
- $14 K

Native Hawaiian or other Pacific Islander
- $54 K
- $35 K
- $32 K
- $26 K
- $27 K
- $21 K

American Indian or Alaska Native
- $52 K
- $46 K
- $29 K
- $26 K
- $28 K
- $11 K

Legend:
- Beyond a bachelor's degree
- Bachelor's degree
- Associate degree or certificate
- Some college, no degree
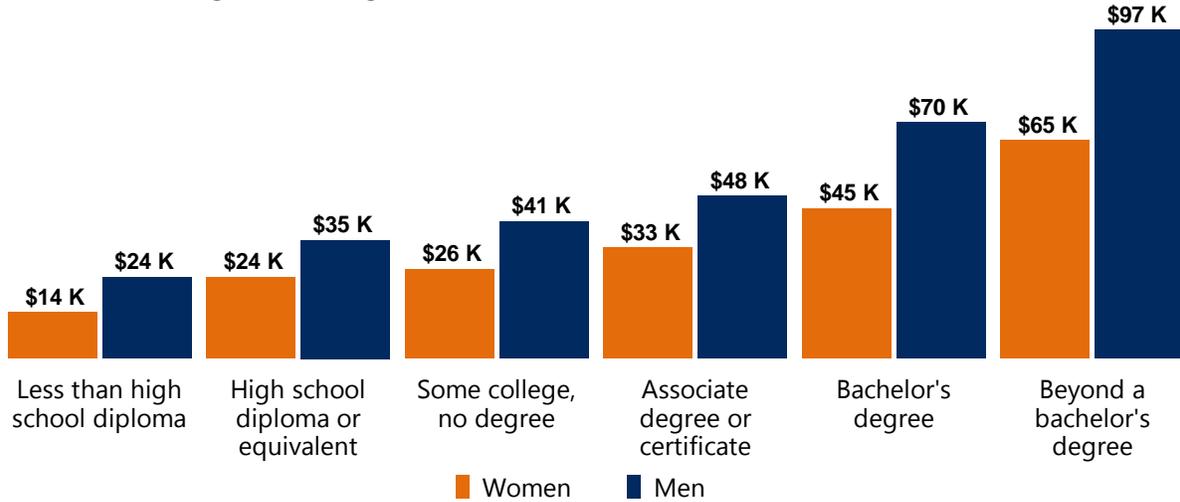- High school diploma or equivalent
- Less than high school diploma

Source: U.S. Census Bureau, 2017 American Community Survey (5-year data),
inflation adjusted to 2018 dollars,
analyzed by Washington's Workforce Board

Workforce
Training & Education Coordinating
WASHINGTON
Board

Annual Earnings by Gender, Education Level
Real median earnings in Washington

Education Level	Women	Men
Less than high school diploma	$14 K	$24 K
High school diploma or equivalent	$24 K	$35 K
Some college, no degree	$26 K	$41 K
Associate degree or certificate	$33 K	$48 K
Bachelor's degree	$45 K	$70 K
Beyond a bachelor's degree	$65 K	$97 K

Source: U.S. Census Bureau, 2017 American Community Survey (5-year data),
inflation adjusted to 2018 dollars,
analyzed by Washington's Workforce Board

Lifelong Learning

Lifelong Learning Accounts, or LiLAs, are being examined as a flexible, continuous support system that builds commitment from workers, businesses, and the state. These portable, employee-owned accounts are designed to help pay for education and training expenses, with employers and employees both contributing to the accounts. They are administered by private financial institutions, community-based non-profits, or other non-government entities, and function like a 401(k) plan with employees making regular contributions that are matched by their employer.

Washington was one of the first states in the country to initiate a LiLA pilot program in 2009, preceded by Maine in 2005. In both states, the accounts were able to be used not just for paying tuition, but for a range of related expenses including, but not limited to, child care, books, and admission test fees.[36] The Council for Adult and Experiential Learning (CAEL), with funding and support from the Lumina Foundation, had also developed and championed LiLA demonstration programs in a handful of states and cities, including Maine, along with Washington, Chicago, Kansas City, San Francisco, and New York City.[37]

In the Washington LiLA pilot, and those in a number of other states, the vast majority of workers chose to take courses that would help them advance their career with their current employer. Even so, the accounts have no restrictions on what can be studied or employee

---

[36] Ladika, S. (2008). *Learning Lasts a Lifetime*. Washington DC: Society for Human Resource Management.
[37] The Council for Adult & Experiential Learning. (2007). *Changing Lives through Lifelong Learning Accounts.* Chicago: The Council for Adult & Experiential Learning.

selection of career goals. This flexibility means employees can train for areas that interest them. Employers reported greater morale and lower turnover rates after they implemented LiLAs.

The successful pilot program in Washington, with support from both participating businesses and workers, led to the codification of LiLA in state statute in 2012, designed to be implemented by a network of private entities with guidance from the state. But budget shortfalls hindered an appropriation to develop the guidance resources, marketing materials, and rulemaking to implement the program statewide.

Washington's LiLA law requires that education and career counseling be provided to each worker account holder. This is a cost that LiLA program operators may not be able to cover within the account management fee structure. Washington's public resources, such as WorkSource Centers, community and technical colleges, community action agencies, and public libraries, should be considered to augment the availability of counseling services for their statewide reach and accessibility.

Similar ideas have been proposed at the federal level, including the Lifelong Learning Accounts Act in 2008,[38] Skills Investment Act of 2013,[39] and the Lifelong Learning and Training Account Act of 2018.[40] These tax-advantaged lifelong learning account proposals received bipartisan Congressional support in Washington D.C., but have yet to progress to enactment.[41]

The Brookings Institute has also developed a LiLA model at the national level. Their economic modeling projects that 23 million workers would contribute to the accounts over a 10-year period (along with contributions from business and the federal government).[42] Efforts would be specifically targeted towards those most in need of assistance. The proposed program is expected to produce benefits including: a better-trained workforce, retraining mid-career workers, improving unemployed workers' ability to find new jobs, more flexibility to shift jobs or careers, and less reliance on the public safety net.

Similar programs have been enacted successfully around the world. Singapore, for example, introduced individual learning accounts for every citizen over the age of 25 for education and training programs. In 2018, approximately 431,000 Singaporeans[43] benefited from the

---

[38] Lifelong Learning Accounts Act of 2008. (2008). H.R. 6036. 110th Congress. 2nd Sess.

[39] Skills Investment Act of 2013. (2013). H.R.1939. 113th Congress.1st Sess.

[40] Lifelong Learning and Training Account Act of 2018. (2018). H.R. 6250. 115th Congress. 2nd Sess.

[41] Washington Congressional sponsors included Sen. Cantwell (D) and Rep. Kilmer (D).

[42] See Fitzpayne, A. (2017). Reference 18.

[43] SkillsFuture Singapore. (2019, February 19). *SkillFuture: 2018 Year in Review*. Retrieved November 5, 2019, from SkillFuture Singapore: https://www.myskillsfuture.sg/content/portal/en/about/about-myskillsfuture/2019-press-releases/-11-2-2019--skillsfuture-2018-year-in-review.html

program, up from 285,000 the previous year.[44] In 2015, France also instituted individual training accounts, allowing workers to pay for 24 hours of training annually over eight years, funded by a 1 percent payroll tax.[45]

Conclusion

Changes in technology, demographics, and the economy are sending ripples through the labor market and changing the nature of jobs across many industries. For some, this will mean working side-by side with "co-bots," which complement workers, rather than replace them. Unfortunately for others, jobs will gradually, but inevitably, be phased out over time. What is important is that all workers have equal access to resources to help them to adapt, if not thrive, in a transitioning economy. New jobs will be created, requiring new skills and competencies that may not yet exist. Providing access to education and training, upskilling current workers, and lifelong learning opportunities will better position our workers and businesses to achieve shared prosperity into this uncertain future.

Policy Recommendations

1.	(a) Support the Workforce Board's request for additional funding for incumbent worker training.
1.	(b) Extend the State Board for Community and Technical Colleges (SBCTC) Customized Training Program.
1.	(c) Establish a requirement for a worker-management oversight body for each awardee of state incumbent worker training funds.
1.	(d) Monitor and evaluate new outcome metrics on Job Skills and Customized Training programs.
2.	Remove the six-credit eligibility requirement from the Washington College Grant program for students co-enrolled in High School+ and I-BEST who do not have a high school diploma or equivalent.
3.	(a) Fund the Lifelong Learning Accounts (LiLA) program, where employers and employees jointly fund an employee-owned savings account, as written in state statute (RCW 28C.18.180).
3.	(b) Provide funds to establish a career and education counseling network to support LiLA account holders and other workers who are planning for professional development and economic opportunity.

---

[44] SkillsFuture. (2018, February 15). *SkillsFuture: 2017 Year in Review*. Retrieved November 5, 2019, from SkillsFuture: https://www.myskillsfuture.sg/content/portal/en/about/about-myskillsfuture/2018-press-releases/2018-year-in-review.html

[45] Eurofound. (2019, October 10). *France: Employers Obligation to Provide Skill Development Plans or Training*. Retrieved November 5, 2019, from European Monitoring Center on Change: https://www.eurofound.europa.eu/observatories/emcc/erm/legislation/france-employers- obligation-to-provide-skill-development-plans-or-training

1. (a) <u>Support the Workforce Board's request for additional funding for incumbent worker training</u>.

The Workforce Board, which helps convene the state's workforce system and has equal voting representation from business, labor, and the government has this as its top priority, supporting $4.5 million in new spending for 2020, with the expectation of a request for an additional $25 million for the 2021-2022 biennium. The request to increase state incumbent (current) worker funding sits within a larger proposal to re-engineer the state's workforce development system. To that end, the proposal also requests funding to purchase proprietary business analytics from Dun and Bradstreet to increase and enhance business engagement statewide.

1. (b) <u>Extend SBCTC's Customized Training Program</u>.

This program grants Business and Occupation (B&O) Tax Credits to employers to offset up to 50 percent of training costs for workers. [46] The program is set to expire in 2021, and SBCTC has requested legislation to continue this program. Customized Training is used in coordination with the Job Skills Program. With Customized Training, employers can provide training, and repay their share of costs through a loan.

<u>Desired Outcomes for 1(a) and 1(b):</u> Increased investments in incumbent worker training encourages the required co-investment businesses and the public workforce system come together to jointly fund effective training programs. By providing greater incentive to invest in worker training, with preference given to small businesses, more employers can afford to upskill their workforce. Enhancing employee skills can help Washington workers keep their jobs and grow their value as technology advances. Training also increases the likelihood of successful adoption of new technology, and boosts business profitability. The end result is to engage more businesses across the state as co-investors in a talent pipeline development system that meets the current and future needs of Washington's businesses. Additionally, the Dun and Bradstreet EconoVue program will enable staff at the state and local levels to identify and target struggling businesses, and provide them with layoff aversion supports before a business closes its doors, while also providing needed resources and talent to those businesses in expansion mode.

Taken together, these recommendations would significantly build on the success of the state's incumbent worker investment strategies by enabling the state and local workforce development partners to vastly expand their ability to support businesses and workers in achieving long-term economic security.

---

[46] RCW28B.67.020

1. (c) Establish a requirement for a worker-management oversight body for each awardee of state incumbent worker training funds.

This would provide a worker voice in the planning and execution of publicly funded incumbent worker training programs. Each grantee would be responsible for the creation and operation of their respective oversight bodies. These bodies would have joint oversight of the design, implementation, evaluation, and reporting of individual incumbent worker training programs using public funding. These bodies should be formed no less than 30 days prior to the time applications for incumbent worker training funds are submitted. Affected workers would select their representative(s) to participate in the partnerships with management.

Desired Outcome: Partnerships that include both workers and employers to design, implement, and evaluate training programs provide greater opportunity for the most relevant training, recognizes and builds on the knowledge and experience of the current workforce, lowers barriers to adoption of advanced technology, and helps ensure that workers are part of their own job development and career path. Partnerships of this type also help ensure greater return on investment for taxpayers, workers, and businesses on the use of public funds.

1. (d) Monitor and evaluate outcome metrics on Job Skills Training and Customized Training Programs.

The Task Force suggests that State Board for Community and Technical Colleges, which administers the programs with support of the Customer Advisory Committee, would include, as part of its duties, measuring outcome performance of these two training programs. These would include wage growth and access to benefits for workers undergoing training, if jobs were preserved by the training, and how many. Further, the Task Force recommends that the State Board for Community and Technical Colleges prioritize programs where training leads to family-wage jobs, or preserves jobs in distressed counties.

Desired Outcome: Accountability and transparency of publicly funded training is important to build confidence with policymakers and taxpayers that training is effective, appropriate, and leads to better outcomes for both businesses and workers. The Task Force recognizes that measuring success in the Job Skills and Customized Training programs requires taking into consideration different economic conditions, geography, and other factors. The Task Force wishes to ensure that the Customer Advisory Committee continues to promote accountability and transparency in publicly funded training, and to ensure that workers gain tangible advantages, along with businesses.

2. <u>Remove the six-credit eligibility requirement from the Washington College Grant program for students co-enrolled in High School+ and I-BEST who do not have a high school diploma or equivalent</u>.

Currently, students enrolling in postsecondary education who do not have a high school diploma or equivalent are ineligible for state and federal financial aid programs until they have completed six college credits. In order to become eligible, students would also need to be co-enrolled in High School+ and I-BEST programs that allow students to complete postsecondary course work and credit towards a high school diploma concurrently.

<u>Desired Outcome</u>: Removing this barrier from the state's financial aid program—the Washington College Grant—will enable students most in need of further education to engage in these programs. This will allow eligible students to receive financial aid from the moment they step on campus, instead of having to self-pay for their education until they are able to complete six credits. In particular, underrepresented populations would benefit from this policy, as they compose a disproportionately large segment of those who lack high school diplomas.[47]

3. <u>(a) Fund the Lifelong Learning Accounts (LiLA) program, where employers and employees jointly fund an employee-owned savings account, as written in state statute (RCW 28C.18.180)</u>.

The LiLA statute was developed to enable private financial institutions, non-profit organizations, and others to operate LiLA programs for their employer customers or partners. It aims to support small and midsize businesses that don't have traditional tuition support programs as an employee benefit. Funding is needed to establish the governing rules of the program, create guidance materials for program operators, their business customers, and the workers who will be LiLA account holders, and to make the program widely available across the state.

The state's LiLA program was designed to be operated privately, with state guidance and oversight. In order to test the program, the Task Force recommends that funding be provided to encourage three to five organizations to start LiLA programs with at least four employers each. Funds should allow for worker "scholarships" to jump-start LiLAs, and enable new account holders to take at least one postsecondary course within the first six months.

<u>Desired Outcome</u>: Providing accounts devoted to employee learning will advance the knowledge, skills, and employability of the current workforce, helping both employers and workers maintain currency in business and technology trends. Workers supported by LiLAs will have a greater ability to build their skills and competencies, be less susceptible to replacement through automation, and less likely to become unemployed. Businesses will be

---

[47] See "Annual Earnings by Race & Ethnicity, Education" chart on page 34.

Workforce
Training & Education Coordinating
WASHINGTON
Board

able to attract and retain quality workers, through the promotion of LiLA as a benefit, resulting in enhanced employee retention, lower costs, and higher productivity.

3. (b) <u>Provide funds to establish a career and education counseling network to support LiLA account holders and other workers who are planning for professional development and economic opportunity</u>.

Counselors could be recruited from Workforce Development Councils, WorkSource Centers, and postsecondary institutions.

<u>Desired Outcome</u>: Providing focused counseling devoted to LiLA account holders will maximize the effectiveness of the accounts by ensuring employees are able to make best use of their potential by enhancing their own skills and abilities, while also building the capabilities sought by their employers, and the economy, generally. Counselors will also help LiLA account holders navigate postsecondary education pathways towards desired educational and career goals.

Use and Adoption of Technology in the Workplace

Workers and Technology: Change is Coming

Automation and the increasing use of AI is disrupting jobs traditionally performed by humans across a wide range of fields, including some jobs that few could imagine a robot or computer performing just a decade ago. Although the exact number of jobs affected by the implementation of new technology, and when these disruptions will occur, is a matter of debate, what has become increasingly clear is that the nature of many jobs, if not most, will significantly change in the future. Some jobs will go away, while new jobs will be created. For many other jobs, technology will replace some routine tasks, freeing employees to focus on other tasks requiring more creative and critical thinking skills.

> **Mixed Signals: Estimates for the automatability of current job tasks range from 9% - 47%.**

Addressing technology's disruptive impact on workers and communities is not, however, based solely on identifying which jobs or job functions are going to be automated, but how to capitalize on the opportunities afforded by innovation. One study examining the business practices of leading international companies employing cutting-edge technology came to the conclusion that those businesses shared key characteristics, differentiators, and success factors. Notably, these include the interaction between workers and machines, and specifically that instead of replacing operators with machines, the companies are transforming work practices to make them less repetitive and more interesting, diversified, and productive.[48] Effective public policies supporting workers, employers, and communities, along with strategic investments by business, will be instrumental in steering the state towards positive outcomes for all parties.

Mixed Signals

As employers invest in more productive technology, its full effects on the worker and workplace is still uncertain. Inevitably, many workers will be displaced by machines or sophisticated software, but new jobs will be created too.

Numerous studies have focused on the possible impact of automation, AI, and other technologies on the workforce, particularly in terms of potential displacement of jobs. But these studies are far from uniform in their findings. For instance, a 2011 study of the French economy by the McKinsey Global Institute concluded that the internet created 1.2 million jobs over a 15-year period, while causing the elimination of 500,000 jobs, resulting in a net increase in employment.[49]

---

[48] World Economic Forum and McKinsey & Company. (2019). *Fourth Industrial Revolution: Beacons of Technology and Innovation in Manufacturing.* Geneva: World Economic Forum.

[49] Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., . . . Sanghvi, S. (2017). *Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation.* New York: McKinsey Global Institute.

Workforce Training & Education Coordinating **Board**

Another early and often-cited peer-reviewed 2013 study conducted by Oxford University[50] (and since revised) projected that 47 percent of total U.S. employment is at risk of automation. However, the Organisation for Economic Co-operation and Development (OECD), took a different approach to this topic. The group looked at occupations as a unique collection of skills, rather than assuming single tasks could be automated independently. As a result, the study estimated that

> **Less than 5% of occupations consist of activities that are 100% automatable.**

only 9 percent of jobs are at risk of being completely displaced.[51] The same organization later revised these figure upwards to 14 percent, but with the caveat that 32 percent of all jobs "have a risk of between 50 and 70 percent pointing to the possibility of significant change in the way these jobs are carried out as a result of automation."[52] While these figures at first glance naturally generate alarm and headlines in the press, it is important to note that these same studies also point out that less that 5 percent of current occupations consist of activities that are fully automatable.[53]

Minority populations are especially vulnerable to automation compared to their white counterparts. The automation potential, as measured by the amount of tasks which are automatable with current technology, for white workers in the U.S. is 40 percent, according to projections made by another think tank, the Brookings Institute.[54] By contrast, jobs held by black workers have a 44 percent automation potential, along with 45 percent for American Indian, and 47 percent for the Hispanic population. These higher rates for people of color reflect their overrepresentation in industries estimated to be more susceptible to automation, such as construction, agriculture, and transportation.

Threats to Opportunities
The wide disparity in projected automation-induced worker displacement is the result of differences in definitions, methodology, and uncertainty about the future in general. While some of these data points are alarming, with some insinuating that up to half of workers could lose their jobs, this is far from the whole story. These threats to some jobs also represent unprecedented opportunities for growth on personal, national, and international scales. Provided the right framework, technology could help elevate the working conditions of those most in need, while providing productivity increases needed to sustain economic

---

[50] Frey, C., & Osborne, M. (2013). *The Futre of Employment: How Susceptible are Jobs to Computerisation?* Oxford: Oxford Martin School.

[51] Arntz, M., Gregory, T., & Zierahn, U. (2016). *The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis.* Paris: OECD.

[52] Nedelkoska, L., & Quintini, G. (2018). *Automation, skill use and training.* Paris: OECD Social, Employment and Migration Papers, No. 202.

[53] See Manyika, J. (2017). See Reference 49.

[54] Muro, M., Maxim, R., & Whiton, J. (2019). *Automation and Artificial Intelligence: How machines are affecting people and places.* Washington DC: The Brookings Institution.

Workforce Training & Education Coordinating **Board**

growth as the labor pool shrinks over time. In order to realize these productivity gains, businesses will need to be deliberate in their implementation of new technology, focusing on processes that will have the most impact on productivity when automated. Analyzing and implementing change can take years to bring commercially viable technology into the workplace effectively.[55] In short, while some job loss will occur due to automation, purposeful investments in technology and the workforce in both the public and private spheres could not only facilitate net job gains, but gains of higher-skill and higher-paying jobs to replace those lower-paid jobs with less potential of career advancement.

A wide range of sectors are being disrupted by new technology and changing business practices, and the effects on workers varies significantly depending on the characteristics of their location. Many workers must retrain, reskill, and upskill to remain competitive. New workers must also undergo additional training to enter certain fields.

Which Jobs Have the Greatest Capacity for Automation in Washington?
Automation is forecast across a wide range of industries, income levels
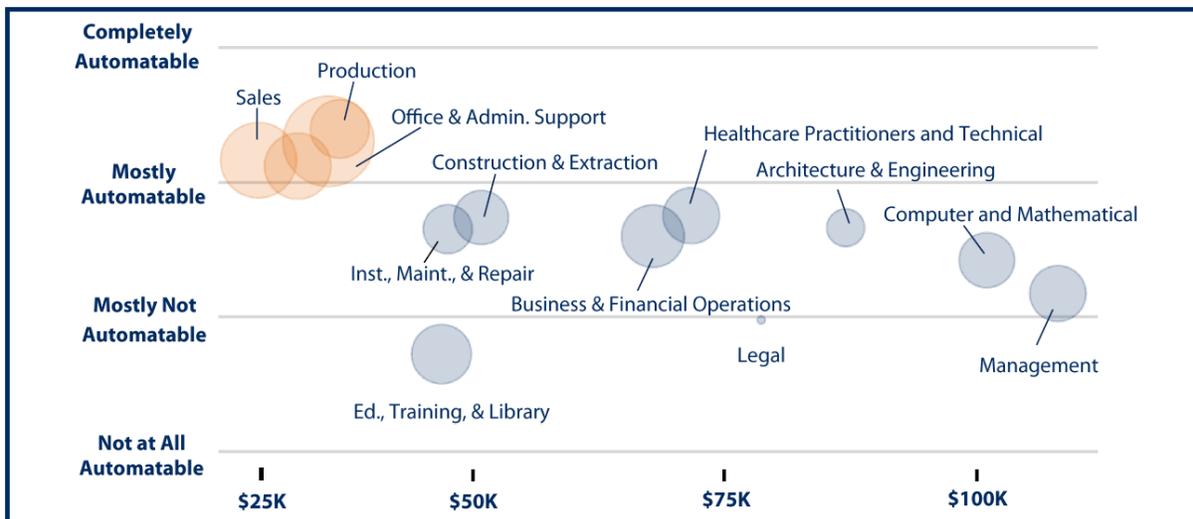
Source: U.S. Bureau of Labor Statistics (2017) and Oxford University, analyzed by Washington's Workforce Board

Note: Bubble size indicates relative size of occupations in terms of number of employees. Orange bubbles illustrate occupations with highest levels of activities most likely to be automated within the occupational group.

One example of where changes in technology and business practices are notably affecting the workforce is through the rollout of industrial robots. The arrival of one new industrial robot in a local labor market coincides with an employment drop of 5.6 workers, according to a 2017 study.[56] In 2016, the U.S. had 31,400 industrial robots in operation, placing it

---

[55] Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., . . . Sanghvi, S. (2017). *Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation.* New York: McKinsey Global Institute.

[56] Restrepo, P., & Acemoglu, D. (2017). *Robots and Jobs: Evidence from US Labor Markets.* Cambridge: National Bureau of Economic Research.

fourth in the world behind China (87,000), South Korea (41,400) and Japan (38,600).[57] Just two years later, 40,373[58] industrial robots were operating in the U.S. in 2018, a staggering 29 percent increase in just two years. These changes are impacting not only job tasks themselves, but could also produce profound effects on wages, training needs, and upward mobility among workers. At the same time, automation, along with the increased use of data and algorithms, is helping employers optimize workplace processes.

Occupations that focus on repetitive, easily-programmable tasks—such as cashiers, clerks, and assembly line workers—are already vulnerable to replacement by new technologies. In the future, learning machines driven by advanced AI and algorithms connected to the physical world through an expanding network of sensors and data collection sources will be able to take over a widening array of tasks. Office support jobs (e.g., data entry and payroll clerks), predictable work, and basic, routine customer interaction jobs are expected to be hit the hardest. At the same time, jobs requiring more nuanced skill and human interaction are projected to expand, albeit with new technological components such as high-level healthcare providers (surgeons and nurses), skilled craftspeople (construction workers, electricians), and professionals (lawyers, managers, business specialists).[59] Regardless of the job description, education that goes beyond high school, along with career-focused certifications, are key indicators for employability and earning potential.

This uneven application of technology is skewed heavily towards job displacement among lower-paid, lower-skilled, and less-educated workers. This represents both a challenge and an opportunity for this socioeconomic group. Left to the status quo, job displacement could result in increased wealth inequality and greater barriers to upward mobility as automation further depresses wages in these jobs. A more equitable alternative is that these workers are able to acquire new skills, enabling them to obtain higher-quality, higher-paying jobs.

This approach is being studied as a way to both help businesses retain proven employees and boost productivity, while providing job security and improved competencies for workers. Research from the Aspen Institute[60] into the impact of automation on U.S. workers concluded that employers are making decisions about adopting automation, but may not take into account potential impacts on workers and communities. The study's solution is to encourage employers to adopt a multi-stakeholder approach to automation decisions by promoting new forms of worker voice

---

[57] Economist Intelligence Unit. (2018*). The Automation Readiness Index: Who is Ready For the Coming Wave of Automation?* London: Economist Intelligence Unit.

[58] International Federation of Robotics. (2019). *World Robotics 2019 Industrial Robots*. Frankfurt: International Federation of Robotics.

[59] See Manyika, J. (2017). Reference 55

[60] McKay, C., Pollack, E., & Fitzpayne, A. (2019). *Automation and a Changing Economcy: Policies for a Shared Prosperity*. Washington D.C.: The Aspen Institute.

and ownership and developing proactive strategies to identify and address impacts in advance.

Working Models

Rather than fearing automation and resisting change, many successful models (some employed outside the U.S.) have embraced automation by focusing on programs which train workers to work with robots, rather than be displaced by them. This approach lends itself to creating new, higher-paying jobs designing, supervising, and maintaining AI and robots, as well as indirect jobs created by increased productivity and economic activity. One study concluded that AI, which can be used in a myriad of ways across nearly every industry, has the potential to double annual economic growth rates in developed countries (including the United States) by 2035.[61]

Task Force Member Insights:

"As a company in the business of automation, we have our own challenges in finding, training and keeping people with the right skills and abilities. The Future of Work Task Force demonstrated that these challenges are economy-wide and that comprehensive solutions are needed."

- Machelle Johnson,
Pearson Packaging

In Sweden, which invests heavily in worker support and education programs, companies are embracing new technology while retaining workers to boost production to be competitive in the global economy.[62] As a result of the collaboration between man and machine, 80 percent of Swedes express positive views about robots and AI. Conversely, 72 percent of Americans are "worried" about robots and computers supplanting humans in the future.

The question then posed to Washington's policymakers is how to prepare the workforce to keep pace with changes in technology and business practices. Technological innovation is revolutionizing relationships among business, workers, and the government in ways unforeseen even a decade ago. Governments and stakeholders around the world are wrestling with how to best address these challenges.

The State of Technology

The use and adoption of various technologies, both those currently in use and those in the design stage, cause concern about privacy, job displacement, ethical use, potential bias, transparency, and disclosure. Given the extensive, and growing, range of applications AI is being applied to, identifying and mitigating bias—both intentional and unintentional—will be increasingly important. Although many technology vendors are actively introducing

---

[61] Purdy, P. D. (2016). *Why AI is the Future of Growth*. New York, NY: Accenture Institute for High Performance.

[62] Goodman, P. (2017, December 27). *The Robots Are Coming, and Sweden is Fine*. New York Times.

measures to reduce bias, there are still areas requiring vigilance. For business, concerns center around how to adopt new technology to get a return on investment in a reasonable time, upskill workers on new technologies, and stay competitive with technology in a global economy, as well as regulatory issues. Public awareness and scrutiny is also growing around data collection, and how this data is used and sold, often without a consumer's knowledge or express consent.

The public and policymakers are much more reluctant to be as accepting as in the past of the promise of new technology. This comes at a time when public sector agencies are increasingly using AI to do everything from identifying individuals with chronic Hepatitis C for treatment to prioritizing those in need of temporary or permanent housing. Law enforcement uses AI for facial recognition, and school districts are using the technology to pre-emptively identify students who are at a high risk for school-related violence.[63]

Washington is uniquely placed to convene a conversation at the state level about use and adoption of advanced technology. The state is home to high-profile players in advanced technology working on various aspects of advanced technology. Just as Washington is the first in the nation to create a task force to explore the future of work, the state could lead the way on developing a public policy framework for advanced technologies. This framework could help business, consumers and policymakers come to sound decisions on the use of technology, allowing for innovation while still protecting consumer privacy.

A 2019 report from California's Little Hoover Commission dubbed "Artificial Intelligence: A Roadmap for California opines, "Other states, cities and countries are surging forward with strategic plans to harness the power of artificial intelligence in ways that will improve their economy, public health and safety, jobs and environment…But California state government has yet to accept the AI challenge and truly begin the race. While some departments are collaborating with the private sector and academia to develop and use new technologies, the overwhelming majority are not preparing or strategizing for an AI world." [64]

Given the robust nature of both states' tech industries, "Washington" could replace "California" in this passage and it would still be largely accurate. Isolating just the AI component, an Algorithmic Impact Assessment (AIA) framework was developed in California to specifically address the use of this technology in the public sector.[65] Two of five key

---

[63] AI Now Institute. (2018, October). *Algorithmic Accountability Policy Toolkit*. Retrieved November 10, 2019, from AI Now: https://ainowinstitute.org/aap-toolkit.pdf

[64] Little Hoover Commission. (2018). *Artificial Intelligence: A Roadmap for California; Report #245*. Sacramento, CA: Little Hoover Commission.

[65] Reisman, D., Schultz, J., Crawford, K., & Whittaker, M. (2018, April). *Algorithmic Impact Assessments: A Practical Framework For Public Agency Accountability*. Retrieved November 10, 2019, from AI Now: https://ainowinstitute.org/aiareport2018.pdf

elements proposed in the AIA align with Washington's Task Force's recommendation in this policy area:

- Agencies should conduct a self-assessment of existing and proposed automated decision systems, evaluating potential impacts on fairness, justice, bias, or other concerns across affected communities.
- Agencies should develop meaningful external researcher review processes to discover, measure, or track impacts over time.

These challenges are by no means limited to the U.S. The UK, for instance, is developing guidelines for public procurement of AI-systems for public services.[66] These guidelines will build upon previous work that yielded a Data Ethics Framework and Guide to Using AI in the Public Sector.

Conclusion

Robots and software programs, fueled by advances in AI, are becoming increasingly proficient at performing an array of tasks more efficiently and accurately than the humans who created them. The collection and analysis of an immense and growing volume of data is providing new ways to conduct business and even understand human behavior. While these advances continue to fuel increased productivity and economic growth, these gains are often distributed inequitably and can result in job loss and reduced job quality if not carefully balanced.

Jobs and the economy have undergone massive change in the last 20 years and will continue to do so for the foreseeable future. Businesses and organizations of all types have adopted new technology, new processes, and new business models, which has changed the mix of jobs, job requirements, and job quality. Many displaced workers were never able to transition to jobs that paid the same wages they once earned. In rural areas affected by large employment displacements, economic recovery remains a work in progress. At the same time, technology is vital in maintaining business competitiveness, increasing productivity, and fueling economic growth.

While technological disruption is certainly a challenge for the workforce, it also presents a unique opportunity to focus assistance on those who need it most. These efforts will in all likelihood be channeled more towards the demographic groups that are most in need of help, providing policymakers a golden opportunity to boost outcomes for the state's struggling, low-wage workers, many of whom work in occupations that are simultaneously the most vulnerable to technological disruption. Rote skills will continue to be phased out, enabling workers to focus on higher order (and arguably more fulfilling) skills difficult for

---

[66] U.K. Office for Artificial Intelligence. (2019, September 20). *Guidance Draft Guide for AI Procurement.* Retrieved November 13, 2019, from GOV.UK: https://www.gov.uk/government/publications/draft-guidelines-for-ai-procurement/draft-guidelines-for-ai-procurement

Workforce
Training & Education Coordinating
Board

machines to replicate, such as social and emotional intelligence, coaching, creativity, management, and others.

Of equal importance is that businesses, workers, and policymakers understand the implications and consequences of using machines and AI in both the public and private sector. By monitoring technology and its impacts on business and the workforce, its use can be better harnessed to achieve positive results for all stakeholders.

What is clear is that advanced technologies are powerful, compelling, and present both challenges and opportunities. It's a pivotal moment for Washington policymakers, businesses and consumers to deliberate thoughtfully about how to use these new technologies to serve Washington citizens productively, ethically, and responsibly.

Policy Recommendations

1. Perform a worker-impact audit on the selection and adoption of Artificial Intelligence (AI) and other advanced technologies within Washington State government.
2. Develop a methodology for assessing and evaluating advanced technology within state government.

1. <u>Perform a worker-impact audit on the selection and adoption of Artificial Intelligence (AI) and other advanced technologies within Washington State government</u>.
The audit would include, but not be limited to, management technology; algorithmic scheduling programs; data collection, usage, analysis, and sharing; worker preparation and training to utilize technology effectively; and impact on state services. The audit should not distinguish between staff-led technology projects or those contracted out. The audit is intended to explore recent and planned technology projects in the areas of: (1) deployment of new technologies, (2) worker engagement in the decision process, and (3) equity in the workplace.

<u>Desired Outcomes</u>: With respect to AI in government services, policymakers and state agencies need to better comprehend the implications and impact of advanced technology on state workers, and their ability to successfully adopt new technologies to meet state goals. The audit will help identify promising practices to engage workers in the selection and adoption of new technologies. An audit that builds on recent efforts to evaluate state IT position descriptions, classifications, and compensations[67] will help to further measure the

---

[67] Washington State Office of Financial Management. (2019, May 21). *New IT classification & compensation restructure to take effect July 1*. Retrieved December 3, 2019, from Washington State Office of Financial Management: https://ofm.wa.gov/about/news/2019/05/new-it-classification-compensation-restructure-take-effect-july-1

impact of technology on all workers. This deeper analysis would help the state recognize how it can deploy advanced technology in the service of its citizens, and what training and support will be needed for state workers to be ready to use advanced technologies effectively in a way that reduces barriers to serving all of Washington's residents. The audit would also provide baseline knowledge of the use of technology within the state, which could be used to track trends in usage and guide future deployment of AI and other advanced technology.

The Task Force also suggests that the audit result in recommendations on how workers can be engaged in the decision-making process regarding the implementation of new technology in the workplace. Such engagement will better ensure equitable and successful adoption of new technology. This analysis will allow these issues to first be addressed in a public environment where the Governor, the Legislature, and other policy makers have direct influence.

2. <u>Develop a methodology for assessing and evaluating advanced technology within state government</u>.

Upon completion of the state government audit, the Future of Work Task Force, or another working group, should apply the findings to develop guidelines and methods for selecting and adopting advanced technologies. The guidelines will include best or promising practices for engaging and supporting workers affected by technological changes. The goal is for the methodology developed by this work to be implemented as standard practice in agencies seeking to purchase and deploy advanced technology.

<u>Desired Outcome</u>: An audit of advanced technology will capture institutional experiences and learnings to provide insights into how various state government entities are adopting next generation tools. The intent is to develop a risk management framework that reflects best practices, reveals potential problems or shortcomings, and avoids bottlenecks and unintended consequences in the technology procurement and implementation process.

The audit will also identify and catalogue training and worker development programs that are most effective in preparing state workers to best use new technology to improve government efficiency and more effectively serve Washingtonians.

Improved Labor Market Data and Credentialing Transparency
Overview

As jobs continue to change, and occupations call for new and expanding skills, our education and training systems must be responsive—both to better prepare the future workforce, and to support the lifelong learning needs of current workers. Education systems must continue to provide each learner with the essential skills to navigate adult life, while also preparing students for a viable career and long-term economic security. There is overlap in the skills and competencies required in both categories.

As stated earlier in this report, technology's rapid pace of change generates new urgency to reimagine ongoing communication channels between employers and the state's education and training systems. The education sector, from K-12 to lifelong learning, needs ongoing signals from industry about hiring trends and granular, ground-level information about employer skill and competency needs.

> **Task Force Member Insights:**
>
> "As an employer in a rural area, our pool of talent is smaller than in urban areas so we depend on a variety of systems to find good candidates. I was pleased to see the focus on improving labor market data that will help both employers and workers."
>
> *- Lisa Perry, Sierra Pacific Industries*

Employers typically want to know more about the skills and competencies included in education and training programs. This information can help them make informed hiring decisions. Better, more direct connections to the education sector also encourages employers to become more involved in shaping education programs so these programs include marketable, in-demand skills.

Workers will need to be more nimble and forward-thinking than ever before. In some ways, the workforce of the future will be filled with entrepreneurs, even if they earn a paycheck. Their product, and their brand, will be themselves. Each individual will need to plan for a successful economic future that is changing more rapidly than ever before. Providing workers with the tools to make wise decisions about each step on the path to that future is critical. Relevant, reliable, and up-to-date information about the labor market performance of education and training pathways will inform good choices. Yet such information is rarely available, making it difficult to fully understand the differences between educational programs, and how, or if, they develop skills that are valued by employers.

The incumbent worker of the future will also need to understand how learning and experiences stack towards new opportunities, such as higher-skilled and higher-paid positions. As the economic landscape changes, career and credential pathway maps must be redrawn and kept up to date.

Workforce
Training & Education Coordinating
WASHINGTON
Board

Historically, credentials such as a bachelor's degree have been used as a primary proxy to signal "talent" to employers. Students from elementary school on have traditionally been counseled to get a college degree to ensure that businesses recognize their employment value. Job listings often indicate that college degrees or other non-degree credentials, such as certificates or occupational licenses, are required. Available skill and competency information, from schools or employers, lacks specificity, and rarely describes the level of mastery needed to attain a credential or perform on the job. For certain populations, such as racial minorities, people with disabilities, formerly incarcerated individuals, and others for whom higher education and degree completion has traditionally been less accessible, the "degree as proxy" hiring trend has put many job opportunities out of reach.

Projecting the Top 10 Skills in Demand

Today, 2018	Trending, 2022	Declining, 2022
Analytical thinking and innovation	Analytic thinking and innovation	Manual dexterity, endurance and precision
Complex problem-solving	Active learning and learning strategies	Memory, verbal, auditory and spatial abilities
Critical thinking and analysis	Creativity, originality, initiative	Management of financial, material resources
Active learning and learning strategies	Technology design and programming	Technology installation and maintenance
Creativity, originality, initiative	Critical thinking and analysis	Reading, writing, math and active listening
Attention to detail, trustworthiness	Complex problem-solving	Management of personnel
Emotional intelligence	Leadership and social influence	Quality control and safety awareness
Reasoning, problem-solving and ideation	Emotional intelligence	Coordination and time management
Leadership and social influence	Reasoning, problem-solving, ideation	Visual, auditory and speech abilities
Coordination and time management	Systems analyses and evaluation	Technology use, monitoring and control

Source: World Economic Forum, The Future of Jobs Report, September 2018

Portability of credentials from one employment opportunity to another, and which are stackable toward higher levels of education or workplace upskilling, supports the long-term economic security of workers. Credential transparency is key. Workers need to know the specific skills and competencies contained within an education credential—and the employment and earnings potential of that credential—whether it's a short-term certificate, a bachelor's or master's degree, or a registered apprenticeship. This kind of transparency, which shows economic outcomes across a wide range of education credentials, can also

ease labor force issues for employers. By revealing the skills, competencies, and expertise of new recruits with particular credentials, employers can make informed decisions about filling open positions, and can work more effectively with educators to ensure education programs include the right mix of skills and competencies to prepare a job-ready workforce.

One of the most significant barriers to accurately assessing the economic and employment outcomes of education and training programs, or to understand the true complexion of Washington's labor market, is the accuracy of data collected for actual job titles or occupations of working individuals. This significant data limitation prevents the creation of an accurate picture of the state's workforce, trends in increasing and declining occupations, and gauging the effectiveness of education and training programs. So while current data collection indicate a recent graduate is now employed by Amazon, for example, it does not differentiate whether they are working as a warehouse packer or a computer programmer.

Another challenge to determining how well education and skills development programs align with marketplace demand is the lack of standardization in how those programs are described and measured. Substantial variations in quality and content of certificates, degrees, badges, and other credentials has created an environment where employers lack clear understanding of the skills and competencies new hires bring with them to the job. At the same time, jobseekers may not know if the education credentials they are investing time and money into will place them in the best position for the jobs they seek. In order to improve the ability of businesses to source skilled workers, and for workers to find the best opportunities for themselves, the labor market's signaling mechanisms (credentials) must provide transparency and consistency. This will only become more important in the future as the nature of jobs and the workplace continue to change at a rapid pace, and education and training programs, created to address these changes, proliferate.

These knowledge gaps about the market value of education credentials have substantial implications for workers, employers, and workforce development systems that rely on accurate data to signal demand for specific skill sets and occupations. In a recent example, research completed in 2018 by the Workforce Board specifically analyzing outdoor and field-based employment in Washington, found significant gaps in workforce data: "Available state, federal, and online job-posting data sources alone are insufficient for conducting satisfactory region-specific demand assessments for field-based, mid-level, STEM occupations in agriculture, natural resources, environment, and outdoor recreation sectors."[68] Workforce Board research staff also noted it was difficult to clearly define which occupations and employers should be classified within these sectors because there is no

---

[68] Wallace, D., Dula, C., Smith, R., Hardcastle, A., McCall, J., & Allen, T. (2018). *Outdoor-Industry Jobs: A Ground Level Look at Opportunities in the Agriculture, Natural Resources, Environment, and Outdoor Recreation Sectors.* Olympia, WA: Washington State Workforce Training and Education Coordinating Board.

common, agreed upon "taxonomy of occupations" at either the federal or state level. In practical terms, this results in discrepancies between what data says skills and occupations are in demand and real world demand. This mismatch has significant consequences for businesses seeking specific skill sets which are not being produced through workforce training systems because of an incorrect perception that there is no demand for these skills.

Collecting more accurate information on skills and credentials offered by different programs and what occupational outcome they lead to will also support ongoing efforts to boost career-connected learning (CCL) opportunities in Washington, most notably in conjunction with the Career Connect Washington (CCW) initiative launched by Governor Inslee in 2017.[69] The CCW initiative was created to support CCL opportunities, which address the disconnect between education and employment by preparing students, starting from kindergarten and continuing through to postsecondary education, to explore the world of work and gain important on-the-job experience. With the exception of registered apprenticeship, and preparation for certain health professions, there is currently no standardized credentialing pathway for work-based learning opportunities.

These opportunities are valuable to the learner, but without recognizable, standardized credentials, the learning may not be transferable or portable to other opportunities. Improved data collection would also provide greater insight not only to connect students with career opportunities they aspire to, but also in tracking student outcomes in CCL programs to better identify the strengths and weaknesses of specific education programs and learning modalities.

> **The mismatch between labor market information … has significant consequences for businesses seeking specific skill sets, which are not being produced through workforce training systems because of an incorrect perception that there is no demand for these skills.**

Higher Education Return on Investment

Undergraduate college enrollment in the United States has been declining since 2002,[70] despite the well-documented positive correlation between a college degree and higher income levels. Nationwide enrollment for spring 2019 for public and private two- and four-year degree-granting institutions was down 1.7 percent from the previous year, with the largest decline hitting four-year for-profit schools (a decline of 19.7 percent).[71]

Yet while the benefits of postsecondary education are clear, financial costs and other burdens continue to constitute barriers for students, and more so for underrepresented

---

[69] Career Connect Washington. (2019, December 1). *Career Connect Washington*. Retrieved from Career Connect Washington: https://careerconnectwa.org/

[70] Nadworny, E., & Dewitt, J. (2018, May 25). *National Public Radio*. Retrieved from National Public Radio: https://www.npr.org/2018/05/25/614315950/why-is-undergraduate-college-enrollment-declining

[71] National Student Clearinghouse Research Center. (2019). *Term Enrollment Estimates Spring 2019*. Herndon, VA: National Student Clearinghouse Research Center.

Workforce
Training & Education Coordinating
Board

populations. In 2019, collective student debt in the United States was approaching $1.6 trillion, affecting 43 million debtors.[72] This level is rapidly climbing, having more than doubled over the last decade from second quarter 2009 debt levels of $712.32 billion. Increasing student debt loads are also disproportionately greater for students of color.[73]

Washington actually fares well currently, and will likely do better with the 2019 passage of the Washington College Grant program. When compared to average student debt loads nationally, Washington students averaged the 5th lowest levels in 2017 at $23,936 per student.[74] The median graduate debt for that year was $28,560, with the lowest state (New Mexico) at $21,237 debt per graduate, and Connecticut leading the field at $38,510.

Perceived or real, poor return on investment results are often cited in discussions or reports on the rising cost of college education and student debt load. Higher education has little recourse to refute these allegations without timely and valid data about the employment status, occupation, and earnings of graduates, soon after they exit college or in subsequent years.

Short of systemic modifications on the national level, this issue at the very least warrants a more thorough analysis into the performance and accountability of educational programs that are crucial for knowledge attainment and professional growth. In this context, accurate data related to jobs, skills, and competencies a worker can acquire, and their demand by employers, is paramount. Tracking which educational pathway a worker has taken, and what employment outcome it led to, would greatly improve the understanding of the costs and benefits of different educational and skills development programs. Washington is further ahead than other states, due to the Workforce Board's statutory authorization to match student records with wage records. But there are limitations in this area. Collecting more detailed information on employee occupations and job titles from employers would provide a more precise picture of the state's workforce, the demand for specific skills and occupations, and increase transparency and accountability of education programs.

Evaluating Workforce Training and Education in Washington
The state's Workforce Board was chartered as both an education and workforce performance accountability agency in state statute. This gives the agency's research staff access to student-level records that can be matched with unemployment insurance (UI)

---

[72] Haughwout, A., Lee, D., Scally, J., & Van Der Klaauw, W. (2019, October 9). *Who Borrows for College—and Who Repays?* Retrieved October 21, 2019, from Federal Reserve Bank of New York: https://libertystreeteconomics.newyorkfed.org/2019/10/who-borrows-for-collegeand-who-repays.html

[73] Board of Governors of the Federal Reserve System. (2019). *Report on the Economic Well-Beingof U.S. Households in 2018.* Washington, DC: Federal Reserve Board.

[74] Chamber of Commerce. (2019, December 2). *Student Loan Statistics.* Retrieved from Chamber of Commerce: https://www.chamberofcommerce.org/student-loan-statistics/

wage records to evaluate performance outcomes for a wide range of workforce programs, as well as postsecondary education programs. Each year, agency staff members evaluate the performance of thousands of Washington's higher education and registered apprenticeship programs and publish the results on the agency's public-facing Career Bridge (www.CareerBridge.wa.gov) website.

As an independent, third-party evaluator, the Workforce Board is able to provide both policymakers and the public with a consumer report card that shows how many students completed an education program, how many got a job, and their income. This online report card also shows which industries they went to work in, along with key demographic information about students enrolled in education programs, such as age, gender, race, and prior education level.

What isn't clear is whether students entered occupations connected to their studies. This information isn't currently available in Washington, or the majority of states, because employers do not designate "occupations" in the information they file. Without this occupation-level information, it's not clear which education programs led directly to particular occupations.

Current Worker Data Collection Shortcomings
Washington currently uses data generated by the state's Employment Security Department (ESD) for projected occupational openings including the "demand-decline list" (which identifies occupations as being in-demand, balanced, or declining based on data available).[75] This primary data is supplemented by other sources including online job postings, UI, and U.S. Census data.

Current information collected with the quarterly ESD wage file, which Washington companies use to pay mandatory state and federal unemployment taxes, records four data points for each employee: (1) name, (2) hours worked, (3) wages, and (4) social security number. This data is used in a number of ways, including directing resources toward occupations with current, or projected, mismatches between supply and demand. The goal is to be able to develop and invest in programs that lead to quality jobs and provide employers with needed skills.

Because Washington, like most other states, doesn't collect occupation-level data from employers, economists and others extrapolate occupation projections using a "staffing pattern" matrix, which lists occupations that are likely to be present in a given industry. Data comes from the Occupational Employment Survey administered by ESD, but is limited

---

[75] Washington State Employment Security Department. (2019, November 14). *Learn About an Occupation*. Retrieved from Washington State Employment Security Department: https://www.esd.wa.gov/labormarketinfo/LAAO

because of its narrow sample size.[76] The small sample size also prevents analysis at a county or municipal level. However, efforts are made to gather employer input from across the 12 workforce development areas of the state.

The Task Force recommends adding an "occupation" field to the quarterly employer reporting forms collected by ESD. This will allow for more accurate occupational trend analyses, and more effective evaluation of education and training programs and whether or not they lead to particular occupations.

Existing Comparisons
Currently, Alaska and Indiana are the only states that require occupational information on quarterly unemployment insurance employer reports. With this information, Alaska was able to create a report tracking employment outcomes for high school graduates ten years after graduation. The report included information on whether students attended college, their wages, and occupation.[77] Two other states provide the field on their report forms, but do not require employers to provide data in that field. Each state has reported about a 10 percent response rate for that field among reporting employers.

The Maryland legislature proposed new regulations (HB 1129, 2019) in its Workforce Data Act requiring employers to submit additional information on quarterly UI reports. The enhanced reporting requirements would include: (1) the occupation and job title of each employee; (2) the number of hours each employee has worked during the calendar quarter; and (3) the location at which the employee works.

As in the Task Force's proposal, the purpose of collecting this information in Maryland is to provide better data to answer questions about the employment outcomes of education and training programs. Addressing the Maryland Senate Finance Committee in support of the measure, policy analyst Jenna Leventoff of the National Skills Coalition wrote, "Data on employee occupations will help Maryland stakeholders better understand whether college and university graduates and workforce training participants are finding jobs in the occupation for which they are trained, as well as whether Marylanders progress in occupations throughout their careers."[78]

Implementation Considerations
While there could be some initial time and financial costs for companies to comply with more detailed data collection standards, many of these challenges can be mitigated through existing technology. ESD's online report system could be enhanced with drop-down menus,

---

[76] In spring 2019 survey data was collected from approximately 4,200 Washington State Employers.

[77] Maryland House Economic Matters Committee. *Hearing on the Workforce Data Act.* February 26, 2019. Annapolis, Maryland (statement of Jenna Leventoff, Senior WDQC Policy Analyst, National Skills Coalition.

[78] Written testimony from policy analyst Jenna Leventoff of the National Skills Coalition. Maryland Senate Finance Committee (2019).

self-populating fields after first report, and job title keyword searches, etc. On the national level, the business community voiced the following concerns, including: skepticism regarding purported benefits; lack of adequate employer incentive for complete, accurate and timely reporting; data security; and lack of occupational coding skills and tools.[79] In Washington, employers have expressed concern that company workforce data might be made public and potentially undermine their competitive advantage.

The vast majority of businesses in Washington file their quarterly UI wage reports online, either through payroll services, or directly through ESD's portal. Adding an occupation field could be designed to be reasonably effortless after the first report. Once an occupation is designated for an employee, the field could be automatically populated each quarter until the occupation changes or new hires are added. However, there is a small segment of the employer population that still reports manually. The suggestion was made to have them input the job title, or alternatively provide an electronic or paper reference manual. ESD may also develop waiver ability provisions through rulemaking.

These trends and concerns related to enhanced reporting reflect nationwide inclinations, with the Workforce Innovation Council reporting that many employers already collect and report enhanced data, including occupational data.[80] Other findings from the Workforce Innovation Council supporting wage record enhancements include: improvements in state UI automated systems, strong support from human resources, increased reporting frequency, broad user support, and that enhanced wage records could reduce employer survey burden and improve labor market statistics.

No Universal Standard for Credentials

There is no universal standard for defining the parameters of any credential, and no overarching taxonomy for describing the skills, competencies, and experiences connected with a particular credential. Students, workers, and jobseekers would benefit from the ability to identify and compare credential and program options before they invest limited resources or secure loans. Comparing one credential to another is currently an "apples to oranges" exercise, making it difficult to fully determine what is learned during the program, and to what level of mastery.

> **More than 730,000 distinct credentials have been identified in the United States.**

Meanwhile, the number and types of non-degree credentials in the marketplace is proliferating dramatically. Badges, micro-degrees, registered apprenticeships and other on-

---

[79] Administrative Wage Record Enhancement Study Group. (2015). *Enhancing Unemployment Insurance Wage Records: Potential Benefits, Barriers, and Opportunities.* Workforce Information Council.

[80] See Administration Wage Record Enhancement Study Group. (2015*).* Reference 79.

the-job training certifications, massive open online course credentials conferred by industry associations, along with traditional and non-traditional college degree programs; the growth seems endless. A recent Credential Engine study in September 2019 identified more than 730,000 distinct credentials in the U.S. alone,[81] which contributes to the confusion among consumers about which credentials have value and are worth the investment of their time and money.

Credential transparency is an idea being promoted nationally, funded primarily by the Lumina and JP Morgan Chase Foundations. After about six years of funded research, they jointly funded a non-profit called Credential Engine, to develop a standard credentialing taxonomy and language, and to build a national credential registry that would list and describe every credential in the national (and eventually international) marketplace. Credential Engine's Credential Finder allows users to collect, search, and compare credentials from across the country. They have developed the Credential Transparency Description Language (CTDL), which allows for "apples-to-apples" comparisons of programs and credentials. The CTDL and the credential schema also allow for searchability and discoverability on the web, much like the schema and language that has transformed the air travel and lodging industries. With this basis, states and other public entities could utilize credential data free of charge to build credential literacy among students, jobseekers, workers, and employers. Heightened credential transparency and literacy will greatly improve the ability of employers and workers to know what they are getting, and dramatically improves the ability for workers and employers to search and find relevant information about credentials and the skills and competencies associated with them. Washington is one of 16 pilot states, supported by a grant from Credential Engine.

Career Bridge Grows and Connects with Credential Engine
Last year, Career Bridge notched seven million page views, a new high. With support from Governor Inslee's Workforce Innovation and Opportunity Act (WIOA) Statewide Activity funds, the site is also in the process of being modernized with a fresher look, mobile access, and a much requested digital portfolio feature expected to debut in 2020.

Career Bridge is a career exploration and education planning tool provided free by the Workforce Board. It also serves as a "consumer report card" on thousands of education and training programs, indicating the completion and employment rate of programs, as well as the earning level of program graduates. Users can also learn the demographic make-up of past program participants, such as age, gender, race, and prior education level.

---

[81] Credential Engine. (2018). *Counting U.S. Secondary and Postsecondary Credentils, A Credential Engine Report.* Washington DC: Credential Engine.

Earlier in 2019, Credential Engine awarded a $50,000 grant to the Workforce Board to publish a portion of credentials from the Career Bridge site onto the national registry. Because many of these credentials include performance results, such as employment and earnings, this project promises to show the value of thousands of Washington education credentials on a national platform. The project also includes the convening of a higher education and workforce credential advisory committee, who will weigh in on how to encourage education institutions to add more programs to the registry over time.

Advancing Credential Transparency in Washington
Although the grant to the Workforce Board from Credential Engine is relatively small, the Workforce Board is targeting 3,000 or more (out of 6500) programs listed on Career Bridge for publication in the national registry. The grant also includes provisions to translate Career Bridge's total 6,500 listed postsecondary programs into the Credential Transparency CTDL, so that work can continue beyond the life of the grant.

Using the CTDL for most, if not all, education and training programs in Washington will allow for more frequent and robust updates of credentials on the Career Bridge and Credential Engine sites, as well as catalogue listing on institution websites. Education providers could also be encouraged to list and define all the credentials that can be attained through each program. For example, a B.S. program in Computer Science may also yield a cyber security or user interface certification. The Workforce Board can use its authority to match student and wage records to work with schools and colleges to track the labor market value of these additional credentials to better inform user decision-making and educational institution planning.

The Task Force is recommending that this initial pilot connecting Career Bridge and Credential Engine receive state funding to continue beyond the life of the current grant. It would serve as a learning laboratory for the state's higher education community and policymakers in an effort to fully advance credential transparency in Washington. The current advisory committee would be expanded to include administrators, faculty representatives, registrars, students and employers representing public and private two- and four-year colleges, registered apprenticeships, private career schools, tribal colleges, veterans' representatives, and representatives of state occupational licensing agencies. This body would develop recommendations for establishing credential transparency and literacy in Washington.

Conclusion
While both recommendations—adding a new occupation data field to UI wage reports and supporting and learning from the Workforce Board's Career Bridge-Credential Engine project—provide value for the state on their own, they have the potential to have a substantially larger cumulative impact when utilized together. Improved data obtained from an occupational field, for instance, would provide stakeholders with a much sharper picture

of the labor market, as well as providing accountability for educational institutions and other training that results in a credential. This data could potentially serve as a baseline for important longitudinal data studies of the workforce and job trends into the future.

Taken together with Career Bridge and Credential Engine, these could provide key elements of a comprehensive skills and jobs dashboard envisioned by the Task Force. This dashboard could be folded into Career Bridge, and serve as a one-stop portal for workers, educators, and employers; providing a combined view of important occupations, industry, and economic data and trends. For workers, the dashboard could provide an overview of *which* jobs are in demand and *where*, determine the pay and quality of the job, what skills and competencies are required for the job, and if necessary, how to obtain missing skills or competencies. The platform could also help level the playing field for underrepresented populations who are most in need of accurate, real-time labor market information, as well as performance results for education and training programs that enable informed decisions about next steps that lead to family-wage careers.[82]

Policy Recommendations

1. Extend and utilize the Workforce Board's Career Bridge-Credential Engine project on credential transparency and competency-based credentialing among the higher education community.
2. Add a new occupation data field to Unemployment Insurance Wage Reports, provided by employers for each W-2 employee.

1. <u>Extend and utilize the Workforce Board's Career Bridge-Credential Engine project as a learning laboratory among the higher education community</u>.

Funding should be allocated to support one to five industry-specific pilot projects where high-demand occupations or growth can be mapped by skills, competencies, and experiences, and credential pathways can be articulated. An advisory committee, comprised of representatives from all facets of higher education in Washington, would be best suited to oversee this effort. This committee would also provide reports to policymakers on progress and statutory changes that might be needed to achieve the goal of full credential transparency.

<u>Desired Outcomes</u>: Washington would commit to advancing credential transparency across all postsecondary sectors. Through the use of Career Bridge and the national credential registry, Credential Engine, the state will be able to develop a standard credentialing taxonomy and language that would list every available credential—from short-term badges and certificates to bachelor's degrees and beyond. States and other public entities could

---

[82] More details provided on the potential for dashboard concept under the Areas for Future Exploration section.

utilize the data at no cost to build credential literacy among students, jobseekers, workers, and employers so they know the value of credentials, and whether they're likely to pay off in higher wages or better chances to land a job in a particular field or industry. Heightened credential transparency and literacy will greatly improve the ability of employers and workers to know what types of skills and competencies are included in credentials, so employers can make better hiring decisions, and students and workers can invest in credentials that provide the most benefit.

2. <u>Add a new occupation field to Unemployment Insurance Wage Reports, provided by employers for each W-2 employee</u>.

This would require all businesses in Washington to submit one additional piece of employee data to the state to better understand and track changes in the job composition of the state's labor market. The addition of a standard occupation classification (SOC) code that identifies an employee's job, and any subsequent shifts in job role, would provide critical information on which occupational areas need further workforce training investments. If gathering information proves infeasible for any segment of the business community, Washington's Employment Security Department could recommend alternative methods of gathering reliable and consistent labor market data on occupations.

<u>Desired Outcomes</u>: Occupation-level data will help better measure the outcome of the state's education and training programs by tracking which jobs participants enter into after completing a program. By tracking this information, the state can identify and support programs that provide workers with quality jobs, and employers with needed skills. Improved access to occupation data would greatly increase the ability to gauge how successfully education and training programs are preparing students for their desired career. This data could also be used to carry out longitudinal workforce studies on emerging trends such as technological disruption, economic disturbance, and globalization. The data will also help identify and quantify the gap between employer demand and the availability of a skilled workforce.

Modernized Worker Support System
Overview
As productivity increases through innovation and advanced technology continues to grow, there is increasing scrutiny into how these gains are distributed. Wages for many workers have stagnated even as the economy has experienced strong growth, and unemployment has receded to record lows. As a result, workers, businesses, and the government are all debating how to best address growing wealth inequity in the country and the decline of the middle-class.

Existing worker support systems such as Unemployment Insurance (UI), Social Security, health insurance, and others have changed very little since their creation nearly a century ago. At the same time, the evolution of the workforce and its changing relationship with business has resulted in substantial disruptions in traditional employment areas, including workplace training, length and nature of tenure, and employer-sponsored benefits. "Futurized" support systems are required to better address these shifts to leave workers less vulnerable without placing onerous burdens on private business or the government.

Workforce in Transition
While the impact of technology-driven changes upon the global economy cannot be understated, of equal importance are the broader social implications of the shifting relationships and mutual obligations between business, labor, and government. The employer-employee relationship forged in the wake of the first industrial revolution is evolving as the modern, mobile, globalized marketplace extends beyond its original parameters. As a result, the relationship between workers and employers is shifting, as employers seek a more nimble workforce that can be deployed "on demand." Many freelance workers appreciate increased flexibility, yet may lack traditional employment benefits or a secure income stream.[83]

In the period immediately following World War II, the relationship between employer and employee was more tightly enmeshed. Employers hired entry-level workers and invested in on-the-job training and lifelong learning. Employees could expect to advance their careers working for the same employer up until retirement. In this relationship, workers and employers shared the gains from innovation, technology, and globalization.

By the mid-70's this implicit relationship began to change, leading to a substantial shift in the worker-business dynamics reflected in the modern work environment. Employers now are more likely to rely on the labor market for specific skills, while in many cases, communities provide publicly funded training programs as an incentive to attract and retain employers. This shifts the costs for career development and lifelong learning from

---

[83] Edelman Intelligence. (2019). *Freelancing in America: 2019.* Upwork.

Workforce
Training & Education Coordinating
Board

employers to workers and communities. In this relationship, workers' real wages are decoupled from gains in productivity and introduction of new technology.

Alternative Work Force and the Gig Economy

Shifting roles, along with the adoption of new technology, has paved the way for alternative, gig work (e.g., Uber, Task Rabbit), or contingent work arrangements, with employees working as freelancers or independent contractors. There are significant challenges in addressing this issue, starting with establishing common definitions and obtaining an accurate picture of the demographic size and composition of this "alternative workforce." In fact, there isn't clear consensus on what constitutes "independent" work (see Appendix 4 for definitions table).

To date, numerous studies have attempted to measure the size of this contract workforce, which often lacks the stability of regular paychecks and benefits, such as health insurance, traditionally associated with full-time work. Current U.S. Bureau of Labor Statistics research indicates that the number of workers engaged in this type of work arrangement as their primary source of income has remained relatively stable for at least the past two decades at around 10 percent of the total workforce from 1995-2017.[84] A separate study found that the percentage of workers in alternative jobs rose only between 1-2 percent from 2005 to 2015.[85] The much-touted arrival of the online platform economy may not be as impactful as initially portrayed either, with a study by JP Morgan Chase finding that just 1.9 percent of families surveyed in Washington participated in this form of work in October 2017.[86]

Yet when measuring the non-traditional workforce in much more broad terms (such as only working a side job for one week out of a year), participation increases dramatically. Approximately 35 percent of working adults in the U.S. participated in freelance work in some way in 2019, according to annual surveys carried out by freelancing platform Upwork.[87] This represented 57 million workers, up from 53 million in 2014, although this figure plateaued in 2017 at 57.3 million. Another study by McKinsey Global Institute measuring independent workers in the U.S. and EU found the figure to be lower, at between 20–30 percent of the working-age population,[88] while MBO Partners put the figure at 26.9 percent in 2018.[89] Despite these relatively large figures, the critical takeaway here is that

---

[84] U.S. Bureau of Labor Statistics. (2017). *Contingent and Alternative Employment Arrangements.* Washington DC: Bureau of Labor Statistics.

[85] Krueger, A., & Katz, L. (2019). *Understanding Trends in Alternative Work Arrangements in the United States.* Cambridge, MA: National Bureau of Economic Research.

[86] Diana Farrell, F. G. (2018). *The Online Platform Economy in 2018: Drivers, Workers, Sellers and Lessors.* Washington DC: JPMorgan Chase Institute.

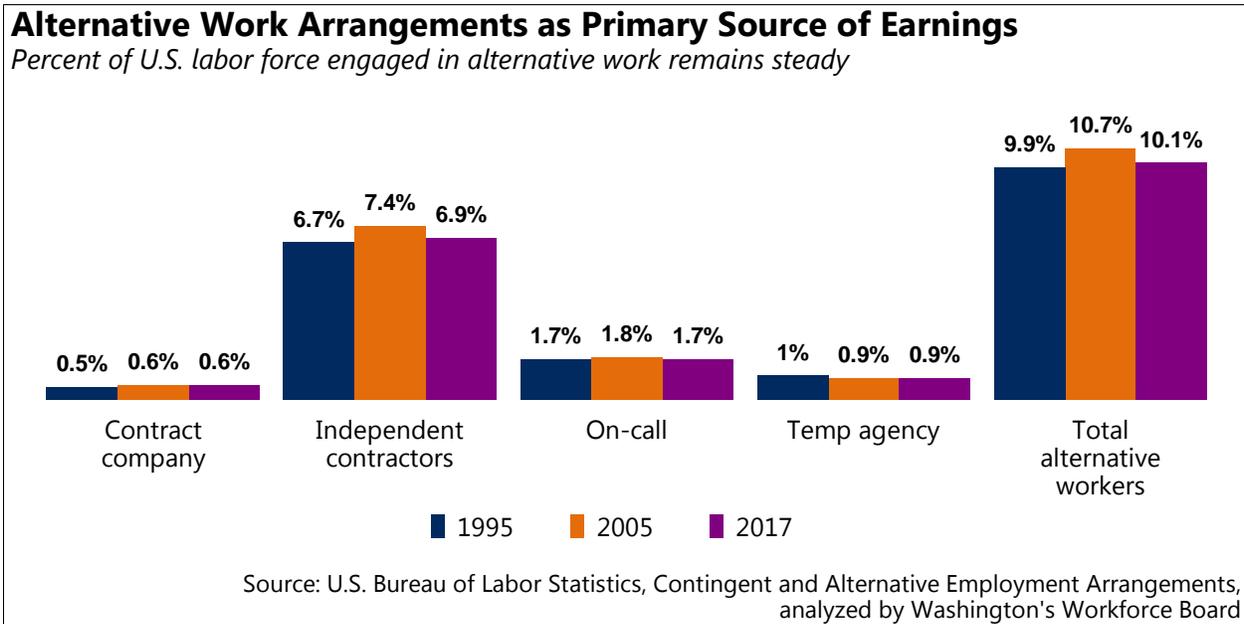[87] See Ozimek, A. (2019). Reference 9.

[88] See Manyika, J. (2016*)* Reference 10.

[89] MBO Partners. (2018). *The State of Independence in America*. Herndon: MBO Partners.

Workforce
Training & Education Coordinating
Board

evidence does not support any substantial shift away from traditional employment, but merely that more workers are supplementing primary incomes with other side jobs.

Alternative Work Arrangements as Primary Source of Earnings
Percent of U.S. labor force engaged in alternative work remains steady

	1995	2005	2017
Contract company	0.5%	0.6%	0.6%
Independent contractors	6.7%	7.4%	6.9%
On-call	1.7%	1.8%	1.7%
Temp agency	1%	0.9%	0.9%
Total alternative workers	9.9%	10.7%	10.1%

Source: U.S. Bureau of Labor Statistics, Contingent and Alternative Employment Arrangements, analyzed by Washington's Workforce Board

Low unemployment and the tight labor market are also helping change perceptions of freelance work and its viability as a long-term career. The number of freelancers viewing their work as long-term increased by more than 10 million from 2014 (18.5 million) to 2017 (28.5 million).[90]

While there is agreement that individuals engaged in alternative work arrangements will face a different set of challenges than their traditional counterparts, the scope of this issue remains opaque. This topic is being monitored around the world by researchers in the public and private sector, including here in Washington. The state's Department of Commerce has released an initial study on the subset of contingent workers employed as independent contractors (defined as those who perform independent contract work, regardless of their employment status or whether that work is their main or secondary source of income).[91] The study was commissioned by the legislature to inform members and stakeholders about workers' sources of income, the amount of income derived from independent work, and access to benefits. This study is an initial effort to gauge the size and composition of this demographic, and could serve as a baseline for future data collection of nontraditional workers.
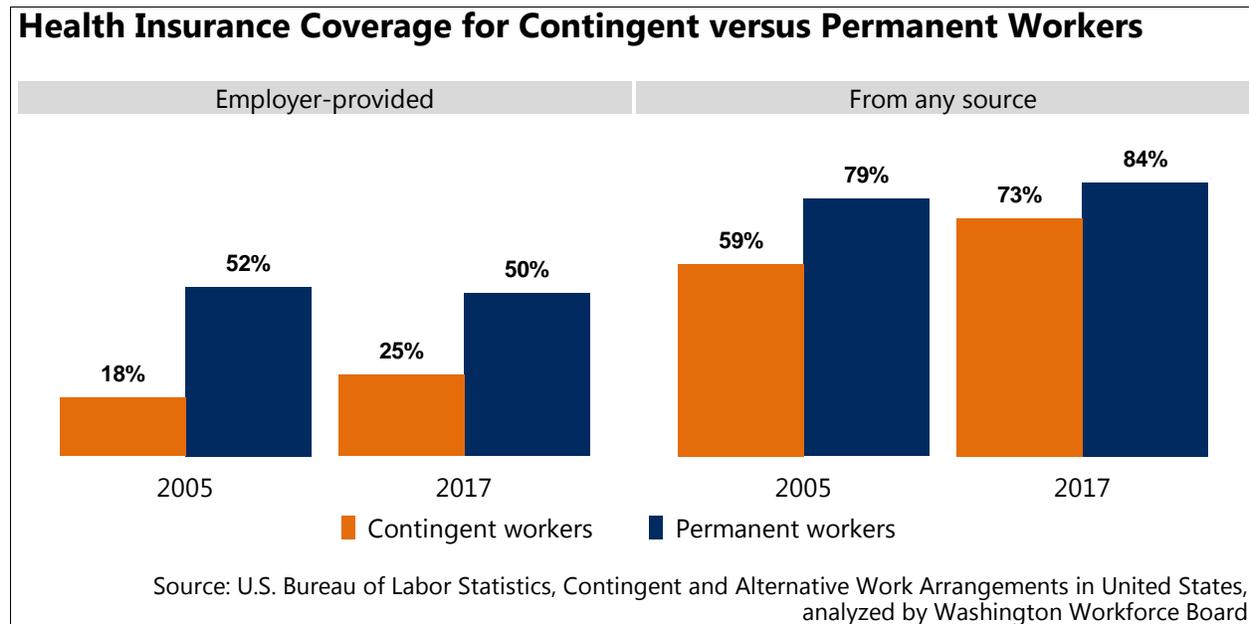
---

[90] See Ozimek, A. (2019). Reference 9.

[91] Washington State Department of Commerce. (2019). *Independent Contractor Study.* Olympia, WA: Washington State Department of Commerce.

This new, more contingent, work relationship presents challenges for public policymakers. How are the needs of employers, workers, and communities balanced? How is mid-career retraining fashioned to respond to workforce demands in related and unrelated industries? What workforce strategies will attract economic development that creates good jobs, builds stronger communities, and invests in the future?

Access to Benefits

Regardless of the actual number of workers in this category, this alternative workforce was significantly less likely on average to enjoy benefits afforded those in traditional full-time jobs. According to the U.S. Bureau of Labor Statistics data, 23.4 percent of contingent workers were eligible for—or had access to—employer-sponsored pension or retirement plans in 2017 (25 percent were enrolled). By contrast, this rate was more than double for permanent workers at 47.6 percent (50 percent enrolled).[92] This trend holds true for contributions to individual retirement accounts (IRA) as well. Wage-earners (workers paid either wages or salary) are far more likely to put money away than self-employed workers.[93] Wage-earners are also more likely to have health insurance. Those self-employed workers who do have insurance are three times more likely to purchase plans through the Affordable Care Act's Heath Insurance Marketplace.

Health Insurance Coverage for Contingent versus Permanent Workers

Employer-provided		From any source	

2005	2017	2005	2017
18% / 52%	25% / 50%	59% / 79%	73% / 84%

■ Contingent workers ■ Permanent workers

Source: U.S. Bureau of Labor Statistics, Contingent and Alternative Work Arrangements in United States, analyzed by Washington Workforce Board

By any measure, the wage gap is real and expanding, but it is important to note that earnings are not the only measure of compensation. Other factors which contribute to a

---

[92] See U.S. Bureau of Labor Statistics. (2017). Reference 84.

[93] Jackson, E., Looney, A., & Ramnath, S. (2017). *The Rise of Alternative Work Arrangements: Evidence and Implications for Tax Filing and Benefit Coverage.* Washington DC: U.S. Department of Treasury.

worker's total compensation include health insurance, retirement-account contributions, transit and parking subsidies, tuition reimbursement, paid family leave, sick leave, vacation pay and other benefits. These can all boost the value of compensation to an employee. Total benefit costs for civilian workers have risen faster than other payroll costs. Benefits costs increased by an inflation-adjusted average of 22.5 percent since 2001, leaving companies with less money for wage increases.

Even as compensation costs rise, employee participation in retirement programs is in decline. Roughly half (52 percent) of private sector wage and salary earners aged 25-64 had access to employer-sponsored retirement plans in 2011, the lowest level dating back to 1979. Furthermore, 45 percent of working-age households do not own any retirement account assets. This trend is even more pronounced for persons of color, with 62 percent of Black and 69 percent of Hispanic working-age households holding no assets in a retirement account.

If left unchecked, the combination of increasing non-traditional work arrangements without benefits or regular earnings, along with automation and AI utilization, could give rise to a job market increasingly segregated into "low-skill/low-pay" and "high-skill/high-pay" segments, which in turn could exacerbate existing economic inequality and social tensions.

Current State Agency Efforts
The public worker support systems, primarily UI and workers' compensation, have been providing a safety net for workers for decades. However, there is a need to look at the changing nature of work to determine how those systems may be enhanced to respond to evolving economic and labor trends, including gig employment and independent contractors. The administrative agencies (Employment Security Department and the Department of Labor & Industries) are engaged in ongoing reviews of their respective systems to explore areas for improvement, maintain financial solvency, and enhance responsiveness to customers within current operational frameworks. More broadly, efforts have already begun to consider more far-reaching enhancements to worker support systems with, for example, various practitioners and state workforce agencies to discuss the futurization of the public worker support system.

UI and workers' compensation are both portable "insurance" programs, requiring actuarial calculations to determine the tax rates that pay the required benefits. As such, they are governed by federal and state laws and rules that ensure that "premiums" (i.e., tax rates) are set at levels that pay benefits while keeping the system financially solvent.

Employers bear the majority of costs and expenses for funding UI and workers' compensation, although in Washington employers have the option of deducting as much as half the medical aid portion of worker's compensation premiums from workers' wages. Employer membership organizations generally advocate that spending from these fund

pools be limited to costs associated with the administration of workers' compensation and UI.

Washington, like other states, has responded to the challenge of supporting workers in an evolving work environment and economy. For example, Washington will launch a new Paid Family and Medical Leave system in January of 2020. This will be a portable benefit funded by worker payroll deductions and employer contributions. Washington also just enacted the first in the nation, public Long Term Care Insurance Program, which will be a portable benefit funded by employee payroll deductions. Further reforms to worker support systems can better protect and provide more opportunity for workers in an ever-changing economy.

Conclusion

A more modern, or "futurized" worker support system will enable all workers to find the resources and services necessary to stay attached to the labor market at livable wages. An updated system will appreciate the challenges faced by workers, and may need to re-define what is meant by the terms "employment" and "unemployment" for the purpose of coverage.

Policy Recommendation

> 1. Analyze the impact of existing worker benefit and protection structures, and provide recommendations to better support workers as the nature of work changes.

1. <u>Analyze the impact of existing worker benefit and protection structures, and provide recommendations to better support workers as the nature of work changes</u>. Policymakers should charge a work group to carry out a comprehensive review of the current worker protection and benefits systems, with the goal of developing a set of policy recommendations on updated systems that provide modernized support and opportunity for Washington workers, including independent contractors and other contingent workers, which better reflect existing conditions.

<u>Desired Outcome</u>: This work group could provide recommendations that, if enacted, would help modernize the worker support system, providing a framework for a safety net for those currently not eligible for these benefits, including alternative and contingent employment, as well as enhancing workforce skills and resiliency. The focus could be to ensure that all workers maintain benefits and protections regardless of employment type. This work would augment ongoing efforts of partner agencies including the state's Employment Security Department.

Equal Access to Economic Development Resources Across Washington
Overview

The future is here, but its impact—both good and bad—isn't equitably distributed. While Washington's economy has grown rapidly in recent years, the benefits of this growth have been concentrated largely in metropolitan areas.

Income inequality is an economic and societal concern. Some populations in Washington face systemic barriers in securing quality employment, accessing educational opportunities, and starting and growing a business. Women, people of color, veterans, people with criminal records, rural residents, people with disabilities, and tribal members, among others, face additional challenges. Access to infrastructure and services are likewise not universally accessible across all areas of the state, creating more economic barriers for people and reducing the competitiveness of businesses, especially in rural areas of Washington.

The rapid-fire, technology-centered innovation that has fueled Washington's economic growth, outpacing the rest of the nation, has been concentrated largely in or near King County. The ingredients that make up the innovation economy in this region aren't necessarily prevalent across the rest of the state (access to research institutions, capital, infrastructure, talent supply, and other resources). New mechanisms are needed to help businesses and their workers benefit from technological advancements in every corner of the state, including small cities, and rural and remote regions.

A starting place, and the lead economic development recommendation from the Task Force, is to bring together economic, workforce, and community development towards a shared goal of supporting and creating family-sustaining jobs in every region of the state. The Task Force suggests establishing a set of shared performance metrics towards this goal, with an emphasis on equity using demographic and regional breakdowns of the impact of public investments.

> **Access to infrastructure and services are not universally accessible across all areas of the state, creating more economic barriers.**
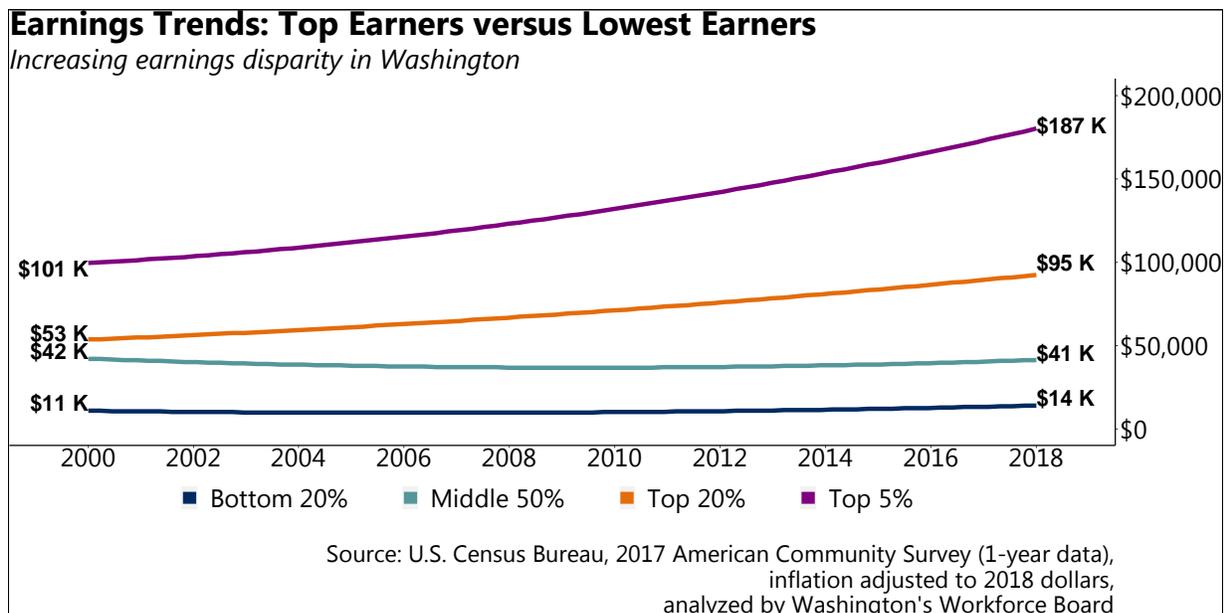
Rural areas of Washington are particularly at risk for economic distress if the state and local communities are not actively involved in this three-pronged development strategy. Economic development today is intricately tied to workforce and community development. Businesses do not expand or invest in areas where the workforce is not adequate to meet their needs, or where there are insufficient community resources to support workers and their families. Many small and midsize businesses have closed in both urban and rural communities in recent years for lack of workers and the inability to sell the business to new owners. In rural areas though, when a business closes, it is much

Workforce Training & Education Coordinating **Board**

more challenging for the community to maintain or replace jobs, especially those at family-sustaining wage levels.

Income Disparity

Domestic productivity gains, although slowing over the past decade, continue to grow revenue for companies while outpacing growth in wages for most workers.[94] The net result of this intensifying trend is that income inequality in the United States has been on the rise since the 1970s, when real wage growth began to stagnate, and continues to be a major policy flashpoint across the country. Between 1979 and 2013, one research study concluded that productivity increased nearly 65 percent, while hourly compensation of production and nonsupervisory workers—who comprise 80 percent of the private-sector workforce—grew just 8.2 percent.[95]

When taking into account the real value of money over time, wage levels have remained more or less static for the past four decades. According to the Pew Research Center, "After adjusting for inflation, however, today's average hourly wage has just about the same purchasing power it did in 1978, following a long slide in the 1980s and early 1990s and bumpy, inconsistent growth since then. In fact, in real terms average hourly earnings peaked more than 45 years ago: The $4.03-an-hour rate recorded in January 1973 had the same purchasing power that $23.68 would today."[96]

Earnings Trends: Top Earners versus Lowest Earners
Increasing earnings disparity in Washington

Source: U.S. Census Bureau, 2017 American Community Survey (1-year data), inflation adjusted to 2018 dollars, analyzed by Washington's Workforce Board

---

[94] Desilver, D. (2018, August 7). *For most U.S. workers, real wages have barely budged in decades.* Retrieved December 10, 2018, from Pew Research Center: http://www.pewresearch.org/fact-tank/2018/08/07/for-most-us-workers-real-wages-have-barely-budged-for-decades/

[95] Bivens, J., Gould, E., Mishel, L., & Shierholz, H. (2014). *Raising America's Pay.* Washington DC: Economic Policy Institute.

[96] See Desilver, D. (2018). Reference 94.

This trend is consistent in Washington, as real median earnings for the lowest 80 percent of individual workers remained flat from 2000-2017, remaining well below $50,000 during that time period, according to data from the U.S. Census Bureau.[97] At the same time, real median individual earnings for the top 20 percent of earners increased from $53,000 to $91,000, while median earnings for the highest 5 percent increased from $98,000 to $170,000.

Recognizing a growing public concern about wealth inequality and a vanishing middle class, the heads of many of the country's top companies are reevaluating their role. In August 2019, the Business Roundtable, an association of chief executive officers of America's leading companies, dramatically diverged from its previous position that "corporations exist principally to serve shareholders."[98] Instead, 181 CEOs committed to a new Statement on the Purpose of a Corporation stating that they would lead their companies for the benefit of all stakeholders—customers, employees, suppliers, communities, and shareholders.

Business Competitiveness

A wide range of businesses across Washington face challenges in staying competitive in an increasingly high-tech, global marketplace. Many lack access to engineering and other resources needed to invent or adopt advanced technology, or modernize their production methods (automation, AI, deep learning, robots, lean processes, etc.). Investing in modern business operations can be costly and risky. Some businesses try, fail, and try again, relying on precious internal resources. Meanwhile, better capitalized businesses that have research and development (R&D) capacity, or that can sponsor or co-sponsor research with research institutions can move ahead more rapidly. When a business attempts to innovate without the benefit of technical and organizational planning resources, or discretionary capital, the company can become more susceptible to major, even perilous, disruption.

Collaborative Applied Research (CAR)

Technology-based economic development (TBED) has shown itself to be a promising practice to drive job creation, wages, and economic growth. According to the national non-profit economic development research organization, State Science & Technology Institute (SSTI), the core components of TBED include:

- A research base that generates new knowledge.
- Mechanisms for transferring knowledge to the marketplace.
- An entrepreneurial culture.
- Sources of risk capital.
- A technically skilled workforce.[99]

---

[97] US Census Bureau. (2017). Public Use Microdata Sample Documentation. *U.S. Census Bureau; American Community Survey (ACS), One-Year Public Use Microdata Sample (PUMS), 2000-2017*.

[98] Business Roundtable. (2019, August). *Our Committment*. Retrieved November 27, 2019, from Business Roundtable: https://opportunity.businessroundtable.org/ourcommitment/

[99] State Science & Technology Institute. (2018). *About SSTI*. Retrieved November 27, 2019, from State Science & Technology Institute: https://ssti.org/aboutSSTI

At the core of the most effective TBED examples is university-industry collaboration, often referred to as Collaborative Applied Research (CAR), because workers, faculty, and students engage together in the research. The benefits to the collaborators go far beyond the results of the research. Faculty are able to keep their knowledge up-to-date and transfer that knowledge to their students. Student researchers experience real-world applications of their classroom learning. Workers are recognized for their knowledge and experience in their field, and their skills stay relevant to the trajectory their employer is taking—and they may even help define that trajectory.

Washington's two public research institutions, University of Washington and Washington State University, are actively engaged in sponsored research activities with industry. Although the two universities have made efforts to reach more Washington businesses, their services may remain inaccessible or too costly for some small and midsize businesses. Additionally, undergraduate and graduate students, without guidance or incentive to work with smaller companies, may prefer to work on applied research projects linked to large corporations with known employment potential.

The significant regional disparities in prosperity—some areas with a booming economy, and others contending with chronic unemployment and other economic challenges—cause many highly educated workers, and jobseekers to flock to the metro areas. This leads to "brain drain" in outlying areas. For businesses or entrepreneurs trying to start up or sustain businesses in rural regions, accessing advanced technology talent and expertise is challenging, at best, and at worst may lead to their demise.

Collaborative applied research is generally linked to a research university, but often uses regional or two-year colleges as the access point for small and midsize businesses, especially in rural regions.

The Task Force has consulted with representatives from a number of the state's higher education institutions, including Washington's flagship research universities. There is a great appetite to become much better connected with the business community across the state, and a belief that CAR can be part of this connecting fabric. However, they ask for resources to pilot CAR in order to study models for systematizing or institutionalizing the components in a sustainable manner. For example, a proposed pilot could test a model where engineering and pre-engineering students complete a business project as a requirement of completing their engineering degree.

It is important that these collaborative projects utilizing public and private resources create not just jobs and profits, but quality jobs and economic growth that stay within Washington. If economic policies and projects yield increased tax revenue, workers, and communities do not always benefit. For example, when the state provides funds, assistance, or expertise to a particular project that results in a new retail facility, the community may have a number of

new jobs that are largely entry-level with low pay, and possibly will not be full-time or provide employee benefits. On the other hand, if state investments result in a new manufacturing facility in a community, there is greater likelihood of seeing better-paying, family-sustaining jobs with benefits.

Urban Clusters in Washington
By county urbanization

0% 25% 50% 75% 100%

Percent of county population living in an urban area
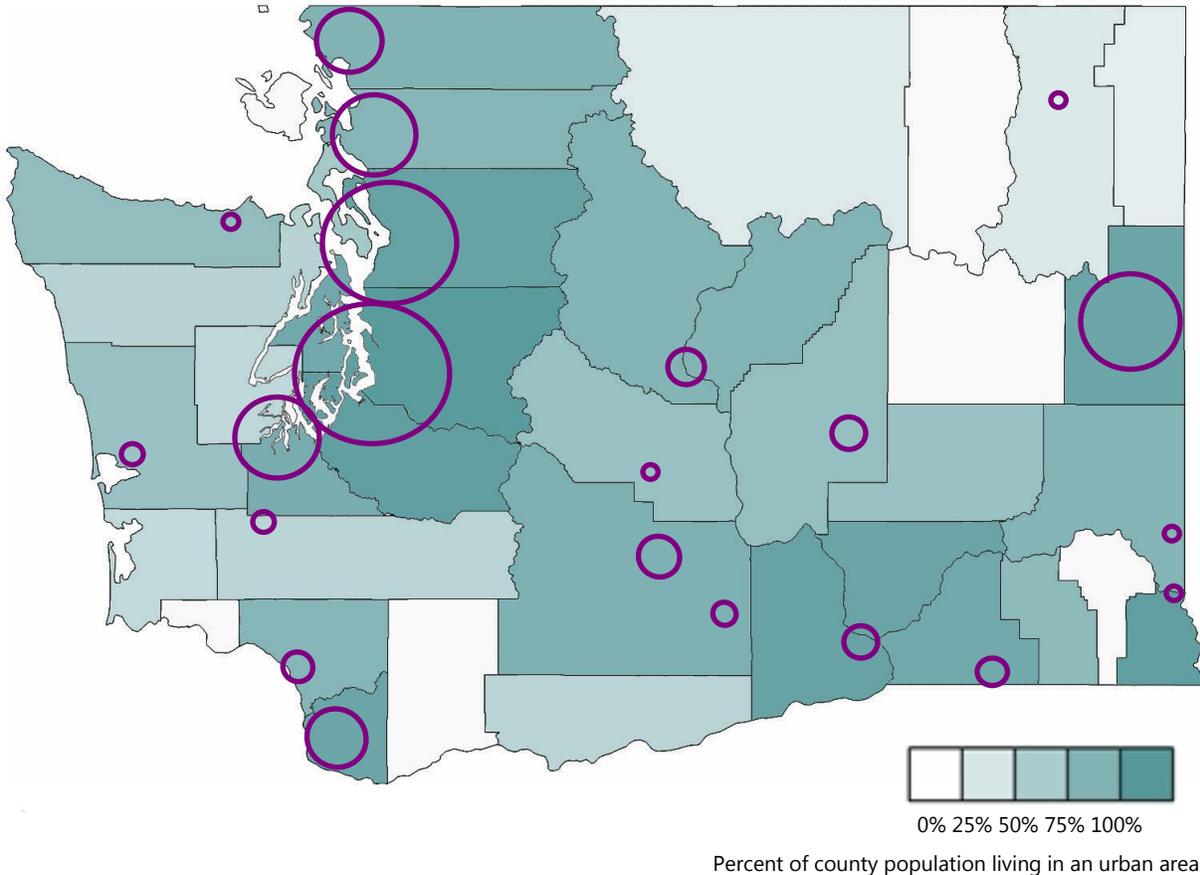
86 percent of Washington residents live within two types of urban areas: (1) an area containing 50,000 people or more, and (2) an urban cluster of at least 2,500 people and less than 50,000 people. The vast majority of residents live within the circled urban areas.

Source: U.S. Census Bureau, analyzed by the Washington Workforce Board
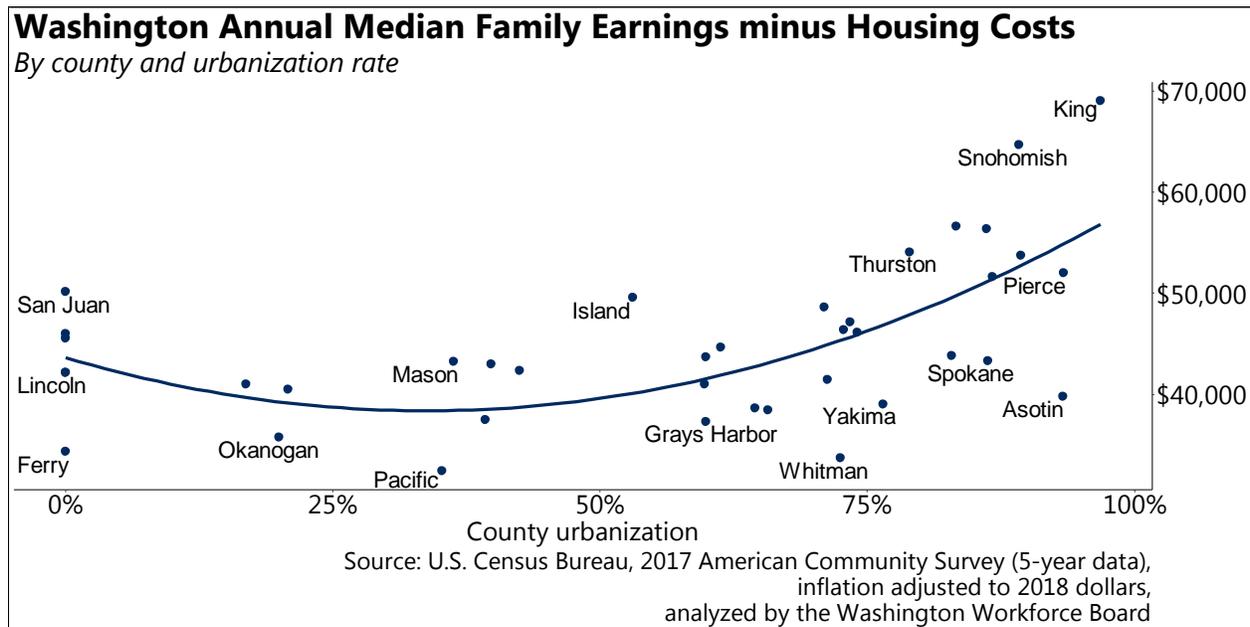
Lack of Resources Leads to Regional Inequity
Home to some of the most dynamic businesses in the country, if not the world, Washington is leading the country in economic growth, and is home to renowned tech companies, including Microsoft, Amazon, Tableau, Expedia, and Zillow, as well as other national name brands, including Starbucks, Nordstrom, Costco, Zulily, and Boeing. These companies share

not only their economic success, but also their geography, in that each of them is located on the west side of the state.

While there are many economic success stories outside of the Puget Sound region, the lion's share of the wealth and resources are concentrated there. In Washington, the ongoing divide between the state's most affluent citizens and its lower wage workers is often exacerbated by uneven distribution of infrastructure and other resources. Reliable transportation networks, proximity to education and skill training facilities, and access to high-speed internet are all critical components for students, workers, and businesses, yet are not uniformly available in all regions of Washington.

Washington Annual Median Family Earnings minus Housing Costs
By county and urbanization rate

Source: U.S. Census Bureau, 2017 American Community Survey (5-year data), inflation adjusted to 2018 dollars, analyzed by the Washington Workforce Board

Per capita income in Washington increased by an average of 36 percent from 2010-2017, with metro income expanding by 37 percent and nonmetropolitan areas increasing by 26 percent according to the Washington Workforce Development Areas Regional Economic Analysis Project, utilizing data from the U.S. Department of Commerce and Bureau of Economic Analysis.[100] In 2017, per capita income in the Seattle/King County Workforce Development Area (WDA) was $83,383 (144 percent of the state average), compared with $42,414 in the Benton-Franklin WDA (70 percent of the state average). Washington's "distressed areas" list, which designates counties as distressed if they meet or exceed an unemployment rate of 5.8 percent over a three-year average, show that no counties in the

---

[100] Pacific Northwest Regional Economic Analysis Project. (2019). *Washington Regional Economic Analysis Project.* Retrieved October 29, 2019, from Washington Regional Economic Analysis Project: https://washington.reaproject.org/

metropolitan Puget Sound area or Spokane qualify as distressed.[101] In 2018, 19 of the state's 39 counties were listed as distressed areas, with Ferry, Pend Oreille, and Stevens counties (all located in northeast Washington) posting the highest levels of unemployment.

Universal Broadband Internet Accessibility
A prime example of this regional inequity is the disparity in broadband internet access across the state. Traditional metrics used by the FCC indicate that there are significant gaps in broadband accessibility, although potential flaws identified in data collection methods indicate that the problem is likely much more significant than these estimates show.[102] Washington was the 16th most connected state in the country as of December 2018 with 95 percent of the population connected to broadband (defined as at least 25 megabits per second (Mbps) download speed and 3 Mbps upload), according to Broadband Now, a database of broadband providers.[103] This figure is skewed upwards by greater connectivity in metro areas such as King County, which had a broadband coverage rate of 99 percent, while rural areas such as Adams, Lewis, and Garfield counties have significantly lower coverage rates of 27 percent, 67 percent, and 11 percent, respectively. Data from the FCC paint a similar picture, showing 91.7 percent of Washington's rural communities had access to broadband internet in 2016 compared with a 99.7 percent connectivity rate in urban areas.[104]

Washington's urban areas also maintain substantially more options in terms of a choice in internet providers, resulting in a more competitive marketplace and greater consumer choice when compared to rural areas. In 2017, 94 percent of urban areas had three or more providers servicing these areas, while in rural areas this figure stood at 66 percent, with 27 percent served by two or more providers, and 7 percent by a single provider.

However, it is extremely likely that these FCC figures are misleading. Numerous independent studies have found flaws in FCC data collection, indicating the actual number of residents without access to broadband internet is much higher, particularly in rural areas. Microsoft, for instance, found that 162.8 million people across the country did not use the internet at broadband speeds, while the FCC states that 24.7 million people cannot access the

---

[101] Washington State Employment Security Department. (2019, April 25). *Distressed area list*. Retrieved November 14, 2019, from Employment Security Department: https://esd.wa.gov/labormarketinfo/distressed-areas

[102] Kahan, J. (2019, April 8). *It's time for a new approach for mapping broadband data to better serve Americans*. Retrieved November 15, 2019, from Microsoft: https://blogs.microsoft.com/on-the-issues/2019/04/08/its-time-for-a-new-approach-for-mapping-broadband-data-to-better-serve-americans/

[103] BroadbandNow. (2018, December 12). *Internet Access in Washington*. Retrieved October 29, 2019, from Broadband Now: https://broadbandnow.com/Washington

[104] Federal Communications Commission. (2018). *2018 Broadband Deployment Report*. Washington DC: Federal Communications Commission.

service.[105] In eastern Washington's Ferry County, the FCC shows that broadband is available to 100 percent of its residents. Meanwhile, Microsoft's metrics show only 2 percent of residents are using broadband.

Progress has been made in Washington toward universal broadband internet, but many areas of the state still lack high-speed connectivity. The most recent efforts have come with the Broadband Internet Service Access bill, SB 5511. This bill goes further than previous rural broadband initiatives, and specifically establishes:

- The Governor's Statewide Broadband Office (SBO).
- Definitions and standards for broadband.
- Washington's broadband deployment goals.
- A competitive broadband grant and loan program administered by the Public Works Board.

These are incorporated within the state's larger broadband policy, with the end goal of providing all businesses and residences access to broadband at 150 Mbps upload and download service by 2028.[106]

As a result of this patchy distribution of resources, rural areas face major competitive disadvantages compared to their urban counterparts. Broadband internet is nearly as essential to modern businesses operations as electricity.[107] Students, job seekers, and workers similarly require broadband to access online education, search for jobs, and connect to global information and the world around them.

Libraries Provide Internet, Community Resources
In many rural areas, libraries serve as a community gathering place with high-speed internet connectivity and resources to access education, training, and job opportunities. Libraries and other public internet hubs should be leveraged to facilitate technological solutions to career pathway development. These facilities help fill gaps in education and business development programs across the state by providing services ranging from English classes for immigrants and refugees to one-on-one job search assistance. It is important to note that these services are not designed to duplicate existing programs or services, such as those offered by public or private two-and four-year institutions or WorkSource Centers, but are intended to fill service, skill, and credential gaps for those who would otherwise find access difficult. In some regions of the state, libraries have formal agreements to extend limited public services into underserved communities.

---

[105] See Kahan, J. (2019). Reference 102.
[106] Broadband Internet Service Access. (2019). SB 5511. 66th Legislature, Regular Sess.
[107] Katz, R. (2012). *Impact of Broadband on the Economy*. Geneva: International Telecommunication Union.

Rural communities are experienced at building community-wide public-private partnerships to coalesce around seemingly intractable societal problems. Libraries and other public community hubs can help the state leverage this entrepreneurial, "can-do" approach to equalize economic vitality across the state. This is the case for the Microsoft LinkedIn Learning program (formerly the Microsoft Imagine Academy launched in 2013) that operates more than 50 certification sites around Washington. The program allows participants to test locally, and at no cost for certification, in the Microsoft Office and Adobe software suites, Quickbooks, Unity, and over a dozen other technical certifications.

Empowering Workers through Employee Ownership
Rural areas of Washington have opportunities in the coming years to thrive. If more investments are made to rural infrastructure (such as broadband), new businesses may launch in these regions. Helping established businesses remain competitive is also important to economic vitality. Employee ownership strategies, such as cooperatives and employee stock ownership plans (ESOPs) can be an attractive solution for owners wanting to sell their companies, or even as a capital-building strategy to modernize or grow operations.

Advantages of Employee Ownership

Median	Non-employee-owners	Employee-owners
Wages	$30,000	$40,000
Wealth*	$14,831	$28,500
Job Stability	3.4 years	5.2 years
Benefits: Employee-owners were more likely to receive benefits at work such as:		
Medical & Dental Insurance	64%	96%
Maternity/Paternity Leave	31%	61%
Tuition Reimbursement	24%	62%
Flexible Work Schedule	34%	52%

Household wealth is respondent's asset holdings (real estate, businesses, vehicles, etc.) and amount of debt owed to create a net worth amount. This amount does not include any assets in a retirement plan.
Source: National Center for Employee Ownership

Workforce
Training & Education Coordinating
Board

Employee-owned companies also have a proven track record of providing higher wages and retirement savings, longer job tenure, and greater access to benefits such as medical insurance, maternity/paternity leave, child care, and tuition reimbursement.[108] The differential between employee-owned and other corporate models, which holds true in both rural and urban areas, and across all demographic groups, has drawn bipartisan support on the national level. A 2018 survey designed by the Rutgers Institute for the Study of Employee Ownership and Profit Sharing found that Republicans (72 percent), Democrats (74 percent) and independents (67 percent) all indicated they would prefer to work for an employee-owned company.[109]

Most recently, the "Main Street Employee Ownership Act of 2018" was passed with broad bipartisan support by Congress and signed into law by President Trump in 2018. The legislation directs the Small Business Administration (SBA) to make some of the agency's loans more accessible to cooperatives and to work with lenders, the cooperative business community, and other relevant federal agencies to develop practical reforms to make their lending programs more accessible to all eligible cooperatives.

The most common form of employee ownership in the U.S. is through the creation of an ESOP, which is a qualified defined contribution plan that provides a company's workers with retirement savings through their investments in their employer's stock, at no cost to the worker. While the upfront conversion and ongoing maintenance costs may be significant, they are generally more than offset by tax breaks at the federal level.

On average, ESOP companies have a strong track record of distributing profits more equitably among its entire workforce, as opposed to concentrating value on non-worker shareholders in traditional publicly-traded companies. Employee-owners in the 28-34 age range, when compared to their non-owner counterparts, were found to have 92 percent higher median household income, according to a Rutgers University study.[110] These positive outcomes extend beyond income and job tenure, with ESOP employees less likely to be laid off, and on average accumulate greater retirement savings, regardless of education (including high school or equivalent and no high school), gender, and ethnicity.

Another form of employee ownership is cooperative ownership, intended to achieve greater gains for worker owners than other forms of business organization, but requires specialized

---

[108] National Center for Employee Ownership (NCEO). (2017). *Employee Ownerhip And Economic Well-Being*. Oakland, CA: National Center for Employee Ownership (NCEO)

[109] Rutgers School of Management and Labor Relations. (2019, May 24). *Rutgers School of Management and Labor Relations*. Retrieved November 17, 2019, from Rutgers: https://smlr.rutgers.edu/news/72-percent-republicans-74-percent-democrats-agree-they-prefer-work-employee-owned-company-study-finds

[110] Kruse, D., & Blasi, J. (2019). *Building the Assets of Low and Moderate Income Workers and theiir Families: The Role of Employee Ownership*. New Brunswick, NJ: Rutgers School of Management and Labor Relations.

Workforce Training & Education Coordinating **Board**

knowledge to organize and manage. The cooperative, or co-op, is based on equal investment and gainsharing for all employee-owners. Co-ops are organized to allow employee-owners to have a say in major organizational decisions (negotiated during the formation of the business and codified in by-laws); each owner has one vote in the decision-making process. While co-ops often have a hierarchy of managers and workers, and pay differences similar to other businesses in their industry, for the decisions that are made by the collective, there is no power or status difference among employee-owners—"one voice, one vote."

Most cooperative businesses are built on a set of principles first codified in 1844 by the Rochdale Society of Equitable Pioneers in Rochdale, England, a group of individuals involved in the textile trades. These principles put worker-owners and community benefit at the core of the cooperative model by building local wealth, promoting worker training, creating pathways for continuity in local ownership, among other principles.[111] In 2019, there were approximately 240 co-ops operating across the state in industries including childcare, utilities (rural electrics), financial (credit unions), agriculture, housing, food, and arts and crafts.[112]

Internationally, the Mondragon Corporation, a federation of worker cooperatives based in the Basque region of Spain, has been held up as a prime example of a successful cooperative business model. Established in 1956, the worker-owned company has grown to employ nearly 82,000 workers across 98 cooperatives, 143 subsidiaries, and 10 umbrella organizations that cumulatively generated €12.22 billion in revenue and €420 million in investments in 2018.[113]

Bracing for the Silver Tsunami
The importance of employee ownership models is particularly important given the number of Baby Boomer (generally considered to be those born between 1946 and 1964) business owners nearing retirement. In 2019, there were 57,730 boomer-owned businesses in Washington, employing 571,420 employees, and generating $112.5 billion in sales, according to research from Project Equity.[114] With 60 percent of these owners planning to sell their business in the next decade, and only 15 percent having a succession plan in place, there is significant potential for negative economic consequences. This is particularly true for smaller communities less able to withstand the ripple effects of losing a significant business. Employee ownership provides a means to benefit both employees and owners,

---

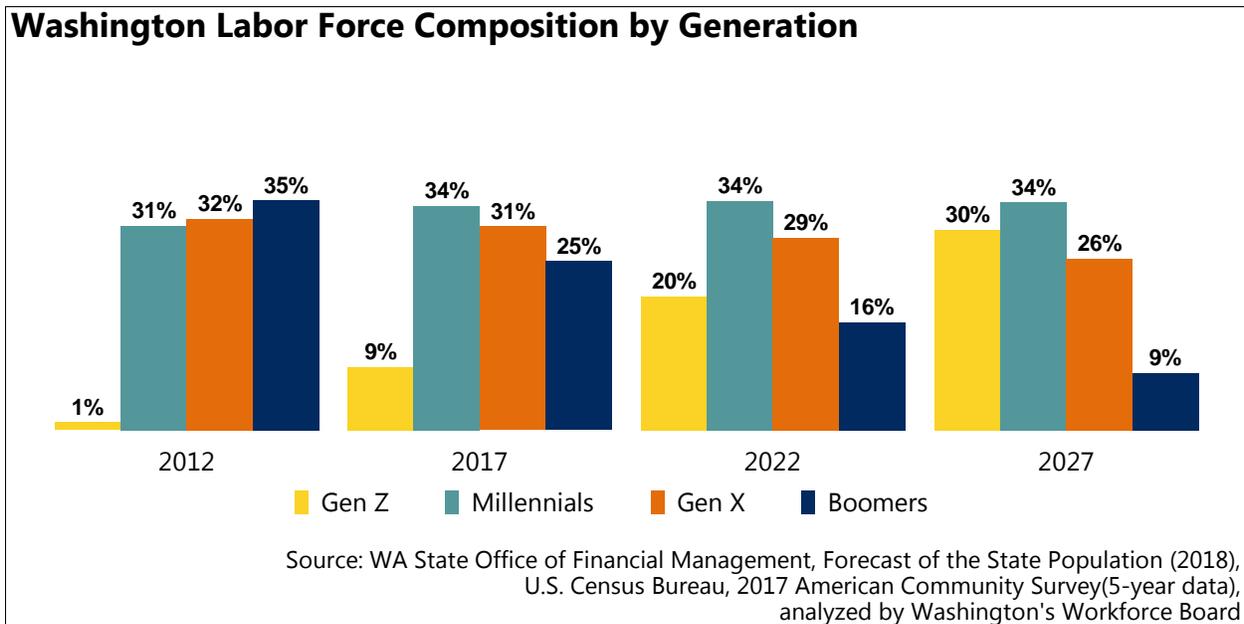[111] U.S. Federation of Worker Cooperatives. (2019). *What is a Worker Cooperative*. Retrieved November 6, 2019, from U.S. Federation of Worker Cooperatives: https://usworker.coop/what-is-a-worker-cooperative/

[112] Gasaway, D. (2019, July 11). Employee ownership and cooperatives. (J. Wilcox, Interviewer)

[113] Mondragon Corporation. (2019). *2018 Annual Report*. Mondragon: Mondragon Corporation.

[114] Project Equity. (2019). *Small Business Closures Washington State*. Retrieved September 10, 2019, from Project Equity: https://www.project-equity.org/communities/small-business-closure-crisis/washington-state/

Workforce
Training & Education Coordinating
Board

given that only 20 percent of businesses listed for sale ever sell, and one-third of business owners have a hard time finding a buyer.[115]

Washington Labor Force Composition by Generation

Source: WA State Office of Financial Management, Forecast of the State Population (2018),
U.S. Census Bureau, 2017 American Community Survey(5-year data),
analyzed by Washington's Workforce Board

Conclusion

Even as Washington leads the nation in economic growth, inequities persist across racial, gender, disability, and geographic divides.[116] The root causes of these rifts are varied, nuanced, and ultimately require analysis, interpretation, and solutions beyond the limited time available to the Task Force. The goal of the following policy recommendations and pilot projects envisioned in this policy area is to create new or additional economic and workforce development capacity to assist all of the state's residents and communities in charting their own courses into a prosperous future.

These policy recommendations are applicable to both rural and urban areas, although more populated areas are more likely to already have these resources in place. The Task Force strongly recommends prioritizing economic efforts for the rural regions across Washington that have not recovered since the Great Recession. These areas are also experienced at building community-wide public-private partnerships that can help leverage new resources and come together to solve society's toughest problems.

---

[115] See Project Equity. (2019). Reference 114.
[116] See "Annual Earnings by Gender, Race & Ethnicity" graph, page 26.

Policy Recommendations

1. Prioritize the use of economic, workforce and community development resources spent by the state to support and generate family wage jobs with a focus on rural vitality.
2. Continue funding rural broadband efforts and seek out similar initiatives that may constitute best practices in other areas of the nation.
3. Enlist libraries to become greater community training, credentialing, and entrepreneurship/small business development hubs.
4. Fund the development of accessible collaborative applied research (CAR) models that will bring two- and four-year college faculty and students together with small and midsize businesses and their workers to invent or adopt new technology or processes.
5. Reinstate a state office of employee ownership.

1. Prioritize the use of economic, workforce and community development resources spent by the state to support and generate family wage jobs with a focus on rural vitality.

State-funded efforts to attract or retain business should be clear about the goal of creating family-wage jobs and communicate this goal to prospects. Economic, workforce, and community development policies will need to be closely aligned to support the creation of and access to family-wage jobs across the state.

This could be done through the formation of a cross-agency work group to collaborate more effectively at state and local levels with a goal of creating living wage jobs and access to those jobs. This work group could establish a shared set of common goals and measures that can be used by economic, workforce, and community development sectors at both the state and local levels to make evidence-based decisions. Having reliable, shared data will allow for meaningful evaluation, impactful policy development and targeted investments of limited public resources.

Desired Outcome: Ensure state investments, whether funds, assistance or expertise, that support existing businesses, or the location or startup of new businesses, create or sustain family-wage jobs with benefits, and that underrepresented populations have access to those jobs. Investing in the creation of high-quality, high-wage jobs will generate more retail activity in the community, which in turn will also likely support existing businesses and the creation of more new businesses.

2. <u>Continue funding rural broadband efforts and seek out similar initiatives that may constitute best practices in other areas of the nation</u>.

SB 5511, which passed during the 2019 Legislative Session, devotes approximately $21 million to help bring broadband to more unserved and underserved areas. Once funding has been obligated, an analysis should be completed of remaining need and a recommendation put forth for adequate funding.

<u>Desired Outcome</u>: Provide equitable access to high-speed[117] internet at a reasonable cost, enabling universal access across the state to ensure that everyone can affordably access education, services, online job opportunities, information, and markets from anywhere.

3. <u>Enlist libraries to become greater community training, credentialing and entrepreneurship/small business development hubs</u>.

Develop and fund two to three pilot projects using rural and urban libraries that choose to focus on serving various underrepresented populations for training, education, and business development (e.g., tribes, dislocated workers, people with disabilities, formerly incarcerated people). Consider potential use of the library capital fund within the state's Capital Budget to support library pilots.

<u>Desired Outcome</u>: Ultimately the desired outcome is that libraries fill in education and training, and other service gaps, to provide access to recognized credentials that help people become employed, and address business development gaps that will help new businesses get started, and existing businesses to thrive. Libraries are already community hubs in both urban and rural areas. Libraries also offer high-speed internet and computers at virtually every location. Librarians are the quintessential navigators of information, and can support less technologically savvy individuals to use the internet effectively.

4. <u>Fund the development of accessible collaborative applied research (CAR) models that will bring college faculty and students together with businesses and their workers to invent or adopt new technology or processes</u>.

Beginning with one or two pilot projects, public higher education can test new models to make the talent of their faculty and students available to small and midsize businesses and their workers to engage in collaborative applied research.

This model would connect universities, community and technical colleges, and businesses, or a consortium of businesses, needing technical or research assistance to remain competitive. The Task Force recommends at least one of these pilot projects should focus on the manufacturing sector, and build on the work of the state's manufacturing extension program, Impact Washington, which has developed lasting relationships with small and

---

[117] High-speed internet is defined as at least 25 megabits per second (Mbps) download speed and 3Mbps upload.

midsize manufacturers across the state. Conditions also need to be included to ensure the economic benefits and jobs created by these projects remain in the state.

Desired Outcome: Pairing small and midsize businesses and their workers with students and faculty of the public higher education system in co-invested research will provide real-world experience for students and up-to-date industry information for faculty. Workers will be able to add their expertise and creativity to the research process and update their skills. By participating in this work, businesses will help create a well-prepared talent pipeline, in addition to affordably testing new ideas or solving important business problems.

This partnership would provide the technical assistance needed for advanced technology adaptations across industries that increases production, business profitability, and employment success. Projects may also result in updates to courses and curriculum options, such as certificate and degree options, at participating universities and colleges because of expertise gained by faculty in partnering with industry. This would further support the leadership and workforce needs of Washington's critical industries. The pilot programs are intended to serve as a proof of concept, which if successful, could be developed into a "pipeline" of business-college/university collaborative applied research projects that help businesses transform, while increasing innovation capacity in the higher education system.

5. Reinstate a state office of employee ownership.

The office would carry out work initiated by the legislature, but not sufficiently funded, through RCW 43.63A.230 regarding technical assistance and education programs for employee ownership. Funding should be allocated to re-start this program in partnership with a qualified non-profit. A dedicated staff person or persons should be tasked with employee ownership outreach statewide. Responsibilities of the office would include: providing technical assistance to both businesses and workers; disseminating information through the internet, brochures, and other materials; and working with the media to encourage stories on local employee ownership companies. The office would also work as a connection point linking financial institutions and businesses seeking financing options for employee ownership conversions.

Desired Outcome: Increasing business owner and employee awareness and buy-in of employee stock plans, employee ownership trusts, and cooperatives can help maintain business continuity where owners are planning or desiring to sell their companies as they approach retirement age. This would aid in succession models, particularly for businesses in rural areas, and has been shown in the majority of cases to generate greater income, wealth, retirement funds, and benefits for employee owners, regardless of race, gender, ability, and zip code.[118]

---

[118] National Center for Employee Ownership (NCEO). (2017). *Employee Ownerhip And Economic Well-Being.* Oakland, CA: National Center for Employee Ownership (NCEO)

Next Steps

Future of the Future of Work Task Force
Washington's legislature showed leadership and initiative to create and fund the state's Future of Work project and accompanying Task Force. This forward-looking investigation into automation, artificial intelligence, a rapidly changing workplace and economy, and their profound impacts on both workers and businesses, was the first of its kind in the nation.
What was discovered through this 15-month deep dive into research and reports, conversations with think tanks, and frank discussions among Task force members, is being watched throughout the U.S. and the world.

> **The Legislature has an opportunity to continue Washington's leading-edge look at what lies ahead by authorizing a 2nd generation Future of Work Task Force.**

What the future holds still isn't known. However, the Task Force, with the help of Workforce Board staff assigned to this project, has a better idea of what may be coming around the corner in the coming years. The Task Force's recommendations offer a mix of concrete steps and broad-stroke policy considerations to better prepare the state's workforce and businesses—and prime the pump for shared prosperity in a state that's known for innovation and excellence.

Future of Work Task Force 2.0
Yet there is more to explore, and do, than could be accomplished in a compressed time frame. The Task Force is set to sunset in June of 2020. Despite this fast-approaching deadline, several of the Task Force's policy recommendations require follow-up activities that stretch beyond this date. Others, such as reviewing the impacts of advanced technology among public-sector workers, involve several agencies and would benefit from an impartial, third-party evaluation from an independent task force.

The Task Force would like to continue this work to make progress on these and other key recommendations, and to conduct further study. The Task Force would also like to further engage state and local agencies and other organizations with connections to the workforce, education, and the economy.

In particular, the Task Force would leverage additional time to create a detailed "dashboard" that helps track and evaluate a wide range of Future of Work issues. A first-draft framework for this dashboard is being created right now and could be refined in the coming two years. Task Force members also expressed interest in continued research into effective models that bring workers and employers together, to the benefit of both, such as through employee ownership and worker cooperatives, and joint worker-management committees. The Task Force is also interested in projects that promote collaborative applied research, so that rural areas of the state have access to cutting edge technologies and up-to-date instructors and educational programs—and a ready supply of graduates to field test innovative ideas from Colville to Coupeville.

Government's role as a convener of diverse interests is critical. And while the legislature must prioritize competing interests and funding requests, at the end of the day, it's only through collective and collaborative thought and action that Washington, as well as the nation and world, can help solve this generation's challenges. The Task Force has done the hard work that comes from being first. A second chance at accomplishing all they set out to do will help Washington continue to lead.

Task Force Member Insights:

"My experience with the Task Force was eye opening. Having come from the private sector, and having worked mostly for larger Fortune 100 companies, I got a glimpse into the things that impact smaller businesses and employees of those businesses.

A few things became apparent, in my mind.

1. There is a lot of really great work in our state going on right now that supports the mission of the Task Force.

2. There remains a great need for a central body, like the Task Force, to make connections between the various efforts to ensure the overall mission is comprehensive.

3. All efforts pertaining to improved data are essential. With the emergence of big data and large scale analysis, it was clear that better data would have gone a long way towards improving our focus. It will be imperative to continue funding efforts to improve workforce trending data."

- Rich Rhodes, NY Life

Acknowledgements

This report would not have been possible without the help of many dedicated individuals who took a sincere interest in this work and provided guidance, resources, expertise and encouragement along the way.

Appreciation goes first to Governor Inslee and the 2018 Legislature for the foresight to create the Future of Work Task Force, and to former Senator Maralyn Chase, legislative prime sponsor, whose vision, grit, and effort made the Future of Work Task Force possible.

Within the governor's office thanks goes to John Aultman, Breann Boggs, Caitlyn Jekel, and Maddy Thompson.

The Future of Work Task Force members, each of whom has an already overburdened schedule, yet made the commitment to serve deserve special recognition for their engagement and involvement in the task force and its activities.

The Task Force was fortunate to have several national and state leaders in the future of work arena address the Task Force, either in person or via webinars.

We wish to thank all of those who took time to speak to the Task Force: Peter Creticos, Ph.D., CEO of the Institute of Work and the Economy; Jeffrey Brown, Manager, Future of Work and AI, Bertelsmann Foundation (remote); Dr. James Gaudino, President, Central Washington University; Dr. Liz Fountain, Central Washington University; Mark Mattke, CEO Spokane Workforce Council; Christie Anderson, Whitworth University; MaryAnne Braithwaite, Northwest Career Colleges Federation; Julie Garver, Council of Presidents; and Nate Humphrey, State Board for Community and Technical Colleges.

We wish to thank all of our participants on the Task Force's Credential Transparency and the State of Credentialing Today webinar: Scott Cheney, Executive Director, Credential Engine; Dane Linn, Vice President for Immigration, Workforce and Education, Business Roundtable, and Brad Markell, Executive Director, AFL-CIO Working for America Institute.

We wish to thank all of our participants in our employee ownership webinar: Tim Garbinsky, Outreach Coordinator for the National Council of Employee Ownership; Diane Gasaway; Executive Director, NW Cooperative Association; Mitch Miller, Executive Director, California Center for Employee Ownership, and Joey Nestegard, CFO, Schweitzer Engineering Labs.

We wish to thank Michael Lotito and team at Littler Mendelson's Workplace Policy Institute for including the Future of Work Task Force in its Emma Coalition inaugural event to focus attention on technology induced displacement of employees.

We wish to thank the leaders and staff of the following state agencies that provided valuable input and feedback during the Task Force deliberations: Department of Commerce, Department of Labor and Industries, Department of Vocational Rehabilitation, Employment Security Department, Health Care Authority, Secretary of State-Libraries, State Board for Community and Technical Colleges, and the Washington Student Achievement Council.

We also thank the many individuals and advocates who provided public comment, advice, and feedback to the Task Force.

Glossary

4th Industrial Revolution: The Fourth Industrial Revolution heralds a series of social, political, cultural, and economic upheavals that are unfolding over the 21st century. Building on the widespread availability of digital technologies that were the result of the Third Industrial, or Digital, Revolution, the Fourth Industrial Revolution is being driven largely by convergence of digital, biological, and physical innovations. (Encyclopedia Britannica, 2019)

Artificial Intelligence (AI): The ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. (Intelligent beings are those that can adapt to changing circumstances.) (Marr)

Automation

- Decision Automation – Digital intelligence platforms, image and video analysis.
- Design Automation – Continuous integration tools, code optimization.
- Human/machine Automation – Customer service robots, chatbots, intelligent assistants.
- Industry Automation – Inspection and surveillance robots, automated vehicles.
- Marketing Automation – Sales enablement automation, channel marketing automation.
- Process Automation – Robotic process automation (RPA), low-code development platforms.
- Technology Infrastructure Automation – Serverless infrastructure management, security automation.

(Forrester Researsch, 2019)

Career Bridge: An award-winning website created and maintained by the Workforce Board to help users discover their career interests and talents, view state labor market trends, evaluate thousands of Washington education programs and see whether graduates landed jobs, how much they earned, and which industries they went to work in, and locate resources to pay for education. (Workforce Training and Education Coordinating Board, 2019) .

Collaborative Applied Research (CAR): A research model that brings higher education and students together with businesses and their workers to invent or adopt new technology or processes.

Contract Workers (workers provided by contract firms): Workers who are employed by a company that provides them or their services to others under contract, are usually assigned to only one customer, and usually work at the customer's worksite. (Bureau of Labor Statistics, 2017)

Cooperative (Co-op): A business owned and controlled by those who use its services. In a co-operative, member-users finance and operate the business for their mutual benefit. Control is democratic, and earnings are distributed according to patronage provided by the members or retained in the business for overall member benefit. Cooperatives come in

many forms, including: agricultural, consumer, financial (credit unions), housing, producer, social, utility, and worker. (Northwest Cooperative Development Center, 2019)

Credential: A qualification, achievement, personal quality, or aspect of a person's background, typically when used to indicate that they have reached a level of expertise in something. Credentials include college degrees and non-degrees such as certificates, badges, micro-degrees, registered apprenticeships and other on-the-job training certifications. (Oxford English Dicitionary, 2019)

Credential Engine: A national nonprofit that was created to help consolidate and evaluate degree and non-degree credentials by publishing them to a national registry that allows users to collect, search, and compare credentials from across the country. (Credential Engine, 2018)

Credential Transparency: An idea being promoted nationally, funded primarily by the Lumina and JP Morgan Chase Foundations, to develop a standard credentialing taxonomy and language, and to build a national credential registry that would list and describe every credential in the national (and eventually international) marketplace. (Credential Engine, 2018)

Dashboard: An information management tool that visually tracks, analyzes and displays key performance indicators (KPI), metrics and key data points. They are customizable to meet the specific needs of a government or business entity. (Klipfolio)

Deep Learning: A class of machine learning algorithms that perform their tasks by layering connected processes on top of each other and exposing the processes to many examples. Common uses include computer vision, voice recognition and natural language processing.

Employee Stock Ownership Plans (ESOPs): An ESOP is a type of retirement plan, similar to a 401(k) plan, that invests primarily in company stock and holds its assets in a trust for employees. An ESOP may own 100 per cent of a company's stock, or it may own only a small percentage.

Family wage: An income level that is sufficient to support a family, including a dependent spouse and children, which allows for a satisfactory standard of living.

Freelancer: Adults aged 18 and over, who have engaged in supplemental, temporary, project- or contract-based work, within the past 12 months.

Gig Work: Income-earning activities outside of traditional, long-term employer-employee relationships. (Gig Economy Data Hub, 2019)

High School Equivalency (HSE): A recognized equivalent of a high school diploma. (US Department of Education, 2016)

High Speed Internet: High-speed internet is defined as at least 25 megabits per second (MBPS) download speed and 3 MBPS upload.

Incumbent Worker Training: Training designed to meet the special requirements of an employer (including a group of employers) to retain a skilled workforce or avert the need to lay off employees by assisting the workers in obtaining the skills necessary to retain employment, and conducted with a commitment by the employer to promote, retain or avert the layoff of the incumbent worker. (Legal Information Institute, 2019)

Independent Contractors: Workers who are identified as independent contractors, independent consultants, or freelance workers, regardless of whether they are self-employed or wage and salary workers. (Bureau of Labor Statistics, 2017)

Industrial Robot: A computerized machine, or system of machines, that is automated, programmable, and capable of movement on three or more axes. Typical applications include welding, painting, assembly, disassembly, packaging and labeling, palletizing, product inspection, and testing; all accomplished with high endurance, speed, and precision. (Forrester Researsch, 2019)

Lean Processes: A framework of principles used to drive improvements, increase effectiveness, deliver results, and create a culture that encourages respect, creativity, and innovative problem solving. (Results Washington, 2018)

Lifelong Learning Accounts (LiLA): An employee-owned educational savings account that helps pay for education and training expenses. In some companies, regular contributions by employees are matched by the employer. (Legal Information Institute, 2019)

Lifelong Learning Opportunities: Ongoing, voluntary, and self-motivated pursuit of knowledge for either personal or professional reasons. These efforts may enhance social inclusion, active citizenship, personal development, self-sustainability, competitiveness, and employability. (Legal Information Institute, 2019)

Living Wage: The minimum employment earnings necessary to meet a family's basic needs while also maintaining self-sufficiency. (Glasmeier, 2019)

Machine Learning: Machine learning is a set of techniques and algorithms that can be used to "train" a computer program to automatically recognize patterns in a set of data. (AI Now Institute, 2018)

Megabits Per Second (MBPS): A measurement of internet connectivity that refers to a system in which data speed is the same in both directions. This means having the same download and upload speeds concurrently.

Non-traditional Workers: Work that is typically not long-term or full-time employment, which includes freelancers, self-employed workers, contract workers, remote workers, and consultants. Often characterized by the receipt of IRS 1099 forms for income.

On-call Workers: Workers who are called to work only as needed, although they can be scheduled to work for several days or weeks in a row. (Bureau of Labor Statistics, 2017)

Portable Benefits: Benefits connected to a worker which they can maintain without interruption or loss of funding upon changing jobs or leaving a company for independent

Workforce
Training & Education Coordinating
Board

contractor work. These benefits arise from contributions by companies, workers, or a combination of both.

Postsecondary Education: Education that takes place after high school that includes 4-year colleges and universities, community colleges, certification programs, registered apprenticeship programs, and trade schools. Postsecondary educational institutions can be private non-profit, private for-profit, or state-funded.

Traditional Workers: Employment that is typically long-term or full-time and may include employee benefits. Usually characterized by the receipt of IRS W-2 forms for income.

Temporary Help Agency Workers: Workers who are paid by a temporary help agency, whether or not their job is temporary. (Bureau of Labor Statistics, 2017)

Upskill: Process of teaching workers new skills as technology affords new opportunities and new jobs which require specialized skillsets. By upskilling, the organization fills vacancies from their current workforce while creating development opportunities.

Workforce Development System: A system that encompasses the organizations and activities that prepare individuals for employment, helps workers advance in their careers, and ensures a skilled workforce.

Worker Support Systems: Benefits that are typically tied to employment status, such as unemployment insurance, workers' compensation, retirement plans, skills development, health insurance, and child care (including "near site" and subsidies).

Appendices

Appendix 1 – Stakeholder Engagement
The Task Force would like to sincerely thank the following individuals for their invaluable input, feedback, and perspectives related to the Future of Work:

Staff Stakeholder Engagement Meetings

Name	Organization
Abigail Solomon	SEIU Benefits Group
Advisory Board	Construction Center of Excellence
Alan Hardcastle	Washington State University, Energy Division
Alison Lingane	Project Equity
Andy Ferrera	Kinetic West
Brant Mayo	Grant Country Economic Development Council
Brian Kristjansson	Schweitzer Engineering Laboratories
Bruce Brooks	Craft 3
Cara Snow	Technology Association of Oregon
Carl E. Van Horn	John J. Heldrich Center for Workforce Development at Rutgers University
Carmel Martin	Emerson Collective
Carolina Young	U.S. Senator Mark Warner, Future of Work
Che Wong	Craft 3
Chelsea Mason	International Aerospace Machinist (IAM) Aerospace Machinists District 751
Chris Michael	Rutgers School of Management and Labor Relations
Colin Corbin	Accenture Health and Public Services
Cori Garcia Hansen	Washington State Allied Health Center of Excellence
Corinn Jackson	The Emma Coalition, Littler Mendelson Law Firm
Dan Stephens	Matson Fruit Company
Dan Zeitlin	Washington State Employment Security Department
David Jones	Microsoft
David McClure	Klickitat County Natural Resources
Denny Newell	Klickitat County Economic Development Authority
Diane Gasaway	Northwest Cooperative Development Center
Erika Hughes	Pearson Publishing
Gary Chandler	Association of Washington Business
Glenn Scott Davis	City of Seattle
Harald Becker	Microsoft
Heather Grob	St. Martin's University
Inger Brinck	Results Washington, Office of the Governor
Jeff Robinson	Washington State Employment Security Department, Labor Market and Economic Analysis Division
Jeffrey Brown	Bertelsmann Foundation North America
Jennifer Cargal	Seattle Public Library

Jennifer Fox	Foxbot Industries
Jennifer Peppin	Washington State Employment Security Department
Jeremy Wood	The Emma Coalition, Littler Mendelson Law Firm
Jerry Dileornardo	SPEEA Ed Wells Partnership
Jim West	University of Washington Tacoma
John A McNamara	Northwest Cooperative Development Center
John Holden	International Aerospace Machinist (IAM) Aerospace Machinists District 751
John Rico Sr., Jr.	Rico Computer Enterprises
Jon Kerr	Washington State Board for Community and Technical Colleges
Joshua Berger	Washington State Department of Commerce/Maritime Blue
Kai Feder	New Jersey Office of the Governor, Office of Innovation
Katherine Keegan	Washington State Department of Labor & Industries
Kelly Fukai	Schweitzer Engineering Laboratories
Kelly Lindseth	Washington State Employment Security Department
Kevin Cojanu	Pole Star Experiential Learning
Kim Dotto	BC Institute of Technology, Centre for Applied Research and Innovation
Larry Brown	Washington State Labor Council, AFL-CIO
Laura Hofmann	LeadingAge WA
Leah Jewell	Pearson Publishing
Liana Nativida	The Emma Coalition, Littler Mendelson Law Firm
Linc Kroger	Accenture Health and Public Services
Linda Feeney	SourceAmerica
Lindsey Williams	Agriculture & Natural Resource Center of Excellence
Lisa Kelley	Washington State Department of Labor & Industries
Maria B Nelson	SPEEA Ed Wells Partnership
Marie Bruin	Washington State Employment Security Department
Mark Clark	International Aerospace Machinist (IAM) Aerospace Machinists District 751
Matt Cropp	Vermont Employee Ownership Center
Matt Komperda	Teamsters Local 117
Matthew Houghton	City of Seattle
Mauri Ingram	Whatcom County Community Foundation
Melanie Kong	Floop
Michael Harold	WeWork
Michael Lotito	The Emma Coalition, Littler Mendelson Law Firm
Michele Cahill	XQ Institute
Ming-Li Chai	Microsoft
Mitchel Miller	California Center for Employee Ownership, Beyster Institute at UC San Diego's Rady School of Management
Peter Creticos	Institute for Work and the Economy
Renee Smith	Results Washington, Office of the Governor
Richard Hanover	Port of Moses Lake
Rob Hines	Department of Vocational Rehabilitation

Sally Zeiger Hanson	Washington State Board for Community and Technical Colleges
Sarah O'Sell	Pisquare.ai
Scott Michael	Washington State Employment Security Department
Scott Haas	Washington State Employment Security Department
Sean Murphy	Pacific Mountain Workforce Development Council
Senior staff	Workforce Snohomish
Shad White	Cloud Power
Shana Peschek	The Construction Center of Excellence at Renton Technical College
Shannon Meade	National Restaurant Association
Shawn Irvine	City of Independence, OR
Sofia Aragon	Washington Center for Nursing
Steven Ross	Washington State Employment Security Department
Sukanya Paciorek	Whatcom Community Foundation
Suzanne Swadener	Washington State Allied Health Center of Excellence
Suzi LeVine	Washington State Employment Security Department
Tim Probst	Washington State Employment Security Department
Timothy Garbinsky	National Center for Employee Ownership
Tom Fay	Seattle Public Library
Trent Fuller	Washington Fruit Company
Troy Goracke	Washington State Board for Community and Technical Colleges
Victoria Barrios	Rico Computer Enterprises
Vikram Modgil	Pisquare.ai
Wilford Saunders	Washington State Office of Privacy & Data Protection
William Durden	Washington State Board for Community and Technical Colleges

Appendix 2 – Outreach Events

Future of Work Outreach Events
* Bold indicates events where Workforce Board Future of Work staff gave presentations.

Bellevue Chamber Public Affairs Committee
Career and Technical Education Conference
Emergency Mgmt and Homeland Security Center of Excellence Advisory Board Meeting
Conference of Minority Transportation Officials Washington
Connect Tri-Cities
Construction Center of Excellence Advisory Board
Digital Government Summit
Future of Work Forum; Automation, AI, Oh My!
Future of Work Task Force & Los Angeles i-team
Ideagen Summit at Microsoft
LeadingAge WA
Littler Mendelson Conference, Employer General Session
Manufacturing Innovation Institute Research Forum
Microsoft NEXT Space
PacMountain Workforce Trends Forum
National Governor's Association (multiple events)
Northwest Cooperative Development Center Policy Roundtable
Politico AI Summit
Power in Purpose: Cooperative Policy Roundtable
Senate Economic Development Committee
Skillful State Network, Markle Foundation
Washington Economic Development Association Conference
Washington Rural Broadband Workshop
Washington State Allied Health Center of Excellence
Washington State Employment Security Department Economic Symposium
Washington State Libraries Broadband Symposium
Workforce Trends Forum

Appendix 3 – Incumbent Worker Training Programs
Customized Training Program[119]

Statutory Authority: State - RCW 28B.67. Administered by the State Board for Community and Technical Colleges.

Participation: 61 projects, 56 companies, and 2179[120] trainees were served by the Customized Training Program since its inception in 2006.

Business Eligibility: An eligible business must be: 1) located or locating in Washington and providing employment opportunities, 2) a Washington state Business & Occupation taxpayer, 3) able to contract with an eligible training provider for desired training, 4) in need of short-term employee training (less than 12 months).

Trainee Eligibility: Trainees may be prospective, new, or incumbent workers in the business.

Training Institution Eligibility: Eligible training institutions include Washington's 34 community and technical colleges as well as any private career school or college that is licensed by the Workforce Training and Education Coordinating Board or authorized by Washington Student Achievement Council.

Program Description and Purpose: The state Legislature created the Customized Training Program in 2006. The Legislature determined that customized training is critical to attracting and retaining businesses, and to improving the quality of life for workers and communities. The program reduces the costs of training to new and expanding firms by providing a tax credit equal to 50 percent of the cost of the training. A training institution delivers dedicated customized employee training as requested by the business. The level of customization ranges from existing training curriculum delivered at the job site to fully customized training curriculum developed exclusively for the business. Maximums of $3,000 per trainee for businesses with 50 or more employees and $6,000 per trainee for businesses with fewer than 50 employees are allowed.

Other Program Characteristics: A three-party contract is signed by the participating business, the training institution, and the State Board for Community and Technical Colleges (SBCTC). Funds are drawn by SBCTC from the Employee Training Finance Account and provided to the training institution as expenses are incurred. Upon completion of the training, the business is invoiced by SBCTC for repayment, and all repayment is deposited back into the Employment Training Finance Account (EFTA). SBCTC reports business repayments to the Department of Revenue monthly. Businesses repay the funds interest-

---

[119] State Website: https://www.sbctc.edu/colleges-staff/programs-services/customized-training/
[120] Includes employees currently in training.

Workforce
Training & Education Coordinating
Board

free over an 18-month period and claim tax credits equal to 50 percent of the amount as they repay. Credits earned in one calendar year may be carried over to a subsequent year.

Outcome Measures: From July 2006 to June 2009 participating businesses were required to add new jobs in Washington. The job growth requirement was the addition of three jobs for every four people trained (75 percent of the number of trainees). Job growth in each participating business was reported by the business one year after the training program was completed. Under this measurement, the additional job growth reported totals 231 new jobs. In 2009, the job growth metric was changed to "a good faith effort" to hire from the trainees. The collection of growth data was stopped.

Funding History: The Employment Training Finance Account is a revolving loan fund created for the Customized Training Program. The 2009 Legislature reduced the ETFA fund balance from its original level of $3,075,000 to $175,000. Payments on the previously funded loans, along with the remaining $175,000 brought the fund up to $280,000. In 2012, the Legislature passed a budget proviso depositing $200,000 in FY 2012 and $1.85 million in FY 2013 from existing appropriations into the ETFA. The 2013-15 State Budget eliminated $2 million from the ETFA. Currently, the fund operates with just over $330K for current and future projects.

Participation Trends: Participation in the program has been varied. Variances can be attributed to changes in the legislation, instabilities in levels of funding, and the fluctuations in the larger economic environment. Business participation went up when the job growth requirement was removed, but cuts in funding, coupled with the economic recession, brought it down to just two projects in 2013-14 and 2014-15 FY. Due to the cuts, SBCTC was not able to fund additional projects. As the payments on existing loans accumulated and economic environment improved, interest in the CTP and SBCTC's ability to utilize existing funding led to an increase in participation. Eight projects were funded in 2015-16, and another five in 2016-17, with at least four additional proposals in queue once more repayments come in.

Job Skills Program

The Job Skills Program (JSP) provides funding for customized, short-term and job-specific training for eligible businesses using dollar-for-dollar matching grants. Grants are awarded to educational institutions that partner with employers to undertake a JSP project. The participating employer must match the grant amount with cash or in-kind program support.

Intended Purposes of JSP
Job Skills Program projects must meet one or more of the following:

- Provides short-term training which has been designated for specific industries;
- Provides training for prospective employees before a new operation opens or when existing industry expands;
- Includes training or retraining for workers already employed to avoid dislocation, or where upgrading of existing employees would create new vacancies for unemployed persons;
- Serve an area with high concentrations of economically disadvantaged persons and high unemployment;
- Promotes the growth of industry clusters;
- Serves an area where there is a shortage of skilled labor to meet job demands;
- Promotes the location of new industry in areas affected by economic dislocation.

Funding Priorities

Priority for funding may be given to applications:

- Proposing training that provides college credit or leads to a recognized industry credential;
- From firms in strategic industry clusters as identified by the state or local area;
- Proposing coordination with other cluster-based programs or initiatives including but not limited to,

industry skill panels, centers of excellence, innovation partnership zones, state-supported cluster

growth grants, and local cluster-based economic development initiatives;

- From consortia of colleges or consortia of employers;
- Proposing increased capacity for education institutions that can be made available to industry and

students beyond the grant recipients;

- Providing a cash contribution to the project budget.

JSP Policies

1. Funding and Participation Cap – A single company's JSP award per fiscal year shall not exceed 10 percent of the annual appropriation. Individual company is eligible to receive a JSP grant no more than two times within a five year period.

2. Wage and Compensation – A goal of the JSP program is to support workforce training for businesses that provide wages resulting in earnings that support families and jobs that include an employer-paid health benefits package and opportunities for wage progression.

3. Company-based Instructors Reimbursed by JSP – JSP will allow funds to be used to reimburse company-based instructors provided there is clear evidence that training is not currently a function of the employee's job. The SBCTC also suggests that company-based instructors receive train-the-trainer instruction from an educational institution prior to conducting the JSP training.

4. Drug Testing – Drug testing cannot be used as a pre-screening device for admission into a JSP training project. A company with a pre-existing drug testing policy or with plans to administer a drug test shall agree that passing the drug test will not be a condition for enrollment into the JSP project.

5. Conflict of Interest – Educational institutions and their subcontractors will avoid organizational conflicts of interest and their staff will avoid personal conflicts of interest and the appearance of conflict of interest in disbursing JSP funds for any purpose, and in the conduct of procurement activities.

6. Workplace Basic Skills – The SBCTC authorizes the use of JSP funds for the development of workplace basic programs at employers' sites and for the development and delivery of customized workplace basic skills training as a component in a technical skills project. For the purposes of JSP, workplace basic skills training may include reading, writing, numeracy, computation, critical thinking/problem-solving skills, workplace ethics, and oral communication skills including vocational English-as-a-second language (ESL).

7. Subcontracting – In the event that the educational institution does not have the capacity or expertise to provide the training required by the project or the business partner has identified a preferred and qualified training provider, the educational institution may subcontract for training delivery. Colleges and businesses will exercise due diligence to ensure that training could not be delivered by a different provider more effectively or efficiently. Signed contracts must be in place before JSP-funded work can begin. For additional information on subcontracting, please see 2019-21 Job Skills Program Fiscal Guidelines, Subcontracting.

8. JSP Benefit to the College and Industry – When a significant portion of the training is delivered by a subcontractor, the educational institution must take steps to secure benefit of the state's JSP investment for the college/system or the greater industry. Plans for securing such benefits shall be included in the application. Benefits to the college and greater industry may include but are not limited to the following:

- Development of new curriculum that can be used outside the JSP project;
- Enhancement of existing curriculum that can be used outside the JSP project;
- Faculty development opportunities;
- Student enhancement opportunities (field trips, internships, job shadowing, etc.);
- Distance learning tools;
- Digital learning tools;
- Guest speakers (from the subcontractor or business) presenting to college classes, or industry Groups; and
- Creation of assessments, job aids, software, training models, etc. that can be used again

9. Project Start Date – Project start date denotes the date when work on the development of the application, including meeting with the company, planning of training activities, pre-training assessments, etc. commenced.

10. Project End Dates and Projects Spanning More Than One Fiscal Year – Large projects and projects that start late in the FY20 may need to continue into FY21. Because of the nature of state funds, carryover is allowed between the two years of the biennium, but all training must be completed by June 30, 2021.

Type of data	BLS Contingent Worker Supplement	RAND ASL	General Social Survey	IRS Tax Data	Survey of Household Economics and Decisionmaking	Freelancing in America	JP Morgan Chase Institute	McKinsey Global Institute
	Self-reported	Self-reported	Self-reported	Administrative	Self-reported	Self-reported	Administrative	Self-reported
Reference period	Past week	Past week	Past week	Past year	Past month	Past year	Past 36 months	Past year
Independent Worker Identification								
Identifies Specific Employers							✓	
Nature of Work					✓	✓		✓
Tax Status				✓				
Work Arrangements	✓	✓	✓		✓			
Arrangements and Activities Included								
Primary Work Only	✓	✓	✓		✓			
Supplementary Work	✓			✓				
Temp Agency Work	✓	✓	✓		✓	✓		✓
On-Call Work	✓	✓	✓					
Contract-Company Work	✓	✓	✓		✓	✓		
Independent Contractors	✓	✓	✓	✓	✓	✓	✓	✓
Some Traditional Arrangements								✓
Platform-Mediated Work	✓	✓	✓		✓	✓	✓	✓
Platform-Mediated Work ONLY							✓	
Informal Work					✓			✓
Some Capital Activities					✓		✓	✓
Sampling Population	Population	Population	Population	Tax Filers	Population	Workforce	Account Holders	Work-Age Population
Sampling Method	Probability sample	Reweighted online panel, random digit dialing, and snowball	Probability sample	Random sample of filings	Probability based online sample	Reweighted online panel	Saturation	Targeted electronic sampling
Collected By	BLS	RAND	NORC	Treasury Dept.	Federal Reserve	Edelman Intelligence	JP Morgan Chase Institute	McKinsey Global Institute

Source: Gig Economy Data Hub

Workforce
Training & Education Coordinating
Board

Bibliography

Acemoglu, D., & Pischke, J. (1999). Beyond Becker: Training in Imperfect Labour Markets. *The Economic Journal*, F112-F142.

Administration Wage Record Enhancement Study Group. (2015). *Enhancing Unemployment Insurance Wage Records Potential Benefits, Barriers, and Opportunities.* Administrative Wage Record Enhancement Study Group.

Administrative Wage Record Enhancement Study Group. (2015). *Enhancing Unemployment Insurance Wage Records: Potential Benefits, Barriers,and Opportunities.* Workforce Information Council.

AI Now Institute. (2018, October). *Algorithmic Accountability Policy Toolkit* . Retrieved November 10, 2019, from AI Now: https://ainowinstitute.org/aap-toolkit.pdf

Alliance, T. C. (2018). *Spring 2018 Report of Strategic Actions.* Olympia: Thurston Community Economic Alliance.

Andreason, S. (2016). *Developing Career-Based Training.* Atlanta: Federal Reserve Bank of Atlanta.

Anthony Carnevale, N. R. (2019). *Upskilling and Downsizing in American Manufacturing.* Washington D.C.: Georgetown University Center on Education and the Workforce.

Arntz, M., Gregory, T., & Zierahn, U. (2016). *The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis.* Paris: OECD.

Bernstein, J. (2016). *Employee Ownership, ESOP, Wealth, and Wages.* Washinton DC: Employee-Owned S Corporations of America.

Bivens, J., Gould, E., Mishel, L., & Shierholz, H. (2014). *Raising America's Pay.* Washington DC: Economic Policy Institute.

Board of Governors of the Federal Reserve System. (2019). *Report on the Economic Well-Beingof U.S. Households in 2018.* Washington, DC: Federal Reserve Board .

Broadband Internet Service Access. (2019). SB 5511. 66th Legislature Regular Sess.

BroadbandNow. (2018, December 3). *Internet access in Washington*. Retrieved December 3, 2018, from BroadbandNow: https://broadbandnow.com/Washington

BroadbandNow. (2018, December 12). *Internet Access in Washington*. Retrieved December 12, 2018, from Broadband Now: https://broadbandnow.com/Washington

Bureau of Labor Statistics,. (2017). *Contingent and Alternative Employment Arrangements.* Washington DC: U.S. Department of Labor.

Workforce
Training & Education Coordinating
Board

Bureau of Labor Statistics,. (2018, February 22). *Hawaii and New York had highest union membership rates, the Carolinas the lowest.* Retrieved November 20, 2019, from The Economics Daily: https://www.bls.gov/opub/ted/2019/hawaii-and-new-york-had-highest-union-membership-rates-the-carolinas-the-lowest-in-2018.htm

Business Roundtable. (2019). *Business Roundtable Redefines the Purpose of a Corporation to Promote 'An Economy That Serves All Americans'.* Retrieved August 20, 2019, from Business Roundtable: https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans

Business Roundtable. (2019). *Our Committment.* Retrieved November 27, 2019, from Business Roundtable: https://opportunity.businessroundtable.org/ourcommitment/

Career Connect Washington. (2019). *Career Connect Washington.* Retrieved from Career Connect Washington: https://careerconnectwa.org/

Chamber of Commerce. (2019, December 2). *Student Loan Statistics.* Retrieved from Chamber of Commerce: https://www.chamberofcommerce.org/student-loan-statistics/

Conway, M., Blair, A., & Gibbons, C. (2003). *Investigating Demand Side Outcomes: Literature Review and Implications.* Washington D.C.: The Aspen Institute.

Creating a workforce education investment to train Washington students for Washington jobs. (2019). *E2SHB 2158.* 66th Legislature, Regular Sess.

Credential Engine. (2018). *About Us.* Retrieved November 26, 2019, from Credential Engine: https://credentialengine.org/about/

Credential Engine. (2018). *Counting U.S. Secondary and Postsecondary Credentils, A Credential Engine Report.* Washington DC: Credential Engine.

Daly, M., Hobijn, B., & Pyle, B. (2016, March 7). *FRBST Economic Letter.* Retrieved December 11, 2018, from Fedral Reserve Bank of San Francisco: https://www.frbsf.org/economic-research/publications/economic-letter/2016/march/slow-wage-growth-and-the-labor-market/

Desilver, D. (2018, August 7). *For most U.S. workers, real wages have barely budged in decades.* Retrieved December 10, 2018, from Pew Research Center: http://www.pewresearch.org/fact-tank/2018/08/07/for-most-us-workers-real-wages-have-barely-budged-for-decades/

DiLeonardo, J. (2019, June 18). Program Administrator, Ed Wells Partnership. (J. Wilcox, Interviewer)

Economist Intelligence Unit. (2018). *The Automation Readiness Index: Who is Ready For the Coming Wave of Automation?* London: Economist Intelligence Unit.

Economist Intelligence Unit. (2019). *Scaling Up: The Potential Economic Impact of Artificial Intelligence in the UAE and Saudi Arabia.* London: Economist Intelligence Unit.

Edelman Intelligence. (2019). *Freelancing in America: 2019.* Upwork.

Emergent Research. (2017). *Dispatches From the New Economy: The On-Demand Workforce.* Mountain View: Intuit.

Emilie Jackson, A. L. (2017). *The Rise of Alternative Work Arrangements: Evidence and Implications for Tax Filing and Benefit Coverage.* Washington DC: Office of Tax Analysis.

Encyclopedia Britannica. (2019). *The Fourth Industrial Revolution*. Retrieved November 25, 2019, from Encyclopedia Britannica: https://www.britannica.com/topic/The-Fourth-Industrial-Revolution-2119734

Eurofound. (2019, October 10). *France: Employers Obligation to Provide Skill Development Plans or Training.* Retrieved November 5, 2019, from European Monitoring Center on Change: https://www.eurofound.europa.eu/observatories/emcc/erm/legislation/france-employers-obligation-to-provide-skill-development-plans-or-training

Farrell, D., Greig, F., & Hamoudi, A. (2018). *The Online Platform Economy in 2018: Drivers, Workers, Sellers and Lessors.* Washington DC: JP Morgan Chase Institute.

Federal Communications Commission (FCC). (2018). *2018 Broadband Deployment Report.* Washington D.C.: Federal Communications Commission.

FCC (2018, December 11). *Fixed Broadband Deployment*. Retrieved December 11, 2018, from Broadband Map: https://broadbandmap.fcc.gov/#/area-summary?version=jun2017&type=state&geoid=53&tech=acfosw&speed=25_3&vlat=47.60619807069543&vlon=-121.19547639569373&vzoom=6.195654404751053

Fitzpayne, A., & Pollack, E. (2017). *Worker Training Tax Credit: Promoting Employer Investments in the Workforce.* Washington DC: The Aspen Instutue.

Flow Simulation Limited. (2018). *calculator.org*. Retrieved November 25, 2019, from calculator.org: https://www.calculator.org/

Fontenot, K., Semega, J., & Kollar, M. (2018). *Income and Poverty in the United States: 2017*. Washington DC: U.S. Census Bureau.

Forrester Researsch, Inc. (2019). *Future of Work.* Cambridge, MA: Forrester Researsch, Inc.

Fountaine, T., McCarthy, B., & Saleh, T. (2019, July-August). Building the AI-Powered Organization. *Harvard Business Review*, pp. 62-73.

Frey, C., & Osborne, M. (2013). *The Futre of Employment: How Susceptible are Jobs to Computerisation?* Oxford: Oxford Martin School.

Future of Work Task Force. (2018). SB 6544. 65th Legislative Session, Regular Sess.

Gambino, L. (2019, June 24). *Bernie Sanders unveils plan to eliminate $1.6tn in student loan debt*. Retrieved October 21, 2019, from The Guardian: https://www.theguardian.com/us-news/2019/jun/24/sanders-student-loan-debt-plan

Gasaway, D. (2019, July 11). Employee ownership and cooperatives. (J. Wilcox, Interviewer)

Gig Economy Data Hub. (2019). *What is a gig worker?* Retrieved November 26 2019, 2019, from Gig Economy Data Hub: https://www.gigeconomydata.org/basics/what-gig-worker

Glasmeier, A. (2019). *Living Wage Calculator.* Retrieved November 25, 2019, from Living Wage Calculator: https://livingwage.mit.edu/states/53/locations

Goldberg, C. A. (2007). *Citizens and Paupers: Relief, Rights, and Race, from the Freedmen's Bureau to Workfare.* Chicago: University of Chicago Press.

Goldin, C. (1998). America's Graduation From High School: The Evolution and Spread of Secondary Schooling in the Twentieth Century. *Journal of Economic History*, volume 58, number 2.

Goodman, P. (2017, December 27). The Robots Are Coming, and Sweden is Fine. *New York Times*.

Gould, E. (2018). *The State of American Wages.* Wasington DC: Economic Policy Institute.

Hart, C. (2017). *The effects of career and technical education on high school graduation rates in New Jersey.* Glassboro: Theses and Dissertations.

Haughwout, A., Lee, D., Scally, J., & Van Der Klaauw, W. (2019, October 9). *Who Borrows for College—and Who Repays?* Retrieved October 21, 2019, from Federal Reserve Bank of New York: https://libertystreeteconomics.newyorkfed.org/2019/10/who-borrows-for-collegeand-who-repays.html

Holden, J. (219, June 14). President IAM Local 751. (J. Wilcox, Interviewer)

Independent Advisory Panel of the National Assessment of Career and Technical Education. (2014). *Putting "career" in "college and career ready": The report of the Independent Advisory Panel of the National Assessment of Career and Technical Education,.* Washington DC: National Assessment of Career and Technical Education.

International Federation of Robotics. (2019). *World Robotics 2019 Industrial Robots.* Frankfurt: International Federation of Robotics.

Jackson, E., Looney, A., & Ramnath, S. (2017). *The Rise of Alternative Work Arrangements: Evidence and Implications for Tax Filing and Benefit Coverage.* Washington DC: U.S. Department of Treasury.

James Manyika, M. C. (2017). *A Future That Works: Automation, Employment, and Productivity.* MiKinsey Global Institute.

James Manyika, S. L. (2016). *Independent Work: Choice, Necessity, and the Gig Economy.* Washington DC: McKinsey Global Institute.

Kahan, J. (2019, April 8). *It's time for a new approach for mapping broadband data to better serve Americans*. Retrieved November 15, 2019, from Microsoft: https://blogs.microsoft.com/on-the-issues/2019/04/08/its-time-for-a-new-approach-for-mapping-broadband-data-to-better-serve-americans/

Kaiser Permanente. (2019). *2018 Alliance National Agreement.* Retrieved November 4, 2019, from Labor Management Partnership: https://www.lmpartnership.org/2018-alliance-national-agreement

Katz, R. (2012). *Impact of Broadband on the Economy.* Geneva: International Telecommunication Union.

Kirkpatrick, D. L., & Kirkpatrick, J. (2006). *Evaluating Training Programs: The Four Levels.* San Francisco: Berrett-Koehler Publishers.

Klingel, S., & Lipsky, D. (2013). *Employer Motivations for Participation in Multi-Employer Labor-Management Health Care Worker Training Programs.* Ithaca: Cornell University.

Krueger, A., & Katz, L. (2019). *Understanding Trends in Alternative Work Arrangements in the United States.* Cambridge, MA: National Bureau of Economic Research.

Krueger, A., & Katz, L. (2016). *The Rise and Nature of Alternative Work in the United States, 1995-2015.* Princeton, NJ: Princeton University

Krugman, P. (1998). *What's New About The New Economic Geography.* Oxford: Oxford University Press.

Kruse, D., & Blasi, J. (2019). *Building the Assets of Low and Moderate Income Workers and theiir Families: The Role of Employee Ownership.* New Brunswick, NJ: Rutgers School of Management and Labor Relations.

Ladika, S. (2008). *Learning Lasts a Lifetime.* Washington D.C. : Society for Human Resource Management.

Lazes, P., Figueroa, M., & Katz, L. (2012). *How Labor-Management Partnerships Improve Patient Care, Cost Control, and Labor Relations.* Ithaca: Cornell University.

Legal Information Institute. (2019). *What is Incumbent Worker Training.* Retrieved November 26, 2019, from Legal Information Institute: https://www.law.cornell.edu/cfr/text/20/680.790

Lewis, L. G. (2018). *Career and Technical Education Programs in Public School Districts: 2016-2017: First Look.* Washington DC: National Center for Education Statistics.

Lifelong Learning Accounts Act of 2008. (2008). H.R. 6036. 110th Congress. 2nd Sess.

Lifelong Learning and Training Account Act of 2018. (2018). H.R. 6250. 115th Congress. 2nd Sess.

Little Hoover Commission. (2018). *Artificial Intelligence: A Roadmap for California; Report #245.* Sacramento: Little Hoover Commission.

Louise Kaplan, J. G. (2018). *2018 Washington State Advanced Registered Nurse Practiioner Survey Data Report.* Olympia: Washington Center for Nursing.

Manyika, J., Lund, S., Bughin, J., Robinson, K., Mischke, J., & Mahajan, D. (2016). *Independent Work: Choice, Necessity, and the Gig Economy.* Washington DC: McKinsey Global Institute.

Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., . . . Sanghvi, S. (2017). *Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation.* New York: McKinsey Global Institute.

Marr, B. (2018, February 14). *The Key Definitions Of Artificial Intelligence (AI) That Explain Its Importance*. Retrieved from Forbes: https://www.forbes.com/sites/bernardmarr/2018/02/14/the-key-definitions-of-artificial-intelligence-ai-that-explain-its-importance/#4db42e264f5d

Maryland House of Representatives, H. E. (2019, February 26). Support for the Workforce Data Act of 2019. *Testimony from Jenna Levenoff, policy analyst for th National Skills Coalition*.

Massachusetts Budget and Policy Center. (2018, September 6). *Analyzing the State Budget for FY 2019*. Retrieved December 2, 2019, from Massachusetts Budget and Policy Center: http://massbudget.org/report_window.php?loc=Analyzing-the-State-Budget-for-FY-2019.html

MBO Partners. (2018). *The State of Independence in America*. Herndon: MBO Partners.

McKay, C., Pollack, E., & Fitzpayne, A. (2019). *Automation and a Changing Economcy: Policies for a Shared Prosperity*. Washington D.C.: The Aspen Institute.

McKinsey Global Institute. (2018, October 1). *Technical automation potential and wages for US jobs by state and metropolitan statistical area*. Retrieved October 17, 2019, from Automation and US Jobs: https://public.tableau.com/profile/mckinsey.analytics#!/vizhome/AutomationandUSjobs/Technicalpotentialforautomation

Mckinsey Global Institute. (2019). *The Future of Work in America: People and Places, Today and Tomorrow*. Mckinsey Global Insitute.

Mondragon Corporation. (2019). *2018 Annual Report*. Mondragon: Mondragon Corporation.

Muro, M., Maxim, R., & Whiton, J. (2019). *Automation and Artificial Intelligence: How machines are affecting people and places*. Washington DC: The Brookings Institution.

Nadworny, E., & Dewitt, J. (2018, May 25). *National Public Radio*. Retrieved from National Public Radio: https://www.npr.org/2018/05/25/614315950/why-is-undergraduate-college-enrollment-declining

National Center for Employee Ownership (NCEO). (2017). *Employee Ownerhip And Economic Well-Being*. Oakland: National Center for Employee Ownership (NCEO).

National Center for Employee Ownership. (2016). *Economic Growth Through Employee Ownership*. Economic Growth Through Employee Ownership.

National Student Clearinghouse Research Center. (2019). *Term Enrollment Estimates Spring 2019*. Herndon, VA: National Student Clearinghouse Research Center.

Nedelkoska, L., & Quintini, G. (2018). *Automation, skill use and training*. Paris: OECD Social, Employment and Migration Papers, No. 202.

Northwest Cooperative Development Center. (2019). *Co-op info*. Retrieved November 25, 2019, from Northwest Cooperative Development Center: https://nwcdc.coop/

OECD. (2018). *Job Creation and Local Economic Development 2018: Preparing for the Future of Work*. Paris: OECD.

Workforce
Training & Education Coordinating
Board

Oxford English Dictionary. (2019). *Oxford English Dictionary*. Retrieved November 22, 2019, from Oxford English Dictionary: https://www.oed.com/

Ozimek, A. (2019). *Freelancing and the Economy in 2019*. Retrieved November 12, 2019, from Upwork: https://www.upwork.com/press/economics/freelancing-and-the-economy-in-2019/

Pacific Northwest Regional Economic Analysis Project. (2019). *Washington Regional Economic Analysis Project*. Retrieved October 29, 2019, from Washington Regional Economic Analysis Project: https://washington.reaproject.org/

Pollack, A. F. (2018). *Lifelong Learning and Training Accounts: Helping Workers Adapt and Succeed*. Washington D.C.: The Aspen Institute.

Project Equity. (2019). *Small Business Closure Crisis in Washington State*. Retrieved October 22, 2019, from Project Equity : https://www.project-equity.org/communities/small-business-closure-crisis/washington-state/

Project Equity. (2019). *Small Business Closures Washington State*. Retrieved September 10, 2019, from Project Equity: https://www.project-equity.org/communities/small-business-closure-crisis/washington-state/

Regional Economic Analysis Project. (2018, November 19). *2010 vs 2017 Per Capita Income Grwoht and Change*. Retrieved November 19, 2018, from Washington Regional Economic Analysis Project: https://washington.reaproject.org/

Regional Economic Analysis Project. (2018, November 15). *2010 vs. 2017 Per Capita Personal Income Growth and Change*. Retrieved February 22, 2019, from Washington Regional Economic Analysis Project: https://washington.reaproject.org/analysis/comparative-indicators/year_vs_year/per_capita_personal_income/reports/2010/2017/530067/

Regional Economic Analysis Project. (2018, November 15). *2010 vs. 2017 Total Industry Earnings Growth and Change*. Retrieved February 22, 2019, from Washington Regional Economic Analysis Project: https://washington.reaproject.org/analysis/comparative-indicators/year_vs_year/total_industry_earnings/reports/2010/2017/530067/

Regional Economic Analysis Project. (2018, November 15). *Shift-Share Analysis of Employment Growth Thurston County, 2010-2017*. Retrieved February 22, 2019, from Washington State Regional Economic Analysis Project: https://washington.reaproject.org/analysis/shift-share/reports/530067/2010/2017/

Purdy, M., & Daugherty, P. (2016). *Why AI is the Future of Growth*. New York, NY: Accenture Institute for High Performance.

Reisman, D., Schultz, J., Crawford, K., & Whittaker, M. (2018, April). *Algorithmic Impact Assessments: A Practical Framework For Public Agency Accountability*. Retrieved November 10, 2019, from AI Now: https://ainowinstitute.org/aiareport2018.pdf

Restrepo, P., & Acemoglu, D. (2017). *Robots and Jobs: Evidence from US Labor Markets*. Cambridge: National Bureau of Economic Research.

Results Washington. (2018). *Lean Resources*. Retrieved November 18, 2019, from Results
Washington: https://results.wa.gov/improving-government/lean/lean-resources

Rhee, N. (2013). *Race and Retirement Insecurity in the United States*. Washington DC: National
Institue on Retirement Security.

Rhee, N. (2013). *The Retirement Crisis: Is it Worse Than We Think?* Washington DC: National
Institute on Retirement Security.

Rieke, M. B. (2018). *Help Wanted: An Examination of Hiring Algorithms, Equity, and Bias.*
Washington DC: Upturn.

Robert Atkinson, D. C. (2009). *The Digital Road to Recovery: A stimulus Plan to CReate Jobs, Boost
Productivity and Revitalize America.* Washington DC: Information Technology and
Innovation Foundation.

Robert Crandall, W. L. (2007). *The Effects of Broadband Deployment on Output and Employment:
A Cross-sectional Analysis of U.S. Data.* Washington DC: The Brookings Institution.

Rutgers School of Management and Labor Relations. (2019, May 24). *Rutgers School of
Management and Labor Relations*. Retrieved November 17, 2019, from Rutgers:
https://smlr.rutgers.edu/news/72-percent-republicans-74-percent-democrats-agree-
they-prefer-work-employee-owned-company-study-finds

Skills Investment Act of 2013. (2013). H.R.1939. 113th Congress, 1st Sess.

SkillsFuture. (2018, February 15). *SkillsFuture: 2017 Year in Review*. Retrieved November 5, 2019,
from SkillsFuture: https://www.myskillsfuture.sg/content/portal/en/about/about-
myskillsfuture/2018-press-releases/2018-year-in-review.html

SkillsFuture Singapore. (2019, February 19). *SkillFuture: 2018 Year in Review*. Retrieved
November 5, 2019, from SkillFuture Singapore:
https://www.myskillsfuture.sg/content/portal/en/about/about-myskillsfuture/2019-press-
releases/-11-2-2019--skillsfuture-2018-year-in-review.html

Smith, A. (2016). *Gig Work, Online Selling and Home Sharing.* Washington DC: Pew Research
Center.

Society for Human Resource Management. (2016). *SGRM/ Mercer Survey Findings: Entry-Level
Applicant Job Skills.* Alexandria: SHRM.

State Science & Technology Institute. (2018). *About SSTI*. Retrieved November 27, 2019, from
State Science & Technology Institute: https://ssti.org/aboutSSTI

Steven J. Davis, J. H. (2019). *The Economic Effects of Private Equity Buyouts.*
http://dx.doi.org/10.2139/ssrn.3465723 .

Strada Institute. (2019). *Robot Ready: Human + Skills For the Future of Work.* Strada Institute.

Susan Fleck, J. G. (2011). The compensation-productivity gap:. *Monthly Labor Review*, 59.

Susan Lund, J. M. (2019). *The future of work in America: People and places, today and tomorrow.*
Washington DC: McKinsey Global Institute.

Workforce
Training & Education Coordinating
Board

Board of Governors of the Federal Reserve System. (2019). *Report on the Economic Well-Beingof U.S. Households in 2018.* Washington DC: U.S. Federal Reserve Board.

Board of Governors of the Federal Reserve System. (2019, September 9). *Student Loans Owned and Securitized, Outstanding (SLOAS)*. Retrieved October 21, 2019, from Federal Reserve Bank of St. Louis: https://fred.stlouisfed.org/series/SLOAS

Tassey, G. (2019). *Economic Rationale for a State Technology-Based Development Initiative.* Seattle, WA: Economic Policy Research Center, University of Washington.

The Council for Adult & Experiential Learning. (2007). *Changing Lives through Lifelong Learning Accounts.* Chicago, Ill: The Council for Adult & Experiential Learning.

U.K. Office for Artificial Intelligence. (2019, September 20). *Guidance Draft Guide for AI Procurement*. Retrieved November 13, 2019, from GOV.UK: https://www.gov.uk/government/publications/draft-guidelines-for-ai-procurement/draft-guidelines-for-ai-procurement

U.S. Bureau of Labor Statistics National Compensation Survey. (2018). *Employment Cost Index Historical Listing - Volume IV.* Washington D.C.: Bureau of Labor Statistics.

U.S. Federation of Worker Cooperatives. (2019). *What is a Worker Cooperative*. Retrieved November 6, 2019, from U.S. Federation of Worker Cooperatives: https://usworker.coop/what-is-a-worker-cooperative/

U.S. Census Bureau. (2017). Public Use Microdata Sample Documentation. *U.S. Census Bureau; American Community Survey (ACS), One-Year Public Use Microdata Sample (PUMS), 2000-2017*. Retrieved from https://www.census.gov/programs-surveys/acs/technical-documentation/pums.html

U.S. Department of Education. (2016, June 8). *Program Integrity Questions and Answers - High School Diploma*. Retrieved November 26, 2019, from U.S. Department of Education: https://www2.ed.gov/policy/highered/reg/hearulemaking/2009/hsdiploma.html#red

Wallace, D., Dula, C., Smith, R., Hardcastle, A., McCall, J., & Allen, T. (2018). *Outdoor-Industry Jobs: A Ground Level Look at Opportunities in the Agriculture, Natural Resources, Environment, and Outdoor Recreation Sectors.* Olympia, WA: Washington State Workforce Training and Education Coordinating Board.

Walmart Foundation. (2019). *America at Work' A national Mosaic and Roadmap for Tomorrow.* Walmart, Inc.

Washington State Board for Community and Technical Colleges. (2018). *2017-19 Job Skills Program: Progress Report to the Legislature.* Olympia, WA: SBCTC.

Washington State Board for Community and Technical Colleges. (2019). *Customized Training Program: Program Guidlines.* Olympia, WA: SBCTC.

Washington State Board for Community and Technical Colleges. (2019, August 8). *Enrollment Data Dashboard*. Retrieved November 5, 2019, from SBCTC: https://www.sbctc.edu/colleges-staff/research/data-public/enrollment-data-dashboard.aspx

Washington State Board for Community and Technical Colleges. (2019). *High School 21+ Outcomes.* Olympia, WA: SBCTC.

Washington State Department of Commerce. (2018). *Request For Proposal Independent Contractor Study – Labor Market Research and.* Olympia, WA: Washington State Department of Commerce.

Washington State Department of Revenue. (2018). *Local Sales and Use Tax Rats and Changes.* Olympia, WA: Washington State Department of Revenue.

Washington State Department of Revenue. (2019, February 22). *Taxable Retail Sales*. Retrieved February 22, 2019, from Washington State Department of Revenue: http://apps.dor.wa.gov/ResearchStats/Content/TaxableRetailSalesLocal/Report.aspx

Washington State Employment Security Department. (2018). *2018 Labor Market and Economic Report.* Olympia: Washington State Employment Security Department.

Washington State Employment Security Department. (2019). *2019 Employment Projections.* Olympia: Washington State Employment Security Department.

Washington State Employment Security Department. (2019, April 25). *Distressed area list*. Retrieved November 14, 2019, from Employment Security Department: https://esd.wa.gov/labormarketinfo/distressed-areas

Washington State Employment Security Department. (2019, November 14). *Learn About an Occupation*. Retrieved from Washington State Employment Security Department: https://www.esd.wa.gov/labormarketinfo/LAAO

Washington State Library. (2019). *LinkedIn Learning with Lynda.com at the State Library*. Retrieved from Washington State Library: https://www.sos.wa.gov/library/lyndalinkedin.aspx

Washington State Office of Financial Management. (2019, May 21). *New IT classification & compensation restructure to take effect July 1*. Retrieved December 3, 2019, from Washington State Office of Financial Management: https://ofm.wa.gov/about/news/2019/05/new-it-classification-compensation-restructure-take-effect-july-1

Washington State Workforce Training and Education Coordinating Board. (2012, November 2). *Lifelong Learning Account Program Overview.* Retrieved November 11, 2019, from YouTube: https://www.youtube.com/watch?v=sP3osdskcVY&feature=youtu.be

Washington State Workforce Training and Education Coordinating Board (2019). *Career Bridge*. Retrieved November 26, 2019, from Washington Career Bridge: http://www.careerbridge.wa.gov/

Washington State Workforce Training and Education Coordinating Board. (2019, October 19). *Customized Training Program*. Retrieved November 4, 2019, from Workforce Training and Education Coordinating Board: https://www.wtb.wa.gov/planning-programs/washington-workforce-system/

World Economic Forum. (2018). *World Development Report (WDR) 2019: The Changing Nature of Work*. Washington DC: World Bank.

Wiefek, N. (2017). *Employee Ownership & Economic Well-Being:Household Wealth, Job Stability, and Employment Quality among Employee-Owners Age 28 to 34*. Oakland, CA: National Center for Employee Ownership.

Wilcox, J & McMurran, L. (2018). *Plan of Action for 2019: Exploring and Developing Policies to "Future Proof" Washington's Workers and Businesses*. Olympia: Workforce Training and Education Coordinating Board.

World Economic Forum. (2016). *The Future of Jobs. Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*. Geneva: World Economic Forum.

World Economic Forum and McKinsey Company Institute. (2019). *Fourth Industrial RevolutionBeacons of Technology and Innovation in Manufacturing*. Geneva: World Economic Forum.