



ECONorthwest

ECONOMICS • FINANCE • PLANNING

February 2022

Redefining Economic Success
in Washington State:

3 KEYS TO QUALITY GROWTH

Acknowledgement

In 2021, the Washington State Legislature commissioned a comprehensive business competitiveness analysis of the state's economy by the Legislative Committee on Economic Development and International Relations (LCEDIR), to be administered by the Office of the Lieutenant Governor. This report is the result of that effort produced through a collaborative process involving numerous contributors.

We would like to acknowledge the substantial contributions and guidance that the Lieutenant Governor's office provided throughout this process.



Lieutenant Governor Denny Heck

David Bremer, Director of Policy and International Relations

Phil Gardner, Chief of Staff

We would also like to thank the LCEDIR committee members for their insights and contributions:

- Representative **Liz Berry**
- Senator **Sharon Brown**
- Representative **Keith Goehner**
- Senator **Bob Hasegawa**
- Senator **Curtis King**
- Representative **Debra Lekanoff**
- Senator **Ann Rivers**
- Senator **Christine Rolfes**
- Representative **Amy Walen**
- Senator **Lisa Wellman**
- Representative **J.T. Wilcox**
- Representative **Alex Ybarra**



ECONorthwest is a consulting firm based in the Pacific Northwest that specializes in economics, finance, and planning. We understand that businesses and governments face difficult decisions about how to make the best use of limited resources. We help our clients make thoughtful, data-driven decisions using tools and methods that meet the highest standards of best practice. Our focus is to bring a diverse set of perspectives that allow us to fully understand — and effectively communicate — the benefits, costs, and tradeoffs associated with any decision. Our consultants have advanced degrees in a variety of fields, including economics, planning, and public policy; and work on projects ranging from strategy to implementation.



Triangle Associates has been a trusted third-party in public and community facilitation and input work for over 40 years, and our methods of helping groups develop equitable processes to make good decisions have withstood the test of time. Triangle's facilitation practice is grounded in helping diverse, multi-party advisory and input groups work together to co-develop lasting input processes, recommendations, policies, and decisions.



Ryan Donahue, principal of **RM Donahue Consulting**, is a researcher and strategist focused on inclusive economic development in cities, regions, and states. RM Donahue Consulting has worked with state and regional organizations across the country. Ryan Donahue has partnered with the Brookings Institution, where he is a Nonresident Fellow, on strategy projects in a variety of regions, from high-growth markets (San Diego, Denver, Nashville) to older industrial cities (Birmingham, Syracuse, Grand Rapids).



Community Attributes, Inc. supports all phases of economic and community development — from visioning to implementation. We aim to support decision-making by linking community development objectives with economic opportunities in the context of regional economic trends. The hallmarks of our practice are flexibility, responsiveness, and innovation, all of which we wholeheartedly employ to meet our clients' needs.



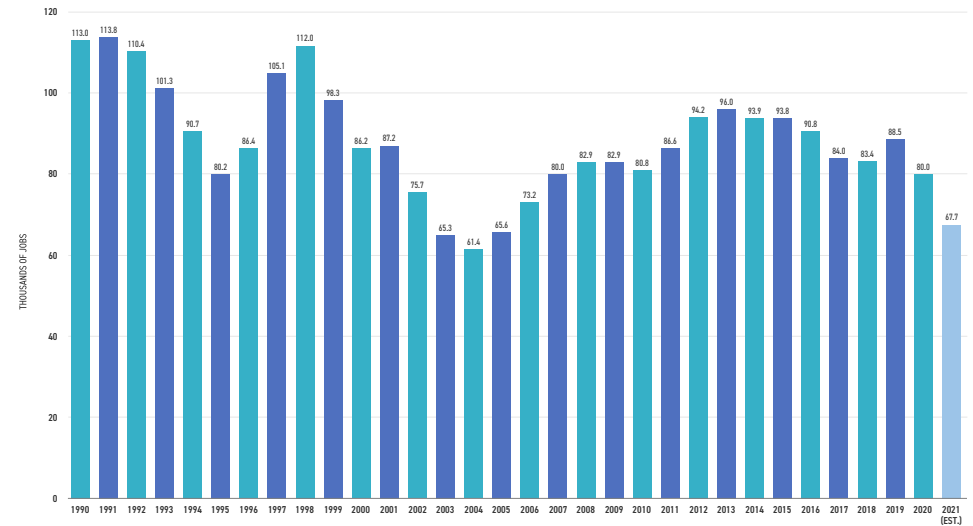
SWOT INDUSTRY CUT SHEETS

Aerospace



Washington's aerospace sector has a long history in the state, starting with the founding of The Boeing Company in 1916. More than 1,300 aerospace-related firms are located in Washington State, primarily in Snohomish, Spokane, and King counties. Washington State aerospace companies are vital links in the global supply chain for aircraft manufacturers around the world. Washington is second only to California in hosting US companies that supply parts to Airbus. Prior to the pandemic, the aerospace products and parts manufacturing sector employed more than 88,000 workers throughout the state. Another 40,000+ workers were employed in related industries with strong overlapping services and linkages with the core aerospace sector.

AEROSPACE PRODUCTS AND PARTS MANUFACTURING JOBS, WASHINGTON STATE



Source: Bureau of Labor Statistics, 2021; Community Attributes, 2021.

STRENGTHS

- Boeing assembly lines and related facilities; production increases in Renton anticipated
- Skilled aerospace workforce and a strong training and education network
- Robust supply chain and related infrastructure
- Defense contracts
- Competitive tax and incentive environment tuned for aerospace



Aerospace

CHALLENGES

- Most aerospace sector strengths are Boeing derived
- Continued pandemic impacts on the travel industry
- Managing and retaining a diverse workforce
- Aerospace is a mature industry with declining long-term projections



OPPORTUNITIES

- Proactively pivoting to the state's entrepreneurial commercial space industry
- Remaining at the forefront of emerging clean fuel technologies
- Supply chain innovations to help create a more resilient sector
- Continued innovations in maintenance and repairs driven by technological advancements in robotics and augmented and mixed reality
- Capacity utilization at Paine Field
- The New Market Aircraft (NMA)



Sample Initiative

Florida's proactive pivot towards commercial space.

Space Florida, created in 2006 to serve as Florida's aerospace economic development organization, has worked to drive economic development across the global aerospace and commercial space sectors. This has been followed by continued investment, research, and exploration of the commercial space sector. Today, Florida's commercial space industry boasts a rocket launching and landing site at the Cape Canaveral Spaceport, manufacturing of rocket engines in West Palm Beach, and small satellite development in Gainesville. Additionally, major commercial space companies currently with operations in Florida include SpaceX, Blue Origin, and OneWeb Satellites.

Source: <https://www.spaceflorida.gov/>

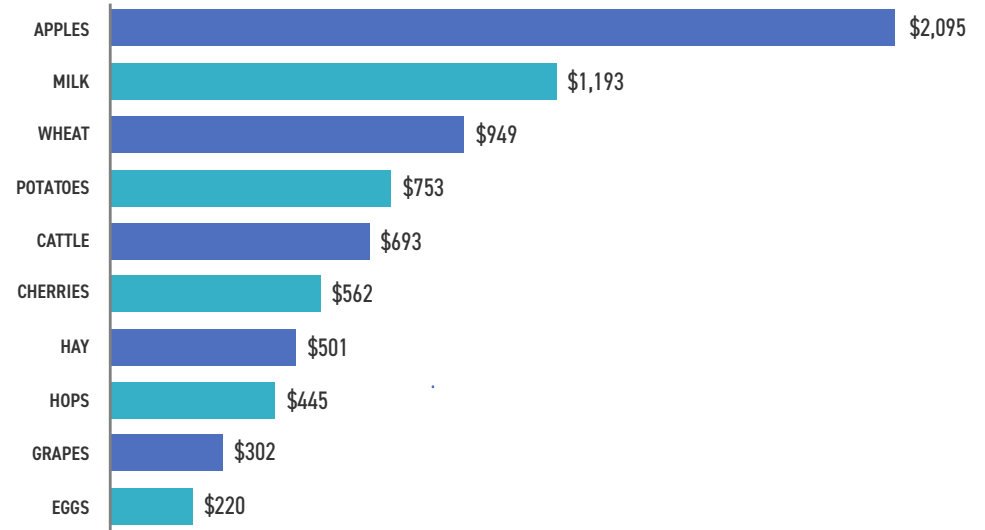
Agriculture and Agribusiness



Washington's agriculture and agribusiness industry is supported by 15 million acres of farmland. Washington produces more than 300 commodities, and is **the leading producer of apples, hops, cherries, and more**. Agriculture is Washington's second-largest export category, making the state a key supplier of food for export markets.

Overall, the industry supports more than 164,000 jobs in Washington (2013), and 35,700 farms of which 89% are small farms, as well as more than 200 food processing companies (2017). Agriculture and food manufacturing are spread throughout the state, supporting jobs in rural communities as well as food manufacturing jobs in urbanized areas.

TOP 10 COMMODITIES, WASHINGTON STATE, 2020 (MILS \$)



Source: Washington State Department of Agriculture, 2021; Community Attributes, 2021.

STRENGTHS

- Washington's natural features
- Proximity to and demand from Asian markets
- Diversity in highest production crops
- Leader in specialty crops, including seafood
- Infrastructure and transportation system supporting agricultural exports, notably the state's extensive ports network
- Partnership with Washington State University



Agriculture and Agribusiness

CHALLENGES

- High-risk sector depending on factors beyond a farmer's control
- Impacts of climate change
- Access to resources, including land and water
- Historically and increasingly low margins industry
- Regulatory framework acting as a barrier
- Labor shortages faced by both labor-intensive crop producers, as well as food manufacturers
- Financial pressures on smaller farms who can not scale operations
- Pandemic disruptions to the food distribution network



Sample Initiative

U.S. universities focusing on innovation in agricultural automation.

Washington State University, in partnership with the U.S. Department of Agriculture-National Institute of Food and Agriculture, is leading the AgAID Institute—a multi-institutional research institute to develop artificial intelligence solutions to tackle some of agriculture's biggest challenges. In total, 17 land-grant universities located throughout the U.S. are working together to develop innovative automated systems for agricultural production, specifically focusing on labor-intensive crops. For example, the University of Florida has developed a robot that counts and maps fruit in citrus trees, while the University of California-Davis has developed a fruit picking cart with instruments that can map orchard fruits. Iowa State University is working to manufacture technology that reduces pesticide drift, Washington State University developed drones to deter birds that prey on fruit crops, and the University of Hawaii has given coffee growers handheld devices that can spot leaf water stress and optimize irrigation.

Source: <https://www.usda.gov/media/blog/2020/08/27/automation-helps-solve-specialty-crop-challenges>

OPPORTUNITIES

- Increasing consumer demand for non-conventional types of production, such as organic, local, sustainable, free-range, and grass-fed products
- Enhance marketing, statewide and commodity-based, to increase demand for both conventional and non-conventional agricultural products
- Research and innovation in automation and drones to increase efficiency and address labor shortages
- Technology innovation and data resources to enhance efficiency, including water use, monitoring of production density, as well as storage and packaging
- Capacity for growing the wine and craft beer markets

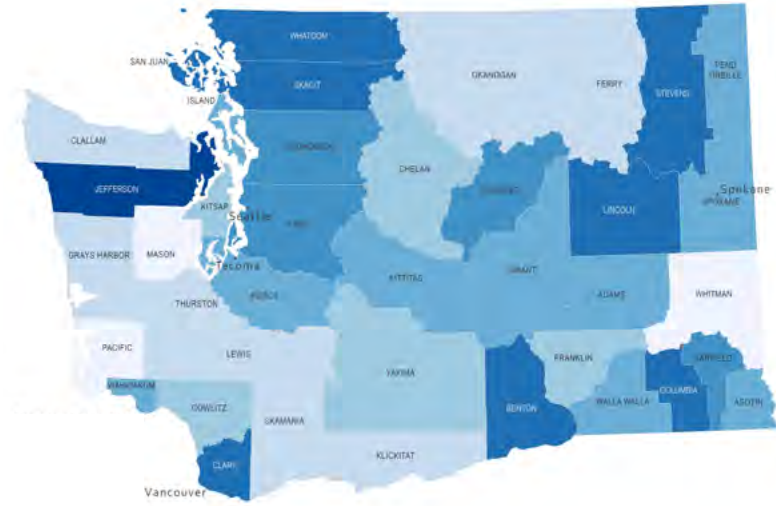


Climate and Energy



As state and federal policy continue to increase focus on addressing climate change, clean energy jobs present an important opportunity for Washington State. Statewide, one in 50 workers in the state were employed in the clean energy industry in 2019, 11 times more than in the state’s fossil fuel sector. Washington’s clean energy economy is driven primarily by growth in energy efficiency, grid modernization, energy storage, and clean fuels. The state’s abundant water resources provide significant renewable energy resources. However, to reach the state’s goal of 100% clean energy by 2045, emerging technology and innovation will be vital.

CLEAN JOBS SHARE OF TOTAL COUNTY EMPLOYMENT, 2022



CLEAN ENERGY JOBS BY DENSITY (CLEAN ENERGY JOBS PER 1,000 TOTAL JOBS)



Source: Washington State Department of Agriculture, 2021; Community Attributes, 2021.

STRENGTHS

- Expansive hydroelectric system
- 100% clean energy goal set for 2045
- Local education and research institution partnerships
- Support from other industries in the state
- Continued commitment to invest in clean-tech R&D, energy innovation, and support existing clean energy businesses (e.g., Clean Energy Fund)



Climate and Energy

CHALLENGES

- Ensuring an equitable transition to clean energy for rural, low-income and communities of color and for all workers impacted by electrification efforts
- Ensuring resource adequacy
- Recruiting and retaining skilled workforce
- Grid modernization
- Statewide access to broadband as a factor in reaching state and federal energy goals
- COVID-19 impacts on clean tech jobs



OPPORTUNITIES

- The Infrastructure Investment and Jobs Act proposing significant investments in clean energy
- Battery technology for energy storage
- Biofuels, biomass, mass timber, and cross laminated timber
- Aging existing infrastructure, providing a business opportunity for replacement
- Smart cities initiatives
- Trade alliances and regional branding of Pacific Northwest clean energy sector



Sample Initiative

Continued expansion in California's battery storage system.

California is leading the nation in battery storage facilities and gained more capacity with a recent expansion finished in September 2021. Paired with the wind and solar energy generated within the state, California's use of lithium-ion batteries has successfully provided substantial support to the power grid and is accelerating the transition to clean energy. As of June 2021, California had 1,438 megawatts of utility-scale battery storage capacity, 1,000 megawatts more than the next closest state's battery storage capacity. California is poised to continue their world leading build out of ion-battery storage as they work towards a legislative goal to provide 100% renewable and zero-carbon electricity by 2045 and continue to alleviate stress on a power grid that can suffer during peak consumption times.

Source: <https://insideclimatenews.org/news/02092021/inside-clean-energy-california-energy-storage-vistra-corp/>
<https://www.energy.ca.gov/news/2021-03/california-releases-report-charting-path-100-percent-clean-electricity>



Forest Products

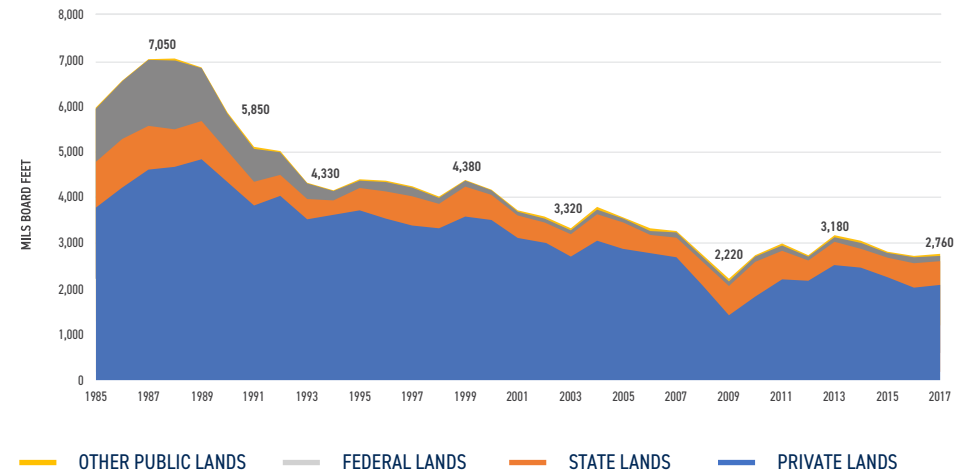


Washington State's forestry industry stretches across the state, with concentrations in Western Washington and the Olympic Peninsula.

Across the state there are 22 million acres of forestland, of which 4 million acres are privately owned. Roughly 70% of timber comes from private forests. Washington's forest products sector encompasses a broad range of business lines, from traditional cutting and lumber production, to pulp and paper and value-added products.

Forestry and forest products supported about 42,000 workers statewide in 2017, earning nearly \$3 billion in wages per year. Washington's working forests sustain the third largest manufacturing sector in the state.

TIMBER HARVEST, WASHINGTON STATE



Source: Washington State Department of Natural Resources, 2021; Community Attributes Inc., 2021.

STRENGTHS

- Millions of acres of publicly and privately owned forestland in the state
- Historically a foundational sector in the state economy
- Important resource for rural economic development
- Diversified sector encompassing all phases of the supply chain
- Local educational institutions supporting innovation through research



Forest Products

CHALLENGES

- Declining employment due to technological innovation, the recession in the 1990s, trade barriers and/or foreign competition, and increasing forest and environmental protections
- Wildfires driven by climate change, threatening the supply of timber resources
- Workforce shortages
- Urbanization and loss of forestland available to harvest
- Declining resources to support publicly owned forestland



OPPORTUNITIES

- Wildfire prevention, such as fuel reduction, forest management and thinning
- Increasing demand for mass timber and cross laminated timber, as a result of changes in legislation and building codes
- Biomass as a renewable energy resource
- Enactment of HB 2528 into law as an opportunity for the forestry and forest products sector to expand its services and contribute to the state's climate goals



Sample Initiative

Oregon's established mass timber manufacturing.

Oregon boasts large operations in timber product processing and mass timber manufacturing. CutMyTimber, with an office in Portland, was deemed one of the largest timber product manufacturers in the United States by the U.S. Forest Service. Additionally, Oregon possesses numerous mass timber manufacturers including Freres Lumber, Rosboro, and DR Johnson. Rosboro is the largest producer of Glulam beams in North America, while DR Johnson was the first United States company certified by the American National Standards Institute to manufacture CLT panels. Oregon State University's College of Forestry is also heavily involved in mass timber research.

Source: <https://www.archpaper.com/2021/04/2021-timber-map/>

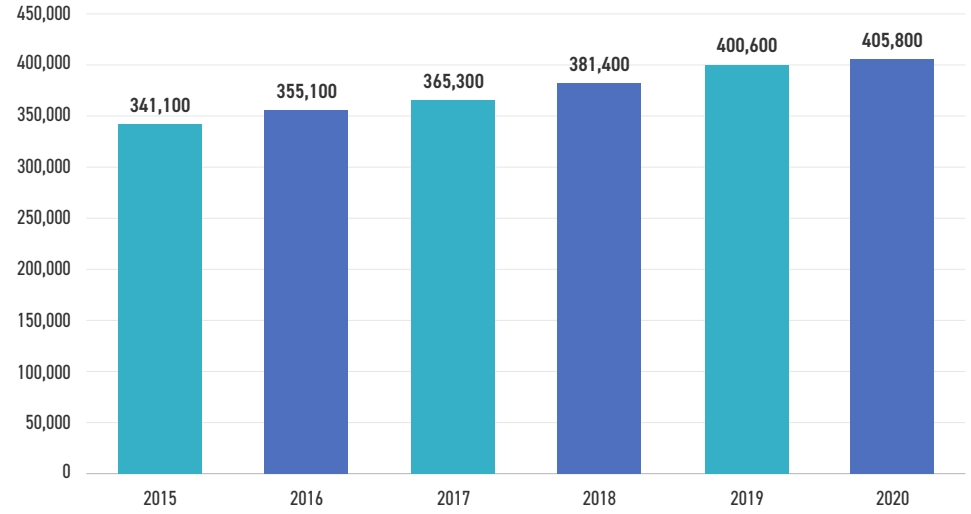


Information and Communication Technology



Washington State is the birthplace of legendary businesses like Microsoft, Amazon, F5 Networks, Zillow, and Expedia. The Information and Communications Technology (ICT) industry employs roughly 278,000 people across Washington, including software developers, computer systems analysts, and web developers. The largest concentration of these workers are in Seattle and King County's eastside, particularly the Innovation Triangle (Bellevue, Redmond, Kirkland). An additional 271,000 workers are employed in tech occupations across other industry sectors in Washington state. Over the last 10 years, tech employment in the state grew by 34%.

NET TECH EMPLOYMENT, WASHINGTON STATE



Source: CompTIA, 2021; Community Attributes Inc., 2021.

STRENGTHS

- Microsoft and Amazon (anchor employers)
- Diverse base of high-tech companies
- High employment growth over the past decade
- Ecosystem of innovation supported by world-class universities
- Strong talent base and talent recruitment
- Growing startup community



Information and Communication Technology

CHALLENGES

- Lacking high-tech manufacturing subsector
- Pandemic impact on recruiting, relocation, and workplace choices
- Urban centers struggle to rebound from the pandemic
- Extensive gender and racial inequities
- Tensions between tech and local government, with an impact on policies and taxes that target the industry directly
- Housing affordability, homelessness, gentrification, and traffic



Sample Initiative

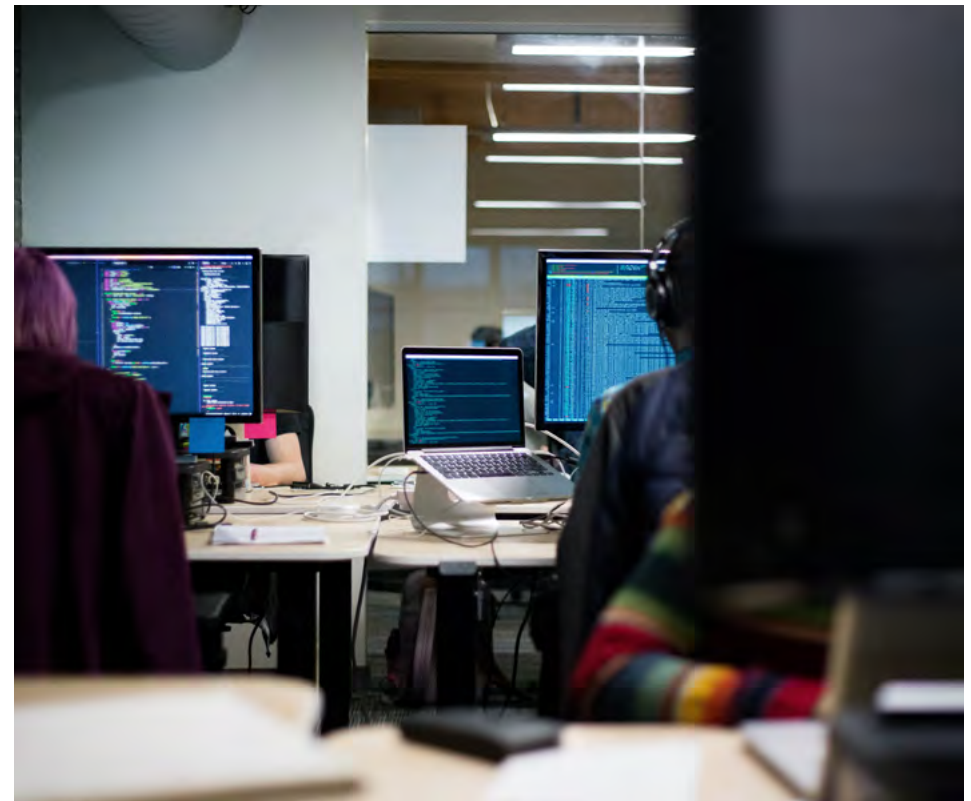
Louisville's workforce development gains in ICT.

Through a program named LouTechWorks, six universities were brought together, alongside Jefferson County Public Schools, Code Louisville, and Tech Louisville to help accelerate growth within the local tech pipeline. Such workforce development has been associated with a positive loop effect, supporting growth within local firms and ultimately creating more jobs. LouTechWorks was started to help support a growing tech industry in Louisville. From 2016 to 2019, the number of tech jobs in Louisville, Kentucky grew by 28%, a higher rate than peer cities Nashville, Raleigh, and Indianapolis. Despite being launched in 2019, LouTechWorks has seen immediate success. For example, 62% of high school students now have access to computer science related coursework, 590 graduates of Code Louisville have been placed in tech jobs, and tech-related degree completions have increased by 37% in the region.

Source: <https://www.bizjournals.com/louisville/news/2021/04/16/tracking-louisvilles-tech-talent-development-prog.html>

OPPORTUNITIES

- Expand artificial intelligence (AI) activity and reap broader economic benefits from AI
- Pandemic driven increase in the trend of gaming and spending on gaming as an avenue for future growth in the video game industry
- Leveraging the tech sector and public-private partnerships to drive workforce development

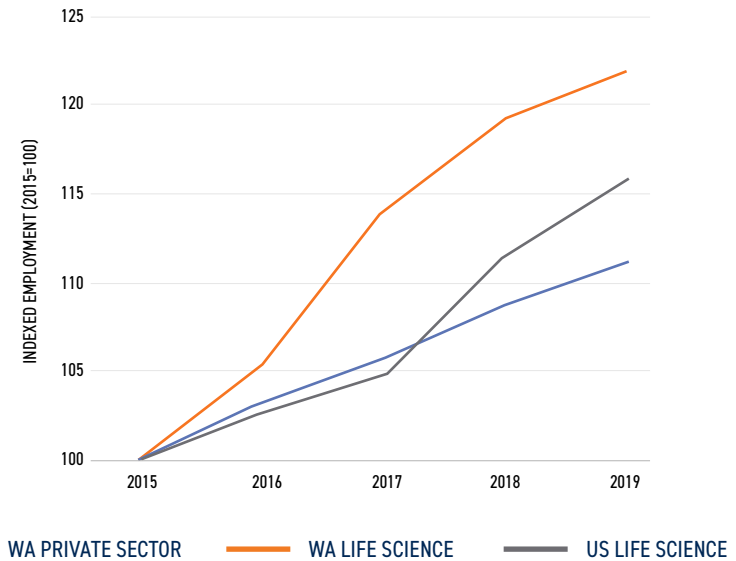


Life Science and Health



More than 1,100 life science firms and 170 global health organizations are located in Washington, employing nearly 40,000 workers statewide as of 2019. The average annual wage for life science jobs in Washington was \$106,000 in 2019. The Seattle-Bothell area houses a substantial amount of life science firms, while the Spokane area has implemented an economic development strategy to create robust health care and life sciences growth. Washington's Life Sciences and Health sector boasts top research institutions such as the Gates Foundation, the Fred Hutchinson Cancer Research Center, the Allen Institute, the Seattle Cancer Care Alliance, and the Pacific Northwest National Laboratory.

NET TECH EMPLOYMENT, WASHINGTON STATE



Source: Life Science Washington, 2021. https://lifesciencewa.org/wp-content/uploads/2021/10/Economic-Impact-Report_2019data.pdf

STRENGTHS

- One of the top 10 life science clusters in the United States
- Strong job growth (23.5% from 2015 to 2019)
- Strong venture capital funding growth
- Growing startup community and expanding lab and R&D space
- Top STEM-based industry for women (women make up 44% of the industry)



Life Science and Health

CHALLENGES

- Competition for labor with ICT and aerospace
- Limited connections between the industry and Washington's colleges and universities
- Engaging diverse populations that are typically under-represented in life sciences and STEM-related fields
- Affordability of office and lab space
- Decreasing government support and a lack of tax incentives
- Translating research into industry-led R&D and related job growth



OPPORTUNITIES

- rDNA technology
- Future pandemic preparedness
- Intersection of big data with population health research and anti-microbial resistance
- Emerging areas of innovation like agricultural and marine biosciences, precision medicine, and digital health/health information technologies



Sample Initiative

Digital health cluster focus in Massachusetts.

Digital health was identified as an emerging industry cluster in 2015 by the Commonwealth of Massachusetts. As a result, in early 2016, Massachusetts established a Digital Health Initiative to further strengthen the state's digital health ecosystem. The Initiative is a collaboration of the state's public, private, academic, and healthcare leaders. For the past six years, the collaborative digital health initiative has been focusing on attracting and retaining digital health firms. As of 2020, Massachusetts ranked as the #2 destination in the U.S. for digital health investment and contained more than 350 digital health firms.

Source: <https://massdigitalhealth.org/ehealth-cluster/initiative>
<https://masstech.org/sites/mtc/files/images/Test/Digital%20Health%20Pitch%20Deck.pdf>

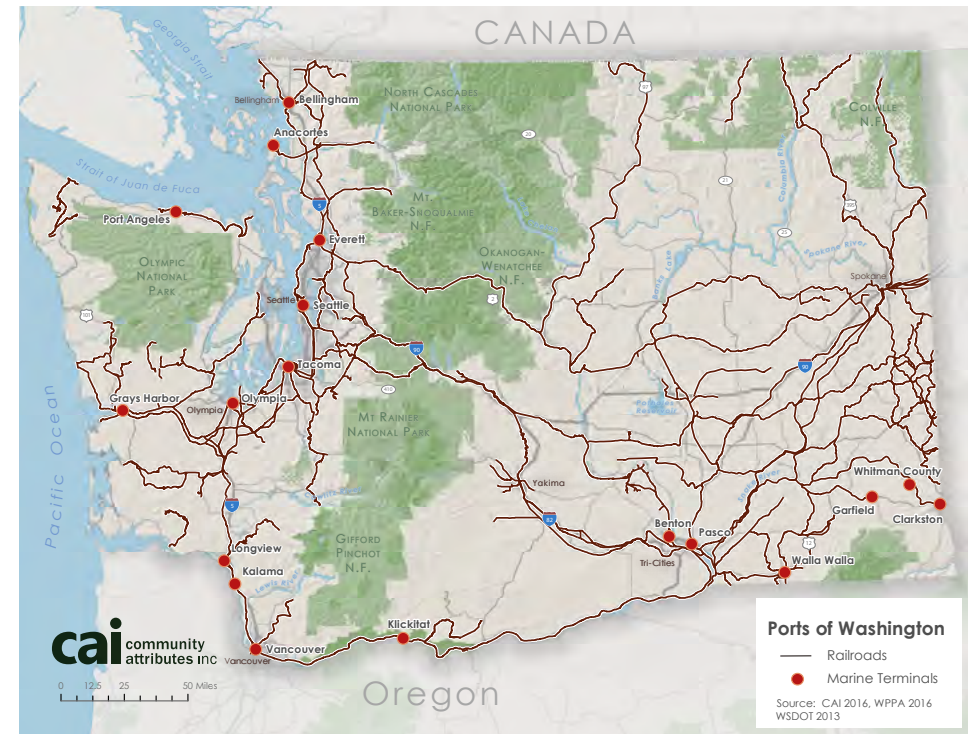


Maritime



Maritime activities in Washington are diverse, extending across multiple corners of the state's economy, and include boat and ship building, recreational boat construction, commercial fishing and seafood processing, maritime logistics and shipping, and passenger water transportation. 75 public ports are spread throughout 33 of Washington's 39 counties, connected by 3,200 miles shoreline and 50,000 miles of rivers and streams. Washington's maritime industry employed about 70,000 statewide and encompassed 2,300 companies in 2015.

WASHINGTON'S MARINE CARGO PORTS



STRENGTHS

- Natural features (coastline, river mileage, deep-water ports)
- Proximity to western trading partners
- Engaged with a diverse set of industries
- Well built out maritime infrastructure
- Focus on sustainability (Maritime Blue strategy) and innovation (Port of Seattle Maritime Accelerator program)



Maritime

CHALLENGES

- Keeping pace with infrastructure updates to address industry changes
- Access to capital for research and development in the maritime industry
- Competition from other ports, such as west coast, Gulf Coast, and Midwest ports
- Geographic shift in cheap manufacturing labor
- Climate change impact on fisherman and their local communities
- Pandemic impacts on the supply chain
- Aging maritime workforce



Sample Initiative

Maritime biofuel research in Tennessee.

Oak Ridge National Laboratory, located in Tennessee, is the largest multi-program science and energy research lab in the United States. A team of Oak Ridge's scientists is leading a multi-laboratory study testing the feasibility and use of biofuels for cargo ships. Since the team first examined the use of biofuels in 2018, they have begun engaging with industry leaders such as Exxon Mobil to gain interest. Initial results have been promising, suggesting blended bio-oil and heavy fuel oil could be suitable for use as fuel for maritime cargo vessels.

Source: <https://www.ornl.gov/>
<https://www.energy.gov/eere/bioenergy/articles/anchors-weigh-examining-biofuels-maritime-shipping>

OPPORTUNITIES

- Washington State's Department of Commerce's Maritime Blue Strategy for 2050
- New maritime innovation, such as advanced metering of mechanical and fuel systems, the electrification of ferry fleets, and clean energy technologies tied to maritime projects and vessels
- Recapitalization of the fishing fleet



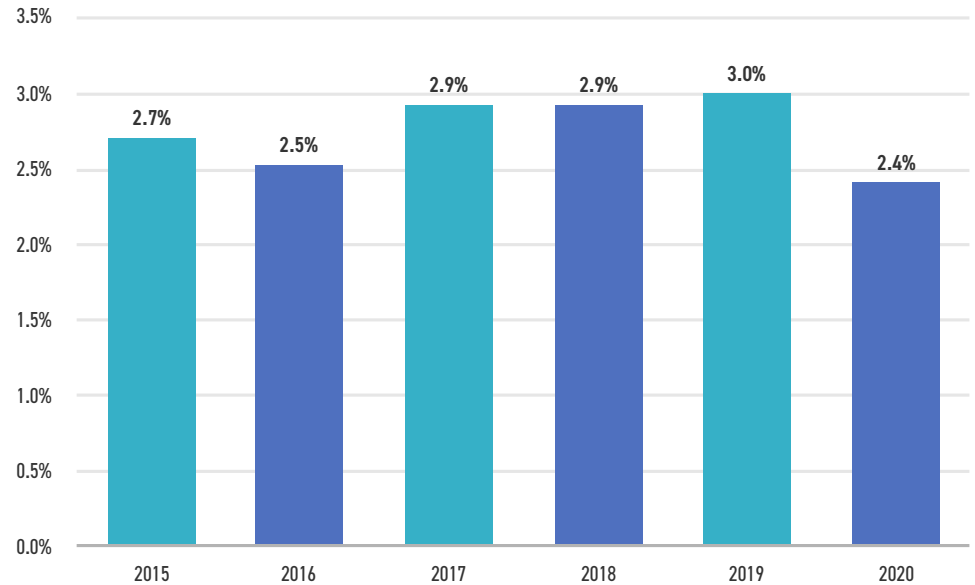
Military, Defense, and National Security



Washington's military, defense, and national security sector possesses nearly 100,000 active duty, reserve, guard, and civilian personnel and the state houses an additional 600,000 veterans. Washington's military installations are primarily located in the Puget Sound Region, while the Fairchild Air Force Base is located in Spokane.

In the past three years, businesses in Washington state were awarded nearly \$15 billion in contracts, which represented roughly 4% of the state's GDP. Nearly 2,000 businesses provide support to the military and defense sector, with some of the largest military contractors such as Boeing, Microsoft, and Vigor Industries located in Washington.

DEFENSE SPENDING AS PERCENTAGE OF STATE GDP, WASHINGTON STATE



Source: Bureau of Economic Analysis, 2021; U.S. Department of Defense, 2021; Community Attributes Inc., 2021.

STRENGTHS

- Second largest public employer in Washington
- Connection to key Washington industries
- Current military, defense, and national security presence
- Military infrastructure
- Six active-duty military installations
- Federally funded laboratories that pursue training and research



Military, Defense, and National Security

CHALLENGES

- Changes to the global supply chain
- Adapting to environmentally friendly practices
- Significant shifts in the global geopolitical dynamic
- Climate change as a national security issue
- Long-term effect of the pandemic and the impact on the nature or size of the defense effort



OPPORTUNITIES

- Cybersecurity to set the pace for cyber resiliency and independence along the state's defense and ICT supply chain
- Further develop relationship between Washington's Military, Defense, and National Security sector and commercial sectors to drive innovation
- Leverage Washington's strong ICT industry to attract the Department of Defense's growing investment in artificial intelligence, machine learning, advanced networking, cyber, and Joint All-Domain Command and Control
- Establish a system for credential reciprocity to help military dependants and spouses more easily enter the qualified workforce
- Increased investment in transition services for military members transitioning out of the military



Sample Initiative

Cybersecurity Hub: Maryland.

More than 40 government agencies call Maryland home, providing the state with a natural advantage in leading the cybersecurity movement within the military, defense, and national security sector. Agencies include the National Security Agency, National Institute of Standards and Technology, Defense Information Systems Agency, Department of Defense Cyber Crime Center, and NASA. Maryland also boasts more than 150,000 cyber-related engineering and data science professionals, comprising the #1 cyber workforce in the world. Additionally, Maryland is the first state to have set up a cyber investing arm directly funded by the state government.

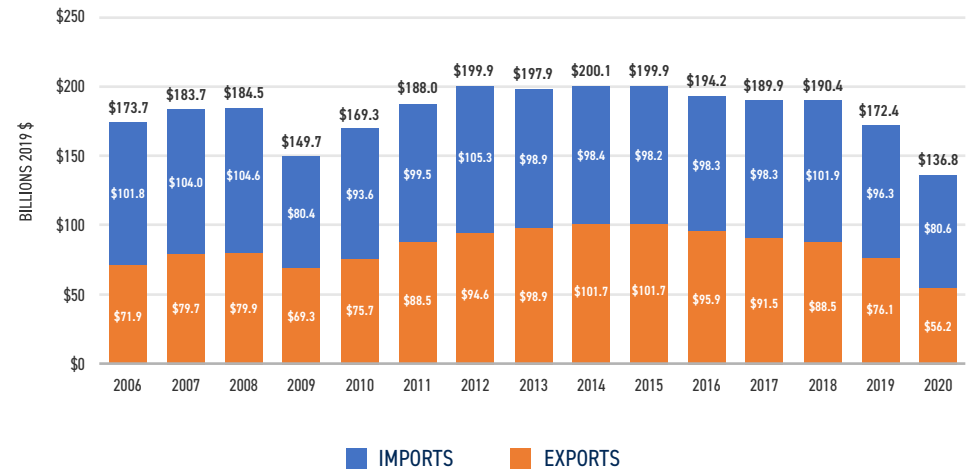
Source: <https://cybersecurityventures.com/the-cyber-hub-war-is-on-maryland-aims-to-become-global-headquarters/>

Trade and Logistics



Washington's economy relies on the state being a trade hub, utilizing rail lines, roads, and waterways to connect the state's expansive network of ports to transport goods in and out of the state. Supporting this strong trade sector are logistics firms responsible for ensuring imports and exports travel efficiently. A report by The Trade Partnership estimated that 921,400 jobs were supported by trade (exports and imports) in Washington in 2017, approximately 28% of total statewide employment.

IMPORTS AND EXPORTS THROUGH WASHINGTON PORTS



Source: U.S. Census Bureau, 2020-2021; Federal Reserve Bank of St. Louis, 2020; Community Attributes Inc., 2021.

STRENGTHS

- Proximity to western trading partners
- Established trade hub (in top five for exports by value in 2019 in the U.S.)
- Large talent pool and strong educational partnerships
- Well-established shipping infrastructure
- Diversity in products imported and exported



Trade and Logistics

CHALLENGES

- Continued national tensions with China
- Pandemic impacts to the global supply chain
- Competition from British Columbia ports Prince Rupert and Vancouver, as well as LA-Long Beach and the newly widened Panama Canal
- Coordination among international organizations
- Public support for trade
- Changes to customer expectations (faster, more flexible, lower price shipments)
- Keeping pace with infrastructure updates needed to support the industry



Sample Initiative

El Paso's new role in trade and logistics as manufacturing undergoes nearshoring.

El Paso, Texas, has seen a large influx of logistics companies and investment in the logistics sector since 2014. As reshoring and nearshoring has gained speed in recent years, especially hastened by the COVID-19 pandemic, El Paso has continued to evolve into a trade and logistics hub along the United State's southern border. With the equalization of manufacturing wages in China and Mexico strengthening Mexico's manufacturing presence, El Paso has played an increasingly important role in the global supply chain. Among the logistics companies with operations in the city, DHL has been among the leaders shaping El Paso's up and coming trade and logistics sector. Other factors driving the city's evolution include El Paso's workforce trends, transportation infrastructure, pro-business political leadership, vibrant downtown, and incentive packages helping attract private investment.

Source: <https://www.supplychaindive.com/news/el-paso-texas-DHL-border-logistics-trade/588614/>

OPPORTUNITIES

- Growth in e-commerce
- Relocation of western manufacturing
- Foreign Direct Investment
- Emerging technologies that reduce carbon and reduce the amount of time to get goods to consumers
- Trucking and rail automation and advanced air mobility

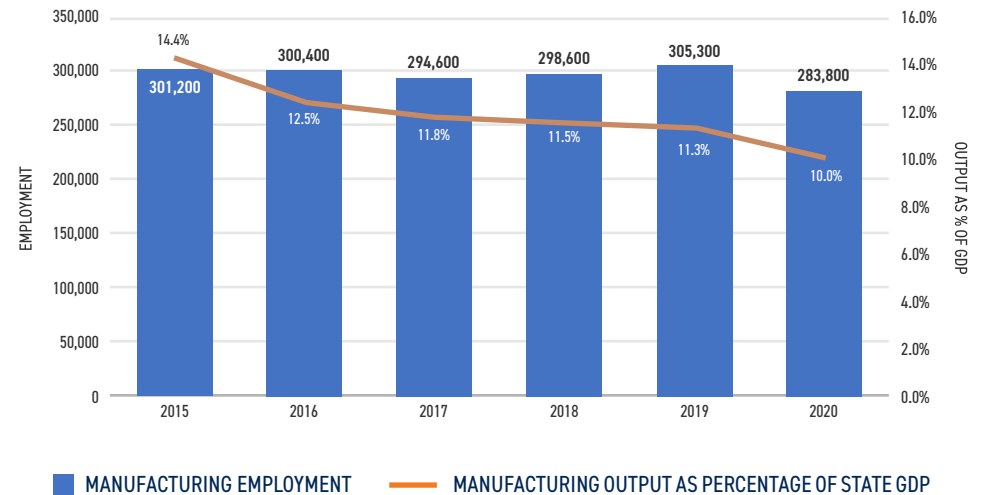


Manufacturing



As of 2019, manufacturing employment was responsible for nearly 300,000 Washington jobs. While aerospace manufacturing makes up the largest proportion of Washington's manufacturing by value of goods produced, the sector is rather diverse and includes many subsectors, including petroleum products, computer and electronic products, chemical manufacturing, and medical manufacturing. Geographic concentration depends on the subset of manufacturing; generally manufacturing employment is well distributed throughout the state. Medical manufacturing and aerospace manufacturing are concentrated in the Puget Sound Region while agricultural manufacturing is more prominent in central and eastern Washington.

MANUFACTURING EMPLOYMENT AND OUTPUT, WASHINGTON STATE



Source: U.S. Census Bureau, 2020-2021; Federal Reserve Bank of St. Louis, 2020; Community Attributes Inc., 2021.

STRENGTHS

- Low state energy costs
- Major employer statewide and source of high paying jobs
- Connection with key regional sectors
- Extensive port system and history as a trade leader



Manufacturing

CHALLENGES

- Maintaining infrastructure
- Skilled labor shortage
- Lacking presence of high-tech manufacturing
- Increased cyberattacks adding business risk for manufacturers
- Pandemic impacts: supply chains and decreasing margins



OPPORTUNITIES

- Commercial space, agritech, and biotech manufacturing
- Workforce development, re-branding of entry level manufacturing jobs, and engaging with broader talent ecosystem
- Continue leading research and innovation in energy intensive manufacturing for regional industries: food processing, advanced materials, and forest products
- Advances in technology (Industry 4.0)
- De-carbonizing and revitalizing industrial manufacturing
- Potential cross-industrial and -institutional partnerships to achieve shared goals of innovation, resiliency, and efficiency



Sample Initiative

Biotech manufacturing gains in Minnesota

Headquartered at the University of Minnesota in St. Paul, the BioIndustrial Manufacturing and Design Ecosystem (BioMADE) received an \$87 million, seven-year grant from the Department of Defense. BioMADE will use the grant to advance sustainable bioindustrial manufacturing technologies in collaboration with public and private entities. The Department of Defense cited their commitment to promoting the United States biotech innovation when interviewed about the grant. Anticipated manufacturing applications to come as a result of the grant include chemicals, solvents, detergents, reagents, plastics, electronic films, fabrics, polymers, agricultural products, crop protection solutions, food additives, fragrances, and flavors.

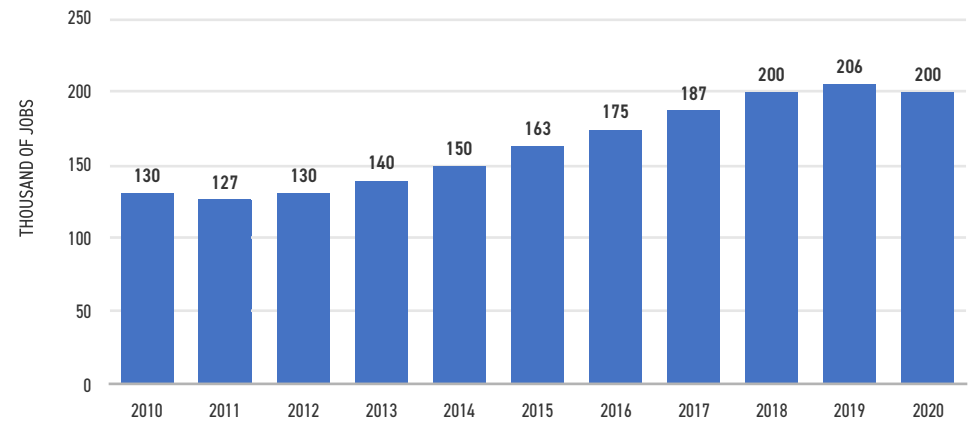
Source: <https://www.defense.gov/News/Releases/Release/Article/2388087/dod-approves-87-million-for-newest-bioindustrial-manufacturing-innovation-insti/>

Construction



Washington's construction sector employs an estimated 223,000 workers. Nearly two-thirds of these workers are classified as specialty trade contractors. The sector proved rather resilient during the pandemic, with employment levels returning to 95% of pre-pandemic capacity by July 2020, and employment returning fully to pre-pandemic capacity by March 2021. However, the industry remains in flux as a result of pandemic-related labor shortages, automation, supply chain issues, remote work, and rising costs, as well as non-pandemic-related issues like federal and state policy, and work stoppages due to contracting and bargaining disputes. The industry will need to remain agile and adapt to changing economic conditions and innovations.

CONSTRUCTION JOBS, WASHINGTON STATE



Source: Bureau of Labor Statistics, 2021; Community Attributes, 2021.

STRENGTHS

- Robust industry growth and demand for new construction
- Abundance of local natural resources
- State investments in wood energy and materials innovation
- Investments in innovative construction methods
- Active Labor associations implementing workforce programs
- Seattle's growth anchoring statewide return to pre-pandemic operations



Construction

CHALLENGES

- Rising land and raw materials costs
- Policy and regulatory issues related to land availability, density, and intensity of development
- Uncertain demand for commercial real estate due to increases in remote work
- Shifts in labor demands and automation
- Federal policy around immigration and assistance impacting the labor pool
- Pandemic impacts on labor, supply chains, and productivity
- Aging construction workforce



Sample Initiative

Mass timber in British Columbia, Canada.

Canada has been the western hemisphere's most eager adopter of mass timber technologies for use in construction. In April of 2021, British Columbia announced eight new mass timber construction projects to be undertaken as a part of a mass timber demonstration aimed to grow the region's expertise in mass timber construction. The program also works to support jobs and employment recovery in the construction industry. Previous success with mass timber construction in the region provides evidence for the benefits of the relatively new building materials, most prominently seen in Vancouver's Brock Commons. One notable achievement of Brock Commons' was the length of construction. The project was completed in 70 days following the delivery of the prefabricated mass timber components, which is approximately four months faster than a typical project of the same size.

Source: <https://www.naturallywood.com/blog/mtdp/>
<https://www.thinkwood.com/projects/brock-commons-tallwood-house>

OPPORTUNITIES

- The American Jobs Plan and the Infrastructure Investment and Jobs Act
- Sustainability movement
- Mass timber and cross laminated timber
- High demand for new construction with up-zoning

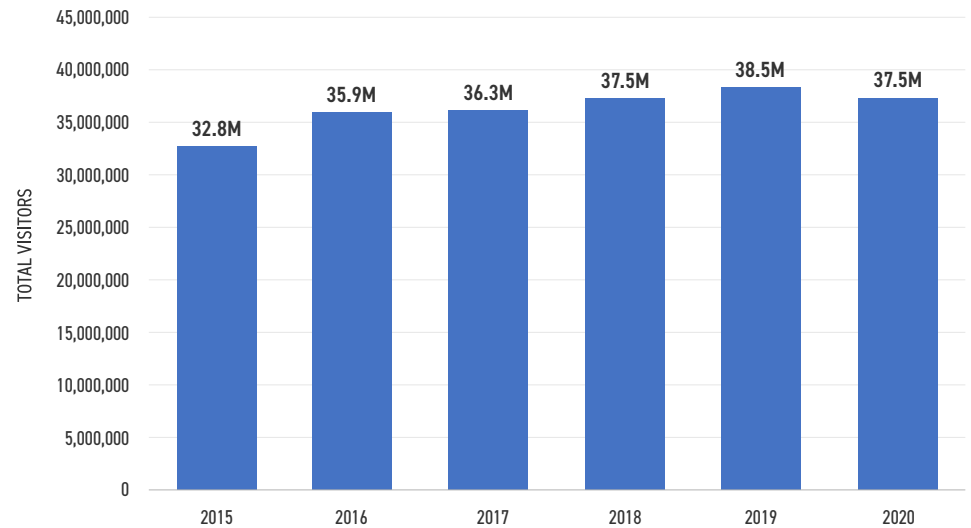


Hospitality and Tourism



Historically, hospitality and tourism has been one of Washington's largest sectors and has employed more than 180,000 workers statewide. Washington has something to offer for every potential visitor, with attractions spreading into every corner of the state. Attractions include a plethora of beautiful scenery and outdoor experiences, in addition to bustling urban centers promoting arts, culture, and sports.

STATE PARK VISITATION, WASHINGTON STATE



Source: Washington State Parks, 2021; Community Attributes, 2021

STRENGTHS

- Strong tourism assets
- Established sector presence
- Current funding and marketing opportunities
- Sea-Tac International Airport as a major hub for Delta and Alaska Airlines



Hospitality and Tourism

CHALLENGES

- Workforce shortage
- Low to moderate wages and high job volatility
- Pandemic disruptions to travel and lifestyles, such as decreasing household income spending on food and entertainment away from home
- Climate change, wildfires, rising sea levels
- Historical lack of investment in tourism marketing



OPPORTUNITIES

- Increased tourism marketing and targeted marketing around urban, rural, and natural assets
- Surging demand in the cruise industry
- Capitalizing on pandemic induced trends sending visitors to rural and remote destinations
- Increased demand for ancillary, allied spending among spectators either before and/or after events, such as at local restaurants and bars



Sample Initiative

Tourism marketing success in Michigan.

Michigan's current tourism marketing campaign Pure Michigan commenced in 2008. Funding for the state's tourism office jumped significantly from 2008 to 2009, with a proportion of the new funds being dedicated to the campaign. The campaign aimed to attract visitors to the Great Lakes state and thus far has accomplished its goal of raising Michigan's profile with tourists. While estimates of the campaign's total economic impacts vary, Longwoods International conducted a study that assigned \$1.2 billion in economic impacts generated by more than four million trips in 2012. Meanwhile, Travel Michigan, the state's tourism office, estimates that the Pure Michigan campaign generated \$153 million in state tax revenue in 2018.

Source: <https://www.ncsl.org/research/fiscal-policy/state-tourism-office-budgets.aspx>
<https://www.networksnorthwest.org/news-events/news/pure-michigan-campaign-drives-12-billion-in-visitor-spending.html>

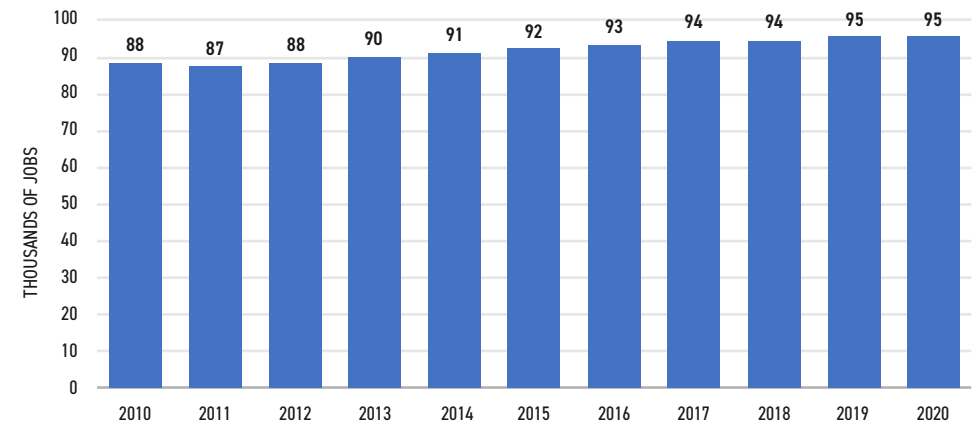


Financial Services



Washington's financial services sector includes the subsectors of accounting, banking, credit and lending, financial investing, insurance, and public finance. Defined as NAICS 52—Finance and Insurance, the financial services sector employs more than 100,000 Washington workers throughout the state. About half of all financial services workers were employed within the Seattle Metropolitan Statistical Area (MSA). Compared to other Seattle or regional industry clusters, financial services is fairly nascent; however, its intersection with existing clusters—including ICT, tech, and innovation—positions it as a potential high growth and opportunity sector.

FINANCE AND INSURANCE JOBS, WASHINGTON STATE



Source: Bureau of Labor Statistics, 2021; Community Attributes, 2021.

STRENGTHS

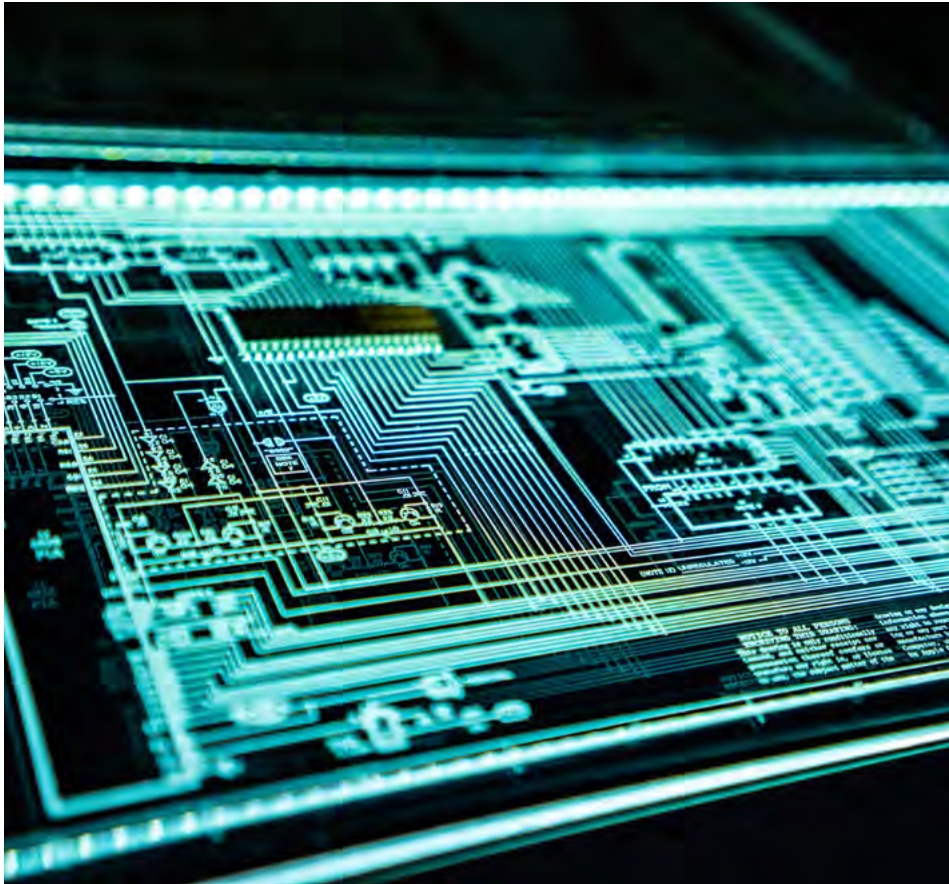
- Diverse workforce
- Large network of commercial banks
- Growing startup community
- Local tech talent pool
- Emerging dependency on ICT sector



Financial Services

CHALLENGES

- No major banks are headquartered in Washington
- Increasing cybercrime attacks inflicted on financial institution
- Legislative and regulatory landscape
- Increasing barriers for small and medium size firms



OPPORTUNITIES

- Seattle and the state are potentially strong fintech hubs due to existing industry and innovative sectors and educational institutions
- Traditional financial services companies growing investment in modern data and analytics tools, artificial intelligence capabilities, and digital platforms
- Established group of incubators, investors, and institutions in tech or tech-enabled businesses can facilitate a new focus on fintech startups and innovation



Sample Initiative

Fintech in New York.

New York is one of many up-and-coming fintech hubs. New York's fintech industry includes companies specializing in digital wealth, crypto, lending, insurance, and B2B fintech. Leading fintech companies include Lemonade and Oscar (insurance), Betterment (robo-advising), Forter (fraud protection), Petal (credit), and Stash (micro-investing). New York also contains incubator and accelerator companies such as TechStars, Citi Innovation Labs, and Fintech Innovation Lab. To date, Fintech Innovation Labs has helped startups raise \$1.8 billion in capital investments.

Source: <https://thefintechtimes.com/guide-to-north-american-fintech-hotspots-covering-atlanta-boston-chicago-los-angeles-new-york-and-san-francisco/>
<https://www.fintechinnovationlab.com/regions/new-york/>

References



1. "Space Florida: One Place. Infinite Possibilities," Space Florida, n.d.
2. "Automation Helps Solve Specialty Crop Challenges," Department of Agriculture, July 2021.
3. "Clean Jobs Washington," Environmental Entrepreneurs, November 2020.
4. "Mapping the timber industry boom in 2021," The Architect's Newspaper, April 2021.
5. "Cyberstates 2021: The definitive guide to the U.S. tech industry and tech workforce," CompTIA, March 2021.
6. "Talent Show: Louisville's push for a more tech-focused workforce takes center stage," Louisville Business Journal, April 2021.
7. "Massachusetts' Digital Health Initiative," Mass Digital Health, n.d.
8. "Massachusetts: A Leading Global Digital Health Ecosystem," Mass Tech, n.d.
9. "Anchors Aweigh: Examining Biofuels for Maritime Shipping," Department of Energy, June 2021.
10. "Black light biotech," Oak Ridge National Laboratory, n.d.
11. "The Cyber-Hub War Is On: Maryland Aims To Become Global Headquarters," Cyber Security Ventures, January 2019.
12. "As supply chains cut costs, El Paso, Texas, takes on a new role," Supply Chain Dive, November 2020.
13. "DOD Approves \$87 Million for Newest Bioindustrial Manufacturing Innovation Institute," Department of Defense, October 2020.
14. "8 mass timber demonstration projects announced," Naturally Wood Timber Trends, April 2021.
15. "Brock Commons Tallwood House," Think Wood, n.d.
16. "Visitation Reports," Washington State Parks, n.d.
17. "SEA Airport Statistics," Port of Seattle, n.d.
18. "State Tourism Office Budgets," National Conference of State Legislatures, August 2019.
19. "Pure Michigan Campaign Drives \$1.2 Billion in Visitor Spending," Networks Northwest, 2013.
20. "Guide to North American Fintech Hotspots; Covering Atlanta, Boston, Chicago, Los Angeles, New York and San Francisco," The FinTech Times, December 2020.
21. "Regions," FinTech Innovation Lab, n.d.