

# 2022

## Public Policy Guide



ARIZONA  
TECHNOLOGY  
COUNCIL

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# Public Policy Guide 2022

The Arizona Technology Council is the principal advocate for science- and technology-based companies in Arizona. The Council continuously monitors federal, state and local legislation and policies that impact the sustainability and growth of Arizona's technology industry. Through the collective strength of its members, the Council informs and educates policymakers on issues that are important to Arizona's technology sectors.

From the U.S. Congress and the Office of the Governor to legislative committee rooms and city halls across the state, the Council serves as the voice advocating for a technology-based, pro-growth and business-focused agenda.

The Council and its Public Policy Committee hereby submit the 2022 Public Policy Guide. In creating this document, the Committee relied heavily on the Council's mission by preparing key ideas, goals and legislative initiatives to:

- + Improve the business climate for technology-based companies.
- + Provide sources of risk capital that encourage entrepreneurship, with a focus on minority entrepreneurship.
- + Create an environment that supports science- and technology-related job retention and creation.
- + Attract, train, retrain and retain the diverse talent required to compete in a global innovation economy.
- + Support Arizona businesses in their journey to becoming more diverse, equitable and inclusive.
- + Help ensure technology companies not only recover from the effects of the COVID-19 pandemic, but thrive.

The Committee created a list of principles in a number of subject areas, then established related positions to be used as the foundation of the Council's public policy efforts in 2022. In some cases, the positions will advance through development and advocacy of legislation that will be introduced during the Arizona Legislature's 2022 session. In other instances, the positions will be used on an ongoing basis as regulators or legislators add new regulations, legislation or changes to pertinent existing regulations or laws. At all stages, the Committee will be engaged in various efforts to advance the position of Arizona's technology companies. The following principles and positions will aid elected officials and other stakeholders at all levels of government and business as they craft legislation and policies that will affect Arizonans and the Arizona economy for years to come.



# 2022 ARIZONA TECHNOLOGY COUNCIL LEGISLATIVE PRIORITIES

- Look for opportunities to cultivate a diverse, equitable and statewide science, technology, engineering and math (STEM) ecosystem. The Council will focus on long-term, shared, sustainable and flexible STEM missions that bridge, integrate and strengthen the learning opportunities offered by organizations across sectors instead of isolated, independent entities. This will result in the expansion of STEM business and education opportunities throughout rural and urban Arizona communities, fueling a strong, diverse talent pipeline prepared to meet the state's anticipated growth.
- Consistently, equitably and sustainably fund the state's P-20 education system, including pre-K, K-12, career and technical education district (CTED), postsecondary programs, and access to advanced, rigorous coursework such as advanced placement and dual enrollment courses. This also includes supporting a funding formula that addresses the achievement gap for students in lower socio-economic areas and ensures access to the proper infrastructure for supporting distance-learning models.
- Support efforts in seeking opportunities to positively impact the diversity, equity and inclusion of the workforce and its leadership, and granting equitable access to essential services (e.g., broadband, transportation, employment, education opportunities).
- Work collaboratively with both the Arizona Corporation Commission (ACC) and the Legislature to advance energy policy that encourages demand-side adoption of energy efficiency, prioritizes clean and renewable energy use, invests in electric vehicle infrastructure development and supports innovation in the industry. Protect against attempts to undercut the authority of the ACC to promulgate and implement clean energy policies.
- Support economic development programs that have proven to work for Arizona. Maintain and fund programs that support manufacturing; encourage research and development; support high-quality, high-paying jobs; and incentivize innovation. During the past several years, the Council has been successful in helping extend and expand these programs. Some economic development tools may need to be modernized to ensure the most effective utilization of those that continue to spur economic growth.



# 2022

## Public Policy Guide

# State Policies and Positions



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# AEROSPACE, AVIATION AND DEFENSE

## PRINCIPLE

Arizona continues to be a vital contributor to U.S. national security interests by fostering a pioneering spirit in aerospace, aviation and defense for generations. With more than 1,250 companies in aerospace and defense—including major prime contractors such as Raytheon, Honeywell, Boeing, Lockheed Martin, General Dynamics and Northrop Grumman—Arizona boasts thousands of highly skilled technology workers with high-paying jobs. Additionally, the state's military bases contribute nearly \$11.5 billion annually to the Arizona economy, according to the 2017 “Economic Impact of Arizona's Principal Military Operations” study commissioned by the Arizona Commerce Authority (ACA) and prepared by The Maguire Company. The report also states Arizona's six military installations and four National Guard operations are responsible for creating more than 76,000 direct and indirect jobs.

State leaders and members of the Legislature should develop, publish and implement strategies that will maintain, strengthen and grow the aerospace, space, defense, aviation and unmanned-systems industrial base. In turn, this will give Arizona a competitive edge as a top state supporting U.S. national security objectives.

## POSITIONS

### DEFENSE SPENDING

Create an environment that enables sustainment and growth of total billing in defense contracting in the state. Arizona has incomparable aerospace and defense assets, as shown when PwC ranked the state No. 7 in U.S. aerospace manufacturing attractiveness for 2020. As such, we must encourage through education an understanding of and appreciation for key military assets and their continuous economic impact on the state. These assets include the Barry M. Goldwater Range, the Buffalo Soldier Electronic Test Range, U.S. Army Yuma Proving Ground, Marine Corps Air Station Yuma, U.S. Air Force

training and readiness at Luke Air Force Base for the F-35 and Davis Monthan Air Force Base for multiple missions, including the A-10, the HH-60W and the C-37B. We also need to maintain and protect the state's unique environment that enables testing of key command and control, intelligence, communications, weapons and vehicle equipment without extraneous electronic or encroachment interference in Southern Arizona.

## MINIMIZE POTENTIAL IMPACT OF DEPARTMENT OF DEFENSE CYBERSECURITY FLOW-DOWN ON ARIZONA SMALL BUSINESS DEFENSE SUPPLIERS

Work to ensure cybersecurity requirements do not become increasingly onerous. In light of growing cyber-related threats to U.S. national security, the global economy and, in particular, small-business defense suppliers, we understand the need for, as well as wholeheartedly agree with, the relatively new requirement that government contractors become increasingly cyber-resilient. That said, it is important for the federal government to understand that cyber requirements will add significant operating costs to small defense businesses in Arizona and elsewhere that are currently active in our nation's defense supply chain. As such, imposing these additional costs and burdens on small businesses could deter their ability or desire to remain active in defense markets. Ideally, the degree of return on such investment for the added costs should be analyzed. It is critical not to drive down the number of Arizona companies in the aerospace and defense (A&D) supply base due to unnecessary onerous requirements that are not required for cybersecurity resilience.

## ARIZONA'S MILITARY BASES

Shield Arizona's six military bases from development interference. Ensure military airspace provides unfettered access from the bases to military test ranges in the state without restrictions due to overdevelopment.

## MILITARY BASE MISSIONS

Examine the future mission focus for all six military bases in Arizona. Work with local support groups and the Arizona Technology Council to expand their mission profile in areas such as:

- + Artificial intelligence
- + Unmanned air and ground systems (offensive and counter operations)
- + Robotics
- + Cyber operations and defense
- + Pilot training
- + Space operations

Specifically, protect and increase the missions of Fort Huachuca, which include NETCOM's cyber defense, networks, unmanned aerial systems (UAS) training, intelligence and exceptional teaming with the U.S. Department of Homeland Security. Conduct research and seek additional missions such as special operations stationing and training for which Fort Huachuca is best suited in terms of job growth. Protect and promote rightsizing of the A-10 mission at Davis-Monthan Air Force Base while supporting adequate mission replacements, including the F-35 and the U.S. Air Force's close air support and rescues Centers of Excellence. Grow F-35 pilot training at Luke Air Force Base and Marine Corps Air Station Yuma. Enthusiastically promote and grow unmanned testing and development at U.S. Army Yuma Proving Ground. Embrace and promote the exceptional Arizona Army National Guard.

## UNMANNED AERIAL SYSTEMS

Expand the capabilities of the largest UAS training center in the world at Fort Huachuca. Actively guard against the relocation of the training center to another state. Seek ways to cultivate strong ties and additional projects with Nevada, one of the six states in the nation selected as test sites for UAS, by leveraging existing assets statewide. In addition, support policies that encourage development and use of UAS technology for commercial applications. Also, seek new mission growth in the counter-UAS area, which is just beginning at the U.S. Department of Defense. Promote the defense industry in the expansion of private and personal UAS.

## COMMERCIAL SPACE TECHNOLOGY

Attract, encourage and nurture growth of commercial space market applications and companies in Arizona. The global commercial space market is valued at more than \$400 billion annually and fast approaching more than \$1 trillion, according to Wall Street estimates. Arizona plays a critical role across the commercial space value chain through established corporations such as Boeing, Viasat, Honeywell and Northrop





Grumman. There are also a host of new and early-stage commercial space entrants such as FreeFall Aerospace, Lunasonde, Phantom Space and Katalyst Space Technologies. Continue to support and expand high-profile research and development programs at NASA and other agencies for major end programs such as OSIRIS-REx, NEO Surveyor at The University of Arizona and Psyche Mission at Arizona State University. Encourage a market-research report on how the state can further attract commercial space activities and opportunities to Arizona. Conduct benchmarking against other states that have passed legislation or promulgated rulemaking that supports commercial space activities can lead to faster commercial space growth in Arizona.

## **COMMERCIAL SPACEPORT LAUNCH DIVERSIFICATION**

Develop a comprehensive strategy and approach to the possibility of hosting various launch sites in the state in light of growing global demand for more frequent rocket launches with smaller payloads on smaller launch vehicles. Examples include the John McCain Yuma Spaceport, a vertical launch site, and the Coolidge Air and Space Port, a horizontal launch site. Adding launch locations in Arizona would mean significant differentiation and economic growth opportunities within the massive and growing global commercial space market. Support re-entry and landing site in the Wilcox region.

## **MILITARY SPACE MISSIONS**

Make the case for Arizona to begin participating in military space missions now that the United States Space Force (USSF) has been bolstered by bipartisan support. The University of Arizona's world leadership in space situational awareness makes it a natural partner for USSF in establishing space domain awareness mission leadership. UArizona and Arizona State University both have substantial experience in space mission management that would make Davis-Monthan Air Force Base a logical home for establishment of graduate-level USSF professional military education.

## **SBIR/STTR**

Continue to fund the Small Business Innovation Research (SBIR) program to fully leverage Arizona's strengths across primary research, development, prototyping and early-stage manufacturing in support of national security objectives. Encourage industry/academia teaming for Small Business Technology Transfer (STTR) and collaboration for SBIRs to retain academic talent and graduates in Arizona.



# BIOSCIENCES AND HEALTH CARE

## PRINCIPLE

Advocate collaboratively with Arizona stakeholders to support the discovery, development, commercialization, distribution and availability of bioscience innovations. These innovations are imperative to helping solve not only today's but also tomorrow's health care challenges while improving the lives of Arizonans.

## POSITIONS

### UNIVERSITY RESEARCH FUNDING

Advance the research enterprise systemwide by working collaboratively with the Arizona Board of Regents. Proposition 301 funding allocations (detailed in the Education, Workforce and Workplace sections of this Guide) should be protected by voters. Higher funding levels may be contemplated for the future. Increased focus should ensure equitable access to students of diverse identities working on research projects.

### INTERNSHIPS

Develop and fund a pilot program to support science, technology, engineering and math (STEM) internships that reflect the diversity at Arizona's high schools, community colleges and universities, and broaden access to underrepresented students.

### IMPROVE HEALTH CARE AND REDUCE COSTS

Focus on cost-saving measures and total cost of care for patients. Efforts should be made to ensure all Arizonans have equitable access and opportunities to benefit from the lifesaving and life-changing innovations the biotechnology and medical technology industries can offer.

### SUPPORT ARIZONA BIOMEDICAL RESEARCH CENTRE

Support the Arizona Department of Health Services Biomedical Research Centre's mission and its grant process for funding opportunities designed to identify and select high-impact bioscience research, education and innovation projects specifically designed to benefit the people of Arizona today and in the future.

## SUPPORT EVIDENCE-BASED PUBLIC HEALTH PRACTICES

Use evidence and science-based methodologies and information that is peer-reviewed or accepted scientific consensus in making public health decisions. Work to ensure prevention and reduction of diseases in Arizona, especially as the world faces the worst public health emergency in recent times.

# BIOSCIENCES AND HEALTH CARE: TELEHEALTH

## PRINCIPLE

Telehealth and its integration into electronic delivery of health care should continue to be enabled and broadly adopted throughout Arizona. That includes educating and advocating for uniform deployment and enforcement of the new telemedicine laws at state and local levels, as well as facilitating expansion of the statewide telehealth infrastructure and ecosystem.

## POSITIONS

### TELEMEDICINE AND TELEHEALTH

Prioritize and invest in expanding telehealth infrastructure and the availability of the underlying technologies necessary for its robust application. Provide remote social services and behavioral health lifelines, as well as remotely connect families to isolated patients. With social distancing and selective quarantining being the new norm, telemedicine has become even more necessary and critical for Arizona's health care facilities, providers and patients in the wake of the COVID-19 pandemic. It will be especially important to health care providers who increasingly depend on broadband to recruit, train and prepare the workforce of the future, as well as support staff in interprofessional training, collaboration and simulations and emergency preparedness activities. Build on past support for participation in medical



and nursing interstate licensure through legislation to join the National Council of State Boards of Nursing's Advanced Practice Registered Nurse Compact enabling out-of-state medical professional to deliver telemedicine consults and services in Arizona, and reciprocally for Arizona medical professionals to similarly deliver teleservices to those in other compact participating states.

Continue to support expanded telemedicine parity, licensure and electronic establishment of doctor/patient relationship laws that are driving Arizona telemedicine adoption and enhancing access to health care. Additional refinements include amending existing policies and rules for implementing the new telemedicine laws from which patients and health care providers are already benefitting. However, still lacking is uniform understanding of the new telemedicine parity and licensure laws that expanded service coverage and removed statutory and regulatory barriers, resulting in a lag in providers' participation that negates their ability to reach their potential. With the new telehealth permanency law, we need to educate and advocate for uniform deployment and education of the new laws at state and local levels by building a strong working consensus among providers, payers and users of telemedicine and telehealth services.





# CAPITAL FORMATION

## PRINCIPLE

The most efficient way to continue making Arizona a technology destination is to attract more investors and their financial resources. This goal can be accomplished by understanding what the risk-capital industry needs to motivate such a move of capital to the state. Arizona has developed a successful Angel Investment Tax Credit program and has a research and development ecosystem second to none. There are also several other economic development programs that have helped Arizona become a leader in technology, especially advanced manufacturing. Despite those programs, many firms seeking capital to enter the critical early stage of business development leave Arizona because crucial in-state funding is scarce. Arizona needs to address this issue because the state is losing out on some of this country's most coveted jobs.

## POSITIONS

### ANGEL INVESTMENT EXPANSION

Explore the opportunity to expand the Angel Investment Tax Credit to better address the need. The Arizona Commerce Authority (ACA) certifies \$2.5 million in tax credits each fiscal year for investments made in qualified small businesses. Any unused credit capacity is carried over from the preceding year. The amount of angel investing increased dramatically after the program was recapitalized, which shows the program truly does incentivize and encourage investors to invest when they may otherwise not have. Currently, the \$2.5 million of tax credits is usually fully utilized within the first half of the year. The innovative companies that benefit from the investments that are a direct result of the Angel Investment tax credit produce high-quality, high-paying jobs, and the success of these companies will aid a quicker recovery and growth of the state's economy. Expansion of this program can result in more companies receiving investments, which can further increase the program's positive economic impact on the state.

### RESEARCH & DEVELOPMENT TAX CREDIT

Explore the possibility of making the current levels of the extremely successful Research & Development (R&D) Tax Credit permanent. The federal government's program is now permanent, and we recommend the state enact similar permanent legislation. This legislation will continue encouraging companies to invest additional research and development monies here in Arizona. In 2008, the Legislature approved



increasing the R&D tax credit value from 20% to 24% for the first \$2.5 million in qualifying expenses and increasing the rate for qualifying expenses in excess of \$2.5 million from 11% to 15%. Additionally, an analysis should be performed to determine ways that companies can realize the intended benefits of the program. These efforts have resulted in increased investments in Arizona by being able to utilize some of the unused credits they have earned, which is mutually beneficial to the state and companies.

## EARLY-STAGE VENTURE CAPITAL

Increase early-stage funding that is integral for startups and early-stage companies as they try to develop and market their products. Although in recent years Arizona has found creative ways to address some of these issues through initiatives such as the ACA's Competes Fund for microenterprises, there remains a significant need to reduce the number of companies recruited to surrounding states with seed and early-stage venture capital. Most states have created early-stage venture capital funds through which the states take on a role in supporting investments in these companies. Arizona needs to understand how to attract, encourage and incentivize early-stage funding of companies. Various funding models used in other states (e.g., Utah's fund of funds model, Maryland's insurance premium tax credits) need to be analyzed to determine which could be potentially viable methods in Arizona.

## COORDINATED INVESTMENTS IN STARTUP ACTIVITY

Support the efforts of the ACA to:

- + Coordinate and build a more robust angel investment community by working with existing angel investment groups and accelerators.
- + Celebrate and publicize the success stories of the startup community.
- + Develop an early-stage company information clearing house so information about these companies can be introduced to other members of the startup community, including potential investors who can learn about these companies and still comply with the applicable securities laws.
- + Work collaboratively with Arizona stakeholders to create a corporate development fund (CDF) database to share with early-stage companies. The database will identify a CDF's investment thesis and contact information so the startup companies can contact CDFs whose focus areas align with their products or services.
- + To complement the CDF initiative, the Legislature should provide an initial investment and ask Arizona-based CDFs to match the investment with the intent to establish a fund-to-funds model similar to the one in Utah.





# CYBERSECURITY

## PRINCIPLE

With data moving into the cloud and the digital economy expanding, cybersecurity is now one of the most critical issues facing the nation. As we move deeper into the digital age, new threats and data breaches occur almost daily.

Cybersecurity is a top priority. Some reports put the number of monitored cyberattacks at 1.5 million annually in the United States—with up to 85% of data breaches undetected—and 30 million attacks per year globally. Other reports estimate that approximately half of all cyberattacks target small businesses but 70% of them are unprepared to deal with such attacks. Reports further estimate that attacks will cause an estimated \$6 trillion in damages by 2021. There is no question we are in the midst of a cyberwar. As a result, American businesses and public sector institutions alike find themselves at the forefront of the battle, making cybersecurity improvements critical for organizations of all sizes and types.

Arizona aims to be a national leader in the sector by attracting cybersecurity companies and talent while promoting good cybersecurity practices among organizations across the state, including working with higher education. In addition, the Arizona Technology Council will help by focusing on three core cybersecurity positions: awareness, education and regulation. The Council also supports Gov. Doug Ducey's recent launching of the Cyber Command Center at the Department of Public Safety's Arizona Counter Terrorism Information Center.

## POSITIONS

### AWARENESS

Prioritize awareness and intelligence about the risks that unfriendly groups and malicious individuals pose to businesses and the best practices for discerning and blocking attacks.

### EDUCATION

Support and accelerate cybersecurity education for individuals, ranging from K-12 students to senior citizens, to help protect all Arizonans. Help equip the current workforce with the skills necessary



to succeed in the cybersecurity field, reskill those transitioning to the field and develop the next generation of cyber protection and response professionals qualified to fill the nearly 14,000 open cybersecurity jobs across Arizona. COVID-19 increased the number of employees working remotely, dramatically increasing attack surfaces and security vulnerability. Additionally, cyber breaches by criminals and nation-states increase daily. Both have created even more demand for cybersecurity talent across all industries. Filling this talent gap creates the opportunity for cybersecurity talent development to lead in demonstrating the value of competency-based hiring, as well as casting a wider, more inclusive net for talent by recognizing certificates, credentials, use of apprenticeships and other earn-and-learn programs. Support state funding for high schools, colleges and universities looking to develop or significantly expand existing IT programs to expand the cybersecurity workforce.

## REGULATIONS

Promote responsible regulation that centers on reasonable and consistent privacy notice and breach-response requirements by working to keep public agencies educated and aware of cybersecurity best practices.







# DIVERSITY, EQUITY AND INCLUSION

## PRINCIPLE

Over the past few years, diversity, equity and inclusion (DEI) has risen in priority to become a business imperative. Consumers are taking their business to companies with a proven commitment to DEI, including race, ethnicity, sexual orientation, gender identity, language or country of origin, among other defining identities and characteristics. A growing number of laws and requirements are being enacted to support greater diversity in the workplace, on company boards and in government entities. Organizations need to progress or risk a limited candidate pool, reduced market share and, ultimately, lost profitability. Employees are looking to leadership to make an intentional DEI approach that makes a lasting difference. Advancing workplace diversity is more important today than before. The impact of COVID-19 has been disproportionately felt by underrepresented identities, including women and BIPOC (Black, Indigenous and People of Color). A rise in hate crimes and social injustice protests has amplified the lack of equitable employment opportunities, as well as lack of access to basic core services (e.g., health care, broadband, education, affordable housing, livable wages) essential to the pursuit of a better life and economic mobility.

## POSITIONS

### AWARENESS

The Arizona Technology Council will prioritize awareness of DEI best practices through programming. We will exemplify via subject matter expertise how DEI are critically important to a healthy economic future for Arizona and the continued growth of Arizona's technology ecosystem. This is only possible through intentional programs baked into every aspect of business, government operations and legislative priorities, and can be accomplished through:

- + Deliberate integration of DEI principles and goals in other sections of this Public Policy Guide, especially Workforce, Telecommunications and Economic Development.
- + Proactively supporting the business and technology ecosystem in driving internal and external DEI.



- + Providing DEI education programs and collaboration mechanisms targeted at small and mid-sized businesses to establish a shared set of goals and common metrics to assess progress.
- + Increasing awareness of the digital divide by proactively supporting the expansion and distribution of broadband, STEM education programs and laptops/tablets for students in underserved areas.

Business leaders and government entities now recognize that “intentionality” is a pre-requisite for:

- + Evolving a more diverse, equitable and inclusive workplace, with a level playing field of opportunity for minority and underrepresented individuals.
- + Proactively addressing discrimination in access to basic services that enable economic success and well-being (e.g., health care, housing, communications/broadband, voting rights).

## EDUCATION

The Arizona Technology Council will continue to provide DEI education and support to member companies and the business community at large, including:

- + Hosting the Tech Inclusion Forum quarterly series of events.
- + Thinking globally but acting locally with new strategies to engage customers and talent via education and training programs.
- + Enabling diverse career paths across roles and areas.
- + Investing in workforce development as reskilling and upskilling programs are essential to creating, maintaining and growing a more diverse workforce with equitable opportunities for all. Embedding DEI throughout the employee experience by offering internal advancement opportunities and flexible work arrangements to improve inclusion, growth and engagement.
- + Growing a vibrant business community with a strong commitment to and focus on DEI, which is essential to the attraction of new companies to Arizona and the expansion of existing companies here.
- + Providing underrepresented, minority-owned businesses with entrepreneurial support, including coaching, mentoring and financial investments.





# ECONOMIC DEVELOPMENT

## PRINCIPLE

Arizona must be able to compete with any state or country by having the most competitive economic development tools possible while encouraging innovation, business attraction, retention and growth. Arizona is becoming a known tech hub in the nation after creating, attracting and growing many technology companies during the past decade due to its favorable economic climate. Recently, Arizona has been recognized as a national leader in advanced manufacturing. However, we must ensure we continue programs that assist this process, rather than adopting policies that could be detrimental to equitable economic growth and recovery.

## POSITIONS

### ACA STATE PROMOTIONAL EFFORT

Advocate for Arizona Commerce Authority's (ACA) continued funding and work to ensure it remains the platform for the state's economic development efforts. ACA's mission is to grow and strengthen Arizona's economy and facilitate the creation of quality jobs for its citizens by expanding and attracting businesses in targeted, high-value base industries throughout the state. Encourage support for the many ongoing ACA initiatives focused on enhancing Arizona's innovation ecosystem. An example is expanding the Arizona Advanced Technology Network — a partnership between Pima Community College, Central Arizona College and Maricopa Community College — to include rural communities. Support the Arizona Office of Economic Opportunity's mission to increase the state's workforce quality and business climate through use of economic, demographic and regulatory data; policy development; and relationships with key partners.

### COVID-19 ECONOMIC RECOVERY

Support policies that help facilitate and allow business leaders to drive equitable and inclusive economic recovery for businesses across the state, especially those high-quality, high-paying jobs that can help get all Arizonans back to work. The coronavirus pandemic has changed the way the world operates. Arizona needs to create and support policies that help businesses in our state recover. Although the technology industry was able to weather many of these challenges, there is still going

to be a period of recovery, adjustment and growth for businesses that pivoted to meet the public's needs during the pandemic.

## GLOBAL COMPETITIVENESS

Support the increase of resources dedicated to Arizona's State Trade and Export Promotion (STEP) program from the ACA and U.S. Small Business Administration. This would help ensure small businesses are able to compete internationally on a level playing field. The Council will also participate in trade missions around the world to provide economic opportunities for its members. Encourage support for RevAZ, which is Arizona's Manufacturing Extension Partnership (MEP) center created through a partnership between the ACA and the National Institute of Standards and Technology. The goal of RevAZ is to become the central resource for technical assistance and all things manufacturing for Arizona's existing community of small- and medium-sized manufacturers.

## INFRASTRUCTURE INVESTMENT

Support development of tools to facilitate public and private investment in infrastructure necessary to competitively enable high-tech manufacturing investments and growth. Ensure access to essential infrastructure, such as broadband, is available across the state to eliminate roadblocks preventing people from working from home if necessary.

## LOCAL EFFORTS

Foster local economic development by supporting local entrepreneurs who engage with the global economy to deliver goods and services around the world. Additionally, there are initiatives to make Phoenix, Tucson and other Arizona communities more supportive of startups and innovation. Those efforts need to be encouraged and supported where possible. Ensure local governments do not create ordinances or other roadblocks to doing business in their jurisdictions but instead support streamlined processes when available. Ensure access to opportunities, credit, funding, investors and mentors since studies show challenges that limit growth and sustainability in these areas. Additionally, ensure funding opportunities are inclusive of minority and women-led business startups and expansion as data continues to show significant inequities in access to funding.

Promote increased investment and expand tax incentives for employment in federally certified opportunity zones, where many residents are people of color and low-income. By adapting to remote work during the COVID-19 pandemic, companies have learned they can manage and thrive with workers located anywhere, creating an even greater opportunity to increase the diversity of their workforce with respect to hiring qualified talent.

## FEWER REGULATIONS

Continue to reduce the number of regulations that discourage companies from relocating to or growing in the state. There has been increased focus during Gov. Doug Ducey's two terms to get government out of the way of business and create an environment that fosters growth. There is continued support needed by the Legislature and business community to reduce regulations and create policies that stimulate the economy instead of stifle it, especially in relation to new innovative and disruptive technologies that challenge some industries' ways of doing business.

## TARGETED INDUSTRIES

Expend substantial public policy efforts and accompanying resources on creating, attracting and retaining those employers that pay the highest wages. Wage studies routinely show that the many technology fields supported by the Council employ the highest-paid employees. In particular, the Council recommends efforts to target the following industries: health and bioscience; semiconductor and electronics; information technology and cybersecurity; energy; aerospace (including commercial space); aviation and defense; telecommunications; optics; and medical, financial and education technologies. Support Arizona's efforts to establish a leadership position that encourages adoption of new, innovative and disruptive technologies such as blockchain, artificial intelligence, machine learning, additive manufacturing, autonomous vehicles and the internet of things (IoT).

## PROMOTE BORDER JOBS FOR VETERANS ACT

Work with U.S. Customs and Border Protection and the U.S. Department of Defense to create a streamlined process for veterans to apply for Customs and Border Protection positions. The Border Jobs for Veterans Act has created a mechanism for military to transition into these enforcement jobs, but the program is not well known and needs ongoing support and promotion. Veterans have the training and skills that make them ideal candidates for these jobs.

## ACCESS TO CAPITAL

Provide border-based businesses with access to needed capital. Much has been made of the border flight by the three biggest U.S. banks—Chase, Bank of America and Wells Fargo, respectively—leaving many border-based businesses without access to working capital and lines of credit.

## SUPPORT MINORITY ENTREPRENEURSHIP

Support business efforts to boost minority entrepreneurship by increasing supply chain diversity, creating pitch competitions and mentoring support, as well as additional access to capital for startups and growth of minority-owned or largely minority-owned businesses.







# EDUCATION, WORKFORCE AND WORKPLACE

## PRINCIPLE

The lack of skilled talent continues to be a top challenge and barrier to business growth, with the skills mismatch that exists for high-tech jobs even more evident as Arizona's economy recovers and rebuilds. A robust, aligned education and workforce development system that ensures an inclusive, equitable economic recovery; eliminates inequities; and provides all Arizonans with education and career opportunities is more important now than ever. At all levels, science, technology, engineering and math (STEM) education must be proactively supported, with access to high-quality STEM education available to all students. Expanding access to and participation in quality advanced coursework for all students, particularly those who are typically underrepresented in these courses, is also critical to preparing students for college and careers. Workforce development and retention strategies and funding should be coordinated and aligned with targeted high-skill, high-wage and high-demand industry sectors, with an increased focus on underserved communities and individuals.

Such a system of support will provide the foundation of a healthy Arizona technology community and innovation economy by:

- + Reducing barriers to full participation of all Arizonans in an inclusive, equitable economic recovery.
- + Developing cross-institutional partnerships from education, community, government and business that enhance Arizona's STEM ecosystem.
- + Focusing on increased graduation from high school for all students, as well as credentials, certificates and degrees in high-wage, high-demand STEM jobs.
- + Increasing participation by companies to provide work experiences, including internships and apprenticeships, for students from K-12 through higher education to develop STEM workers now and in the future.

- + Enabling the attraction and retention of the in-state, remote and imported talent needed for Arizona to thrive as a technology hub, with a heightened focus on underrepresented talent.
- + Eliminating the digital divide by increasing access to broadband and needed devices to ensure equitable opportunities for education, training and job opportunities for all.
- + Increasing public awareness of the importance of STEM as an educated citizenry for Arizona's future workforce.

## POSITIONS

### CAREER AND COLLEGE READINESS

Increase Arizona youth and adults' attainment of credentials, certificates and degrees aligned with business needs, and accelerate economic development by championing support for improvements in pre-kindergarten through postsecondary education and workforce development. Major areas of focus should include supporting high expectations for all students; providing funding for career awareness and development beginning in middle grades; leveraging policy and funding to close equity gaps in participation and performance in advanced coursework; awareness of career pathways for students and adults to align with Arizona's targeted growth industries, especially in STEM; leveraging industry engagement; and increasing work-based and work-like experiences provided through high school and postsecondary education. Additionally, support innovative approaches to adult basic education that allows adult learners to obtain high school-equivalency diplomas while obtaining a college credential in skills that will support a livable wage. Continue to enhance and support the development of relationships between K-12, community colleges and universities to diversify and expand career readiness options for Arizona youth.

### EDUCATION FUNDING

Fund the state's P-20 public education system with consistent, dedicated and sustainable revenue sources. More specifically:

- + Develop and support mechanisms to fully, equitably and sustainably fund Arizona's pre-K through 12th grade education system, career and technical education district (CTED) expansion, access to quality advanced coursework such as advanced placement and dual enrollment courses and community colleges

and universities—all while focusing on equity, performance and accountability. Protect the Proposition 301 funding allocations and ensure funding mechanisms that position Arizona at minimum with mean-level funding among the 50 states.

- + Support sustainable state finance formula changes by adding an "equity weight" to give school districts the aid necessary to close existing achievement gaps for students in lower socio-economic circumstances.
- + Increase equity and access to higher education by maximizing utilization of the Arizona Promise Program for college students in high-demand and high-tech career fields.
- + Ensure funding for computer science teacher training aligned with Arizona K-12 computer science standards.
- + Update the state's aggregate expenditure limitation formula to reflect increased weighting for in-demand, high-cost CTE enrollments and include short-term, non-credit training for incumbent workers in targeted high-wage job growth.
- + Revise the statutory full-time student equivalent (FTSE) formula to reflect predominant learner course-taking, which is part-time, and allow non-credit workforce training to count toward the formula's calculation.
- + Support funding requests and projects initiated by community colleges, including rural colleges, and CTED and large-scale programs that increase access to careers with high wages. Fully fund community-college STEM education according to the funding formula in state statute.
- + Support funding requests initiated by the Arizona Board of Regents that will build upon the existing strengths of the state's public university system to ensure access for qualified students, world-class research capabilities and a workforce pipeline prepared for the demands of the new economy.

### ACCOUNTABILITY

Drive attainment of the statewide goal of 60% of Arizona adults holding a postsecondary degree or credential by 2030. This is necessary to support economic development and personal prosperity of all Arizonans by funding the strong support necessary to meet the accountability metrics set forth by the Arizona Education Progress Meters. Support the implementation of meaningful and aligned accountability systems and transparent reporting of disaggregated data, with appropriate resources and training.



## TALENT GAP

Align workforce development and education efforts with employer needs. Support and increase the use of business-friendly, competency-based work experience models and pathways to accelerate skills development in high-wage, high-demand and high-growth sectors. Examples include internships and apprenticeships, CTE, early college and career high schools and utilizing technology for scale and implementation in rural and remote locations. Leverage incentives, tax credits and apprenticeship grants to promote internships and apprenticeship programs. Work with community colleges to market and expand awareness of credit for experience granted through prior learning assessment programs.

## CTED

Build on the successful expansion of fourth-year CTED funding by maximizing equity and access to high-demand CTE programs while considering policies that include transportation funding to aid students and families with the expenses and challenges

associated with travel to central CTE programs, their homes and their high schools. Support CTE adult education to help build the workforce Arizona needs and the Industry Incentive Fund to support industry credentialing for students in high-demand programs. Consider establishing a statewide articulation agreement allowing those who complete high school CTE programs to receive articulated college credits from participating colleges and universities at no cost and establishing an Arizona career proficiency and college readiness seal recognizing students in CTE for completing rigorous soft skills, technical skills and core academic training.

## DUAL ENROLLMENT AND CREDIT FOR PRIOR LEARNING

Increase implementation of early college and career high schools by removing the barriers to full participation in dual enrollment and developing sustainable funding models to ensure equity and access for all students, including those in rural areas. Dual enrollment increases high school and post-secondary completion and supports early talent development. Increase collaboration between high school and post-secondary counselors and educators to support seamless transitions for students. Additionally, ensure access to and equity in dual enrollment opportunities for all students to increase diversity and credential, certificate and degree completion. Maximize utilization and support of Arizona Teachers Academy funding available to support teachers seeking dual enrollment certification, with a focus on high-demand STEM subject areas. Ensure availability of dual enrollment classes for all students by supporting innovative solutions to provide teaching capacity to underserved schools and students. Additionally, support community colleges in designing a dual-credit model for adult learners and opportunity youth, as well as youth ages 16-24 who are neither in school nor employed, allowing these individuals to enroll in both adult basic education programs and community college courses simultaneously while building the talent Arizona needs and supporting the Arizona Reskilling and Recovery Framework. Further, reduce costs and barriers to college entry for working adults who are Arizona@Work WIOA-eligible clients seeking enrollment in Arizona's community colleges by expanding SB 1267 under ARS 15-1898 and awarding credit for prior learning.

## ADVANCED PLACEMENT

Leverage policy and funding to expand equitable access to and participation in advanced placement (AP) coursework, with an emphasis on AP STEM courses, through

using data and other criteria to identify students ready to take AP courses, teacher training, professional development and funding to assist low-income students with exam fees. Closing these gaps also requires building a sustainable and equitable student pipeline through rigorous middle school and early high school coursework. Closing these gaps to AP courses is essential to giving Arizona students, particularly those who are traditionally underrepresented (e.g., minorities, residents of rural areas), the opportunity to experience the benefits of challenging coursework and earn college credit while in high school. Research shows that students who take AP courses are more likely to enroll in college, stay in college, excel in their classes and graduate in four years — even if they earned a 1 or 2 on the exam. Additionally, students who take AP computer science principles in high school are more than three times as likely to major in computer science than similar students who did not take the high school course, providing students invaluable skills that prepare them for high-paying, in-demand jobs. AP and CTE courses can also work in tandem to support career readiness by encouraging the development of the academic knowledge and technical skills that together are increasingly important to students' overall employability. Therefore, AP courses can be embedded into CTE pathways and programs of study as these courses complement and supplement each other by allowing students to explore coursework and develop relevant skills focused on career areas in which they aspire to work.

## STEM ECOSYSTEMS

A STEM ecosystem or network would allow for efficiency, shared best practices, resource sharing and targeted dollars and coaching to those who need it most. In short, this program would “connect the dots” among the state's STEM partners, ensuring the best return on investment for state-invested dollars. Advocate for and support policies to cultivate a statewide STEM ecosystem including but not limited to state-supported funding for STEM ecosystems. A five-year STEM plan recently released by the White House stresses the importance of ecosystems to “focus on long-term, shared, sustainable and flexible STEM missions that bridge, integrate and strengthen the learning opportunities offered by organizations across sectors compared with isolated, independent entities.” Given Arizona is home to a flourishing STEM industry base and is expected to significantly grow between 2017 and 2027, we must act now to take advantage of the momentum generated by the plan and leverage state investments (likely three- to fivefold). This will result in expansion of STEM business and education opportunities throughout rural and

urban Arizona communities, fueling a strong and diverse talent pipeline prepared to meet the state's anticipated growth.

## TEACHER COMPUTER SCIENCE/HIGH SCHOOL COMPUTER SCIENCE MANDATE AND SUPPORT TEACHERS ACADEMY

Ensure funding for computer science teacher training and programming is aligned with the new Arizona K-12 standards so all students in these grades have computer science education access. Support and promote a focus on STEM education through the Arizona Teachers Academy, a program that provides free college education to those willing to go into teaching and remain there for at least four years.

## E-LEARNING

Develop a coordinated strategy to promote and support adoption of innovative ideas and new technologies based upon lessons learned during the COVID-19 pandemic in libraries, K-12 and higher education, including blended learning, flipped classrooms, digital curriculum, virtual online labs, makerspaces, robotics instruction and competency- and outcome-based e-learning approaches. Establish an Office of Digital Teaching and Learning within the Arizona Department of Education to serve local education agencies seeking assistance, support or coordination and as a bridge to other organizations and institutions with concurrent and overlapping responsibilities, maintaining a keen focus on supporting educator excellence and capacity building for the agencies. Drive increased use of digital curriculum, STEM programs and consortiums to better prepare students for the jobs of the future and improve learning outcomes for diverse student populations and needs. Expand opportunities for online teacher training such as ASU Prep Digital's Arizona Virtual Teacher Institute. A significant cluster of e-learning and innovative educational companies and institutions could create the opportunity for Arizona to be a leader in innovation and transformation of educational technology and outcomes, including workforce development.

## BROADBAND ACCESS

With guidance from the Arizona Department of Education's Tech Task Force and Long-Term Plan Subcommittee recommendations, continue to enable broadband availability for rural K-12 schools and libraries, as well as higher education at predictable, reasonable costs while driving online education applications and



collaborative activities to improve learning delivery and development of workforce skills and pathways. The pandemic has revealed that K-12 and higher education are facing enormous, unanticipated challenges as they virtualize their services and enable remote participation since some remain unserved or underserved today. The homework gap is real and pressing for many disadvantaged students and their families, negatively impacting their ability to participate in today's socially distant learning environment. The recent award of \$40 million from the Governor's Emergency Education Relief Fund to build new fiber infrastructure is an excellent and significant first step along a path on which we should continue.

Focus, plan and invest to resolve shortcomings that remain in student access to computing devices, software and technical support. Such support within schools and for students, faculty and administrators working remotely needs to be provided through a variety of mechanisms and programs. Because libraries especially have been focal points for community broadband access inside and around their facilities, libraries should continue to expand and be accompanied by public technical support services. Launch and fund programs to provide disadvantaged students with devices and applications that allow them to participate remotely.

Build on recent progress with E-rate programs by having the Arizona Commerce Authority's (ACA's) state broadband director work with the Arizona Department of Education and Arizona State Library, Archives and Public Records. (E-rate programs support rural infrastructure expansion, availability of reliable, affordable broadband for their institutions and telecom equipment and services.) Add staffing at the ACA to coordinate the aggressive pursuit of E-rate, as well as other grants and participation in industry programs. Encourage the ACA and the Office of the Governor to engage national organizations and industry partners to help form and assist coalitions of school districts, counties and regions to successfully qualify for and implement E-rate projects.

## **WORKFORCE DEVELOPMENT/JOB TRAINING**

Ensure a version of a job training program is available for companies to utilize so workers can be trained quickly to aide in the economic recovery from the pandemic. Support efforts to integrate workforce development programs and reinvigorate job training programs to help companies attract and retain needed talent, whether it is produced within Arizona or imported from other states and countries.

Support and provide funding for career awareness and navigation services that support middle grades to mature adults seeking career information, guidance and training that can empower individuals and families to make informed decisions about education, career and employment pathways and choices. Ensure equitable access to all Arizonans.

Engage business, K-12 and postsecondary education and workforce and economic development communities in collaborative, integrated sector and cross-industry strategies and implementation through the deployment of Arizona's STEM ecosystem. Leverage programs, organizations and agencies charged with addressing skilled-workforce shortages in high-tech industry sectors and ensure equity and access to all training and development opportunities. Maximize opportunities and outcomes derived from the Greater Phoenix Workforce Leadership Academy developed through a partnership between the Aspen Institute Economic Opportunities Program and Center for the Future of Arizona. Promote targeted and intentional business-led participation in bridging the talent gap with diverse talent. Expand the Talent Pipeline Management program with an increased focus on underserved communities, students and citizens.

Additionally, the technology sector has been able to weather the impacts of COVID-19 better than other sectors. This provides the opportunity for companies hiring and developing tech talent to drive more equitable recruitment and hiring while leading in demonstrating the value of competency-based hiring and casting a wider, more inclusive net for talent by recognizing certificates, credentials, the use of apprenticeships and other "earn and learn" programs. Additional consideration should be given to reducing dependency on requiring four-year degrees for positions, which excludes two-thirds of U.S. workers, 80% of Latino workers and 70% of African American workers.

Promote evidence-based practices and incentives to bridge the talent gap, including apprenticeships for students and re-careering adults, as well as innovative onboarding programs. Support an increased focus on employee development as a source of upward mobility for mid-, senior- and executive-level talent development. Use internal and comparative data to increase diversity and ensure fairness in pay, promotion and retention. Encourage and support companies' positive experiences with remote work to increase opportunities for hiring diverse talent.

## JOB-DRIVEN FINANCIAL SUPPORT/ASSISTANCE

Explore job-driven financial support models, including eligibility for unemployment benefits for underemployed individuals participating in intensive training programs for high-wage and high-demand jobs, tuition waivers, and “last dollar” scholarships/ tuition assistance for adult learners to complete in-demand certificates or degree programs. Maximize and support utilization of new community college enrollment incentive program for low-wage workers to train for high-tech jobs.

A systems approach could be used to encourage businesses to sponsor or develop apprenticeship programs through tax credit incentivization, which would increase the number of apprenticeships offered while simultaneously building a talent pipeline. Having a policy to support businesses in establishing work-based learning and apprenticeship programs could attract new companies to Arizona and provide a sustainable solution to their workforce needs.

## EMPLOYMENT NON-DISCRIMINATION

Encourage policy makers to look at updating Arizona’s non-discrimination laws critical for attracting and maintaining a competitive workforce, especially in the technology sector. Non-discrimination statutes should be inclusive of gender, race, religion, sexual orientation, gender identity, nationality, level of ability and age in the areas of employment, housing and non-discrimination. Employees should be judged on their merits instead of identities and employers should foster an environment of acceptance and inclusion where innovation can thrive. Many of the surrounding states already have updated their statutes to ensure these protections are in place, giving them an advantage in recruitment and attraction of top talent and businesses. Updating Arizona’s non-discrimination laws will ensure we are competitive, which is good for our citizens and economy.

## ADDRESSING INEQUALITY IN CRIMINAL JUSTICE TO INCREASE ACCESS TO JOB OPPORTUNITIES

Encourage businesses to build on the state’s second-chance hiring policy that eliminates the question about prior convictions on hiring applications and provides individuals with a past conviction to be considered based on current merit versus being excluded up front. This would open doors for many qualified individuals, allowing them to restart their lives, support their families and engage with their communities, as well as provide companies with an additional talent source. Since

non-white individuals are disproportionately impacted by the criminal justice system, this also helps companies support a more inclusive economic recovery and diversify their workforce. Providing companies with best practices, such as those developed by the Society of Human Resource Managers, can also help employers proactively lead by example. Additionally, maximize licensure for current and new residents by ensuring that any restrictions to obtaining an occupational license are narrowly targeted and provide a means to recognize successful rehabilitation.

Other considerations to break down inequities that disproportionately impact non-white citizens in Arizona should include clean-slate legislation that allows the use of technology to automatically clear a person’s non-violent criminal record if they stay crime-free for a pre-determined period of time. The restoration of voting rights would positively impact those who have been disenfranchised, allowing them to fully participate in the American democratic process.





# ENERGY

## PRINCIPLE

The link between technology investment and energy is fundamental and unbreakable. To attract investment capital and retain and grow its technology business sector, Arizona needs predictable and investable energy markets that ensure affordability, grid reliability and energy security while enabling companies to meet internal sustainability goals. Additionally, the state needs a secure and adequate water supply. Every key Arizona technology cluster—including aerospace and defense, semiconductor and electronics, health and bioscience, cloud/data centers, back-office processing and alternative energy technology—shares these needs. Policy and legislative choices that enable market forces to improve the status quo have historically been favored. There are several attractive policy options that would benefit Arizona technology businesses, job creation and economic productivity. Several trade organizations, including the Arizona Energy Consortium, continue to find ways to provide more certainty in developing the state's energy policy for the future.

The current political and social climate in Arizona supporting transition to low-carbon technologies provides the ideal landscape for companies and utilities to meet their aspirational sustainability goals. A growing number of companies are setting goals to source 100% renewable energy for their facilities and reduce their carbon footprint. Access to cost-effective low-carbon or carbon-free energy resources is an important factor for companies as they consider where to make future investments.

## POSITIONS

### DIVERSIFICATION OF ENERGY SUPPLY, UTILIZATION

Improve diversification of the state's energy mix by including cost-effective solar, storage and other renewables in addition to distributed energy resources. Utilizing a diversity of resources to generate clean electricity, store renewable energy, use energy more efficiently and curb usage at critical times are all ways to increase reliability and affordability of electricity. Policymakers should enact laws that enable diversification of the energy supply while continuing to ensure reliability and stability of costs.



## NATURAL GAS

Intermittent renewable resources augmented by natural gas generation can provide a carbon-reduced, secure power source as Arizona transitions to a carbon-free market. Modern, flexible natural-gas generation will be important to maintaining reliability of the grid in the interim as it transitions to zero-carbon.

## NUCLEAR ENERGY

Continue Arizona's utilization of the low-cost base load power of the Palo Verde Nuclear Generating Station to benefit the state's residents and businesses. As the largest nuclear power plant in the nation, Palo Verde is the primary energy hub of the Southwest, establishing Arizona as a key market for interstate generation suppliers. Importantly, this excellent source of base-load power is best suited for the steady, predictable power needs of always-on manufacturing, data hosting and bioscientific experimentation.

## CLEAN AND RENEWABLE ENERGY

Support policies that provide the certainty needed to attract clean and renewable energy developers of all sizes, from rooftop to utility scale. Sustained economic investment requires that Arizona utility regulators and legislators create and maintain policies that enable capital intensive investment in clean and renewable energy technologies. For many companies, clean and renewable energy is the future. Forward-thinking businesses are increasingly demanding that their electricity comes from renewable sources. Economic development is a huge area of focus for Greater Phoenix and Arizona, so it is imperative to continue developing supportive policies that allow companies to source clean and renewable energy that will encourage business creation, relocation and expansion. Arizona exhibits some of the best attributes for harnessing solar energy in the world. The state's low corporate tax rate, ideal geography, relatively inexpensive land, moderate climate and proximity to substantial and in-place infrastructure provide real-world inputs for Arizona to establish itself as the leader of clean and renewable energy generation and innovation.

Energy policy that encourages demand-side adoption of energy efficiency, prioritizes clean and renewable energy use, invests in electric vehicle infrastructure development, and supports innovation in the industry should be prioritized. Additionally, the advancements in clean and renewable energy policies that have been made by the Arizona Corporation Commission need to be protected. This process has been

expansive over many years and included several stakeholders. This progress should continue as the importance for clean energy is a top priority for corporations across the state. Any changes to these rules and policies should be done in a thoughtful manner that includes all of the different stakeholders across the state.

## ENERGY EFFICIENCY

Support policies that encourage and embrace energy efficiency to keep Arizona's electricity costs low. Energy efficiency is consistently the least-cost energy resource to meet the state's energy needs. Robust energy efficiency programs and policies with a focus on peak demand will help Arizona businesses and consumers cut energy waste, reduce the need to build expensive power plants and save ratepayers money while creating jobs and economic opportunity in developing and deploying energy efficiency technologies.

## ELECTRIC TRANSPORTATION

Create and maintain a robust and growing transportation electrification market and build out electric vehicle charging infrastructure as Arizona continues to foster innovation and grows into a world-class technology hub. Arizona is already attracting advanced transportation and electric vehicle manufacturing companies and has significant opportunity to be a leader in this growing economic sector. Companies will not want to continue to invest in Arizona over other burgeoning EV hubs like Texas and California without demonstrated support to keep their market powered. A key way to continue this momentum is to invest in charging infrastructure for personal vehicles and electric fleets. This, coupled with effective charging rate design, is critical for the state's renewable energy transition. Beyond personal vehicles and ride-sharing services, electrifying fleet vehicles including delivery vehicles, 18-wheelers, public transit vehicles and school buses will result in cost savings for both the public and private sectors in Arizona.

## ELECTRIC TRANSMISSION

Continue to support transmission development and construction that enhances Arizona's ability to participate in a regional energy market, deliver the planned new resources required to meet lofty sustainability goals and more efficiently use the existing transmission system. Provide the regulatory climate necessary for Arizona to maintain its leadership role in the coordinated and strategic development of





transmission lines, allowing the energy industry to continue to prosper and facilitate the influx of private capital into Arizona.

## ENERGY PLANNING

Adopt a more robust regional approach to energy development. New generation is being required each year as Arizona continues to grow. With large, high-demand markets in the broader region, the expansion of the California Independent System Operator's Energy Imbalance Market, and Nevada and Colorado directing their utilities to join a regional transmission organization, Arizona has a tremendous opportunity to prosper through regional cooperation. A regional transmission operator or wholesale market would enable Arizona to earn revenue by selling energy at critical times—and power through heat waves that drive increased demand on the grid. This would help to integrate the growing amount of renewable energy more seamlessly on the grid

and could drive an increase in economical and low-cost renewable energy. Regional energy planning can also offer greater resilience as the grid faces increased extreme weather-related events. Changing customer needs such as increased integration of electric vehicles can place new demands on the way utilities provide power, making regional cooperation more important than ever. A more fluid and dynamic regional market would provide greater reliability and enhance Arizona and the region's ability to integrate a greater percentage of renewables required to meet the low-carbon goals of today's utilities and businesses.

## STORAGE TECHNOLOGY

Look for opportunities to explore storage technology that is rapidly developing and holds promise to be an important companion to renewable energy. With substantial regional development of renewable resources, the Western Interconnection electric grid has periods of the year when generation resources and electric load are more difficult to match. A combination of storage technology and flexible natural gas generation may be key tools to successfully address this issue.

## TECHNOLOGICAL ADVANCES

Create a regulatory environment not just for today, but that encourages and embraces future technological advancement. There are growing trends towards smaller and highly efficient distributed generation units, microgrids, smart grid and energy-storage technology. To the extent that legal constraints and rate structures resulting from existing energy policies prevent Arizona businesses from adopting new technology or artificially increasing the costs of such adoption, such constraints and policies should be modified.

## WATER CHALLENGES

Support the growth of technology-based industries that are developing innovative solutions to water challenges. This may include a focus on securing early-stage risk capital for these businesses and involve collaborating with economic development entities at local and state levels to attract more businesses. Support collaboration between the public and private sectors to develop new energy technologies that conserve water and augment supplies.



# Financial Technology (Fintech)

## PRINCIPLES

Arizona's financial technology (fintech) sector is among the most promising and fastest growing in our technology community. The broad and robust fintech community offers a diverse range of products and services with the potential of disruption for traditional financial services companies and markets. Arizona has shown leadership in breaking down regulatory barriers that could inhibit fintech innovation and emerging business models. To continue cultivating a fintech-friendly environment, the council's goal is to help drive state regulatory reform allowing use of virtual currency that meets the needs of Arizona's fintech sector where innovations primarily rely on this type of currency. Arizona must provide a robust, streamlined regulatory experience for virtual currency and non-bank firms that is transparent, allows or better encourages innovation, provides a level playing field for businesses that does not favor larger players over small ones and appropriately protects consumers from harm.

## POSITIONS

### DIGITAL SIGNATURES AND SMART CONTRACTS

Continue easing regulatory hurdles by updating Arizona statutes and regulations to enable and encourage broad adoption and use of digital signatures, as well as drive innovation in smart-contract applications. Traditional paper contracts can be quite inefficient and prone to fraud, which is why digital contracts tied to immutable blockchains are emerging as an alternative. Arizona lawmakers previously enacted groundbreaking legislation that amended the Arizona Electronic Transactions Act to include digital signatures recorded on a blockchain, enshrining their validity and enforceability for records or contracts and additionally empowering use of blockchain technology for state corporate filings. These regulatory innovations have helped Arizona emerge as a choice location for companies that develop applications utilizing blockchain and smart-contract technology. Arizona should continue to evolve and reform our fintech regulatory environment to stay on the forefront.

### FINTECH REGULATORY SANDBOX

Continue positioning Arizona as an innovative hub for financial technology while helping prove that lighter regulation and consumer protection can coexist. Fintech startups are particularly disadvantaged



by the difficulties and costs of complying with conventional state money transmission licensing regimens. Legislation adopted during the 2018 session created the nation's first state-level regulatory sandbox allowing limited access to Arizona's market for testing innovative financial products or services without first obtaining full state licensure or other required authorization. In 2019, additional legislation provided important technical corrections and clarifications to the law to ensure efficient administration and robust oversight of the program. Innovative initiatives are allowed to germinate through creation of an on-ramp or regulatory sandbox with exceptions to licensing rules for new companies based on low volumes or limited business activities that pose a lower risk to consumers. To date, 10 companies have participated in testing a wide array of innovations. The Arizona Technology Council will work with the Arizona Fintech Council, a joint venture between the Arizona Bankers Association and CCG Catalyst Consulting, to publicize the sandbox to help attract new participants and leverage successful outcomes while supporting further efforts of Arizona's attorney general and the Legislature to evolve and improve the program over time. For example, the fintech sandbox should be expanded to permit testing of select insurance offerings and other financial products and services that can benefit from technological innovation.

## PROPTech REGULATORY SANDBOX

Help improve and evolve the property technology, or proptech, sandbox so Arizona can continue to lead in fostering innovation across the real-estate industry. Continue to allow the Arizona Commerce Authority (ACA) to operate the proptech sandbox that enables companies to test innovative products or services in the real estate and smart-property industries in a lighter regulatory environment. Approved in the 2019 legislation session, HB2673 established the nation's first proptech sandbox. By reducing costly barriers to entry, the sandbox promotes the development of disruptive technologies affecting the way we rent, sell, buy, develop and manage commercial and residential property.

## BLOCKCHAIN RESEARCH FUNDING

Allocate state funds annually to recapitalize and sustain the Blockchain Research Grant Program to applied research centers going forward. The Legislature recently recapitalized the ACA's Applied Research Centers and Institutes program, including \$2.5 million in funds toward development of applied research in support of defined blockchain products or services for commercial use to help drive research and





innovation that will assist Arizona's becoming a leader in this emerging technology sector.

## **ARIZONA CORPORATION COMMISSION (ACC)**

Encourage the ACC to work towards utilizing blockchain for corporate records and filings initiating trials and pilots to develop capabilities, gauge future direction and, when appropriate, inaugurate full-scale initiatives. Examine the potential to issue and trade securities on a blockchain platform. The ACC has opened a docket to examine the use of blockchain technology in Arizona's energy industry to help manage the distributed power generation and storage, transactive energy with more granular transactions, renewable energy credits, tokenization, IoT, cybersecurity and other applications for distributed ledger technologies on the grid.

## **STATE GOVERNMENT RECORDS**

Examine potential use cases and drive the application of blockchain by the Arizona executive branch for the management and storage of state government records for cost, efficiency and security considerations, initiating trials and pilots to develop capabilities, gauging future direction and, when appropriate, inaugurating full-scale initiatives. Offer leadership and assistance to Arizona's cities, counties and tribes in digitizing, normalizing and consolidating property records following best practices and ensuring compatibility with other jurisdictions and open-data protocols.

## **REGULATORY RECIPROCITY BETWEEN STATES**

Join some two dozen states already in the Multistate Licensing Agreement for Financial Services Companies to eliminate redundancies in state licensing of money service businesses, which streamlines cumbersome regulations relating to virtual currencies. Arizona stakeholders should engage with other state and national organizations working to establish common multistate MTL and virtual-money regulation and licensure that would ensure legal and regulatory reciprocity between participating jurisdictions. Companies involved in virtual-currency activities are multi-jurisdictional by nature. Any artificial restraints on their ability to operate without regard to geographical boundary within the United States adversely impacts the significant cost-effectiveness and efficiencies that their business models offer to other companies and consumers.

## **DECENTRALIZED CORPORATE STRUCTURES**

Continue to craft an Arizona policy foundation for decentralized companies and initiatives that break many of the legacy tenets of traditional corporate structures, identity frameworks and governance constructs, and help transcend legacy geographic boundaries. Our global economy and enterprise ecosystem has been pushed into a new realm of decentralization as the global pandemic is forcing new ways of conducting commerce and organizational interactions through a daily routine of virtual communications and media. As contemporary decentralized constructs emerge and attempt to reconcile with legacy centralized constructs (e.g., cryptocurrency versus fiat currency) across the globe, it is important that Arizona continues to form alliances strengthening trade and technology bonds with foreign municipalities and sovereignties, such as those formed with Israel, Germany, Mexico and Taiwan and which should be emulated and expanded going forward. States such as Wyoming, Texas and Nevada have announced their commitments to be leaders in the blockchain and decentralized Web 3.0 realms, so Arizona needs to continue to drive deregulation, fund research and encourage industry innovation to sustain a competitive advantage in attracting commerce from around the world as organizations actively seek policy-friendly locations with clearly defined and innovation-enhancing public policy where they can establish and grow fintech businesses.



# OPTICS, PHOTONICS AND ASTRONOMY

## PRINCIPLE

Optics, photonics and astronomy are important economic drivers for Arizona technology companies. Combined, they add more than \$4.3 billion to the state's economy and support more than 19,000 jobs. As an enabling technology, optics applications are critical for many other industries, including medicine, mining, aerospace and defense, smart cities and autonomous vehicles.

Arizona hosts the world's largest optical research telescope and 10% of the world's largest optical telescopes, attracting operations partnerships from the federal government, other states, private institutions and foreign countries. Continuing investment in operations and recapitalization of Arizona-based telescopes hinges on the perception that state and local governments support protection of dark skies. Astronomy assets also are heavily engaged in public outreach, as well as STEM education, for residents and tourists alike.

The University of Arizona holds a worldwide leadership reputation for optics, photonics and astronomy while providing the academic prowess for related research and development. There are also large and notable departments in astronomy and planetary science at Arizona State University and Northern Arizona University. The three universities, the state's many affiliated and independent observatories and the numerous entities in related fields attract and retain world-class technical talent. The output from optics R&D enables development of leading products and technologies that support the many applications that drive robust Arizona companies. Space exploration is renowned for its degree of spin-off technologies that improve society as a whole.

The optics industry in Arizona is represented by the Council's Optics Valley Committee, whose mission is to catalyze, convene and connect a more robust optics industry sector. Optics Valley and industry growth are supported by the Arizona Optics Initiative, a program funded by the Small Business Administration through a contract with Council member Strategy1. The program consists of three primary elements: helping existing optics companies scale-up and grow, facilitating the formation and development of

new entrepreneurial optics companies, and enhancing the visibility and community awareness of our world-leading optics industry.

One of the critical constraints to robust industry growth is the lack of a skilled workforce. The James C. Wyant College of Optical Sciences at The University of Arizona is working hard to meet this need for professional personnel. In addition, Pima Community College is developing optics curriculum for technicians to build the sophisticated products that the engineers design.

Other issues impacting optics range from protecting Arizona's celebrated dark skies, continued strong support for industry research and development, and promulgating commerce-friendly export control reform that promotes global export revenue growth. The policy positions below are intended to support the goals of attracting future investments in optics, photonics and astronomy, and to grow a quality workforce.

## POSITIONS

### WORKFORCE DEVELOPMENT

Strengthen support and enhance funding for community college programs directed at education for technology careers, including optics and photonics. Continue support for JTED programs for preparation through community college and university programs, as well as direct entry into the workforce.

### DARK SKIES

Establish statewide dark-sky standards and support the state's \$4.3 billion optics, photonics and astronomy industry. Advocate for and encourage dark-sky sensitive and appropriate use of LED technology for outdoor lighting as its use becomes increasingly widespread. Support deployment of active lighting control technologies to reduce lighting levels to the minimum required for safety and visibility based on actual use by time of night. Support regional approaches to reducing and stopping the growth of artificial light negatively impacting observatories and the natural environment. Support suborbital and orbital missions to include avoidance of the negative impact of excessive reflected sunlight on astronomical observing facilities. Support the efforts of the growing number of Arizona communities working toward official International Dark Sky Community designation awarded by the International Dark-Sky Association headquartered in Tucson.

## UNIVERSITY RESEARCH AND DEVELOPMENT

Strengthen opportunities to grow the impact of world-class research and development at Arizona's universities. Nurture the next generation of scientists by growing research partnerships with community colleges, where more than 50% of postsecondary students take introductory biology and other STEM courses and a large, diverse body of students is enrolled.

### NPI AND AIM PHOTONICS

Support the National Photonics Initiative (NPI) and the American Institute for Manufacturing Integrated Photonics (AIM Photonics). NPI is a collaborative alliance of industry, academia and government seeking to raise awareness of photonics—the application of light—and drive U.S. funding and investment in five key photonics-driven fields critical to U.S. competitiveness and national security: advanced manufacturing, communications and information technology, defense and national security, energy, health and medicine. AIM Photonics is an industry-driven, public-private partnership that focuses the nation's premier capabilities and expertise to capture critical global manufacturing leadership in a technology that is both essential to national security and positioned to provide a compelling return on investment to the U.S. economy.

### EXPORT REFORM

Ensure export reform policies support and encourage optics companies to engage in global commercial markets.





# STATE BUDGET

## PRINCIPLE

Arizona's economy fared better than many states during the COVID-19 pandemic. At the beginning of the fiscal year after the successful passage of the FY2022 budget that included the historic tax cut package, the state had a cash balance projected to be \$929 million. Therefore, there likely will be another year of looking at ways to align spending with state priorities while staying true to the majority's view of fiscal conservatism.

Education will likely remain a key focus since there are concerns regarding the tax cuts and their impacts on sustainable education funding. Educating our youth to ensure they are ready to enter Arizona's workforce is essential to Arizona's recovery and continued success. Continued investment in the P-20 system is essential to economic success.

Competitive, business-friendly states are those that provide a stable and predictable environment for commerce. Of particular importance is a state budget and process that is strategic and reliable. The state budget should continue to pay off existing debt and make targeted investments. It should provide for the core needs of the state and reflect opportunities to leverage technology for greater efficiency and effectiveness of state government.

## POSITIONS

### ANGEL INVESTMENT TAX CREDIT PROGRAM

Protect funding for the proven and highly successful Angel Investment Tax Credit and look for opportunities to expand the program, which is discussed more in the Economic Development section.

### INCREASE STEM FUNDING TO CREATE REGIONAL ECOSYSTEM

Encourage state funding to cultivate a statewide Arizona science, technology, engineering and math (STEM) ecosystem. Focus on long-term, shared, sustainable and flexible STEM missions that bridge, integrate and strengthen the learning opportunities

offered by organizations across sectors instead of isolated, independent entities. This will result in expansion of STEM business and education opportunities throughout rural and urban Arizona communities, fueling a strong and diverse talent pipeline prepared to meet the state's anticipated growth. Additionally, this investment could help attain additional federal STEM funding in the state.

## **SUPPORT ACA PROGRAMS AND FUNDING**

Discourage the Legislature from sweeping any funds not used in a particular fiscal year by the Arizona Commerce Authority (ACA) and its various programs, including the Arizona Competes Fund. This is destabilizing and tends to create a use-it-or-lose-it mentality even when conditions warrant funds being carried over to the next fiscal year. Ensure flexibility is warranted within ACA's funding for programs to help it achieve its mission.

## **PRIORITIZE EDUCATION FUNDING**

Prioritize increased and sustainable funding of the state's public education system at all levels—including pre-K, full-day kindergarten, K-12 and postsecondary—consistently and with accountability within a dedicated and sustainable revenue stream. Short-term reforms should include finding a sustainable and dedicated revenue source for education funding that does not endanger the state's economic climate. The reforms should include funding of K-12 education with a formula similar to that of Proposition 301, which positions Arizona at minimum with mean-level funding among the 50 states. Additionally, reforms should consider alternative ideas to appropriately fund pre- and full-day kindergarten, K-12, CTE, equal-access dual enrollment courses, universities and community colleges. Long-term comprehensive funding reforms should modernize and promote a 21st century delivery model of education that focuses on performance and accountability. Arizona should ensure a high-quality education system to attract and retain high-wage jobs and the kinds of businesses that drive the innovation economy.

## **REINVEST IN COMMUNITY COLLEGES**

Recognize the critical role of community colleges in education and workforce development by supporting legislation that will reinvest in and restore state aid to all of Arizona's community colleges and improve and expand the technical education offerings in community colleges. Explore opportunities to create partnerships between companies and community colleges to ensure industry needs are being met and the workforce develops the skills necessary for available jobs.

## **PROTECT STATE CONTRACTS WITH VENDORS**

Preserve and honor negotiated contracts with state vendors as many members of the majority look for ways to reduce state spending, even while the state has a large projected surplus. Many technology companies have contracts throughout state government. If the state does pursue reductions in this area, there should be an open process involving the vendor instead of unilateral changes made by the state or agencies.



# TAXATION

## PRINCIPLE

Many taxes, especially those solely targeted at business, may have the effect of limiting potential growth in existing and new technology businesses. Policymakers should strive to institute tax policy that encourages existing businesses to expand, increases Arizona's competitiveness in business attraction, growth and retention, allows for a broad, stable tax base and ensures similar businesses are treated fairly and equitably.

## POSITIONS

### BUSINESS PROPERTY TAX

Pursue the eventual equalization of business and residential property taxes. Although Arizona has begun to reduce business property tax assessment ratios, businesses still faced property tax assessment ratios 80% greater than those of residential property owners.

### CAPITAL GAINS

Increase the current capital gain deduction from 25% to 57% to help reduce the advantage enjoyed by other states that have tax systems more closely aligned with the federal government. In most instances, Arizona's tax system conforms with or closely mirrors that of the federal government except in capital gains.

### DATA CENTERS

Protect Arizona's tax advantages in the exemptions given to promote the retention and expansion of enterprise and colocation data centers and continue to promote all levels of data center activity, including the migration of technology centers to Arizona.

### TAX CODE MODERNIZATION

Promote modifications in the tax code that reflect changing technologies and how products and systems are taxed. Special emphasis should be placed on software and hardware development, as well as digital goods and services that enable the Arizona tax code to remain updated with innovations in the marketplace.

### SMALL BUSINESS TAXATION

Promote a tax code that does not place an undue burden on small businesses to pay for specific state priorities. The tax structure should be fair, and priorities such as education should be funded through a reliable tax base and shared by all in the state. Seek opportunities to relieve the tax liabilities of small businesses struggling to recover from the pandemic and its aftermath.

### GAS TAXES

Increase gas taxes in situations when the tax rate does not keep up with funding the needed maintenance and rehabilitation of roads. In addition, taxes should be indexed for inflation to preserve purchasing power over time.





# TRANSPORTATION/ DIGITAL INFRASTRUCTURE

## PRINCIPLE

Arizona citizens benefit from improved safety, enhanced mobility, reduced travel time and bolstered commercial opportunities through multimodal corridors linking the state to Mexico, Canada, the Intermountain West and neighboring states, particularly California. The corridors should include roadways and telecommunications pathways coupled with rail and energy rights-of-way when appropriate.

The onset of the pandemic and subsequent restrictions on public convening have exposed major gaps and deficiencies in the availability, reliability and affordability of broadband internet connections in society at large and in rural areas in particular. These conditions have existed since the broad adoption of the internet as a fundamental utility for commerce and communication, but today's absolute dependency on the network as people work, interact and learn from home has exponentially increased the priority of investing in new infrastructure, advanced technology solutions and support services to help close these gaps. Arizona's ability to support and sustain its residents, businesses and institutions while poising ourselves for ongoing recovery and growth depends upon our robust capabilities to connect citizens, businesses and institutions via reliable high-speed broadband.

There was also less travel during the pandemic as workers and students were able to work and study remotely within the restrictions of broadband accessibility. However, as Arizona and the nation emerges from the pandemic, the need for safe and reliable transportation will continue to grow. Transportation is also deeply connected to the response to climate change and sustainability challenges. Both policy and infrastructure need to reflect these changing priorities.

## POSITIONS

### EMERGING TECHNOLOGIES

Continue to support Arizona Commerce Authority (ACA) initiatives such as the Institute of Automated Mobility and Smart State efforts in order to foster the advancement of Arizona's technology sector and drive the state's position as the leader in these areas. Advances in 5G, IoT, autonomous vehicles,

smart cities, artificial intelligence, distributed ledger technology, augmented reality and rich mobile-content delivery will drive edge-computing deployment and massive growth in data center computational and storage capabilities. Promote policies that encourage the development and growth of new and emerging technologies that further establish Arizona as a global innovator. Support a regulatory environment that provides appropriate safety and protection standards but otherwise unleashes the power of human creativity and ingenuity.

## **BROADBAND REGULATORY REFORM AND SUPPORT POLICIES**

Remove or reduce barriers generating unnecessary costs or delays and otherwise inhibiting expansion of privately funded, high-speed broadband infrastructure that meets the needs of all Arizonans. Broadband must not only be available but also robust, redundant and affordable to meet the critical requirements of rural community economic development, business operations, education, workforce attraction and retention, citizens' access to services, telemedicine and public safety. Proactively coordinate with government at all levels to ensure rights of way are readily and affordably available and support fair and predictable government permitting and oversight across jurisdictions to encourage private broadband investment and deployment.

Encourage and support field test opportunities for 5G and other advanced wireless services to help position Arizona as a living lab for these transformative communication technologies.

Continue to ease regulatory burdens and simplify processes for deployment of wireless sites and vertical infrastructure, including micro-cellular transceivers and distributed access systems (DAS) for necessary densification, in light of the ever-increasing need for mobile connectivity, 5G infrastructure demands and other advanced wireless services. To the greatest extent practical, state, regional and local governments should make their current infrastructure of buildings, water tanks, towers and other structures available for utilization by wireless providers at reasonable costs and share an inventory of such assets to aid wireless industry planning and expansion. Overall, the policy for broadband should be pragmatic and recognize its unique economics: high fixed costs, spillover effects and modularity along with rapid technological change. State and local transportation agencies

should be funded for the costs of adding broadband, as traditional transportation funds cannot normally be used for this purpose.

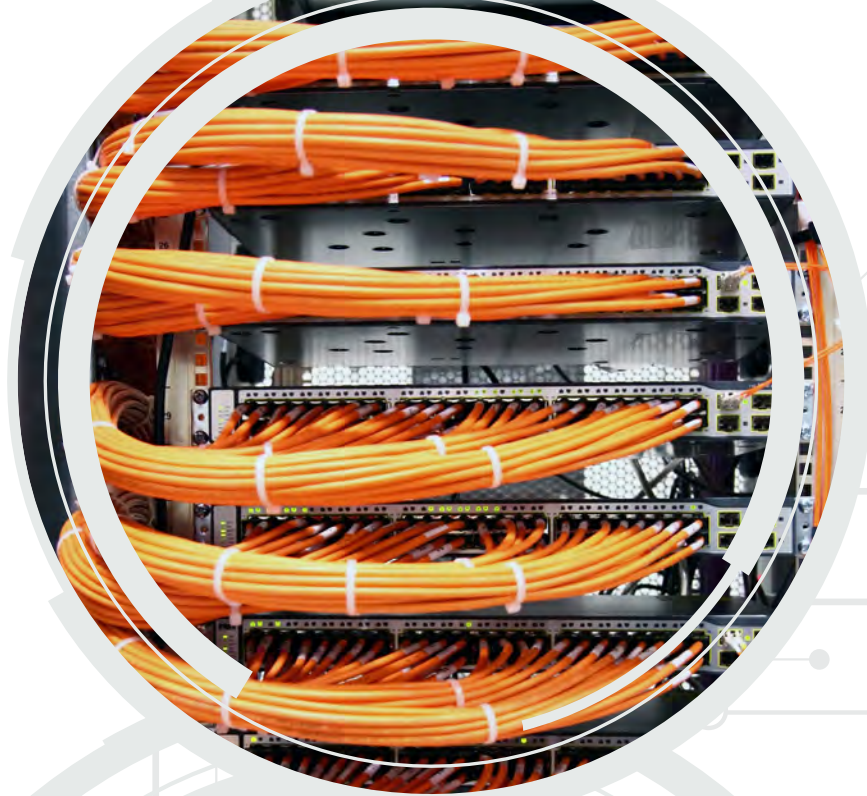
## **STATE GOVERNMENT BROADBAND PLANNING AND INITIATIVES**

Leverage the KPMG Broadband Strategic Plan Addendum to advance a comprehensive statewide broadband strategy and robust oversight mechanisms as the pandemic brings new waves of federal monies. It is time to have a full Broadband Office at the ACA and establish a Broadband Development Authority that coordinates and optimizes use of these digital-equity funding resources by Arizona communities, education institutions, nonprofit organizations and broadband. Ensure a level playing field for incumbent and new entrant broadband providers. Provide up-to-date state broadband mapping capabilities to track broadband coverage and fiber deployments integrated with demographic and community anchor institution details. Make the data and mapping tools publicly available through the AZGEO Clearinghouse and open sourcing.

Play a substantial role in helping to coordinate cross-jurisdictional infrastructure deployments with the Bureau of Land Management, U.S. Forest Service, Bureau of Reclamation and other federal, regional, state and tribal landowners to ensure timely and reasonable planning and permitting processes. Consider additional regulatory reform and incentives to further drive rural broadband deployment by electric cooperatives. The Legislature recently enabled cooperatives to deploy deep fiber and serve residential and enterprise broadband customers.

Pursue a minimum broadband download speed goal of 100 megabits per second (Mbps) and at least 20 Mbps upload to guide infrastructure investments and program implementation to the greatest extent practical while considering geography, topography and excessive cost factors. Although the Federal Communications Commission defines broadband as an internet connection at a speed of 25 Mbps download and 3 Mbps upload, this may be inadequate for data intensive applications such as IoT, telemedicine and eLearning that will have ever-increasing bandwidth requirements.

Arizona enacted HB 2596 allowing private service providers to install, operate and maintain telecommunications equipment within Arizona Department of Transportation (ADOT) right-of-way, as well as allowing ADOT to grant access to its own broadband conduit to private telecommunications companies in a non-exclusive and non-



discriminatory manner while creating the Smart Highway Trust Fund to manage leasing revenues. The Arizona's Smart Highways initiative is funded for building fiber capacity between Flagstaff and Nogales on sections of Interstates 17 and 19 and along Interstate 40 from Flagstaff to the California border. The State Broadband Strategic Plan Update from KPMG focuses on middle-mile fiber deployment. The update helps refine ADOT's mission and way forward to develop its business model by engaging a public-private partnership to manage these and other new fiber investments with defined, fundamental principles that should guide the future goals for middle-mile fiber investment and deployment fomenting an open platform which allows a wide range of public and private communication uses going forward.

Identify funding for deployment of fiber along Interstate 40 and other strategic segments. Arizona's Smart Highways initiative is progressing rapidly with the \$40 million allocation by Gov. Doug Ducey to ADOT to complete fiber builds between Flagstaff and Nogales on sections of Interstates 17 and 19, and the availability of federal COVID-19 funds for broadband expansion. The department should develop its business model, engage a public-private partnership to manage these and other new fiber investments and work towards evolving Arizona's regulations to allow a wide range of public and private communication uses.

Continue strategic planning by the ACA and state to develop specific broadband implementation plans and initiatives that engage providers, communities, institutions and other stakeholders to generate actionable strategies while managing and driving the statewide expansion of broadband. The Arizona Technology Council will work with the ACA, Office of the Governor and Arizona Department of Administration to help implement their strategic plans for broadband deployment to rural areas and digital access for all while helping drive regional and local government policies that encourage investment. That includes access to the use of right-of-way, infrastructure undergrounding requirements, mobile infrastructure expansion and expedited/blanket building permit issuance.

## **LEVERAGING ACA AND OTHER BROADBAND GRANTS**

Establish a full Broadband Office at the ACA empowered to continue awarding and managing broadband grants to local partnerships and ventures with clear, achievable plans that provide or improve broadband services in unserved and underserved rural areas while also offering community assessments or technical designs, matching





funds for grants and specific project implementation investments. With the recent recapitalization of the ACA's Broadband Grant Fund, evolve the program goals and rules focused on providing matching funds to offset planning and construction costs for expanding broadband services and digital equity programs for underserved populations. The state should commit to ongoing funding for these purposes to continue expanding and sustaining the broadband grant program.

Allow ACA's state broadband director to maximize and leverage the use of E-rate funding that can help bring broadband services to the many rural schools and libraries with unresolved broadband issues. ACA should act as a clearinghouse to identify and line up complementary broadband grants and other financial support. It also should cultivate public-private partnerships working towards an overall broadband infrastructure approach that meets the full range of needs for all rural communities in the most cost-effective manner, including policies and practices encouraging competition from multiple service providers in each community to serve rural residences, businesses, local governments, health care facilities and public safety.

## ARIZONA'S COMMUNITY ROLE IN BROADBAND

Activate broadband action teams to encourage local broadband deployment through streamlined and consistent processes for right-of-way use, planning and permitting to align with neighboring and municipal best practices from around the nation. To achieve common broadband goals, rural leaders should engage all interested parties, including service providers, governments of different jurisdictions, residents, business owners, utility service providers, landowners and other key parties. Arizona's Final Mile Project was funded by the Arizona Department of Education to manage a request for proposal process contracting for the design, construction, implementation and provision of educational broadband services to students' homes in five rural underserved communities. The state should further invest in the expansion of this innovative program helping drive connectivity.

The Arizona Technology Council supports the Arizona Broadband Stakeholder Network as it facilitates opportunities for collaboration, coordination, information sharing and communication among key public, private and nonprofit stakeholders. The Council recommends the Digital Equity Task Force's Strategy Report of 2020 issued by the Network serves as the bridge between the state's Broadband Strategic Plan of 2018 and pending state broadband strategic updates. In addition, the Council

supports utilization of the Federal Reserve's Community Reinvestment Act funding for broadband and digital access remediation where applicable.

## ARIZONA CORPORATION COMMISSION

Examine and evolve the Arizona Corporation Commission's long-standing Arizona Universal Service Fund currently geared only toward legacy telephone support in high-cost areas. Modernizing the fund as many other states have would allow broadband deployment support in similar high-cost circumstances or be programmatically applied as matching funds to community and electric cooperative broadband infrastructure projects.



## **SUPPORT EXPANSION AND RETENTION OF THE DATA CENTER INDUSTRY**

Continue to support and evolve a business-friendly operating environment and economic development programs to further Arizona's data center attractiveness and growth. The advantageous operating environment promotes the retention and expansion of enterprise and colocation data centers, which has contributed to unprecedented growth in existing and planned data center inventory. Other favorable factors include affordable and robust power with renewable options, excellent weather, a lack of natural disasters, good workforce availability and diverse broadband access.

## **DIGITAL GOVERNMENT BEST PRACTICES**

Adopt digital-government best practices for internal operations and delivery of citizen services while driving the increased use and adoption of high-capacity digital connectivity and technologies across major application sectors, including education, health care, public safety, e-commerce, e-government, remote work and mobile enablement. State, local and tribal government should continue to migrate to cloud services and use infrastructure, platform (PaaS) and software as a service (SaaS) offerings to provide staff and operational efficiencies at lower cost while ensuring reasonable cybersecurity and data privacy protections are in place.

## **NATIONAL PUBLIC SAFETY BROADBAND NETWORK**

Leverage new FirstNet-driven infrastructure improvements, including fiber extensions, tower construction and small-cell deployment to facilitate expansion of broadband for rural communities. FirstNet was approved by all U.S. states and territories and is being built out by AT&T to provide interoperable, wireless public safety communications for first responders. The Council supports policies for cost-effective and timely FirstNet deployment through easing regulatory requirements such as permitting and right-of-way access, as well as broad adoption by public safety agencies to provide extended benefits to rural Arizona.

## **MODERN SURFACE TRANSPORTATION SYSTEM**

Support modernization of the state's transportation infrastructure to improve mobility, move freight to market faster and advance international trade. The upgraded system should include federal and state funding for Interstate 11, which will enhance the state's connectivity by linking Phoenix and Las Vegas. I-11 should be extended south

of Phoenix to create an important international freight corridor between Mexico and the Intermountain West. Modernize and add capacity to existing infrastructure through continuous improvements critical to keeping these key corridors fully functional. Encourage multimodal linkages with rail, telecommunications and energy rights of way and facilities. Modernization should also include technology upgrades to support smart transportation systems and vehicles. Lack of transportation funding makes these types of improvements challenging. Besides additional public funding, Arizona should use a variety of innovative means to provide enhanced infrastructure, including public-private partnerships and other types of alternative finance and delivery.

## **TRANSPORTATION FUNDING**

Consider a more modern, robust revenue method to support transportation. Arizona is operating its statewide highway system on a declining revenue source: a gas tax that has not been increased in 30 years. Particularly hard hit are rural communities, which do not have an adequate tax base to support sales taxes that help fund transportation in urban areas. Since 2013, more than 30 states have enacted some combination of increased gas taxes, taxes to support alternate fueled vehicles and user fees such as tolls and high-occupancy toll lanes. Arizona needs to consider these options to keep pace with the state's growing population and economy. A significant federal investment in infrastructure under consideration in Congress is also critically important.

## **INTELLIGENT TRANSPORTATION**

Use intelligent transportation systems (ITS) to help manage surface transportation traffic, maximize existing infrastructure and minimize congestion and incidents. The general lack of transportation funding, however, will limit Arizona's opportunity to take maximum advantage of these new and improving technologies since funds to support ITS are generally from the same revenue streams as those that fund construction.

## **TRANSIT AND MOBILITY**

Support transit systems and development to enrich the quality of life for Arizona residents and visitors, reduce traffic congestion, improve air quality and provide enhanced workforce mobility. Alternative mobility assets such as bike-share facilities

and bicycle infrastructure are helpful in providing a robust urban transportation system. The COVID-19 pandemic has been challenging for transit, as potential users have worked remotely and avoided crowded spaces. Transit continues to be a critical component to a robust transportation system and needs to be financially supported by both state and federal revenue sources.

## VEHICULAR TECHNOLOGIES

Continue to support a flexible and competitive environment for the testing and deployment of autonomous automobiles and other vehicular technologies in the state—particularly the Institute of Automated Mobility—to help make roads safer, increase mobility and establish Arizona as a test bed and commercialization launchpad for many emerging technologies.

## ARIZONA PORTS OF ENTRY

Focus on encouraging both infrastructure investments and process improvement for Arizona's ports of entry along the southern border to better enable and optimize commercial transportation logistics. Despite being critical links, the ports of entry are frequent bottlenecks for smooth and timely logistics of cross-border transportation of goods. To help, the state should encourage:

- + **Targeted Funding** – Identify funding streams to support the development and modernization of border infrastructure, particularly at our ports of entry. While there is a big push for the Donations Acceptance Program to support infrastructure needs at ports of entry, it is structured so U.S. Customs and Border Protection simply receives the contributions and excuses the federal government from its responsibilities at the border. The program should be more of a public-private partnership, not necessarily focused on donations or a fee structure, which can discriminate against smaller ports in smaller communities.
- + **Additional Staffing** – Fulfill the need for additional staffing desperately needed at ports of entry. For Arizona, that means a full-time equivalent vacancy rate of 20%, or approximately 250 funded positions. The U.S. Customs and Border Protection is unable to fill positions due to a burdensome vetting process and a polygraph test exceeding the standards of the U.S. Drug Enforcement Administration, CIA and FBI. It is impossible to ask for new positions until the current vacancies are filled. Support and promote efforts such as the Border

Jobs for Veterans Act, which has created a mechanism for military to transition into these enforcement jobs.

- + **Recognition as Assets** – Recognize the U.S. border and ports of entry as valuable assets essential to the national and North American economies. Attention to the border as an economic engine provides the opportunity for investment, job creation and economic security.
- + **Process Improvements** – Continue to improve processes related to commercial carriers. For example, Unified Cargo Processing, which enables U.S. and Mexican customs inspectors to work side by side on the inspections process, has revolutionized the border. Launched in Arizona, the joint inspection program has drastically reduced time to cross the border. Similar improvements, such as more collaborative truck inspections processes between Arizona Department of Transportation and federal authorities, can reduce the need for physical infrastructure and improve crossing times.
- + **Long-Term Planning** – Work with executive and legislative leadership, as well as other key stakeholders, to develop long-term improvements in transportation funding, including consideration of fuel tax, license renewal fees, locally generated sales tax initiatives, public-private partnerships and other components of a funding package.
- + **Transportation in Support of International Trade** – The U.S. Department of Transportation should continue to support the states on the southern and northern borders with the Coordinated Border Infrastructure program, a small pool of funds for border-related infrastructure. Without those funds, Arizona and other border states must use their own limited funds while supporting trade from Mexico and Canada, much of which simply passes through the border states and benefits the economies of states far from the border. Ports of entry and related infrastructure should be recognized as national assets.





# UNIVERSITIES AND HIGHER EDUCATION

## PRINCIPLE

The Arizona Technology Council actively works to support Arizona's universities and improve the technology infrastructure upon which they rely. Its members and the state rely heavily upon Arizona's universities and community colleges to provide a highly skilled and talented workforce. In addition, the universities provide a world-class platform for research and development, which can be translated into commercial opportunities that include the transfer of technology to Arizona's private sector. The universities engage the communities throughout the state and rely upon technology to provide education, research and other valuable community services.

## POSITIONS

### STABLE FUNDING, ENHANCED FLEXIBILITY

Collaborate with the Arizona Board of Regents and the public universities to build upon the existing strengths of the university system and ensure world-class research capabilities, access for qualified students and excellent workforce preparation. Support the universities' state budget requests and legislative priorities, secure the state's financial relationship with the university system as one that is based on per-resident student funding and obtain support for critical capital.

### NEW ECONOMY INITIATIVE

Arizona State University, The University of Arizona and Northern Arizona will be requesting \$75 million in FY2023 for New Economy Initiatives (NEI) funding that invests in the public universities to develop a skilled workforce and enhance economic opportunity. These initiatives leverage existing strengths at each institution to address critical workforce shortages and establish Arizona as a leader in solving national and global challenges.

ASU will seek \$34.5 million for its NEI goals to grow the world-class faculty in the Ira A. Fulton Schools of Engineering and be able to graduate more than 5,000 engineers by 2025. In addition, the establishment of five science and technology centers will foster the growth of New Economy industries in energy, human performance, extreme environments, advanced manufacturing and future communications

technologies while funding for more faculty, classroom space, experiential learning programs and student support services will shorten the time to earn a degree and increase options for current students.

UArizona will seek \$24 million for its One Health Initiative that recognizes that health of humans is connected to the health of animals and the environment, and that it is necessary to remove the silos between professional health disciplines and agriculture scientists to address future health care needs. State investment will allow UArizona to leverage existing strengths across the agriculture, veterinary medicine, and health sciences to build Arizona's workforce and strengthen key industries. The investment would fund the following programs: College of Veterinary Medicine, Cancer Engineering Program, Clinical Psychology Ph.D. in Rural and Community Mental Health and Agriculture and Rural Service Programs, which includes rangeland programs, 4-H youth programs and SNAP-Ed.

NAU's NEI goals will aim to develop Arizona's workforce in areas of need. NAU will seek \$16.5 million for its Allied Health Initiative to increase programming and enrollments in mental and physical health programs. This funding would expand clinical mental health counseling, occupational therapy programs and masters in social work online programs.

## **TRI-UNIVERSITY DIGITAL EQUITY INITIATIVES**

Arizona's three state universities have taken up the cause of digital equity and are developing a variety of outreach experiences, stakeholder engagements, innovative initiatives and grant-funded opportunities for research, proof-of-concept projects connecting the underserved and advancing community infrastructure. Arizona State University's Lighting Up the Future has been cooperating with the other universities, Arizona Commerce Authority, Sun Corridor Network, the Institute for Digital Progress and the Digital Equity Institute among others, building a coalition to address digital equity challenges.


## **ENTERPRISE MODEL**

Support an enterprise model of operations, which recognizes and advances each university and its differentiated mission. Allow the university system to negotiate its own health benefits to ensure it is only paying proportionally for its share of the state benefits plan.

## **SUN CORRIDOR NETWORK**

Encourage policies to enable the Sun Corridor Network (SCN), Arizona universities' research and education collaborative network, to flourish and expand services to a broader base of users. A robust Sun Corridor Network enables discovery, innovation and research outcomes among postsecondary researchers and educators. This infrastructure is critical to attracting world-class researchers and research funding to Arizona. A future-proofed P-20 education technology infrastructure is essential to enable modern digital-learning technologies and methods necessary for a workforce equipped for the knowledge-based economy. The Arizona Department of Education is currently limited in its ability to partner with SCN due to the department's nature as a provider (vendor) in E-rate transactions with schools and districts. We encourage the department to explore avenues for partnership with SCN, possibly transitioning from provider to statewide consortium lead requiring one-time financial support to seed the transition to a consortium lead and shared service provider.

Support the network's public-private partnership strategy to bring high-bandwidth access to Internet2—the national education/research network and community—and the commercial internet to the Arizona P-20 community. Support the network's participation in the Arizona Department of Transportation's investment in highway-corridor fiber deployments and their anticipated public-private partnerships to grow and manage a robust state network. This will lead to the improvement of rural broadband network capacity and availability across the region, as well as improved regional research collaborations. Successful rollout of these strategies will enable the network and its member universities—Arizona State University, The University of Arizona and Northern Arizona University—to bring better and lower-cost internet and Internet2 access to K-12 schools, community colleges, universities, tribal nations, government entities and other institutions by leveraging economies of scale and shared infrastructure while driving better broadband availability for all. Support the network's National Science Foundation grant-funded efforts to interconnect Arizona's community colleges in support of joint science-research drivers and STEM education initiatives. Support SCN's efforts in expanding eduroam as a solution that enables authorized users on specific educational, library and public space wireless networks to roam with their existing credentials onto a great, cooperative collection of such networks, boosting the value proposition of all the institutional infrastructure investments being made in these networks.



# ARIZONA TECHNOLOGY COUNCIL LEGISLATIVE PRIORITIES – 2022

- Look for opportunities to cultivate a diverse and equitable statewide Arizona science, technology, engineering and math (STEM) ecosystem. Focus on long-term, shared, sustainable and flexible STEM missions that bridge, integrate and strengthen the learning opportunities offered by organizations across sectors instead of isolated, independent entities. This will result in expansion of STEM business and education opportunities throughout rural and urban Arizona communities, fueling a strong and diverse talent pipeline prepared to meet the state's anticipated growth.
- Consistently, equitably and sustainably fund the state's P-20 education system, including pre-K, K-12, and career and technical education district. Provide equitable access to advanced, rigorous coursework such as advanced placement and dual enrollment, and postsecondary programs. Support a funding formula that addresses the achievement gap for students in less advantaged socio-economic areas and ensures access to the proper infrastructure for supporting distance-learning models.
- Support efforts seeking opportunities to positively impact the diversity, equity and inclusion of the workforce and its leadership while granting equitable access to essential services (broadband, transportation, affordable housing and employment and education opportunities).
- Work collaboratively with both the Arizona Corporation Commission and the Legislature to advance energy policy that encourages demand-side adoption of energy efficiency, prioritizes clean and renewable energy use, invests in electric vehicle infrastructure development and supports innovation in the industry. Protect against attempts to undercut the authority of the Commission to promulgate and implement clean energy policies.
- Support economic development programs that have proven to work for Arizona. Programs that support manufacturing, encourage research and development, incentivize innovation and support high-quality, high-paying jobs are all programs that need to be maintained and funded by Arizona. Over the past several years, the Council has been successful in extending and expanding these programs. Some of the economic development tools may need to be modernized to ensure the most effective utilization of those that continue to spur economic growth.



# 2022

## Public Policy Guide

# Federal Policies and Positions





# Artificial Intelligence

*Where “we” is mentioned in the Federal Policies and Positions section, this refers to the Arizona Technology Council*

## PRINCIPLE

Artificial Intelligence (AI), computerized systems that perform tasks we normally associate with people, is science fiction no more. It is commonplace—think talk-to-text, web searches, photo tagging or fraud detection—growing and becoming increasingly sophisticated. AI can be applied in ways that help society tackle some of its biggest problems. It can be harnessed to make driving safer and medical diagnoses more accurate, fight human trafficking, counter cyberattacks, unleash scientific discovery, enable farmers to increase crop yields, help investors maximize returns and help athletes prevent injury. Moreover, AI will augment human abilities in ways that increase productivity, which will foster widescale economic progress.

At the same time, AI will present new ethical challenges and automate broad categories of jobs, which will cause fundamental shifts in the ways people live and work. To make sure we can harness all of AI’s benefits while easing any negative impacts, governments must pursue policies that enable the continued development of AI technologies, mitigate any impacts from increased automation and protect individual rights and freedoms.

## POSITIONS

### FOSTER INNOVATION AND OPEN DEVELOPMENT

To better understand the impact of AI and explore the broad diversity of its implementations, public policy should encourage investment in AI research and development (R&D). Governments should support the controlled testing of AI systems to help industry, academia and other stakeholders improve the technology.

- + **Fuel AI innovation:** Public policy should promote investment, make funds available for R&D and ensure no barriers exist for AI development and adoption.
- + **Address Global Societal Challenges:** AI-powered flagship initiatives should be funded to find solutions to the world’s greatest challenges such as curing cancer,



ensuring food security, controlling climate change and achieving inclusive economic growth.

- + **Allow for Experimentation:** Governments should create the conditions necessary for the controlled testing and experimentation of AI in the real world, such as designating self-driving test sites in cities.
- + **Prepare a Workforce for AI:** Governments should create incentives for students to pursue courses of study that will allow them to create the next generation of AI.
- + **Lead by Example:** Governments should lead the way in demonstrating the applications of AI in its interactions with citizens and invest sufficiently in infrastructure to support and deliver AI-based services.
- + **Partnering for AI:** Governments should partner with industry, academia and other stakeholders for the promotion of AI and debate ways to maximize its benefits for the economy.

## 2021-2022 BILLS CONCERNING THIS ISSUE

- + **H.R.3284 – Next Generation Computing Research and Development Act of 2021** provides “for fundamental research programs in advanced scientific computing at the Department of Energy, and for other purposes,” including AI. We support this.
- + **S.1353 – Advancing American AI Act** lays out detailed plans for federal agencies to implement AI in their work. It includes promotion of “modernized business practices,” “encourag[ing] agency artificial intelligence-related programs,” translating “research advances into artificial intelligence applications,” and “test applied artificial intelligence” for workforce development, upskilling, supply chain and portfolio management. The bill allots \$25 million to “innovative commercial items” in the Enabling Entrepreneurs and Values section. We support this.
- + **H.R. 3844 – Fellowships and Traineeships for Early-Career AI Researchers Act** would establish funds for the National Science Foundation (NSF) to award grants to higher education institutions training students in artificial intelligence. We support this.
- + **S.1257 – AI Scholarship-for-Service Act** would establish a scholarship-for-service program related to AI, with no more than three years of higher education AI training being repaid by three years of service in an executive agency; Congress; an interstate agency; a state, local or tribal government;

or a government-affiliated nonprofit considered to be critical infrastructure. We support this. The NSF must also establish criteria to designate qualified institutions of higher education as being eligible to participate in the program. We will track what criteria are set to get Arizona's three public universities involved in this.

- + **S. 2120 – United States–Israel Artificial Intelligence Center Act** would establish a center to improve artificial intelligence research and development cooperation. This multinational research center would be funded at \$10 million a year from 2022 to 2026. The bill is a response to China's rising ability in AI. As of the publishing of this guide, it is not clear how this center would operate or where it would be located. In its current form, we should reject this bill for being unclear, vague and potentially working to deepen the mystery around AI instead of increasing transparency (an Arizona Technology Council tenet listed later in this section). As more details of this center become available, it may become easier to support this bill.
- + **S.1776 – Artificial Intelligence for the Military Act of 2021** proposes to “expand the curriculum for military junior leader education to incorporate appropriate training material related to problem definition and curation, a conceptual understanding of the artificial intelligence lifecycle, data collection and management, probabilistic reasoning and data visualization and data-informed decision making. Whenever possible, the new training and education should include the use of existing artificial intelligence-enabled systems and tools.” This bill supports education and innovation, but it is not as clear as H.R.4468 in what that education should be. In its current form, it is vague and could result in education not ethically minded. Thus, it does not fit with the Council's goals and will not be supported. This bill should be monitored for future changes to see if more details are included.
- + **H.R.4985 – Digital Defense Leadership Act** and **S.1705 – AICT Act of 2021** both seem to serve a similar purpose based on the same impetus. S. 1705's goal is “to establish a coordinated federal initiative to accelerate the research, development, procurement, fielding and sustainment of artificial intelligence for the economic and national security interests of the United States, and for other purposes.” S. 1705 also articulates that the “National Security Commission on Artificial Intelligence released its final report to Congress in March of 2021.” The Senate version of the bill proposes that “two additional themes for Artificial Intelligence Research Institutes should be established in the areas of artificial intelligence



safety and artificial intelligence ethics,” therefore fitting with the Council’s priorities. This bill also calls for “not later than 540 days after the date of the enactment of this Act, the Director of the National Institute of Standards and Technology shall establish a program under which the Director provides accreditation to organizations that the Director determines competent at evaluating the potential direct privacy, civil rights, and civil liberties effects of artificial intelligence systems used by covered agencies on United States persons.” This is very positive. However, the bill also includes a “Department Of Defense Pilot Program On Establishing An Artificial Intelligence Development And Prototyping Fund” for \$50 million, and it is less clear that this would be a priority for the Council. Using AI for military/defense purposes is controversial and may not be well-received by Arizona constituents, while defense contractors in the state are likely positively predisposed to this part of the bill. The House version of this bill is long and should be considered carefully before being supported or not supported. Overall, this concept seems like a mixed bag and we will take it up for discussion.

- + **S.2551 – AI Training Act** seems to serve a similar purpose as S.1705 but does not include the DoD. This bill stands “to require the Director of the Office of Management and Budget to establish or otherwise provide an artificial intelligence training program for the acquisition workforce, and for other purposes.” It seems more tailored with fewer provisions. We support it.
- + **S.604 – Democracy Technology Partnership Act** would “authorize the establishment of a Technology Partnership among democratic countries,” which seems positive. However, this is a long and detailed bill. We will take it up for discussion.
- + **S.1213 – National SEAL Act of 2021** would establish research on emerging technologies, including AI. We support this bill.

## CREATE NEW HUMAN EMPLOYMENT OPPORTUNITIES AND

## PROTECT PEOPLE’S WELFARE

AI will change the way people work. Public policy in support of adding skills to the workforce and promoting employment across different sectors should enhance employment opportunities while also protecting people’s welfare.

- + **Encouraging Human Employment:** Governments should implement programs to mitigate AI’s impact on jobs and devise policies that promote employment. These programs should particularly focus on the effectiveness of incentives in government-funded infrastructure projects.
- + **Retraining:** Governments should implement policies that support the upskilling and reskilling of the workforce. This is particularly true in job areas that are less likely to be automated, such as positions focused on person-to-person interaction and guided computation in which individuals direct and oversee the operation of the technology.

### 2021-2022 BILLS CONCERNING THIS ISSUE

- + **S.1353 - Advancing American AI Act.** See previous note on S. 1353 for details.

## LIBERATE DATA RESPONSIBLY

AI is powered by access to data. Machine-learning algorithms improve by analyzing more data over time. Data access is imperative to achieve more enhanced AI model development and training. Removing barriers to the access of data will help machine learning and deep learning reach their full potential.

- + **Keep Data Moving:** Governments should eliminate unwarranted data localization mandates and enable secure international data transfers through international agreements and legal tools.
- + **Open Public Data:** While protecting privacy, governments should make useful datasets publicly available when appropriate, and provide guidance to startups and small and medium businesses for its reuse.
- + **Support the Creation of Reliable Datasets to Test Algorithms:** Governments should explore non-regulatory methods to encourage the development of testing datasets.



- + **Federate Access to Data:** Governments should partner with industry to promote AI tools to access encrypted data for analysis while not requiring transfer of the data.
- + **Data Set Diversity:** Because many algorithms depend on data sets but not all human data sets are diverse, this has led to mistakes in classifying some humans. This becomes particularly relevant in human recognition.

## RETHINK PRIVACY

Privacy approaches like the Fair Information Practice Principles and Privacy by Design have withstood the test of time and the evolution of new technology. But with innovation, we have had to rethink how we apply these models to new technology.

- + **Adopt Robust Privacy Laws:** Based on the Organisation for Economic Co-operation and Development (OECD) Fair Information Practice Principles.
- + **Implement Privacy by Design:** Rethink privacy approaches to implement Privacy by Design into AI product and project development.
- + **Keep Data Secure:** Policies should help enable cutting-edge AI technology with robust cyber and physical security to mitigate risks of attacks and promote trust from society.
- + **It Takes Data for AI to Protect Data:** Governments should adopt policies to reduce barriers to the sharing of data for cybersecurity purposes.

## 2021-2022 BILLS CONCERNING THIS ISSUE:

- + **H.R.4468 – AI for Agency Impact Act** would mandate “executive agencies to establish and implement an AI strategy, objectives, and metrics plan for trustworthy artificial intelligence adoption to better achieve the missions of such agencies to serve the people of the United States, and for other purposes.” The bill calls for “ensur[ing] the security and privacy of data used by artificial intelligence used by the agency.” We support this bill.
- + **H.R.3723 – Consumer Safety Technology Act** directs the “Consumer Product Safety Commission to establish a pilot program to explore the use of artificial intelligence in support of the mission of the Commission.” This is a bill calling for research in the service of safety. We support it.



# REQUIRE ACCOUNTABILITY FOR ETHICAL DESIGN AND IMPLEMENTATION

The social implications of computing have grown and will continue to expand as more people have access to implementations of AI. Public policy should work to identify and mitigate discrimination caused by using AI and encourage designing in protections against these harms.

- + **Standing for Accountable Artificial Intelligence:** Governments, industry and academia should apply the Information Accountability Foundation's principles to AI. Organizations implementing AI solutions should be able to demonstrate to regulators that they have the right processes, policies and resources in place to meet those principles.
- + **Transparent Decisions:** Governments should determine which AI implementations require algorithm explanations to mitigate discrimination and harm to individuals.

## 2021-2022 BILLS CONCERNING THIS ISSUE:

- + **H.R.4469 – AI in Counterterrorism Oversight Enhancement Act** seeks “to amend the Intelligence Reform and Terrorism Prevention Act of 2004 to strengthen the ability of the Privacy and Civil Liberties Oversight Board to provide meaningful oversight and governance related to the use of artificial intelligence technologies for counterterrorism purposes, and for other purposes.” This aligns with the Council’s ethical concerns and we support it.
- + **H.R.4468 – AI for Agency Impact Act** would mandate “executive agencies to establish and implement an AI strategy, objectives, and metrics plan for trustworthy artificial intelligence adoption to better achieve the missions of such agencies to serve the people of the United States, and for other purposes.” The bill calls for “Defined roles, responsibilities, and delegation of authority for the use and oversight of artificial intelligence used by the agency, including oversight of compliance with relevant laws, regulations, standards, and guidance,” “defined values, ethics, and principles to foster public trust and responsible use of artificial intelligence by the agency,” and “human supervision of, and accountability for, artificial intelligence used by the agency.” This bill matches the Council’s ethical goals stated above. We support this bill.



# DEVELOP STANDARDS

Industries and government should work together to develop robust standards that are clear, consensus-driven and actionable for companies pursuing the above objectives.

## 2021-2022 BILLS CONCERNING THIS ISSUE

- + **S.1849 – Leadership in Global Tech Standards Act of 2021** establishes a program to support the participation of small businesses in meetings and proceedings of international standards organizations for artificial intelligence. We support this bill.
- + **S.1498 – Technology Standards Task Force Act of 2021** would establish an Emerging Technology Standards-Setting Task Force, which seems good. However, it has some puzzling requirements/provisions, including “describe and analyze the ways in which standards setting processes can be misused by governments for protectionist ends and human rights abuses” in contrast with “establish and execute a strategy to ensure credibility and engagement with international institutions.” This bill is not as clear or useful as S.1849 and should be monitored.

As AI continues to advance and become increasingly deployed and utilized, these principles and recommendations will continue to evolve. This is just the first step towards the Council engaging in AI policy discussions with governments and other organizations regionally and nationally.





# Cybersecurity

## PRINCIPLE

Digital resilience and cybersecurity are key priorities at the global, federal, state and local levels. As the world grows increasingly interconnected and the functions of our governments, businesses and lives increasingly rely on connected systems, managing cybersecurity risk while building trust and spurring innovation is essential. To that end, the Arizona Technology Council supports a risk-based approach to cybersecurity policy rooted in partnership between public and private organizations and across sectors. We support frameworks that help entities identify, manage and communicate risk to foster a more resilient cyber ecosystem while enabling and incentivizing organizations to develop innovative cybersecurity solutions moving forward.

## POSITIONS

### COMPULSORY CYBER INCIDENT NOTIFICATION

The Council supports creation of a program that imposes serious obligations on the business community.

- + Establish a prompt reporting timeline of no less than 72 hours through legislation that reflects an appropriate, flexible standard for notifying government about significant cyber incidents.
- + Attach reporting to confirmed cyber incidents with clear, objective criteria.
- + Confine reports to significant and relevant incidents.
- + Include robust liability protections so reporting entities are not penalized after the fact for complying with a legal obligation.
- + Ensure compliance is supportive, not punitive through a compliance regime that treats cyberattack victims as victims while encouraging cooperation and trust between the public and private sectors.
- + Restrict government use of data by closely aligning with the Cybersecurity Information Sharing Act of 2015, which contains provisions to exempt reported information from federal and state disclosure laws and regulatory use.

### SUPPLY CHAIN SECURITY

The Council supports U.S. government efforts to enhance the security and reliability of software, firmware and hardware supply chains through open and transparent partnership with the private sector.

- + Coordinated, whole-of-government efforts to develop clearly defined policies and standards for objectively assessing supply chain risk and security.
- + The National Telecommunications and Information Administration's work with industry stakeholders to produce a Software Bill of Materials that promotes supply chain transparency and reduces risk.
- + Federal Acquisition Security Council/U.S. Department of Homeland Security's Information and Communications Technology Supply Chain Risk Management Task Force.
- + Legislation (e.g., United States 5G Leadership Act of 2019) that preserves national security while spurring innovation in a globalized economy.
- + Transparent refinement and adoption of the U.S. Department of Defense's Cybersecurity Maturity Model Certification while continuing to track, assess and spread awareness of its impact on Arizona's defense industrial base.

## OTHER

- + Incentives and investment in innovative cybersecurity R&D.
- + Monitoring European Union Agency for Cybersecurity.

## IOT CYBERSECURITY

The Council supports the development of a flexible, stackable baseline of IoT security requirements to be built upon and tailored to fit individual ecosystem needs and evolve as technology progresses.

- + Passage of the IoT Cybersecurity Improvement Act.
- + Development of the National Institute of Standards and Technology Core Cybersecurity Feature Baseline for Securable IoT Devices (NISTIR 8259) and C2 Consensus on IoT Security Baseline Capabilities.
- + Coordination with the Federal Trade Commission to deem conformance with the NIST baseline presumptively reasonable.
- + International harmonization of IoT security practices.

## 5G SECURITY

The Council supports rapid deployment of 5G infrastructure utilizing trusted sources of supply.

- + Certified Information Systems Auditor strategic risk management.
- + Communications Security, Reliability and Interoperability Council guidance on network security and reliability.
- + National Security Telecommunications Advisory Committee 5G and supply chain.



# Financial Technology (Fintech)

## PRINCIPLES

Distributed ledger technology (DLT), otherwise known as blockchain, is perhaps the most talked about yet most misunderstood emerging technology in the world today. Since its inception, secure DLT has widely been viewed through the lens of virtual currencies, particularly the hype surrounding the buying and trading of Bitcoin and other digital coin offerings. Indeed, surveys have shown that consumers are largely aware of what Bitcoin is but do not know about or understand the blockchain technology that powers it.

Blockchain has the potential to revolutionize many sectors of the U.S. economy if the proper legislative and regulatory measures are taken to enable and foster its development. The technology brings significant efficiencies to not only currency and financial transactions but also asset ledgers, global supply chains, IoT data collection and decentralized social networking.

## POSITIONS

The Arizona Technology Council suggests U.S. policymakers consider developing policies and regulatory structures for fintech and blockchain environments that encourage developers and market participants to continue innovating and providing solutions that will aid the public sector in achieving its mission and goals. To do so, policymakers should understand the promise, the uses and the questions that blockchain currently presents. The Council supports:

## SECURITIES LAW CLARIFICATION

The linchpin for tokenized projects in the United States is the application of federal securities law to token sales. Initial coin offerings (ICOs) have arisen as forms of crowdfunding for blockchain projects through the sale of digital tokens, many without adherence to federal securities law. However, if conducted properly, they are legitimate forms of crowdfunding. Additionally, not all initial token sales are ICOs but merely a means of getting a new good or service to the market. Unfortunately, the U.S. Securities and Exchange Commission's Framework for Investment Contract Analysis of Digital Assets does little to clarify the circumstances in which a token sale will be treated as a security offering. While some in Congress have recognized that our antiquated securities laws simply do not fit the modern-day use of digital assets, little has been done to provide the statutory clarity the industry is desperately seeking. In the absence of such clarity, many innovators have left U.S. markets to launch their projects overseas. Congress, the SEC and other financial regulators should work with stakeholders to create a responsible framework for regulating ICOs, as well as non-security token sales.





## DIGITAL CURRENCIES

Often associated with blockchain and distributed ledger technology, digital currencies are entering a new and heightened era of importance. Central bank digital currencies (CBDC) are being launched, planned or researched by most governments around the world. China is one of the first countries to launch CBDC and lead this revolution in government monetary innovation. The U.S. Federal Reserve has announced active research for a United States central bank digital currency, articulating multiple advantages of CBDCs and the importance of this innovation within the roadmap for the Federal Reserve. Another rapidly developing realm called Decentralized Finance (DeFi) is an organic and global wave of innovation that introduces an advantageous alternative to almost every form of legacy financial instrument and is rapidly eclipsing FinTech. Institutional and retail investors are likely to use whatever platform is offering the greatest variety of services and assets. Because CBDC and DeFi innovation are driving powerful and fundamental shifts in the foundations of the global economy, it is important that U.S. policymakers continue to innovate with regulation and legislation that adjust to this new world of digital assets to prevent losing relevance and competitiveness.

## NON-FUNGIBLE TOKENS

A new and dynamic method of creating property rights known as non-fungible tokens (NFTs) has emerged and grown rapidly in popularity. NFTs are being applied to digital art, sports, real estate, documents and other forms of unique assets. They are created on blockchains and traded on various cryptocurrency exchanges, representing powerful versatility within the formerly static realm of asset ownership. While NFTs are still in their infancy, they represent an innovative alternative to traditional forms of property ownership and are challenging to regulate with legacy policies. Congress and federal regulators should evolve updated and innovative ways to blend NFTs into legacy approaches to property rights through an approach that encourages entrepreneurial innovation while recognizing and fostering this new tokenization of assets.

## REGULATORY SANDBOXES

Following on the heels of Arizona's groundbreaking Fintech Regulatory Sandbox, regulatory sandbox proposals have been introduced or enacted in more than a dozen states. In addition, the Consumer Fraud Protection Bureau launched a sandbox

for businesses subject to its regulations and the District of Columbia established the Financial Services Regulatory Sandbox and Innovation Council. The Council encourages additional state and federal blockchain and emerging technology regulatory sandboxes to reduce barriers to technological innovation and create an agile environment for the testing and offering of fintech and blockchain applications. By fostering innovation, the United States can keep pace in dynamic international markets and develop many new use cases. Federal agencies should issue broad regulatory waivers for state sandbox participants and exemptions for transactions occurring within state regulatory sandboxes, exerting a light regulatory touch on nascent state blockchain initiatives. We also encourage adoption of an agency-wide federal sandbox so innovators can take full advantage of this testing model nationwide and internationally, ensuring legal and regulatory reciprocity between participating jurisdictions.

## CREATION OF A FEDERAL BLOCKCHAIN STAKEHOLDERS WORKING GROUP

The Council, along with a broad coalition of national, state and regional technology councils, strongly support the reforms codified in the Blockchain Promotion Act of 2019 and urge Congress to pass this or similar important legislation directing the U.S. Department of Commerce to establish a blockchain working group that recommends a consensus-based definition and regulatory framework for the technology. The working group should develop specific recommendations for the National Telecommunications and Information Administration and Federal Communications Commission to examine marketplace opportunities; support current and future security requirements, standards and interoperability; explore the potential impact of blockchain on spectrum policy; and promote the adoption of blockchain to promote efficiencies within the federal government.

## FEDERAL GOVERNMENT RECORDS

Federal agencies and Congress should examine utilizing blockchain for the management and storage of government records for cost, efficiency and security considerations. Trials and pilots should be initiated to develop capabilities, gauge future direction and, when appropriate, inaugurate full-scale initiatives.



# Privacy/Data Breach Notification

## PRINCIPLE

Economic expansion in technology rests on the creation of new and innovative business models that leverage trusted, secure and accessible internet-based platforms. Data policies should promote responsible use of consumer data so the technology experience can continue to expand and improve.

There is currently no national standard for how a company must notify its customers in the wake of a data breach. Instead, companies must navigate a complex web of 50 different, often conflicting and regularly changing notification laws for each state in the aftermath of a breach plus additional laws for U.S. territories. This difficulty is compounded by data breach notification requirements under the laws in other parts of the world that assert global jurisdiction to protect the data of their residents. The current regulatory landscape not only places an immense financial compliance burden on businesses but also delays the process of getting information into the hands of those who need it most: individuals whose data has been compromised. Given Congress' authority and responsibility to regulate interstate commerce, it is difficult to think of any area that calls more for federal standards than the breaching of personal data that inherently falls within interstate commerce.

## POSITIONS

The Arizona Technology Council and its membership advocate for the following:

- + **Harm Trigger for Acquired Data:** The notification requirement should be triggered when there is a real risk of actual harm, not a theoretical concept that could lead to excessive notification about data breaches that really are not harmful. Such unnecessary notices risk so-called “breach-notification fatigue” that is counterproductive by causing consumers to become jaded rather than taking proactive measures to protective themselves.
- + **No Private Right of Action:** Individuals should not be able to sue companies that have suffered a data breach for actions covered by federal data security and data breach notification laws. Businesses that act responsibly to protect consumer data but have suffered breaches are victims of criminal activity.

- + **Narrow and Plainly Understandable Definition of Personal Information:** To avoid excessive notification of consumers and unnecessary costs, the definition of “personal information” in the legislation should not include information accessible through public records. For example, merely the combination of a name, address and birthdate should not qualify as personal information. The definition of “personal information” should also be clearly understandable and well-defined in plain English to avoid the types of confusing phrasing used in several state statutes.
- + **Preemption of State Law:** Any federal data security and data-breach notification law should preempt state laws and requirements. Without strong preemption language, the compliance burden for small businesses would not be alleviated and the effectiveness of any law would be significantly undermined.
- + **Exemption for Use of Technology that Renders Data Unusable or Unreadable:** Federal legislation should include an exemption from notification requirements for companies that utilize technologies to render data unusable or unreadable. Although encryption has become standard today, this exemption should be technology neutral.
- + **Congress Should Pass the Email Privacy Act as Passed by the House:** The Email Privacy Act, which unanimously passed the House in February 2017, was the product of a carefully negotiated compromise between industry, public interest groups and House Judiciary Committee staff. Despite overwhelming support for the bill, several members of the Senate Judiciary Committee have continued to hold up the bill with unrelated amendments opposed by both industry and the public interest community. Congress should pass this bill in 2022.
- + **Limits on Financial Penalties:** Massive financial penalties are unwarranted and could force small businesses out of existence. Penalties should be reasonable and consider the size of the company that suffered the breach and the type of data accessed.
- + **Safe Harbor:** Businesses that make a reasonable, good-faith effort to use consensus best practices as prescribed by NIST or other generally recognized similar standards should be accorded a “safe harbor” from government monetary fines or similar penalties in the event of a data breach. Businesses that substantially adhere to data protection requirements under more stringent laws from other jurisdictions, such as the European Union’s General Data Protection Regulation, should likewise be accorded this safe-harbor protection.

- + **No Fixed Data Security Requirements:** Data security requirements should not be specifically enumerated within the legislation. Benchmark security standards of today may become outdated over time, requiring companies to possibly maintain outdated systems because of government mandate.
- + **No Overly Burdensome Notification Requirements:** Data breach notification legislation should avoid overly prescriptive notification requirements. In the event of a breach, companies should dedicate their resources to efforts that most directly notify and protect consumers. Additional requirements, such as those mandating the creation of call centers or the provision of credit reports, would divert resources away from small businesses seeking to protect and inform their customers.
- + **Take Other Laws into Account:** Companies that are subject to other data security and/or breach notification laws—such as the Health Insurance Portability and Accountability Act, Gramm-Leach-Bliley and the Fair Credit Reporting Act—should be exempt from these requirements.
- + **No Civil Agency Exceptions:** Some civil agencies have asked for an exception to the warrant requirement because they do not have the ability to issue warrants. Such an exception would destroy the benefits gained by Electronic Communications Privacy Act reform. It would erode privacy by codifying new powers for civil agencies that they do not already have. Civil agencies can still get access to emails and texts by serving subpoenas on users, not service providers.
- + **No Emergency Exception:** Under current practice, the government may request digital content from providers by declaring an emergency. Providers then may decide whether to comply based on the circumstances. However, there has been a push to require providers to comply any time the government declares an emergency. This has dangerous potential for abuse. Service providers do not want to be responsible for derailing criminal investigations but requiring compliance with emergencies means the government simply needs to declare an emergency to get the information it wants.





# Digital Goods and Services

## PRINCIPLE

The digital economy continues to play a strong role in both the growth of the internet and the ability for businesses to better deliver digital goods and services. This is even more true following the onset of the COVID-19 pandemic.

Given the importance of the digital economy to the Arizona Technology Council's member companies and the need to ensure we can continue to foster innovation and economic growth within this sector, the Council strongly supports the Digital Goods and Services Tax Fairness Act. This legislation will prevent hurdles to growth and create a much-needed tax framework that will provide certainty to consumers, providers and state/local governments while preventing duplicative and discriminatory taxes.

The Council opposes taxes on digital products. However, for those jurisdictions that have opted to impose these taxes, we recognize the need to provide consistency and simplicity across state borders. There should never be a situation when multiple jurisdictions can tax the same digital good or service, and a framework must be established to ensure that a single purchase is sourced in one state, not multiple states.

## POSITIONS

The Council supports legislation such as the Digital Goods and Services Tax Fairness Act. This legislation would provide consistency in determining which jurisdiction can tax a transaction (at the appropriate sales tax rate) and prohibit unfair and unrelated discriminatory taxes. While the Council opposes taxes on digital products, we do support legislation that would provide consistent treatment across state lines when digital products are taxed by state or local jurisdictions. The Digital Goods and Services Tax Fairness Act addresses our concerns by accomplishing two key objectives:

- + The legislation sources the purchase of a digital good or service to the consumer's home address, not the location of the consumer at the time of downloading a product or the location of the server. Therefore, only one state would have the ability to tax the transaction—if that state chose to do so. Congress took a similar approach in 2000 when it passed the Mobile Telecom Sourcing Act, which essentially sourced wireless and mobile telecommunications services to the consumer's

home address to eliminate confusion around which taxing jurisdiction had the right to tax wireless services.

- + The legislation would prohibit discriminatory taxes. If a state decides to tax a downloadable song, for example, the rate should be the same as if that same song was purchased in a brick-and-mortar store. Prohibiting discriminatory taxes simply brings parity between digital products and their tangible counterparts.

Consistent with our support for the Digital Goods and Services Tax Fairness Act, the Council calls on states to reject new taxes on electronically transferred digital products and electronically delivered services such as data processing, hosting and related services. Such a broad expansion of the sales tax base to include electronically transferred goods and services, particularly those that are actually business inputs, is bad public policy and will result in multiple and discriminatory taxation.

## **H.R.4741 - DIGITAL ASSET MARKET STRUCTURE AND INVESTOR PROTECTION ACT**

This bill would:

- + Create statutory definitions for digital assets and digital asset securities and provide the U.S. Securities and Exchange Commission (SEC) with authority over digital-asset securities and the Commodity Futures Trading Commission (CFTC) with authority over digital assets.
- + Provide legal certainty as to the regulatory status for the top 90% of the digital-asset market (by market capitalization and trading volume) through a joint SEC/CFTC rulemaking.
- + Require digital-asset transactions not recorded on the publicly distributed ledger to be reported to a registered digital asset trade repository within 24 hours to minimize the potential for fraud and promote transparency.
- + Explicitly add digital assets and digital asset securities to the statutory definition of “monetary instruments” under the Bank Secrecy Act, formalizing the regulatory requirements for digital assets and digital-asset securities to comply with anti-money laundering, record-keeping and reporting requirements.
- + Provide the Federal Reserve with explicit authority to issue a digital version of the U.S. dollar; clarify that digital assets, digital-asset securities and fiat-based stablecoins are not U.S. legal tender; and provide the secretary of the U.S.

Department of the Treasury with authority to permit or prohibit U.S. dollar and other fiat-based stablecoins.

- + Direct the Federal Deposit Insurance Corporation, National Credit Union Administration and Securities Investor Protection Corporation to issue consumer advisories on “non coverage” of digital assets or digital-asset securities to ensure consumers are aware they are not insured or protected in the same way as bank deposits or securities.
- + Require legislative recommendations from the Financial Crimes Enforcement Network, SEC and CFTC to provide clarity on dividing lines between who must register as a money-services business and who must register as a securities or commodities exchange.

Due to its wide scope and the granting of authority to “permit or prohibit US Dollar and other fiat-based stablecoins,” this is a bill that could introduce sweeping changes into the power of the federal government to regulate cryptocurrency payments. This could have a variety of effects and should be monitored and assessed for impact.

Many antitrust bills are making their way through the Senate and House: Trust Busting for the 21st Century Act, Bust Up Big Tech Act, American Choice and Innovation Online Act, Ending Platform Monopolies Act, Merger Filing Fee Modernization Act, Augmenting Compatibility and Competition by Enabling Service Switching (ACCESS) Act, Platform Competition and Opportunity Act and more. These are bills that aim to make large digital services companies smaller in a variety of ways. While none of the targeted companies — Amazon, Facebook and Twitter, among others — are headquartered in Arizona, some have a presence here. We should work with community partners to understand their concerns and which bills they may want to reject or sponsor directly. The Augmenting Compatibility and Competition by Enabling Service Switching (ACCESS) Act could be a particularly onerous bill for companies, as it seeks to establish uniform data standards for interoperability. This could be a huge hurdle for companies, although it could be good for users.

**The Filter Bubble Transparency Act** would put many restrictions and regulations on online social media businesses, so it may not offer a positive outcome for Arizona businesses. However, it attempts to deal with a hot-topic issue that is of concern to the public and perhaps our constituents. We will discuss it.



# Immigration Reform

## PRINCIPLE

Our current immigration system is broken and causing the United States to lag in a competitive global marketplace for talent. By not addressing the failings of our immigration system, we are threatening our future productivity, ingenuity and the competitiveness of key sectors of our economy, including and especially technology.

## POSITIONS

### INCREASE GREEN CARDS FOR HIGH-SKILLED STEM GRADUATES

The Arizona Technology Council supports increased access to permanent residency, or green cards, for high-skilled STEM graduates by expanding the exemptions and eliminating the annual per-country limits for employment-based cards.

### CREATE NEW VISAS FOR U.S. EDUCATED STUDENTS AND ENTREPRENEURS

These new visas will help fill the thousands of IT-related jobs currently open, furthering opportunities for starting and growing new businesses in the United States.

### MARKET-BASED VISA CAPS

Using market-based caps on H1B visas are the best way to adjust to the supply and demand in the U.S. economy.

### GROWING DOMESTIC SOURCES OF TALENT

The Council and its member companies are strongly committed to improving U.S. science, technology, engineering and mathematics (STEM) education and encouraging more young Americans to choose careers in those fields. Key to that effort is encouraging federal, state and local investment in STEM curriculum for students from kindergarten through high school with a structured pipeline to higher education. The Council is uniquely positioned at the intersection of innovation, education and economic growth. We support policies that expand lifelong education and promote a skilled workforce that spurs job growth and the ability to compete globally. Quality education, worker training—and retraining—will help ensure the availability of a skilled and competitive workforce.





# Internet of Things

## PRINCIPLE

The Internet of Things (IoT) is a series of smart devices connected to one another and to analytics and hosting platforms via the internet. As IoT continues to grow, challenges and opportunities will arise. Central to the continued growth of IoT are policy principles that are transparent on privacy issues, highlight security in the IoT lifecycle and stress open standards. The Arizona Technology Council urges policy makers and regulators to tread lightly in this space, which is still in an early stage of development, so innovation and the accompanying societal benefits will continue to flourish.

## POSITIONS

### REGULATORY AND LEGISLATIVE MODERATION

The Council supports a federal strategy for IoT that harmonizes guidelines for IoT devices across all agencies and industries. To accomplish this, Congress must pass legislation that will direct one agency to lead the discussion. The Developing Innovation and Growing the Internet of Things (DIGIT) Act, for example, would place the Department of Commerce in this role. Congress should, however, avoid broad legislation regulating IoT, particularly regarding privacy and data security practices. With federal and state privacy and data security laws already on the books, the passing of IoT-specific legislation will only serve to stifle innovation in a nascent industry. Instead, multi-stakeholder groups involving actors from government and industry should work together to develop guidelines and industry best practices in this space based on existing privacy and data security laws and frameworks. The Council supports both the National Telecommunications and Information Administration (NTIA) IoT security multi-stakeholder process as well as the National Institute of Standards and Technology's IoT Cybersecurity Framework.

### BROADBAND

The Council supports deployment of a robust broadband infrastructure to support the IoT. To accomplish this, support is needed from federal, state and local governments to assist in facilitating broadband deployment.

## SPECTRUM

To support the growth in IoT devices, the Council believes the federal government needs to make more spectrum available for both licensed and unlicensed use without placing technology-specific restrictions on how it can be used.

## REGULATORY SANDBOXES

To incentivize more IoT innovation and experimentation, companies need to be assured that the risk/reward balance is favorable. To help manage risk, drive economic development and develop a strong regulatory regime, the Council recommends the federal and state governments consider creating IoT regulatory sandboxes. These sandboxes would provide a set of pre-approved, published rules that allow companies to test their products and business models. The rules would help limit exposure and provide innovative best practices and steps for testing them.

## PRIVACY AND DATA SECURITY

Congress should avoid broad IoT-specific legislation regarding companies' privacy and data security practices. Several federal and state privacy and data security laws and guidelines are already on the books and provide a sufficient framework to regulate IoT at this time. That said, industry can and should lead with respect to design by security and risk mitigation to provide businesses, government and citizens with maximum trust in IoT.

## STANDARDS

The Council supports a multi-stakeholder approach for setting voluntary IoT standards for interoperability. We are concerned that without agreed-upon standards, we could encounter a problematic piecemeal regulatory approach that stifles innovation in the industry.

## RESEARCH AND DEVELOPMENT

The Council supports a federal government position that emphasizes research and development in the form of federal grants to help facilitate public-private partnerships. Of particular interest are grants focusing on cyber-related IoT R&D.

## GOVERNANCE

A key component of the federal IoT ecosystem is a well-structured governance model. Following the Senate's DIGIT Act, the Council supports a governance structure led by the Department of Commerce that incorporates all federal-agency stakeholders.





# Office of Technology Assessment

## PRINCIPLE

For more than 20 years, Congress had the Office of Technology Assessment (OTA), an independent, bipartisan agency set up to provide unbiased information on technology and its potential impacts. However, the agency was defunded in 1995. This stripped Congress of the ability to access unbiased technology advisors as we entered the digital age. Today, as Americans are feeling the effects of emerging technologies—including issues involving data privacy and artificial intelligence—we are experiencing the repercussions of the decision to defund this vital piece of the congressional support system.

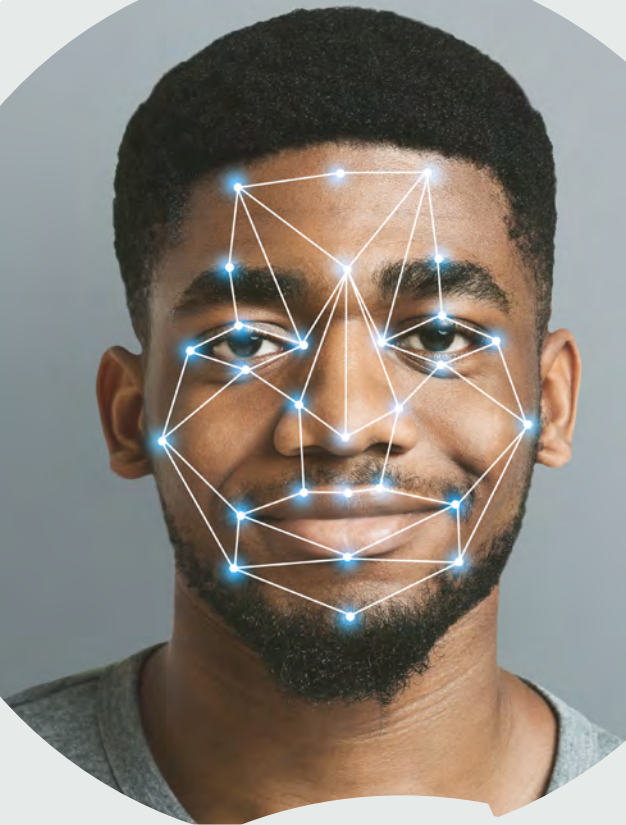
The Arizona Technology Council believes introduction of the Office of Technology Assessment Improvement and Enhancement Act in the House is an important effort as Congress strives to understand and anticipate the potential benefits and effects of emerging technologies such as AI, facial recognition and quantum computing in the private and public sectors. The measure includes funding to restore the OTA. This would be money well-spent, enabling Congress to better address the opportunities and challenges of emerging technologies.

## POSITIONS

The Council supports the bill's introducing improvements to the existing OTA statute (2 U.S. Code §472) that would:

- + Provide expertise with shorter turnaround times by:
  - Adding language to emphasize information should be provided as expeditiously, effectively and efficiently as possible.
  - Adding Congressional Research Service-style deliverables to the OTA's function and duties such as providing briefings, informal conversations and technical assistance to members on science and technology issues





without the need for Technology Assessment Board review, as well as objective policy options when requested.

- Requiring preliminary findings of ongoing technology assessments in addition to completed analyses.

+ Serve all members of Congress by:

- Enabling any member to request a technology assessment to be considered by the board.
- Updating board appointment so members are appointed by bipartisan party leadership in each chamber.
- Directing the OTA to be as open and transparent with members about the review request process as possible.
- Requiring at least one annual member day.

+ Enhance transparency by:

- Updating existing language to require final reports of assessments be made publicly available whenever possible.
- Requiring an annual report on requests received, assessments completed and ongoing and other activities.

+ Maintain the OTA's forward-looking and rigorous approach by:

- Introducing a rotator program to hire experts from academia and industry modeled after the National Science Foundation's rotator program.

+ Complement existing legislative branch agencies including the General Accounting Office's (GAO) new Science, Technology Assessment and Analytics team by:

- Requiring coordination with the Congressional Research Service and GAO to avoid duplication or overlapping activities.





# Federal Government Investment in Research and Development

## PRINCIPLE

We are living in an era when innovation, agility and imagination are all essential to keep pace with exponential technological transformation taking place in our society. In government, federal agencies are playing catch-up from years of underfunded research and development (R&D) impacted by economic constraints and sequestration while other nations have increased their public and private R&D investments at a faster rate. There is a longstanding notion that R&D is the backbone of a globally competitive, knowledge-driven economy. In 2010, economist Gary Becker stated that “modern economies are based on the command of knowledge and information.” It is essential that the United States sustains its investment in R&D.

Michael D. Griffin, the former undersecretary of defense for research and engineering, placed an emphasis on emerging technology with supporting R&D budget. Griffin stated: “The reality is that we live in a time of global access to technology and global access to scientific talent. It is no longer preeminently concentrated here in America. Innovation will remain important, always, but given this global dispersion of technology and talent, greater speed in translating technology into fielded capability is where we can achieve and maintain our technological edge.”

This is good news as the government invests in and partners with programs and solutions for some of our greatest challenges, including cybersecurity, smart cities, big data, quantum computing, space exploration, health and medicine, blockchain, artificial intelligence and the Internet of Things. Continued R&D investment will help drive innovation and spur competitiveness.

## POSITIONS

The Arizona Technology Council supports increases in R&D funding that encourage advancements in big data, cloud computing, high-performance computing, automation, artificial intelligence, biometrics, blockchain technology and cybersecurity (as it relates to emerging technologies and services). In particular, the Council supports increases to the following federal R&D budgets:

- + **Networking and Information Technology Research and Development Program:** NITRD is a federally funded program designed to increase coordination, productivity and effectiveness among federal agency R&D efforts in networking and IT. This program can be successful in helping to drive innovation as long as it has an adequate budget.
- + **Defense Advanced Research Projects Agency:** DARPA has helped drive innovation on several issues, including connected vehicles, spectrum, cybersecurity, the Internet of Things and blockchain technology.
- + **National Labs and Federally Funded Research and Development Centers:** FFRDCs are the nation's R&D incubators and have compiled a treasure trove of technologies and applications for defense and the civilian interests. The benefits of the labs' role include experienced capability in rapid prototyping of new technologies ready for transitioning, showcasing and commercialization.
- + **Small Business Programs:** The broad-based Small Business Innovation Research program is funded by many agencies. It enables small businesses to explore their technological potential and provides the incentive to profit from its commercialization. The Small Business Administration Regional Innovation Cluster (RIC) program is designed to promote innovation and commercialization in geographic areas with a concentration of one or related technologies. The Council's Optics Valley Committee is a participant in the RIC program. In addition, the Economic Development Agency provides grants (requiring matching funds) for capital projects critical to small business innovation and development.
- + **Congressional Innovation Support:** Congress has begun to recognize the importance of new and enhanced technologies in our daily lives. To that end, Congress has formed the bipartisan, bicameral congressional Optics and Photonics Caucus co-chaired by Sens. Kyrsten Sinema (D-Ariz.) and Steve Daines (R-Mont.), along with Reps. Joe Morelle (D-N.Y.) and Brian Mast (R-Fla.). The caucus will work to educate members of Congress and their staff about the importance of light-based research and technologies to the U.S. economy, security and scientific excellence. It will also advocate for federal investment in this innovative and exciting space. The caucus will serve as a positive, proactive voice for the optics and photonics community within Congress and as a bridge to the administration.

## OPTICS AND PHOTONICS

**National Photonics Initiative and National Initiatives** – Photonics Initiative (NPI), a collaborative alliance of industry, academia and government seeking to raise awareness of photonics—the application of light—and drive U.S. funding and investment in five key photonics-driven fields critical to U.S. competitiveness and national security: advanced manufacturing, communications and information technology, defense and national security, energy, and health and medicine.

- + One of the recent key accomplishments of NPI is the formation of a congressional optics and photonics caucus. This bicameral, bipartisan caucus has the objective of educating Congress and driving funding for optics and photonics issues and opportunities. Arizona's Sinema is one of the co-chairs of the caucus. It is the policy of the Council to encourage all Arizona congressional delegation members to join and actively promote caucus support.
- + On the technology side, quantum information technology has emerged as one of the key components for future computing and communications development. The University of Arizona is a leader in this new area and has established the Center for Quantum Networks (CQN). Every effort should be taken to support and expand the mission of CQN as it drives toward product commercialization.
- + AIM Photonics is an industry-driven, public-private partnership that focuses the nation's premier capabilities and expertise on capturing critical global manufacturing leadership in a technology that is both essential to national security and positioned to provide a compelling return on investment to the U.S. economy.

## EXPORT REFORM

Ensure export reform policies support and encourage optics companies to engage in global commercial markets.





# Smart Cities and Communities

## PRINCIPLE

While cities and communities are making progress toward improving living standards and social and environmental sustainability, the impact can be limited by narrow project scopes and obsolete systems. Cities and communities can accelerate and enhance the results of their efforts by adopting a smart city and community approach with supporting technologies.

## POSITIONS

Federal investment in smart cities and communities will help drive economic growth and innovation, create jobs, promote citizen services and increase adoption of smart technology products and services. The Arizona Technology Council supports the Smart Cities and Communities Act of 2017, which has a primary focus of helping coordinate the various federal agency smart city initiatives, as well as creating a technology demonstration grant program. The Council also supports the Smart Technology for Resilient, Efficient, Economic and Reliable Transportation in Cities and Communities (STREET) Act that will provide grants to small and medium-sized cities on a competitive basis. In addition, the Council supports the creation and focus of the Congressional Smart Cities Caucus.

## STATE-LED SMART COMMUNITY PLANNING FUNDS

Most cities with a population greater than 750,000 have at least one but usually multiple smart city projects underway in one sector or another. But few cities and communities have comprehensive, long-term and integrated plans. In fact, there are only a handful of cities worldwide well on their way to a full adoption of smart cities technology in an integrated way across all sectors. Investing in the foundational planning necessary to create sustainable and thriving communities of the future that can adapt to and solve the future needs of our cities will be imperative to the continued growth and prosperity of Arizona.

## REGIONAL APPROACH AND SHARED INFRASTRUCTURE INTEGRATION

Many of the real-world smart city examples are typically much larger or smaller than how we traditionally define cities. They are either occurring on a more regional basis or as small neighborhood-by-neighborhood projects. Formation of permanent and sustainable regional innovation-driven organizations will provide the necessary capacity and knowledge transfer across public, private and academic sectors to establish Arizona as a national leader in the creation of smart, connected and resilient communities of the future. These organizations will connect community leadership across municipal boundaries and institute a collaborative operational framework to mobilize the community ecosystem in pursuit of identifying, developing, testing and implementing innovative solutions to the region's shared civic challenges at scale. The Council supports the work being done by The Connective, the Greater Phoenix's Smart Region Consortium and the Pima Association of Government's smart region initiative efforts managed by the Regional Partnering Center. These connective-tissue organizations were established to galvanize the public-private ecosystems that can advance smart-community solutions in their respective regions. For the future, establishment of a Northern Arizona smart-region consortium that is brought under a cohesive umbrella including the Greater Phoenix and Southern Arizona initiatives offers the potential to help support our economy and establish Arizona as a global leader in smart-community development.

## INNOVATION SANDBOXES AND REGIONAL PROCUREMENT INITIATIVES

A critical barrier plaguing the development of smart communities across the globe is local government's inability to identify, develop, test, prove and procure innovative technology solutions in a scalable and repeatable manner that keeps up with the speed of innovation. Through establishment of a connected network of geographically bounded innovation sandboxes in our cities and towns, regulatory policies can be established to allow quickly implementable proof-of-concept testing with real infrastructure, real scenarios and real data. This can optimize the ability of communities to make more informed and appropriate technology solution decisions while de-risking full-scale implementation programs.

With the ability to cooperatively procure solutions, communities can be more efficient with their resources by not having to engage in individual contracting efforts for the

same solutions, as well as further establishing their unique comparative advantages and core competencies that help support the greater region.

## REGIONAL DATA COLLABORATION

Smart cities and communities use information and communications technology to enhance their livability, workability and sustainability. They collect information using sensors, devices and other systems then send the data to analytics systems to understand what is happening now and what is likely to happen next. Data is invaluable to creating a sustainable and resilient smart community of the future. The ability to seamlessly intake data from multiple sources to aggregate and analyze the data then securely and safely share information will be paramount to Arizona's continued growth. Currently, our communities are operating in silos with varying levels of resources and expertise when it comes to data analysis.

The Council supports the development of a regional shared data standard, governance structure and shared data exchange. This will enable cities and towns with the ability to collaboratively access and analyze necessary data sets that can be layered to develop more informative insights, creating better service delivery and unlocking new programs and solutions to shared challenges. Allowing approved academia and private-sector subject matter experts to participate in this regional data collaboration will effectively add capacity and expertise to local government teams charged with solving these complex challenges while creating the potential for exponential benefits to be realized without negatively impacting communities' budgets.

There is vast potential to provide smart city and community benefits to a larger number of citizens and those advantages are immense. First is the potential to empower citizens, allowing access to unparalleled services provided by local government. These services—spanning several different sectors including transportation, energy, water management and public safety—have the potential to be transformational to citizens while creating significant efficiencies for the city and community.

Another possibility is the creation of new jobs. As cities grow their smart technology and services capabilities, there are several emerging employment opportunity sectors:

- + **Infrastructure:** Cities will need to have large teams to help deploy the vast array of sensors that will constitute the Internet of Things (IoT) smart city and community ecosystem.



- + **Cybersecurity:** With internet-connected sensors, best-in-class cybersecurity solutions and applications are absolute necessities. A well-trained workforce will need to implement the cyber solutions across the infrastructure ecosystem.
- + **Analytics:** An immense amount of data coming from IoT sensors will need to be analyzed. City governments will need to beef up their analytical capabilities to ensure their citizens gain the most benefits from the analyses.

## **BROADBAND, DIGITAL ACCESS AND DIGITAL EQUITY FOR ALL**

The COVID-19 pandemic has exposed major gaps and deficiencies in the availability, affordability and reliability of broadband internet connections in the United States at large and in rural and tribal areas in particular. These underlying conditions have existed since the broad adoption of the internet as a fundamental utility for commerce and communication. The pandemic, however, has amplified the digital divide and reinforced the importance of having available, affordable and reliable broadband connectivity for all as government, businesses, the workforce, schools and health care systems have transitioned to digital platforms and practices.

The transition to digital learning by K-12 schools and higher education has been particularly difficult for many rural and low-income communities due to lack of broadband connectivity at home. Tribal nations and remote rural communities continue facing barriers to planning, funding and deploying communications services, including their remote settings, sparse population densities and limited to no access to middle mile and long-haul fiber connections.

The federal government recognized these mounting needs as reflected in recent, precedent-setting broadband policies focused on new investment and regulatory reforms. With the pandemic continuing to drive an exponential increase in citizen, business and institutional broadband needs, the government should further prioritize, invest in and evolve regulations, enabling new broadband infrastructure, advanced technology solutions and support services to help close these gaps and better provide sufficient digital access to all.





# Broadband Reforms and Initiatives Across Federal Agencies

## PRINCIPLE

Given the number of federal agencies and programs involved in regulating the telecommunications industry with responsibilities to help remediate the digital divide, especially supporting rural broadband deployment, it can be challenging for state government, institutions, small providers and rural communities to identify and pursue appropriate federal investment and deployment opportunities. Businesses, local governments, electric and telephone cooperatives, tribes and other rural entities also face imposing burdens in applying for and managing federal funds. Telecommunications reform has always come in spurts as we once again find ourselves on the cusp of incredible innovation and sweeping transformations.

## POSITIONS

The Federal Communications Commission (FCC) and the National Telecommunications & Information Administration (NTIA), an R&D agency of the Department of Commerce (DOC), along with the U.S. Department of Agriculture's (USDA) Rural Utility Service (RUS) lead most of the federal wireless and broadband regulatory evolution, grant and loan programs, wireless spectrum availability and auctions, as well as project and industry oversight. The federal government should work to simplify and reform industry regulation while streamlining the processes and management burdens through which grants and loans are handled.

## MINIMUM BROADBAND SPEEDS

The FCC, NTIA, USDA, RUS, DOC's Economic Development Administration and other agencies should pursue a minimum broadband speed goal of 100 megabits per second (Mbps) download and at least 20 Mbps upload to guide infrastructure investments and program implementation to the greatest extent practical. Many broadband applications that promote rural, economic and community prosperity are better served by speeds greater than the current 25/3 Mbps standard, especially telehealth, e-learning, business and other applications relying on real-time performance or moving large amounts

of data. A scalable, non-symmetric minimum performance level should continue to be employed as application bandwidth needs and network capacity continue to grow. However, consideration should be given to not unnecessarily precluding wholly adequate solutions from fixed and mobile terrestrial wireless and emerging satellite constellations. Additionally, federal agencies should provide clear criteria and formulas for how much backhaul providers must have in place to support reasonable anticipated use profiles across populated communities at the minimum required speed offerings, as grant applicants' current ad-hoc estimates and justification of backhaul capacity vary greatly, leading to inconsistent planning.

## **BROADBAND MAPPING AND GRANT/LOAN DETERMINANTS**

High-quality data is necessary to ensure public broadband investments and deployment efforts correctly prioritize areas that are cost-effective and wholly or significantly lack access. During the past decade, significant state and national broadband mapping efforts have been made, but they have been fraught with inaccuracies and issues. Under its current Form 477 reporting protocols, the FCC considers a census block served if a single residence in the block has access to broadband, which tends to grossly overstate broadband availability in larger, rural census blocks. The FCC's use of "maximum advertised," not actual speeds when mapping broadband coverage further distorts reporting on the broadband speeds customers do receive. Inaccurate or overstated data prevents businesses, local governments and other entities from applying for and securing federal funds to assist underserved or unserved communities.

The Broadband Deployment Accuracy and Technological Availability (DATA) Act (S.1822) was enacted in March 2020 to require the FCC to change the way broadband data is collected, verified and reported. The FCC is now collecting and should soon be disseminating much more granular and accurate broadband service availability data from wired, fixed-wireless, mobile and satellite broadband providers. This will help construct a broadband serviceable location fabric atop which broadband maps can be overlaid to report detailed and accurate broadband service availability data by location. With congressional funding, the FCC and NTIA should build on recent progress to create better public mapping tools with improved user interfaces and experiences, high accuracy assurances, better information on available providers and services, the addition of the location and characteristics of community anchor institutions and the overlay of demographic and open-source data sets to aid

individual and institutional broadband consumers, as well as economic development stakeholders.

## **FEDERAL GRANTS, LOANS AND END-USER SUPPORT**

Congress should ramp up infrastructure funding for broadband grants and loans to providers, communities, education, libraries, telehealth and public safety that will be managed through FCC, NTIA and USDA programs. As we respond to the pandemic and commit to substantial new broadband infrastructure funding, it must be accompanied by agency and program process reform. There also should be reconsideration of long-standing barriers, including areas being incorrectly identified as "served" on broadband coverage maps, revisiting the concepts and metrics for unserved and underserved, excessive application and reporting procedures and significant match or cash-on-hand requirements.

The USDA's ReConnect Program contains a requirement that areas designated to receive support through the FCC's Connect America Fund Phase II can only pursue ReConnect funding through the entity that is receiving FCC assistance. This is an example of the kind of restriction that should be reformed since it inherently limits deployment of adequate broadband capability in many rural areas. Community anchor institutions (CAIs) should receive equal priority in funding considerations alongside unserved residential customers, be enabled to establish gigabit level connections and have those CAI infrastructure investments further leveraged through "to and through" policies.

The Arizona Technology Council strongly supports additional funding for the Digital Equity Act, the Emergency Broadband Benefit program, the Emergency Connectivity Fund program, and a permanent program to defray the cost of broadband subscriptions, devices and skilling to provide important support for low-income, disadvantaged and other communities on the wrong side of the digital divide.

## **E-RATE SUPPORT FOR SCHOOLS AND LIBRARIES**

Efforts to promote flexibility within the FCC's E-Rate program should be supported to deliver home connectivity solutions for unserved and underserved students, and respond to connectivity issues associated with the COVID-19 pandemic. The FCC with congressional enablement, if necessary, should open E-rate-funded networks to the surrounding community, provided E-rate dollars do not pay for these

extensions. Funding would support bus and bookmobile Wi-Fi and other creative efforts that seek to bring broadband into the community to address the homework gap. The FCC should provide consistent funding for Category Two equipment and services while continuing to expand what is covered, including adding coverage for necessary network security equipment and services. In addition, it should offer something similar to the recent E-Rate two-year special build program in which 17 states including Arizona that provided 10% matching funds were able to leverage hundreds of millions of dollars in new fiber infrastructure project funding to reach underserved rural schools and libraries. The FCC also should improve the Form 470 drop-down menu to eliminate applicant and service provider confusion, streamline and strengthen the competitive bidding process and clarify the transition of services and gift rules.

## **SIMPLIFY AND STRENGTHEN THE UNIVERSAL SERVICE FUND**

The FCC's Universal Service Fund (USF) provides essential and ongoing financial support to ensure all consumers have affordable broadband access to services, including schools, libraries and health care providers. The FCC should immediately commence a process for stakeholders to debate and the FCC to resolve how best to reform the universal service mandate, safeguarding and improving the USF by reforming High-Cost Support Mechanism and Low-Income Support Mechanism currently geared only to legacy POTS telephone support, which would allow broadband deployment support in similar circumstances. The FCC should give applicants the option to seek funding from the E-rate and Rural Health Care (RHC) programs in a single application, reject placing an overall cap on the entire USF and replace the outdated contribution mechanism with a more stable, long-term funding source and processes.

## **REFORM THE RURAL HEALTH CARE PROGRAM**

Congress should substantially increase funding based on demand data and the FCC improve the administration of its RHC program that currently suffers from insufficient funding and a slow, cumbersome administrative process. The FCC and USAC should process RHC program applications faster with more transparency. The FCC should establish rates based on competitive market forces and actual costs. RHC program rules should be reformed to no longer discriminate against consortia.

## **LAND MANAGEMENT AND RIGHTS OF WAY**

Federal land management agencies—particularly the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs and Federal Highway Administration—play crucial roles in permitting and siting broadband infrastructure. The federal government should implement improved planning and permitting coordination between public lands management agencies and tribal governments, as telecommunications projects often cross multiple federal lands and tribal jurisdictions. The government should drive collaboration across agencies, simplify processes and improve timelines for permitting broadband infrastructure projects crossing federal and tribal lands and rights of way including the introduction of shot clocks, especially those co-located with existing structures and other linear infrastructure, such as roads, rail lines, transmission lines and pipelines. States should be included to further coordinate, data share and ease multijurisdictional project planning and permitting, which has traditionally presented obstacles to private and public investment.

## **WIRELESS SITING**

FCC wireless siting reform is key to U.S. 5G leadership. As wireless providers are preparing to invest hundreds of billions of dollars in these new networks, the escalating costs and burdensome procedures of siting new towers and transmitters have become significant barriers to continued American wireless leadership. In addition, densification with small cells necessary for 5G urban performance makes reform even more critical. Each locality may have its own rules and timelines governing the permitting and installation of wireless infrastructure. This leaves wireless providers to navigate a maze of disparate policies and potential project timelines, often antiquated procedures and at times, impractical fee structures. The FCC previously set some national guidelines for states and municipalities regarding wireless infrastructure, but it now needs to implement a full-fledged national strategy and framework to enable and drive the wireless networks of the 21st century.

## **NET NEUTRALITY AND THE CARRIAGE OF CONTENT AND PACKETS**

Net neutrality is critical to maintaining a vibrant internet. A modern framework is needed that encourages the freedom and innovation that makes the internet the vital tool it is today. Today's FCC operates on the assumption that providing internet services—traditional or broadband—is not common carriage and cannot be regulated as if it is. Congress should settle the net neutrality debate by giving the FCC new



authority over broadband to craft rules around blocking, throttling and prioritization. The FCC should be allowed to settle the long-running net neutrality debate by locking in widely agreed upon protections for internet traffic with clear rules of the road that prohibit providers from blocking or throttling access to lawful content. This would provide market stability, system transparency, consumer choice and freedom for online-service vendors to innovate and scale new applications and businesses.

## **FREE UP SPECTRUM FOR INNOVATION, RURAL BROADBAND, 5G AND IOT/IIOT**

Wireless spectrum is a valuable resource that can help support innovative and cost-effective connectivity solutions across the nation. Auctioning additional spectrum licenses alone cannot meet the ever-growing demand for data and innovative pathways to market. Unlicensed spectrum is an essential complement to licensed spectrum and can open up new applications and markets in innovative and dynamic ways as Wi-Fi has ably demonstrated.

Wireless broadband use has skyrocketed in recent years, even more so during the pandemic. Demand for wireless data and broadband speed is expected to continue to grow exponentially. The FCC and NTIA should continue to free up additional licensed and unlicensed spectrum real estate by building on recent actions. They include the Educational Broadband Service Tribal Priority Window (2.5 GHz), the opening of Citizens Broadband Radio Service (3.5 GHz) and TV White Space (470-790 MHz) for licensed and lightly licensed use with Spectrum Access System services, and the opening of an enormous swath of spectrum (1.2 GHz) in the 6 GHz band for unlicensed use such as Wi-Fi 6E, LTE-style mobile and microwave backhaul. The two agencies should continue to pave the way for 5G, V2X for autonomous/connected vehicles, and IoT/IIoT for smart everything and more with low-band, mid-band and high-band (mmWave) spectrum reform and reallocations under licensed, lightly licensed and unlicensed strictures from sub-GHz to at least 100 GHz.

The FCC and NTIA should strive to increase competition and availability of services through additional and innovative access to licensed and unlicensed spectrum. They should maximize the potential for unlicensed use of TV White Space spectrum with its non-line-of-site capabilities and reach well suited to remote rural service provision, as well as allow schools, libraries, nonprofit organizations, local governments and tribes the opportunities to obtain unused educational broadband service and other spectrum licenses to serve rural markets.





# Congressional Broadband Reforms and Initiatives

## PRINCIPLE

Congress holds the power of the purse and sets the guidelines and rules by which federal agencies operate. There has been much progress since the Telecommunications Act of 1996, but a major update in governance expectations and structures is long overdue.

## POSITIONS

### ONE-OFF RURAL BROADBAND ACCELERATION FUNDING

As part of the federal government's pandemic relief assistance, Congress should allocate one-time funding focused on accelerating rural broadband infrastructure deployment in genuinely unserved and underserved areas where the economic benefit from increased connectivity is greatest and use a multi-pronged approach building on existing agencies and their programs.

### BROADBAND BLOCK GRANTS TO THE STATES

Beyond providing substantial additional funding for traditional federal agency broadband grant and loan programs, Congress should allocate ample block grants to each state and territory for their executive branches to prioritize, distribute and manage in addressing general broadband infrastructure issues and responding to digital access and digital equity challenges their constituents are facing during the COVID-19 pandemic.

### BROADBAND SUBSIDIES DIRECT TO CITIZENS

Congress and the FCC should establish a robust subsidy program to help low-income Americans gain connectivity, ideally through a simple and streamlined voucher or waiver system underwriting their broadband access costs.

### TRIBAL BROADBAND SUPPORT

Congress and federal agencies should pursue policy, programmatic and fiscal opportunities to improve broadband connectivity on tribal lands, including designing federal programs to promote partnerships



among tribes, states and various broadband providers. Federal broadband programs should allocate a designated portion of their available funding to supporting projects on tribal lands.

## **HELP REMOVE REGIONAL AND LOCAL BARRIERS TO DEPLOYMENT**

Federal financial support should be used to encourage local jurisdictions to remove deployment barriers. Local and state governments should streamline access to public rights of way and utility poles, adopt “dig-once” policies, install conduits during roadwork and ensure fees are based on costs and remain competitively neutral. Congress could go further by making receipt of federal infrastructure funds contingent on adopting a model municipal code that would streamline access to rights of way and municipal infrastructure such as utility poles and government buildings.

Policies governing access to utility poles can have a significant impact on the pace of broadband deployment to unserved and underserved markets. This means regulators and pole asset owners need to provide a consistent framework that recognizes the variety of circumstances that affect local pole attachment use, streamlines the pole

attachment process and expedites broadband deployment to communities with rates, terms and conditions that are non-exclusive, non-discriminatory, reasonable, predictable and prompt.

## **ELECTRIC COOPERATIVES TAKE THE FIELD**

Federal agencies should be encouraged to continue expanding the eligibility of electric and telephone cooperatives to pursue USDA and FCC broadband deployment program support, as cooperatives’ existing infrastructure and access to rights-of-way can help promote low-cost connectivity solutions for rural communities.

## **LEVERAGE CAI-FUNDED CONNECTIONS TO COMMUNITIES**

Federal programs often direct broadband infrastructure funding to community anchor institutions (CAI) such as schools, libraries, health care and regional government. These institutions could help leverage additional public and private investments in surrounding rural areas if Congress would legislate a more holistic funding approach that supports infrastructure deployment “to and through” CAIs.

## **PROMOTE REGIONAL INTERNET EXCHANGES**

Congress should take steps to encourage the growth of regional internet exchanges, as they would help promote cost-effective, reliable broadband service in rural areas by serving as open interchanges and peering points available to all broadband providers serving the area.

## **OTHER ACTION**

Congress should revisit and replace the legacy Communications Act to better define and refine definitions of services and modernize regulatory structures. Lawmakers also should reform the FCC’s merger review process and provide funds necessary to implement the Broadband DATA Act (S.1822). Additionally, Congress should fund research and test beds for innovative new wireless equipment and services.



# Federal Taxes

## PRINCIPLE

The Arizona Technology Council supports members of Congress and the administration's advancing tax and regulatory policies that spur innovation and grow the economy.

## POSITIONS

- + Create a permanent and competitive tax code that incentivizes investment for businesses of all sizes:
  - Improve access to capital and provide expanded support mechanisms for high-growth businesses.
- + Ensure simplicity and fairness in interstate taxation:
  - Interstate sales tax legislation should not result in additional compliance burden to businesses, and any policies should include a small business exemption.
  - Support policies that provide consistent, balanced and predictable sales tax treatment across international, state and local jurisdictions. These policies should prohibit unfair and unrelated discriminatory taxes. Specifically, the Council supports the Digital Goods and Services Tax Fairness Act (S. 765/H.R. 1725).
  - Reduce compliance burdens on today's digital workforce by supporting legislation that simplifies nonresident employee and employer requirements to report and withhold state income taxes. Specifically, the Council supports the Mobile Workforce State Income Tax Simplification Act (HR.429).
  - Support interstate tax fairness by treating digital products the same as tangible goods. Specifically, the Council supports the Business Activity Tax Simplification Act (H.R. 3063).
- + Maintain federal corporate tax rates established during the previous administration.



# Use of Consumer and Enterprise Unmanned Aerial Vehicles

## PRINCIPLE

Unmanned aerial vehicles (UAVs), also known as drones, offer immense opportunities for innovation, from cargo delivery to emergency response to simply photographing places where humans cannot travel. UAV innovation is occurring at a breakneck pace. However, regulations are not in place to allow UAV use in many innovative ways. The Federal Aviation Administration (FAA) released its Small Unmanned Aircraft Systems (UAS) Regulations (Part 107) in 2016, which limits UAV use to visual line of sight during the day and away from people. While a great first step, these rules still prevent UAVs from being used for a number of enterprise purposes.

## POSITIONS

The Arizona Technology Council supports a much broader use of UAVs than the FAA permits in its current rules. Congress and the FAA have demonstrated interest in crafting rules for enterprise uses of drones, but there is much to be done before they are put in place. We believe Congress and the FAA should strive to establish flexible rules that allow enterprise UAVs to go beyond line of sight and above populated areas. Further, Congress and the FAA should work to continue to

develop standards for airspace management to allow for safer, broader operation of UAVs.

The Council supports and advocates for policy changes that will not only embrace but encourage the growth of the UAV industry. These include measures to:

- + Permit the operation of small UAVs beyond visual line of sight.
- + Support the development of infrastructure to safely manage the widespread use of low-altitude airspace.
- + Enable broader UAS access to commercial mobile services and unlicensed spectrum vital to the safe and widespread integration of UAS.
- + Embrace the carriage and delivery potential of UAV technology in a wide array of capacities ranging from humanitarian aid to commercial operations.

The Council believes government must implement thoughtful regulations that reflect and anticipate the rapid growth of the industry. Ultimately, the Council supports policies that enable rather than hinder use of UAVs, and advocates for risk-based regulations that allow the safe and expedited integration of small UAVs into the national air space.



# Global Trade and Market Access

## PRINCIPLE

Technology exports reached an estimated \$335 billion in 2020 and directly supported an estimated 918,500 American jobs. Further, exports account for approximately \$1 out of every \$5 generated in the nation's technology industry. For additional growth, market opportunities should be expanded worldwide, tariff and non-tariff barriers reduced, foreign direct investment encouraged and U.S. technology advocated for globally.

## POSITIONS

The Arizona Technology Council supports trade policies that expand and open markets for the U.S. technology sector, prevent or eliminate trade barriers and boost the global competitiveness of the industry. In addition, Council supports uniformity of international data privacy and security laws to encourage innovation and policies that preserve the free flow of information across national boundaries.

### USMCA

Continue to support full implementation of the U.S.-Mexico-Canada Agreement. Assist Council members in developing USMCA compliance policies and procedures for making and supporting claims. Monitor U.S. Customs and Border Protection's proposal to apply USMCA marking rules to determine non-preferential country of origin of products imported from Canada and Mexico, as well as enforcement actions undertaken under the USMCA labor and environmental provisions.

### CHINA

Continue advocating the Council's position on Section 301 and additional trade remedies and resulting tariffs. Monitor ongoing Section 301 tariff refund litigation before the Court of International Trade. Advocate for stability between the United States and China, including de-escalation of the trade war, and a finalized agreement that achieves tariff removal to restore confidence and predictability in the trade relationship and global economy.



## WTO

Advocate to make permanent the World Trade Organization moratorium on customs duties on electronic transmissions and advocate for an early agreement on e-commerce negotiations by promoting ambitious and inclusive digital trade rules.

## EU-U.S. PRIVACY SHIELD AGREEMENT

Support negotiations with the European Union to finalize a new agreement that reinstates the U.S. under the Privacy Shield Adequacy Decision of the European Commission on personal data transfer from the European Union to the United States.

## DIGITAL TRADE

Advocate the Council's position on digital services taxes and promote a digital economy committed to the movement of data across borders and data privacy approaches that enable cross-border data flows. As global digital integration accelerates, companies must be able to move data freely and securely across borders to maintain operations, reach customers and compete.

## EMERGING AND FOUNDATIONAL TECHNOLOGIES

Monitor and advocate the Council's position on the ongoing effort to identify and establish export requirements for emerging and foundational technologies under the Export Control Reform Act.

## PROPOSED CARBON BORDER TAXES AND TARIFFS

Monitor and advocate the Council's position on proposed carbon border taxes on certain carbon-intensive products from countries lacking adequate emissions controls.

## U.S.-E.U. TRADE AND TECHNOLOGY COUNCIL

Monitor and support high level cooperation between the EU and the U.S. on trade and technology with the goal of promoting competitiveness and prosperity while focusing on strengthening transatlantic technological and industrial leadership, compatible technology standards and regulations, green technology, supply-chain security, data governance, export controls, investment screening and global trade issues.

## TRADE AGREEMENTS AND SPECIAL TRADE PROGRAMS

Advocate for the rapid expansion of bilateral and multilateral free trade agreements with other nations. The immediate targets should be the United Kingdom, Japan, Taiwan, Kenya, the European Union, Uruguay, Brazil and India. Support also is encouraged for possible reentry into the Trans-Pacific Partnership, and renewal of the Generalized System of Preferences and enactment of the latest Miscellaneous Tariff Bill. The advocacy focus should be to ensure inclusion of robust technology provisions in any agreements and special trade programs, including strong digital trade and intellectual property protection provisions. Trade agreements must include specific provisions that accomplish the following objectives:

- + **Enable the Free Flow of Data:** Companies must be able to move data securely across borders and should not be forced to localize data or infrastructure as a condition of doing business. Trade agreements must include specific provisions protecting the movement of data across borders and the ability of companies to operate without requiring them to use local infrastructure or build expensive and redundant data centers.
- + **Protect Source Code and Algorithms and Prohibit Forced Technology Transfers:** Companies should not be forced to share source code and algorithms or transfer technology as a price for doing business. Trade agreements must protect innovation by prohibiting governments from requiring companies to hand over source code and algorithms or transfer their technology, intellectual property, trade secrets, production processes or other proprietary information as a condition for accessing the market.
- + **Ensure Technology Choice and Encourage Open Digital Architectures:** Innovative companies should be able to utilize the technology that best suits their needs. Closed architectures prevent interoperability and competition, limiting the ability of companies to use the most cost-effective, secure and innovative technologies. Trade agreements should encourage widespread use of open architectures to drive innovation in key technologies—including cloud computing, artificial intelligence and 5G telecommunications—and ensure companies can choose their suppliers of choice, irrespective of where they are headquartered. Each party should accord non-discriminatory treatment to the services, service suppliers and digital products of the other party, including for new and innovative digital products and services.

- + **Foster Innovative Encryption Products:** Encryption is a critical tool to protect privacy and security in the digital ecosystem. Trade agreements should protect innovation in encryption products to meet consumer and business demand for product features that protect security and privacy while allowing law enforcement access to communications consistent with applicable law.
- + **Prohibit Digital Customs Duties:** Trade agreements should prohibit all customs duties for digital products, ensuring that duties do not impede the flow of software, information and digitally enabled services that drive innovation for companies and consumers.

## TRADE REMEDIES

Advocate the Council's position on trade remedies (e.g., Section 201, Section 232, Section 301, anti-dumping and countervailing duties); monitor implementation status, exemptions and exclusions; and update impacted members.

## INTERNATIONAL TRADE LEGISLATION AND REGULATION

Advocate for customs modernization, as well as clear, transparent and reasonable customs procedures, export regulations and sanctions. Support and assist members in developing effective compliance programs.

## FORCED LABOR

Update members on the increased enforcement of U.S. laws and regulations prohibiting the use of forced labor and educate on supply chain best practices.

## EX-IM BANK

Continue to support Ex-Im Bank as an essential financial tool for small and medium-sized businesses, many of which would be unable to de-risk and finance their export transactions without Ex-Im support.

## FOREIGN DIRECT INVESTMENT

Promote a trade and regulatory environment that attracts foreign direct investment into the United States, particularly in areas that generate high-wage job creation.



## U.S. AND FOREIGN COMMERCIAL SERVICE

Advocate support for the U.S. and Foreign Commercial Service and oppose any legislation or other efforts to eliminate the agency, reduce or defund the annual budget allocations associated with operations that support U.S. exports and foreign direct investment, or move functions associated with the agency from the Department of Commerce to the State Department or other U.S. government agency.

## INTERNATIONAL ORGANIZATIONS

Advocate support for international and multilateral organizations that underpin a system of global cooperation in the areas of trade and security, including the World Trade Organization, World Customs Organization, North Atlantic Treaty Organization,

United Nations, Wassenaar Arrangement, Nuclear Suppliers Group, Australia Group and Missile Technology Control Regime.

## REDUCTION OF TARIFF AND NON-TARIFF BARRIERS TO TRADE

Promote the development of trade policy positions that reduce the use of tariff and non-tariff barriers.

## IMPORT AND EXPORT CLASSIFICATIONS

Monitor new opinions and amendments by the World Customs Organization's Harmonized System Committee with respect to the Explanatory Notes and Harmonized System of tariff classification, monitor amendments to the export laws and regulations relative to commodity jurisdiction and classification and update members who may be impacted.

## ADDRESS SUPPLY CHAIN DISRUPTION

Advocate for legislation and regulatory measures against exorbitant detention and demurrage fees for shippers, as well as for solutions to ensure open access to instruments of international traffic and shipping containers. Support and promote secure and resilient international supply chains in critical areas including transportation of agricultural products, semiconductor manufacturing and advanced packaging, large capacity batteries, critical minerals and materials, and pharmaceuticals and active pharmaceutical ingredients.

## MARKET ACCESS

Oppose prohibitive regulatory requirements as market access conditions, including cybersecurity mandates and source code disclosure requirements. Oppose barriers to trade such as tariffs on technology products, customs classification requirements for digitally enabled goods and services, unilateral digital tax measures and prohibitive regulatory requirements. Engage in opportunities to enhance trading relationships in key markets for the industry, including India, Vietnam, Indonesia and Brazil.







# Workforce

## PRINCIPLE

A skilled workforce should be promoted by supporting policies that expand lifelong science, technology, engineering and math (STEM) learning.

## POSITIONS

### SUPPORT HIGH-SKILLED IMMIGRATION REFORM

- + Increase green cards for high-skilled STEM graduates.
- + Create new visas for entrepreneurs.
- + Adopt market-based visa caps.

### MODERNIZE THE WORKFORCE

- + Increase alternative pathways into the workforce through work-based programs such as apprenticeships. Specifically, the Arizona Technology Council supports the CHANCE in TECH Act (H.R. 720) and the Cyber Ready Workforce Act (H.R. 2721/S. 1466).
- + Increase the deployment and adoption of private sector-led initiatives that align with local and regional workforce demands and developing trends in the industry.
- + Modernize Pell Grant eligibility to include short-term credit and noncredit workforce training to be able to respond to labor market needs for short-term training.

### MODERNIZE THE EDUCATION SYSTEM

- + Make targeted P-20 STEM investments to ensure students of all ages can benefit from the digital economy.
- + Support and develop initiatives that encourage underrepresented communities and veterans to pursue IT career paths.
- + Increase the adoption of experiential learning.

### RECOGNIZE THE ABILITY TO RECRUIT AND RETAIN THE STRONGEST WORKFORCE MEANS SUPPORTING AN INCLUSIVE WORKPLACE

Welcome all people, regardless of faith, race, ethnicity, sexual orientation, gender identity or any other defining identity or characteristic.

## **SUPPORT SUSTAINED INVESTMENTS IN A STEM ECOSYSTEM**

Between 2017 and 2027, STEM jobs are expected to grow 21%. This growth will occur largely in the fields of computers and technology, advanced manufacturing, aerospace and defense, bioscience, and business and financial services. Opportunities in these sectors, however, can only be harnessed by a workforce proficient in STEM skills and the creativity and critical thinking fostered by STEM literacy.

## **LEVERAGE FEDERAL INVESTMENTS FOR A POTENTIAL 300% TO 500% RETURN ON INVESTMENT**

This investment is needed for the expansion of STEM opportunities to nearly all of Arizona's 1 million-plus students and their families, 90,000 teachers, 550,000-plus small businesses, and myriad industry and corporations.







## ABOUT THE ARIZONA TECHNOLOGY COUNCIL

The Arizona Technology Council is the driving force behind making our state the fastest- growing technology hub in the nation, connecting and empowering Arizona's technology community. As Arizona's premier trade association for science and technology companies, the Council is recognized as having a diverse professional business community. The Council offers numerous events, educational forums and business conferences that bring together visionaries, leaders and innovators to make an impact on the technology industry. Council members work toward furthering the advancement of technology in Arizona through leadership, education, legislation and social action. These interactions contribute to the Council's culture of growing member businesses and transforming technology in Arizona. For more information about membership or attending an event, please visit [aztechcouncil.org](http://aztechcouncil.org)

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