

# Goal #1

## Contribute to Alaska's economic development



UNIVERSITY  
of ALASKA  
*Many Traditions One Alaska*

### BACKGROUND/CONTEXT

Alaska's economy is heavily dependent upon extraction and resource development industries; the future well-being of the state economy requires diversification, innovation and new industry. The University of Alaska is uniquely suited to drive change in our economy and to educate graduates who will lead a new era of economic development. To meet the challenge of transforming Alaska's economy we must increase the number of scientists, mathematicians, engineers, technicians and other innovators working in the state. We must also monetize our research through the attainment of invention disclosures, patents and discoveries that benefit Alaska's economy. To accomplish this goal requires overcoming historically low educational attainment rates, addressing disparities in rural education opportunities and shifting the culture of education in the state.

### BENEFITS TO ALASKA

#### Increase STEM graduates for Alaska industries, research, and innovation needs

- Alaska ranks 46th in the rate of undergraduate STEM awards per 1,000 STEM employment opportunities in the state. Even if every existing UA graduate in STEM fields went to work in Alaska we would still be overly dependent on outside hires.
- Alaska-trained scientists and engineers understand Alaska's unique challenges and are best prepared to address the needs of Alaska industries.

#### Increase Alaska's New Economy Index

- The State New Economy Index uses 25 indicators to measure the extent to which state economies are knowledge-based, globalized, entrepreneurial, IT-driven, and innovation-oriented. Alaska's 2017 rank is 42nd, down from 32nd in 2014.
- Long-established industries such as agriculture, mining, manufacturing, and professional services are rapidly evolving into tech-enabled industries. The University of Alaska must play an instrumental part in developing the workforce and innovation to strengthen existing major industry sectors while advancing new, emerging tech-dependent industries in Alaska.

#### Increase patents

- Patents and invention disclosures lead to innovation and new technologies and support the university by monetizing important research conducted by faculty and students.
- Benefits of Commercialization:
  - Businesses establish a strong relationship with the University and sponsor more research
  - Inventors receive royalties
  - Businesses establish a competitive advantage and increase revenue
  - The economy grows and creates jobs
  - Consumers receive better quality, lower cost, and more efficient products or services

#### Overcome Alaska's economic challenges

- Alaska has a variable economy based on many factors we can't control. Forces include a combination of global (oil, mineral, fish), national (our economic strength relative to the country at large), and state and local influences.
- Stabilizing the economy through diversification and development of new industries is one long-term benefit of investment in the University of Alaska.

## CHALLENGES

- Alaska's resource extraction-based economy historically provided high wage potential for low educational attainment resulting in generations of low educational attainment rates. Currently, of 100 9th graders only 5 graduate from UA within 6 years.
- As a consequence, we are not educating the volume of innovators, researchers and technicians necessary to fill existing positions, let alone transform into a more technology-dependent economy.
- Climate change is rapidly affecting communities and industries in Alaska.
- Dependence on a single revenue source – petroleum – has led to a volatile state funding mechanism and reduced oil revenue has contributed greatly to the current recession and state budget deficit.

## SOLUTIONS

### **Increasing the capacity to train engineers and conduct research relevant to the Arctic and Alaska industries:**

- UAF's College of Engineering and Mines is working collaboratively with UAA's College of Engineering to deliver relevant curriculum and programs to meet the engineering needs of Alaska industries. The Department of Labor estimates Alaska will need 137 engineers and another 62 engineering technicians annually between now and 2022. Completion of the new engineering facilities at UAF and UAA will allow the university to fulfill its pledge to meet that need.
- The new facilities support Alaska-focused applied research programs in energy and power, transportation, oil, gas and mineral development, and environmental and water resources.

### **Increased focus on invention disclosures and the celebration of innovation:**

- The University of Alaska has expanded investment in support systems to aid researchers in monetizing their inventions and intellectual property.
- The future of innovation, research and development in Alaska relies in part on coordination between federal and state agencies, the University of Alaska, primary and secondary educators, and private industry and business as outlined in the comprehensive Alaska Science and Technology Plan "To Build a Fire," produced by the Alaska State Committee on Research in 2012 in collaboration with the University of Alaska.
- The University of Alaska is developing an interdisciplinary Innovation and Entrepreneurship Institute (UAA) and Interdisciplinary Leadership Institute (UAF) to further develop the innovators that Alaska needs to transform its economy.

### **Encourage interest in STEM programs**

- The university is partnering with K-12 school districts to enhance and expand programs that have proven to increase educational attainment such as the Alaska Native Science and Engineering Program (ANSEP), Rural Alaska Honors Institute (RAHI), Alaska Summer Research Academy (ASRA) and other science-based programs with a particular emphasis on attracting rural students.