

EXECUTIVE SUMMARY

As Oklahoma works to enhance investment in Science and Innovation, aligning focus on the key strategic areas where current opportunities exist to diversify our economy is critical. Found below is a concise strategic framework for Aerospace, Autonomous Systems and Defense (AASD) that aligns key opportunities for growth with the broader recommendations found in the 2021-2026 Strategic Plan for Science and Innovation.

Following discussion within and around the AASD ecosystem in Oklahoma and a case study analysis of other states who have made similar investments in AASD infrastructure, six key strategic priorities have emerged that will rapidly advance our state. They are:

1. Create a Regional Drone Hub utilizing the Centers of Excellence (CoE) model, which would serve as the focal collaboration point to coalesce all UAS resources toward the singular goal of advancing the UAS ecosystem.
2. Expand through retention of AASD skilled workforce employee pools via enacted legislation that would provide tax benefits to retired service veterans who remain in Oklahoma.
3. Establish a memorandum of understanding (MOU) to immediately create research and innovation superclusters through public and private sectors. Specifically, this will require collaboration from the Oklahoma State University's Oklahoma Aerospace Institute for Research and Education (OAIRE), projects managed by the Oklahoma Aerospace and Defense Team (e.g. ACES), and the University of Oklahoma's Oklahoma Aerospace and Defense Innovation Institute (OADII).
4. Invest in the Fires Innovation Science and Technology Accelerator (FISTA) Innovation Park, located in Lawton, which will support the Ft. Sill's housing of two US Army Cross functional Teams (CFTs) and the pending arrival of the nation's first counter UAS schoolhouse.
5. Collaborate with State military, tribal and public and private sector leadership to further the strategic expansion of physical and intellectual AASD projects. Specifically, working to leverage use of runway and restricted airspace assets under their control as a resource for supporting investment in AASD programs like UAS.
6. Enhance investment in educational pathways to creating a deeper and more diverse workforce specifically tailored toward AASD industries through State Universities, Community Colleges, and Vocational Technical Schools (e.g. Career Tech) with a focused approach to growing STEM education in elementary and primary schools.

As we work toward rapid implementation of these six strategic priorities, the following recommendations should be advanced to ensure stability in the AASD space.

Recommendations

Identify Opportunities for Large Scale, Focused Investments and Partnerships:

- Enhance engagement with federal sector agencies to identify investment opportunities in aerospace, with the goal of leveraging Oklahoma's geographical location, military expertise, and current ecosystem to attract AASD research and development opportunities within the state.
- Enhance the collaboration between State universities, community colleges and Career Tech in the AASD space to strengthen Oklahoma's position in attracting external interest in capital investment.

Establishment of an AASD Center for Excellence:

- Recruit and/or identify current subject matter experts to collaborate on forming a center for excellence in AASD that focuses on garnering investment in R&D with the goal of commercialization, via government contract or private sector market.
- Prioritize legislation that would establish a pipeline of investment dollars, some of which would be allocated to the creation of an AASD center for excellence.
- Work with current military installations to identify existing research opportunities that can be enhanced with additional investment of time/capital/workforce.
- Leverage university partnerships in all areas of AASD to collaborate toward the singular goal of establishing a center for excellence.

Create superclusters of Innovation and Support Systems:

- Leverage the existing framework of incubators like I-Hub and identified experts in AASD to create opportunities for innovation in AASD. (Boston has a tech. Hub approach similar in fashion to I-hub that has led to the Hanscomb project, which specializes in developing tools for aerial surveillance, reconnaissance, and defense-related software development)
- Partner with universities and educational centers across Oklahoma to identify key strengths, such as geographical location to a military base, which may be conducive to the formation of a supercluster, and work within the state regents' system to enhance opportunities for these entities to garner state/federal dollars to invest in an innovation supercluster.
- Review existing superclusters, such as the Kansas National Institute of Aviation Research, and find potential collaboration points that would rapidly accelerate creation of a supercluster of innovation.

Enhance Investments in Education, Workforce Development, and Internship programs:

- Work with the legislature to resurrect previously contemplated legislation that would provide a blanket income tax exemption for retired military. With the exception of Colorado, all states that border Oklahoma have this exemption, which is a force multiplier in attracting the often highly specialized and reliable pool of retired military personnel workers. This enhances the pool of potential candidates for jobs created by the aforementioned investments in research, innovation superclusters and AASD manufacturing.
- Build a strategic plan to leverage military assets and universities to offer tuition assistance/waivers for those who remain in Oklahoma following graduation/post-career.
- Partner with private sector companies to provide internship opportunities for veterans.
- Create and sustain an asset map that links all physical and intellectual AASD assets within the state, to ensure all areas of the industry are served by workforce development investments made by state/federal/private entities.

Secure Public and Private Funding

- Identify VC firms, large investment companies and use the pay for success model to pair private investment with public dollars to create a model that buoys a publicly funded program with private investment, with an established ROI that will repay the private funding entity an agreed upon amount if KPIs are met (see Women in Recovery as a successful example).
- Work with existing entities such as ACES to find PPP opportunities.
- Diversify legislative champions to more than just prior military in order to more widely socialize the concept that AASD investment is more than just military or defense related.
- Draft legislation that would see a static investment in AASD with attached KPIs, driven by the Office of Science and Innovation, to ensure articulated goals of the investment are met.
- Assist small businesses and identified providers of defense-critical capabilities on how to access the Department of Defense Trusted Capital Digital Marketplace.

CASE STUDY ANALYSIS

In conducting research for this document, three states were selected as benchmarks that have shown promise in expanding their Aerospace, Autonomous Systems, Defense apparatus. Summaries of those plans can be found below. While no state is a perfect match with Oklahoma, each has taken an approach to focus investment in this space, with noticeable results either projected or realized.

North Carolina:

In October of 2020, the North Carolina Military Affairs Commission put forward their 2020 strategic plan, a work product of legislation enacted that year by the North Carolina Legislature. In it, the plan outlined four pillars that guided their vision forward.

- Installation and Mission Sustainability
- Economic Development
- Quality of Life
- Legislative and State Agency Coordination

Looking at the first two pillars, a common refrain is struck in the need for a collaborative approach across all sectors interdependent of the military for ongoing success. Some key takeaways from recommendations made in the report are as follows:

1. The creation of a Regional Defense Industry Review/Study that focuses on the civilian communities that surround existing military installations
2. An in-depth assessment of current transitioning military personnel, with goals to connect skilled professionals into workforce pipelines and re-skill qualified personnel for needed jobs (e.g. engineering).
3. Formation of a public/private UAS partnership in an effort to expand UAS opportunities

While this plan is only one year old, it signals the importance and strategic priority Defense and the UAS have become to state leaders. In addition to these, the state is one of nine (9) participants in the FAA's BEYOND program, an intentional effort by the federal agency to invest in scaleable UAS technologies that will allow for a move of drone testing to go beyond visual line of site. Other notable partners include North Dakota, Virginia, and the Choctaw Nation of Oklahoma.

North Dakota:

Leveraging use of its expansive land resources, the state of North Dakota has invested over \$28 million in FY2019-2021 to create a statewide UAS network. This perpetuated the creation of Vantis, a collaboration point for the States desire to be at the forefront of Beyond Visual Line of Sight (BVLOS) UAS applications for both the public and private sector.

During this time, Grand Sky, self-described as “the nations’ first private UAS park” was created, where private sector businesses from around the world collaborate with the defense industry and federal partners to test, innovate and perfect UAS of tomorrow. Boasting a 12,351 foot runway, access to dark fiber, optimal natural conditions and an open airspace (flying less than 10 independent missions per day, 330 days per year), Grand Sky has positioned itself as a focal point for the convergence of private and public investment in UAS projects for years to come.

As a result, the FAA’s BEYOND program became a supporter of the initiative and the US Air Force and Dept. of Homeland Security have awarded contracts for research and development to take place on site. To date, the park has attracted over \$100 million in private investment. The total estimated investment by the State of North Dakota specifically in its UAS infrastructure is approximately \$33 million, with \$77 million of total state commitment across all UAS programs. This has netted an estimated return of over \$400 million in overall private sector investment, with >1,000 jobs created to support this burgeoning ecosystem.

Virginia:

In 2017, the commonwealth of Virginia commissioned a strategic plan to encourage and support the UAS industry in its state. Key takeaways from this report include the following:

- Establishing a dedicated in-bound focal point, which would serve as a point of contact for those seeking to do business or partner with Virginia UAS-related organizations, companies, test sites, and related industries;
- updating the list of UAS-related assets;
- pursuing marketing of UAS capabilities and outreach for partnering campaigns;
- targeting financial incentives to small startups;
- avoiding proscriptive regulation; and
- enhancing educational offerings.

In addition to these, additional recommendations included the creation of and investment in a Centers of Excellence (CoE) model, which would also include a virtual CoE to ensure multi-site collaboration from experts across the state.

Based on its geographical location, rich history as a founding US colony and tapestry of educational assets, the state of Virginia is the nexus point for many government agencies and entities in the defense industry. From NASA to the Pentagon, Virginia matches these impressive assets by leveraging private sector investment as well. Investments in educating a productive AASD workforce abound in the multitude of universities throughout the state, and it is clear the enhancement of the UAS ecosystem is a key priority for the state.

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Jim Epperson

Engineering Senior Manager
Spirit AeroSystems

Steve Fendley

President
Kratos Defense & Security Solutions

Jamey Jacob, PhD (Vice Chair)

Director, OSU Unmanned Systems Research
Institute
Oklahoma State University

Loyd Hook, PhD

Assistant Professor of Electrical and
Computer Engineering
University of Tulsa

Travis Kirkpatrick, MPA

Executive Director, Special Projects
Science and Innovation
State of Oklahoma

Adriane Jaynes

Indian Nations Council of Governments
(INCOG), Energy Programs Coordinator

Major General Lee K. Levy (Ret.)

President and CEO
The Levy Group LLC

The Honorable Paul Rosino

Senator, District 45
Oklahoma

Bailey Siegfried

Vice President of Culture, Communications,
IT and HR, NORDAM

Warren Thomas

Managing General Partner
Tinker Business and Industrial Park

Geoffrey Camp

State Director, Aerospace and Defense
Oklahoma Department of Commerce