

TRIUMPH GULF COAST, INC. PRE-APPLICATION FORM

APPLICANT INFORMATION:

Name of Individual/Entity/Organization: HSU Educational Foundation (HSU)

Proposal Title: FieldWerx: An Ecosystem for Artificial Intelligence (AI), Extended Reality (XR), and Emerging Technologies

Amount of Triumph Funds Requested: \$56,195,000

Total Estimated Project Cost: \$161,350,000

Brief Description of Individual/Entity/Organization: HSU Educational Foundation (HSU) is committed to its mission of encouraging excellence in education and inspiring innovation. HSU was founded by Dr. Paul Hsu, a successful tech-entrepreneur and visionary. Dr. Hsu, a first-generation immigrant, has a proven track record over the last 40 years starting and growing successful technology companies in Northwest Florida (NW FL). Serving as mentor to numerous small businesses and a strategic driver of economic development initiatives, the foundation has long supported Northwest Florida's growth, prosperity, and industrial diversification.

HSU Educational Foundation, a 501(c)(3) non-profit public charitable organization, was formally established in 2015 and quickly grew through vast support of NW FL industry stakeholders. HSU builds strategic partnerships across public, private, and community sectors. HSU serves as a student / workforce to industry bridge by inspiring students of all ages and the workforce, through innovative, valuable learning opportunities not always accessible in the traditional classroom setting. Through partnership support, HSU offers a multifaceted approach to workforce development by offering a multitude of diverse programs, empowering small business to solve challenges for a stronger community and our Nation's bright future.

HSU is dedicated to transforming Northwest Florida by inspiring innovation, professional certification training, and job growth, especially in the realm of Science, Technology, Engineering and Math (STEM). HSU programs are developed from an entrepreneur's perspective and reflect an industry-driven solution for preparing our future workforce for careers and empowering innovations for a stronger NW FL.

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Names of co-applicants, partners or other entities, organizations that will have a role in the proposed project or program (Letters of Support to follow):

Industrial and Business Partners: Scale AI, Inc., Flight Level Engineering, Air Force Research Lab (AFRL), AFSOC, PSH of Okaloosa, LLC, Vertex Solutions, LLC (coupled with a confidential Major United States (US) Airlines)

Education and Community Resource Partners: Federal Aviation Administration (FAA) Trust, Project One Spark Cell 1 SOW, Texas A&M / Lone Star UAS Center of Excellence and Innovation, Okaloosa County, Santa Rosa County, Okaloosa County School District, Technology Coast Manufacturing and Engineering Network (TeCMEN), Economic Development Council of Okaloosa County, Career Source, UWF, Northwest Florida State College Aviation Center of Excellence (ACE), Chambers of Commerce (Greater FWB, Crestview and Destin)

EXECUTIVE SUMMARY

HSU Educational Foundation (HSU) requests support for the FieldWerx Project in the amount of \$56.2 million as a 35% share stakeholder investment from Triumph Gulf Coast, Inc. This request combines with other funding and support of HSU and its Public Private Partners (PPP) for the development of the FieldWerx Project with a total program cost of approximately \$161.3 Million, as reflected in Table 1 below, and as administered over the next three years.

Type	Amount
Curriculum and Program Development	\$76,633,000
FieldWerx Innovation Investment	\$19,672,000
New and Modified Facilities and Existing Equipment	\$8,850,000
Triumph Requested Funding	\$56,195,000
Total Project Support and Funding	\$161,350,000

Table 1: Total FieldWerx Program Cost

Locations

- HSU Innovation Institute South at 709 Anchors Street, Fort Walton Beach, FL 32548
- HSU Innovation Institute North at 5793 John Givens Road, Crestview, FL 32536
- HSU STEM Range, 400 Acres Bill Lundy Road, Laurel Hill, FL 32567
- FieldWerx PPP Partner locations (Including New Development of 100,000 sq ft classified and unclassified Class A Facility)

Proposed Program:

FieldWerx: An Ecosystem for Artificial Intelligence (AI), Extended Reality (XR) & Emerging Technologies (ET)

HSU proposes to create this FieldWerx Public Private Partnership (PPP) for cooperative, innovative growth of workforce development and job creation in the sectors of Artificial Intelligence (AI), Extended Reality (XR), and Emerging Technologies (ET). This will be accomplished by leveraging FieldWerx PPP Partner Investments with top industry expertise to generate a skilled talent pipeline and thriving ecosystem focused on solving real-world challenges and better empowering the future workforce and the Warfighter. By creating best-in-class Centers of Excellence (COE), FieldWerx will generate an opportunity to earn high demand skill certifications and hands on training in simulated training environments for exploring experiential STEM, rapid design and prototyping, AI, XR, and emerging technologies while cultivating innovation and entrepreneurship in NW FL. First named FieldWerx through formal partnership with the Air Force, the HSU Educational Foundation (HSU) sought to make this 'WERX' unique in how the technology and training opportunities would not only support our community and our national defense in STEM talent development but also encourage prototype development for commercial and civic applications. As we raise the capabilities for these AI, XR, and ETs for the defense related technology sector, it was apparent that clear solutions and applications existed with crossover in the non-defense sector in such areas as Disaster Recovery, Aircraft Maintenance, Air and Ground Autonomy, Smart Cities, STEM Research, and Unmanned Aircraft System (UAS) Applications and Analysis. Since the establishment of the FieldWerx concept, efforts to recruit over 60 partner organizations have been very successful and thus an opportunity to elevate the power of FieldWerx now compels this application. This first FieldWerx application will build upon previous PPP projects and established communities of practice, with strong existing streams of youth outreach and the dropping of challenges or requirements into the system to further sustain and extend the reach of the program. FieldWerx brings together a unique collaboration of capabilities and partners as a force multiplier for a more diverse and prosperous NW Florida.

As the world becomes increasingly more technical with advances in areas such as machine learning (ML), computer vision, XR, nanotechnology, blockchain, and other emerging technologies, local economies will thrive with a workforce postured to capitalize on these new industries. Furthermore, each of the focus areas compliment and overlap each other forming greater impact and opportunity. NW FL is a region ripe for expanded exploration and testing of technological innovations, the FieldWerx PPP is committed to cultivating the incubation of new ideas, training and growth through net new job creation that will stimulate the economic recovery, diversification, and enhancement of the eight disproportionately affected counties in NW FL.

The development of FieldWerx offers a transformative business to workforce educational solution that bridges the gap between traditional classroom education and the increasing demands of employers in need of an advanced technologically skilled workforce. The Air Force (AF) first inspired HSU to take the FieldWerx ecosystem to the next level to align the community needs for workforce, training, and STEM education in creating solutions to AF problems (which are also relevant in many commercial sectors). This is accomplished by (1) Supporting high tech workforce training from an early age, (2) Opening channels for learning of new technologies through solving real world problems and (3) Serving as a foundation for development of future industry partnerships with relevant and expanding access to local resources.

Northwest Florida Artificial Intelligence Center of Excellence (NW FL AI COE): FieldWerx will contribute to projects in intelligence surveillance and reconnaissance, aircraft and ground vehicle autonomy, mapping, and much more. This mission will span up to 20 lines of effort from defense related projects with AFRL to GSA to the top-five largest commercial technology companies in the world. These companies include Toyota, Tesla, General Motors, PayPal, and Square. The NW AI COE will create **420 net new jobs** in NW FL over the next three years, with an **average salary of \$71,000**. The jobs range from the *majority starting out as employees with no formal education* through technical master’s degrees. This model creates a transformative impact through net new job creation and integrated certification training. There are 13 career growth steps, which include Data and Role-Based Certifications which give every team member the opportunity to progress into a highly technical career path. Working with our diverse partners, FieldWerx is uniquely positioned to foster collaboration at all levels and elevate the productivity and success of the workforce in the AI sector.

Partner Missions Served by AI

- ❖ ISR PED
- ❖ Disaster Recovery
- ❖ Aircraft Maintenance
- ❖ Air and Ground Autonomy
- ❖ Smart Cities
- ❖ STEM Research
- ❖ Unmanned Aerial System (UAS)

XR Research Lab: The XR Lab will be a collaborative effort with a confidential major US airline, aircraft original equipment manufacturer (OEM), and Department of Defense (DoD) partners to develop lightweight, Federal Aviation Administration (FAA)-certified ITDs and training programs. The XR Lab will meet the next decade’s forecasted pilot shortage crises by increasing the efficiency and effectiveness of aviation training through the development and implementation of emerging XR, AI, and related innovative technologies. The Lab’s initial focus will be fielding FAA-certified XR simulators / ITDs and AI-powered student performance assessment.

Advanced Aviation Training Center / Pilot Training Program: As an addition to the already established NWFSC ACE program, there is a need for applying the next level of Technology in AI, XR. This program will integrate with the newly fielded NWFSC Pilot Training Program into a curriculum that supports the requirements of a confidential major United States (US) airline, including advancement to qualifications with regional airline providers to achieve requisite flight hours. Triumph funds will support the development and implementation of the new curriculum, adding four new certifications to NWFSC’s existing catalogue and fielding XR Immersive Training Devices (ITD), which are proven to reduce the flight hours required to attain proficiency by 30%. This elevates the excellence in pilot training tools that will be made to any commercial or government pilots. In future phases, similarly optimized certification programs will include ground-support roles and air traffic control, further increasing the program’s economic impact.

Professional Education Variable Stability Aircraft and Simulators: This program provides “short courses” and certifications to partners and high school students. The aircraft used in the professional education classes for flight test engineers and test pilots are the nation’s only 5-Degree of Freedom (DOF) and 6-DOF Variable Stability aircraft. This program features a full Fly-by-Wire system and fully reversable conventional controls. It also serves as a very important research tool as we discover how to make simplified vehicle operations and urban air mobility a reality. Courses are:

- Introduction to Integrated Ground-to-Flight Test Engineering
- Fundamentals of Flight Test Engineering
- In-Flight Icing and Effects on Aircraft Handling Characteristics
- Advanced Flight Control Systems (CLAW Flight)
- Pilot Induced Oscillations
- Flight Testing of Unmanned Aerial Vehicles
- Design of Experiments

Unmanned Aircraft Systems Center of Excellence (UAS COE): This program represents a focused endeavor to provide high demand, highly effective training, supported research and development, prototype development, testing and evaluation for UAS. Expanding upon existing capabilities, the HSU Innovation Institute North campus connects with the 8,000-foot runway of Bob Sikes Airport and features a Beyond Visual Line of Sight (BVLOS) corridor to the HSU STEM Range with expanded ability to manipulate airspace via Public Service COA of FAA Testing Site partner, Texas A & M Lone Star. As a regionalized solution to local Governments, this program will empower emergency management response teams for proactive hurricane preparation and action plans for natural disaster recovery. The project includes developing future of Mobile Vertipoint landing systems technology for furthering advanced and urban air mobility. This specially modified infrastructure will support UAS research interests of both the industry and Government while facilitating mentorship and internship opportunities for high school, college, young budding entrepreneurs, and transitioning military.

Link : [UAS Center of Excellence | HSU Educational Foundation \(hsu-foundation.org\)](https://hsu-foundation.org).

Summary Timeline for the FieldWerx Program: Certification Total Cost \$28,755,000 / Job Growth Total Cost \$26,460,000

Certifications	Year 1	Year 2	Year 3	Total	Job Growth	Year 1	Year 2	Year 3	Total
AI	776	559	36	1371	AI	100	150	170	420
Flight Test	300	700	1000	2000	Flight Test	5	7	8	20
Engineering (UAS, Software, Design, Robotics, Mfg.)	500	500	1000	2000	Engineering (UAS, Software Mfg., Robotics)	4	12	14	30
Additional Pilot Training	80	110	190	380	Additional Pilot Training	10	15	25	50
					HSU	6	10	4	20
Total	1,656	1,869	2,226	5,751	Total	125	194	221	540

IMPORTANT NOTICE

This pre-application process will not result in an award of funding by Triumph Gulf Coast. Rather, this process is designed to facilitate submission of ideas for potential projects or programs before the Applicant expends time and/or resources to complete a full Application. All Applicants for funding are required to complete an Application, which will be reviewed and then considered for award at the discretion of Triumph Gulf Coast Board.

Please Select the Proposal's Eligibility Category(s)

Pursuant to Section 288.8017, Triumph Gulf Coast, Inc. was created to make awards from available funds to projects or programs that meet the priorities for economic recovery, diversification, and enhancement of the disproportionately affected counties. The disproportionately affected counties are: Bay County, Escambia County, Franklin County, Gulf County, Okaloosa County, Santa Rosa County, Walton County, or Wakulla County. See, Section 288.08012.

1. From the choices below, please check the box that describes the purpose of the proposed project or program (check all that apply):

- Ad valorem tax rate reduction within disproportionately affected counties;
- Local match requirements of s. 288.0655 for projects in the disproportionately affected counties;
- Public infrastructure projects for construction, expansion, or maintenance which are shown to enhance economic recovery, diversification, and enhancement of the disproportionately affected counties;
- Grants to local governments in the disproportionately affected counties to establish and maintain equipment and trained personnel for local action plans of response to respond to disasters, such as plans created for the Coastal Impacts Assistance Program;
- Grants to support programs that prepare students for future occupations and careers at K-20 institutions that have campuses in the disproportionately affected counties. Eligible programs include those that increase students' technology skills and knowledge; encourage industry certifications; provide rigorous, alternative pathways for students to meet high school graduation requirements; strengthen career readiness initiatives; fund high-demand programs of emphasis at the bachelor's and master's level designated by the Board of Governors; and, similar to or the same as talent retention programs created by the Chancellor of the State University System and the Commission of Education, encourage students with interest or aptitude for science, technology, engineering, mathematics, and medical disciplines to pursue postsecondary education at a state university or a Florida College System institution within the disproportionately affected counties;
- Grants to support programs that provide participants in the disproportionately affected counties with transferable, sustainable workforce skills that are not confined to a single employer; and
- Grants to the tourism entity created under s. 288.1226 for the purpose of advertising and promoting tourism and Fresh From Florida, and grants to promote workforce and infrastructure, on behalf of all of the disproportionately affected counties.

Please Select the Priorities this Proposal's Outcomes will Achieve

1. Please check the box if the proposed project or program will meet any of the following priorities (check all that apply):

- Generate maximum estimated economic benefits, based on tools and models not generally employed by economic input-output analyses, including cost-benefit, return-on-investment, or dynamic scoring techniques to determine how the long term economic growth potential of the disproportionately affected counties may be enhanced by the investment.
- Increase household income in the disproportionately affected counties above national average household income.
- Leverage or further enhance key regional assets, including educational institutions, research facilities, and military bases.
- Partner with local governments to provide funds, infrastructure, land, or other assistance for the project.
- Benefit the environment, in addition to the economy.
- Provide outcome measures.
- Partner with K-20 educational institutions or school districts located within the disproportionately affected counties as of January 1, 2017.
- Are recommended by the board of county commissioners of the county in which the project or program will be located.
- Partner with convention and visitor bureaus, tourist development councils, or chambers of commerce located within the disproportionately affected counties.