# Application Score Sheet

Proposed Project: University of West Florida, Institute for Industry Advancement & Analytics (IA)2 (#323)
Proposed Project/Program County: Escambia
Board of County Commission Support:
Rural County: No
Opportunity Zone: No

Total Projected Project Cost: $37,469,813
Match Provided: $27,959,592
Triumph Funds Requested: $9,360,221
Triumph Funds Recommended by Staff: up to $9,360,221

Score: A
ROI: $12.8 dollars of increased personal income (in constant dollars) per dollar of Triumph expenditure

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**Economic Analysis, Impact and Score**

The UWF IIAA proposal describes an Institute which is intended to establish a robust research presence in data analysis, forecasting, and industry analysis at UWF. The Triumph funding request of $9,360,221 represents 25 percent of the total project cost of $37,469,813. Other funding sources in support of the Institute include grant, contract, and state infrastructure expenditures over the initial ten calendar years of the project of at least $27,959,592.

The proposed performance metrics guarantee that at least $17.5 million of the UWF expenditures will come from competitively awarded research grants or industry contracts. $12 million of additional match will be for infrastructure dedicated to these activities. UWF guarantees that it will continue to support the Institute at the 26-person FTE levels identified in the application for at least three years following the expiration of the Triumph performance period.

The envisioned new Institute will have concentrations in Predictive and Cognitive Analytics, Big Data Analytics, Artificial Intelligence, Machine Learning, Deep Learning, Automation, and Computing. These areas of focus will advance the research and scientific contribution of UWF, enabling it to move beyond simply teaching college classes, and enable research faculty and staff to provide partnerships with businesses across key industry sectors. These are very much needed to establish new research and development capacity in Northwest Florida – thus having a transformational regional impact.

The proposal contains four suggested performance metrics, including:
- Performance Metric #1: Successful award and expenditures of a minimum of 17.5 Million Dollars ($17,500,000) in competitively awarded research grant proposals or

industry contracts focused on the broader objectives of (IA)2 within 10 years of the first disbursement of grant funds.

- Performance Metric #2: Expenditures from non-grant funding sources of $10.46M ($10,460,000) focused on (IA)2
- Performance Metric #3: The addition of twenty-three (23) net new FTE positions by the start of year 3 of Triumph funds.
- Performance Metric #4: The addition of twenty-six (26) additional net new FTE positions by the start of year 7 of Triumph funds.

The Center will sustain itself primarily through federal, state, industry, and foundation grant and contract funding, data analytics services, and through the commercialization of analytics and software creation. Future job creation sustainability will develop as significant new funding and business opportunities flow into the area via services, commercialization projects, and research at (IA)2. Expanding and enhancing (IA)2, with its state-of-the-art facilities and equipment, will enable (IA)2 to pursue and win more contract/grant funding awards. Additional job creation is expected to occur in the local private sector community via the growth of existing business and research partners as well as the possible creation of spin-off companies. The view of Triumph staff is that this project will be transformational for the region.

Taking these metrics together, the total impact on the region measured is expected to be $12.8 dollars of increased personal income (in constant dollars) per dollar of Triumph expenditure. Additional income and development flows are likely to flow from the new research capacity that will be established. For these reasons, Triumph staff rate the project as an "A."

**Project Summary (based on information provided by the applicant)**

The University of West Florida (UWF)is requesting a $9,360,221Triumph grant to expand the Institute for Analytics and Industry Advancement ((IA)2)). UWF's (IA)2 Computational Intelligence program will build a next generation research center of excellence expanding the boundaries and applications of Predictive and Cognitive Analytics, Big Data Analytics, Artificial Intelligence, Machine Learning, Deep Learning, Automation, and Computing. Triumph funds will be used for personnel, equipment, and renovations. The project will result in at least $27,960,000 in external funds being awarded to the program.

Escambia and Santa Rosa Counties, and the entire Northwest Florida community, are perfectly positioned to incorporate existing military, Department of Defense, and other federal assets to expand, diversify, and transform the region by attracting new federal spending to the region.

Computational research is represented by UWF and IHMC in the Northwest Florida area However, computational technology development and commercialization is currently not present in any consolidated manner in the greater Northwest Florida area. The PAM Lab and the Center will establish the cluster necessary to create new opportunities and new potential spin off entities focusing on predictive data analytics and other areas of computational intelligence.

In the context of this proposal, Computational Intelligence is the theory, design, application, and development of computational models capable of performing complex tasks. As a subset,

Predictive Analytics is the development of models with the ability to predict future events or outcomes in terms of product performance or human behaviors (such as the behavior of students, employees, or customers). UWF (IA)2 will focus on the goal to significantly advance the collective understanding of computational models in terms of both building and applying models, and consequently, the development of interventions that maximize successful outcomes for organizations.

The purpose of the Center for Computational Intelligence (Center) is to enable interaction and collaboration between university faculty whose research (basic, applied, or interdisciplinary) is computational in nature. The Center's cutting-edge research will focus on the creation or application of computational models and systems capable of performing complex tasks. The computational technology developed through the Center will be investigated for commercial opportunities by the Predictive Analytics and Modeling Lab (PAM Lab.) The proposal requests to use Triumph funds to develop the Center into a world-class research center of excellence sustained through grants and contracts, bringing in millions of dollars to the regional economy (NEW funding).

UWF will leverage collaborations to secure grant funding appropriated for the singular purpose of establishing regional innovative ecosystems encompassing researchers (from UWF and IHMC), industries and the community to create solutions with economic and community impacts. Research grant dollars spent locally are well-recognized as having a substantial impact on the local economy. There are numerous avenues for high-impact research collaboration, grant funding, commercial application, and more, that can come from the Center. Envisioned federal funding agencies and industry partners include the National Institutes of Health, ARPA-H, National Science Foundation (CHIPs), Department of Energy, Air Force Research Labs, Army Research Labs, Office of Naval Research, Defense Advanced Research Projects Agency, Howard Hughes Medical Institute, Air Force Office of Scientific Research, Army Research Office, and Boeing. A partnership with IHMC research scientists provides international funding sources with collaborators involved in the Saudi Vision 2030 initiative to advance AI accessibility/product usage.

UWF has invested significant time and resources to begin and enhance the activities of (IA)2. In 2019, UWF funded the PAM Lab, which specializes in developing easy-to-understand analytics for decision-making and data prediction purposes. The PAM Lab is currently working in the education sector, transitioning university data to easy-to-use dashboards to improve enrollment, retention, graduation rates, and overall student success. The PAM Lab is the primary commercialization arm of (IA)2, with a goal to sustain itself on a software-for-commercial-service model. The self-sustaining model includes developing customized in-demand analytics tools.

The PAM Lab provides descriptive and diagnostic analytics for product performance in the education, health, and product manufacturing sectors. UWF proposes using Triumph funds to expand the PAM Lab capabilities in terms of personnel to accelerate business opportunities and, ultimately, move into industry sectors such as healthcare and energy. The PAM Lab is partnering with various universities through contracts to provide dashboards for improving student success, enrollment planning, and financial aid for enrollment and student success.

The UWF Hal Marcus College of Science and Engineering has invested resources in an Industry-Skills Workforce Development Program which currently offers Data Science, Advanced Data Science, Data Fluency, Cybersecurity, Cyber Technologies, and Engineering Professional certificate programs. The program offers courses that lead to the following industry certificates: CompTIA Security+, Fundamentals of Engineering, SolidWorks, and Six Sigma Lean. UWF has provided resources to expand the Program's certificate offerings to include areas of Artificial Intelligence and Machine Learning, and AutoCAD. The program is planning to develop and offer industry-relevant and -approved certificates in sectors of critical infrastructure for Cybersecurity and Engineering students.

The program will help prepare a technically savvy workforce to address workforce needs in Data Science, Cybersecurity, and Engineering. There are currently 775 unique postings for Data Science and related areas in the state of Florida. The median job salary for these positions is $119K (UWF Haas Center report).

Through two appropriations from the Florida Legislature, UWF will receive up to $47M for a new research wing added to building 4 on its main campus ($21M was appropriated in 2023 and the remainder will be appropriated in 2024). Building 4 is one of the primary locations for the College of Science and Engineering. The new research wing will consist of approximately 40,000 square feet of research space. The Center will be in this new space, receiving at least 15,000 square feet of space. The Center will also occupy space in building 58C, the Sciences Annex. This building was completed in 2019 and includes state-of-the-art teaching labs for Biology and Chemistry. The building has approximately 7500 square feet of cold shell space. Triumph funds would be used to build out this space for research laboratories in areas of computational biology and chemistry.

UWF (IA)2 currently has a collaborative partnership with the United States Performance Center and Guardian Research Network where the PAM Lab will provide descriptive and diagnostic analytics for product performance in the biomedical sector. It is expected that these analytics will result in a commercial-for-license-software. The Center has partnered with Farcast Biosciences and has dedicated research space for Farcast on the main campus of UWF. This research space is a prototype lab for Farcast to continue its ongoing research to capture the complexity of cancer tumor response and resistance to various treatments. The Farcast technology platform generates high quality multimodal data from its advanced anthropic systems. The Center is providing data organization, data harmonization across various data sources, and advanced analytics to determine the predictive power of Farcast's data set. The Farcast technology platform is cutting-edge cancer research and the predictive analytics provided by the Center's scientists would be far reaching in potentially improving cancer treatments.

The Center, including the PAM Lab, is also listed as a collaborator on an IHMC NSF proposal on building a research institute. (IA)2 will collaborate with IHMC by providing capacity for large-scale data analysis and modeling and the tools and infrastructure necessary to derive actionable insights from complex datasets, and to help develop a central hub/platform for the research community. The Center and PAM Lab also have potential partnerships with various

other institutions including Nemours and startup companies. Other partnerships will become possible with the expanded and enhanced PAM Lab and Center.

The Center has the following clusters of computational research and either has expertise in the following subareas or plans to grow into these subareas.

Education
- Personalized learning: This area focuses on developing AI tools for personalized learning, tutoring, and advising while considering ethical issues, potential biases, and privacy concerns.
- Educational Data Analytics: This area focuses on leveraging large educational datasets to predict and identify patterns that can inform decision-making to improve student and institution outcomes.

Population Health
- Public Health Predictive Modeling: Develop statistical models and machine learning algorithms to predict disease outbreaks and public health trends and patterns.
- Health(care) Data Integration: Analyzing diverse health data sources, including electronic health records, clinical trial events, wearable devices, and health surveys and available public data (community level vulnerability index, etc.) to advance precision medicine, and to identify environmental and behavioral trends that impact health and disease.
- Human Performance Optimization: Use AI and machine learning to analyze warfighter/human performance/athlete data, injury prediction, recovery, training, and performance optimization
- Data Surveillance System: Deals with analysis of systematic and ongoing health related data collection for effective planning, implementation and evaluation of health practices.
- Health Monitoring: Using AI tools and techniques for monitoring and caring for the elderly population.

Cybersecurity and IoT (Internet of Things)
- Intrusion Detection Systems: develop AI tools for intrusion detection.

Engineering and Environment
- Monitoring Systems: Focuses on developing machine learning and AI tools for the monitoring of electrical systems, mechanical systems, health structures such as bridges and buildings, environmental sensors, pollution, and climate.
- Smart Grid and Energy Management: Uses machine learning and AI to provide systems that can predict outages, load, demand, and energy consumption.

Computational Biology
- Systems Biology: Mathematical models and simulations to study complex biological systems such as neuron connections, and statistical analysis of biological data to predict properties and discover associations.
- Bioinformatics Software and Tools: Developing computational tools, algorithms, and databases for various aspects of biological data analysis including multidimensional mapping and ML algorithms to understand molecular pathobiology, health outcomes, and intervention effects.

Computational Chemistry
- ChemInformatics: Applying informatics methods to solve chemical problems.

Intelligent Systems and Robotics

- Embodied Intelligence: Focuses on the development of robotic systems that can intelligently interact with the environment around them to effect change. This gives a physical body to AI algorithms, where this embodiment is believed to be a required part of creating the intelligence necessary to perform tasks alongside humans.
- Personalized Software Agents: Demonstrating the viability for collaborative, ethnical AI development to facilitate decision making in community- based emergency response situations such as medical, disaster response, law enforcement and policy domains
- Human-Machine Teamwork: Enabling people and machines to work effectively on physical and cognitive work to improve productivity, work quality, safety, and quality of life for the people in the workforce.

In summary, the Triumph funds being sought by (IA)2 are to hire data analysts, software engineers, research scientists, and associated staff; buy-out current UWF computational research scientists; build-out computational lab space; and purchase computational research equipment. These funds will allow UWF and (IA)2 to enhance and expand commercialization and research capabilities, bringing millions of dollars to the northwest Florida areas.

**<u>Budget and Funding</u>**
See attached

Budget

| | | Renovations | | Personnel/ Consulting | | Equipment | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| **Project Total** | | | | | | | | | |
| Calendar Year 1 | 2024 | $ | 910,221 | $ | 1,885,779 | $ | 1,500,000 | $ | 4,296,000 |
| Calendar Year 2 | 2025 | $ | 1,300,000 | $ | 3,496,131 | $ | 2,250,000 | $ | 7,046,131 |
| Calendar Year 3 | 2026 | $ | 1,300,000 | $ | 3,932,061 | $ | 1,250,000 | $ | 6,482,061 |
| Calendar Year 4 | 2027 | $ | 200,000 | $ | 3,984,003 | $ | 500,000 | $ | 4,684,003 |
| Calendar Year 5 | 2028 | $ | 200,000 | $ | 3,532,494 | $ | 500,000 | $ | 4,232,494 |
| Calendar Year 6 | 2029 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| Calendar Year 7 | 2030 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| Calendar Year 8 | 2031 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| Calendar Year 9 | 2032 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| Calendar Year 10 | 2033 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| **Project Total** | | **$** | **3,910,221** | **$** | **36,153,278** | **$** | **8,500,000** | **$** | **48,563,499** |
| | | | | | | | | | |
| **Triumph** | | | | | | | | | |
| Calendar Year 1 | 2024 | $ | 160,221 | $ | 1,100,000 | $ | - | $ | 1,260,221 |
| Calendar Year 2 | 2025 | $ | 1,100,000 | $ | 2,350,000 | $ | 750,000 | $ | 4,200,000 |
| Calendar Year 3 | 2026 | $ | 1,100,000 | $ | 1,100,000 | $ | 750,000 | $ | 2,950,000 |
| Calendar Year 4 | 2027 | $ | - | $ | 950,000 | $ | - | $ | 950,000 |
| Calendar Year 5 | 2028 | $ | - | $ | - | $ | - | $ | - |
| Calendar Year 6 | 2029 | $ | - | $ | - | $ | - | $ | - |
| Calendar Year 7 | 2030 | $ | - | $ | - | $ | - | $ | - |
| Calendar Year 8 | 2031 | $ | - | $ | - | $ | - | $ | - |
| Calendar Year 9 | 2032 | $ | - | $ | - | $ | - | $ | - |
| Calendar Year 10 | 2033 | $ | - | $ | - | $ | - | $ | - |
| **Triumph Total** | | **$** | **2,360,221** | **$** | **5,500,000** | **$** | **1,500,000** | **$** | **9,360,221** |
| | | | | | | | | | |
| **UWF** | | | | | | | | | |
| Calendar Year 1 | 2024 | $ | 750,000 | $ | 785,779 | $ | 1,500,000 | $ | 3,035,779 |
| Calendar Year 2 | 2025 | $ | 200,000 | $ | 1,146,131 | $ | 1,500,000 | $ | 2,846,131 |
| Calendar Year 3 | 2026 | $ | 200,000 | $ | 2,832,061 | $ | 500,000 | $ | 3,532,061 |
| Calendar Year 4 | 2027 | $ | 200,000 | $ | 3,034,003 | $ | 500,000 | $ | 3,734,003 |
| Calendar Year 5 | 2028 | $ | 200,000 | $ | 3,532,494 | $ | 500,000 | $ | 4,232,494 |
| Calendar Year 6 | 2029 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| Calendar Year 7 | 2030 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| Calendar Year 8 | 2031 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| Calendar Year 9 | 2032 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| Calendar Year 10 | 2033 | $ | - | $ | 3,864,562 | $ | 500,000 | $ | 4,364,562 |
| **UWF Total** | | **$** | **1,550,000** | **$** | **30,653,278** | **$** | **7,000,000** | **$** | **39,203,278** |