

## APPLICANT INFORMATION

**Name of Individual/Entity/Organization:** Florida Institute of Human & Machine Cognition, Inc.

**Proposal Title:** The Center for Human Healthspan, Resilience and Performance (the Center)

**Amount of Triumph Funds Requested:** \$5M

**Total Estimated Project Cost:** \$10M

### **Brief Description of Individual/Entity/Organization:**

**The Florida Institute for Human & Machine Cognition (IHMC)** is a world-renowned research institute located in Pensacola working in the areas of artificial intelligence, cyber security, exoskeleton development, robotics, assistive technologies, natural language understanding, data mining, and other related high technology fields. A 501(c)3 statewide research institute created pursuant to Section 1004.447 F.S., IHMC is part of the State University System of Florida with formal research affiliations with FAU, FIT, UCF, UF, USF, UWF, MOTE Marine, Moffitt Cancer Center, and the Andrews Research & Education Foundation. IHMC's federal research clients and research partners include NASA, Army, Navy, Air Force, DARPA, IARPA, and includes important work for the special operations community in human performance enhancement and resilience in extreme environments.

### **Contact Information**

**Primary Contact:** Dr. Ken Ford

**Title:** CEO and Director

**Mailing Address:** City: 40 S. Alcaniz Street,  
Pensacola, FL 32502

**Telephone Number:** 850.202.4400

**Email Address:** [kford@ihmc.us](mailto:kford@ihmc.us)

**Website:** [www.ihmc.us](http://www.ihmc.us)

**Secondary Contact:** Ryan Tilley

**Title:** Director of Strategy and Innovation

**Mailing Address:** City: 40 S. Alcaniz Street,  
Pensacola, FL 32502

**Telephone Number:** 850.202.4441

**Email Address:** [rtilley@ihmc.us](mailto:rtilley@ihmc.us)

**Website:** [www.ihmc.us](http://www.ihmc.us)

### **Proposed Project**

IHMC proposes to establish a Center of Excellence focused on the cutting-edge field of Human Healthspan, Resilience and Performance. With two distinct fields of research prominence already internationally recognized at IHMC (Humanoid Robotics and Artificial Intelligence), this new Center will provide as a powerful third arm of research and development excellence in Northwest Florida – thus having a transformational regional impact.

Over the past several years, IHMC has worked to expand and diversify its research in human performance and resilience by attracting new Research Scientists in microsystems and robotics/automation, human performance optimization and risk mitigation for operators in extreme environments, and in cognitive science, artificial intelligence, and human-computer interaction, with applications in digital health, sense-making, and information foraging. IHMC believes the convergence of these emerging research arenas will prove very successful, and will assist IHMC in attracting more renowned scientists, researchers; and, in turn, more federal and industry research funding to Northwest Florida. Complementing our research talent already engaged in human performance work, IHMC has identified an additional cadre of renowned scientists that it plans to aggressively recruit to ensure the Center's success.

IHMC will also collaborate closely with those regional entities that share a particular focus on human healthspan, resilience, and performance to include Andrews Research and Education Foundation (AREF), EXOS, JAG Consulting, relevant segments of military research (Special Operations, Wounded Warrior Programs), and elite athlete programming.

Scientists, medical specialist and researchers at the Center will co-locate and collaborate to utilize the most modern equipment, technology and tools to conduct state of the art research in the field of human performance optimization. The Center’s mission will be to lead high-impact scientific advances that improve human performance, health, and resilience. This mission will be achieved with a carefully planned infrastructure for interdisciplinary team science that spans from *molecule to man* – as Center scientists leverage molecular and genomic science, biochemistry, cellular and tissue biology, physiology, biomechanics, biomedical engineering, regenerative medicine, neuroscience, rehabilitation, clinical trials, computational biology, and AI. To enable multiple levels of scientific inquiry toward the mission, the Center will establish and support key Research Cores. Each Core will be state-of-the-art (Table 1) and will generate exciting new career opportunities and bring research funding to Northwest Florida. The Center’s research will be complemented by training programs to foster the next generation of scientists, and community outreach programs. With this one-of-a-kind infrastructure, the Center is fully expected to bolster the regional economy and spin-off important innovations and research.

*Table 1: Core Equipment/Installation Costs*

Primary Cores	Equipment/Installation Costs
Clinical Research Core	\$1,000,000
Biological Research Core	\$1,200,000
<b>Total</b>	<b>\$2,200,000</b>

This IHMC collaboration and cluster development will generate new federal and industry research funding related to human performance enhancement and resilience including research with special operations clients, wounded warriors and elite athletes. The Center program will be encompassing a wide array of research and education areas relating to human performance, to encourage divergent thinking in an effort to push human performance research to the next level. This approach represents a modern multi-factorial and integrated model for optimizing human function and performance. One of the staples of the Center program will be establishing a bedrock for Human Performance education and outreach to students and professionals.

The Center will provide many benefits to the region to include, but not limited to, the following:

- Significant new economic impact into the region through revenue generated via federal government grants and contracts:
  - NEW external dollars coming into our region that would not otherwise exist...not supplanting other state or regional funds.
  - The amplification of both Triumph Gulf Coast funding and federal investment occurring when federal investment serves as a complement to the Triumph investment— I.e., Triumph funds will allow Center to propose on and win new federal program thus increasing federal spending for R&D in our region.
  - Increases to federal investment to our area will improve productivity/output in the longer term. Spending on physical capital and equipment facilitates commerce; spending on education helps develop a skilled workforce; and spending on R&D promotes innovation.
- High wage Job Creation: New professionals to the area. Examples: Research Scientists, Research Physicians, Strength and Conditioning coaches, Physical Therapists, Athletic Trainers, Performance Specialists, Program/Project managers, Certified Nurse Practitioners, Clinical Research Coordinators, and Certification Instructors

- (i) **Amount of funds being sought from Triumph Gulf Coast over 2-year period:** The Center program is requesting Triumph Gulf Coast, Inc. funding in the amount of \$5 million (\$2.2M – equipment, \$2.8M – programming/personnel) distributed over the period of 2 years of the 10-year effort; year 1 (\$3 million, and year 2 (\$2 million). These funds will be used to purchase human performance research equipment, hire scientific technical and administrative staff, conduct extensive human performance research operations, and to establish and support Human Performance focused educational outreach programs.
- (ii) **Amount and identity of other sources of funds for the 10 year duration of the proposed effort:** IHMC will contribute to the Center effort. In addition, it is anticipated that the Center research and education team, as well as current researchers at IHMC, will leverage the Center program equipment and efforts to secure significant new external contracts and grant funding for related research from federal, state and private agencies. We anticipate the Center program will drive new research funding of at least \$30 million during the 10-year period.
- (iii) **Location of the project or program:** Escambia/Santa Rosa County
- (iv) **Summary description of the proposed program, including how the program will be transformational and promote economic recovery, diversification, and enhancement of the disproportionately affected counties:** The Center program will utilize Triumph Gulf Coast funds to seed a Human Performance cluster via the establishment of programming (and the associated job creation) for research and education requirements as well as the purchase of human performance research equipment. The Center program will drive transformational change via the seeding of a strong Human Performance Cluster. This cluster will drive economic recovery through new federal investment via grants and contracts (and the associated ripple effect), new job creation, and improved productivity. The impacted counties will be significantly enhanced and recognized with the establishment of the Human Performance cluster creating new synergies and collaborations with other entities and commercial companies to allow increased expansion of efforts within this cluster. The creation and growth of the Human Performance fellowship and other educational programs will provide an entirely new pipeline of highly skilled professionals locating to the region. IHMC has already identified internationally recognized senior researchers, research associates, nurse practitioners, and clinical research coordinators in exercise medicine to help manage and execute the mission of the Center.
- (v) **A summary timeline for the proposed project or program:** We envision a 10-year timeline for the proposed Center program. The first two years will require Triumph Gulf Coast support to establish programming, hire personnel, and purchase required equipment. The effort will be funded by IHMC for years 3-10 and in perpetuity. All research and education activities will be conducted as soon as programming and equipment are established (no later than year 2) and continue through in perpetuity.

### 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.