Application Score Sheet

Proposed Project: Florida Institute for Human & Machine Cognition, Inc. (IHMC), IHMC Center for Human Healthspan, Resilience and Performance (the Center)
Proposed Project/Program County: Santa Rosa and Escambia
Board of County Commission Support: Escambia Board of County Commissioners has supported IHMC submitting a Triumph proposal.

Total Projected Project Cost: $31,039,813
Match Provided: $24,961,018
Triumph Funds Requested: $6,078,795 (19.6%)
Triumph Funds Recommended by Staff: $6,078,795

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

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Economic Impact Analysis and Score

The Florida Institute for Human and Machine Cognition (IHMC) proposal describes the Center for Human Healthspan Resilience and Performance (the Center), which is intended to seed rapid growth of a business cluster focused on human performance. The Triumph funding request of $6,078,795 represents 19.6 percent of the total project cost of $31,039,813. Other funding sources in support of the Center include grant and contract funded expenditures over the 2024 to 2031 period of $18,000,000, a 2020 private donation of $1,000,000, and IHMC internally-funded support of $5,961,018 over the 2020 to 2023 period.

IHMC is well-known for two distinct fields of research prominence that are known throughout the national and international research communities; Humanoid Robotics and Artificial Intelligence. The envisioned new Center focused on human healthspan, resilience and performance will establish a powerful, one-of-a-kind capstone for research and development in Northwest Florida – thus having a transformational regional impact.

To complement its current NASA and DoD-funded research in this area, IHMC will utilize the most modern equipment, technology and tools to conduct state of the art research in the field of human performance optimization. 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.

The proposal contains seven suggested metrics, and among those, several are key:

- Performance Metric #6: Successful award of a minimum of fifteen Million Dollars ($15,000,000) in competitively awarded research grant proposals focused on the broader objectives of the Center within 10 years of the first disbursement of grant funds.

- Performance Metric #7: Providing substantive collaborative assistance and mentoring in local entrepreneurial outreach and support to at least 45 different businesses in the impacted counties (10 in year 1, 15 in year 2, and 20 in year 3). This outreach support will be executed via collaboration with Andrews Research and Educational Foundation (AREF), JAG Consulting, Oxefit, TechFarm Capital, other venture capital and incubation organizations, and personalized medicine organizations with technology transfer capabilities. During the first 3 years of the effort, IHMC will hold quarterly commercialization meetings with AREF, Oxefit, JAG Consulting and other local technology transfer organizations to investigate the current state of IHMC's human performance research commercialization opportunities, other human performance organization opportunities, and further human performance cluster spin-off establishment and growth in the Northwest Florida region.

The Center's research will be complemented by training programs to foster the next generation of scientists, along with unique and value-added community outreach programs. With this infrastructure, the Center will bolster the regional economy and undergird ground-breaking federal and industry-sponsored research in human performance and resilience that spans and embraces multiple cutting-edge scientific disciplines. The Center will establish an industry cluster for partners, and new entrant businesses, with a common goal of conducting leading-edge research and creating jobs and opportunities for growth of a new economic industry ecosystem.

The view of Triumph staff is that this project will be transformational for the region. We calculate that the non-Triumph funding contribution to this project will result in $18 million of direct personal income impact itself over the life of the project. Following literature regarding differences in seed and early stage financing among metro areas with business accelerator programs versus those without, these direct impacts are likely to galvanize additional local activity so as to roughly triple investment in this business sector within the Triumph 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. For these reasons, Triumph staff rate the project as an "A."

Project Summary (based on information provided by the applicant)

Florida Institute for Human & Machine Cognition, Inc. (IHMC), a not-for-profit research institute of the State University System of Florida, is requesting a Triumph grant of $6,078,795 to establish a Center of Excellence focused on expanding work into the cutting-edge field of Human Healthspan, Resilience and Performance. The grant funding would be used for equipment and to hire leading researchers and staff necessary to catalyze existing programs and seed growth of a human performance and resilience cluster in Northwest Florida.

In the context of this proposal, Human Performance is the ability to complete a task which is critically dependent on the interplay of personal and environmental factors. IHMC is intently

focused on a goal to significantly advance the understanding of human performance and develop evidence-based interventions that maximize the abilities of individuals and teams.

IHMC is well-known for two distinct fields of research prominence that are known throughout the national and international research communities; Humanoid Robotics and Artificial Intelligence. The envisioned new Center focused on human healthspan, resilience and performance will establish a powerful, one-of-a-kind capstone for research and development in Northwest Florida with regional and national impact.

Over the past several years, IHMC has effectively expanded and diversified its research in human performance, healthspan, and resilience by attracting highly talented research scientists with support primarily from NASA and the Department of Defense (DOD). The cutting-edge research also has civilian applications, including serving the aging population.

IHMC's investment to start and grow human performance and resilience research capability in Northwest Florida includes leveraging a $1M gift to recruit and hire leading researchers with specialized skills and experience in human performance. This new Human Performance Team has already shown great success in winning competitive government research grants and contracts.

An example of grants recently won incudes a large DARPA (Defense Advanced Research Projects Agency) funded project known as Peerless. The Peerless award is approximately $35 million, but due to the fact that IHMC does not have the specialized equipment and facilities necessary to execute all of the required research, more than ¾ of the Peerless funding will be sent to subcontractors who are outside of Florida. With the Center proposed in this project, IHMC will retain significantly more funding in the region on future human performance awards.

IHMC and its partners are convinced that their collaborations will prove synergistic, and will assist in attracting more renowned scientists, researchers; and, in turn, more federal and industry research funding to Northwest Florida. Complementing its current research talent already leading cutting-edge human performance work, IHMC has identified an additional cadre of renowned scientists it will aggressively recruit to ensure the Center's long-term success and impact.

This project includes IHMC collaborating with JAG Consulting (a previous IHMC employee founded human performance consulting firm), TechFarm Capital (a Panama City entrepreneurial ecosystem start up fund), Oxefit (a former group of IHMC employees' local startup in exercise performance) and other local entrepreneurial/technology transfer entities to catalyze entrepreneurial spin-off opportunities.

IHMC and these entrepreneurial/technology transfer organizations will assist with due diligence, funding, and growth of human performance technology and intellectual property to help facilitate the growth of the human performance cluster. The ability to create a human performance Center that partners with local and regional private commercialization companies such as JAG Consulting, TechFarm Capital, and others in a common goal of creating products/services, jobs and opportunities for growth of a new economic industry ecosystem is transformational.

These commercialization efforts may result in royalty income flowing to IHMC and other local partners and will be used to sustain and grow the Center. Increases in human performance research funding and partnering with local entities is expected to attract other organizations to establish businesses and/or satellite offices in the area further supporting and leveraging the efforts of the Center.

In an effort to catalyze commercial spin off opportunities and associated job creation, IHMC will host recurring meetings for the human performance research team to present the current state of research and technology that may be ready for commercial efforts as well as to allow for other regional human performance collaborators to present their own technology. These meetings will contain numerous collaborators including researchers, technology transfer experts, venture capital, and growth consultants.

IHMC will also collaborate closely with regional entities that share a particular focus on human healthspan, resilience, and performance within relevant segments of military research (Special Operations, Wounded Warrior Programs, NASA) and elite athlete programming. Its fully expected that these collaborations, and the subsequent innovation, will create spin-off opportunities for IHMC and its partners that will further drive the success of the human performance cluster and create new submarkets that will mature to have sustained impact.

Researchers and staff at the Center will 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 – spanning 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. IHMC is uniquely positioned to partner with collaborators on establishing this comprehensive cluster focused on human performance and resilience – a unique Center poised to be a national capstone of research innovation in Northwest Florida.

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, will generate exciting new career opportunities, and bring significant new research funding to Northwest Florida. Primary Research Areas will include:

(i) **Clinical and Applied Research Focus Area**

- Recruitment/Coordination activity, Clinical Research Unit, Cardiorespiratory Function Laboratory, Neuromuscular Function Laboratory, Body Composition assessment, Metabolism Laboratory, Neurocognitive Function assessment, Neurovestibular Function laboratory, Shoot Simulator, Intervention/Rehabilitation Clinical Trials Facility, Environmental Physiology Laboratory, Aquatic Research capability, Flight Simulator, Artificial Intelligence, Machine Learning, and Human/Machine Teaming Laboratory and

(ii) **Biological Research Focus Area**

- Biospecimen Processing Laboratory, Biorepository, Computational Biology Core, Biochemistry & Molecular Biology Core, Microscopy / High-Resolution Imaging Core, Image Analysis Core, Mitochondrial Energetics Core, Tissue Histology & Cytology Core, Cell & Tissue Culture Core.

The Center's research will be complemented by training programs to foster the next generation of scientists, along with unique and value-added community outreach programs. The Center expects to bolster the regional economy and undergird ground-breaking federal and industry-sponsored research in human performance and resilience that spans and embraces multiple cutting-edge scientific disciplines.

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

One of the staples of the Center program will be establishing a bedrock for human performance education and outreach to students and professionals. IHMC currently conducts significant educationally focused community outreach to include Robotics Camps, Science Saturdays, Evening Lectures, STEM-Talk podcast, and newsletters. In addition, IHMC provides meaningful and impactful training and education to its scientist, interns, and postdoctoral researchers. The new Center will fuel expansion of high-quality training programs focused on the next generation of human performance subject matter experts.

Triumph Gulf Coast funding will be utilized within the first thirty-six (36) months, split between equipment needed to conduct specialized human performance and resilience research and the initial seed money for additional researchers and staff. After year 3, all funding required to support the Center research and additional support staff (18 FTE) will be assumed by IHMC.

The Center will sustain itself primarily through federal grant and contract funding. Future job creation sustainability will develop as significant new federal funding flows into the area via research at the Center. The creation of the Center with its state-of-the-art facilities and equipment, will enable IHMC to allocate more contract/grant funding to its local researchers rather than to partners outside of the region who are currently necessary in order to access their facilities and equipment. Additional job creation is expected to occur in the local private sector community via the growth of existing research partners as well as the possible creation of spin-off companies. As an example, the aforementioned Peerless program has already created protectable intellectual property in its first year of effort.

IHMC proposes performance metrics that include being awarded a minimum of $18,000,000 of external funding over ten year and substantive collaborative assistance and mentoring in local entrepreneurial outreach and support to at least 45 different businesses in the impacted counties. This outreach support will be executed via collaboration with Andrews Research and Educational Foundation (AREF), JAG Consulting, Oxefit, TechFarm Capital, other venture capital and incubation organizations, and personalized medicine organizations with technology transfer capabilities.

Exhibit A
IHMC Center for Human Healthspan, Resilience and Performance (the Center)
Budget

		Supplies & Equipment	Personnel	Facilities	External Match	Total
Project Total						
	2020	732,621.72	2,937,445.23	-	-	3,670,066.95
	2021	1,155,060.00	1,375,332.00	7,560.00	-	2,537,952.00
	2022	676,410.00	1,994,792.00	7,560.00	-	2,678,762.00
	2023	1,269,436.00	2,876,036.00	7,560.00	-	4,153,032.00
	2024	-	-	-	3,000,000.00	3,000,000.00
	2025	-	-	-	-	-
	2026	-	-	-	-	-
	2027	-	-	-	-	-
	2028	-	-	-	-	-
	2029	-	-	-	-	-
	2030	-	-	-	-	-
		-	-	-	15,000,000.00	15,000,000.00
Project Total		3,833,527.72	9,183,605.23	22,680.00	18,000,000.00	31,039,812.95
Triumph						
	2020					-
	2021	1,155,060.00	764,800.00			1,919,860.00
	2022	676,410.00	972,072.00			1,648,482.00
	2023	1,269,436.00	1,241,017.00			2,510,453.00
	2024					-
	2025					-
	2026					-
	2027					-
	2028					-
	2029					-
	2030					-
	2031					
Triumph Total		3,100,906.00	2,977,889.00	-		6,078,795.00
Grantee						
	2020	732,621.72	1,937,445.23			2,670,066.95
	2021		610,532.00	7,560.00		618,092.00
	2022		1,022,720.00	7,560.00		1,030,280.00
	2023		1,635,019.00	7,560.00		1,642,579.00
	2024					-
	2025					-
	2026					-
	2027					-
	2028					-
	2029					-
	2030					-
	2031					
Grantee Total		732,621.72	5,205,716.23	22,680.00		5,961,017.95
Private Donor						
	2020		1,000,000.00			1,000,000.00
	2021					-
	2022					-
	2023					-

	2024				-
	2025				-
	2026				-
	2027				-
	2028				-
	2029				-
	2030				-
	2031				
Match Source 1 Total		-	1,000,000.00	-	1,000,000.00

External Match

	2020				
	2021				-
	2022				-
	2023				-
	2024			3,000,000.00	3,000,000.00
	2025				-
	2026				-
	2027				-
	2028				-
	2029				-
	2030				-
	2031			15,000,000.00	15,000,000.00
Match Source 2 Total		-	-	18,000,000.00	18,000,000.00