

Technology Council of Northwest Florida

Objective: The Technology Council of Northwest Florida (“Technology Council”) is established in Bay, Escambia, Franklin, Gulf, Okaloosa, Santa Rosa and Walton counties to attract, retain and grow high tech industry and to help develop the highly skilled, high-wage workforce to support those industries in this 7 county service area. This Coastal Recovery Enterprise Zone is a partnership involving these 7 counties, the local and regional economic development organizations (EDOs) in these counties, the University of West Florida, Northwest Florida State College, Pensacola State College, the Florida Institute for Human & Machine Cognition and the Andrews Institute along with military partners and other public and private enterprise existing within the 7 coastal counties. Monies appropriated to the Zone will be administered under the direction of Florida’s Great Northwest as a strategic tool to foster high tech economic development that involves matching funds research, workforce development, cultivation of technology communities and a marketing program leveraging governmental, EDO, and corporate budgets on a regional rather than local basis.

Plan: To strategically link, leverage, diversify, and invest in sophisticated research and high technology operations from Escambia to Franklin counties along the Gulf Coast region and promote economic diversification among these 7 counties impacted most heavily by the “Deepwater Horizon” oil spill.

Request: \$10 million in state funding on an annual basis for a 5-year period

Projection: The result over a period of 5 years is to build world-class regional industry clusters in 4 targeted areas that leverage and multiply an initial state investment to bring in annual research funding of 10 times the annual investment, stimulate high wage high tech job creation, develop commercially promising, advanced and innovative technologies, transfer technologies to commercial businesses with locations within the region, and enhance and expand technology curricula and degree programs in the Gulf Coast region including graduate programs. This Northwest Florida Gulf county initiative would be unique to Florida and the nation.

The 4 Northwest Florida Targeted Sectors:

Information Science & Technology (IS&T) and Research and Engineering;
Aviation, Aerospace, Defense and National Security;
Health Sciences & Human Performance Enhancement; and
Renewable Energy & Sustainable Environments.

Project Need: The Northwest Florida economy is one with a strong history shaped by its proximity to the Gulf of Mexico and fertile agricultural inlands. From early fishing villages, seafood processing, marketable crops, intra-modal transportation

8/6/10

systems (deepwater ports, rail, and Interstate/highways), Gulf-range military installations, and a seasonal tourism industry, Northwest Florida has long relied upon a limited set of traditional industries for its economic wellbeing. However, the historical reliance upon such a set of traditional (and vulnerable) industries has proven to be misplaced – particularly as events (natural or man-made) have tested the economic fortitude of the region. In fact, the region is still grappling with the remaining impacts that Hurricanes Ivan and Dennis had on the local economy and infrastructure. Now faced with the long-term economic impacts and uncertain recovery time of the colossal disaster “Deepwater Horizon” oil spill, it is abundantly clear that Northwest Florida must embark on an aggressive economic diversification effort to strengthen, sustain, and safeguard the region into the future.

Our regional economic diversification must include the growth of a strong industry cluster in high technology and research not found elsewhere in Florida or the nation.

Regional Industry Strengths: In 2007, the Florida’s Great Northwest (FGNW) organization contracted with SRI International to conduct an analysis of the existing business assets in Northwest Florida and to compare these assets, the region’s and state’s business climate, and the region’s competitive strengths to the target industries’ national and global trends. At the end of the process, the study identified several target industries that match the region’s strengths, goals, and assets, as well as provide for a diversified and sustainable regional economy. The target clusters were chosen based upon the opportunity for growth, wage structure, role in regional development and the cluster’s synergy and linkage to other industries in Northwest Florida. The study found that there currently sits a clear and growing array of sophisticated activities in information technology, research and engineering, aviation/aerospace, defense/national security, and robots/human performance from Pensacola through Tallahassee. The study highlighted how the array of such activities had the potential to become a strategic and unique industry cluster for the region; thereby attracting like-minded technology businesses, infrastructure investments, and supply chain growth IF harnessed and led correctly. In short, if strategically linked and highlighted, these various high technology arenas could be leveraged to significantly elevate regional innovation and competitiveness, research collaborations, and overall technology development. While the identification of the existing research, businesses, supplier chain, and military entities has occurred, there currently exists no strategic focus to pull them together – thereby not maximizing the innovation potential and economic diversification promise. The objective behind this seven county initiative would be to strategically link and highlight the research, technology, military, and industrial capacities already identified in the region, and to aggressively invest in the continued growth of a unique Aerospace & Defense, Health Sciences, Energy & Environment and Research/IS&T Support industry cluster found nowhere else in Florida or the nation.

8/6/10

Administration of 7 coastal county Zone: Florida's Great Northwest, Inc. is a regional economic development organization representing 16 counties in Northwest Florida. Recognizing that collective advantages and regional strengths are best harnessed by working together, Florida's Great Northwest was founded in 2000 to build a regional partnership. Since its inception, Florida's Great Northwest has evolved into one of the nation's premier regional partnerships for economic and workforce development. This private, non-profit organization is comprised of county and local economic development groups, workforce development boards, non-profit research organizations, colleges, universities, and private businesses that compose the majority of our organization's membership. Through the creation of strategic alliances with public and private partners, Florida's Great Northwest is committed to the enrichment and diversification of economic life in Northwest Florida. A 2007, Florida's Great Northwest analysis of the region's existing business assets and the region's competitive strengths identified the four targeted sectors identified above as matching the region's strengths, goals, and assets, as well providing the underpinnings of a diversified and sustainable regional economy. The target clusters were chosen based upon the opportunity for growth, wage structure, role in regional development and the cluster's synergy and linkage to other industries in Northwest Florida..

Currently the Coastal Communities have exceptional research and technology activities including a wide array of military partnerships. However, no program or agency has sought to coordinate, leverage and maximize the strengths of these organizations and military neighbors. This proposal seeks to do so in establishing a collaborative and funded program that brings together the following identified entities to foster high tech economic development that involves matching funds research, workforce development, centers of excellence, and cultivation of technology advances, and commercialization of these technologies in the 4 identified sectors:

University of West Florida

Computer Science (Pensacola and Fort Walton Beach)

Electrical Engineering (Pensacola, Fort Walton Beach and Shalimar)

Florida State University (Panama City)

Florida Institute for Human and Machine Cognition (Pensacola)

Andrews Paulos Research and Education Institute (Gulf Breeze)

University of Florida Research and Engineering Education Facility (Shalimar)

Northwest Florida State College (Niceville)

Pensacola State College (Pensacola, Milton, Warrington and Midway)

USAF 1st Special Operations Wing (Hurlburt Field)

919th Special Operations Wing (Duke Field)

8/6/10

Air Force Research Laboratory Munitions Directorate (Eglin AFB)

USAF Air Armament Center (Eglin AFB)

USAF 46th Test Wing (Eglin AFB)

AFRL Materials Directorate, Force Protection Branch (Tyndall AFB)

Naval Air Station Pensacola (Pensacola)

Naval Surface Warfare Center – Panama City Division (Panama City)

Robotics and IT CHOICE Programs in Schools

150+ Defense Contractors in Escambia, Santa Rosa and Okaloosa Counties, including

Aerovironment, Inc.

Alpha Data Corporation

ARINC Engineering Services

Avalex Technologies Corporation

BAE Systems

Boeing Aerospace Support

CACI

CH2M Hill

Crane Aerospace – Keltec

Honeywell International

L-3 Communications

Lockheed Martin Corporation

Northrop Grumman Corporation

Raytheon Company

Rockwell Collins

SAIC

Business Plan to Leverage and Extend State Money into Sustainable Industry Clusters that create jobs, career paths, attract affiliated entities and grow sector:

2011 Investment:

\$3 million Information Science & Technology, Research and Engineering

\$3 million Aviation, Aerospace, Defense and National Security

\$3 million Health & Human Performance Enhancement

\$1 million Renewable Energy & Sustainable Environments.

Matching Funds Research Program: Matching research funds will support federal research proposals and participation by private companies in federally funded research, including Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) programs. This funding will identify and support research to be performed by scientists and engineers from both non-profit and for-profit institutions in Northwest Florida that propose using this funding to grow

8/6/10

their local employment base, expand federal research projects, and employ graduate and doctoral students, research assistants, and faculty members. Private companies seeking to conduct research and development are eligible to apply for federal grant funds through several government agencies, including the SBIR and STTR programs administered by the U.S. Small Business Administration. Both these programs help to ensure that small, high-tech, innovative businesses are a significant part of the federal government's research and development efforts. SBIR programs tend to focus on private companies while STTR programs emphasize educational institutions. The federal grant program, which includes three phases, provides from \$100,000 to \$1,150,000 for small firms to conduct research and development.

Every year, dozens of companies in Northwest Florida look for matching funds to support and leverage the development of commercially-viable emerging technologies. This Matching Funds Research Program will be established to foster applied research between the colleges, universities, not-for-profit research institutes and high tech industry partners. A General Solicitation will be targeted to companies of all sizes in the Enterprise "Technology Council".

Anticipated Outcomes:

The Zone anticipates the following outcomes in the targeted sectors within 12 months of the initial \$10 million in funding being distributed:

- ~\$30 million in new federal funding entering the coastal zone through contracts, grants, matching funds and SBIR/STTR programs
- ~100 new jobs created across targeted sectors
- ~100 students across coastal zones participating in internships or new employment
- ~4 new technology patents in progress
- ~1 new company attracted to region in each of the targeted sectors
- ~1 new center of excellence established in human performance enhancement
- ~new workforce training and transition programs focusing on targeted sectors
- ~increased collaborations between coastal county economic development entities
- ~strengthened relationships with federal military partners in coastal zone
- ~new outreach and education programs in STEM related to targeted sectors

Reporting and Accountability Measures:

Each July 1, as a condition of receiving future monies, the Zone will produce a detailed report identifying the use of state monies spent in each of the 4 targeted sectors including detail as to:

- The recipient and amount of the funding
- The recipients use of the funding and the impact on STEM technologies in the Northwest coastal counties
- Job creation
- Technology development or enhancements
- Workforce training and initiatives

8/6/10

Future business development generated or incentivized
Centers of excellence created
Federal dollars received into business
Increased state and federal partnership opportunities
New, increased or expanded collaborations with military partners
New degree programs or enhancements to existing academic programs
Students hired
Internship opportunities created
New hires
Expanded or new business growth.

Specific Targeted Industries Plans are Detailed Below:

Information Science & Technology; Research and Engineering

Northwest Florida's two strategic support clusters – Information Technology Services and Research and Engineering – represent disciplines which transcend all four of Northwest Florida's target industries, fit well with the Florida business, regulatory, and tax climate and have a large existing presence in the region. In fact, the concentration of IT and engineering is identified as a real strength for Northwest Florida and its growing knowledge-based economy.

Due to their size, wage structure and projected growth, IT and engineering represent important components of the economy. In 2005, these support industries accounted for more than 12,000 positions directly employed by IT or engineering firms in over 800 businesses in Northwest Florida. Similar to national profiles, these businesses are typically small operations. This concentration does not include the IT and engineering professionals employed in non-IT or non-engineering classified businesses. IT and engineering activities are enablers, represent a huge part of the Northwest Florida economy, and serve as a foundation for future growth.

These strategic support industries are inherently important to the success of Northwest Florida's target industries and are critical to the growth and development of the region's diversified and sustainable economy. As such, they are commanding the focus of the region's economic development, workforce and educational institutions who are continuing efforts to strengthen the economic foundations associated with these critical support industries. These efforts range from establishing career academies at the high school level that offer industry certifications such as Oracle and Cisco through expanded graduate programs. Existing businesses in Northwest Florida identify, especially in IT and engineering, a workforce strong in quality, productivity, and stability. However, we know that our workforce strengths can become a weakness and that we must continue to expand the educational offerings in this area to continue to provide the quantity of skilled workers necessary to satisfy this industry's growing employment demands.

8/6/10

The cutting-edge research occurring at leading research centers such as the Naval Surface Warfare Center, the Institute for Human and Machine Cognition, and the National High Magnetic Fields Laboratory, to name just a few; plus the region's unique quality of life are allowing Northwest Florida to attract world-class engineering and IT talent. In fact, all five of Florida's National Fellows in Artificial Intelligence are located at the Institute for Human and Machine Cognition in Pensacola. In engineering and testing, more than one-fourth of the employment represents engineers – aerospace engineers, electrical engineers, mechanical engineers, civil engineers, and computer software engineers. In the information technology, systems integration, and network solutions sector, the region's most prominent jobs are computer software engineer, computer programmer, computer systems analyst, and computer support specialists.

Included in the IT and Engineering support services is the consulting services sector which is having a catalytic effect on the region's target industries in general and especially on the aerospace and defense sector. Northwest Florida has developed a sizeable group of specialized consulting firms servicing the region's aerospace and defense and other clusters. In Northwest Florida, we are working hard to build a network of consulting services, financial services, legal services, and other specialized support services that will support our target industry development.

The following federal agencies offer competitive grant and contract opportunities that can be enhanced by matching funds:

- National Science Foundation
- Occupational Safety and Health Administration (DOL)
- Employment and Training Administration (DOL)
- Department of Education
- National Institute of Standards and Technology (DOC)

Aviation, Aerospace, Defense and National Security

The presence of numerous defense-related institutions with world-class research and development capacity is a major asset of the Aerospace and Defense sector and a key regional strength. Market analysis identified significant subsectoral growth opportunities, including unmanned systems, aircraft assembly, composite materials, avionics, flight training, and maintenance, repair, and overhaul among others. Aerospace and Defense, a key driver of the region's economy, is a large and growing sector in Northwest Florida and accounts for 32,000 - 37,000 private sector and non-military government employees. Combined with the enlisted personnel from the region's seven military installations, the industry boasts a workforce of approximately 70,000 in Northwest Florida. [Click here to download the Aerospace & Defense Industry Brochure.](#)

The Northwest Florida region is home to one naval and six aviation-related military

8/6/10

installations including: NAS Pensacola, NAS Whiting Field, Naval Support Activity Panama City, Eglin Air Force Base, Hurlburt Field, Duke Field and Tyndall Air Force Base. These installations serve a variety of mission objectives. Naval Air Station Whiting Field is the training site for every Navy pilot on fixed and rotary wing aircraft. Recently, NAS Whiting Field expanded its programs to include training to unmanned aerial vehicle mechanics and technicians. Eglin Air Force Base is geographically the world's largest military installation. In addition to flying missions, Eglin is home to many research and development activities including the Air Force's Integrated Weapons and Armaments Research, Acquisition, Test and Evaluation Center, the Air Armament Center, the Air Force Research Laboratory Munitions Directorate and three test wings. Eglin also hosts Hurlburt Field, home of the Air Force's special operations units as well as Duke Field, new home for the Army's Green Berets. The relocation of the Green Berets is just one of the additional missions that were assigned to the region as part of the 2005 Base Realignment and Closure (BRAC). Naval Support Activity Panama City is home to the Naval Surface Warfare Center which houses over 700 scientists and engineers, many with advanced degrees. The Center is also the U.S. Department of Defense's lead laboratory conducting research, development, testing, evaluation and support systems using air, ground, water surface and underwater unmanned vehicles. In addition to flying missions, many of the Navy's unmanned underwater vehicles are developed, manufactured and tested at Tyndall Air Force Base. The missions, defense contracts, sub-contracting opportunities and workforce associated with the military presence are key attractions for aerospace and defense firms, which in turn help to enhance military missions by providing services, technologies and innovation. The military presence also plays an important role in military separations which often result in highly-skilled employees; many who possess security clearances, a valuable asset for companies involved in defense and national security activities.

An aging military fleet is providing opportunities in Northwest Florida for heavy modification and conversion as well as for testing and development. Much of that activity is occurring at specialized industrial airparks such as the Bob Sikes Airport in Okaloosa County. Whiting Air Park is under construction adjacent to NAS Whiting Field which will have through-the-fence taxiway access to Whiting Field's runway. Commercial aviation MRO opportunities abound, especially at the new Panama City-Bay County Airport, the first new international airport to be built in the U.S. since Denver International. The airport, currently under construction and scheduled for flights in 2010, offers 1,400 acres of industrial space on the airport property and 3,000 acres of industrial property adjacent with through-the-fence runway access.

The Aerospace and Defense Industry in Northwest Florida provides a number of opportunities for training today's students for tomorrow's workforce. CHOICE™, a unique program for high school students, offers high school credit, college credit and nationally recognized industry certification – all at the same time. One CHOICE™ curriculum, an aerospace program led by Embry-Riddle Aeronautical University instructors, offers FAA-approved training. The CHOICE™ program has been so

8/6/10

successful that it is being replicated throughout the state.

Northwest Florida hosts a string of pearls of research facilities across the region, including private, military and university-based facilities. At the post-secondary level, a variety of Engineering and Information Technology courses are offered at our community colleges and universities. Undergraduate students, graduate students and faculty are collaborating on research and engineering programs at the University of Florida Research and Education Engineering Facility (REEF) just outside the Eglin Air Force Base main gate. Research at REEF includes expertise in a variety of micro air vehicle technologies and agile autonomous munitions. REEF is in the process of expanding to become the Emerald Coast Technology and Research Center, a 100-acre campus that will support collaborative research opportunities between universities, the private sector and the military.

Additional vital research is being conducted at military institutions such as Eglin AFB's Weapons and Armaments Research, Development, Acquisition, Test and Evaluation Center; the Naval Surface Warfare Center Panama City's Littoral Warfare Research Center and Navy Experiment Diving Unit; and Tyndall AFB's Air Force Civil Engineer Support Agency. The Institute for Human and Machine Cognition (IHMC), with offices in Pensacola and at REEF, is a pioneer for technologies aimed at leveraging and extending human capabilities as well as developing the hardware and software involved in state-of-the-art robotics and artificial intelligence. The technologies have been expanded for utilization in the development of unmanned aerial, ground, surface water and underwater vehicles. Exceptional research and education institutions are attracting world-class talent while also providing training programs for a variety of skill-sets, including goals to develop certification through doctorate degrees.

Aviation, Aerospace, Defense and National Security industry comprise a large and growing sector with the potential to serve as a catalyst for high-wage growth, development and transformation. Additional growth opportunities in this field include unmanned systems, aircraft assembly, composite materials, avionics, flight training, and maintenance, repair and overhaul, among others.

The Aerospace and Defense workforce is diverse, offering a broad range of job opportunities across the spectrum of skill sets and educational achievement. The Aerospace and Defense Cluster represents 6.9 percent to 8.0 percent of total employment and 5.8 percent of total establishments in Northwest Florida. Aerospace and Defense is a high-wage cluster. As the table above depicts, the average annual salary in Aerospace and Defense exceeds the average annual salary in all industries as a whole by nearly 50 percent. Aerospace and Defense employees earn an average of nearly \$49,000 annually, significantly above the state-wide average across all industries of \$33,000. Salaries vary considerably by sector. Information Technology sector employees garner the highest sectoral wages at \$64,000 annually, followed in order by National Security, Computer Manufacturing, Engineering and Testing, and Aerospace Manufacturing. At the other end of the

8/6/10

spectrum, Facilities and Business Support Services personnel earned the least at \$23,000 per year, followed by Flight Training at \$34,000 and Maintenance, Repair and Overhaul at \$35,000.

Two of the largest sectors were Engineering and Testing, and Information Technology, each with some 6,000 employees. In fact, Fort Walton Beach-Crestview-Destin has the third highest concentration of Aerospace Engineers in the nation, as the table on the following page demonstrates. With Aerospace Engineers comprising 0.6 percent of MSA employment, the area edges out San Jose and Los Angeles, behind only Huntsville, Alabama, and Melbourne, Florida. Northwest Florida also offers significant cost savings. Fort Walton Aerospace Engineer wages run 14-21 percent below Aerospace Engineer wages paid in three of the four other leading areas, paying more only than firms in Palm Bay-Melbourne-Titusville.

The Zone would use the \$ 3 million for this industry sector to leverage and expand on work currently being done to provide significant matches to federal projects that have significantly increased opportunity of success with non-federal match monies. Federal agencies that regularly support work in this Aerospace and Defense Sector include:

Air Force, under Air Force Materiel Command (DOD):

- Aeronautical Systems Center
- Air Armament Center
- Electronic Systems Center
- Air Force Research Laboratory
 - Air Force Office of Scientific Research
- Air Force Flight Test Center
- Arnold Engineering Development Center

Army, under Army Materiel Command (DOD):

- Army Research Laboratory
 - Army Research Office
- Army International Technology Center
- Natick Soldier Research, Development and Engineering Center
- Armament Research, Development and Engineering Center
- Army Materiel Systems Analysis Activity
- Tank Automotive Research, Development and Engineering Center
- Communications-Electronics Research, Development and Engineering Center
- Aviation and Missile Research, Development and Engineering Center
- Edgewood Chemical Biological Center

Navy (DOD):

- Naval Air Systems Center
- Naval Sea Systems Center
 - Naval Surface Warfare Center

8/6/10

Space and Naval Warfare Systems Command
Office of Naval Research
Naval Research Laboratory
Marine Corps Warfighting Laboratory

Office of the Secretary of Defense (DOD):
Defense Advanced Research Projects Agency

Homeland Security Advanced Research Projects Agency (DHS)

Intelligence Advanced Research Projects Agency (DNI)

National Aeronautics and Space Administration

Health Sciences & Human Performance Enhancement

Health Sciences and Human Performance Enhancement is a significant target cluster due to its strong performance across the region. The health services side of industry is fairly well-developed throughout the region and supporting life sciences research and development activities are emerging. Several premier research and educational institutions with national and international reach, reputation and leadership are a regional strength that is earning Northwest Florida distinction as the world's capitol for human performance improvement. Human performance enhancement refers to the augmentation of human skills through the use of technology, medicine or therapy designed to increase performance capability. At the heart of this transformation are two world-class research centers, the Institute for Human and Machine Cognition (IHMC) located in Escambia County, and The Andrews Institute located in Santa Rosa County.

The Institute for Human and Machine Cognition (IHMC), in Pensacola, is a pioneer for technologies aimed at leveraging and extending human capabilities. These technologies include next-generation orthosis for human motion which merges technology in robotics with that in orthotics to produce wearable exoskeletons or cognitive aids that help to enhance perceptual skills in vision and other senses. In Gulf Breeze, The Andrews Institute for Orthopaedics and Sports Medicine, with internationally renowned orthopaedic surgeon Dr. James Andrews, is becoming the world's premier surgical and research center for human performance enhancement. The Andrews Institute is bringing top sports medicine and human performance enhancement practices to all age groups, youngsters through grandparents, and also bringing high school, collegiate, amateur and professional athletes as well as sports teams from all over the globe to train or recuperate at the facility. The Institute is also embarking on cutting-edge research in personalized medicine.

Medical device development is an emerging activity in Northwest Florida. More dominate, but still considered an emerging industry, is Health IT, the management

8/6/10

of medical information between health care providers and consumers. Health IT and medical devices combine to form the Medical Technologies Industry. Synergies between Northwest Florida's strong aerospace and defense sector, with heavy uses in metals and composites, have spurred research in the medical technologies industry

The drivers of the Health Science and Human Performance Enhancement Industry are positive. Changing lifestyle needs, increasing health demands of an aging population and medical advances, combined with the difficulty of outsourcing these services, point to significant market opportunities. Subsectors of particular interest to the region include medical devices, health information technology, wellness and human performance enhancement, and clinical testing and research.

Agencies that regularly fund the Health Science Sector include:

- Army Telemedicine and Advanced Technology Research Center (DOD)
- National Institutes of Health (HHS)
- Centers for Disease Control and Prevention (HHS)
- Food and Drug Administration (HHS)
- Health Resources and Services Administration (HHS)
- Administration on Aging (HHS)
- Administration for Children and Families (HHS)
- Office of Public Health and Science (HHS)

In addition to matching funds opportunities in this area, a New Center to be created with the \$3 million initial investment is the Florida Performance Enhancement and Restoration Center in the emerging area of human performance enhancement; DoD has selected the topic as a critical future research need. NSF, DARPA, and NIH have new or expanded programs in the area — and perhaps most importantly there is a large and growing commercial market.

The Center would house a multidisciplinary team of leading academic and research institutions in Northwest Florida to address immediate and forecast problems for the aging population such as the baby boomers, and also enhance the performance of warfighters. Center participants will leverage the results of prior federally-funded research programs related specifically to human performance enhancement or restoration. In particular, a range of technologies originally invented for DoD, NASA and NIH applications will be further developed and adapted to the potentially much larger commercial marketplace. The development of viable businesses requires suitable employees. Workforce development will tie into college training and educational programs in prosthetic technology and rehabilitation science. Our vision is to position Florida as the leader in the high-wage, innovation-driven human performance enhancement industry.

State funds will be used to support the following goals, which are outside the scope of any existing funding but are critical to development of a Northwest Florida

8/6/10

industry base in human performance enhancement: (1) extend and adapt the key technologies from their current DoD, NASA, and NIH orientations to a commercially viable human performance enhancement context, (2) rapidly develop prototypes that are attractive to private sector partners, (3) enhance and initiate an academic program specifically designed to create a Florida workforce in performance enhancement.

Activities will focus on three areas of human performance enhancement and restoration:

- Mobility Enhancement will integrate artificial intelligence capabilities and ideas from biometric interfaces as well as robotics, to create new and better kinds of mobility assist and preservation devices, such as unobtrusive wearable exoskeletons.
- Sensory-Perceptual Enhancement is based on recently developed technologies that provide information to one sensory system to supplement deficient input from another sensory system (e.g., enhancing vision or the sense of balance with tactile sensors).
- Cognitive Enhancement is made possible by merging of state-of-the-art work in cognitive science, artificial intelligence, and human-centered computing, to enhance and extend human cognition by going a leap beyond so-called memory aids to create "knowledge assistants."

The Center research philosophy will be to move key technologies developed originally with the support of agencies such as DoD, NASA and NIH to the commercial sector while at the same time supporting researchers to pursue relevant, cutting-edge ideas. The three Center Technology Focus Areas, the workforce development efforts, and the business development efforts will have parallel plans, and will be assessed in terms of progress relative to milestones that are appropriate for each.

A crucial element of the Center's philosophy is not to separate those responsible for technology development from the business and workforce development activities, or treat these activities as a linear sequence of research leading to applications leading to businesses, but to make these efforts highly interacting and parallel.

Renewable Energy & Sustainable Environment

Renewable Energy and Environment is a high-wage, high-growth sector for the region. A significant market growth rate is forecast for this sector as the U.S. struggles with energy independence and as Florida assumes leadership in this arena.

Northwest Florida has what is considered to be the world's largest plantation-style pine forests. Wood is gaining notoriety as a renewable source of bio-fuels for both electric power generation and as a replacement for petroleum-based products. A

8/6/10

revitalization of the timber industry is a much-anticipated opportunity for Northwest Florida's renewable energy strategy. In 2007, Green Circle Bio Energy built the world's largest and most technologically advanced wood pellet facility in Jackson County, a rural county in Northwest Florida. Due to its soil conditions and growth cycle, Northwest Florida was identified as one of two ideal locations for growing wood. Green Circle Bio Energy's wood pellets are shipped to Europe through the port of Panama City and used as a coal substitute to reduce carbon emissions. In addition to wood, a variety of feedstocks, or sources that fuel energy development, are being considered in Northwest Florida. Additionally, Pensacola is home to GE Wind Energy, GE's national manufacturing center for wind-powered generators and hubs.

The region also has significant assets in the subsectors of environmental research and management, power generation and technology, and biomass. This cluster offers opportunities for employment growth in both rural and urban areas of the region and is expected to be a catalyst for economic development and transformation.

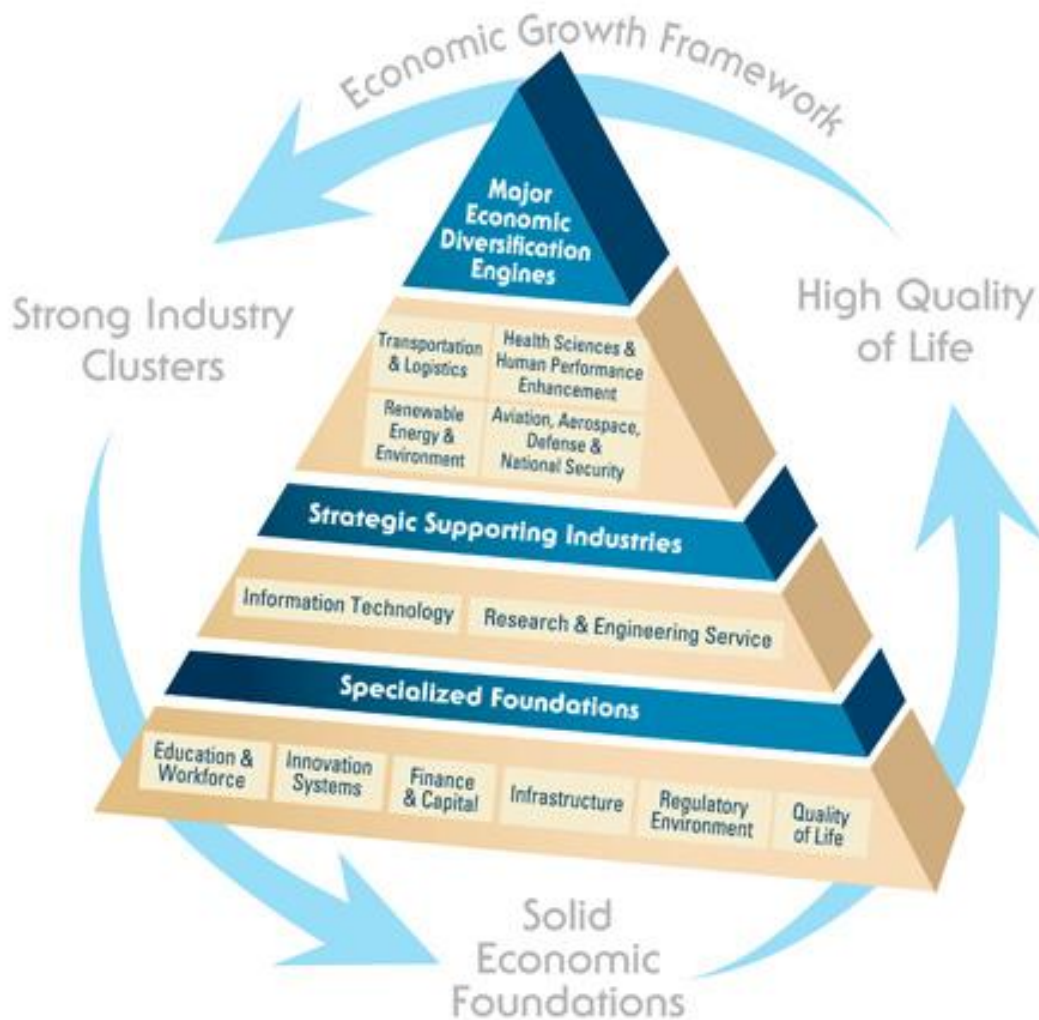
"Florida's Great Northwest has also established a green energy park to capitalize on the thrust toward innovative, renewable energy production. The green energy park provides infrastructure ideal for the renewable energy and fuels industry as well as complementary downstream businesses.

\$1 Million in funding would be designated to grow the renewable energy and sustainable environment sector, divided equally between \$500,000 for use by the region to attract and incentivize innovative and desirable new businesses locating in the 7 county region in this sector and the remaining \$500,000 designated to Applied Research as a matching funds program to aid in federal contract and grant opportunities in this sector.

Specific federal agencies supporting research and development in Energy and Environment include:

- National Energy Technology Laboratory (DOE)
- National Institute for Standards and Technology (NIST)
- Oak Ridge National Laboratory (DOE)
- Pacific Northwest National Laboratory (DOE)
- Idaho National Laboratory (DOE)
- Sandia National Laboratories (DOE)
- National Renewable Energy Laboratory (DOE)
- Environmental Protection Agency (EPA)

Northwest Florida's Key Industries for Developing a Diversified and Sustainable Economy



The pyramid represents Northwest Florida's development strategy. For years, the region has been building the specialized foundations designed to support innovation and the development of a human and physical infrastructure that will support those industries that are our basic economic engines driving a diversified and sustainable economy.