

New Mexico State University

ARROWHEAD CENTER

LEADING ECONOMIC DEVELOPMENT FOR NEW MEXICO STATE UNIVERSITY



Marketing Plan for Demonstration and Validation Assets



National Security Preparedness Project

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Live, Learn and Thrive

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1. INTRODUCTION

The National Nuclear Security Agency (NNSA) has the general responsibility to protect the nuclear weapons assets of the U.S and has a variety of programs to support its mission. The National Security Preparedness Project (NSPP), partially represented by this document, is to be sustained by various programs, including technology demonstration and evaluation (DEMVAL). This program assists companies in developing technologies under the National Security Technology Incubator program (NSTI) through demonstration and validation of technologies applicable to national security created by incubators and other sources. The NSPP also will support the creation of an integrated demonstration and validation environment.

This report documents the DEMVAL marketing and visibility plan, which will focus on collecting information about, and expanding the visibility of, DEMVAL assets serving businesses with national security technology applications in southern New Mexico. The DEMVAL asset program is being developed as part of the NSPP, funded by both Department of Energy (DOE) and NNSA. This document is a deliverable due May 30, 2008, as performance measure 2.1.3 of Grant No: DE-FG52-07NA28084 (reference: Arrowhead Center proposal, Page 16).

The purpose of the NSPP is to promote national security technologies through business incubation, technology demonstration and validation, and workforce development.

The mission of the NSTI program is to identify, incubate, and accelerate technologies with national security applications at various stages of development by providing hands-on mentoring and business assistance to small businesses and emerging or growing companies. Part of this support is envisioned to be research and development of companies' technology initiatives while also providing robust test and evaluation of actual development activities.

This report builds on performance measure 2.1.1 that identified DEMVAL assets for New Mexico. The focus of this report will be narrowed to concentrate on southern New Mexico within an approximate radius of one to two transportation hours between NSTI at New Mexico State University (NMSU) and the sight where the DEMVAL is provided. The majority of assets will be found within a one hour radius of the NSTI.

In addition, future reports will consider the role of Operation Research System Analysis (ORSA) assets available in southern New Mexico. ORSA missions complement physical testing facilities and professionals by placing an emphasis on statistical analysis of data gathered by evaluation engineers at the testing level.

This report will describe the process to be used to gather in-depth information with performance measure 2.1.1 as a starting point. Ongoing efforts will include targeting providers with a detailed questionnaire, interviews, correspondence, and follow-up questions. The questionnaire and related interaction between the incubator staff and DEMVAL providers will result in a comprehensive list of assets available in the area.

At the end of the process, all of the information gathered and formalized will form a complete portfolio of DEMVAL assets for southern New Mexico. The materials in the portfolio will include complete directories, advertising, and marketing copy, which will reach the consumers through advertising, conferences, exhibition presentations, trade organizations and publications.

2. MARKETING GOALS

The first goal in the marketing and increased visibility of DEMVAL assets is to identify an area of focus both convenient and practical for use by NSTI businesses and related consumers. The research park at NMSU, home of the NSTI is located at the junction of two interstates, and this

report's focus area is mainly based on a ground transportation radius of approximately one hour. Even the furthest DEMVAL assets are no more than two hours from the NSTI. DEMVAL assets identified in performance measure 2.1.1 can then be analyzed and all assets falling within the focus area indexed for inclusion in the marketing and visibility plan.

The second goal is to develop DEMVAL marketing materials beginning with an index of all assets cross-referenced by technology focus. Next, a portfolio of DEMVAL assets will be developed in various reproducible formats to include brochures, publications, and advertising copy.

The third goal is to recruit and attract technology companies to southern New Mexico by raising awareness of the abundant DEMVAL assets available. The DEMVAL portfolio will help to reach target businesses through trade publications, direct marketing, conferences, exhibitions, professional organizations, and trade and business organizations.

The fourth goal is to increase the visibility of local DEMVAL providers and to improve existing assets. Efforts will be made to bring southern New Mexico to top of mind awareness in the defense and technology sectors. These efforts will increase demand for, and utilization of existing assets, thereby encouraging growth and expansion of assets in the area. DEMVAL assets also would be expected to expand and adapt new forms as assets are recombined across new applications.

3. CURRENT STAGE OF DEMVAL MARKETING DEVELOPMENT

At present, an inventory of DEMVAL assets has been identified for New Mexico, which is being refined to reflect the focus on southern New Mexico. A questionnaire also is being developed to obtain a more in-depth picture of the DEMVAL assets available. This questionnaire, along with an interview process, will allow asset providers to craft information in a preferable format prior to it being used for promotion. Each provider in the focus area will be included and will be involved in input and approval of their portions of the final services directory.

The DEMVAL questionnaire will define the requirements to access the assets for both civilian and government entities. It also will show the trends of types of businesses that use each asset, as well as the types of technologies evaluated. Additionally, providers will be asked to match DEMVAL applications to foci corresponding to the NSPP focus. The various areas of specialization are broadly categorized under the following headings:

- Unmanned aircraft systems (UAS)
- Image processing
- Database and information processing
- Early detection and surveillance with a non proliferation focus
- International border monitoring, security, and nuclear materials transport
- Robotic technologies for nuclear handling and clean up
- Distributed information systems for nuclear complexes

4. CHALLENGES FACED

One of the main challenges facing the effort to market and expand the visibility of DEMVAL in southern New Mexico is to obtain a clear identification and description of the assets available. This involved process will require the identification of the proper point of contact for each provider and to work through them to identify other assets and responsible persons unknown at that time.

Security concerns exist wherever research, proving, or evaluation is being performed regarding national security. This challenge is made greater when mixing private companies with government DEMVAL asset providers. In some cases clearance of company principals may be needed whereas in others an official government sponsor will be needed for private firms to access DEMVAL assets.

Matching NSTI companies with applicable DEMVAL across a wide range of technologies also will present challenges. This will require developing clear and universal terminology for describing assets and needs for consumption by non-technical marketing forums, as well as liaison between DEMVAL consumers and providers.

Another challenge is to bring name recognition to southern New Mexico, clearly identifying the region as a DEMVAL asset-rich environment. The unique properties of the region technologically, geographically, and, in regards to the extensive defense agency network in place, set the stage for distinction and for increased visibility.

5. INDUSTRY TRENDS

Since the events of September 11, 2001, there has been a focus on national security, protecting our country from terrorist organizations. Many high-tech companies have started to look for the technologies to use in national security applications to meet this ever-increasing need. Some important areas of this movement are homeland security and preventing the spread of nuclear, chemical, and biological weapons.

The goal of the Department of Homeland Security is to keep the country safe from terrorist attacks, to prevent and respond to national threats, and to keep the borders secure. Although this goal is important to all United States citizens, it is especially applicable in southern New Mexico given the close proximity of the United States–Mexico border. The development of new technologies to protect our country and its borders would benefit the entire nation and be of interest to all southwest border states.

The United States has made preventing the spread of nuclear, chemical, and biological weapons a major priority in the move for tighter national security. These types of technologies in the hands of terrorist groups could have devastating global consequences.

Under the NSPP, the consumers of DEMVAL assets will be mainly NSTI businesses that will have a chance to contribute, with their technologies and services, to the United States' non-proliferation activities.

There are many areas to which non-proliferation applies including security technology, surveillance systems, unmanned systems, image processing, detection of chemical and biological agents, sensors, and data collection tools and databases. Companies with these types of specializations will be among the firms chosen to participate in the NSTI program and those utilizing DEMVAL assets.

The availability of technology DEMVAL is an important part of the current move toward technology business incubation. Two main areas of focus begin with the documenting of demonstration to ensure that they are conducted safely and that the data desired are included in the demonstration plans. Additionally the documentation of the results helps to advance the body of new technologies in that the business technologists and NNSA can understand the findings as they relate to the NNSA requirements.

6. DEMVAL CLIMATE

Performance measure 2.1.1 gathered information on DEMVAL assets in New Mexico, which included a large number of assets across a wide range of locations forming a network of providers, many of which with direct government connections or relationships. The assets available covered a similarly wide range of technologies.

Numerous DEMVAL assets available in the state are located in the narrowed southern New Mexico focus; a list of which appears in the table below.

Table 1: Demonstration and Evaluation Resources by Organizational Authority.

Holloman AFB 586 th Test Squadron: Flight Test Aircraft and Facilities 46 th Test Group 746 th Test Squadron: Central Inertial Guidance Test Facility 781 st Test Squadron: National Radar Cross Section Test 846 th Test Squadron: Holloman High Speed Test Track
NASA/White Sands Test Facility Chemical and Physical Properties of Materials Facilities Hazards Assessment Lab Oxygen Systems Facility Propulsion Component Test Facility White Sands Space Harbor
New Mexico State University Astrophysical Research Consortium Biosciences Sub clusters Cognitive Neuroscience Psychology Group Cognitive Systems and Decision Sciences Facilities CREST Bioinformatics and Computational Biology Center Knowledge Representation, Logic and Advanced Programming (A&S) Nanosatellite Design Lab Physical Science Laboratory UAV, Balloons Physical Science Laboratory Natural Language Processing Physical Science Laboratory UAV flight operations Remote Sensing and Sensor Development Group RioRoboLab Robotics Southwest Border Security Consortium
NM Tech Energetic Materials Research and Testing Center Incorporated Research Institutions for Seismology (IRIS) Institute for Engineering Research and Applications Microelectronics Testing and Technology Obsolescence Program (METTOP) National Radio Astronomy Observatory (NRAO) New Mexico Center for Energy Policy (NMCEP) Playas Training and Research Center Tech / Petroleum Recovery Research Center (PRRC) Technology Transfer Support Group

Table 1: Demonstration and Evaluation Resources by Organizational Authority (continued).

<u>White Sand Missile Range</u>
Aerial Cable Facility
Electronic Warfare Facilities
Analytical Chemistry Laboratory
Certified Chemistry Laboratory
Climatic Test Facility
Dynamic Testing and Facilities
Launch Facilities
Survivability, Vulnerability Assessment Directorate (SVAD) Electromagnetic Testing Facilities
Warhead Impact Target

A large variety of technologies also are supported by DEMVAL assets in southern New Mexico. A list of technologies appears in the table below.

Table 2: Supported Demonstration and Evaluation Assets by Test Domain.

<p>Space Operations Testing and Evaluation</p> <p>Flight Operations and/or Training</p> <p>Hazardous Materials</p> <p>Guidance and Navigation</p> <p>Launch Systems</p> <p>Satellites and Nanosatellites</p> <p>Planetary Physics and Technology</p> <p>Nuclear Propulsion Systems</p> <p>Space Materials</p>	<p>Materials Technology Development Testing and Evaluation (continued)</p> <p>Synthesis</p> <p>Materials Science</p> <p>Actinide Research</p>	<p>Offensive Weapons Systems Testing and Evaluation</p> <p>Nuclear Weapons Systems</p> <p>Air Defense Ranges</p> <p>Small Arms Ranges</p> <p>Large Ordnance Ranges</p> <p>Energetic Materials</p> <p>Arms Control</p> <p>Bomb, Missile and Submunition Testing</p> <p>Hazardous Materials</p>	<p>Physical Science Evaluations and Testing</p> <p>Thermodynamic</p> <p>Geophysical</p> <p>Fluid Mechanics</p> <p>Micro Mechanics</p> <p>Acoustics</p> <p>Chemical</p> <p>Explosives</p> <p>Hazardous Materials</p>	<p>Energy Systems and Properties Testing and Evaluation</p> <p>Magnetic-Pulsed Fields</p> <p>Rechargeable Technology-Batteries</p> <p>Radioactivity/Reaction/Fuel</p> <p>Photo Voltaic</p> <p>Power Sources</p> <p>Solar/Thermal</p>
<p>Propulsion, Fuel, and Launch Systems Testing and Evaluation</p> <p>Propellant Systems</p> <p>Rocket Propulsion</p> <p>Oxygen Systems</p> <p>Combustion Systems</p>				
<p>Aviation and Flight Systems Testing and Evaluation</p> <p>Aerodynamics and Aeronautical Engineering Systems</p> <p>Autonomous Vehicle Control</p> <p>Aviation Testing and Evaluation</p> <p>Aircraft Maintenance Systems</p> <p>Jet Engines</p> <p>Avionics</p> <p>Simulation</p> <p>Safety</p>				
<p>Materials Technology Development</p> <p>Testing and Evaluation</p> <p>Particle Acceleration</p> <p>Super Conductivity</p> <p>Cryogenics</p> <p>Semiconductors</p> <p>Ceramics</p>				

<p>Communication and Information Security Systems Testing and Evaluation</p> <p>Integrated Homeland Security Systems Integrated Intelligence Security and Linguistics Electronic Defense Near and Deep Space Communication Surveillance and Reconnaissance Situational Management</p>	<p>Emerging Technologies Testing and Evaluation</p> <p>Nanoscale Mechanics Photometric and Optics Electronic Data Acquisition Complex and Nonlinear Systems Robotics Nanotechnology Environmental Simulation</p>
<p>Physical Security, Detection and Monitoring Systems Testing and Evaluation</p> <p>Physical Security Monitoring: Cameras, and Sensing Entry Control and Alarms Biological Weapons Sensing and Threat/Risk Evaluation Bioinformatics and Biometric Sensing and Monitoring Precision Measurement and Calibration Pulsed Power Detection</p>	<p>Air and Ground Based Sensors</p> <p>Resolution Range SWOP Data Transmission Packaging Networks Countermeasures and Warning Devices</p>
	<p>Climatic Testing</p> <p>Data Acquisition Hazardous Materials Testing Microbiological Testing Elemental Testing</p>

Additionally, some of the private firms that use DEMVAL assets and contribute to testing, demonstration, and evaluation in the region are listed below.

- Aerojet
- Applied Research Associates
- Boeing SVS
- GE Aviation
- Goodrich Corporation
- Honeywell Aerospace
- Krestel
- Mesosystems Technology
- Northrop Grumman
- QTL Biosystems
- Raytheon

The DEMVAL climate in southern New Mexico is quickly developing a great demand for DEMVAL assets. Rapid growth of demand is anticipated under NSPP and NSTI programs, and additions to DEMVAL assets are possible as new technologies and applications emerge from the dynamic forces converging on southern New Mexico.

7. STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS (SWOT) ANALYSIS

<u>Strengths</u>	<u>Weaknesses</u>
<ul style="list-style-type: none">• Long relationship between NMSU and DEMVAL asset providers• Strong asset provider interest in NSTI program• Interest in DEMVAL portfolio development• Interest in DEMVAL marketing and demand development• Synergistic environment and high concentration of DEMVAL assets	<ul style="list-style-type: none">• No finite directory of diverse assets• Infancy of DEMVAL identification and consolidation process• Lack of name recognition• PSL and other NMSU affiliation well known historically• NSTI program not known by community
<u>Opportunities</u>	<u>Threats</u>
<ul style="list-style-type: none">• Immense DEMVAL base from which to draw• Rapidly developing and quickly growing mission• Escalating demand for NSTI graduates and products• Universal recognition of the need for a portfolio of assets	<ul style="list-style-type: none">• Lack of flexibility in existing DEMVAL providers• Civilian access to government run assets; classification conflicts and security clearance/sponsorship issues• Change in government commitment to program; administration change and redirection of focus• Loss of funding; base closures and loss of assets

8. TARGET CONSUMERS OF DEMVAL ASSETS AND THE NSTI PROGRAM

Businesses recruited to and graduating from a technology business incubation program in southern New Mexico will bring new technology and defense products to completion. The purpose of the NSTI/DEMVAL relationship is to maximize the success of these businesses and fulfill a core competency in NSPP and supporting NNSA.

Business incubation, partnered with DEMVAL, will accelerate and optimize new defense technology along the development chain. With the elimination of many logistical obstacles faced by businesses, NSTI companies can rapidly develop technologies and products from concept to prototype to commercialization and final delivery for deployment by funding authorities and key stakeholders.

The geographic concentration of technology companies and DEMVAL assets builds synergy and advances technology development and innovation. The development of technology clusters in southern New Mexico will gradually increase the demand for DEMVAL assets, which will stimulate development of new capabilities and expand the scale of current assets. This proximity also will form development partnerships between NMSU, NSTI businesses, DEMVAL providers and consumers, and related businesses.

Expanding the visibility of DEMVAL assets will involve strategies for reaching target consumers through existing professional networks to include subscribing to, advertising in, and contributing content to professional and trade periodicals. Additionally, membership in and presentations to professional organizations will help identify businesses for recruitment. Industry gatherings to include trade shows, expositions, and conferences are another source of access to DEMVAL consumers. New events can be developed in southern New Mexico,

organized and hosted at the university or other facilities near the NSTI. DEMVAL materials also can be distributed while attending, displaying, or presenting at other events nationally and regionally.

A growing network of Web sites currently supports the NSPP program including a workforce development site and network for business incubators being developed locally. Links to DEMVAL opportunities can be placed on many sites and will reach not only businesses, but also skilled technicians through progressive workforce development, bringing new knowledge migration to southern New Mexico and attracting new entrepreneurial potential. Web sites also are good places to match DEMVAL assets and consumers using success stories about historical utilization by other businesses. Links also can be placed on sites for professional organizations, government contracting nexi, and national incubator associations.

9. STRATEGY OR ACHIEVING MARKETING GOALS AND OBJECTIVES

First, a series of contacts will be made with DEMVAL providers in person, by telephone, and through correspondence to obtain the initial information listed on the DEMVAL questionnaire. This initial contact will lead also to the identification of other providers, points of contact, and assets. The initial information will be summarized and reviewed by each provider. This step will allow each DEMVAL supplier to shape how they appear in advertising and marketing including correct terminology and technical definitions. This review also will enlist the aid of the asset supplier in channeling consumers to the proper assets. This proof and refinement will undergo as many stages as necessary until the DEMVAL provider is satisfied that it is all-inclusive.

Next, the individual portfolios will be consolidated into an indexed directory composed of cross-indexed categories matching technologies to DEMVAL assets and finally to a provider. A copy of the directory will be provided to asset suppliers for approval of form and categories before a final version is issued. The master directory will add relationships and synergistic links between assets that cooperate or build upon one another, as well as directing consumers to similar or related assets. After final refinement with input from DEMVAL providers, the master directory will become the official desk reference for DEMVAL assets in southern New Mexico and will be a living registry that will be revised and republished.

The master directory will provide the information necessary to create marketing, advertising, and informational materials for use in expanding the visibility of DEMVAL assets in southern New Mexico. This portfolio of products then will be used to implement the marketing and visibility strategies described in this report. The table below summarizes these varying materials.

<u>Copy</u>	<u>Description</u>
<ul style="list-style-type: none">• Master Directory• Summary Brochures• Copy for advertising• Flow charts and organizational charts• Full matrices and maps	<ul style="list-style-type: none">• Cross linked desk reference for all DEMVAL assets in southern New Mexico• For distribution to potential DEMVAL consumers• Press releases, adds and information in varying levels of generalization for varying target forums• Quick identification of assets. Part of promotional catalogs and client recruitment materials• Up to wall poster size mapping entire regional DEMVAL community for display and for conference/Exposition use

10. CONCLUSIONS

A strong program of visible DEMVAL assets will advance the NSPP mission by speeding development and proving of technologies and products to the end user. This process also will increase the viability of NSTI companies.

Increased visibility and marketing of DEMVAL assets is vital to draw new businesses and talent to southern New Mexico, resulting in an increase in the demand for the scope of DEMVAL assets and applications capitalizing on synergy between NSTI businesses, asset providers, and end consumers.

The first phase of the plan is underway with the initial draft of the asset questionnaire. The shape and structure of the DEMVAL questionnaire (and provider identification program) will be developed further in coming weeks.