

New Mexico State University

ARROWHEAD CENTER

LEADING ECONOMIC DEVELOPMENT FOR NEW MEXICO STATE UNIVERSITY



Security Technology Demonstration and Validation Sustainability Plan

National Security Preparedness Project

Grant No: DE-FG52-07NA28084

DOE/NA/28084-241

Submitted

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August 31, 2008



Live, Learn and Thrive

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“This material is based upon work supported by the Department of Energy [National Nuclear Security Administration] under Award Number DE-FG52-07NA28084.”

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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 it has a variety of programs to support the 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).

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, at the same time providing robust test and evaluation of actual development activities.

This program assists companies in developing technologies under the National Security Technology Incubator (NSTI) program 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 describes the process of creating continuity and sustainability for DEMVAL assets at NSTI. The DEMVAL asset program is being developed as part of the NSPP, funded by Department of Energy (DOE)/NNSA. This document is a deliverable due August 31, 2008, as performance measure 2.4.1 of Grant No: DE-FG52-07NA28084 (reference: Arrowhead Center proposal, Page 16).

Development of the commercial potential for national security technologies is a significant NSTI focus. As part of the process of commercialization, a comprehensive DEMVAL program has been recognized as an essential part of the overall incubator mission. A number of resources have been integrated into the NSTI program to support such a DEMVAL program. In addition the following are planned to specifically enhance the sustainability of the DEMVAL program for a minimum period of five years.

- Integrate the DEMVAL partners as part of a commercial national security operation intended to realize higher economic returns from the first year to ensure the continued commitment of the public and private sponsors. The DEMVAL partners will work past the incubation period to continue supporting the wider commercial mission of a small corporation.
- Continue the institutional strengthening of the DEMVAL program to facilitate wide dissemination of the lessons learned. NSTI will work to ensure that published research from DEMVAL results reaches the widest applicable audience possible to ensure validation of the DEMVAL model.
- Recognize from the onset the imperative need of support from national security development agencies through incorporating sponsorship in the form of technical assistance and funding from private DEMVAL entities.
- Articulate and closely monitor the performance and results indicators.
- Communicate and promote more broadly the work and achievement of the demonstration through NSTI activities to attract attention of possible donors and/or investors.

2. DATABASE DEVELOPMENT

Information on DEMVAL providers in southern New Mexico is consolidated in a relational database on the Arrowhead DOE server. Each pertinent detail about an asset is consolidated in a searchable master record including the organizational authority; for example, a military base or test range, the individual facility, the various areas of DEMVAL focus pertaining to the application under development, and all contact information directing users to the correct person(s), address, phone, Fax, and email.

To support the formation of directory functions, static data such as organization, facility, or focus is input into individual referenced tables comprising the entire population of each applicable data item. During data entry and report building, these items are inserted using linked, look-up functions. This allows users to select from possible choices and eliminates many data entry and access problems caused by many different users. This organizational hierarchy also readily supports the generation of comprehensive lists for various uses with little or no query construction.

3. DIGITAL APPLICATION DEVELOPMENT

Arrowhead Center is in the process of developing and improving several Web sites with URLs dedicated to NSTI and to workforce development under the DOE Grant No: DE-FG52-07NA28084. Information from, and eventual access to, the DEMVAL assets database and user guide are featured on these sites as well as on other related industry Web sites through active links.

Initially, static reports organized by field of interest or by meaningful combinations of fields are available to users. Users are encouraged to email Arrowhead staff to request reports not listed. Sorted directories also will be featured in downloadable form.

In the near future, the DEMVAL user database and user manual will be available through Web applications featured on the respective Web sites. Users visiting the sites, or directed to the sites through links, are guided through the steps of authoring reports and query requests customized to their needs. These capabilities include sorting for one item through all inclusive directories.

The DEMVAL user database and user manual also support internal activities involved with recruiting exemplary client businesses to the NSTI, attracting skilled technical workers, and raising visibility and awareness of DEMVAL assets in southern New Mexico. These activities include direct marketing, trade publication, and information distribution at conferences and industry expositions. The DEMVAL user database and user manual also act as a directory resource for Arrowhead staff and stakeholders.

4. CONTINUING DEVELOPMENT

The DEMVAL user database and user manual undergo continual updates and review for changes that happen in the regional DEMVAL community. Additional assets supporting the NSTI non-proliferation focus are introduced to the datasets continually under the guidance of the Technology Entrepreneur. As new resources, facilities, and organizational authorities are identified, researchers standardize all the applicable information and verify the contact information.

To build the DEMVAL user database and user manual into a more valuable tool, and to remain compliant with all applicable publication protocols, Arrowhead staff members dedicated to the NSTI and DEMVAL asset programs are completing training in Web authoring and maintenance at the development level building Web content and the

mechanics of the user interface from design through final publishing. This allows staff to improve and professionalize Web content on a continual basis without the inefficiency inherent in an exogenous Web master arrangement.

This document has summarized a variety of government and private test assets that could be employed in test and evaluation or DEMVAL of technologies relevant to the NNSA mission. When considered together, the capabilities of these resources are immense.

The next document related to DEMVAL will be a marketing and visibility plan for the test assets with two more specific focus areas forming a major part of the assessment for the plan. First, geographically, assets that are primarily in the southern part of New Mexico will be further analyzed. Second, the technology or capability focus primarily will be toward:

- Unmanned Aircraft Systems and unique payloads and subsystems that UAS might employ
- Image processing
- Specialized databases and information processing
- Early detection and surveillance of proliferation activities
- International border monitoring for transport of nuclear materials
- Robotic technologies for the handling and cleanup of nuclear materials
- Distributed Information Systems for nuclear complexes

Also as important, the specific NNSA requirements will be matched in the second document against capabilities identified in New Mexico. This important assessment component will help assure value added in the document and applicability by small business with a technology and security orientation.

The NSPP will be monitoring constantly and synergy with other exciting programs assessed. Relevant data will be included as updates to the marketing and visibility plan.

A Users' Guide will be produced as the third document related to the DEMVAL function of the NSPP. The guide will include basic instruction on how technologists can utilize the discussed assets. Formal agreements with the various asset holders will be developed to facilitate user interaction.

These three DEMVAL documents will form the basis for organizations and programs to understand the assets available in New Mexico and the processes to utilize them. Periodic surveys of the State's capabilities will ensure that the documents have the most recent and relevant information for the users.