

New Mexico State University

ARROWHEAD CENTER

LEADING ECONOMIC DEVELOPMENT FOR NEW MEXICO STATE UNIVERSITY



Demonstration and Validation Assets: User Manual Development

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By

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Live, Learn and Thrive

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Demonstration and Validation Assets: User Manual Development

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 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 development of a database-supported user manual for DEMVAL assets in the NSTI area of operations and focuses on providing comprehensive user information on 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 June 30, 2008, as performance measure 2.2.2 of Grant No: DE-FG52-07NA28084 (reference: Arrowhead Center proposal, Page 16).

This report describes the development of a comprehensive user manual system for delivering indexed DEMVAL asset information to be used in marketing and visibility materials and to NSTI clients, prospective clients, stakeholders, and any person or organization seeking it. The data about area DEMVAL asset providers are organized in an SQL database with updateable application structure that optimizes ease of access and customizes search ability for the user.

This report builds on performance measure 2.1.1 that identified DEMVAL assets for New Mexico and 2.1.3 that developed a marketing and visibility plan for DEMVAL assets as well as refining the focus of the program to southern New Mexico. Additionally this report refines and updates previously gathered information as well as providing mechanisms for the addition of area assets previously unrepresented by the data.

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 an air force 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), addresses, phone, Fax, and email.

In order 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 are available to users organized by field of interest or by meaningful combinations of fields. 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 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.

In order 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.

5. Sample Reports

Following are one page samples of several reports mixing different meaningful organization structures. These formats are the type offered as static content and can be designed and customized by users through the DEMVAL Web application. The title of each sample describes the organizational structure.

Report by Organizational Authority and Facility

Organizational Authority

Facility

Holloman Air Force Base - 46th Test Group

586th Test Squadron: Flight Test Aircraft and Facilities

746th Test Squadron: Central Inertial Guidance Test Facility

781st Test Squadron: National Radar Cross Section Test Facility

846th 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 Sciences

CREST Bioinformatics and computational Biology Center

Nanosatellite Design Lab

Physical Sciences Laboratory Information Sciences and Security Systems

Physical Sciences Laboratory UAV, Balloons

New Mexico 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)

DEMVAL Resources by Organizational Authority

Organizational Authority

DEMVAL Focus

Holloman Air Force Base - 46th Test Group

Aviation Testing and Evaluation

Simulation

Surveillance and Reconnaissance

Guidance and Navigation

High-Speed/Supersonic/Hypersonic Testing

Ejection Seat Testing

Flight Operations and/or Training

Avionics

Flight Operations and/or Training

Aviation Testing and Evaluation

Rail/Track Testing

Guidance and Navigation

Electronic Defense

NASA/White Sands Test Facility

Flight Operations and/or Training

Guidance and Navigation

Chemical

Fluid Mechanics

Hazardous Materials Testing

Oxygen Systems

Explosives

Combustion Systems

Materials Science

Aircraft Maintenance Systems

Guidance and Navigation

Particle Acceleration/Hypervelocity Testing

Explosives

Chemical

Safety

Propellant Systems

Thermodynamic

New Mexico State University

Autonomous Vehicle Control

Countermeasures and Warning Devices

Guidance and Navigation

Guidance and Navigation

Surveillance and Reconnaissance

Near and Deep Space Communication

Query of facilities: DEMVAL applications to "Avionics"

Organizational Authority

Facility

Holloman Air Force Base - 46th Test Group

586th Test Squadron: Flight Test Aircraft and Facilities

Query for DEMVAL Focus, Contacts: 586th - Holloman AFB

Flight Operations and/or Training
Avionics
Guidance and Navigation
Electronic Defense

871 DeZonia Drive
Holloman AFB
NM
88330-7715
586flts.info@46tg.af.mil