

DEFENSE TECHNICAL INFORMATION CENTER

2012 DTIC Conference

Connecting Lab Research with the Warfighter

March 27-28, 2012

Unified Research & Engineering Database (URED): Integrated Data Leads to Better Analysis

March 27, 2012

Moderator: Ms. Helen Q. Sherman



Unified Research & Engineering Database (URED)

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ASD(R&E)/Research Directorate



Unified Research & Engineering Database (UR&ED)

Project Overview

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27 March 2012



Agenda

- **Background**
- **Size and Scope of the Defense Laboratories Enterprise**
- **Why Create the Unified Research and Engineering Database (URED)?**
- **URED User Interface**
- **Projected Efficiency & Cost Savings**
- **Roles & Responsibilities**
- **DoD-Wide Collaboration**
- **Expanded Analytical Capabilities**
- **Challenges & Successes**
- **Opportunities**
- **Next Steps**



Background

- **May 2010: DoD began an effort to increase efficiencies, reduce costs, and eliminate redundant functions across the DoD enterprise**
- **The Defense Laboratories Office (DLO) identified efficiency opportunities in the research and engineering (R&E) activity reporting**
 - Multiple databases storing similar information
 - Large number of stove-piped data calls
 - Man-hours allocated to manual collection and review of R&E data to satisfy information reporting requirements
- **To address these inefficiencies, the DLO initiated a collaborative effort with the Defense Technical Information Center (DTIC) to create the Unified Research and Engineering Database (URED)**





Defense Laboratory Enterprise (DLE) Size and Scope



- **62 DoD and Service-owned laboratories**
 - Hundreds of individual research facilities and detachments
- **Supported by private laboratories**
 - 10 Federally-Funded Research & Development Labs (FFRDCs)
 - 14 University-Affiliated Research Centers (UARCs)
- **>\$30 Billion/year in Total Funding (RDT&E, Procurement, O&M*, MilCon**)**
- **>\$14 Billion/year in Total Research (BA1-BA7***)**
 - >60% Out-of-House research / mix of partnerships, industry, academia
 - <40% In-House research
- **DoD employs more than 37,000 scientists and engineers**

*Operations and Maintenance, **Military Construction, ***Budget Activity

The DLE is vast, and an inefficient data management process places a substantial manpower burden on laboratory personnel to satisfy R&E reporting requirements.



Why Create the URED?

OBJECTIVE

The URED will benefit the defense and national security laboratories by simplifying and standardizing laboratory reporting, as well as providing improved programmatic tracking and analysis capabilities.

- The URED *consolidates and replaces* legacy reporting previously contained in three separate systems:
 - R&E Database
 - Research Summaries Database
 - In-House S&T Activities report
- **Web-based system will allow for rapid data entry, mining, analysis, and report creation**
- **Benefits:**
 - Improved reporting efficiency and fidelity
 - Expanded access and utility
 - Efficiency gains/duplication removal
 - New analytic tools can be used by OSD and the Services
 - Cost savings



URED User Interface

Unified Research & Engineering Database (URED) Data Collection

Research Projects | RERA Activities | Metrics | My Profile | [Help](#)

[Home](#) | [Add New Project](#) | [Upload Project XML](#) | [Web Services](#)

[Research Projects](#) > Add Project

Add New Project

Basic Information | Subject Categories | Responsible Organizations | Performing Organizations | Funding | Journals | Products | Review | Submit

[Save & View](#) | [Save & Continue Later](#) | [Print](#)

Basic Information

Provide the basic information about a research project in the fields provided below. * Required Field

DoD Component: Department of Defense

Transaction Type: New

Accession Number: (generated on first save)

*Summary Date: (YYYY/MM/DD)

Effort Date: *Start: End: (YYYY/MM/DD)

*Status of Effort:

*Effort Security Classification:

*Performing Method:

Performance Types:



Projected Efficiency & Cost Savings



Reduce or eliminate legacy costs associated with:

- ❖ Maintaining multiple databases
- ❖ Stove-piped data calls and report generation
- ❖ Man-hours allocated to manual data collection and review of R&E data to satisfy requirements

	Current R&E Reporting System	R&E Reporting with UR&ED
<i># of Stove-Piped Data Calls</i>	30	4
<i>Man-Hours to Service Data Call Needs</i>	36,790	2,335
<i>Labor Costs for Servicing Data Calls</i>	\$1,694,894	\$107,505
<i>Database Maintenance</i>	\$1,047,000	\$416,000
<i>Total Cost</i>	\$2,741,894	\$523,505
<i>Projected Annual Cost Savings</i>	\$2,218,389	



Roles & Responsibilities

ASD(R&E)

- Serve as lead for URED effort
- Conduct Army, Navy, Air Force and DoD agency outreach
- Leverage the S&T EXCOMM* as the clearinghouse to secure approval for data field changes
- Serve as the content manager for data collection and repository
- Assist DTIC with developing system functional requirements

DTIC

- Serve as technical lead
- Develop XML schema for approved data fields
- Develop the Web-based data collection tool
- Develop the Web-based data repository and reporting application
- Provide operations and maintenance support for all applications

DoD Services and Agencies

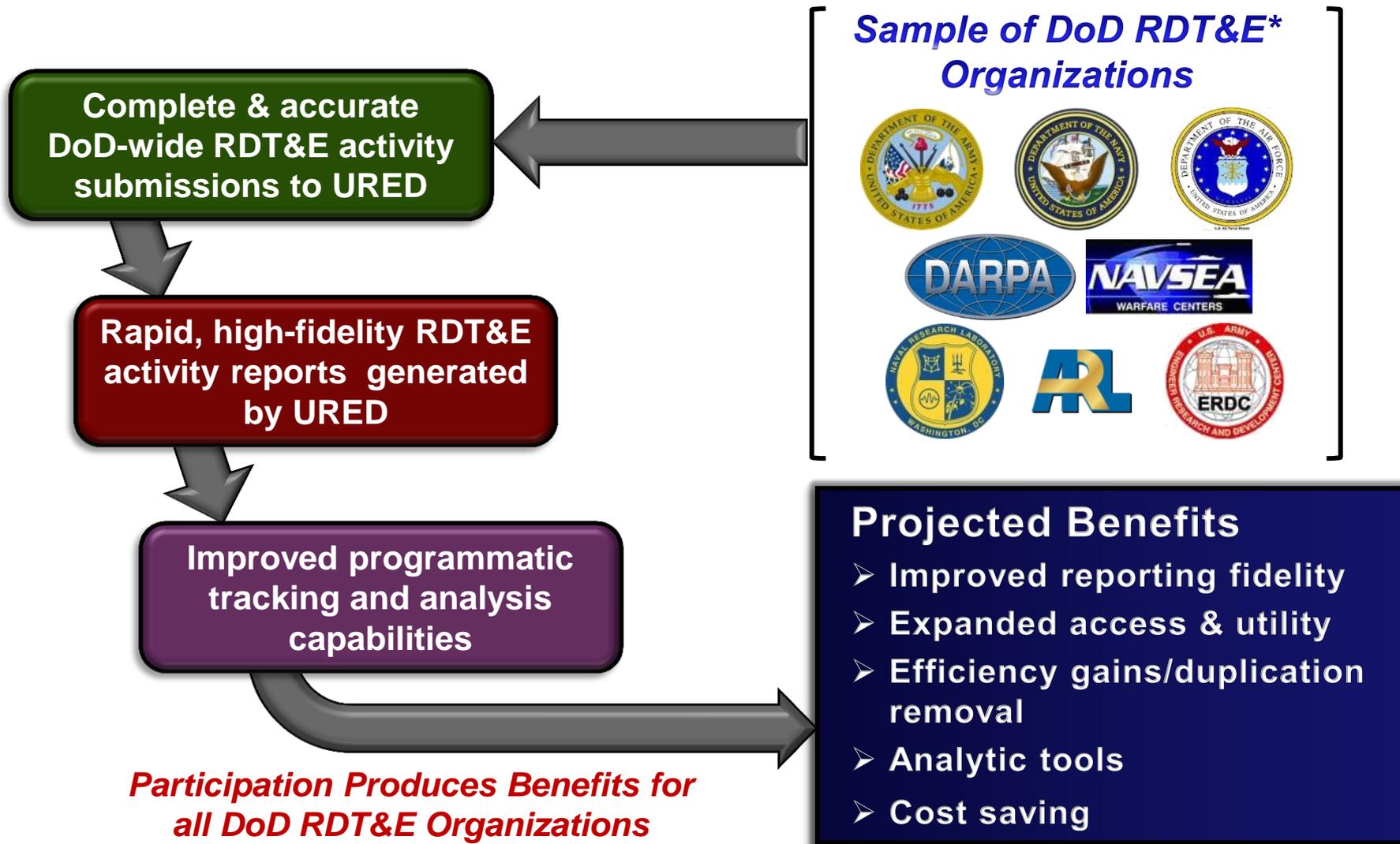
- Identify a point of contact for coordination
- Collect and validate the data for submission to DTIC
- Update data records as changes occur or at least annually by the 3rd quarter of each fiscal year

**Science & Technology Executive Committee*

APPROVED FOR PUBLIC RELEASE



DoD-Wide Collaboration



*Research, Development, Test & Evaluation



Expanded Analytical Capabilities

- **Initially, URED will house S&T activity (BA*1-3) information**
- **Analytical utility of this information is enhanced by mapping R&E activities to other data sets**
 - Technology focus areas
 - National Security
 - Joint
 - COCOM*
 - DoD Component
 - Program elements and budgets
- **Future URED expansion plan defined according to selected data sets and metadata fields to increase analytical capability across DoD**

*Budget Activity

*Combatant Command



Challenges & Successes

- **Operating in a budget constrained environment**
 - DTIC's URED team is doing great work with limited budget, personnel, and time for a multitude of technical tasks
- **Data Call exhaustion**
 - The Services and Agencies have adjusted to the new format while still answering other data calls that URED does not yet address
- **Success in spite of challenges:**
 - 13,050 Research Projects entered (as of 19 March 2012)
 - 5,657 Air Force
 - 1,839 Army
 - 4,474 Navy
 - 1,080 entries from seven other agencies, e.g., DTRA, DARPA
 - Plus 6,390 active records migrated from Research Summaries and R&E Database

*Defense Threat Reduction Agency, Defense Advanced Research Projects Agency



Opportunities

- ***First and foremost: URED has the potential to save time and money in a budget constrained environment.***
- **All new data calls and RFIs from OSD can be triaged through URED**
 - Example – OSD is seeking to use URED to answer data call re: DoD S&T research conducted by Department of Energy (DOE)
- **With URED we can “re-frame” how OSD entities conduct data calls**
 - The OSD “customer” will go through URED, and must internalize costs associated with database alteration or expansion



Next Steps

- **Complete consolidation of all FY2010 data**
- **Initiate data call for FY2011 data**
- **Refine URED User Interface**
 - Obtain feedback from all interested parties on data upload experience and utility of analytical toolset
- ***Enhance URED's analytical utility by mapping to more data:***
 - **All DoD RDT&E data and information management:**
 - Department of Energy's research, Technology Task Forces, Air Sea Battle, Lab Demographics, Congressional Data Calls
 - **DoD Science and Technology Integrated Priority Lists (STIPLs):**
 - Quadrennial Defense Review (QDR), Joint Capability Areas (JCAs), STIPLs, Service S&T Master Plans
 - **Program Element (PE) Codes**
 - **Higher BA levels (BA4-7)**

Long Range Objective:
***Make URED the Linchpin of All DoD Technology Base
Analysis and Management***



Questions



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Dr. John W. Fischer

<http://www.acq.osd.mil/rd/organization/leadership.html>

In March 2009, Dr. Fischer was selected as the Director of Defense Laboratory Programs. In this position, he is responsible for the development and implementation of policies for DoD's laboratory system.



Dr. JOHN W. FISCHER
Director Laboratories Office

Dr. John Fischer earned a bachelor's degree (cum laude) in Chemistry from Lawrence University in 1978, his doctorate in Organic Chemistry from Northern Illinois University in 1982, and served as a post-doctoral research chemist at the Ohio State University from 1982 to 1984. He began his career with the Navy in 1984 as a research chemist in the Research Department of the former Naval Weapons Center at China Lake, California. His interests were in the development of new explosives, propellants, and nonlinear optical materials.

Dr. Fischer assumed the position of branch head in the Soldering Technology Branch in 1990. His responsibilities included providing electronics assembly product assurance for the production of Navy missile and weapon systems. He also initiated an applied R&D program to develop environmentally compliant materials and processes used in the production of Navy missiles. This effort resulted in Dr. Fischer being awarded the EPA Stratospheric Ozone Layer Protection Award in 1993.

In 1994, he was assigned as the head of the Chemistry and Materials Division at NAWCWD. In this position, he was responsible for the basic and applied research of materials and processes for Navy missile and weapon systems.