



U.S. Army  
Edgewood Chemical Biological Center  
Partnering with Industry



**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**

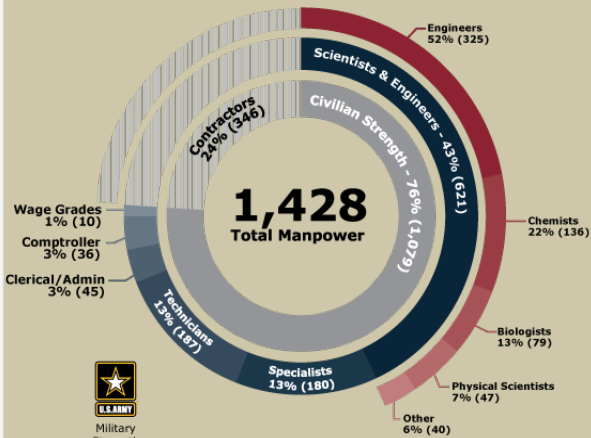
Michael Abaie, Director of Engineering, ECBC  
22 July 2015

## Specialized Workforce

**Total Manpower: 1,428\***

### Expertise Across Lifecycle

- **Deployable Employees:**
  - 250 field-deployable scientists, engineers, technicians and operators
- **Staff in Personnel Reliability Program (PRP)**
  - 454 staff, 63 dual BPRP and CPRP
- **Total Scientists and Engineers**
  - 621 (43%) Scientists and Engineers



### Advanced Degrees



\*Government Civilians, current as of 1Q FY15

## Unique Infrastructure

### Chemical Transfer Facility

Only U.S.-declared Single Small Scale Facility under the Chemical Weapons Convention.



### McNamara Life Sciences Research Facility



Uniquely designed for cutting edge research, toxicological testing, genomics and proteomics, accompanied by a BSL-3 laboratory environment.

### Advanced Chemistry Laboratory

Features advanced toxic agent laboratories, environmental chambers and secure work spaces for classified material.



- 1.22M ft<sup>2</sup> Laboratory Space
- 64 BSL-2 and 2 BSL-3 Laboratories
- 317 Chemical Surety Hoods
- 3 Explosive Test Chambers
- Several Outdoor Ranges
- Forensic Analytical Capabilities

## Directorates/Capabilities

### Research and Technology



- Science and Technology for Emerging Threats
- Chemistry and Biological Sciences

### Engineering

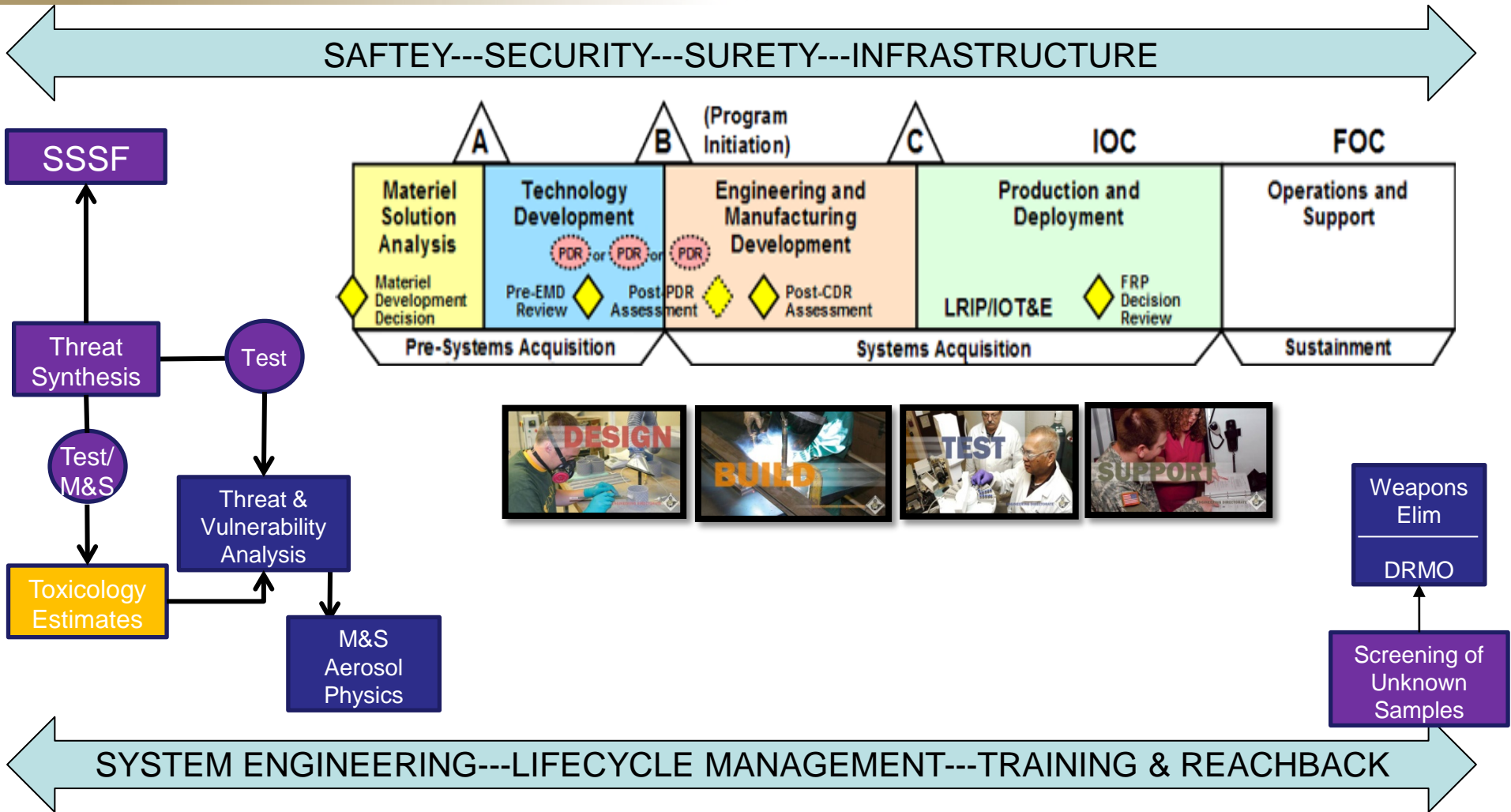
- CBRNE Materiel Acquisition
- CBRNE Analysis and Testing



### Program Integration



- CB Agent Handling and Surety
- CB Munitions and Field Operations



ECBC's core competencies support solutions throughout the acquisition lifecycle from cradle to grave.



## Capabilities

- Additive Manufacturing
- Advanced Conventional Manufacturing
- 3D Data Capture Capability
- Electronics Lab
- Interactive software and multimedia for training and product support.
- Accessible to all ECBC and partners



**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**

Collaborating directly with the Joint IED Defeat Organization (JIEDDO), Product Manager Counter Explosive Hazard (PdM CEH), Program Executive Office for Simulation, Training and Instrumentation (PEO STRI), and Maneuver Support Center of Excellence (MSCoE).

- Mechanical, Electrical, System, and Software Engineering.
- The first prototype was delivered in 3 months.
- Prototype is transitioning to Program of Record.
- Simulation Software being used in Virtual Clearance Training Suite (VCTS)
- Mobile App being used for Interactive Multimedia Instruction (IMI)



VCTS



PROTOTYPE PLATFORM



SIMULATION SOFTWARE



MOBILE AP

**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**

## Joint Service Aircrew Mask (JSAM)

- Revolutionary mask design experienced issues during developmental testing.
  - Resulted in millions of dollars of sunken cost in tooling.
  - Additional redesign using traditional manufacturing process could added cost and schedule.
- ECBC collaborated with developer to use rapid prototype-based test assets for mask redesign.
  - Streamlined the design-build-test-redesign cycle.
  - Saved millions of dollars and months of schedule.





## TAC BIO

- Deep UV LED technology developed by DARPA
- ECBC R&T- developed the methods to use the LED to detect biologic contaminants
- ECBC Engineering- designed the enclosure for manufacturability and maintainability
- The design was transitioned through patent license agreement to industry for production



**WRAIR**

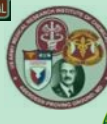
Walter Reed Army Institute of Research  
Soldier Health • World Health



Program Executive Office  
Assembled Chemical Weapons Alternatives



Sandia National Laboratories



**UMBC**

AN HONORS UNIVERSITY IN MARYLAND



UNIVERSITY of MARYLAND  
THE FOUNDING CAMPUS



**VCU**  
VIRGINIA COMMONWEALTH UNIVERSITY

Midwest Research Institute



THE  
SCRIPPS  
RESEARCH  
INSTITUTE®



Government



Academia



Industry

126 TSAs • 74 IAAs • 52 MOAS/MOUS • 59 Other • 13 CRADAs

**ECBC**



UPPSALA  
UNIVERSITET



MEDICAL  
COLLEGE  
OF WISCONSIN

**BCM**  
Baylor College of Medicine

**RICE**

UNIFORMED SERVICES UNIVERSITY  
of the Health Sciences

**USC** University of Southern California

HARFORD  
COMMUNITY  
COLLEGE

**AVON**  
PROTECTION

**iRobot®**

**Dräger**

Chemring  
Detection Systems



smiths detection  
bringing technology to life

**Battelle**  
The Business of Innovation

**leidos**

Booz | Allen | Hamilton

**AAF**  
INTERNATIONAL

ITT

**3M**

**MRI**

**NORTHROP GRUMMAN**

**STC**

**KOBELCO**

**TELEDYNE**  
BROWN ENGINEERING, INC.  
A Teledyne Technologies Company

SciTech  
Services, Inc.

**M**  
SQUARED

**GENERAL DYNAMICS**

**Camber**

**BAE SYSTEMS**

**EX**  
STUDIO GLOBAL



## Regional Additive Manufacturing Partnership– Maryland (RAMP-MD)

- Consortium of private businesses, educational institutions, and governmental agencies working to:
  - equip and educate an additive manufacturing workforce
  - provide entrepreneurs and manufacturers access to facilities and equipment
  - build a commercial infrastructure to support the manufacturing base.
- Established 2014 by the Maryland General Assembly
- RAMP MD currently holds partnership agreements with 10 industry partners, with more coming on board
- Overarching CRADA provides streamlined access to ECBC capabilities for industry, academia, or other non-federal partners
- Intellectual property protected and project compartmentalized by separate Joint Work Statements (JWS's)



<http://www.rampmd.com/home.html>



# In Conclusion



*Why can't industry & ECBC form partnerships that breed innovation and deliver "products" quicker?*