



RDECOM
TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.



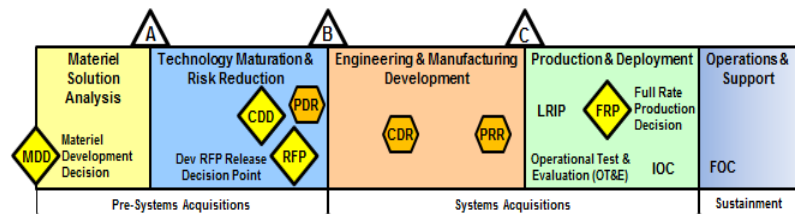
Edgewood Chemical Biological Center **NDIA Conference**

15-16 August 2017

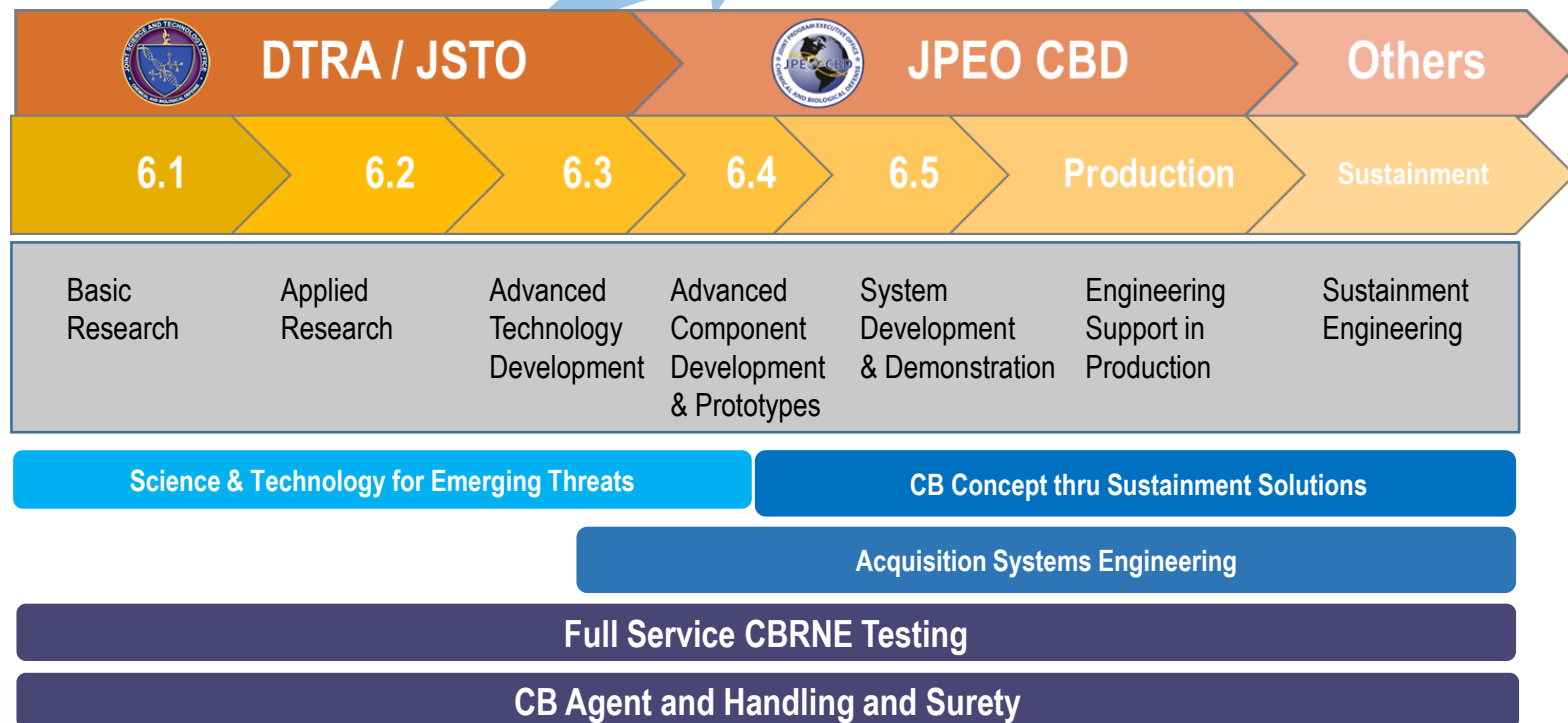
Michael Abaie
ECBC Engineering Director

ECBC Support Throughout the Acquisition Life Cycle

Intelligence and
Threat Support

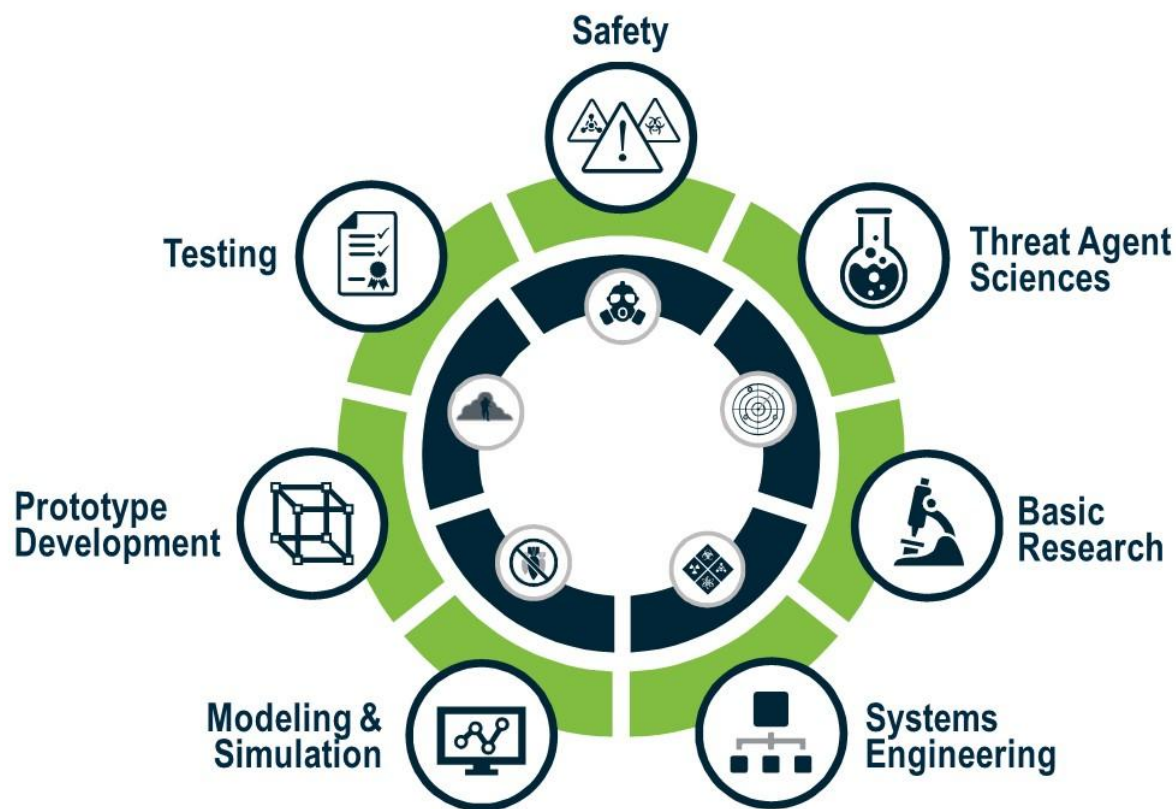


Disabling of CB
Munitions and Field
Operations



ECBC's Core Competencies Support Solutions Throughout the Acquisition Lifecycle

Major Competencies Supporting Acquisition

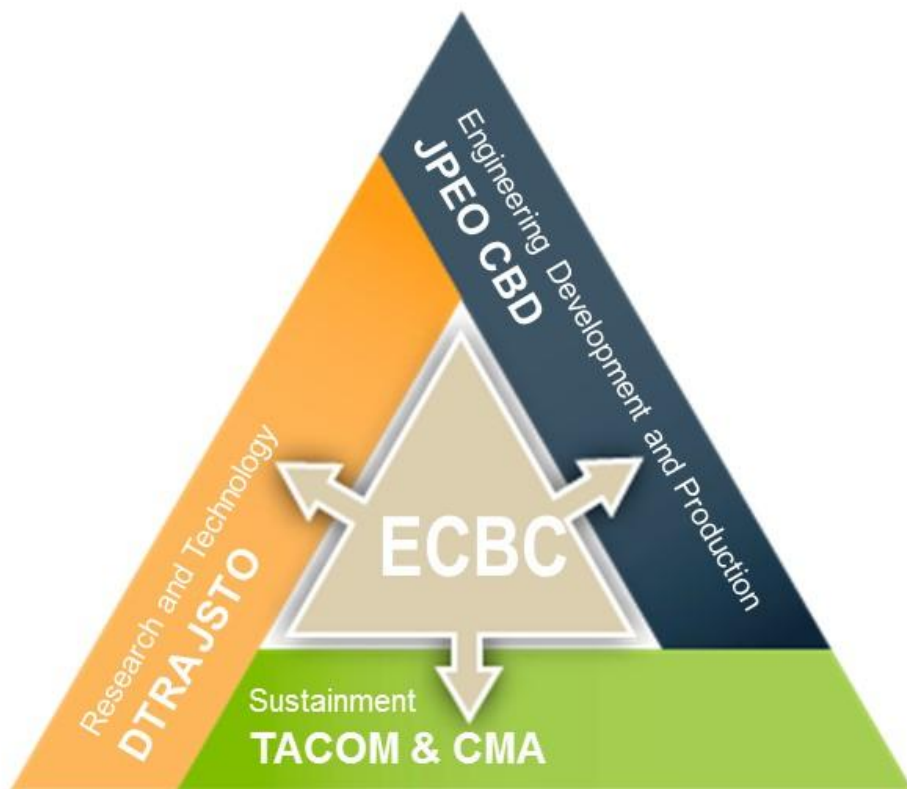


CBRNe Acquisition Expertise:

- Acquisition Logistics
- Aerosol Physics
- Chemical Synthesis
- Decontamination
- Detection
- Equipment Testing
- Environmental Monitoring
- Filtration Science
- Forensics
- Life Cycle Systems Engineering
- Molecular Engineering
- Novel Compounds, CWA, TIC
- Obscuration
- Protection
- Sample Analyses
- Synthetic Biology
- Toxicology

ECBC's Provides Critical Technical Expertise Across the Enterprise

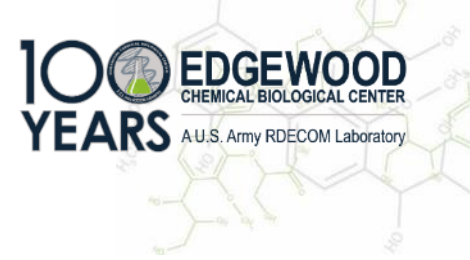
Major Capabilities Supporting Acquisition



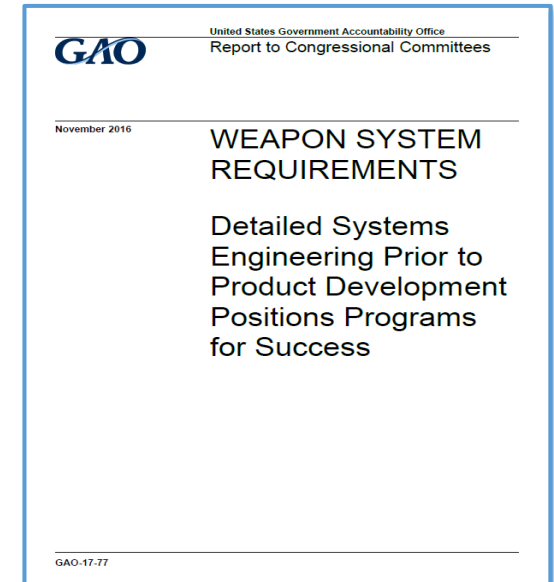
Capabilities:

- **Systems Engineering**
- **Modeling and Simulation**
- **Prototyping**
- **Testing**

Importance of Systems Engineering



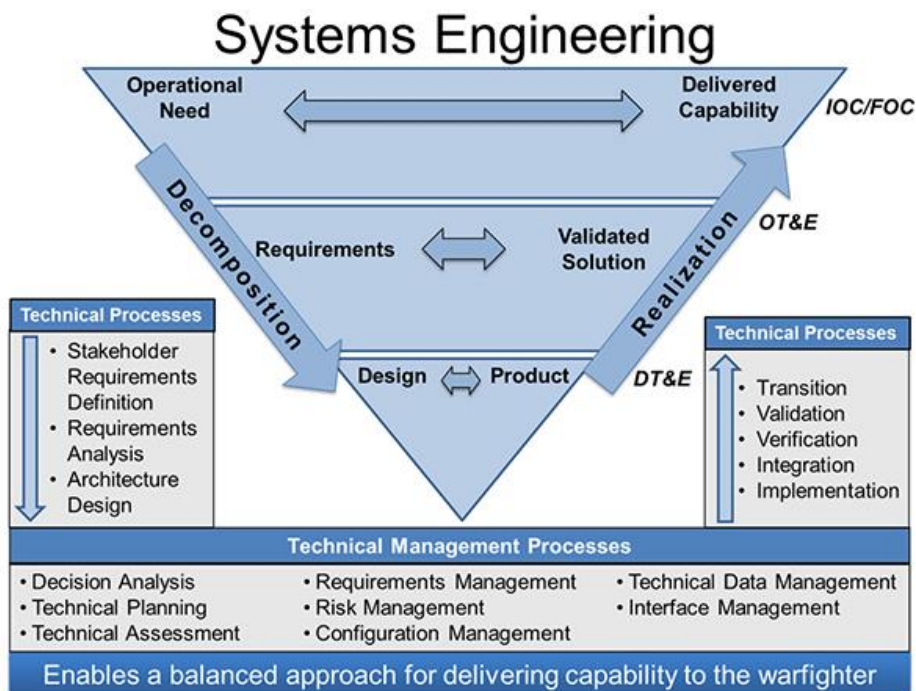
- **GAO, “Detailed Systems Engineering Prior to Product Development Positions Programs for Success”**
 - “...strong relationship between requirements, systems engineering, and program outcomes.”
 - “...invest in detailed systems engineering analysis to understand the design implications of requirements and reconcile them with the resources that can be reasonably expected.”



Systems Engineering Reduces Acquisition Risk and Positions Programs for Success

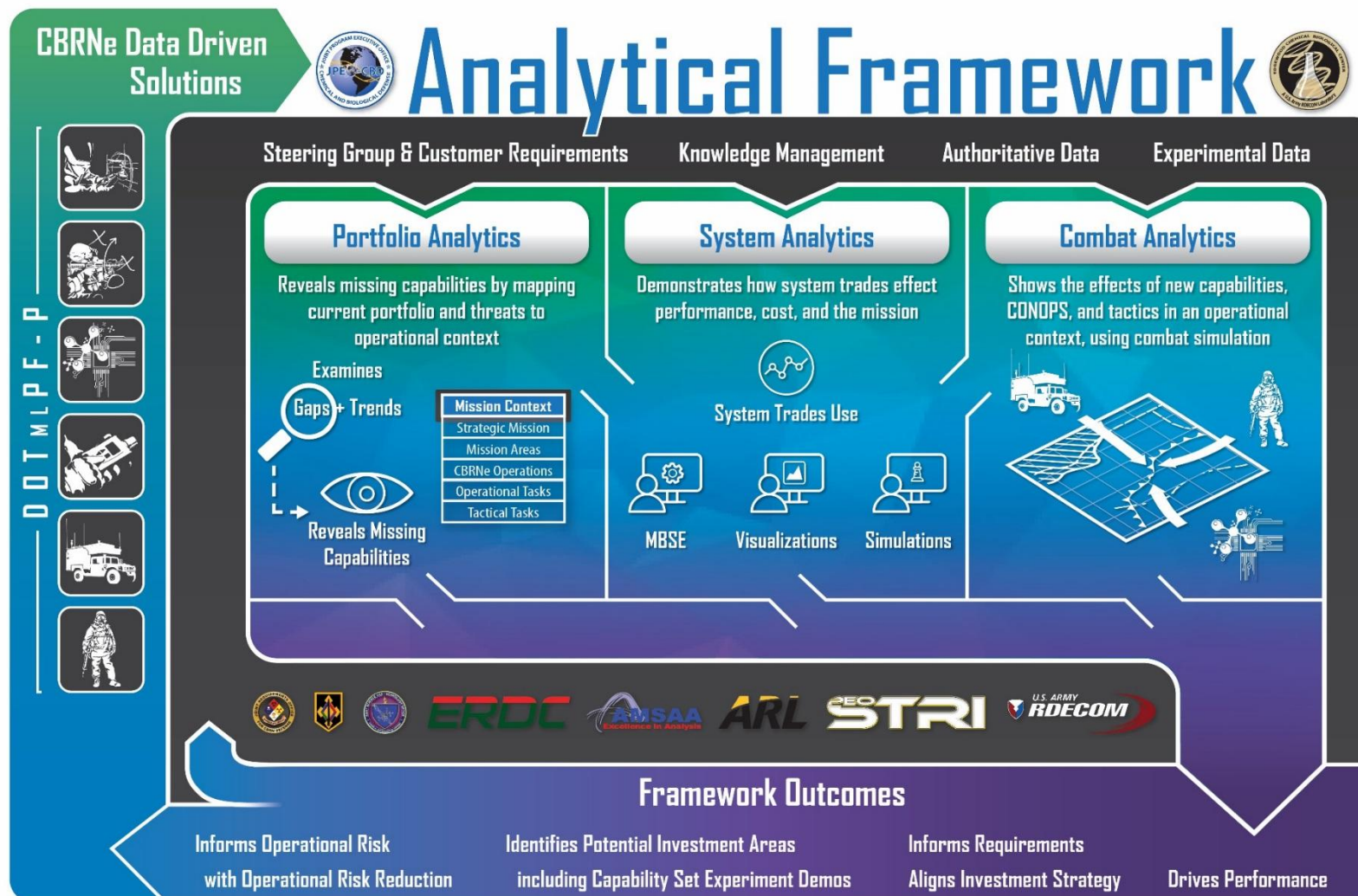
ECBC Systems Engineering Capabilities

- Configuration Management
- Design & Commodity Area Expertise
 - Protection, Detection, Decontamination
- Development and Production Engineering
- Early Warning, Robotics Integration
- Maintenance / Logistics Engineering
- Manufacturing readiness assessments
- Modeling and Simulation
- NET and fielding support
- Project management & engineering support
- Quality Engineering
- Rapid Prototyping
- Sustainment Engineering
- System & spare parts mfg/production
- Test and Evaluation



Commodity Specific Systems Engineering Expertise

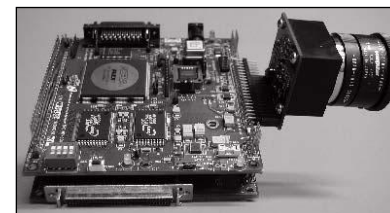
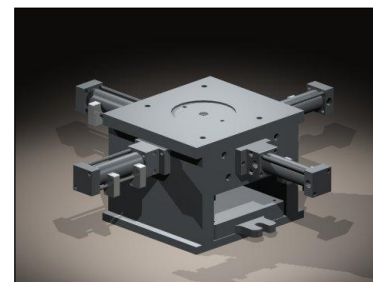
Analytical Framework – M&S



Early Synthetic Prototyping Reduces Acquisition Risk and Positions Programs for Success

Rapid Prototyping

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



Early Physical Prototyping Reduces Acquisition Risk and Positions Programs for Success

Testing at ECBC

- Liquid, aerosol, vapor and solids testing using chemical warfare agents (CWAs), novel threat compounds, and toxic industrial chemicals (TICs)
- Bio Testing
- Testing using various interferents and under controlled environmental conditions
- Permeation, penetration, filter, respirator and ensemble fit testing
- Bench to lab to field testing
- MIL-STD 810G and physical properties testing
- Large-scale agent and explosive chamber
- Large-scale simulant chamber
- High containment facility
- Field operations and mobile laboratories



Bench to Lab to Field Testing Utilizing State-of-the-Art Infrastructure and SMEs

- System Engineering Requirements Analysis and Technical Planning
- Initial Understanding of System Performance via Early Testing
 - Key Performance Parameters
 - Key System Attributes
- Requisite Data to Support Trade Studies and Decisions
- Informs:
 - Service operational requirements
 - Request for Proposal
 - Milestone Decision Review
 - Ability to Mitigate Capability Gaps
 - Reliability Estimates
 - Effectiveness and Suitability

Early Risk Reduction Test and Assessment Reduces Acquisition Risk and Facilitates Enterprise Discussions

Collaboration Mechanisms



- ***TECHNOLOGY SUPPORT AGREEMENT (TSA)***
 - Testing technologies and leveraging ECBC services, facilities and equipment
- ***COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA)***
 - Parties may exchange intellectual property, expertise and data. They may also hire personnel or rent services, material, equipment and facilities.
- ***PATENT LICENSE AGREEMENT (PLA)***
 - License ECBC patented intellectual property
- ***MEMORANDUM OF UNDERSTANDING (MOU)***
 - Used when the products or services offered by ECBC will depend upon the products and services provided by the other party(s)
- ***MEMORANDUM OF AGREEMENT (MOA)***
 - Used to define an understanding between ECBC and another party(s) which does not depend upon the products or services either party agrees to contribute.
- ***INTERAGENCY AGREEMENT (IAA)***
 - Provides recurring support to other Government organizations. It defines the support and reimbursement charges, if any, along with specific terms and conditions.



Questions?

Technology Transfer Office 410-436-4438

Communications Office 410-436-7118

www.ecbc.army.mil

