



Joint Program Executive Office for Chemical and Biological Defense

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**Joint USFK Portal and Integrated Threat Recognition (JUPITR) ATD
Overview Brief
ASEAN Regional Forum
August 26, 2014**

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Objectives and Outcomes

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Overall ATD Objectives

- Provide an integrated set of chemical and biological detection, identification, situational awareness, and decision support capabilities that supports the timely decisions to protect the force
- Provide information to support development of operational requirements
- Provide information to aid in transitioning technology to acquisition programs
- Provide information to refine Concepts of Operation

Expected Outcomes

- Information to support technology feasibility
- Integrated Chemical and Biological Defense Concepts of Operation



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Biological Identification Capability Sets (BICS) Leg

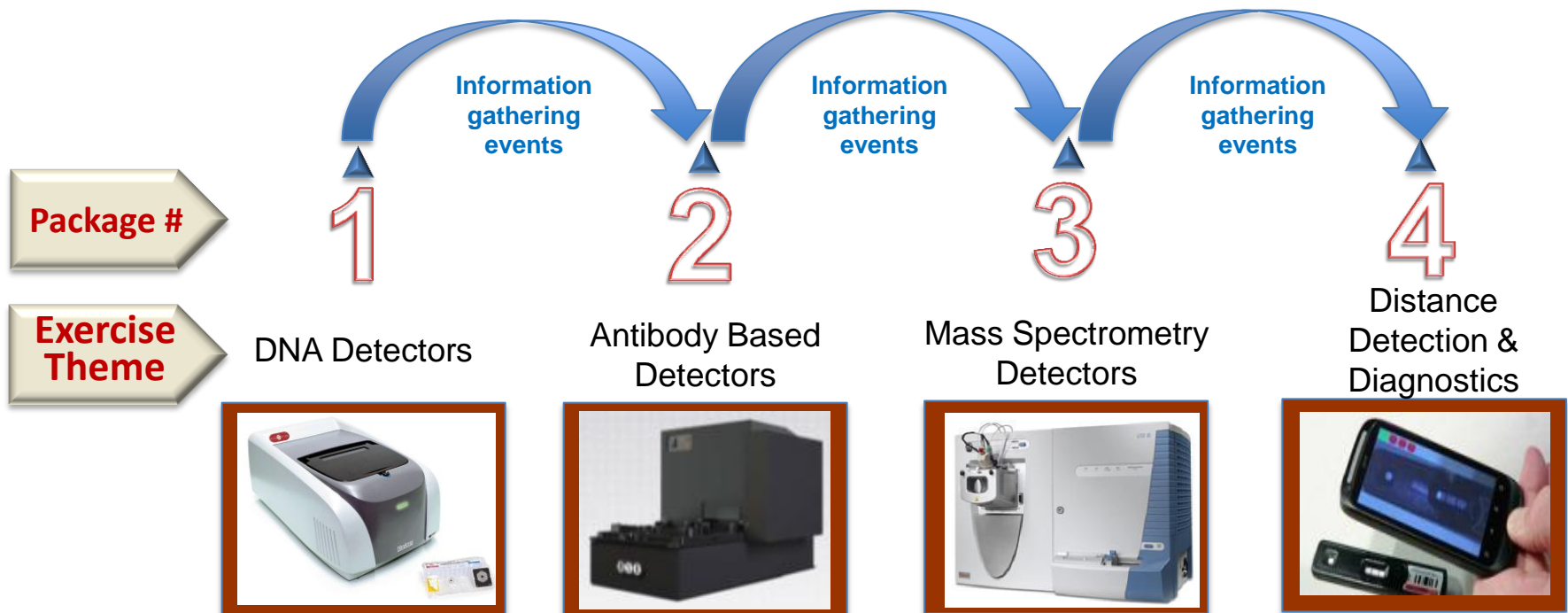
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UNCLASSIFIED Biological Identification Capability Sets (BICS) Strategy



- Technology is introduced into USFK as technology packages
- Exercises are staged in parallel with each package in which scientists work alongside personnel
- The ATD gathers feedback and develops new tactics with the goal of an interim residual capability





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Assessment of Environmental Detectors (AED) Leg

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AED Technologies



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Tactical Systems

TAC BIO



REBS



SRC Tactical



DFU



Baseline System

ATHINA



Fixed Site Systems

MBAND



NG ADS



JPS



Baseline System

JTR/FED



CBMS-X

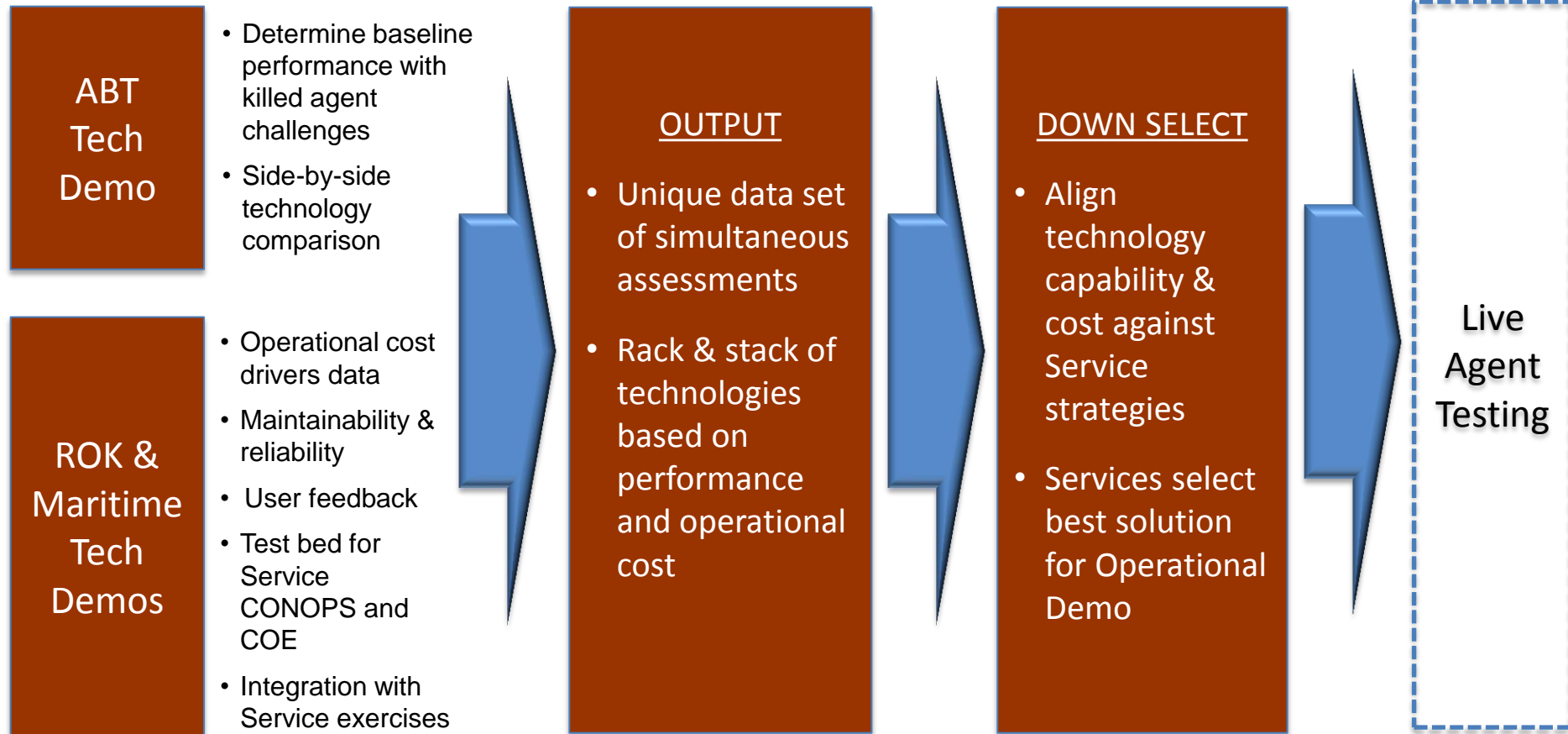




Assessment of Environmental Detection (AED) Strategy



- **Technology is assessed shoulder-to-shoulder**
- **The AED will gather User feedback and technology data to aid in refinement of tactics**





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**Biosurveillance Portal
(BSP) Leg**

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BSP Overview



- **Unclassified, web-based enterprise environment to facilitate collaboration, communication, and information sharing in support of the detection, management, and mitigation of man-made and naturally occurring biological events**
- **Provides a set of tools to facilitate the timely identification and detection of biological events in order to minimize operational impacts to US Forces**
- **Key Capabilities:**
 - Real time collaboration resources
 - Map-based situational awareness
 - Information fusion and decision support
 - » DoD and civil information sources
 - Sensor alert notification
 - ROK/US content translation
 - Medical Intelligence
 - SME reach back

Biosurveillance Portal Capabilities

An Integrated Biosurveillance Environment

Advanced Analytics

Authenticated Data Sources



Data Visualization

- Disease Activity
- Sensors
- Demographics
- Facilities

Analysis Tools

- Epidemiological Analysis
- Medical/Electronic Health Record
- Social Media Analysis
- Health Risk Management

Library

- CBRN/Public Health Reporting
- Disease Risk Assessments
- CBRN Knowledge Databases
- BSV Resources Directory

Collaboration

- Chat
- Directories
- Mass Notification
- Alerts

Focus Areas

- Emerging Disease Events
- Recurring Disease Events
- Crisis Events

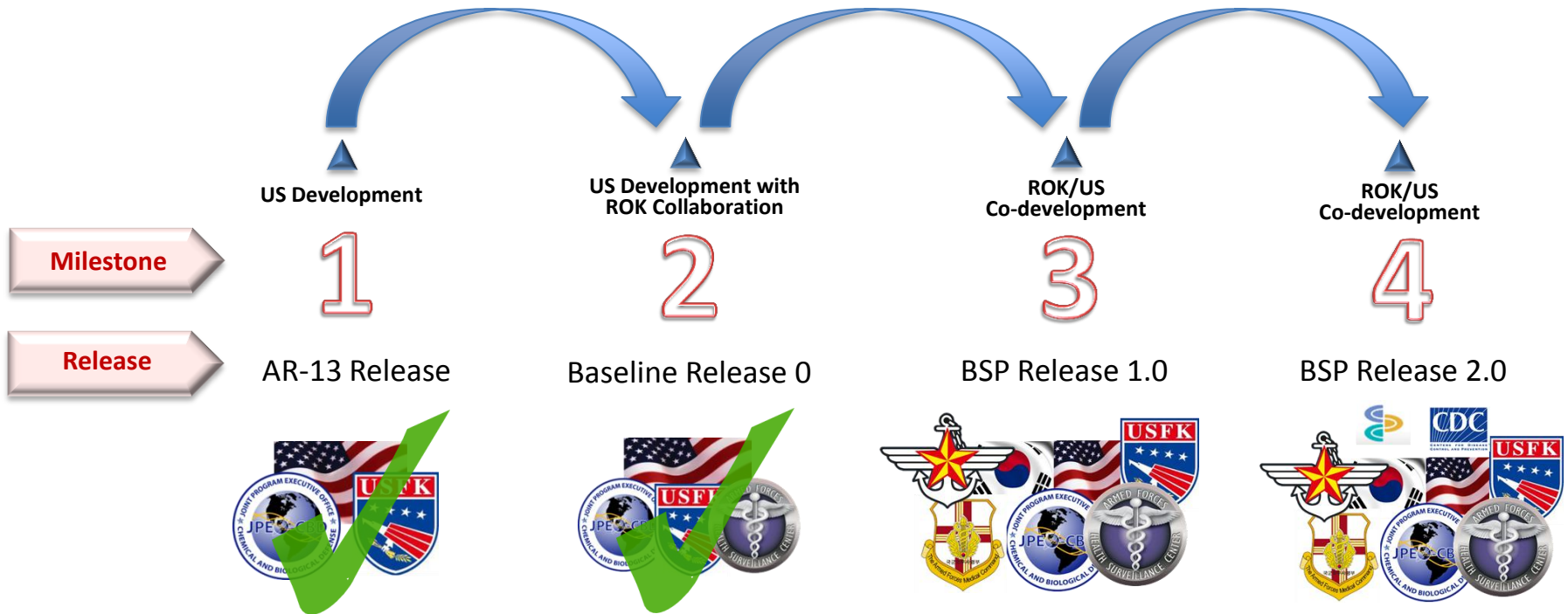
Modeling & Simulation

- CBRN Plume Modeling
- Predictive Models
- Event/Disease Forecasts
- Impact Projection Models

BSP Strategy



- Technology provided as software releases
- Co-development with host countries
- Capability deliveries made incrementally





Global Biosurveillance Technology Initiative

(GBTI)

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The GBTI is developing a globally-distributed, fully-integrated and networked, state-of-the-art analytical capability for biological threats that will enable the compression of the discovery-to-decision timeframe

- **Will provide pathogen analytical capability set to overseas laboratories**
- **Proposed technology solutions:**
 - Improvement of existing detection capabilities
 - Greater sensitivity for surveillance and lower cost
 - Pathogen identification for newly encountered diseases
- **18 Global laboratories *currently***



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GBTI Laboratory Network

(Greater Access/Faster Response)



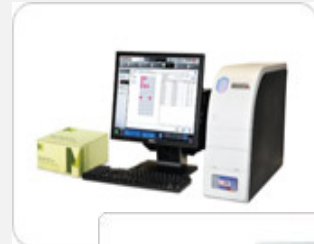
Interconnected Global Network Integrates Partners



Selected Materiel Solutions **JUPITR**

- **ABI 7500 Fast Diagnostics: Augmentation of existing identification capabilities**
 - CRP assays and existing analytical protocols
 - ABI 7500 common amongst most Defense Laboratory Network (DLN) labs
 - Contract awarded March 2014
 - Fielding began May 2014
- **Luminex MAGPIX: Advanced identifier for surveillance**
 - COTS high throughput, multiplexed, open architecture nucleic acid and immunoassay analytical system
 - 100s of existing COTS, GOTS, NDI assays able to be transitioned and produced by CRP
 - Contract awarded February 2014
 - Fielding began April 2014
- **Illumina MiSeq: Novel pathogen identification**
 - COTS genomic sequencer with COTS/GOTS software for targeted on-board sequence library
 - NMRC and DTRA reach back bioinformatics support
 - Illumina MiSeq genomic sequencer most common in DLN labs
 - Contract awarded February 2014
 - Fielding began May 2014

GBTI Capability Set



Screening/Sample Triage



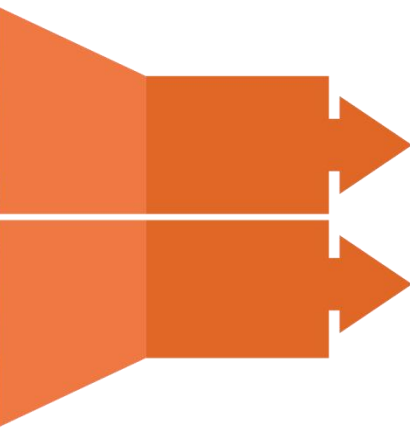
Characterization

Proposed GBTI CONOPS



Sample Collection

- Clinical and environmental
- Host nation and (potentially) deployed US forces



Sample Processing

- CONUS Research labs
 - USAMRIID, NMRC, USAPHC, USAFSAM, WRAIR, NHRC
- OCONUS Research labs
 - Service Labs (NAMRUs, USAMRUs)



Data Analysis and Reporting

- Endemic disease surveillance
- Novel/emerging pathogen identification



- Characterization of pathogens as naturally occurring or man-made
- Assessments of pathogen virulence, transmissibility, and drug/vaccine resistance
- Signature erosion analysis
- Microbial forensics

Force Health Protection

- Food and water safety
- Baseline disease activity in the AOR



Product Development

- New assays for existing JPEO-CBD programs
- New drugs and vaccines



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QUESTIONS?

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