



Science and Technology Conference for Chem-Bio Information Systems

**Joint Requirements Office for Chemical, Biological,
Radiological, and Nuclear Defense**

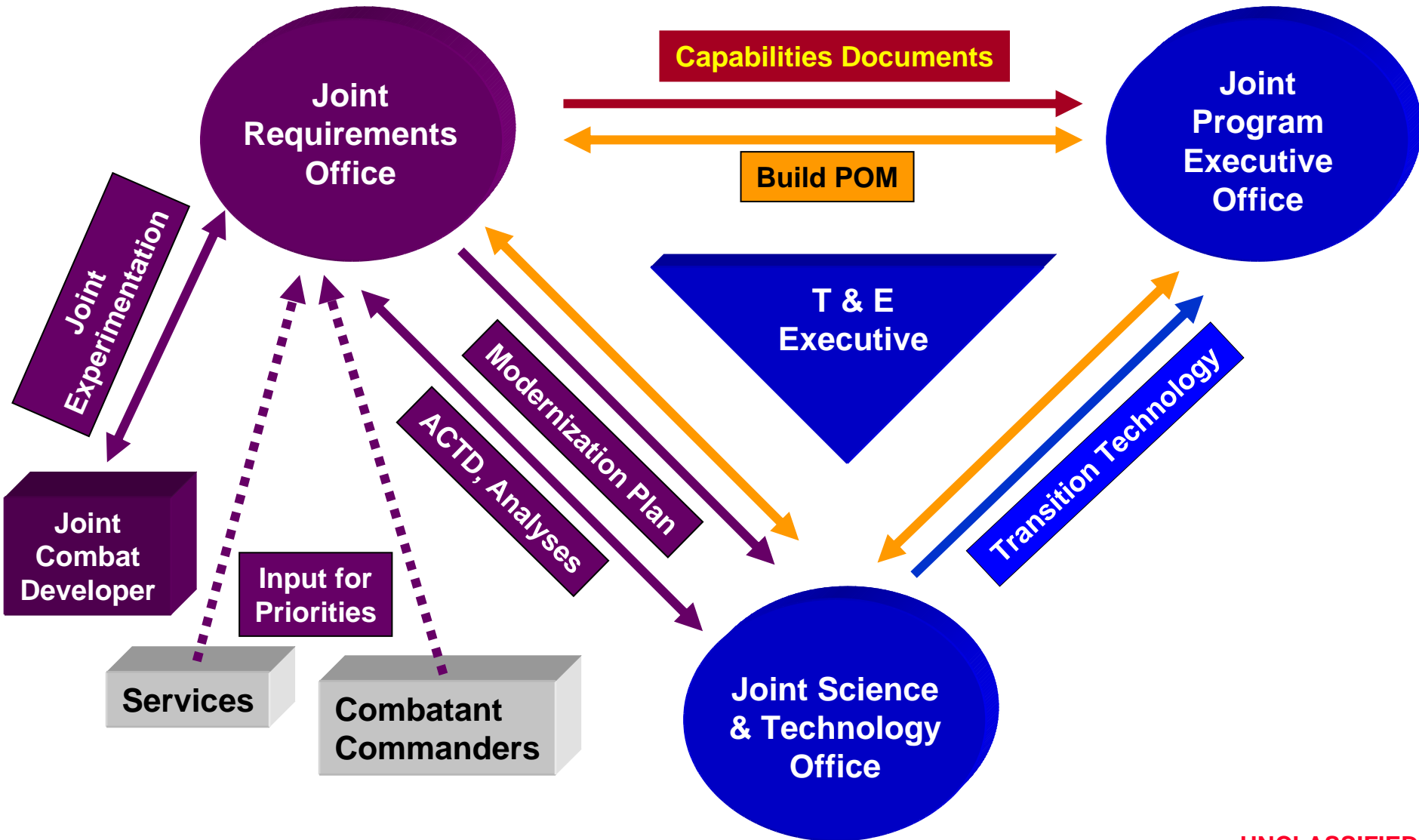
(JRO for CBRND)

24-28 October 2005

JRO – CBRN Defense Charter

- **Single office within DOD responsible for the planning, coordination, and oversight of joint CBRN defense operational requirements**
 - **Develop and maintain the CBRN Defense Integrating Concept and the CBRND Modernization Plan**
 - **Represent the Services and Combatant Commanders in the requirements generation process and act as their proponent for coordinating and integrating CBRND operational capabilities**
 - **Develop DOD CBD POM with acquisition community support**
 - **Facilitate the development of joint doctrine and training and sponsor the development of multi-service doctrine**
- **CJCS' single source of expertise to address all issues involving CBRND, within passive defense, consequence management, force protection, and homeland security**

Required Capabilities, S&T, and Acquisition

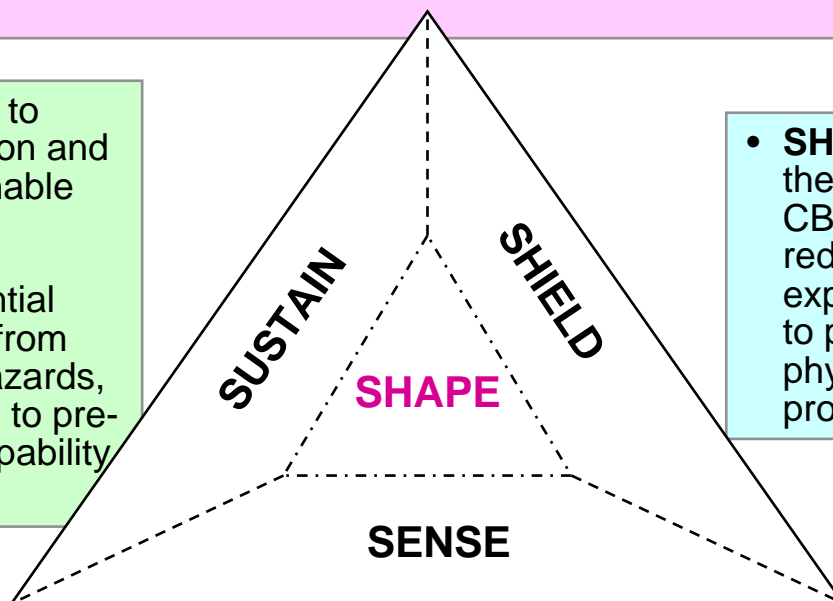


Joint CBRN Defense Functional Concept

- **SHAPE** – Provides the ability to characterize the CBRN hazard to the force commander - develop a clear understanding of the current and predicted CBRN situation; collect and assimilate info from sensors, intelligence, medical, etc., in near real time to inform personnel, provide actual and potential impacts of CBRN hazards; envision critical SENSE, SHIELD and SUSTAIN end states (preparation for operations); visualize the sequence of events that moves the force from its current state to those end states.

- **SUSTAIN** – The ability to conduct decontamination and medical actions that enable the quick restoration of combat power, maintain/recover essential functions that are free from the effects of CBRN hazards, and facilitate the return to pre-incident operational capability as soon as possible.

- **SHIELD** – The capability to shield the force from harm caused by CBRN hazards by preventing or reducing individual and collective exposures, applying prophylaxis to prevent or mitigate negative physiological effects, and protecting critical equipment



- **SENSE** – The capability to continually provide the information about the CBRN situation at a time and place by detecting, identifying, and quantifying CBRN hazards in air, water, on land, on personnel, equipment or facilities. This capability includes detecting, identifying, and quantifying those CBRN hazards in all physical states (solid, liquid, gas).

Executing the CBRND Concept

Protection Functional Concept

- Detect Hostile Efforts
- Predict Adversarial COAs
- Warn the Joint Force
- Prevent Adverse Effects
- Defend Against Adverse Effects
- Recover Without Critical Losses

CBRND Enabling Concept

- Sense the Hazard
- Shape the Battlespace
- Shield the Force
- Sustain the Force

Implementing the Concept

- Stand-off Detectors
- Point Detectors
- NBC Reconnaissance
- JWARN
- JEM/JOEF
- Command and Control Systems
- Protective suits and masks
- Medical pretreatments
- Collective protection
- Decon systems
- Medical diagnosis
- Medical post-treatments

Overall Objective: Fully integrated CBRN Defense capabilities that enable the Joint Force to minimize risk to personnel

SHAPE Capability Gaps

Findings from 2003 CBRND Baseline Capability Assessment (BCA):

- Limited common database to facilitate advanced development due to lack of funding applied in SHAPE S&T and developmental programs
- Lack of sustained development for advanced CBRN modeling and simulation to support all requirements

Integrated Early Warning

- Limited ability to provide selective alarming
- Limited sensor interface
- Limited interoperability restricts improved output generation

Battlespace Management

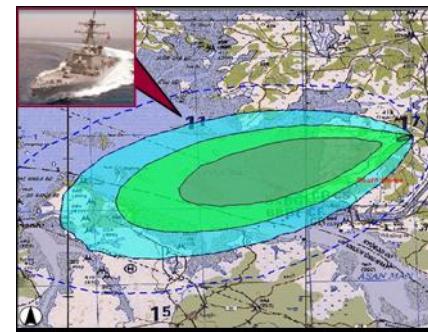
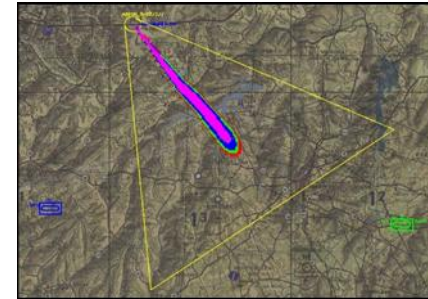
- Lack of automated planning tools and decision aids
- Limited interface with COP

Battlespace Analysis

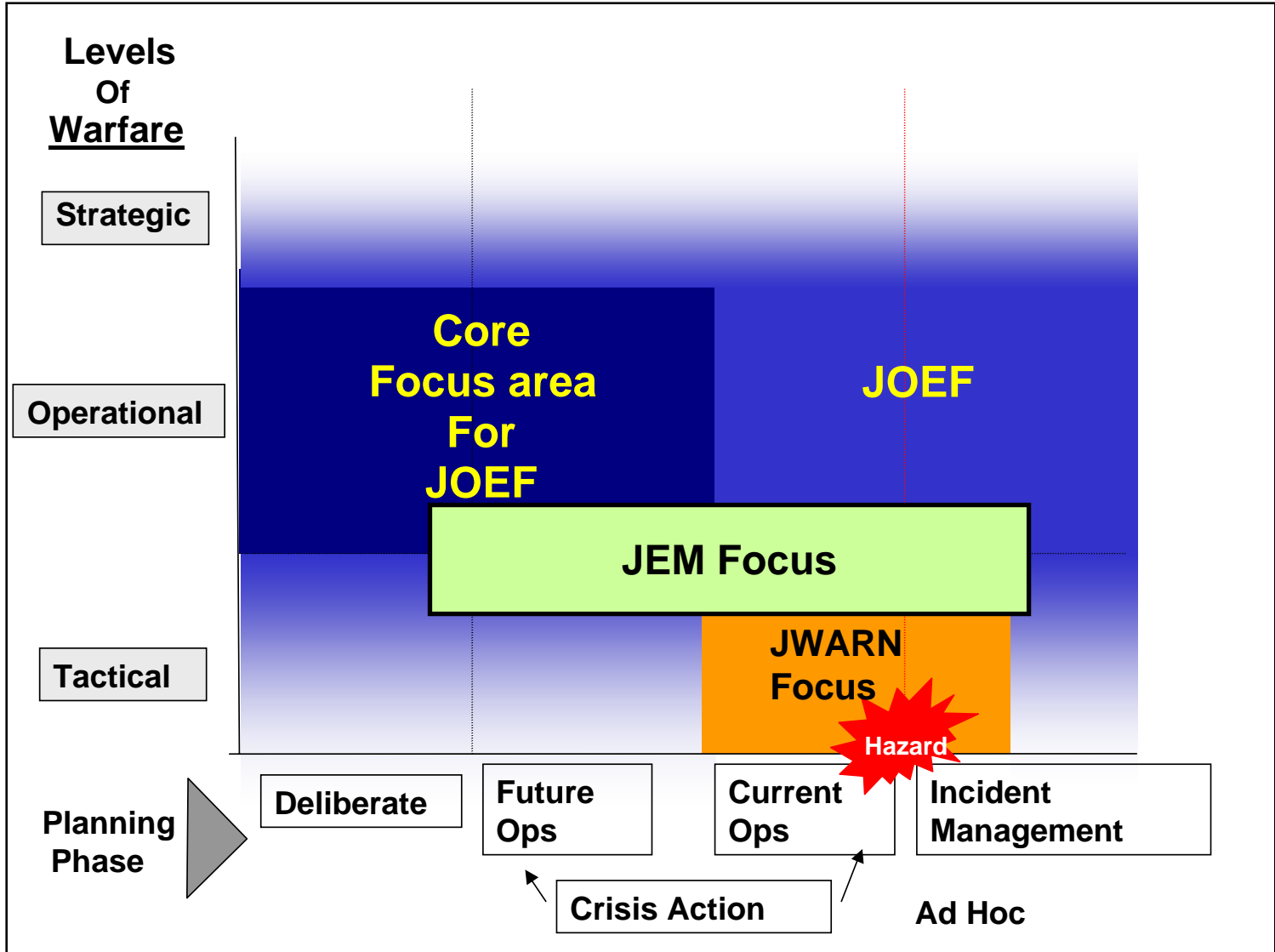
- Limited algorithms to accurately predict and assess hazard
- Limited compatibility of current developmental system
- Lack of integrated medical and non-medical analysis capability

CBIS FoS Synchronization

- JWARN will provide basic early warning hazard prediction and reporting capability
- Joint Effects Model (JEM) will provide enhanced situational awareness of the battlespace, with real-time hazard information to influence current operations and minimize affect to OPTEMPO
- Joint Operational Effects Federation (JOEF) will provide vulnerability assessments and Course of Action recommendations (considering CBRN effects), estimate Logistical requirements (including medical), and will deliver OPLAN CBRN annexes and staff estimates (Deliberate Planning)



JOEF, JWARN and JEM Applications

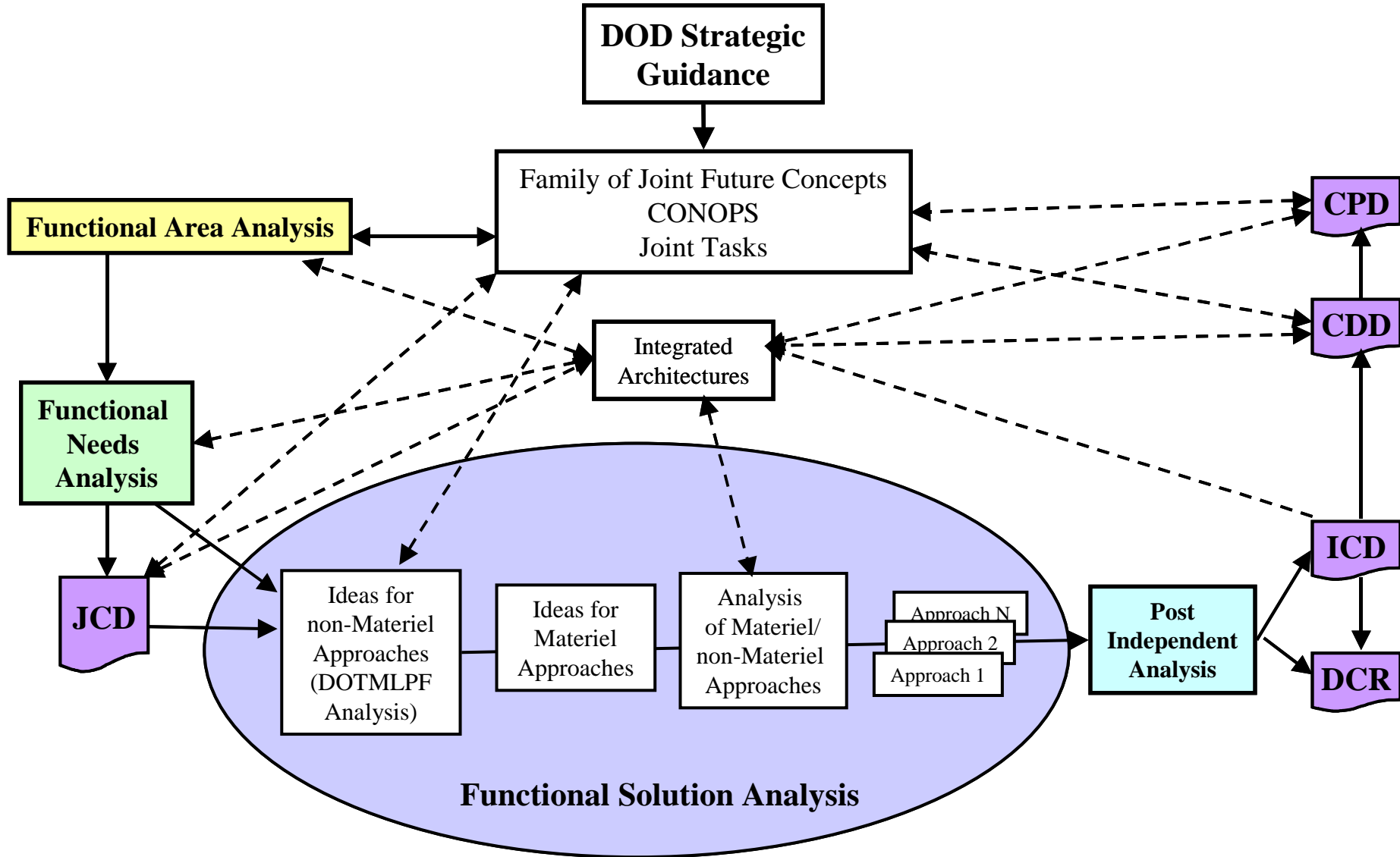


Looking Beyond JWARN, JEM, and JOEF

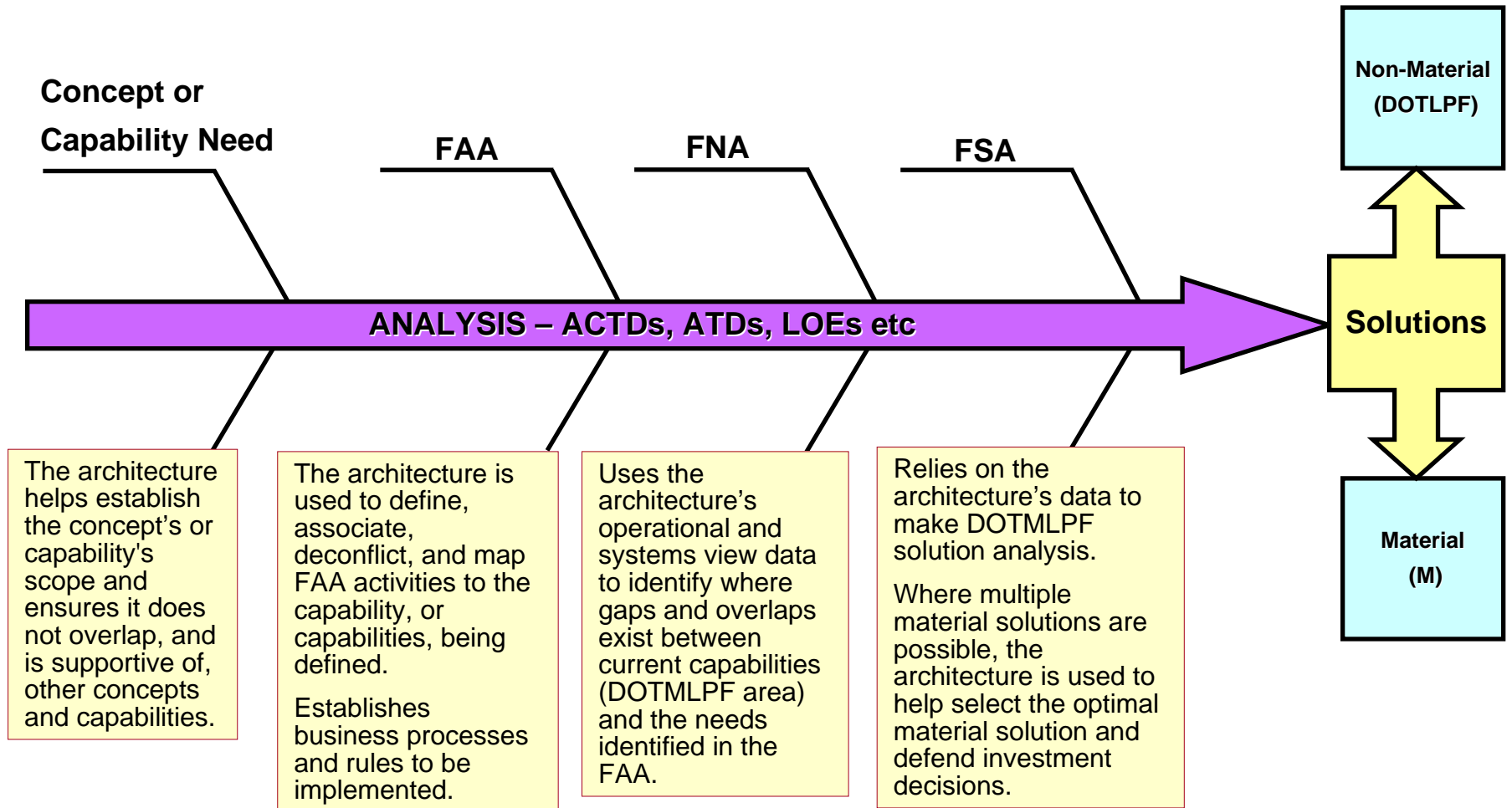


- **Joint Capability Integration and Development System**
- **Supporting Analyses**
- **Gap Identification**

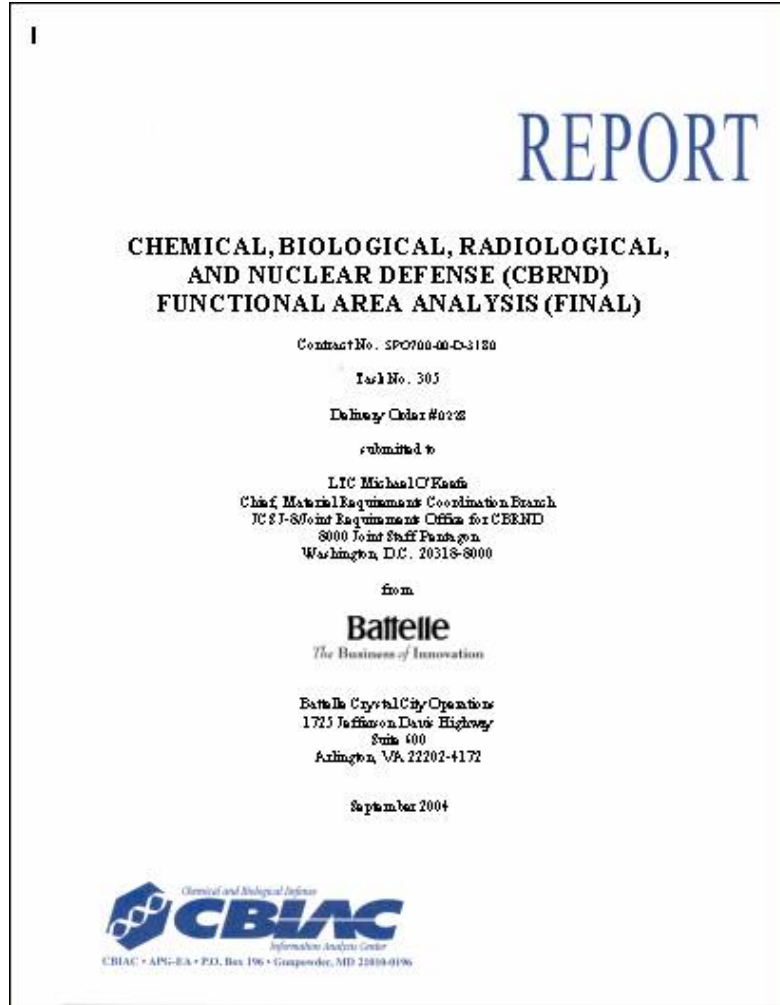
(Joint Capabilities Integration and Development System)



Using Architecture to Support JCIDS



FNA/FSA developed from the CBRND FAA



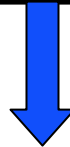
244 CBRND Tasks

- Focused on Passive Defense
- Task Definitions
- Measures of Effectiveness
- Conditions

CBRND FAA Task Structure

Number of Tasks Identified By CBRND Operational “S” Areas and Levels

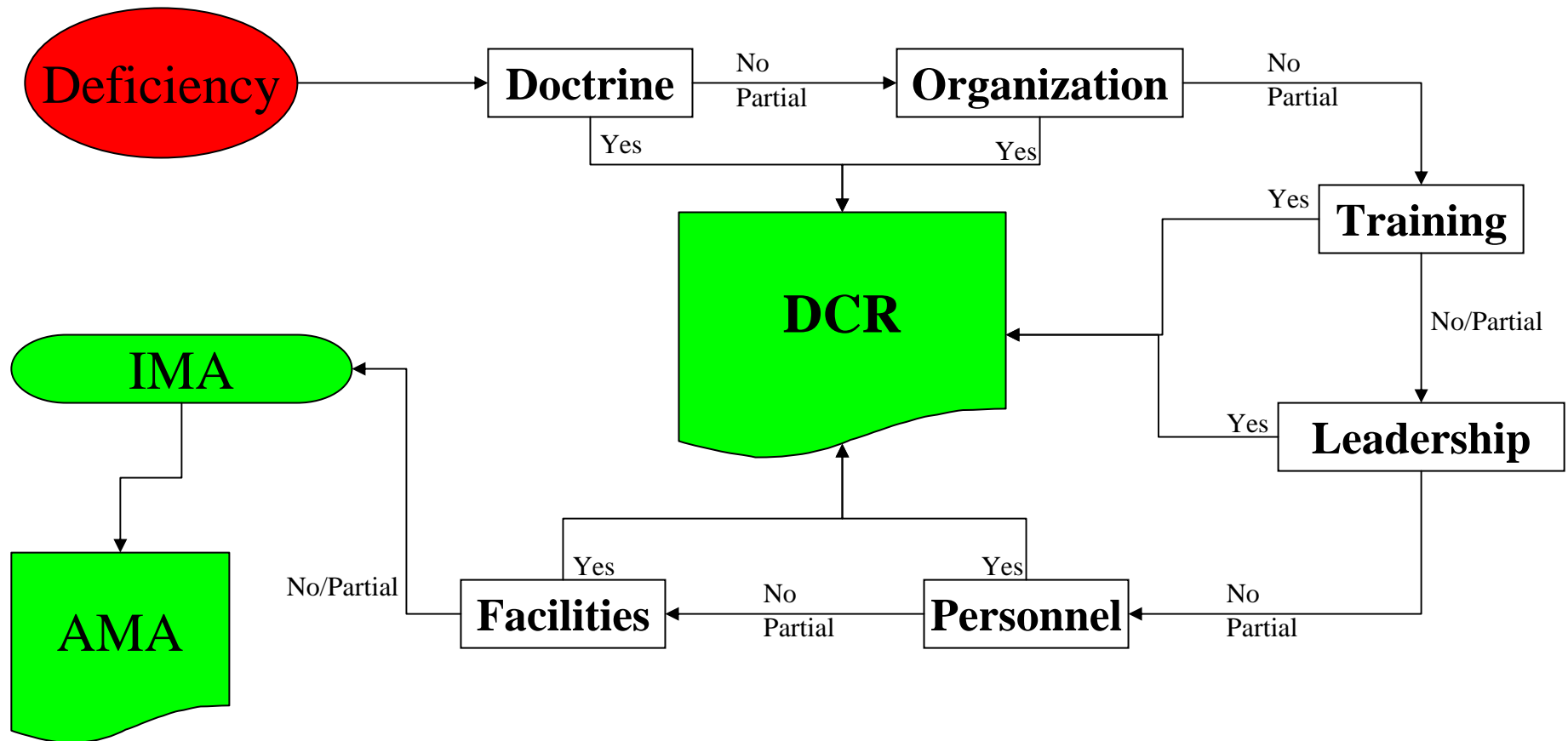
	Sense	Shape	Shield	Sustain
National (SN)	17	14	12	12
Theater (ST)	9	11	11	14
Operational(OP)	10	12	14	14
Tactical (TA)	17	32	14	31



Total of 69 Tasks (from FAA) assessed for Shape

DOTLPF Recommendations

Once a Capability Gap is exposed, the primary means to address that is gap is through the DOTLPF analysis.

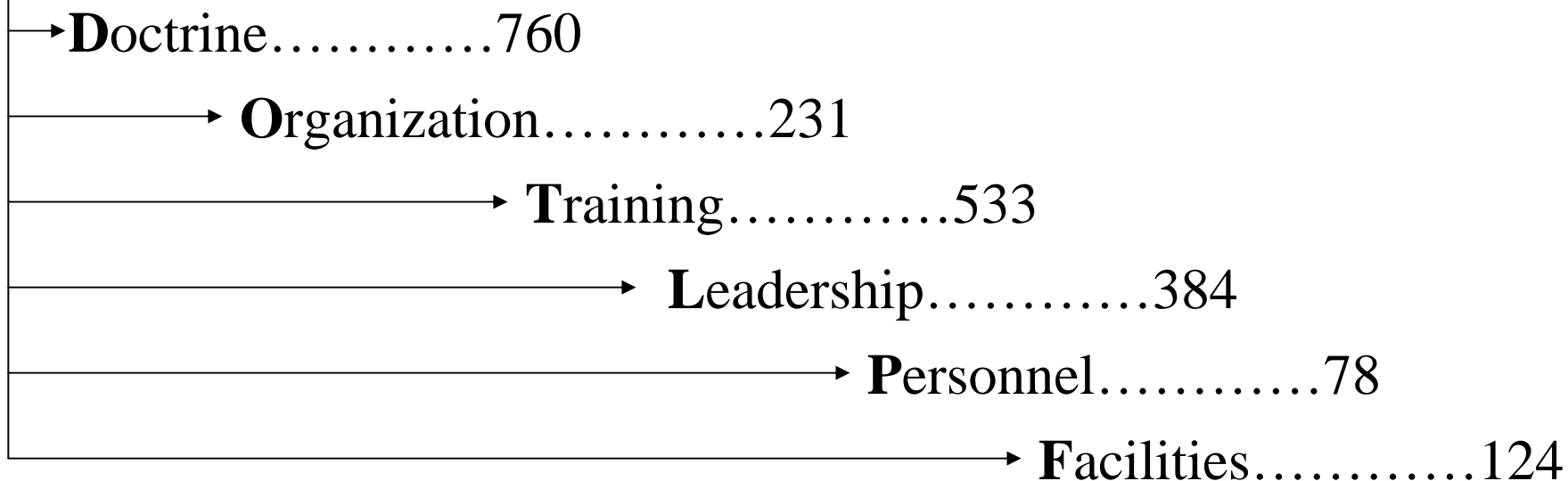


Summary of Gaps and Recommended Solutions

1525 DOTLRF based Deficiencies



2110 Recommendations



SN SHAPE Gaps

- **Expertise/ training/ education of CBRN personnel within DOD**
- **Detection policies dependent upon global system linkages**
- **Addressing issues above the operational level of war**

- **JTTPs and tools to evaluate and assess CBRND staffs, capabilities, systems, and concepts are limited**
- **Vulnerability assessment tools conducted manually on a region-by-region basis are limited**
- **Deficiency in coordination of CBRN information networks.**

OP SHAPE Gaps

- **Intelligence data and products that ensure a robust CBRN IPB are limited.**
- **CBRND logistics complex and constrained**
- **Planning for CBRN Active Defense, Interdiction, and Elimination is limited**
- **Deficiency in coordination of CBRN information networks**

- **Current CBRN/TIM release, reporting, analyzing, and warning TTPs and material solutions do not have adequate response times and do not provide high resolution information.**
- **Current doctrine and training includes the tools necessary to conduct CBRN – related IPB and manage CBRN aspects of the battlespace. However, current tools and TTPs limit full capability**

- **Complete integration of information, regardless of source**
- **Embedded information management capabilities**
- **Embedded sensors**
- **“Plug and Play” capabilities**

Is there a CBRN IPOD waiting to change the way we do business?



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