"Creating Capability Surprise for Irregular Warfare"

Joint Capability Area Track II:
Force Application
Force Support
Logistics
Protection

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TECHNOLOGIES
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NDIA
National Defense Industrial Association

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Director, Defense Research & Engineering Imperatives

Accelerate delivery of technical capabilities to win the current fight.

– Solve the most difficult near term problems and transition compelling concepts to the warfighter.

Prepare for an uncertain future.

– Shape the Department's science and technology investments to open options that counter (and create) strategic surprise.

Reduce the cost, acquisition time and risk of our major defense acquisition programs.

– Provide systems engineering leadership, deep system analysis and technical assessments across the Department.

Develop world class science, technology, engineering, and mathematics capabilities for the DoD and the Nation.
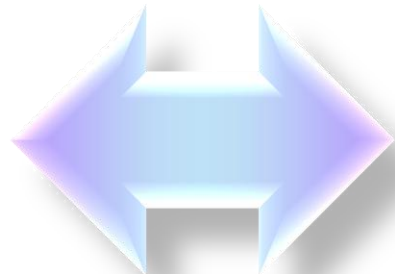
Diversified Force Generation Roles, Diversified Force Employment Needs
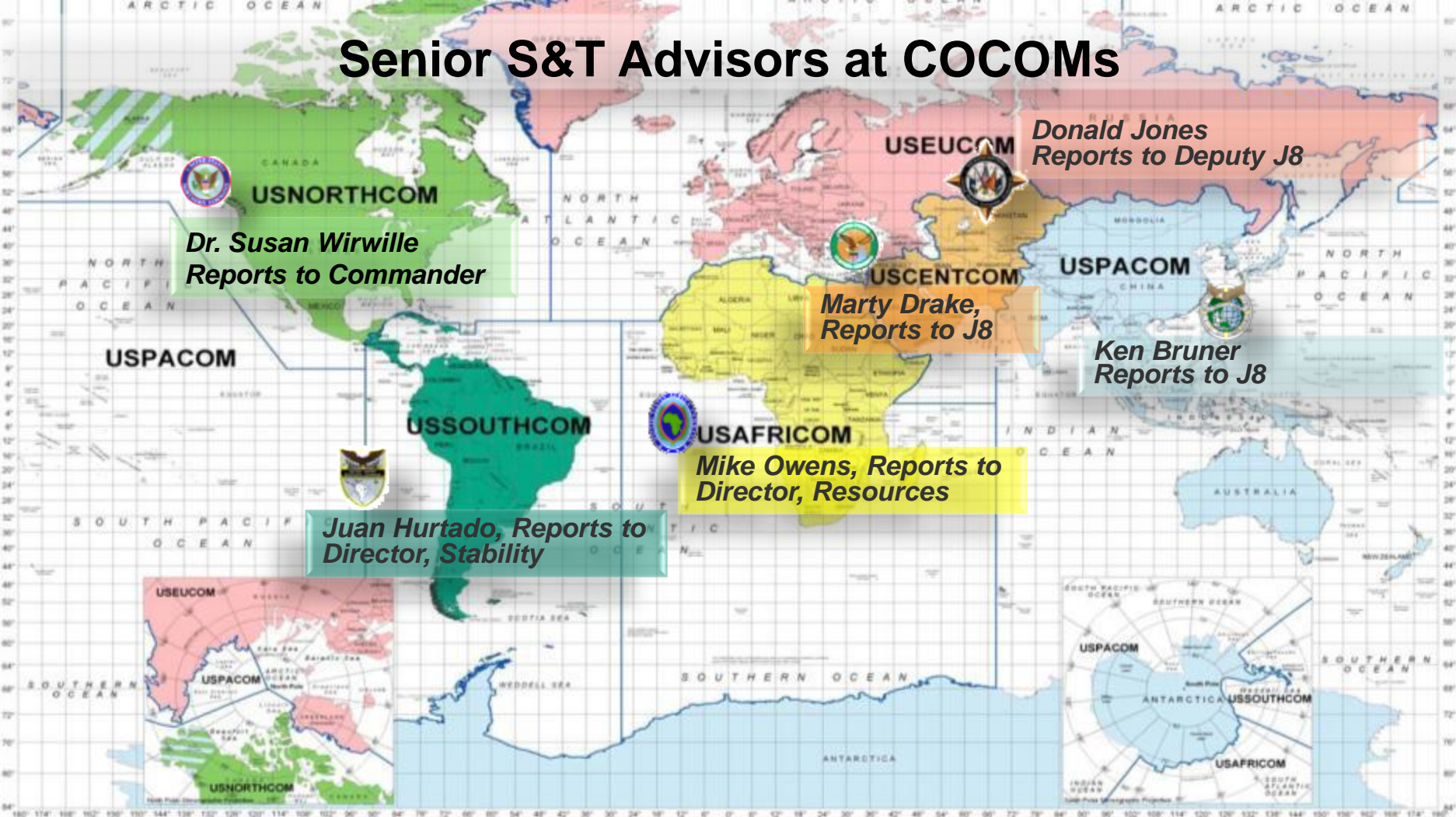
Organize, Train & Equip   **Operationally Employ**

…and increasingly, complex operational partners: NGB, inter-agency, coalition, NGO

Combatant Commander Science &Technology Staff:
Diversified Roles, Diversified Needs

Variety of roles/titles

– Science &Techology (S&T) Advisor
– Research, Development, Test & Evaluation (RDT&E) Programs Liaison
– Concept Development Lead
– Capability Development Lead

Variety of organizational structures

– Reporting to Deputy Commander, Chief of Staff, J8/Resources, J9/Experimentation
– Single/multiple science advisors on HQ staff

Variety of resource support

– Executive agency Service / parent service support
– Experimentation support
– Working capital fund support
– Rapid reaction acquisition programs support
– Operational needs processes

Senior S&T Advisors at COCOMs

Donald Jones
Reports to Deputy J8

Dr. Susan Wirwille
Reports to Commander

Marty Drake,
Reports to J8

Ken Bruner
Reports to J8

Mike Owens, Reports to
Director, Resources

Juan Hurtado, Reports to
Director, Stability

USNORTHCOM
USEUCOM
USCENTCOM
USPACOM
USSOUTHCOM
USAFRICOM

Functional Commands

USSTRATCOM
None – additional duty Dave Tyner,
Reports to J8

USTRANSCOM
Lou Bernstein, Reports to J5/4

USSOCOM
William Shepherd, Reports to Commander

USJFCOM
Dan Judy, Reports to Chief of Staff

Aligning the Domains:
Defense Engine for Capabilities

All three domains must be aligned & engaged to deliver capabilities

Military Needs Validation & Operations

Acquisition: Technology, Procurement, Logistics

Resources: Plans, Programs, Budgeting
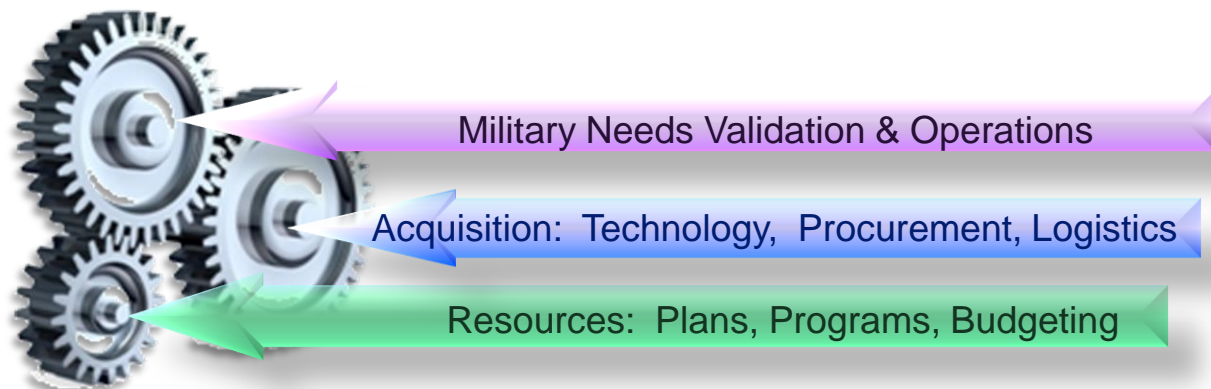
The challenge for Combatant Commanders:

- They exist in the authority domain of Military Needs & Operations
    - Joint force needs are predominantly expressed through CJCS
    - Only US Special Operations Command has force development acquisition authorities
- They rely on Services for preponderance of force capabilities
    - "Force Integration" / "Force Provider" services performed by USJFCOM
    - USJFCOM translates joint force needs into force fill requirements for Services
- They rely on Services for HQ resources through legacy Executive Agency provisions
- They have limited manpower to participate in needs, acquisition & funding processes

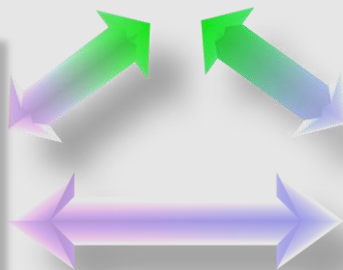# Needs to Solutions: Processes & Roles

PPBES:Program – Budget Process

Needs Process

1. Develop & specify needs

2. Review & comment on budget-based programming and acquisition solutions

3. Allocate resources to joint/combatant commanders

Needs Roles

CJCS/JCS

CoComs – Including USJFCOM

Joint Staff

Military Staffs

CoCom/Component Cdr Staffs

Acquisition Solutions Process

1. Consult with needs authorities in development of acqusition solutions

2. Acquire material solutions based on validated needs and budget-based programming

3. Deliver resources (acquisition products) for allocation to joint/combatant commanders

Solution Roles

USD (AT&L)/DAE

Service Secretaries/SAEs

OSD (AT&L) Staff

Service Secretariat Staffs

Systems/Materiel Commands

Military Agencies

USSOCOM [special authorities]

National, Security, and Military Policies Framework

Joint Capability Development Strategy: Framing Remedies

Identifying Military Requirements

Analyze capability gaps
- Lessons Learned / Warfighting Analyses

Characterize improvements: What is really required?
- Experiment…what DOTMLPF elements are needed?

Define in actionable terms
- Specify DOTMLPF elements or options

Understand DoD roles

Respect & leverage authorities

Needs ⇨ Requirements ⇨ Solutions

Framing the Solution Set

Headquarters enhancement
- Engage Executive Agency (military Service)?

Specific Component Force Development
- Specify Service partnership / component roles

Joint Force Capability Gap
- Pursue Functional CoCom partnerships

Developing Specific Strategies

Use diversity of tools

Employ gapfillers

Remain flexible

Address key gap-closing capability segments
Forge partnerships with strategy development
- Key element of resourcing & transition

Stipulate timeline and phasing of deliverables
- Cite operational imperative for timelines

Joint Capability Areas

Joint Capability Areas

Comprised of functional portfolios to focus management and resource attention upon a desired capability-based vice threat-based envisioned and synchronized military force development and planning enterprise;

Encompass capability needs definition, gap and excess analysis, major trade analyses, and capabilities planning, i.e. the DoD military capability divided into manageable functional entities; and

Provide a framework to enable a capabilities-based US military enterprise to focus on emerging technological opportunities that certain capabilities such as long-range precision strike, transformed maneuver and expeditionary forces; and systems to overcome anti-access and area-denial threats.

Office of the Secretary of Defense

Acquisition, Technology & Logistics

Defense Research & Engineering

Technology in Demand
by
Joint Warfighters

US Central Command
Environment & Technologies

USCENTCOM Mission

With national and international partners, U.S. Central Command
- Promotes cooperation among nations,
- Responds to crises, and
- Deters or defeats state and nonstate aggression, and supports development and, when necessary, reconstruction in order to establish the conditions for regional security, stability, and prosperity.

Countermeasures for Improvised Explosives, Wide-Area Network Solutions, Information Collaboration with Coalition/Partner Nations & Agencies, Surveillance, Improved Energy Efficiencies, Partner Nation Security/Stability, Language Translation

US Special Operations Command Environment & Technologies

USSOCOM Mission
- Provide fully capable Special Operations Forces to defend the United States and its interests.
- Synchronize planning of global operations against terrorist networks

USSOCOM Priorities
- *Deter, Disrupt & Defeat Terrorist Threats*
- *Develop & Support our People & Families*
- *Sustain & Modernize the Force*

Forward Areas Technology Support, Networked Capabilities, Partner Nation Security Training Tools, Surveillance, Special Operations Enhancement of Conventional Force Capabilities

US Northern Command
Environment & Technologies

USNORTHCOM Mission

USNORTHCOM anticipates and conducts Homeland Defense and Civil Support operations within the assigned area of responsibility to defend, protect, and secure the United States and its interests.

NORAD Mission

In close collaboration with homeland defense, security, and law enforcement partners, prevent air attacks against North America, safeguard the sovereign airspaces of the United States and Canada by responding to unknown, unwanted, and unauthorized air activity approaching and operating within these airspaces, and provide aerospace and maritime warning for North America.

Missile/Air Defense, Information Collaboration with Partner Nations & Agencies, Network Capacity, Border/Seaward Approaches/Air Space Monitoring, CBRNE Response

USSOUTHCOM Mission

- Shape the environment within its area of responsibility by conducting theater engagement and counter drug activities in order to promote democracy, stability and collective approaches to threats to regional security;
- When required respond unilaterally or multilaterally to crises that threaten regional stability or national interests, and prepares to meet future hemispheric challenges.

Information Collaboration with Partner Nations & Agencies, Surveillance, Humanitarian Assistance and Disaster Response, Intra-Theater Airlift, Regional Airspace Integration

US Pacific Command
Environment & Technologies

USPACOM Mission

- Protects and defend, in concert with other U.S. Government agencies, the territory of the United States, its people, and its interests;
- With allies and partners, U.S. Pacific Command is committed to enhancing stability in the Asia-Pacific region by promoting security cooperation, encouraging peaceful development, responding to contingencies, deterring aggression, and, when necessary, fighting to win.

USPACOM IMPERATIVES
- **Military Superiority**
- **Multilateral Approach to Security**
- **Freedom of Movement and Secure Access**
- **Whole-of-Government Approach**

Wide-Area Network Solutions, Sensors, Naval Forces, Long-Range & Heavy Lift Transportation, Missile/Air Defense, Security Collaboration with Partner Nations

US European Command
Environment & Technologies

USEUCOM Mission
- Conduct military operations;
- Develops and strengthen security and interagency relationships;
- Supports NATO; and
- Builds partner capacity to enhance transatlantic security and defend the homeland forward.

USEUCOM Vision
An agile security organization with a "whole of government" approach seeking to support enduring stability and peace in Europe and Eurasia.

Long-Range & Heavy Lift Transportation, *Information Collaboration with Partner Nations & Agencies, Coalition/Partner Nation Security Cooperation/Interoperability*

US Africa Command
Environment & Technologies

United States Africa Command Mission

In concert with other U.S. Government agencies and international partners, conduct sustained security engagement through military-to-military programs, military-sponsored activities, and other military operations as directed to promote a stable and secure African environment in support of U.S. foreign policy.

"Working with our African partners is not only our highest priority; it is our only priority"

Building Partnership Capacity, Intra-Theater Mobility, Surveillance, Social-Cultural Understanding/Translation

USSTRATCOM Missions:
- To deter attacks on US vital interest,
- to ensure US freedom of action in space and cyberspace,
- to deliver integrated kinetic and non-kinetic effects to include nuclear and information operations in support of US Joint Force Commander operations,
- to synchronize global missile defense plans and operations,
- to synchronize regional combating of weapons of mass destruction plans,
- to provide integrated surveillance and reconnaissance allocation recommendations to the Secretary of Defense, and,
- to advocate for capabilities as assigned

Cyberspace Enabling Tools, Strategic Force Maintenance, Networking Enhancements, Space Monitoring and Asset Employment

US Transportation Command Environment & Technologies

USTRANSCOM Mission
- Develop and direct the Joint Deployment and Distribution Enterprise to globally project strategic national security capabilities;
- Accurately sense the operating environment;
- Provide end-to-end distribution process visibility; and responsive support of joint, U.S. government and Secretary of Defense-approved multinational and non-governmental logistical requirements.

Transportation Asset Protection, Airlift/Sealift Capabilities Sustainment, Intra-Theater Airlift Options, Transportation Worldwide Command & Control

US Joint Forces Command Environment & Technologies

USJFCOM Main Missions

- **Joint Concept Development and Experimentation -** Develop new concepts and test them through experimentation and, in collaboration with other combatant commands, services and agencies, recommend solutions to better integrate their warfighting capabilities.
- **Joint Training** – As DoD's joint force trainer, USJFCOM prepares joint task force commanders and staffs to execute their missions in a joint environment
- **Joint Capabilities Development** – Work closely with combatant commanders, the services and other government agencies to identify and resolve joint warfighting interoperability deficiencies.
- **Joint Force Provider** – Help national decision makers make informed choices on supporting operations, assists military commanders to identify potential readiness problems and develop appropriate strategies and maintain the nation's forces at the highest possible level of readiness.

USJFCOM Goals
- **Make Irregular Warfare A Core Competency**
- **Design Integrated, Properly Structured Command and Control**
- **Improve as Joint Force Provider**
- **Accelerate Efforts toward a Whole of Government Approach**

Modeling & Simulation, Training Enhancements, Command & Control Interoperability, Tactical Networks Integration, Data Standards and Information Technology Integration, Joint Force Deployment Planning and Execution Tools

Development Model for Technology Solutions

Maturity

of

Operational Concept

and

Technology

more

Fast Track Options for Critical Capabilities

less

Transition to Procurement & Sustainment

- Joint Training

Readiness & Suitability Confirmation

- Test & Evaluation
- Military assessment of utility

Functional Validation; Tailored Form/Fit/Function

- DOTMLPF construct development and confirmation
- Demonstration

Technical Concept Design & Development

- Prototyping

Alternatives Development & Assessment

- Experimentation
- Red Teaming Analysis

Conceptualization

- Needs identification/lessons learned/assessment
- Tech push exploitation

Adapting Technologies to Defense

User Needs

Acquisition/Technology Development Processes

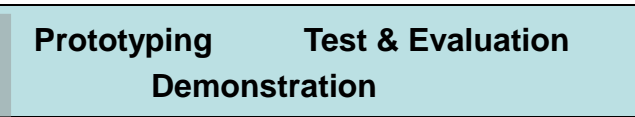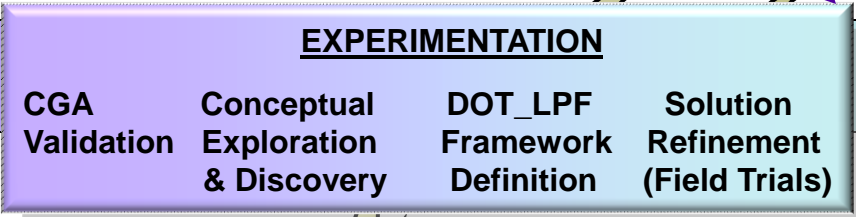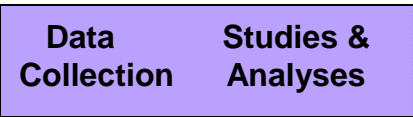| Strategic Guidance	Joint Concepts	Capabilities - Based Assessment	ICD	MDD	Materiel Solution Analysis	Technology Development	CDD	Engineering & Manuf Development	CPD	Production & Deployment	O&S

A   B   C

OSD/JCS *COCOM*

FCB

hypothesis formulation, rigorous analytical assessment

Materiel Solutions

Data Collection	Studies & Analyses	**EXPERIMENTATION**	Prototyping	Test & Evaluation

EXPERIMENTATION

CGA Validation | Conceptual Exploration & Discovery | DOT_LPF Framework Definition | Solution Refinement (Field Trials)

Prototyping   Test & Evaluation
Demonstration

JCOA, JWAC, JAWP, et al

TTI, JCTDs, JT&E, CWID, CWP, et al

RRTO

- Influence of policy, e.g. Guidance for Force Development
- Developmental doctrine; Tactics, Training & Procedures
- Innovative employment of existing capabilities