

***Deputy Under Secretary
of Defense***

***Advanced Systems &
Concepts***

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***US Transportation
Command
JCTD Conference***

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***JCTDs & The Advanced
Systems & Concepts
Portfolio
of Opportunities***

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OSD/AT&L/DDR&E/AS&C

UNCLASSIFIED



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ADUSD(AS&C)

Director, JCTD Program

21 August 2008

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OSD/AT&L/DDR&E/AS&C Mission

OSD/Advanced Systems & Concepts



- **Find, Integrate, Demonstrate, and Transition** operational concepts and technologies for **Joint & Coalition Warfare Needs** to include **coalition shared capacity building** opportunities
- Leverage RDT&E Defense-wide resources through partnerships with Services and Agencies to meet the **Most Critical Needs** of the joint warfighter as defined by **Combatant Commanders (COCOMs)**
- **Induct Innovative Technologies** inside the traditional Planning, Programming, Budgeting, and Execution (PPBE) process that result in an enduring **Capabilities-based Portfolio** to defeat asymmetric threats

Thrusts: Agile, Adaptive, Affordable, Relevant, Urgent, Enduring, Transition



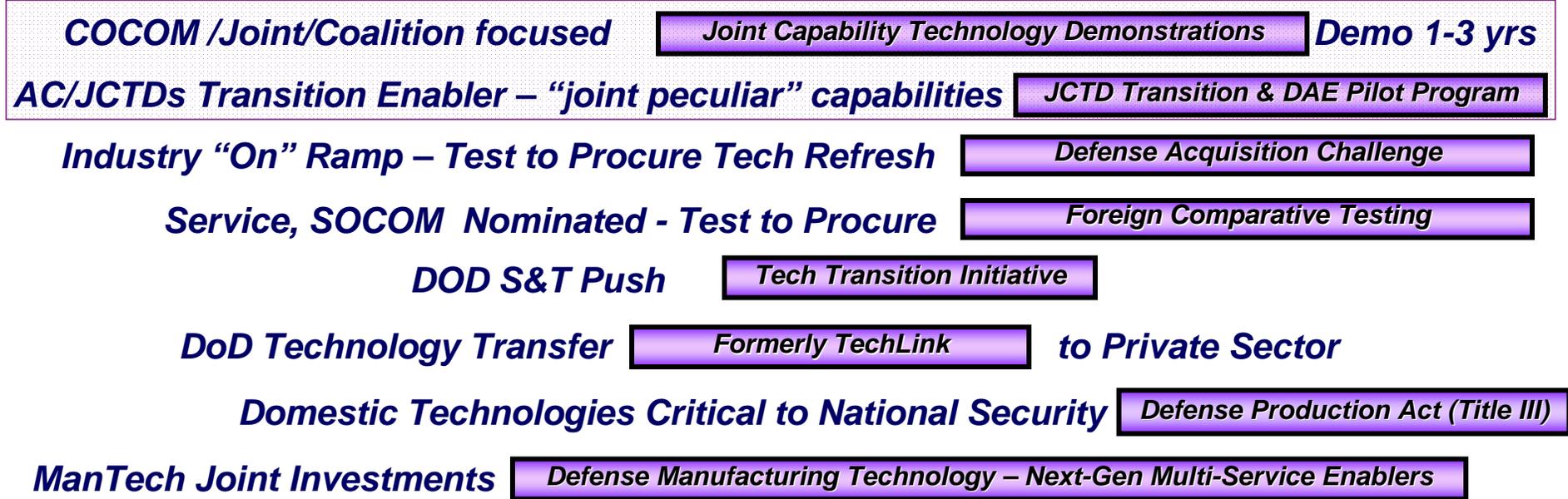
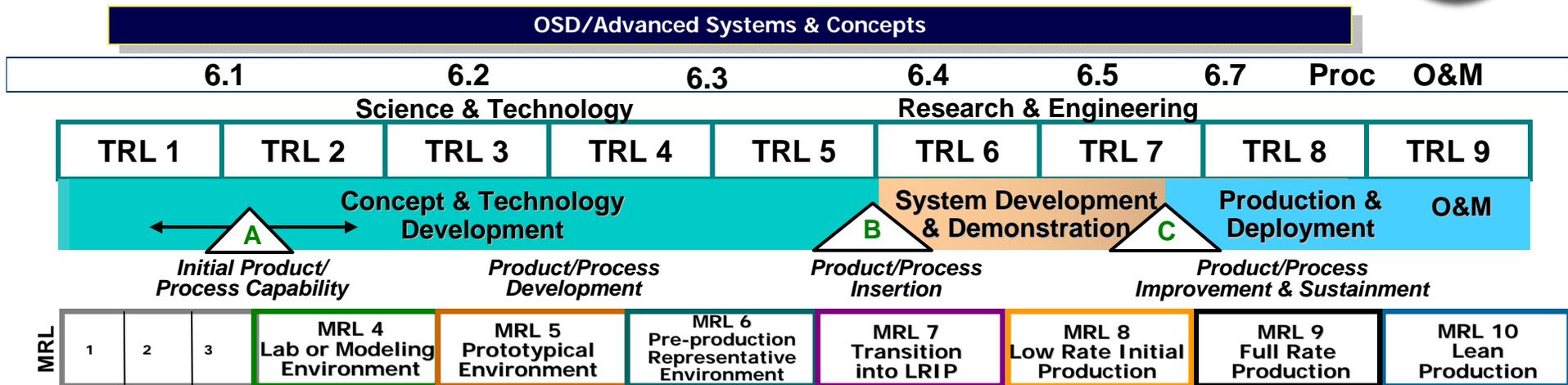
How Advanced Systems & Concepts Functions

OSD/Advanced Systems & Concepts

- **Joint Needs-Driven**
 - Monthly meetings with COCOMs - Progress on Deliverables
 - Frequent meetings with Intel Community
 - Participation in JCIDS and in JS/StratCom/DDR&E-sponsored studies
- **Technological Awareness**
 - Formal searches, pursuits and harvests of specified critical technologies
 - Briefings from industry (Domestic and International)
 - Intimate with technology development and assessment organizations
 - Services, Agencies, Intel Community, DHS, DOE, etc.
- **Program Oversight**
 - Organize, vet, select, and defend programs and projects
 - Validated Service and CoCom Priorities; IPLs and Most Pressing Needs
 - Wholly or partially funding projects – a core function
 - Closely monitor program and project execution
- **Transitioning Capabilities and Transferring Technologies**
 - Identify transfer and transition partners, pathways, PORs and POMs
 - Oversee transition process and progress; stimulate as necessary
 - Fund select game-changing technology enablers and transformation



Advanced Systems & Concepts Portfolio





Joint Capability Technology Demonstrations (JCTDs)



OSD/Advanced Systems & Concepts

JCTD Program Mission (Primary Customer: US Combatant Commands)

- Provide capability solutions through rapid prototyping to solve joint, coalition, and inter-agency urgent shortfalls and gaps with technologies and innovational concepts
- Transition enduring capabilities through strong Service & Agency partnerships

Objectives

- To rapidly demonstrate innovational concepts & technologies to address Combatant Commanders, and Most Pressing Military Needs
- Delivering a sustainable capability to the warfighter

Metrics

- JCTD validation via Joint Staff process & independent Military Utility Assessment (MUA)
- Transition to Enduring Capabilities (provide Business Case Analysis)
 - Residual Capability for the Warfighters

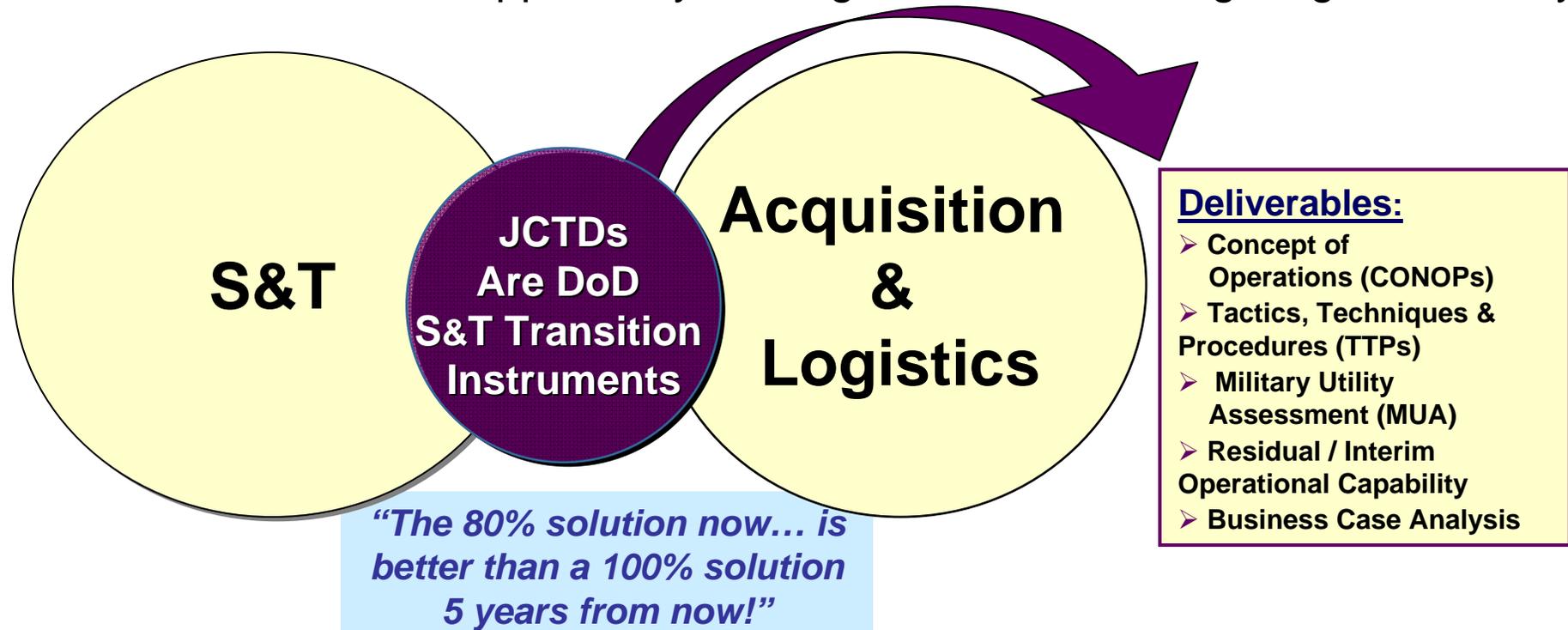




JCTDs Bridge S&T and Acquisition

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- Fill gaps between S&T and Acquisition for Combatant Commands
- Demonstrate Joint & Coalition Operational Capabilities
- Provides Transition Opportunity serving DoD's S&T/Warfighting Community



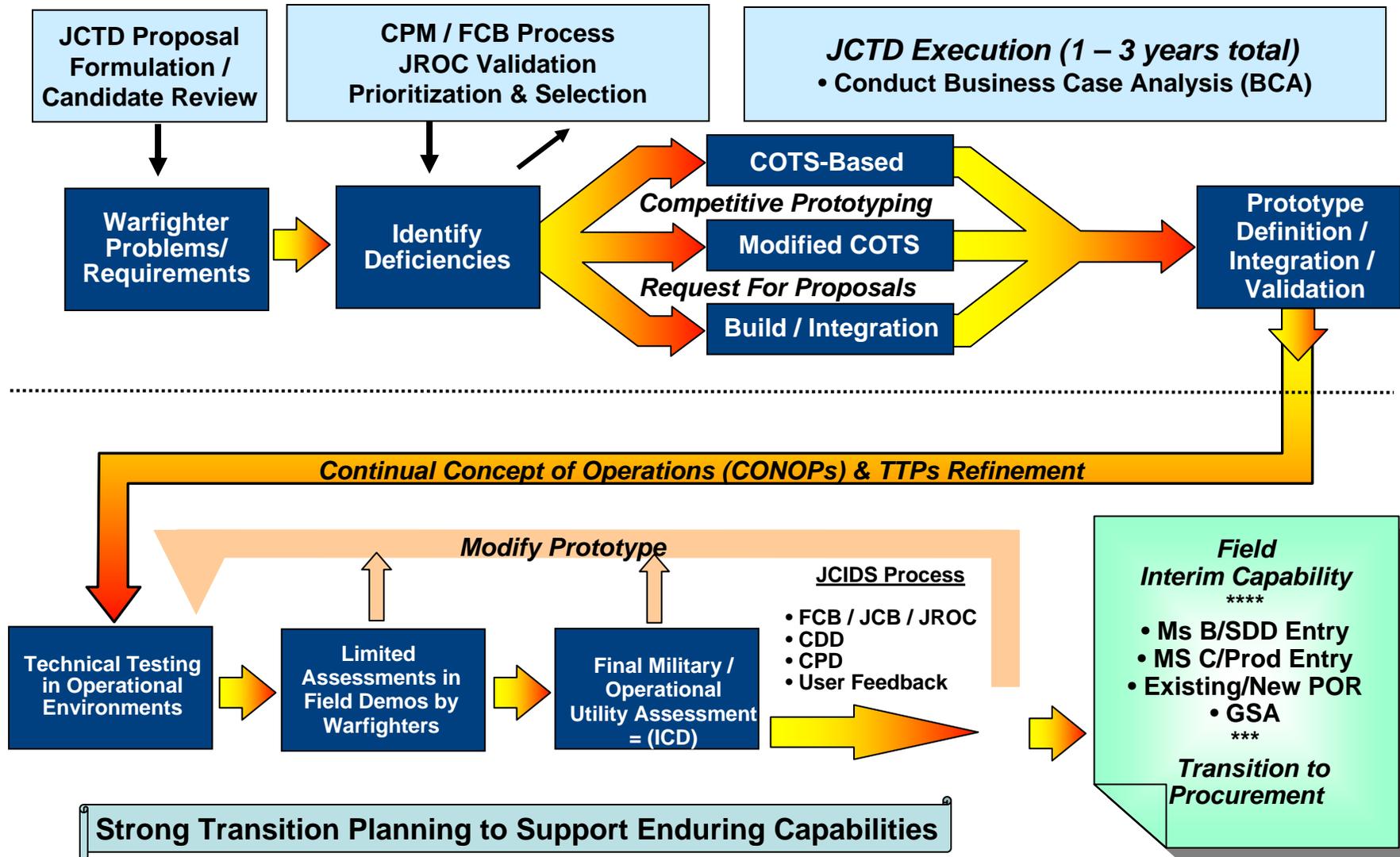
JCTDs are not science projects but are agile solutions programs...

JCTDs transition capabilities to Warfighters



JCTDs ... Model for Rapid Prototyping

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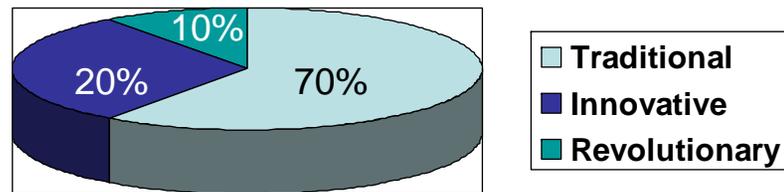




JCTD Metrics

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JCTD Model	Tech Readiness Level	Transition Commitment Level	Comments
<u>Traditional</u> <i>e.g. Comprehensive Maritime Awareness (CMA)</i>	5-6 <div style="border: 1px solid black; padding: 2px; display: inline-block;">Improve the Joint Force</div>	Level A	JROC Approval, Service/Agency and Transition Commitment 1-3 Years
<u>Innovative</u> <i>e.g. Weapon Data Link Network</i>	5-6 <div style="border: 1px solid black; padding: 2px; display: inline-block;">Leap Ahead Capability</div>	Level B	JROC Approval, Transition Commitment 1-2 Years
<u>Revolutionary</u> <i>e.g. Global Observer UAS</i>	4-6 <div style="border: 1px solid black; padding: 2px; display: inline-block;">Game Changer</div>	Level C	Warfighting Need Identified; Early Transition Planning 1-3 years

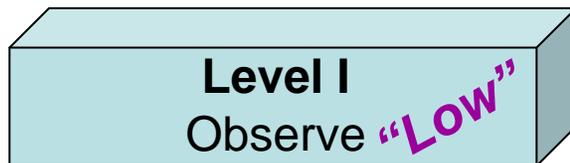




The Range of Coalition JCTD Participation

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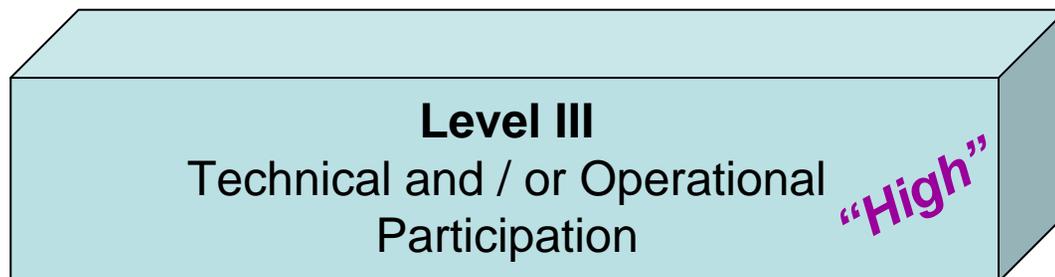
35% of JCTDs are Coalition / Partner Nations



- Send limited number of observers to demonstrations



- *Above plus:*
- Participant in Concept of Operations
- Contribute to Tactics, Techniques & Procedures
- Periodic review/comment on draft documents



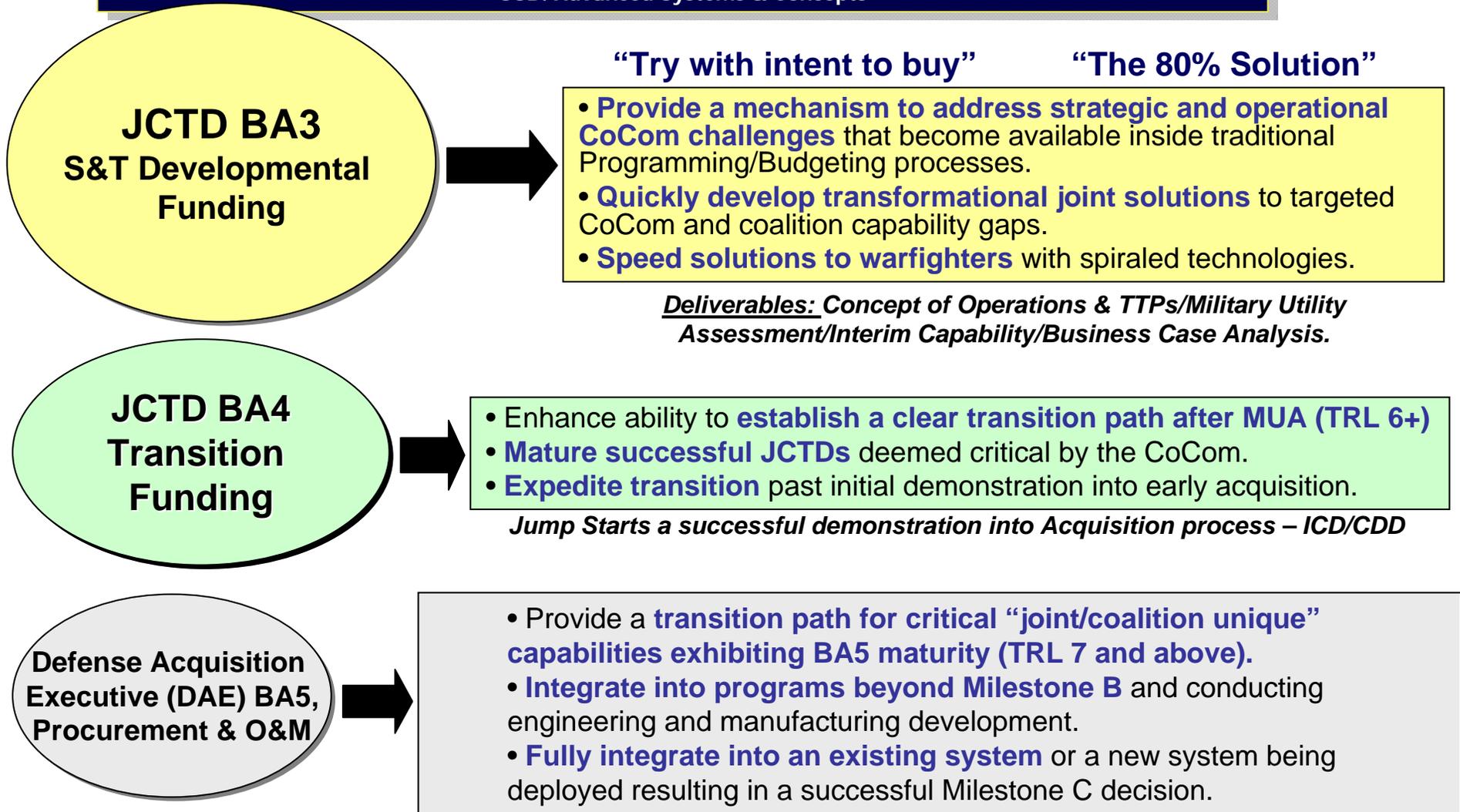
- *Above plus:*
- Participation in demonstrations and assessment events
- Participate in M&S effort

Best when Industry Partners across borders

The Joint Capability Technology Demonstration (JCTD) Model



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The DAE can accelerate a mature technology during the CPD phase.

Transition Enablers BA4 and DAE Pilot (BA5)



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JCTD Transition BA 4

Transition path for **critical “joint/coalition unique” capabilities**

Technology maturity **TRL 6 and TRL 7**

Successful demonstrations **prior to MS B**

Expedites transition **at the ICD/CDD phase**

Tied to JCTD program

Goal is \$10M in FY09

Defense Acquisition Executive (DAE) Pilot BA5, Procurement & O&M

Transition path for **critical “joint/coalition unique” capabilities**

Prototype maturity **TRL 7 and above**

Prototype **between MS B and MS C**

Expedites transition **during CPD phase**

Independent of JCTD program

Identifying new candidates

Both BA4 and BA5 can serve to align an agile program to the PPBE cycle



Transition Paths

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Transition to Program of Record

- Military utility successfully demonstrated
- Concepts adopted by warfighters
- Products transferred to Program of Record (POR) or GSA schedule
- Acquisition of additional capability funded

Easy

Up Front completed

- Validated CDD
- Insertion to fill Gap or ... close a Seam
- Meets 5000 rules

No Clear Path to Transition

- Clearly Transformational
- No existing CDD
- Support an evolving doctrinal or mission change. Examples:
 - Stability operations, Shaping
 - Unmanned vehicles

Challenging

Need to plan up front

- Develop ICD thru MUA
- Develop a CDD
- Tie to an AOA effort
- Must address DOTMLP-F

Joint/Coalition Warfighter Unique

- Clearly a Unique mission
- Valid need
- Services do not have capability
- Concepts adopted by warfighter

Hard

Residual Meeting Need of the Warfighter

- Military utility successfully demonstrated
- Products have not been sent to a POR
- Residual quantities fully meet warfighter needs and are maintained by...
 - CoCom / Agency
 - Supporting Service

Joint Capability Technology Demonstrations - Recent Program Deliverables -



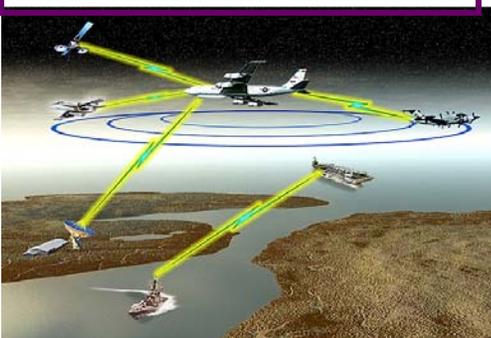
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Language And Speech Exploitation Resources (LASER) – FY06



Bridging the foreign
language gap

Weapons Data Link Network (WDLN) – FY06



Retargeting against time-
sensitive targets

Transition Recap - FY 2006

- Project Transitions: 19
- Programs of Record: 17
- Ops Residual Sustainment: 2
- Employed in OIF/OEF: 10

Transitions Underway - FY 2007

- Project Transitions: 10 (of 10)
 - Programs of Record: 6
 - Ops Residual Sustainment: 3
 - Risk Reduction for PoR: 1
- Employed in OIF/OEF: 3

Transitions Projections– FY 2008

- Total Transitions Projected: 22
 - Programs of Record: 14
 - Ops Residual Sustainment: 8
 - Risk Reduction for PoR: 1
- Employed in OIF/OEF: 8

Agile Transportation-21st Century (AT-21) – FY07



Automates the supply chain
via commercial
technologies

Joint Precision Airdrop System (JPADS) – FY07



Precision combat resupply

Over 45 JCTDs Deployed to OEF & OIF & GWOT for Warfighter !!



Iraq

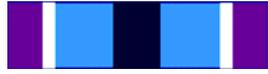
TRANSCOM Successes



Afghanistan



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Humanitarian Ops



GWOT



Kosovo Campaign



NATO

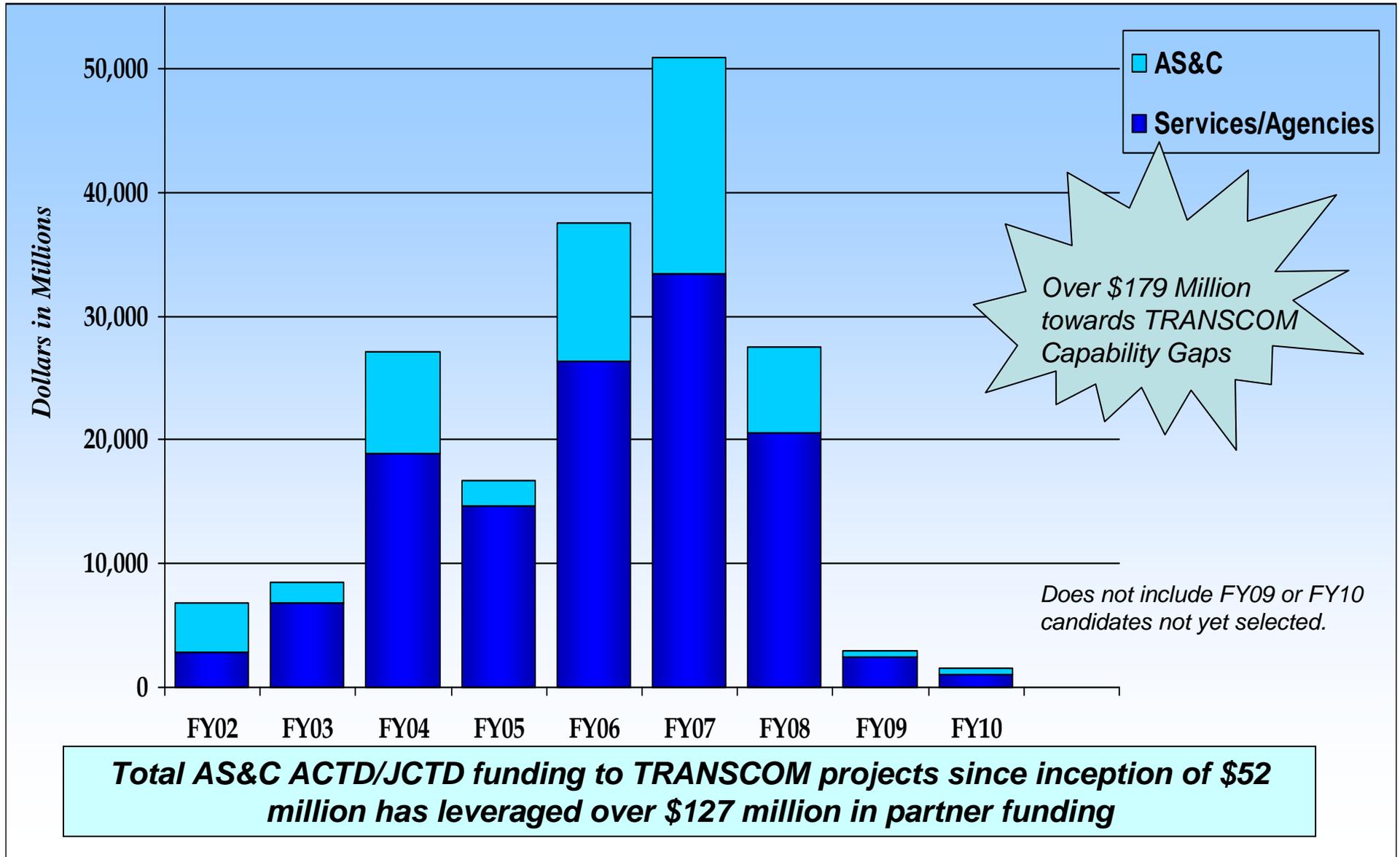


National Defense

- Agile Transportation 21 (AT21- FY02) – Transitioned to GCCS-J (pending NECC) and new TRANSCOM POR
- Deployable Cargo Screening (DCS – FY03) – Technology advances during ACTD and deployed in force
- Protected Landing and Take-Off (PLATO – FY04) – On Hold
- Joint Enabled Theater Access – Sea Ports Debarkation (JETA-SPOD – FY06) – LMCS transitioning to new POR JHSV; JSAT transitioning to TRANSCOM's AMP POR
- Joint Intermodal Distribution Systems (JMIDS – FY06) – JMIDC deployed to OIF; transitioning to 3 Services potentially\
- Node Mgmt and Deployable Depot (NoMADD – FY06) – DD transitioning to new DLA POR
- Coalition Mobility System (CMS – FY07) – Plans to transition to new TRANSCOM POR
- Joint Recovery and Distribution (JRADS – FY09) – On track for approved new start



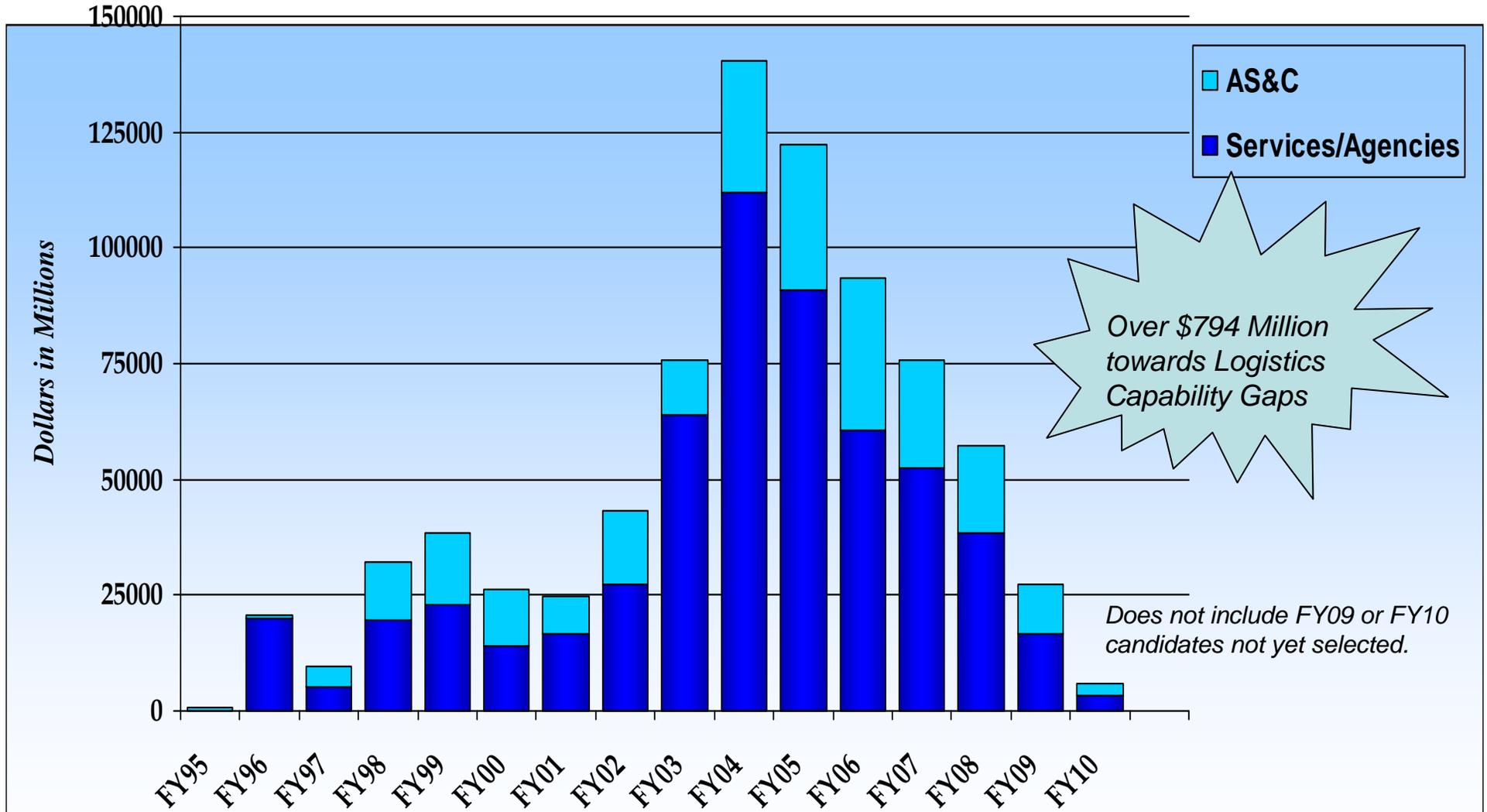
TRANSCOM ACTD/JCTD PROGRAM HISTORICAL SPONSORED PROJECT FUNDING





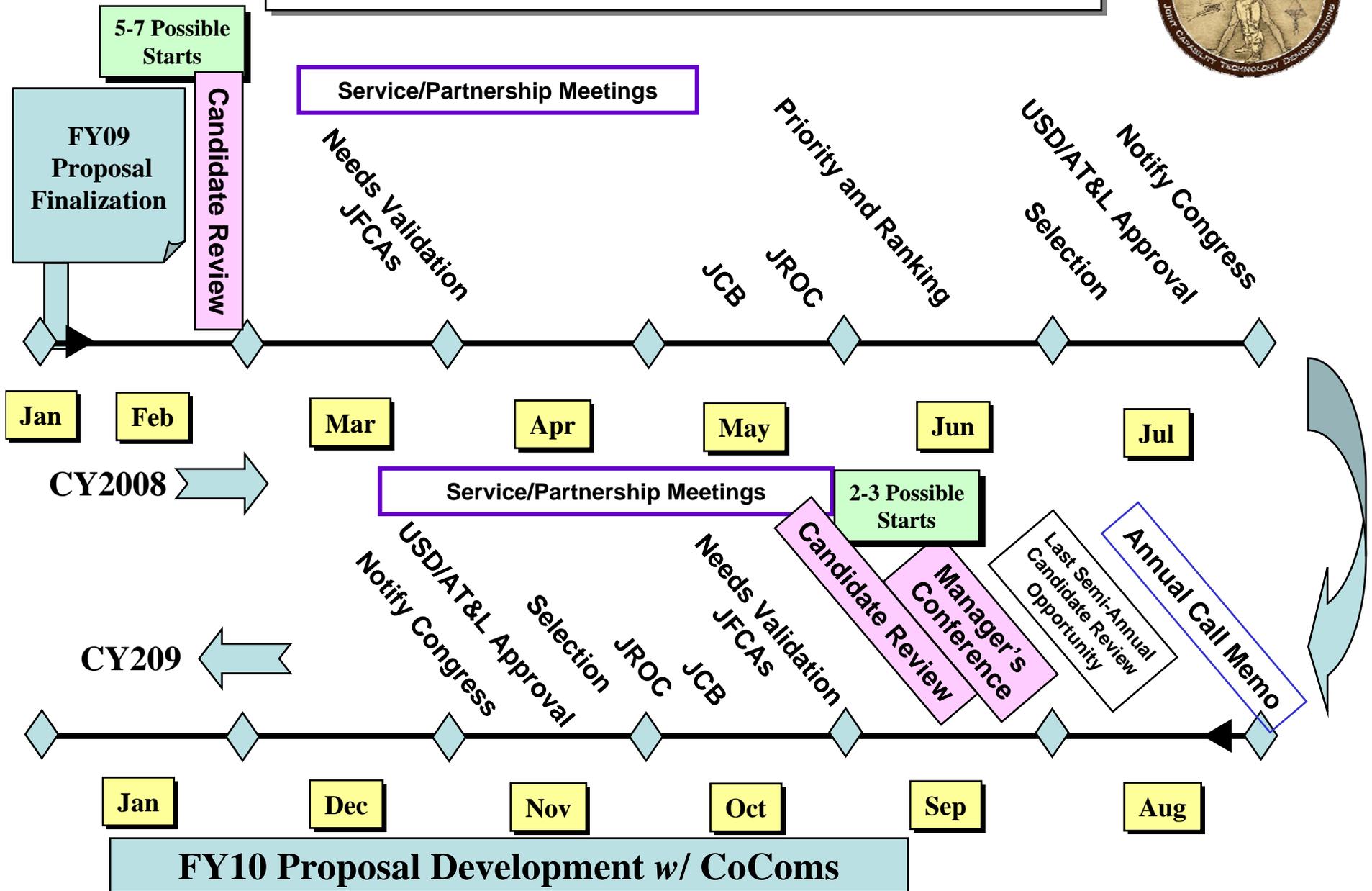
ACTD/JCTD LOGISTICS PROGRAM

HISTORICAL LOGISTICS PROJECT FUNDING



Total AS&C ACTD/JCTD funding to LOGISTICS projects since inception of \$229 million has leveraged over \$564 million in partner funding

FY09 JCTD Process



Defense Acquisition Challenge (DAC)...

...DoD's On-Ramp to Industry



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• Scope:

- Allows anyone to propose innovations that could quickly improve -
 - ✓ Affordability, manufacturability, performance, or capabilities at a system, subsystem or component level
- Competitive: Annual BAA in Federal Business opportunities and unsolicited proposals
- Proposals “challenge” existing technology
 - ✓ Evaluated for merit & feasibility
 - ✓ If testing successful, innovations inserted into a program of record
 - ✓ Provides industry entry into DoD acquisition

• Metrics & Measures

- Over 1200 proposals submitted
- 68 projects awarded & ongoing
- 70 companies from 26 states
- 70% are small / medium enterprise technology providers
- ROI (14 completed projects) is > 9:1

Spray Cool Technology: Electronics Sprayed with Non-Corrosive Coolant in a Hermetically Sealed Housing



Before SprayCool: 482 Pounds & 17 Cubic feet

Employed in Counter Targeting System - Part of OVERWATCH ACTD
4 units deployed to Iraq



After SprayCool: 100 Pounds & 2.6 Cubic feet



Mini Combat Trauma Patient Simulation System: Training medics at Camp Pendleton

Casualty simulator improves skills of medical personnel in mass casualty & triage - over 3500 medics trained & deployed to Iraq; attrition rate of trainees reduced from over 20% to 6%

Enhanced Performance Location Report System Tactical Data Network: Replaces manual network planning with automated system

Reduces complexity and need for manpower redundancy, deployed to 900 users (MEF II) in Iraq, enabling rapid and accurate information flow and data priority on the joint/coalition battlefield



Foreign Comparative Testing (FCT)...

...the search for world-class technologies



OSD/Advanced Systems & Concepts

• Scope:

- Seeks international technologies for US warfighting needs
- Leverages mature technologies for economic/speedy buys
- Provides US Forces with new capabilities
- Technologies assessed for use, bought from foreign source or manufactured under license in US



UK system can refuel two aircraft at once, avoiding \$40 million in R&D

• Program Measures & Metrics (1980-2007)

- OSD investment of \$1.1B has avoided \$7B in costs
- 567 projects started, 488 completed, 266 met test req's
- 184 projects resulted in procurements worth about \$8B
- Accelerated fielding averaging 5–7 years
- Participation from 27 allied and coalition partners
- Vendor partnerships in 33 U.S. states
- Past 5 years: Transition rate from test-to-procure > 80%



South-African developed Buffalo mine clearing vehicle probing & clearing mines & IEDs in Iraq



Russian erosion-resistant coating triples life of compressor blades in MH-53 helicopter, avoiding \$1.6 million annually



Korean fiber optic mesh detects breaks and enhances perimeter security



Italian venture, the Joint Service Combat Shotgun, used in Iraq as a "door-buster"



Swedish bunker buster system fired from confined spaces, used in Afghanistan and Iraq



The Technology Transition Initiative (TTI)

OSD/Advanced Systems & Concepts

➤ Objectives

- Accelerate transition of new technologies from DoD S&T programs into acquisition for production and deployment to US Armed Forces
- Demonstrate new technologies in relevant environments

➤ Partners and Processes

- Technology Transition Council
- Technology Transition Working Group

Countermeasures Protection System



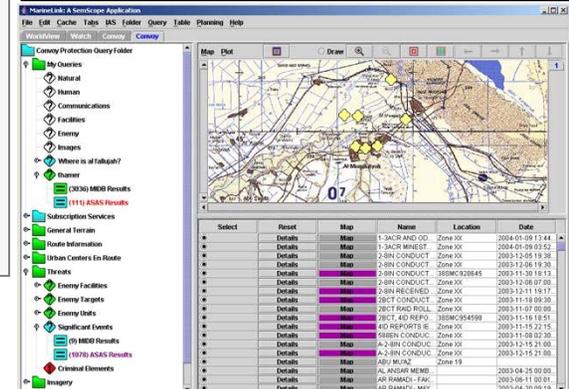
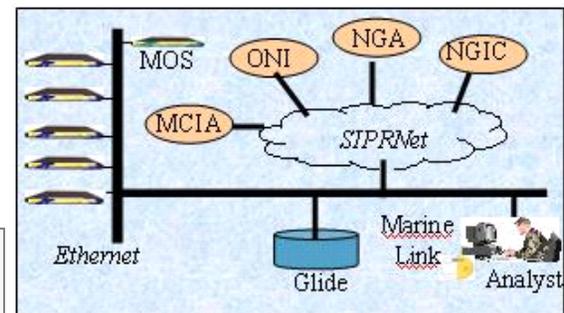
- Improves force protection against radio-controlled IEDs
- Deployed in GWOT

Water Purification Pen



- Eliminates risk of exposure to diseases and bio-chemical pollutants
- Deployed in IRAQ with each of the Services
- Sent as part of Tsunami relief effort in S.E. Asia

Semantic Web Network



- Incorporated into Marine Link
- Deployed w/1st and 2d MEF in Iraq
- Saves Analyst 4-5 hours per manual query



Technology Transfer Programs

OSD/Advanced Systems & Concepts

➤ Objectives

- Ensure full use of the Nation's investment in R&D (15 USC 3710)
- Rapidly enhance warfighter capabilities via technology exploitation

➤ Benefits

- Clear path from DoD S&T to application of technology
- Commercial source for DoD items using DoD-developed technologies
- Speed to deployment and cost-saving advantages

➤ Partners

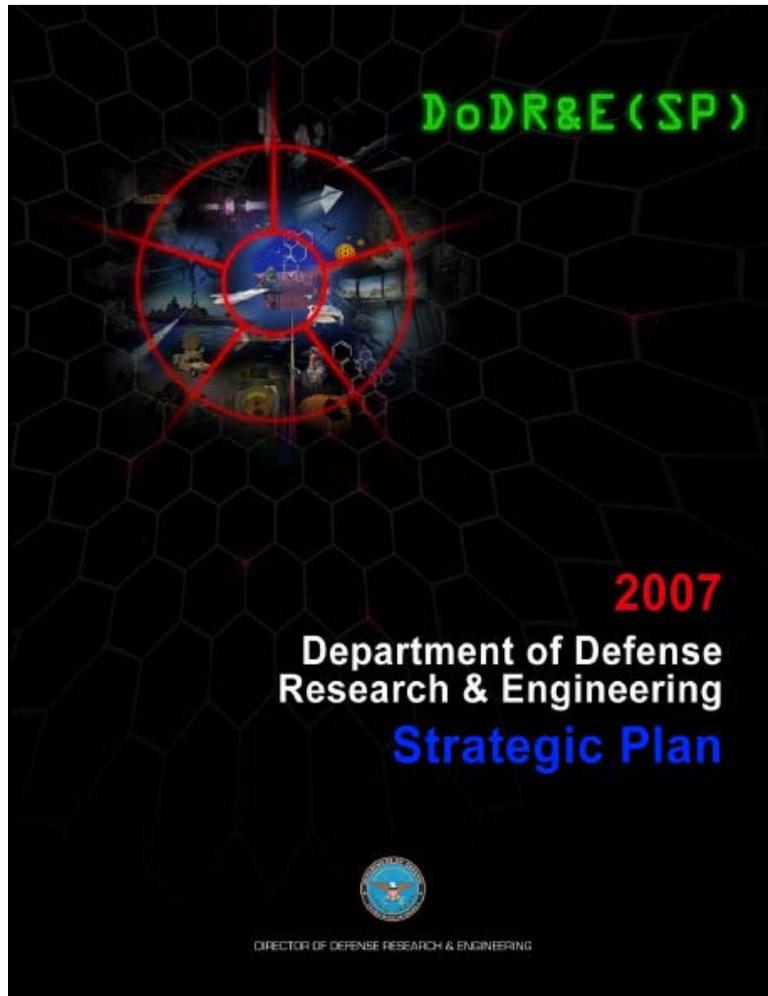
- US Industry (as opposed to contractual relationship)
- Funds to support joint R&D efforts (funds from CRADAs)
- Royalties on licensed inventions to reward inventors and perform R&D



S&T Plans and Reliance 21



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Defense Science and Technology Strategy and Plans

- ***Defense S&T Strategy (Replaced with DDR&E Strategic Plan)***
- ***Basic Research Plan (6.1) - BRP -(As necessary, new plan at printer)***
- ***Defense Technology Area Plan (6.2, 6.3) - DTAP - (Replaced with Technology Focus Teams)***
- ***Joint Warfighting Science and Technology Plan - JWSTP (Biennial, even years)***
- ***Defense Technology Objectives (DTO) Volume that supports JWSTP and DTAP (Replaced by Marquee Programs in JWSTP)***

Research & Engineering (R&E) Portal (<https://rdte.osd.mil>)



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- Provide DoD R&E community (civil service, military, approved contractors) with single-point access to all current R&E information:
 - Reliance 21 S&T planning documents
 - New E-Gov database
 - R&E Points of Contact
 - Congressional budget query
 - RDT&E budget data
 - DDR&E website
 - Dialog NewsEdge (24/7 breaking news on technology)
 - DoD In-House S&T Activities Report
- Be able to intelligently search all data

R&E Portal Access (<https://rdte.osd.mil>)



OSD/Advanced Systems & Concepts

Welcome to the DoD Research & Engineering Portal

To view a video about the R&E Portal, click [here!](#)

The R&E Portal will be the focal point for obtaining information on research and engineering activities within DoD. It is sponsored by the office of the Director of Defense Research & Engineering (DDR&E) and maintained by the Defense Technical Information Center (DTIC). Within the R&E Portal, you will find:

- Data from systems that focus on the areas of Financial Management, Strategic Planning, and Congressional Reporting.
- Information on areas of strategic importance and current initiatives within DDR&E.
- Tools to facilitate collaboration, communication, and reuse of information and artifacts.
- Robust text searching tools to query the wealth of DoD research and engineering information held by DTIC and other service agencies.

Access to the R&E Portal is controlled by the registration Process. If you are not currently registered, click [here](#) to learn more.

Sign In

*

or sign in using your user name and password:

User Name:

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[Click here to change your password or update your profile.](#)

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If you wish to bookmark the site, please wait until you have logged in successfully before adding it to your list of favorites.

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Use the DTIC [Ask a Librarian](#) service to assist you in your research.

R&E Data Analysis (Cognos)

Use the [R&E Data Analysis Tools](#) site to view reports and create tables and graphs of data within the R&E Portal.
Consumer Training
Author Training

Research Resources

[S&T Information Network \(STINET\)](#) >>
[Congressional Budget Queries](#) >>
[R&E Database Search](#) >>
[CSA/COS Scholars & Funding Database](#) >>
[Knovel Reference Library](#) >>
[Defense Science & Technology Plan](#) >>
[Defense Technology Search](#) >>

DoD R&E Success Story

Heterogeneous Urban RSTA Team (HURT)

What's New

The 9th Annual Science and Engineering Technology Conference/DoD Technology Exposition will be held in Charleston, South Carolina from 15-17 April 2008. The conference is sponsored by the National Defense Industrial Association (NDIA). Please visit the Conference website for more details at the following link: <http://www.ndia.org/meetings/8720>.

The R&E Database Search has been updated to include 2007 submissions. The search capability has also been updated to allow more options and flexibility in searching for data. To use the search, go [here](#) or use the link under Research Resources.

The Tennessee Valley Emerging Technologies Conference will be held in Huntsville, Alabama from 25-27 March. The conference is sponsored by the Defense Intelligence Agency / Missile and Space Intelligence Center and the U.S. Army Space and Missile Defense Command / U.S. Army Forces Strategic Command. Abstracts of proposed oral presentations are requested by 15 November. Please visit the Conference website for more details at the following link: <http://smapcenter.uah.edu/ETC08>.

The [Knovel Reference Library](#) is available through the R&E Portal. Check out this useful new service.

About the R&E Portal

The R&E Portal provides a one-stop shopping location for DoD research & engineering information. For more information about the R&E Portal and its content, click the [Help tab](#).

Who's Who

Access these R&E Portal features to locate or learn more about people involved in research and engineering or who hold important positions in DoD R&E.

Community of Scholars - The CSA/COS database of researchers (contact and publication information) and funding opportunities allows users to search for people or funding opportunities by key word and narrow the results by subject area.

R&E Community Members - The R&E Community Members database includes directors' names and contact information for DoD R&E organizations across the Services and Agencies.

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March 13, 2008

Security Agencies

▶ [Alleged CIA flights in Bratislava are commercial: government](#)
BRATISLAVA, March 12, 2008 - Slovakia's foreign ministry dismissed Wednesday allegations of CIA planes landing in Bratislava airport, saying they were "commercial flights" in line with local and international regulations.
[Agence France-Presse English Wire]
[more headlines](#)



References and Discussion

OSD/Advanced Systems & Concepts



Advanced Systems & Concepts (AS&C)

www.acq.osd.mil/asc 703-695-5036

Joint Capability Tech Demo (JCTD)

www.acq.osd.mil/jctd 703-697-5558

Comparative Test Office (FCTs)

www.acq.osd.mil/cto 703-602-3740

Office of Technology Transition

www.acq.osd.mil/ott/tti 703-607-5316



Transition Commitment Levels

OSD/Advanced Systems & Concepts

Transition Commitment Level (TCL)			
<i>Strength of Transition Commitment</i> <i>Years remaining in JCTD</i>	1	2	3
	Level A – Committed Fully executed final TTA. Includes Integration Strategy. Transition funding programmed.	A1	A2
Level B – Working Detailed Exit Criteria. Acquisition Program interested. Transition TRL established. Proposed Transition Budget, PE Line identified/targeted.	B1	B2	B3
Level C – Initial Initial Exit Criteria. Target Acquisition Program Identified. Program Manager watches with interest as technology is developed/integrated. PE Line identified/targeted. Key stakeholders identified.	C1	C2	C3
Level D – Pre-Program	D1	D2	D3

“Debunking the Transition Myth” Outside View



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87%

GAO Report # 03-52 (pg1), December 2, 2002: “Since the ACTD program was started in 1994, a wide range of products have been tested by technology experts and military operators ... Many of these have successfully delivered new technologies to users. In fact, **21 of 24 projects** we examined that were found to have military utility delivered at least some technologies to users that meet military needs.”

....

94%

PA&E C2 Productivity Study, PDM III, March 2006: Found of the **17 of 18 projects** selected for review had transition or were in the process of transitioning to POR.

83%

FY08 Navy AC/JCTD Review (pre-decisional): Found **30 of 36 projects** successfully transitioned to PORs, influenced CONOPS or other technology development.