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NATIONAL TRAINING AND SIMULATION ASSOCIATION

Joint Training

Training 2015
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Acknowledgements

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Joint Training 2015

> *"Everyone required to conduct military operations will be trained, under realistic conditions and to exacting standards, prior to execution of those operations. Personnel selected for joint assignments will be trained prior to reaching their duty location."*
>
> *Chairman of The Joint Chiefs Of Staff Instruction, Joint Training Policy And Guidance For The Armed Forces Of The United States (CJCSI 3500.01E, 2008)*

1.0 Introduction

Joint Training 2015 presents information to assist industry's support of the US Joint Training current and future training needs as determined by the Office of the Secretary of Defense (OSD). The information provided was gleaned through personnel interviews, government documents, and other source material obtained through Internet research. This report summarizes recent developments in joint training, identifies key organizations, highlights key joint training trends, and provides joint program summaries.

The Department of Defense (DoD) spends over $33B annually on training and personnel readiness. While the majority of this training is spent by the Services as part of their Title X (Train and Equip) responsibilities, more emphasis (and funding) is being devoted to addressing joint training. The most visible evidence of this is the DoD Training Transformation initiative, introduced in March 2002 and continues with steady state funding through the POM (2012-2017).

2.0 Joint Training Policies and Initiatives

2.1 Joint Training Policy

Joint Training policy for the Armed Forces of the United States (CJCS Instruction 3500.01A) describes the Chairman of the Joint Chiefs of Staff (CJCS) policy for joint training as a means to enhance joint readiness. It specifies joint training as capabilities-based and focused on the Joint Mission Essential Tasks derived by commanders from mission analysis, fully supporting the Department's capabilities-based strategy to enhance readiness. It applies to individual, staff, and collective joint training and joint education programs. It affirms the role of the commander in the training and readiness of his or her organization as the primary trainer and assessor of readiness. CJCS policy institutionalizes a requirements-based Joint Training System (JTS) and directs commanders to examine their missions and document their command's warfighting requirements based on tasks in the Universal Joint Task List (UJTL).

This policy statement reaffirms the importance of the combat support agencies (CSAs) in supporting warfighting missions and emphasizes preparing U.S. forces for joint, multinational, and interagency operations across the range of military operations.

2.2   Joint Training Imperative

From the CJCSI 3500.01E, Joint Training Policy and Guidance for the Armed Forces of the United States,

> *U.S. forces may be employed across the full range of joint military operations, most of which will be conducted in an interagency-/multinational-partner environment. A transformation goal is to support national security requirements with a range of joint military capabilities designed to adapt and succeed in an integrated operations environment. Training to operate in a joint, interagency, multinational, and intergovernmental environment is what the Armed Forces of the United States (and other agencies) must do; this environment adds conditions to the established collective joint tasks to form required joint capabilities. The challenge for joint training is to be responsive to the needs of the combatant commanders for all operations, to include required emerging capabilities (page A-1).*

2.3   Joint Training System

The JTS provides a common approach that helps joint force commanders identify and evaluate their training needs, plan and schedule training events, and support the CJCS requirement to monitor the readiness of U.S. military forces. The JTS consists of four phases:

1. The identification of capabilities required based on assigned missions;
2. The planning and scheduling of training events;
3. The execution of training; and
4. An assessment of how well the training was accomplished.

Inherent in the Quadrennial Defense Review (QDR) description of the U.S. future strategy is a strong signal that future operations will take on an ever-increasing joint nature. The DoD is concerned about the ability of U.S. forces to work in concert now and in the future. To work together effectively, U.S. forces must first develop a comprehensive understanding of component and joint force capabilities and operational concepts. This understanding can only be developed through a vigorous program of joint training exercises and experiments, a concept the QDR Panel supports. The use of networking and linked simulations, particularly at the Joint Task Force (JTF) level, can be further expanded to maximize training without adverse consequences on Operational Tempo (OPTEMPO) and Personnel Tempo (PERSTEMPO).

2.4   Joint Training Information Management System (JTIMS)

The Joint Staff oversees the Joint Training Information Management System (JTIMS), a Web-based system providing automated support to the JTS.

JTIMS supports the task-based, closed loop features of the JTS by facilitating the development of an integrated, task-based thread to guide all four JTS phases. Requirements, plans, events, and assessments are all linked to missions and mission essential tasks.

JTIMS key functional capabilities include:

- Development of Joint/Agency/Service Mission Essential Task List
- Development of Joint/Agency Training Plans
- Development of the Joint Event Life Cycle
- Development of the Joint Mission Scenario Event List
- Development of the Joint Event and Command Lessons Learned
- Assessments for overall missions and specific mission essential tasks

JTIMS key benefits include:

- Multi-user and Web-based
- Data-centric (not document centric)
- Standardizes JTS input and output
- Facilitates collaborative planning and interaction
- Worldwide accessibility, not hardware specific
- Decreased maintenance requirements for users

JTIMS uses the universal and various service joint training task lists as well as using the Defense Modeling and Simulation Coordination Office Unit Identification Code database. Future iterations of JTIMS will have enhanced interoperability with other systems such as the Enhanced Status of Resources and Training System and Joint Operation Planning and Execution System.

2.5 Universal Joint Task List

The Universal Joint Task List (UJTL) serves as a common language and reference system for joint force commanders, operational planners, combat developers, and trainers. The UJTL describes what tasks are to be performed in terms common to multiple combatant commands and joint force components. As applied to joint training, the UJTL is a key element of the requirements based, "mission-to-task" JTS. In this system, commanders look at their mission and document their command warfighting requirements in a Joint Mission Essential Task List (JMETL). The language used to build the JMETL comes from the UJTL. The tasks in the UJTL are organized by the strategic national, strategic theater, operational, and tactical levels of war. The UJTL also contains a common language of conditions that is used to describe the physical, military, and civil environments that may affect task performance. Finally, the UJTL contains a menu of measures of performance for every UJTL task. These are used by commanders to develop task standards.

2.6 Training Transformation (T2)

Training transformation has been a priority development since 2001. Transforming training was recognized as the key enabler to achieving the operational goals of the overarching Transformation of the Department of Defense in the 2001 Quadrennial Defense Review (QDR). The Defense Planning Guidance for FY 2003-07 directed the Under Secretary of Defense for Personnel and Readiness (USD (P&R)) to work with the Services, the Chairman of the Joint

Chiefs of Staff (CJCS), the Combatant Commander of U.S. Joint Forces Command, and USD Acquisition Technology and Logistics (USD AT&L) to develop a plan for transforming DoD training. The 2006 QDR confirmed the value and three fundamental T2 capabilities: Joint Knowledge Development and Distribution Capability (JKDDC), Joint National Training Capability (JNTC), and Joint Assessment and Enabling Capability (JAEC). With the addition of the Combatant Command Exercise Engagement (CE2), T2 represents a comprehensive joint training enterprise; structured to provide collaborative, transparent and enterprise-based objectives.

The vision for training transformation is to provide dynamic, capabilities-based training for the DoD in support of national security requirements across the full spectrum of service, joint, interagency, intergovernmental, and multinational operations.

Training Transformation objectives are to:

- Continuously improve joint force readiness by aligning joint education, training capabilities, and resources with combatant command operational needs.
- Achieve a training unity of effort across Services, agencies, and organizations.
- Develop individuals and organizations that think joint intuitively.
- Prepare forces for new warfighting concepts and capabilities.
- Develop individuals and organizations that improvise and adapt to emerging challenges.

Three capabilities form the foundation for Training Transformation. Through these capabilities and assigned resources, combatant commanders--the ultimate focal points for joint operations--will receive better, prepared forces that are aligned with their needs

1. Joint Knowledge Development and Distribution Capability: Preparing future decision-makers and leaders to employ joint operational art, understand the common relevant operating picture, and respond innovatively to adversaries. It will develop and distribute joint knowledge via a dynamic, global-knowledge network that provides immediate access to joint education and training resources.
2. Joint National Training Capability: Preparing forces by providing command staffs and units with an integrated live, virtual, and constructive training environment that includes appropriate joint context, and allows global training and mission rehearsal in support of specific operational needs.
3. Joint Assessment and Enabling Capability: Assisting leaders in assessing the value of transformational initiatives on individuals, organizations, and processes. It will also provide essential support tools and processes to enable and enhance the Joint Knowledge Development and Distribution Capability and the Joint National Training Capability.

Additionally, Combatant Command Exercise Engagement (CE2) extends the T2 business model and established processes to provide accountability, transparency, and flexibility in managing resources.

- CE2 funds are executed by the combatant commands, Services, and Joint Staff in accordance with strategic guidance and an approved CE2 Program Execution Plan (PEP) approved by the Director Joint Staff J7 and the Deputy Under Secretary of Defense (Readiness).
- CE2 directly addresses and resources collective, staff, and individual joint training, exercise, and engagement requirements identified in CCDR's joint training plans and theater campaign plans.
- CE2 provides resources in support of the
    - Joint Exercise Program, to include strategic transportation and Service incremental funds;
    - U.S. Joint Forces Command (USJFCOM) Joint Warfighting Center (JWFC) support for COCOM exercises;
    - Training to improve readiness of Joint Task Force Headquarters;
    - Distributed support resources such as JTS Specialists and JNTC Support Elements;
    - Automated support tools;
    - Training enablers such as lightweight tools and simulations;
    - Multinational distributed learning capabilities; and
    - Deployment training support.

In 2007-2008, the Department began a new approach to planning that profoundly affects training practices, processes and resourcing for the next several years. The *Guidance for Development of the Force* (GDF) and *Guidance for the Employment of the Force* (GEF) combine with the *Joint Strategic Capabilities Plan* (JSCP) to provide Combatant Commanders (CCDRs) a longer-term, comprehensive approach to planning within a resource-constrained environment. Each of the documents is authoritative for all DoD planning decisions and affects training resource decisions.

3.0 Organizations Responsible for Joint Training

3.1 Office of the Secretary of Defense

The Undersecretary of Defense for Personnel and Readiness (USD(P&R)) is the lead organization responsible for the DoD Training Transformation initiative. Primary training-related objectives include:

- Develop and oversee Department of Defense (DOD) training policies and programs including the cost-effective application of training systems and technologies.
- Develop and oversee training policies and programs to ensure that training programs and resources are sufficient to produce ready forces.
- Serve as the DOD focal point for innovations in training such as the Advanced Distributed Learning (ADL) initiative.
- Participate in DoD planning, programming and budgeting activities related to readiness, training and crisis planning and response.

- Oversee and initiate analyses and studies that support DoD's readiness, training and crisis planning and response functions.

The Deputy Under Secretary of Defense for Readiness {DUSD(R)} is responsible for advising the Secretary of Defense, Deputy Secretary of Defense, and Under Secretary of Defense for Personnel and Readiness on key military readiness and training issues. Below are summary findings from the NTSA sponsored interview with DUSD(R) on 11 May 2010):

- The biggest near term issue is to Balance the Force and it will require new tools.
  - These tools will need to be flexible and adaptable for specialized tasks and "just in time" training
  - Reflect the focus on Irregular Warfare
  - Promote training to compensate for smaller force, emphasizing moral, ethical and cognitive skills
- Simulation technologies are expected to advance and address future training needs.
  - Virtual Immersive Environment is an attractive prospect for future training
    - Distribute training to the individual anytime, anywhere
    - Army is moving in that direction now with the Soldier's PDA
    - Objective is to train to prepare, closer to the event
  - Will need to harness constant stimulation and be aware of moral hazards in the new immersive environments
  - Integration of the synthetic environment into real world is about five years out
    - Will use a networked environment and robotics
    - Future Immersive Training Environment (FITE) spiral 2 will be Virtual Reality
    - Taking place today with 2010 and 2011 funding
    - JFCOM is the integrator
    - Will result in an evolution beyond live, virtual, constructive (LVC) training
- Other Big Issues
  - Training Range obstacles will continue to define new training requirements and solutions – will require a comprehensive plan to adapt with technology
  - Training Strategic Plan lays out key training concepts, including cloud capacity
  - Training critical decision making skills on a grand scale is and will be an important training need
  - Science, Technology, Engineering, Mathematics (STEM) education shortfall is recognized as a dilemma for DoD's future
  - Evaluating training value will be critical for the future
  - DoD needs the military industrial base to provide less proprietary, more interoperable simulation products using open standards

3.2   J-7, Joint Chiefs of Staff

CJCS is responsible for joint training. The J-7, Operational Plans & Interoperability Directorate, is the CJCS focal point for supporting the organization in executing responsibility.

Through its four subordinate divisions, the J-7 acts as functional agent to support and facilitate the Chairman's transformation efforts, and to pursue joint force development through joint doctrine; joint tactics, techniques and procedures; joint education; joint training; war plans; and assessments. Using the Joint Training System, J-7 executes the joint exercise and CJCS assessment programs. It reviews conventional war plans, assisting the combatant commands, Joint Staff, Services, and Office of the Secretary of Defense to exercise and improve the capability of U.S. forces and combat support agencies to achieve strategic goals. The directorate facilitates addressing warfighting requirements needed in war plans, joint education, joint training, and joint doctrine. Finally, J-7 formulates Joint Professional Military Education policy and programs; conducts the Process for Accreditation of Joint Education; coordinating periodic review of all JPME curricula; and providing Joint Staff oversight to Centers for Regional Security Studies.

In this capacity J-7 is the proponent/lead for the Joint Knowledge Development and Distribution Capability (JKDDC) axis within the T2 initiative. Below are summary findings from the NTSA sponsored interview with the J-7 on 24 June 2010.

- Immersive Learning Environment
    o There is a need to drive for more realism in ILE to immerse soldiers in a fully instrumented training environment – sight, sound, smell, atmospheric conditions.
    o Consider the Hollywood evolution with the integration of computer generated simulation into the realism of live training.
    o Plan to outfit existing and emerging training ranges – JRTC, etc.
    o The Future Immersive Training Environment (FITE) Joint Capability Technology Demonstration (JCTD) is exploring and demonstrating these capabilities during 2010. Additionally J7 and JFCOM in conjunction with the Services and other Joint Organizations through the Irregular Warfare Training Simulator Integrated Product Team have published their final report which outlines the ILE requirements and identifies technology gaps that exist as of today.
- Language Training
    o Cultural Awareness challenges in terms of what level, what language/culture, and how to get the return on investment.
    o Language familiarization needs to start when soldiers and officers are brought into the service or as early as possible.
    o Based on current world situation and OIE/OEF recommendations are being considered to have at least 2 soldiers per squad who have language familiarization.
- Post Iraq/Afghanistan conflict training requires a balanced training approach across "Full Spectrum Warfare" from Irregular Warfare – Counter Insurgency to Conventional Warfare.
    o We need a training foundation to allow rapid infusion of multiple scenarios, venues, etc.
    o Looking at the integration of computer generated efforts into Immersive Learning Environments to provide that foundation.

- These same capabilities need to be shared with our Coalition partners, the Guard and the Reserves.
- There is a continuing need to reduce time and costs associated with training preparation with more efficient Models, Scenario Generators and Drivers
  - Specifically in terms of the JTLS Model and the JOINT Live, Virtual, Constructive Training Federation.
  - These are too costly in terms of manpower to operate and develop the scenarios.
  - Additionally these need to be capable of representing all aspects of warfare.
- There is a need today for a Low Overhead Driver that provides for rapid Scenario and MESL Generation Support Tools and has the ability to run a generated CONOPS/OPLAN through a model to provide multiple what if iterations.

3.3 United States Joint Forces Command

On August 16, 2010, Secretary of Defense Robert Gates issued a memorandum on DoD Efficiency Initiatives that codified 20 initiatives that included the closing of U.S. Joint Forces Command. Secretary Gates' memo also formerly established a temporary task force headed by Mr. Robert Rangel, a special assistant to the defense secretary, to ensure proper implementation of these initiatives. Secretary Gates directed the task force to complete its work in 120 days (December 14, 2010).

In parallel with this activity, a "JFCOM Disestablishment Working Group", led by the Director, Cost Assessment and Program Evaluation (Joint Staff), has been tasked to develop an implementation plan with input from a Flag Officer led JFCOM Implementation Team established to support the overall transition effort and represent the command to the OSD Transition Task Force. They will be chartered to play an active role in all planning and solution development for the transition process. The CAPE-led effort is to provide an interim update by October 15, 2010 and a final plan no later than December 10, 2010.

As a result, the following material related to U.S. Joint Forces Command represents the organization and activities present in mid-2010 but with the expectation that some of these efforts will either cease to exist or will be folded into other organizations at the conclusion of the DoD Efficiencies Task Force implementation process.

Details of the approved JFCOM Disestablishment Implementation Plan are not anticipated until early CY2011.

U.S. Joint Forces Command (USJFCOM) (formerly the United States Atlantic Command (USACOM) was established in 1998 and designated as lead agent and single point of contact for the concept development of distributed joint training for U.S. Armed Forces. USJFCOM coordinates, consolidates, and maintains worldwide joint training support requirements and transforms these requirements into an end-to-end global distributed joint training architecture to support distributed joint training as defined by the COCOMs. This includes all technologies required to interoperate between COCOMs, the Services, and supporting agencies to perform joint training functions both vertically between component commanders and joint commanders and horizontally between equivalent staffs.

USJFCOM's responsibilities include (1) defining operational requirements in coordination with users, (2) developing system/technical architecture requirements in coordination with Office of the Secretary of Defense (OSD) Command, Control, Communications and Intelligence (C3I), the J-6, Joint Staff, the Service headquarters, and supporting agencies, and (3) demonstrating proposed distributed joint training concepts derived from these requirements.

As DoD's joint force trainer, USJFCOM prepares joint task force commanders and staffs to execute their missions in a joint environment. These ever-improving joint task force preparation events include mission rehearsals for units deploying around the world as well as humanitarian missions. They are conducted with a wide variety of partners including interagency, multinational, and nongovernmental organizations. In conjunction with the development of new doctrine, USJFCOM collects, analyzes and shares feedback from the warfighter. USJFCOM hosts both the Joint National Training Capability and the Joint Knowledge Development and Distribution Capability, two of the three enabling capabilities of DoD's Training Transformation initiative. In a typical year, USJFCOM coordinates and supports commanders through more than 70 joint training events, involving 46,000 participants.

Below are summary findings from NTSA sponsored interviews with USJFCOM held on 26 May 2010 and 2 September 2010.

- JFCOM spent the better part of FY10 doing a top-to-bottom review of its contract portfolio as a result of the GEN Mattis' directed "contract stand-down". Directed as a result of the IMPROVE Acquisition Act of 2010 which de-emphasized obligation benchmarks in favor of value received. Contracts evaluated on the following:
  - Relevance to JFCOM mission
  - Value received
  - Value commensurate with cost?
- Goal is to put the contracts into 3 buckets: status quo; change it; or kill it. GEN Mattis goal is to cut nonproductive efforts.
- There has also been an effort to evaluate acquisition lessons-learned out of this analysis. Initial findings:
  - Establish a Requirements Review Board at the directorate level.
  - Establish a contracts (performance) Review Process.
  - Establish an education and training plan for the acquisition workforce (CORs/COTRs/TAs)
- Movement to Multiple Award Contracts based on the guidance from the National Defense Authorization Act of 2008. This will predominately apply to Task Order/ID/IQ contracts over $100M.
- The Training Transformation (T2) program has had consistent funding across the JNTC, JKDDC, and CE2 elements and would have continued with steady-state funding through the POM (FY12-17) years if requested levels are accepted.
- JKDDC had a slight increase in FY10 dollars to conduct an R&D effort to evaluate how Virtual Worlds might be used to support Joint professional military education and joint irregular warfare training.

- The Joint LVC Training Federation development/maintenance process is working well and its investment plan is strongly supported by the COCOMs. FY10 enhancements to JLVC will enable the federation to support Korea Command (KORCOM). This includes integration of the Army's WARSIM model into the baseline.
- J7/JWFC is working toward an acquisition to replace the Joint Theater Level Simulation (JTLS), popular as a low-overhead simulation and staff trainer for the COCOMs and 20 foreign country allies. The plan is to issue an associated RFP in FY12 or FY13.

3.3.1   Joint Training Directorate (J7) and Joint Warfighting Center (JWFC)

The U.S. Joint Forces Command (USJFCOM) Joint Training Directorate/Joint Warfighting Center (J7) trains forces, develops doctrine, leads training requirements analysis and provides a globally distributed and interoperable training environment to improve joint force readiness. It coordinates the military's overall joint training efforts while working with a range of partners including the Office of the Secretary of Defense, the Joint Staff, the services, combatant commands (COCOM) and interagency and multinational communities.

The J7 conducts joint exercises, facilitating the development and execution of rigorous and realistic collective joint training. It also provides joint context and capabilities to service training programs, prepares combined and joint task force commanders and staffs for overseas contingency operations through the mission rehearsal program and supports joint training exercises for COCOMs and services.

The J7 assists the Joint Staff in serving as the major production center for joint doctrine assessment and development. In this role, it certifies learning courses and supports the development of handbooks, newsletters, and white papers about new or emerging operational issues. The J7 also provides joint professional military education for senior military leadership in complex environments through Capstone, Keystone, and Pinnacle courses. Individual joint training is also provided for about 100,000 registered users of Joint Knowledge Online, an advanced distributed online learning network providing immediate access to joint knowledge resources.

The J7 develops an environment that enables joint training in realistic operational scenarios worldwide. It is home to the Joint National Training Capability Joint Management Office (JNTC JMO) and the Information Operations Joint Management Office (IO JMO). The JNTC JMO offers a mix of live, virtual and constructive models and simulations over an integrated network of training sites, providing the most realistic joint mission experience possible. The IO JMO facilitates information operations testing, training and other events. J7 enables training through additional programs:

- Joint Deployment Training Center – develops and delivers education to combatant commands, DoD agencies and professional military education institutions on joint deployment planning and execution as well as functional training and standardized curriculum.

- <u>Joint Targeting School</u> – provides formal training to mid-career military operations and intelligence personnel destined for unified commands, the joint staff, defense agencies and service-designated targeting positions.
- <u>NATO School Element</u> – serves as the U.S. lead agent for NATO's operational-level training facility.
- <u>Joint Interoperability Division</u> – conducts training on joint tactical data link information management and exchange.
- <u>Joint Personnel Recovery Agency</u> – shapes personnel recovery (PR) for DoD, interagency and partner nations and enables the warfighter to effectively accomplish PR responsibilities.

Two capabilities of the original T2 program are also managed by USJFCOM, with oversight from OUSD(P&R).

<u>Joint National Training Capability (JNTC)</u> provides a capability primarily focused on live and collective training across all phases of a joint campaign and enables the entire spectrum of the integrated joint training environment, i.e., live, virtual, and constructive capabilities. The JNTC adds joint enablers to Service, CCDR, and Combat Support Agency (CSA) training with the objective of accurately replicating the operating environment necessary to successfully conduct integrated training. JNTC is responsible for integrating components of the Joint Live, Virtual, and Constructive Training Environment (JLVC-TE) leveraging Service capabilities and developments, establishing the connecting communications infrastructure, and sustaining the infrastructure and JLVCTE to benefit not only joint training, but Service Title X training when capacity permits.

<u>Joint Knowledge Development and Distribution Capability (JKDDC)</u> provides a knowledge management training capability that has real-time reach back between individual warfighters, operational staffs, and key information sources. These sources include: Joint Professional Military Education, data warehouses, Global Information Grid (GIG) enabled knowledge management capabilities; and the Services, CCDRs, Reserve Component and national knowledge centers and assets.

The USJFCOM JWFC Commanders JKDDC FY10 guidance includes the following areas of emphasis:

- Maintain relevance to current operations.
- Incorporate web-based immersive advanced technologies.
- Develop web-based training curriculums.
- Assess and identify JNTC/JKO synergies to mitigate training gaps.
- Audience expansion: interagency, intergovernmental and multinational partnership building.
- Combatant Command discipleship of the JKO Joint Content Management Architecture.
- Continue identification and application of appropriate Measurements of Effectiveness.

3.3.2   J9/Joint Experimentation Directorate

As the site for transformation research and analysis for the Department of Defense, the USJFCOM Joint Experimentation Directorate (J9) and its Joint Futures Laboratory (JFL) lead efforts to develop, explore, test, and validate 21st-century joint warfighting concepts. J9 efforts have resulted in such fielded applications as:

- Collaborative information environment,
- Joint interagency coordination group,
- Theater effects-based operations,
- Joint fires initiative, and
- Standing joint force headquarters (SJFHQ).

Current efforts include joint combat identification and joint close air support.

Secretary of Defense Donald Rumsfeld recently delegated technology transfer authority to U.S. Joint Forces Command (USJFCOM), allowing it to share technology with academia and industry for the purpose of research and development. The Joint Experimentation Directorate is the JFCOM lead agent for establishing Cooperative Research and Development Agreements (CRADA) to protect intellectual property rights/patents while facilitating technology transfer/collaboration efforts.

With the blurring of boundaries between training, testing, experimentations, and military operations, there is considerable opportunity for predominately training organizations and supporting industry to add value to areas like joint experimentation.

3.3.3   Joint Enabling Capabilities Command (NECC)

As an outgrowth of the successful The Standing Joint Force Headquarters Core Element (SJFHQ) JCTD effort, the U.S. Joint Forces Command's (USJFCOM) Joint Enabling Capabilities Command (JECC) provides joint force commanders with immediate access to essential joint force headquarters capabilities.

Established Oct. 1, 2008 in Suffolk, Va., JECC serves as the USJFCOM subordinate command responsible for providing forces that can rapidly deploy critical command and control capabilities to support newly-established joint force headquarters.

The command combines capabilities across seven unique functional areas to deliver tailored, mission-specific support within hours of notification. The command is responsible for the current employment, management and development of existing joint enabling capabilities (JEC) as well as identifying new requirements and developing new capabilities for joint force commanders worldwide.

The JECs available to combatant commanders include:

- Joint Deployable Teams composed of personnel from the four unique JECs of operations, plans, knowledge management / information superiority and logistics. These

teams deploy to assist joint task force commanders in establishing new headquarters for a broad range of missions including support for both humanitarian assistance and disaster relief operations.

- Joint Communications Support Element which provides command, control, communications and computer support to joint task forces and joint special operations task forces worldwide.
- Joint Public Affairs Support Element which deploys joint media and communications capable teams for enhanced, ready public affairs capability to support combatant command operations and contingencies.
- Intelligence - Quick Reaction Team which provides military and civilian intelligence professionals with targeting and collection management expertise to a joint task force during events leading up to a crisis contingency operation.

JECC trains continuously with operational joint forces from throughout USJFCOM and other combatant commands in order to enhance readiness for operational-level joint command and control. The command accelerates the ability of service organizations to transition from a service-specific headquarters to an effective joint force headquarters in response to rapid deployment / contingency operations.

3.4 Modeling and Simulation Coordination Office

The Defense Modeling and Simulation Office (DMSO) was renamed the Modeling and Simulation Coordination Office (M&S CO) in 2007. The M&S CO became the action arm of a new DoD M&S governance structure for M&S activities and investments codified in DoDD 5000.59. These changes support an enterprise approach to M&S capability investment, development and deployment (see Figure 3-1). The resulting three- tiered governance structure as described in the *2008 Modeling and Simulation Corporate and Crosscutting Business Plan* follows.
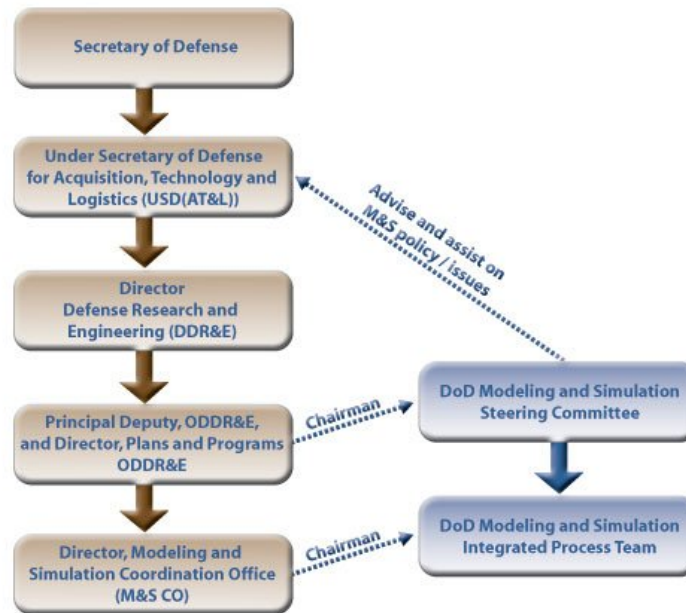
Figure 3-1: DoD Modeling and Simulation Management Structure

M&S CO functions under the guidance of the Director Defense Research and Engineering (DDR&E) within the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)). The office is organized to proactively coordinate six Communities, four Services, Joint Staff and a multitude of programs to ensure strategic cohesion of modeling and simulation activities at the Department level. Their areas of effort include combinations of live, virtual, and constructive capabilities for acquisition decision-making, programmatic analysis, experimentation, operational planning, testing, training, mission rehearsal, and doctrine development.

3.4.1 Modeling and Simulation Steering Committee (M&S SC)

A representative designated by USD (AT&L) chairs the M&S SC, which is comprised of representatives of the four Services, components from the six DoD Communities enabled by M&S, and the Joint Staff. The six DoD Communities represented are:

1. Acquisition,
2. Analysis,
3. Planning,
4. Testing,
5. Training, and
6. Experimentation.

The M&S SC mission is to provide an enterprise focus to coordinate all matters related to DoD M&S and support collaboration among, and implementation by, the Communities, the Joint Staff and the Services.

The M&S SC advises and assists the USD (AT&L) on all matters concerning M&S, helps develop DoD issuances to manage M&S, establishes policies and procedures, and determines near, mid- and long-term direction consistent with the DoD Strategic Vision for M&S. The "Steering Committee" approach ensures three things: policies that are enterprise level, policies that are Department-wide, and policies that optimize M&S oversight and transparency. In 2007, the Steering Committee authored a strategic Vision and Goals document for DoD M&S and directed development of six functional Community Business Plans.

3.4.2   Modeling and Simulation Integrated Progress Team (M&S IPT).

The Integrated Process Team supports the M&S SC in managing enterprise activities through the implementation of approved corporate and crosscutting strategies, investments, and guidance. The M&S IPT identifies and recommends issuances necessary for effective M&S planning. Members or their representatives serve on subcommittees established by the M&S SC as needed to consider, investigate, advise, take action and report on specific problems or subject areas as requested. Members of the M&S IPT are drawn at a senior level from the same organizations that comprise the M&S SC.

This enterprise governance approach aligns the processes, structures and authorities to provide effective oversight and management of activities and investments. In addition, this approach supports DoD-wide business and warfighter capabilities that rely on M&S. The roles, responsibilities and procedures to support this governance are codified in the March 2008 Draft "M&S Management Operating Rules" document. The draft Operating Rules facilitate Department-wide collaboration and promotes interaction with partners including other government agencies, allies, industry, and academia.

3.4.3   Modeling and Simulation Coordination Office (M&S CO) Priorities

Summary findings from NTSA sponsored interviews with M&S CO 11 May 2010 are presented below.

- Regarding the Joint M&S development effort (i.e. JSIMS, JMASS and JWARS)
  - Approximately $1B was spent on the three efforts
  - Legacy M&S fell behind requirements during the development
  - 2006 was considered the Recovery Phase to catch up with existing requirements
  - Enabler technology came out of the Joint effort
  - There is no expectation that this type of monolithic acquisition effort will be repeated
- Distributed simulations are more successful and dependable using persistent networks
- Multi-level security continues to be a major concern
  - The discussion continues to evolve around the question: Is it a technology or policy issue?
  - The issue is now referred to as Cross-Domain
  - The issue is dealt with at the lowest levels-federating and running the models; the challenge is at the higher levels for approval

- o Exercise Talisman Saber 07-09 with Australia was a good example of successfully dealing with the issue
- Reference the future of M&S support for training, the Services have the mission and vision—to support the Warfighter; OSD is an enabler
  - o Needed is a cost effective simulation that can be used for mobile simulation events for "train on the move" activity; the plan is to do mission training enroute to the operation, for contingency ops, humanitarian support, peacekeeping, etc.
- Another technology showing interest is "thin client" or the ability to provide just enough information to do the task (not overwhelm the receiver with all of the information on the internet)
  - o A key user of this technology is the Gambling Industry
  - o The evolution is mainframe computing to desk top computing to thin client computing
- Regarding the concept of Live-Virtual-Constructive simulation in support of training, the concept remains the backbone for training
  - o One opportunity to reduce training cost is an increased integration of virtual and constructive
- M&S CO is using their Program Element for higher level tasks such as the development of the LVC Architecture Roadmap (LVCAR)
- When asked what the department considers to be the next step after distributed simulation, their answer was "immersive environments"
- When asked about the plan for distributed simulation architectures—HLA, TENA, DIS— the M&S Steering Committee directed that no new architectures be developed, but that no harm should be imposed on the community either by directing one over the other
  - o They emphasized the need for convergence as much as possible; focus on reducing the number of bridging and gateway tools being developed
  - o Emphasize the use of same tools to develop objects, but will need agreement at the system level for success

3.5 ADL Co-Laboratory Network

The Advanced Distributed Learning Co-Laboratory (Joint ADL Co-Lab) Network is the DoD focal point for distributed learning activities, encouraging collaboration with government, industry and academia to develop and disseminate common guidelines, lessons learned, and tutorials for ADL and to share resources among all stakeholders.

The ADL Co-Laboratory Initiative directly funds two Co-Labs. The ADL Co-Lab Hub in Alexandria, VA and the Joint ADL (JADL) Co-Lab in Orlando, FL. The mission of the ADL Co-Lab Hub is to provide a collaborative environment for harmonizing learning technology research, integration, and assessment into ADL. It also provides Help Desk support for all ADL activities. The mission of the JADL is to enable the DoD Components' education and training communities and acquisition programs to realize the ADL vision. JADL serves as the ADL Initiative's organization for adopting and implementing ADL across DoD Component organizations.

Additional key locations for the ADL Network include:

- Center for Online Workforce Development (Fairfax, VA)
- Academic Co-Lab (Madison, WI)
- Intelligent Tutoring Systems Center (Memphis, TN)

The ADL Initiative also recognizes a network of ADL Partnership Labs around the world that work within their country and other Partnership Labs to further ADL's vision and to disseminate common guidelines and lessons learned.

4.0 Organizational Acquisition Strategies

The Joint Staff/J7 is predominately a management/policy organization. As a result, they do very little acquisition/contracting – when they do – it is predominately for program office support. In instances where they have been involved in modest development efforts (JTIMS), they have typically migrated the resulting application to the COCOMs or Services for maintenance/sustainment.

Joint Forces Command predominately uses the Fleet Industrial Supply Center (FISC), Norfolk, Philadelphia Detachment for its contracting/acquisition efforts. JFCOM also has a Contract Acquisition Management Office (CAMO) that develops command-wide acquisition/contracting policy on behalf of JFCOM leadership and develops associated education and training programs on behalf of its acquisition workforce. The CAMO is also the organization that facilitates JFCOM dialog with industry including periodic industry days and focused forums. While many of its major contracts are through FISC-Philadelphia, JFCOM is starting to use other acquisition organizations and contract vehicles (example, PEO STRI (STOC), NAWC TSD (TSC), etc.) when applicable.

The National Defense Act of 2008 stated that no Task Order contract over $100M can be awarded to a single source unless a waiver is signed at the agency (Secretary) level. As a result, JFCOM has moved most of its large support contract re-competes to multiple award contracts. For instance, the Joint Concept Development & Experimentation (J9 Support Contract) awarded in June 2009 was split into two functional lots with multiple-awards in each lot.

The Office of the Under Secretary of Defense for Personnel and Readiness DUSD (P&R) is predominately a management/policy organization. Consequently, DUSD (P&R) acquisition and contracting is predominately for program office support. For larger T2 initiatives (e.g., Joint National Training Capability (JNTC) and the Joint Knowledge Development and Distribution Capability (JKKDC)), DUSD (P&R) has delegated the development/contracting to other organizations such as Joint Forces Command (JFCOM).

The Joint ADL Co-Lab is predominately a management/policy organization. As a result, they do very little acquisition/contracting. Much of their funding comes from OSD (DUSD(P&R)).

The Defense Modeling and Simulation Coordination Office is predominately a management / policy organization. As a result, they do very little acquisition/contracting – when they do – it is predominately for program office support.

4.1 Major Contract Vehicles

The table below summarizes the major contract vehicles used by USJFCOM.

Contract	Purpose	Incumbent(s)	Total Ceiling with Options	Period of Performance
J7 Joint Training Support Contract	Supports all efforts associated with joint training across the command.	Northrop Grumman	$686M	Contract ends 9/2012
J9 Joint Concept, Development and Experimentation Support	Engineering and technical services to Joint Experimentation Program (JEXP) and Joint Futures Lab (JFL) under 5 multiple award contracts.	General Dynamics, Lockheed Martin, Science Applications International Corporation, and Northrop Grumman	$1,028M	Contract ends 7/2014
J6/Enterprise IT Support Contract	Enterprise IT support	Lockheed Martin	$186M	Contract ends 3/2013
JSIC Support Contract	Provide technology support services to the Joint Systems Integration Center (C4ISR systems).	General Dynamics	$102M	Contract ends 6/2014
JTLS Support Contract	Support Joint Theater Level Simulation software and M&S support services.	Rolands & Associates	$34M	Contract ends 3/2013.
Studies and Analysis Support Contract	Studies, analyses, and specialized program support (J-3/4)	Capstone	$28M	Contract ends 11/2011.*
Administrative Support Contract	Administrative, financial, and security-related support. This contract supports most directorates and local subordinate commands.	VMD Systems Integrators, Inc.	$21M	Contract ends 8/2013.

* Note: This contract will be replaced with the Operational Sustainment & Support (OS2) contract.

The Joint Staff/J7, DUSD (P&R), the Joint ADL Co-Lab, and the Defense MSCO do not have major contract vehicles.

5.0 Joint Training Technological Initiatives

Joint training needs and requirements are a high priority among all levels of government and military. The DoD is implementing a plan designed to meet the critical security challenges of the future by transforming the Armed Forces into a joint force capable of meeting the requirements of 21st century operations. This includes assessing joint warfighting concepts through the use of experimentation that could lead to changes in doctrine, organization, training and education, equipment and personnel. As far as training is concerned, the desired end-state is the improved readiness of joint forces.

With the recent success of Joint and Coalition operations, the warfighting community recognizes the importance of Joint Training causing it to be an ever-increasing market. Following is a discussion of initiatives or activities that will influence and shape that market.

5.1 Joint Knowledge Development and Distribution Capability (JKDDC)

The Joint Knowledge Development and Distribution Capability (JKDDC) is the DoD Training Transformation (T2) program responsible for delivering individual joint training capability. JKDDC works collaboratively with stakeholders to provide operationally relevant training content supporting the "whole of government" and "comprehensive approach" training necessary to conduct joint operations, security cooperation, disaster response, and humanitarian relief operations. JKDDC stakeholders are the combatant commands, services, combat support agencies, and multinational and interagency community partners.

Joint Knowledge Online (JKO) is the JKDDC tool for delivering individual joint training capability. JKO is an enterprise portal system providing access to web-based courses and learning tools that support joint training for individuals deploying to areas of joint operations or collective joint training exercises.

JKO integrates with other DoD systems and uses the latest advanced distributed learning technologies to provide conveniently accessible, self-paced, pre-deployment training curricula. JKO delivers access to a learning content management system and training support resources via three networks: military unclassified NIPRnet, military classified SIPRnet, and Internet Public network. JKO provides an effective and convenient online training opportunity for individuals to prepare in advance for collective training exercises and integrated operations.

All three JKO portals provide access to the JKDDC tailored Learning Content Management System (LCMS) for managing delivery of self-paced, web-based training, including the tracking, documenting, and reporting of student progress. Course status and completions are recorded in the LCMS so students can track their training progress. The LCMS integrates with the Army Training Requirements and Resources System (ATRRS) for DoD-wide joint training recording and reporting. Each instantiation of the LCMS is customized to the particular network. The LCMS on NIPRnet provides access to all JKDDC courses with the exception of classified material. The LCMS on SIPRnet provides all courses found on NIPRnet plus classified courses and material. The Internet Public LCMS provides access to unclassified, releasable courses.

The JKDDC provides a courseware catalog (http://jko.jfcom.mil/catalog.pdf) for their user community as a reference guide to over 400 joint and multinational courses, supplementary presentations, and instructional resource links available via the JKO portal network system.

5.2 Joint National Training Capability

Joint National Training Capability (JNTC) was formally established in January 2003 when Deputy Secretary of Defense Paul Wolfowitz signed Management Initiative Decision (MID) 906. USJFCOM was charged with responsibility for the initiative. The Joint Force Trainer was then

tasked with developing and implementing the Joint National Training Capability through a joint management office.

This capability is based on an integrated live, virtual, and constructive simulation environment that is available globally on a 24-hour basis. Using this capability, command staffs and units can conduct joint global training and mission rehearsal in support of current operational needs. JNTC achieved Initial Operational Capability on October 2004 and expects to achieve Full Operational Capability in 2009. The long-term mission of this capability is to incorporate all branches of the military services, the interagency and multinational coalition partners. Figure 5-1 highlights key elements of the Joint National Training Capability.
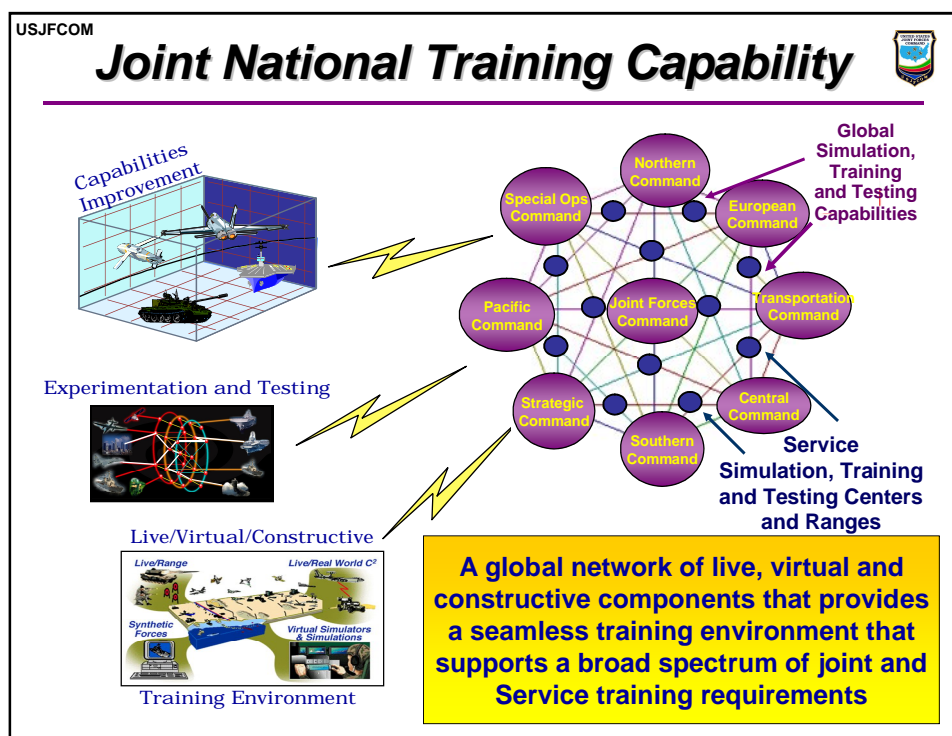

Figure 5-1: Joint National Training Capability

The JNTC JMO manages the JNTC Certification and Accreditation process. JNTC Accreditation and Certification seek to ensure that the most realistic joint training possible is available to soldiers, Marines, sailors and airmen preparing them to function jointly in an operational environment. This is done by accrediting joint training programs that provide an adequate joint context in which to train and by certifying that adequate training systems and sites are available for joint training and that they are interoperable and supportable. Accreditation and certification identify where capabilities do or do not meet JNTC standards, or need improvement to support joint training requirements, and provide information to inform cost-effective investment strategies in training systems and infrastructure.

The result of these efforts is a collection of accredited programs, conducted at certified sites using certified systems that can interoperate effectively to provide realistic joint training.

5.3   Joint Assessment and Enabling Capability

The Joint Assessment and Enabling Capability (JAEC) ensures systematic assessment of Training Transformation plans, programs, and investments throughout the DoD, and continuous improvement of joint force readiness. It also provides essential enabling tools and processes to support and guide the rapid spiral development of the Joint Knowledge Development and Distribution Capability and the Joint National Training Capability.

A major effort of the JAEC office is Training Transformation assessment. This assessment currently consists of two projects: CE2T2 Assessment reports, and inputs to the UnderSecretary of Defense (Personnel and readiness) Balanced Scorecard. In December 2007 JAEC completed the second "block assessment" of Training Transformation to measure the degree to which training improves joint force readiness, both individually and collectively. Inputs to the DoD Balanced Scorecard have been ongoing for over three years; a significant effort is ongoing to ensure relevant metrics as T2 matures. JAEC is currently developing an overarching assessment framework to support a variety of future needs, synchronize ongoing assessment efforts, and take full advantage of tools and processes such as JTIMS.

The Joint Assessment and Enabling Capability office is also actively involved in Modeling and Simulation (M&S) as an enabler to DoD training. As outlined in the Training Transformation Strategic Plan and its Implementation Plan, the goal is to develop a dynamic live, virtual, constructive (LVC) training environment providing a distributed, interoperable, networked training capability that includes mission rehearsal.

The primary focus for the JAEC M&S team is to identify potential solutions to M&S training issues and gaps. This includes establishing policy to facilitate the Department's ongoing initiative to transform joint training by establishing a service-oriented, network-centric architecture that will allow integrated LVC training capabilities, applications, simulations, and systems to interoperate seamlessly. The integrated LVC training strategy and policy must be synchronized with other M&S stakeholders from analysis, testing, experimentation, planning, and acquisition communities.

5.4   Advanced Distributed Learning

Advanced Distributed Learning (ADL) is a collaborative effort to harness the power of information technologies to modernize structured learning. It employs a structured, adaptive, collaborative effort between the public and private sectors to develop the standards, tools and learning content for the learning environment of the future.

A framework standard called the Sharable Content Object Reference Model (SCORM), was developed in full collaboration with industry and academia to support ADL. SCORM specifies how learning content should be coded, how others can later "discover" that content, how it fits into a sequence of learning activities, and how its appearance through the delivery media can be customized for the individual learner. The standard creates a large marketplace for quality learning content to be recognized as such and distributed on a global basis.

The SCORM standard is gaining acceptance across the ADL community and is widely used outside of the DoD. As of this survey, over half of the 45 SCORM compliant Learning Management Systems were developed outside the U.S. As a result of the maturation of the standard, a DODI is currently in draft mandating the use of SCORM and the registration of metadata describing SCORM learning objects. Registration will occur through the ADL registry, an instance of Content Object Repository Discovery and Resolution Architecture (CORDA), and hosted by DTIC.

5.5 On-line Gaming Industry Technology

The need to further explore, and potentially exploit, on-line game technology for Joint training was highlighted during several of the NTSA sponsored interviews. According to the Joint ADL Co-Lab web site,

> *"DoD today looks towards the commercial game market for ideas and concepts to teach its new recruits and senior staff the skills a modern warrior needs. Both concepts and methods for training military service members have changed from completely face-to-face or classroom instruction to a blending of different methods to include computer-based instruction. Instructional designer and developers must find better techniques to keep the computer-based learner actively engaged. Games are designed with an entertaining value, which engages the learner to experience 'play, practice, and develop mastery' while navigating the game environment."*

All of the Services and some Coalition partners already take advantage of this new, learning capability.

5.6 Joint Modeling and Simulation

USJFCOM Joint Training Directorate/Joint Warfighting Center (J7) develops and employs joint modeling and simulation tools that replicate the operational environment to provide a foundation for current and future conflicts. These tools are the centerpiece of joint training and are used in more than 20 countries to support multinational, interagency and intergovernmental training. Using a variety of tools, USJFCOM provides a joint live, virtual and constructive (JLVC) training federation that meets combatant command and service needs.

Current capabilities include:

- A scalable, modular multi-tier training capability for tactical, operational and strategic training audiences, both joint and coalition
- Home station training facilitation and access to joint capabilities
- Service model integration into a seamless "one-world" global synthetic training environment
- An outcome-based environment
- A single, integrated architecture that meets joint, service, interagency and coalition training requirements

- Modularity, composed of kinetic and non-kinetic core capabilities, including scenario initialization, core simulation, battle command stimulation, visualization tools, exercise control and after-action review capabilities
- Development and operating cost reduction
- Standards documentation to support integration of constructive simulations and virtual simulators with live instrumented forces
- A low-cost, streamlined capability to meet combatant command and joint task force exercise training requirements.

5.7   Small Unit Training/Fully Immersive Training Environment

One of the most visible focus programs addressing the need for realistic, immersive training systems for ground units is the FITE JCTD being led by Joint Forces Command. This program is representative of the focus being made in the joint and service training communities. Other examples include: Combat Hunter (Marine Corps); Close Combat Tactical Trainer – Dismounted Soldier (CCTT-DS) (Army); and, Games for Training/Virtual Battlespace 2 (VBS2) (Army).

5.7.1   *Future Immersive Training Environment Joint Capability Technology Demonstration (FITE JCTD)*

In response to the mandate to provide immersive training capability to ground forces, the JWFC Training Development Group has partnered with the Services on the FITE JCTD – a $27M effort focused on providing training capabilities that emphasize close combat tactical and ethical decision making in a simulated environment. The goals of this initiative are to:

- Demonstrate, assess and transition capabilities to enable more effective small unit training in an immersive and realistic environment that sets conditions for honing complex decision making
- Increase sensory threshold
- Focus on making cognitive decisions and building unit cohesiveness
- Tactical assessment in operational demonstrations by Warfighters
- Transition components or capabilities to Title 10 programs and Warfighters

During the JCTD, different technologies have been or will be the focus of the demonstration. During Operational Demonstration 1 in March of 2010 the focus was on Individual Worn Virtual Reality where the environment is totally computer-generated and surrounds the user. In Operational Demonstration 2A and 2B in October and November 2010 the technologies will be Facility Based Mixed Reality where real objects are mixed with a computer or video-generated environment and Individually Worn Augmented Reality where computer-generated images are mixed with a real scene through a helmet mounted display or a heads up display.

The FITE JCTD is just one initiative that will be funded via the Resource Management Decision (RMD) 700 (part of the 2010 National Defense Authorization Act) that provides $285M in funding to USJFCOM across FY11-15 to assist the services with the development of immersive trainers that replicate the joint training environment.

6.0   Outlook/Summary

6.1   The Future of Joint Training

Effective joint training requires a joint environment, oftentimes synthetically generated, to enable the Joint Force to exercise in a broad range of warfighting tasks prior to executing them on the battlefield. This synthetically generated joint environment also supports joint experimentation, test and evaluation, mission rehearsal, and mission analysis. As the only DoD organization tasked to enable and integrate joint warfighting capabilities at all levels, U.S. Joint Forces Command (USJFCOM) has the role of identifying the joint requirements for M&S to achieve synergy in the joint warfighting environment. USJFCOM integrates and enables M&S across the services, combatant commands, multinational and interagency partners by ensuring joint interoperability across Service systems and integrating joint enablers into the training environment.

A key component of USJFCOM's M&S capability is the Joint Live Virtual and Constructive (JLVC) Federation. The JLVC Federation is a configuration of joint and service simulations and software used to represent the joint battle space to annually support more than 20 joint training exercises and Operation Enduring Freedom mission rehearsal exercises (MRX). The command expends approximately $19M annually to provide joint M&S support to the joint/COCOM exercise program. Additionally, the Joint National Training Capability program (JNTC) allocates roughly $21M annually in support of the distribution of live, virtual and constructive (LVC) data for up to 200 service exercises. Part of the logic behind this investment is the efficiency of distributing high fidelity M&S is great when compared to the high costs of physically relocating personnel and equipment to displaced geographic locations to participate in joint exercises.

In parallel with the JLVC efforts, USJFCOM has employed the Joint Theater Level Simulation (JTLS) to support joint/coalition exercises at the strategic and/or theater level. Given the age of JTLS and its dated technology and programming language, USJFCOM has embarked on an Analysis of Alternatives and a training system requirements analysis (TSRA) to define the requirement for a system to replace JTLS within 10 years. The TSRA's purpose is to elicit the combatant command (COCOM) requirements.

USJFCOM also has a large Joint Warfighting Center (JWFC) organization (1000+ personnel) that supports the services and COCOMs in preparation for and in conducting global joint and combined task force operations via Joint Task Force Corps and Division-level Mission Rehearsals (MRXs). For instance, in FY09/10, the JWFC supported 7 MRXs, 35 COCOM events, and 16 senior leader seminars.

With the closure of USJFCOM as part of the Sec. Gates' Efficiency Initiative, it's not clear yet who will pick up the responsibility for this role in Joint M&S requirements, development and sustainment and/or what elements of the current J7/JWFC/JNTC operation will continue or be eliminated. It is likely that some of these USJFCOM functions will be transitioned to the Joint Staff/J7 organization and others picked up by service training and M&S development organizations. It is certain though that the organizations discussed in OSD/Joint study are actively involved in the current JFCOM Disestablishment deliberations and will change as a

result of the shifting/transfer of joint training and education responsibilities as a result of JFCOM's demise. And perhaps there could be additional changes within OSD (including the P&R group) as a result of the broader DoD Efficiency Initiatives effort. The details are expected in early CY2011.

6.2   Training Transformation (T2)

The Training Transformation (T2) program is run jointly by OSD and Joint Forces Command. It has arguably been the most visible program for focusing resources and prioritized requirements for enhancements to joint training and education. T2 has been instrumental in building persistent infrastructure to support joint LVC training in support of COCOM and service training and exercises through its Joint National Training Capability (JNTC) and Combatant Command Exercise and Engagement (CE2) programs. It has also enhanced infrastructure in support of joint professional military education, promulgation of joint lessons learned and doctrine, and other information sharing through its Joint Knowledge Online/JKDDC efforts.

Currently the intent is to continue the T2 implementation out through the FY12 POM (FY12-17). It is unclear at this time if the Training Transformation program will become another casualty of the DoD Efficiency Initiatives effort. This decision will provide an important indicator of the DoD leadership's view of the state of joint training and whether additional investment is needed to reach the goals of Training Transformation – that joint training has the potential to be the force multiplier that combat maneuver training centers (ex., Army's National Training Center) have made to ground combat operational readiness.

6.3   Immersive Training for Small Units

Senior DoD leaders, like former JFCOM commander, GEN James Mattis, have articulated the need to support small ground units (Army and Marine Corps) with highly realistic training systems that support current irregular warfare scenarios. In almost every interview conducted by the OSD/Joint survey group, this need was emphasized. The recent funding action as a part of RMD 700 (part of the 2010 National Defense Authorization Act) that provides $285M to USJFCOM across FY11-15 to assist the services with the development of immersive trainers that replicate the joint training environment is one indication that the DoD leadership is serious about resourcing this requirement.

This initiative provides a significant opportunity to the modeling, simulation and training industry to bring forward solutions that incorporate advances in virtual reality, gaming, display systems, helmet mounted displays, and other emerging technologies. But a word of caution - the Army and Marine Corps customers in this environment of constrained budgets are likely to be wary of "technology for technology sake" solutions. These immersive small unit training solutions must be designed using instructional systems design (ISD) principles so that any resulting training addresses unit mission essential tasks to required conditions and standards.

6.4   Training Efficiencies

One of the most consistent concerns about joint training is the large overhead/cost involved in the Joint/COCOM joint exercise program – including the large planning staffs, the exercise support staff, and the large infrastructure (hardware, software, and networks) required. In addition, there is concern with the overhead/cost associated with the JTLS and JLVC models. These exercises are seen as too costly in terms of manpower to operate and develop/maintain.

One of the goals of the Joint National Training Capability (JNTC) and T2 was to build a persistent joint training infrastructure and thereby reduce the event-by-event engineering (hardware/software/database) that used to be required to conduct a joint training event. An effort has begun to replace the JTLS model with one of the objectives to use it as a low-overhead driver for joint/coalition training. In addition, most of the services have their own Joint LVC (ex., U.S. Army's Integrated Training Environment). If current JLVC model development approach continues into the future, the low-overhead elements of the service models will become incorporated into the integrated JLVC software baseline.

With the likely demise of JFCOM, it is currently unclear if or who will become the joint proponent for driving efficiencies into the JLVC/JTLS models and the entire joint exercise program. Nonetheless, as the joint training governance structure is clarified, focus will return on joint training and how to improve it. Industry would be wise to be thinking ahead to potential joint training overhead/efficiency solutions.