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# Advanced Simulation Course for Army Simulation Management Professionals [Gene Paulo & Stephanie Few, Presentation]

Paulo, Gene

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# Advanced Simulation Course for Army Simulation Management Professionals

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NPS tasked by the Army Simulation Proponent Division to develop, deliver, and sustain an executive level course



**Course sponsored by** the Simulation Proponent Division, office of the Army Modeling & Simulation Directorate for the US Army

**Course Developed & Delivered by**



NAVAL  
POSTGRADUATE  
SCHOOL



## **Course Purpose:**

Two week senior leaders course for LTC/COL level FA57 and senior civilians in the Army M&S Community.

## **Focus:**

Provide a NON-technical perspective of significant M&S issues.



## Scope:

- Equip students with better M&S management skills at Direct Reporting Unit (DRU), Army Command (ACOM), and Program Executive Officer (PEO) level.
- Familiarize students with current M&S management concerns throughout the Acquisition Life Cycle, specifically the different M&S applications in use during each phase.



## Prototype Course:

- **Objective:** Discover educational gaps, identify appropriate target audience, and determine potential for future offerings.
- **Delivered:** 11-22 May 2009
- **Location:** NPS Center for Executive Education (CEE)

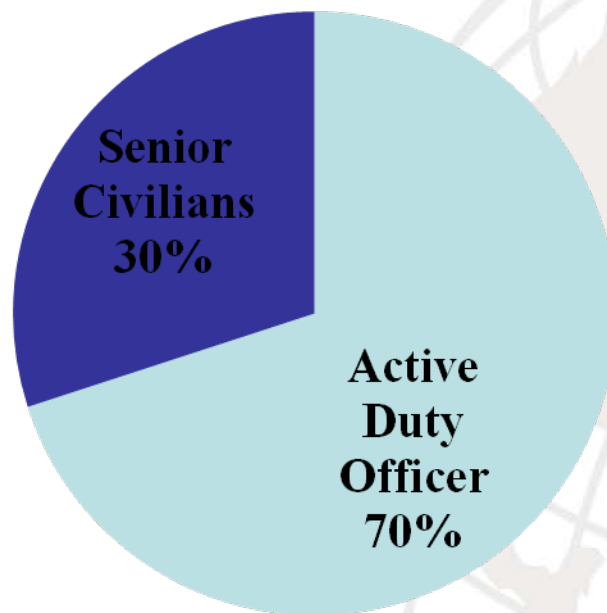






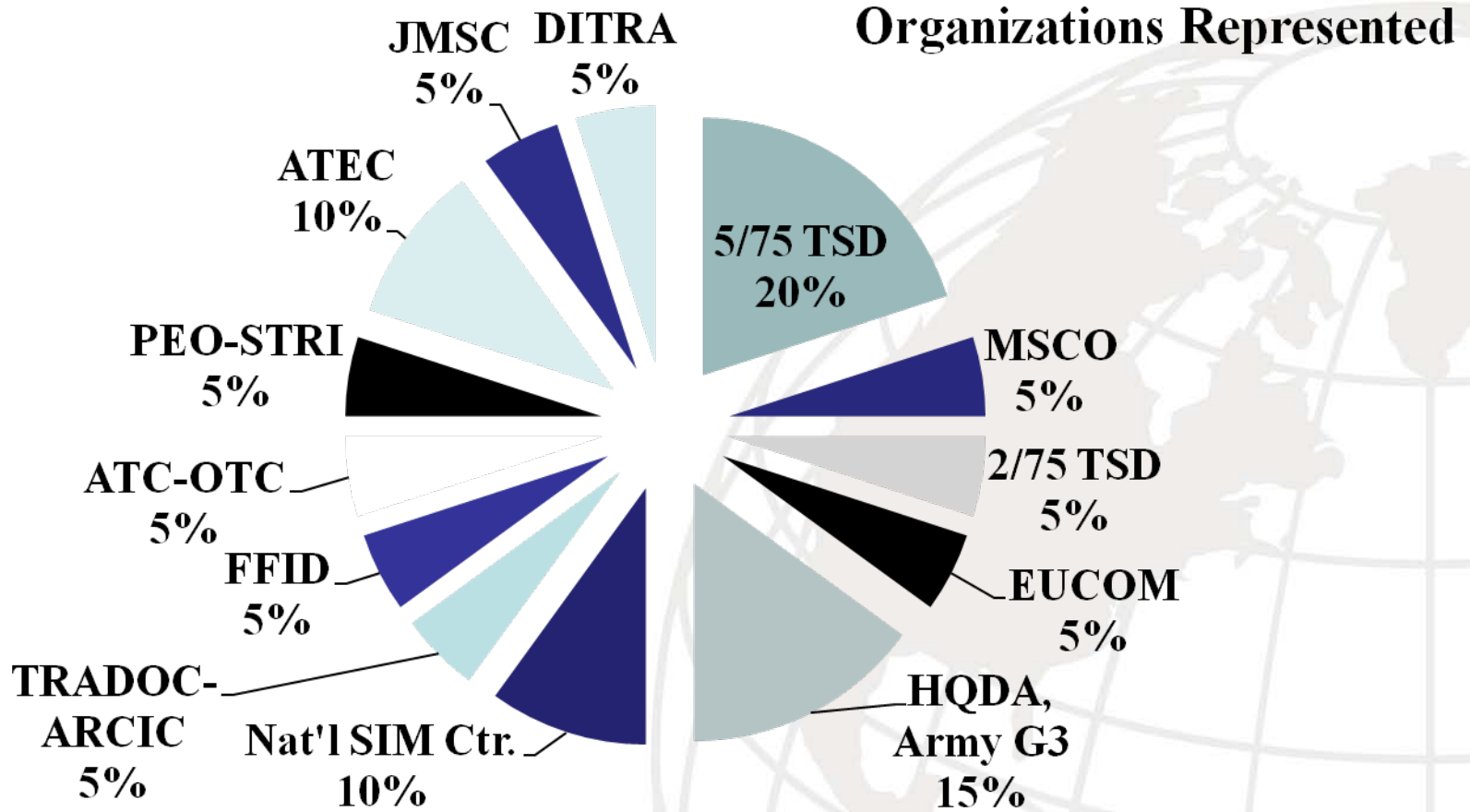
## Prototype Course:

**Student Body: 20 Total**





# Army Advanced SIM Course







## Prototype Course: NPS Department Participation

- Computer Science
- Graduate School of Business & Public Policy
- Modeling, Virtual Environments, and Simulation (MOVES)
- Operations Research & Simulation Experiments & Efficient Designs (SEED) Center
- Systems Engineering



## Prototype Course: SME Participation

- NPS Thesis Students
- GSResearch LLC





## Prototype Course: Breakdown

- **Module 1: Management Concerns Regarding M&S**
  - Week 1 (Lessons 1-5)
- **Module 2: Lifecycle M&S Issues**
  - Week 2 (Lessons 1-4, plus Guest Lectures)



## Prototype Course: Topics

### Module 1: Management Concerns Regarding M&S

- **M&S Education (Lesson 1)**
  - Role of SIM professional, development & significance of MSBOK, and *what* should an M&S curriculum contain for DoD M&S professionals
- **M&S Requirements (Lesson 2)**
  - Overview of DoD M&S, M&S Standards, LVC, M&S Requirements Generation, M&S Fidelity and Resolution, VVA, DoD Stakeholders, DoD Organizations, Governing Docs, Army M&S Domains
- **M&S in Testing (Lesson 3 & 4)**
  - T&E Overview, Why We Test, Different Testing Types (DTE, OTE, LFTE and Military Experimentation)
- **M&S in Analysis (Lesson 5)**
  - Overview of DoD Analysis Domain and Development of Analytical Simulation Study



## Prototype Course: Topics

### Module 2: Lifecycle M&S Issues

- **M&S Acquisition (Lesson 1 & 2)**
  - Focus of M&S in Acquisition, JCIDS and use of M&S in JCIDS, DoD Life Cycle and M&S in DoD Life Cycle, M&S Challenges in Acquisition over the DoD Life Cycle, M&S Contracting Considerations, SIM Based Acquisition (SBA)
- **M&S in Risk, Cost, and Decision Analysis (Lesson 3)**
  - M&S in Risk and Cost Analysis in Program Management, M&S support in Decision Making
- **Future Trends in Simulation (Lesson 4)**
  - M&S Convergence of Live, Virtual, and Constructive Simulation
  - Serious Games and massively Multiplayer Games, Agent Based Models, Other New M&S Trends
- **Guest Lectures (Provided expert knowledge and techniques)**
  - Concept Refinement
  - M&S Education Opportunities for DoD Communities



## **Prototype Course: Supplemental Materials**

- Case Studies
- Lesson Pre-Reads
- Handouts
- Group Exercises
- In-Class Tool Application
- Instructor Lead Discussion





## Lessons Learned...



- **Course Assessments**

- Each student completed a daily assessment, a weekly evaluation, and overall course evaluation.
- Each daily evaluation focused on the topic delivered that day
- Student feedback will be incorporated into future course offerings

- **Some Changes:**

- FA57s Only
- Incorporate more SMEs from DoD and Industry
- More Practical Exercises



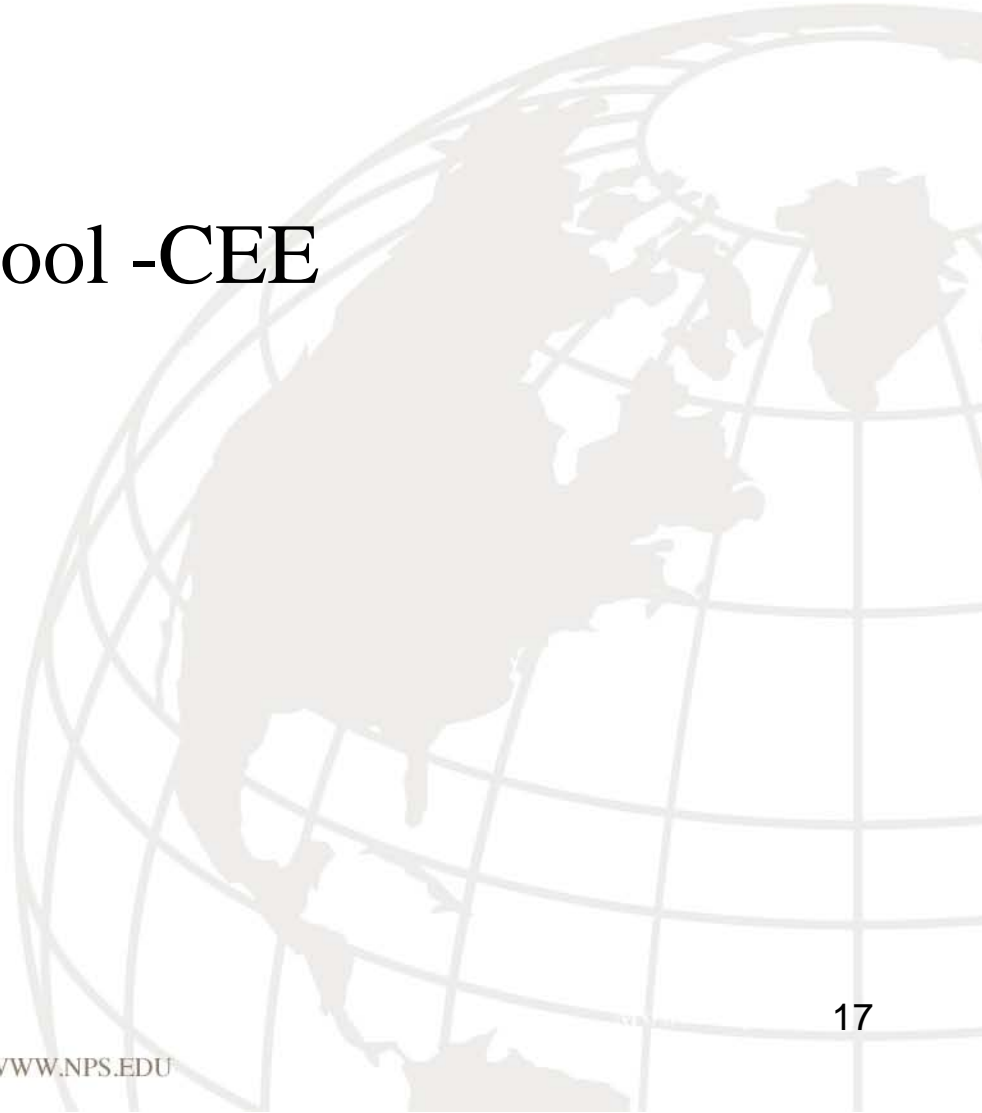
## The Way Forward...



## **Next Course:**

26 April – 7 May 2010

Naval Postgraduate School -CEE





## Contact us for more information...

### Naval Postgraduate School –SE Department

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# Questions?





# Backup Slides...



# How the Army Uses M&S

## What

### Analysis Community

Conduct Analyses on performance, effectiveness, survivability, trade offs, cost/benefit, logistical systems, personnel systems, army force structure and risk.

- Combat XXI,
- AWARS
- CASTFOREM
- Janus
- Spreadsheet Modeling
- CMS2
- APHAKS
- JICOM
- AMP
- MIDAS and GAMS

## Impact

Total Army Analysis products, determining effectiveness of weapon systems, determining performance and system characteristics of equipment and system purchases, determining effectiveness of force management decisions

## Who

CAA, TRAC, AMSAA

### Intelligence Community

Provide actionable events designed to stimulate/simulate the proper HUMINT, SIGINT, and GEOINT intelligence disciplines gathered in real world operations.

- TACSIM
- BSS
- IEWTPT
- CSP
- MUSE
- NWARS
- QSIDS
- JCATS
- JLCCTC Federation

Training intelligence personnel for COIN operations, and OIF/OEF activities

Army G2, USAIC, JICTC, Intelligence soldiers in the Operational Army

### Planning Community

Conduct a system of systems approach to various planning tools (i.e. Force Management Model)

- ARFORGEN
- CFAST
- APIT
- APEX
- MIDAS
- ELIST
- APOD/AST
- INFO-21
- JOPES and JFAST
- JDLM
- ADEPT

Determining warfighting capabilities requirements, conducting research and development, and providing resources. ARFORGEN analysis and modeling.

HQDA, Army Command, ASCCs, DRUs, Operational Units Staffs

## What

## Impact

## Who

### Experimentation Community

Exploring, testing and validating warfighting ideas and concepts to transform the way soldiers fight future battles .

- JLCCTC Federation
- HITL sims and simulators
- Controlled field experiments
- BLCSE
- MATREX and 3CE
- ATIN
- OTC
- ACRT
- AWARS
- One SAF
- EDSIM
- CMS2
- FireSIM
- CAMEX

Conduct of experiments involving soldiers and leaders within the live, virtual and constructive environments for exploring concepts, capabilities requirements and solutions across DOTMLPF and the AC2DP process

TRADOC, RDECOM, SMDC, USASOC, AMEDD, PEOs, Battle Labs, FORSCOM

### Acquisition Community

Provide virtual and constructive test beds thru which weapon, equipment and ammunition factors can be prototyped, tested and evaluated during the acquisition process.

- ANSYS LS-DYNA
- ProE, ANSYS
- One SAF
- MSC Adams
- MPR3D
- AJEM
- MUVES
- CB Sim Suite
- ALOHA
- PVTM
- Visual Weight
- MUVES
- SIV
- Casualty Reduction Model
- BlastX

Reduces testing time and costs and allows measurement of phenomenon that can not be measured using traditional methods. Provides data for procurement decisions. Allows for selection and characterization of optimal material solutions.

ASAALT, RDECOM, PEOs

### Testing Community

Employ M&S throughout program life cycle to support requirements definition; design and engineering; test planning, rehearsal, and conduct of an Army test.

- Live/Virtual/Constructive
- 4DWX
- Overarching Contamination Avoidance Model
- CBSNE
- DSOM
- JLCCTC Federation
- ECSM
- IMASE
- COLPRO
- DETES
- DMS3
- EGI/CEGS
- ETS
- NETS

Evaluate the performance of tested items , systems and/or organizations, early examination of soldier interface and missions, determines system performance and safety.

Army T&E, ATEC



# How the Army Uses M&S

**What**

**Impact**

**Who**

## Training & Operational Community

Delivering an integrated Live, Virtual and Constructive training environment that support the ARFORGEN model and mission rehearsal requirements.

- JLCCTC Federation
- Virtual Simulators
  - CCTT
  - AVCATT
  - EST 2000
- One SAF
- JNEM
- DCARS
- WARSIM
- IEWTPT
- JNTC
- LVC-IA
- Gaming

Pre-deployment training exercises, mission rehearsals, trained and ready soldiers, ABCS & digital system training

CTCs, NTC, JFCOM, BCTCs, all Army units

## Logistical Community

M&S develops a level of understanding of the interaction of the parts of the logistical system, and of the logistical system as a whole, seldom achievable via any other process.

- JDLM
- MIDAS
- JFAST
- ELIST
- TARGET
- PORTSIM
- POPS
- AMP
- JCATS
- JLCCTC Federation
- LOGFED

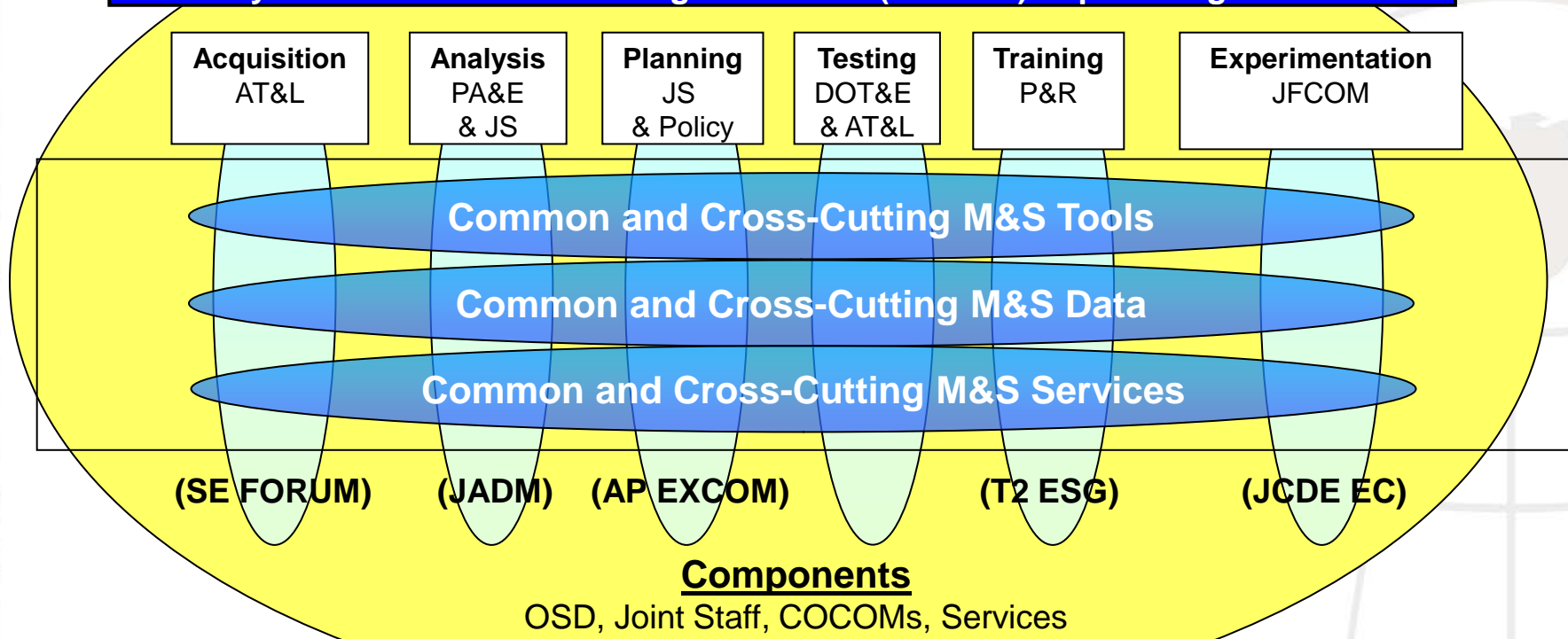
Deployment timelines, training soldiers in logistical functions and units, efficiencies of logistical operations

AMC Logistics Support Activity , SDDCTEA, soldiers in logistical units and staffs, AMC, NSC, CASCOM



# Surfboard Diagram

**New M&S Governance and Management Structure Organized by Communities.  
Designed to Support & Integrate M&S Activities across the Department.  
Led by a 1 to 2 Star M&S Steering Committee (M&S SC) to provide governance.**



(SE FORUM)

(JADM)

(AP EXCOM)

(T2 ESG)

(JCDE EC)

## Components

OSD, Joint Staff, COCOMs, Services

**Goal: Establish corporate M&S management to address DoD goals:  
Leads/guides/shepherds the \$Bs in DoD M&S investments; adds value thru  
metrics & ROI-driven priorities; and seeks to provide transparency.**







## **NPS & SME Recognition**

**Curtis Blais:** NPS CS & MOVES

**Jeff Cuskey:** NPS GSBPP

**Chris Darken:** NPS CS & MOVES

**John Dillard:** NPS GSBPP

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