



**A Roundtable on the Future of the
Modeling and Simulation
Profession, Industry,
and Marketplace**

**Monday, Sept 12, 2011
5:15 - 6:45 pm
Mylasa**

Observers welcome capacity permitting



**I3M Multiconference and
The NATO CAX Forum**

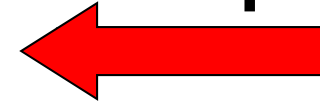




Meeting Agenda

I. Introduction

A. *SimSummit* Organization and Concept-of-Operations Review



II. Discussion Topics

A. Technology

B. Workforce Development

C. Industrial Development

D. Business Practice

III. Conclusion



SimSummit Need

- M&S is an emerging discipline, profession, industry and marketplace
- M&S diversity is common:
 - Many kinds of simulation, application domains, and simulation uses exist
 - Many simulation organizations exist
- M&S collaboration needs improvement:
 - technology is stove-piped,
 - professional certification is irregular,
 - the industry is not generally / globally recognized, and
 - markets are balkanized by application domain
- We can do better **TOGETHER**.



Sim Summit

**A Roundtable on the Future of the
Modeling and Simulation
Profession, Industry,
and Marketplace**



SimSummit Concept

- What? - Round-table of preeminent M&S 'organizations'
- Who? – Interested organizations from Industry, Government and Academia ... facilitated by non-profit Societies
- When / Where? – Opportunistic overload of organized events
- Why? – Influence the future of the M&S Discipline, Profession, Industry, and Market
- How? – Collective, consensus-based discussion decision, and action



Executive Committee

- National Training Simulation Association (NTSA)
- Modeling and Simulation Society International (SCS)
- Simulation Interoperability Standards Organization (SISO)



***SimSummit* Membership**

COMMERCIAL

AEgis Technologies Group, Inc.

The Boeing Company – Phantom Works

Booz-Allen Hamilton (BAH)CACI, Inc.

CACI Inc.

CAE Professional Services

Computer Sciences Corporation (CSC)

Dynamic Animation Systems (DAS)

Northrop Grumman

RAM Laboratories, Inc.

Raytheon Company

Science Applications International Corporation (SAIC)

Teledyne Brown Engineering

UK SeBA Forum



SimSummit Membership

EDUCATION

Arizona Center for Integrative Modeling and Simulation (ACIMS)

Auburn Modeling & Simulation Group (AMSG)

Georgia Tech – Modeling and Simulation Research & Education Center
(MSREC)

John Hopkins University – Applied Physics Laboratory (JHU/APL)

McLeod Institute of Simulation Sciences (MISS)

Old Dominion – Virginia Modeling, Analysis and Simulation Center (VMASC)

University of Alabama in Huntsville – Center for Modeling, Simulation and
Analysis (UAH CMSA)

University of Central Florida – Institute for Simulation and Training (IST)



***SimSummit* Membership**

PROFESSIONAL/INDUSTRIAL SOCIETIES

ACM Special Interest Group on Simulation (SIGSIM)

Alabama Modeling and Simulation Council (AMSC)

Liophant Simulation

McLeod Modeling and Simulation Network (M&SNet)

National Center for Simulation (NCS)

National Modeling Analysis Simulation and Training Coalition (NMASTC)

National Training Systems Association (NTSA)

New England Modeling and Simulation consortium (NEMSC)

Simulation Interoperability Standards Organization (SISO)

The Society for Modeling and Simulation International (SCS)



***SimSummit* Membership**

GOVERNMENT

DND Future Forces Synthetic Environment (FFSE)

DND Synthetic Environment Coordination Office (SECO)

Defence & Science Technology Laboratories Synthetic Environment Efforts

National Aeronautics & Space Administration (NASA)

NATO Modelling & Simulation Group (NATO-MSG)

National Institute of Standards & Technology (NIST)

UK Directorate of Analysis, Experimentation and Simulation (DAES)

U.S. Air Force Agency for Modeling and Simulation (AFAMS)

U.S. Army / Battle Command, Simulation & Experimentation Directorate

U.S. Coast Guard (USCG)

U.S. DoD / Modeling and Simulation Coordination Office (M&SCO)

U.S. Marine Corps Technology Division

U.S. Navy / Navy Modeling and Simulation Office (NMSO)



Power of a 'Topical Agenda'

TOPICAL AGENDAS:

- Sensitize communities to significant shared issues and opportunities
- Frame the domain of debate, decision, and action
- Provide 'hooks' to which organizations and constituencies can subscribe (common) interest
- Provide loci for programmatic commitment and coordination of cooperative effort



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Technology

- Body of Knowledge (Index)
- Research Agenda
- Conceptual Modeling
- Simulation System Composition
- Credibility – VV&A
- Standards



M&S BOK Index Program

**Modeling & Simulation
Body-of-Knowledge Index
(M&S BOK Index)**

Prepared for:
SISO SIW and SCS SpringSim

March 21, 2009

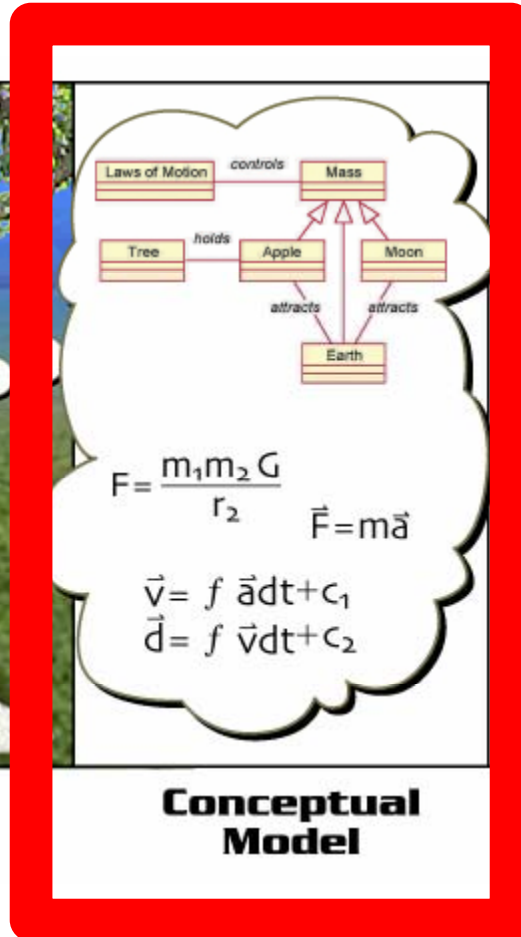
Bill Waite
Bwaite@AEgisTG.com

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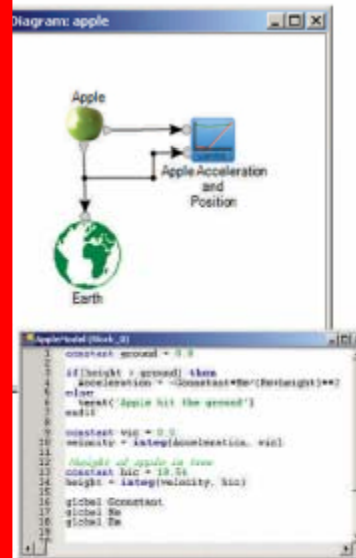
Conceptual Modeling



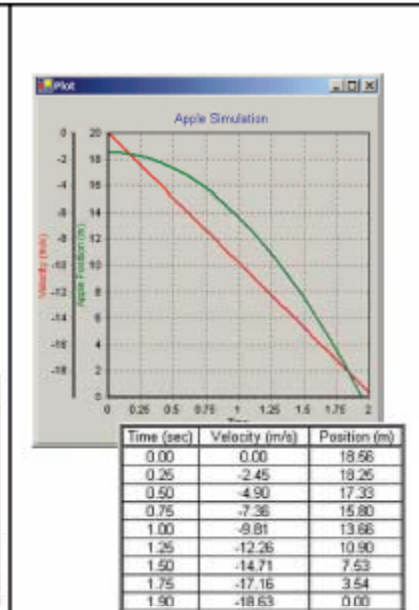
Real World



Conceptual Model



acslXtreme Simulation



Analytical Results



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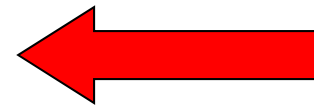
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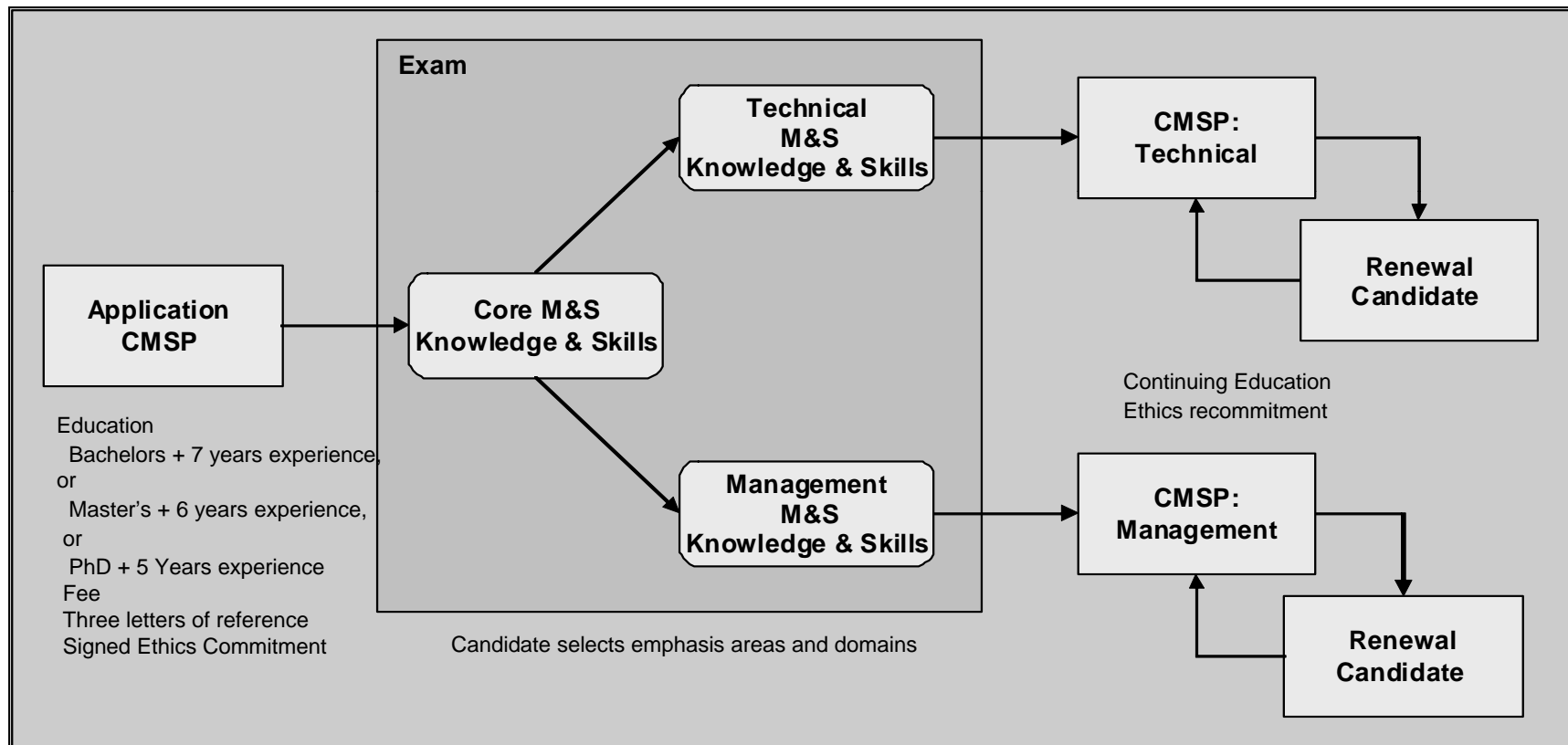


Workforce Development

- Professional Competency Needs
- Instructional Curricula
- Code of Ethics
- Professional Certification
- Science Technology Engineering and Mathematics (STEM) Entailments
- Workforce Development Campaign Program

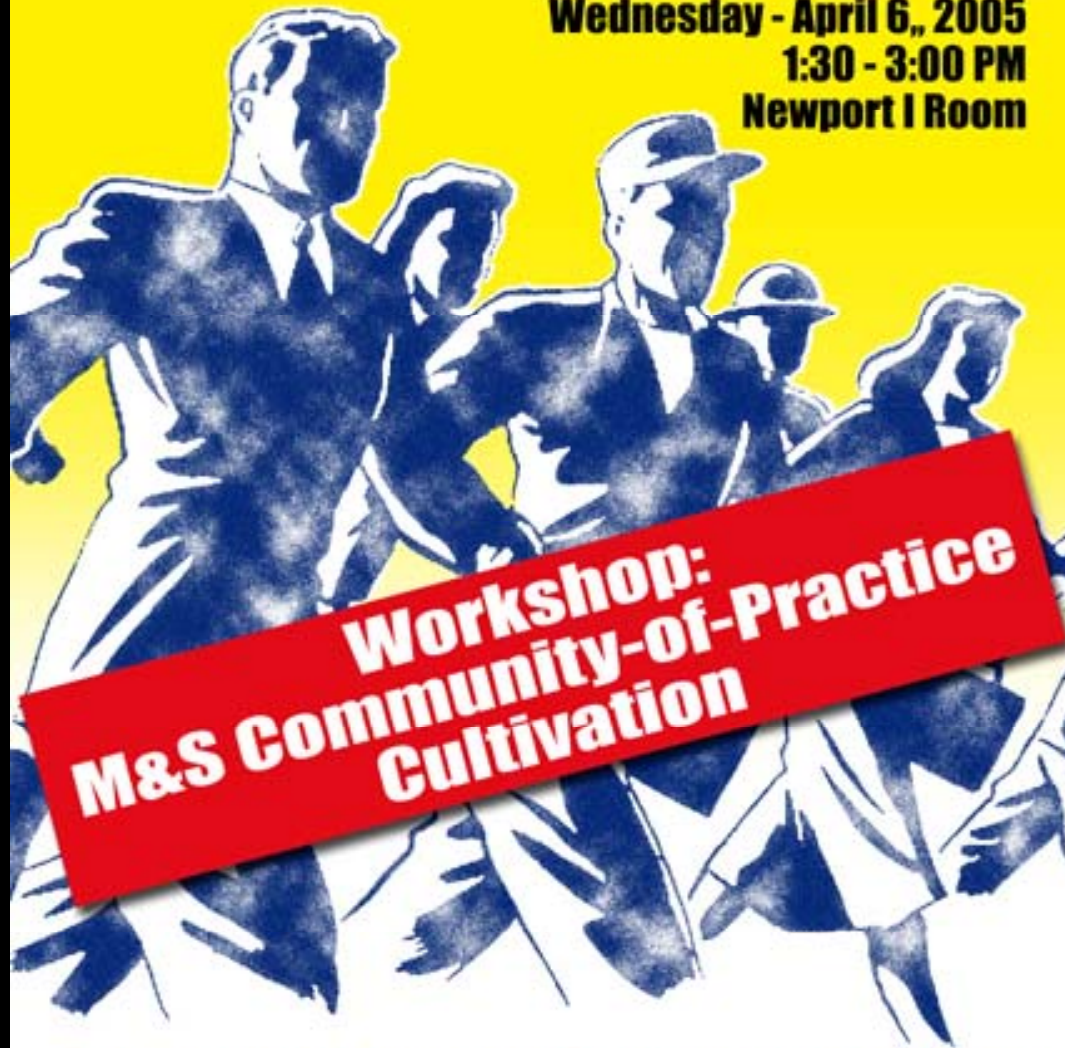


Updated CMSP Process



M&S WORKFORCE DEVELOPMENT

Wednesday - April 6, 2005
1:30 - 3:00 PM
Newport I Room



**Workshop:
M&S Community-of-Practice
Cultivation**

Commercial Education Government Societies



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Industrial Development

- Industrial Identification – Self-conscious Recognition
- Organizational Relations
 - Industry
 - Professional Societies
 - Government (Legislature / Executive, Inter-Departmental, Multinational)
- Organizational Development
 - National Organizational Presence
- National M&S Enterprise Campaign

Domain

Standing

International



National



Inter-regional



Regional



Organizational



M&S Industrial Development Environment



M&S Caucus



Purpose of the Caucus?

The Caucus will showcase M&S initiatives, promote the M&S industry, and will be a forum to understand the policy challenges facing this growing and versatile technology.

<http://forbes.house.gov/Biography/MSCaucus.htm>

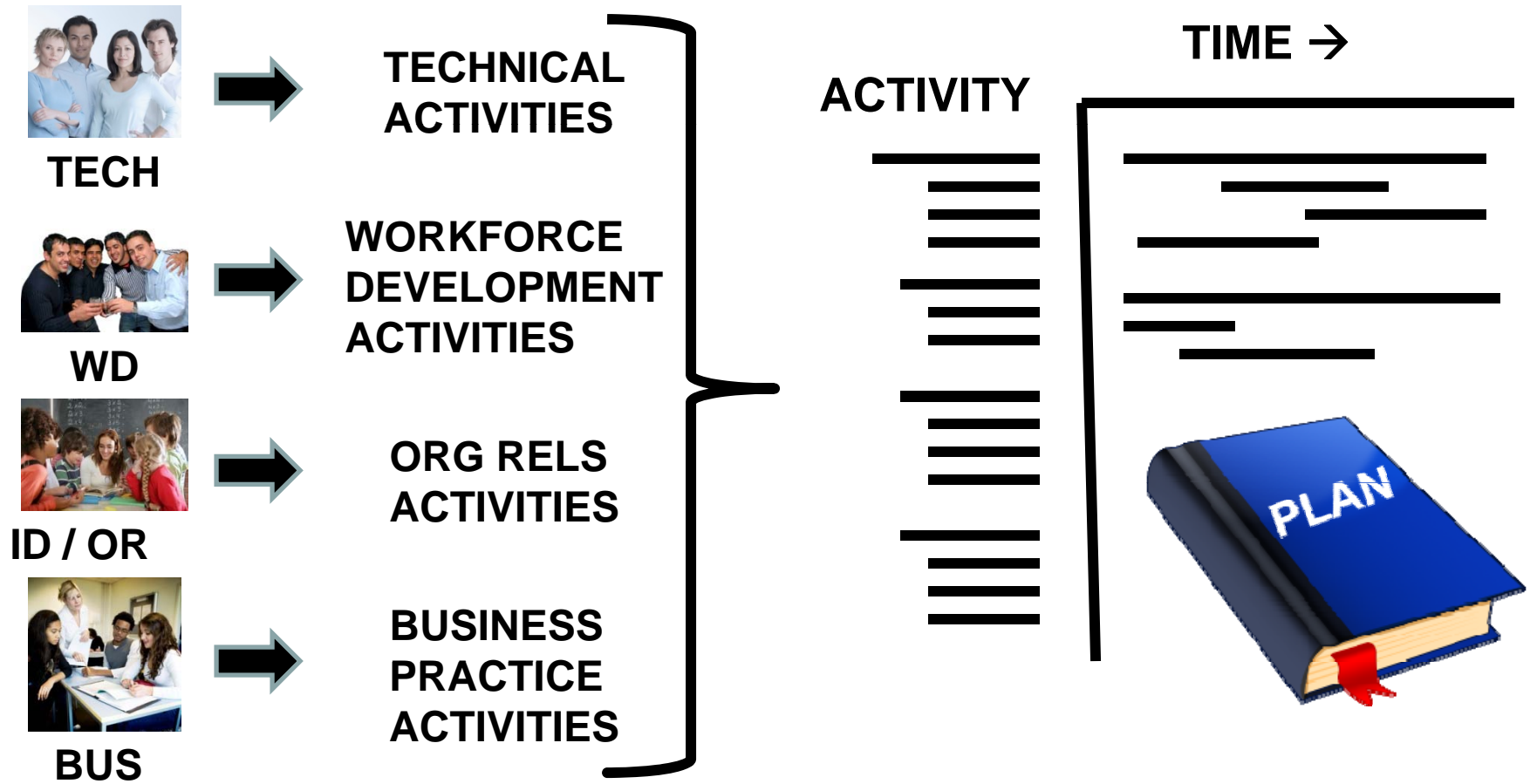


U.S. National M&S Coalition

**Commit to ‘Real-ize’ H.Res.487,
- declaring Modeling and Simulation a
“national critical technology” -
by establishing, implementing, and
initiating a comprehensive
“National M&S Enterprise Campaign”
to accelerate evolution of the M&S
discipline, workforce, industry and
market.**



U.S. National M&S Enterprise Campaign Definition





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Business Practice

- Industrial Classification Codes
- Enterprise Perspective
- Investment Metrics (ROI etc.)
- Business Case Expression
- 'Economics of M&S' Program

Proposal to Add a North American Industry Classification System (NAICS) Code for the Modeling and Simulation Industry

Prepared and Submitted by:

**National Training and Simulation Association
Society for Modeling and Simulation International
Simulation Interoperability Standards Organization
National Center for Simulation
Alabama Modeling and Simulation Council
New England Modeling & Simulation Consortium
Mid-Atlantic Institute for Simulation and Analysis
Virginia Modeling, Analysis and Simulation Center**

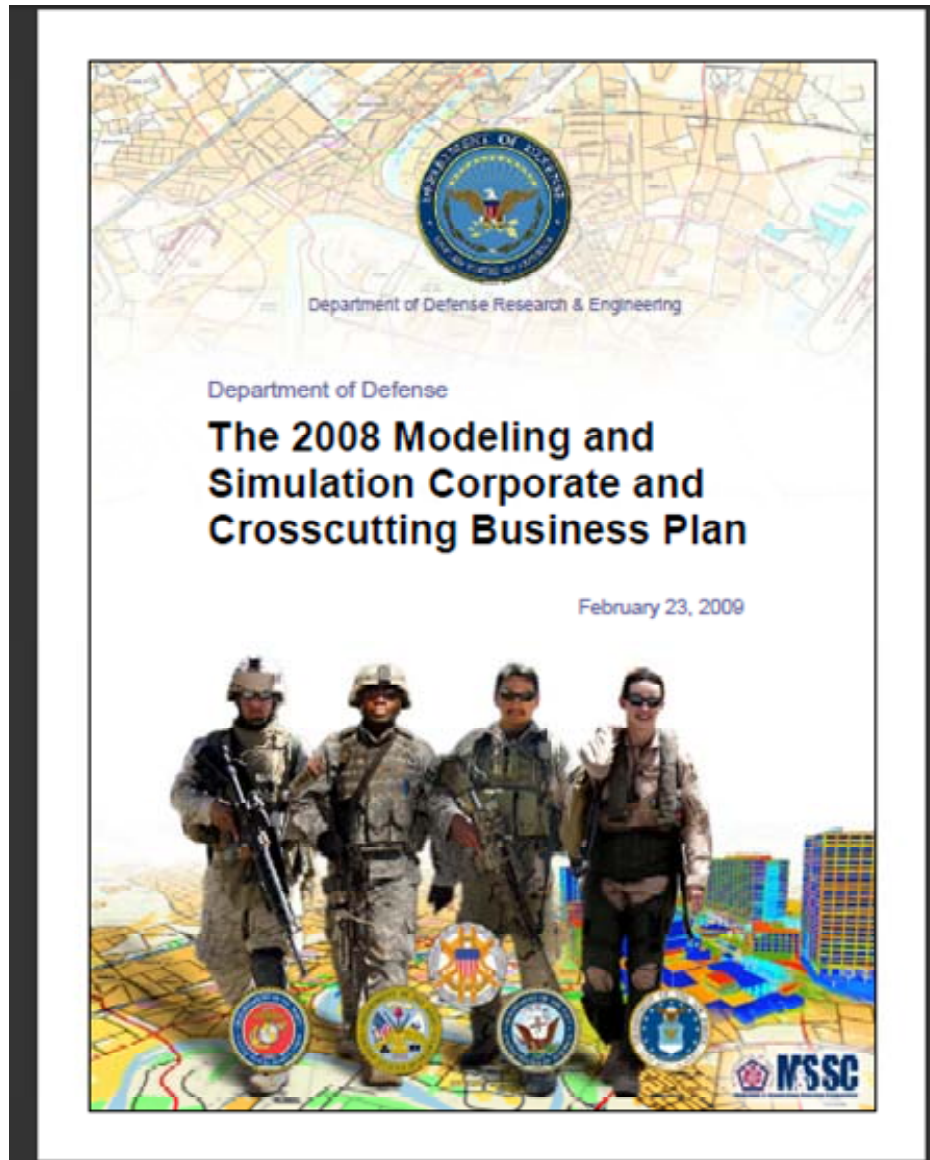


Enterprise Perspective

- ‘One or more [organizational units] under common ownership or control’. Generally refers to the broadest scope of organization and operational process relevant to the subject discussion rather than to individual components thereof.



DoD “Business Plan”





Final Technical Report of
***SimSummit* Survey on**
US DoD M&S Management / Leadership

1 August 2007


Prepared by:
***SimSummit* Round Table**

Prepared for:
**US DoD Modeling and Simulation Steering
Committee Tri-Chairs**



M&S Investment Context

A Publication of the Defense Acquisition University <http://www.dau.mil>



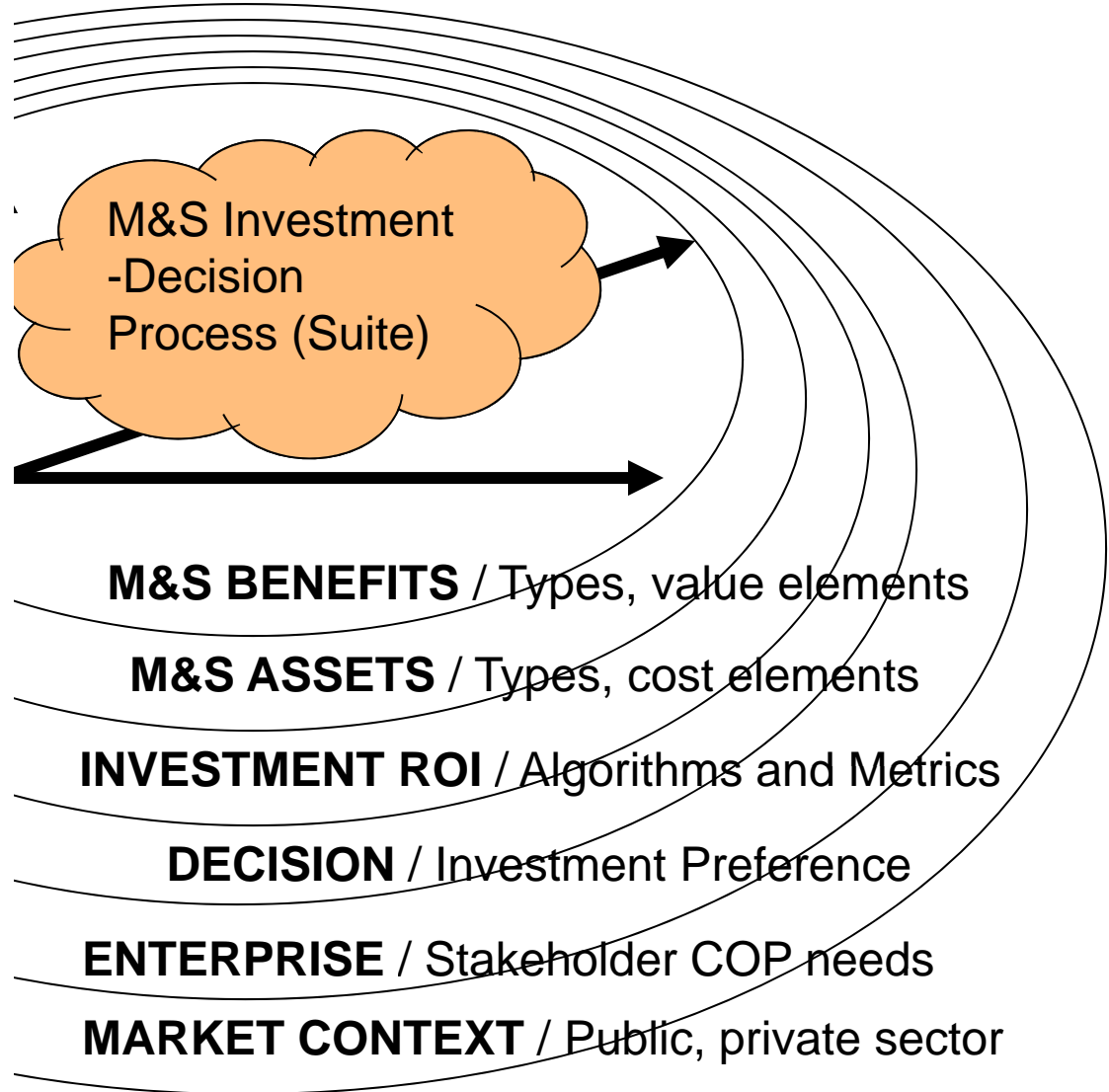
CALCULATING RETURN ON INVESTMENT FOR U.S. DEPARTMENT OF DEFENSE MODELING AND SIMULATION

Ivar Oswald, Tim Cooley, William Waite, Elliot Waite, Steve "Flash" Gordon, Richard Severinghaus, Jerry Feinberg, and Gary Lightner

As budgets decrease, it becomes increasingly important to determine the most effective ways to invest in modeling and simulation (M&S). This article discusses an approach to comparing different M&S investment opportunities using a return on investment (ROI)-like measure. The authors describe methods to evaluate "benefit" (i.e., increased readiness, more effective training, etc.) received from an investment and then use those metrics in a decision analysis framework to evaluate each M&S expenditure. Finally, they conclude by discussing the importance of viewing M&S investments from a Department of Defense (DoD) Enterprise view, evaluating investment over multiple years, measuring well-structured metrics, and using those metrics in a systematic way to produce an ROI-like result that DoD can use to evaluate and prioritize M&S investments.

Keywords: Modeling and Simulation (M&S), Investment, Return on Investment (ROI), Efficiency, Value

image designed by Erica Kobren

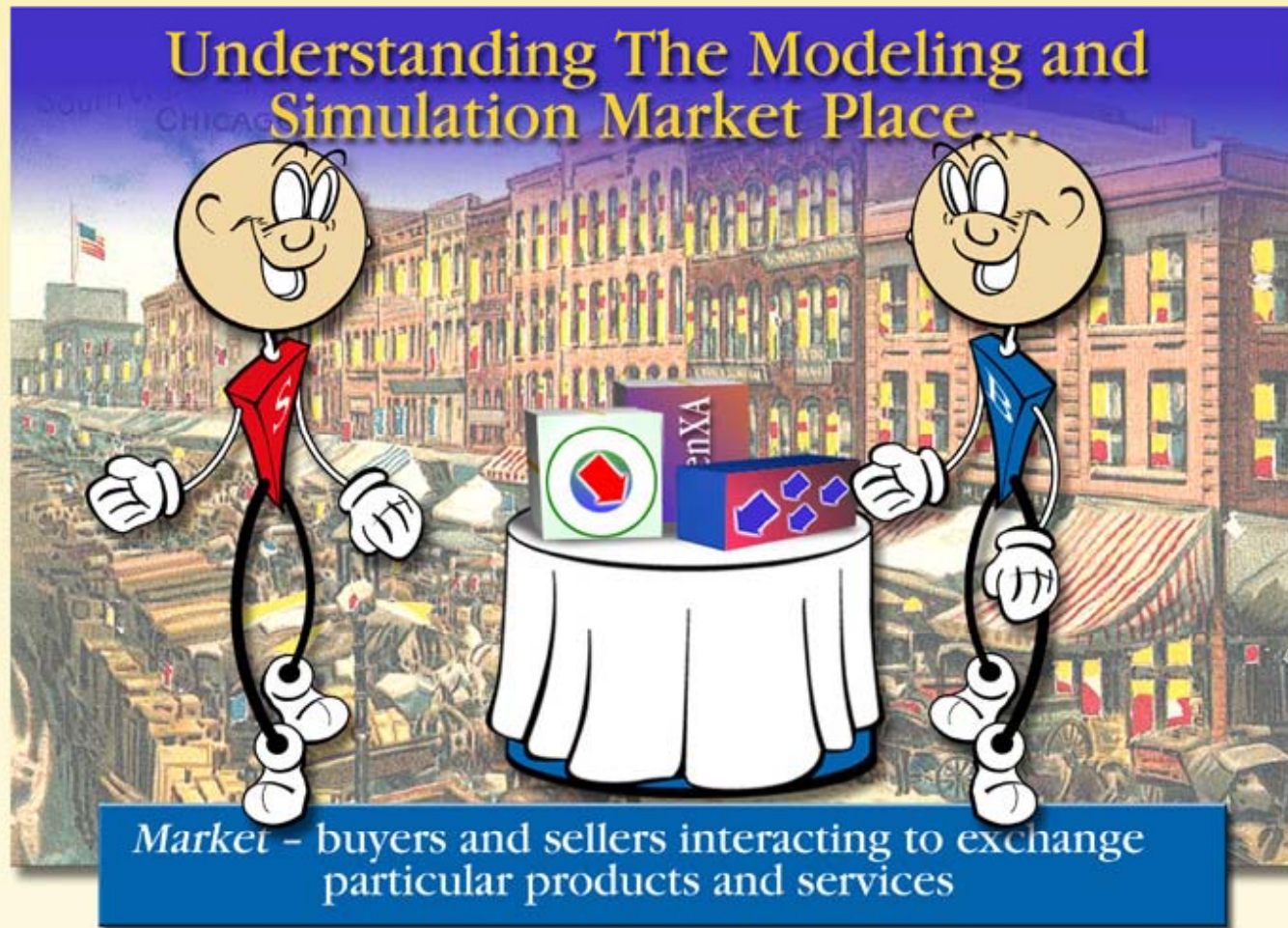




Business Case Specification

- A 'Business Case' is an expression of how some practice may be perceived as appropriate by the relevant stakeholders and so support their judgment to commit to the practice
- Business Case Factors: = f (business process / practices, roles, perspectives, cost / benefit management, context of interpretation, ...)

Collegial Initiative on: The Economics of Simulation





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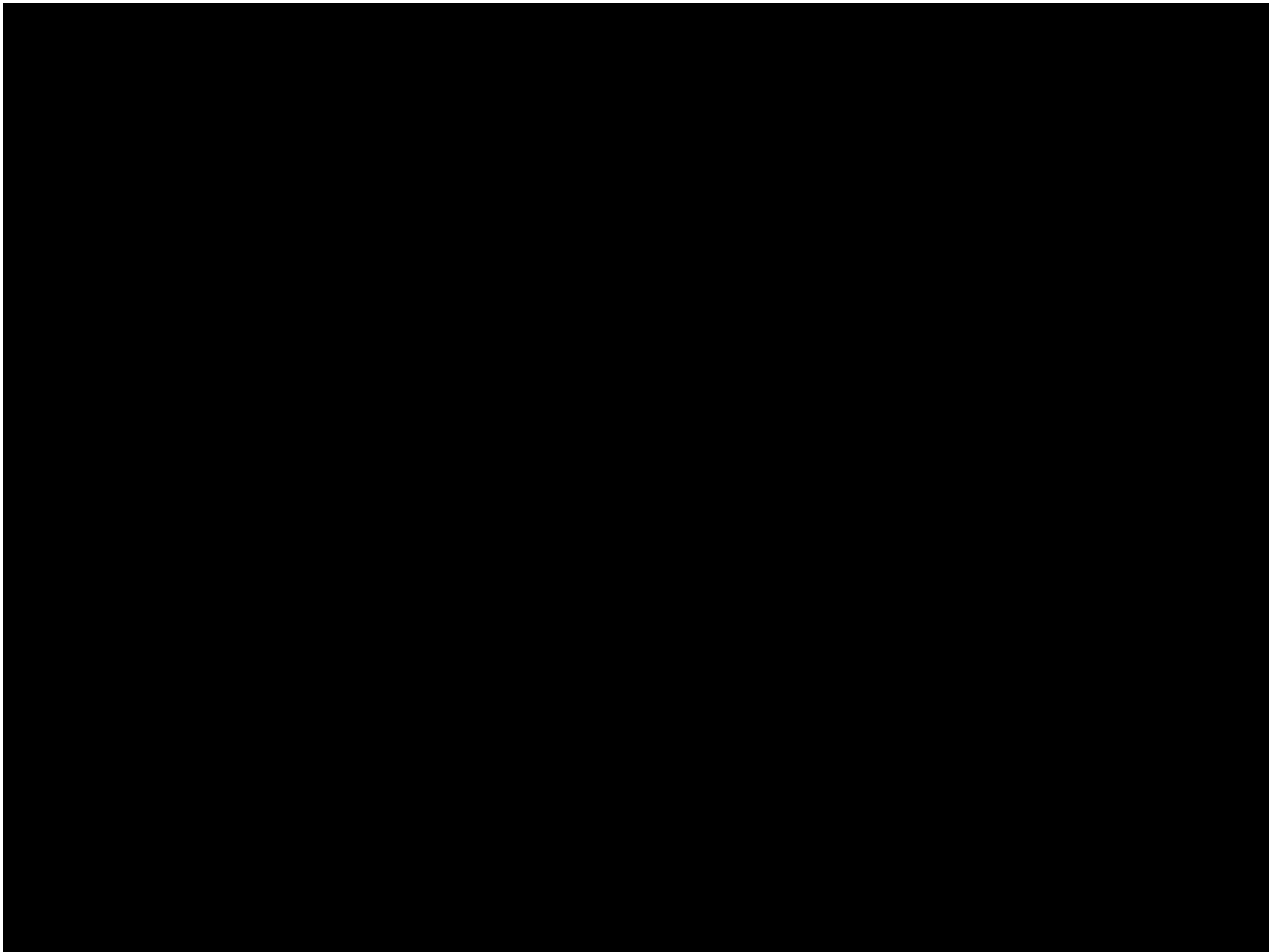
SimSummit M&S Round Table





***SimSummit* M&S Round Table**

Questions / Comments





Enterprise Perspective

- ‘The DoD M&S *strategic vision* is to “...empower DoD with modeling and simulation capabilities that effectively and efficiently support the full spectrum of the Department’s activities and operations.” Enterprise-wide goals cited involve enhancements in standards, policies, management processes, tools, and people (the workforce). Each of these goals will require carefully managed investment in order cost-effectively to realize the M&S vision.’

Ref: “ Metrics for Modeling and Simulation (M&S) Investments”, Nov 2008