

M&S Leadership Summit 2009

In cooperation with the

Congressional Modeling and Simulation Caucus

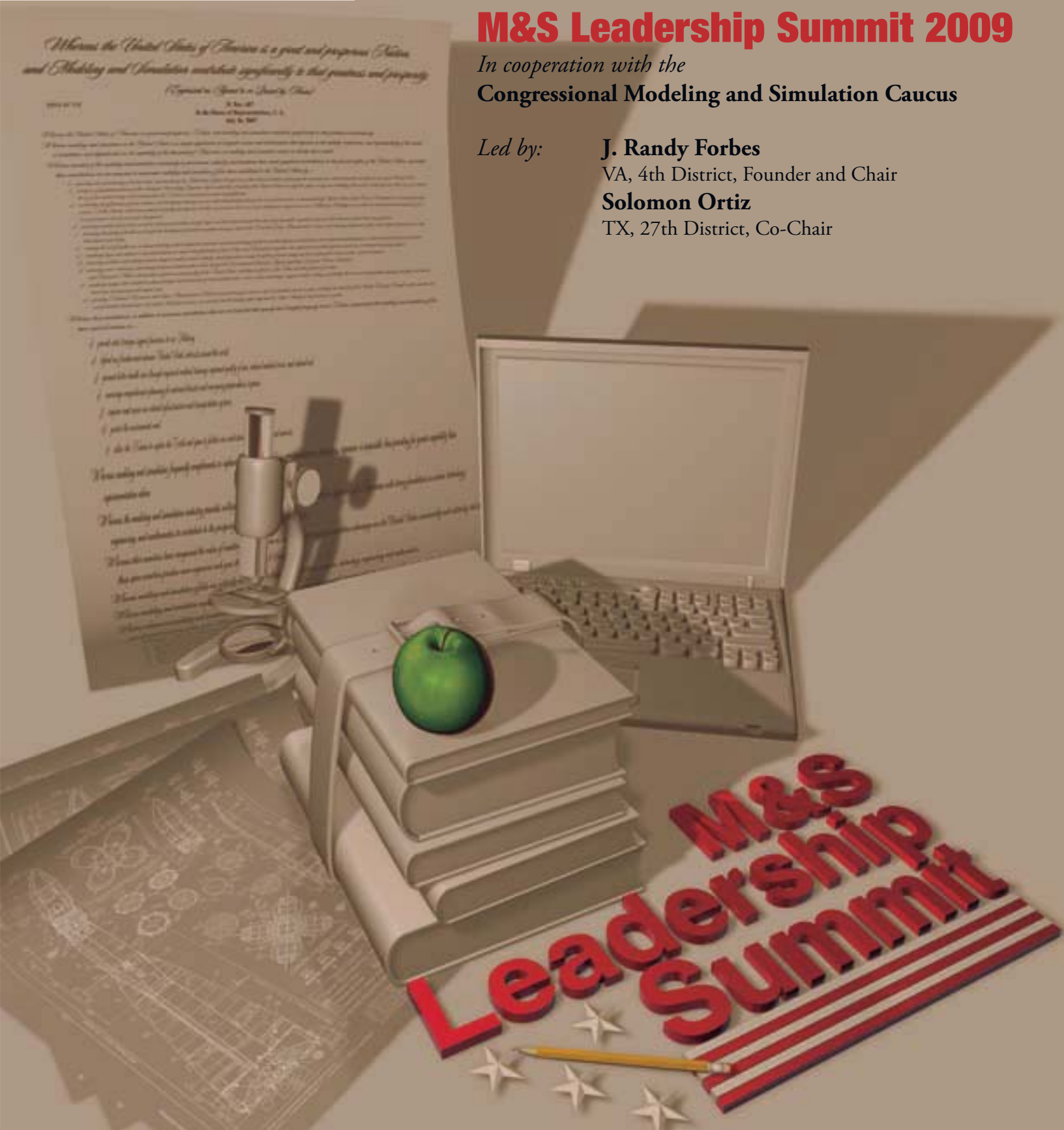
Led by:

J. Randy Forbes

VA, 4th District, Founder and Chair

Solomon Ortiz

TX, 27th District, Co-Chair



FEBRUARY 02, 2009 ► WWW.TRAININGSYSTEMS.ORG

NORFOLK WATERSIDE MARRIOTT ► NORFOLK, VA

EVENT #91C0



Acknowledgments

The fourth annual Modeling and Simulation Caucus Leadership Summit, sponsored by the National Training and Simulation Association (NTSA), was held in Norfolk, Virginia on Monday, 2 February 2009. RADM Fred Lewis USN (Ret.), President of NTSA, and his organization, provide support to the Modeling and Simulation Congressional Caucus, co-chaired by Congressman J. Randy Forbes and Congressman Solomon P. Ortiz. In order to support the furtherance of recommendations made through this summit, and in planning for future events, NTSA formed a standing committee to provide the interface to the Caucus for the planning of this event and others throughout the year in support of the Caucus. Members of this committee commit significant time and effort to ensure these events accomplish both the agendas of the Caucus and of the community of practice. In addition to RADM Lewis, the members of this standing committee, and their business affiliations, include:

Dr. Linda Brent, Chair, The ASTA Group
 Mr. Rich Bensinger, SAIC
 Mr. Ed Curle, Modeling and Simulation Coordination Office, OSD
 Mr. Michael Finnern, L-3 Communications
 Mr. Tom Frost, Joint Forces Command
 Mr. Fred Hartman, Institute for Defense Analyses
 Mr. Russ Hauck, National Center for Simulation
 Ms. Barbara McDaniel, National Training and Simulation Association
 Dr. Mike McGinnis, Virginia Modeling, Analysis and Simulation Center
 Ms. Lisa Moya, WernerAnderson, Inc.
 Mr. Michael Papay, Northrop Grumman
 Mr. Patrick Rowe, National Training and Simulation Association
 Mr. Bill Tucker, The Boeing Company
 Mr. Bill Waite, AEgis Technologies

Sincere thanks to all the committee members and participants for their continued dedication and commitment to furthering the national agenda of modeling and simulation.

Congressional Modeling and Simulation Caucus Current Members (Summer 2009)

Congressman Randy Forbes, Co-Chair - Virginia	Congressman Doug Lamborn - Colorado
Congressman Solomon Ortiz, Co-Chair - Texas	Congressman Jim Matheson - Utah
Congressman Robert Aderholt - Alabama	Congressman Jeff Miller - California
Congressman Ken Calvert - California	Congressman Glenn Nye - Virginia
Congressman John Carter - Texas	Congressman Todd Russell Platts - Pennsylvania
Congressman Mike Conaway - Texas	Congressman C.A. Dutch Ruppersberger - Maryland
Congresswoman Susan Davis - California	Congressman Bobby Scott - Virginia
Congressman Jim Gerlach - Pennsylvania	Congressman Joe Sestak - Pennsylvania
Congressman Phil Gingrey - Georgia	Congressman Zach Wamp - Tennessee
Congressman Maurice Hinchey - New York	Congressman Joe Wilson - South Carolina
Congresswoman Suzanne Kosmas - Florida	Congressman Rob Wittman - Virginia

From doctors performing hands-on simulated surgeries, to homeland security models that account for details such as wind direction and construction sites, to transportation models that show projected traffic patterns in your hometown decades into the future, modeling and simulation is on the verge of breaking out of the defense industry and into the everyday lives of Americans. The Modeling and Simulation Caucus showcases M&S initiatives, promotes the M&S industry, and serves as a forum to understand the policy challenges facing this growing and versatile technology



M&S Caucus Leadership Summit 2009 Legislative Priorities

Advance Use of Modeling and Simulation Technologies across Disciplines

The Modeling and Simulation Caucus has recently advanced the use of modeling and simulation through legislation in two critical areas of health care and education. The 4th Annual M&S Caucus Leadership Summit, hosted by the National Training and Simulation Association, elevated several key 2009 priorities. The priorities address the use of this technology to implement Science, Technology, Engineering and Mathematics (STEM) in education, to strengthen healthcare, to support research and development, and to expand workforce development. The key legislative focus areas to achieve these objectives are:

FUNDING

Specify a portion of stimulus package to integrate STEM into K-12 education

Provide grant opportunities for K-12 public education to establish new programs to enhance math and science education through the use of modeling and simulation technologies.

Provide funding to create new job training programs incorporating modeling and simulation; demonstrate return on investment through its use.

Re-Authorize the Small Business Innovation Research (SBIR) program

Provide language in the re-authorization of the SBIR program that supports research and development in new areas of modeling and simulation, to include: human capital, social and cultural research, and hardware development

Direct funding through Department of Health and Human Services to encourage use of M&S to reduce the cost of healthcare

Provide incentives to schools of medicine, nursing, and other health professionals to incorporate modeling and simulation technologies into their training and education programs. Require hospitals to demonstrate cost reduction programs by incorporating these technologies into patient care.

POLICY

Encourage cross-agency collaboration in M&S

Establish cross-agency commission to identify uses of modeling and simulation within each agency, and identify collaboration efforts that can save government dollars through re-use of technologies and application of existing technologies to new areas and demonstrated return on investment measures.

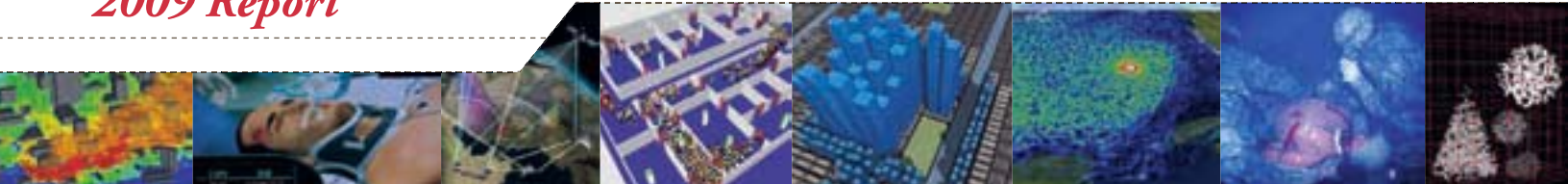
Modify ITAR regulations to provide opportunities to export M&S Technologies

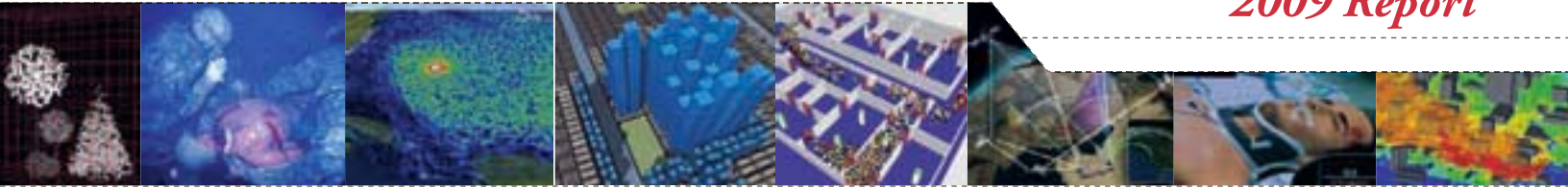
Current regulations provide little opportunities for export of non-critical M&S technologies to allied nations. Modifications can allow more flexible interpretations of M&S to provide growth to industry in non-critical export areas.

For further information, please contact:

National Training and Simulation Association, 2111 Wilson Boulevard, Suite 400, Arlington, VA 22201-3061,
(703) 247-2569, bmcdaniel@ndia.org

2009 Report





M&S Leadership Summit 2009

Proceedings Summary

Background

The National Training and Simulation Association (NTSA), in cooperation with the Congressional Modeling and Simulation Caucus, conducted the Fourth Annual Modeling and Simulation (M&S) Leadership Summit on February 2, 2009 in Norfolk, Virginia. RADM Fred Lewis, USN (Ret.), President, NTSA, provided opening comments, welcomed the Congressional Caucus members in attendance, and greeted the meeting participants and attendees. The 2009 M&S Leadership Summit continued the Association's collective effort to develop a framework for greater advocacy of modeling and simulation as a National Enterprise. This year's theme for the event was to identify, highlight, and discuss regional initiatives around the United States that can provide models for national efforts.

We are indebted to Congressman J. Randy Forbes, VA, 4th District, M&S Caucus Founder and Co-Chair and Congressman Solomon Ortiz, TX, 27th District, M&S Caucus Co-Chair for lending support for this event. Congressman Robert (Bobby) Scott, VA, 3rd District provided opening comments to set the tone of the meeting and focus on the theme "Modeling and Simulation, A National Enterprise." Congressman Scott made a point that the M&S Leadership Summit is the only M&S conference dedicated to federal policy. Therefore, it must remain current. M&S is an essential component of leading the nation into the 21st century. He identified the college grant program as one of the tangible products of the Caucus.

Congressman Forbes and Congressman Rob Wittman, VA, 1st District, provided commentary during the luncheon to emphasize their commitment to the growth of this technology. Congressman Forbes encouraged industry to join forces to stimulate growth, cooperation, and transformation of this technology to new areas of endeavor. Actions taken by the Caucus to this point have been very encouraging to the M&S community. In June 2007, the House passed a resolution, HR 487 declaring M&S a "National Critical Technology." In the 2008 session of Congress, an authorization in the Higher Education Act offers incentives to colleges and universities across the country for establishment of programs dedicated to the study of M&S. Additionally, House Resolution (H.R.) 4321 was reintroduced in the 111th Congress to amend the Public Health Service Act to authorize medical simulation enhancement programs. It is time now for the industry to move to the next level and take the technology into new and emerging areas to meet the current needs of our country – health care, education, infrastructure improvement, and homeland security.

The balance of this meeting report summarizes the four major panels devoted to initiatives around the country, from regional perspectives that provide the basis for supporting modeling and simulation as a national enterprise.



Summit Keynote Address

The Honorable Dr. Anita Jones, *University Professor and the Lawrence R. Quarles Professor of Engineering and Applied Science at the University of Virginia*, delivered the summit keynote address. She discussed the broad-based application of modeling and simulation technologies, and the importance of standards in furthering its use across disciplines. She challenged both industry and government to join forces to provide a framework to encourage the sharing and collaboration across agencies and disciplines in the use of modeling and simulation.

Dr. Jones challenged the current organizational structure to become more inclusive – to invest in building components in this environment that can be re-used across environments. She spoke to the market fractionalization and asked “why is there no M&S company the size of Microsoft?” The market prospects for the future are significant, and she challenged those in the community of practice to join forces to address the issues of credibility, standards, and usability across process.

Panel 1: Regional Initiatives in Modeling & Simulation: Northeast/Atlantic

Moderator: Dr. Mike McGinnis, VMASC / ODU

Panelists: Delegate John Cosgrove, Virginia House of Delegates

Dr. Steve Dawson, Harvard Medical School

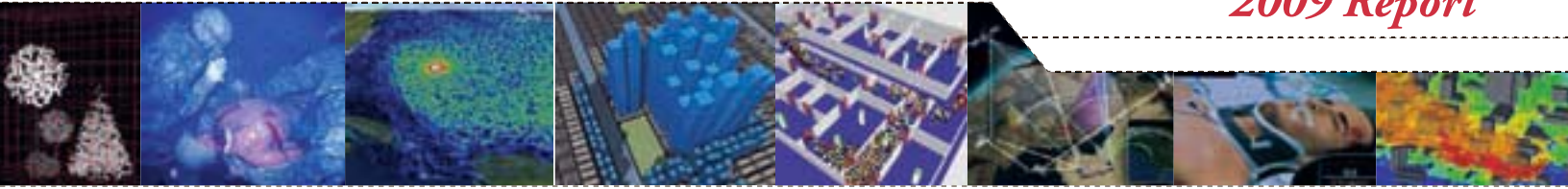
Mr. E. Dana Dickens III, Hampton Roads Partnership

Mr. Greg Knapp, Joint Warfighting Center, JFCOM

Dr. Daniel Serfaty, Aptima Corporation

Some of the highlights from this panel include general comments about the industry and its application to the medical fields. Highlights of its application to healthcare are:

- The use of simulation to train medical professionals has been very successful and achieved significant results. Among all simulation-trained specialists, major obstetric complications have decreased by over 25% and anesthesia errors have decreased over 17%. The challenge is to transfer this success nationally.
- Malpractice insurance in the Boston area can cost as much as \$160K per year for certain medical specialties. A primary insurance carrier now offers a 10% discount to those individuals that participate in simulation training.



- Congressman Forbes and Kennedy introduced H.R. 4321 to amend the Public Health Service Act to authorize medical simulation enhancement programs for the purpose of conducting and supporting research, evaluations, initiatives, and demonstration projects, and providing grants or enter into contracts or cooperative agreements, to enhance the deployment of medical simulation technologies and the incorporation of such technologies and equipment into medical, nursing, allied health, podiatric, osteopathic, and dental education and training protocols.

There also was commentary on the growth of modeling and simulation initiatives across the Hampton Roads area. These initiatives were discussed from an industrial base perspective, a defense perspective, and a university perspective. The impacts of modeling and simulation on this area of the country include:

- M&S has a $\frac{3}{4}$ Billion dollar impact on the Hampton Roads area, and is a \$2.3B industry in the state of Virginia, with over 8,700 employees; Suffolk is Hampton Roads' M&S Center of mass.
- The Hampton Roads Research Partnership provides opportunity for regional M&S advocacy and development of an M&S Regional Strategic Plan; the MODSIM World Conference and Expo sponsored in the Hampton Roads area provides opportunities for M&S awareness and encourages knowledge sharing within the M&S community.
- There is high interest on government's part to further M&S research and development in the soft science of human performance and joint capabilities; this requires richer models of human performance and migration from cognitive to socio-cultural models.
- Old Dominion University's M&S academic programs continue to expand with the nation's first undergraduate M&S program to be offered in academic year 2010.
- Future directions of M&S include the notion that the distinction between virtual and constructive (V-C) simulation will disappear in 5-10 years and move to some hybrid type of classification.

Several key organizations exist across this region to coordinate the efforts and further the modeling and simulation growth in the region. These organizations include: The New England Modeling & Simulation Consortium, Virginia Modeling and Simulation Consortium, and the Mid-Atlantic Modeling and Simulation Association. In each case, these organizations were formed to promote, leverage and enable M&S contribution in problem-solving applications, learning, and discovery through thought-leadership, collaborative partnerships, and M&S industry representation.

The key legislative issues identified by this panel are:

- Re-introduce H. R. 4321 in the 112th Congress and execute the legislation (Note: At the time of this report, the bill has been re-introduced jointly by Congressmen Forbes and Kennedy.)



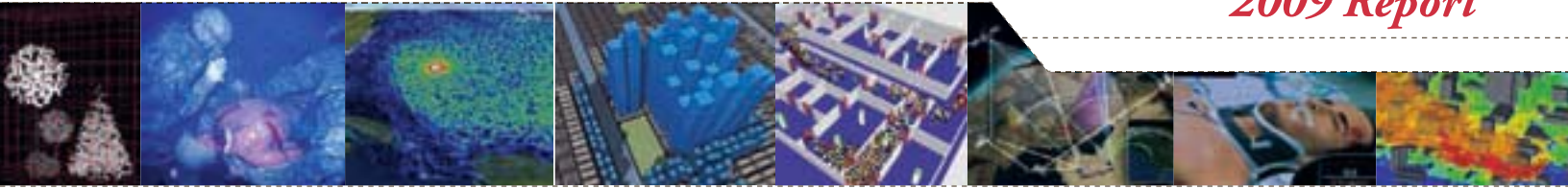
- Encourage the development of NAICS codes by the Department of Labor to define qualified M&S personnel and capable companies
- Encourage emphasis on the use of M&S in non-DoD areas, i.e. Infrastructure and civilian training
- Encourage small business support for M&S initiatives and Research and Development
- Institute a policy review to revise International Traffic in Arms Regulations (ITAR) and Export Administration Regulations (EAR) to help stimulate small business attempting to conduct business worldwide
- Re-Authorize the Small Business Innovation Research (SBIR) Funding

Panel #2: Regional Initiatives in Modeling & Simulation: Southeast/ SouthCentral

- Moderators: Mr. Russ Hauck, National Center for Simulation
Mr. Bill Waite, Alabama Modeling and Simulation Consortium
- Panelists: Dr. Jim Blake, Program Executive Office, U.S. Army STRI
Dr. Richard Fujimoto, Georgia Tech
Mr. Deryl Israel, Air Armament Center, United States Air Force
Dr. Michael Macedonia, Forterra Systems
Dr. Mikel Petty, Alabama Modeling & Simulation Consortium
Dr. Randall Shumaker, University of Central Florida, IST

Membership on this panel included representation from key sectors of the modeling and simulation community of practice – government, industry and academia. For the government sector, representatives from the training community as well as the test community discussed the role and importance of modeling and simulation within their business models. From a university perspective, discussion centered on the need for continued support of research and development opportunities and dollars, to further develop these technologies for applications across multiple domains. Additionally, two regional organizations that support the furtherance of modeling and simulation were also represented – the National Center for Simulation, based in Orlando, Florida, and the Alabama Modeling and Simulation Consortium. A summary of key issues discussed by the panel are that:

- There is tremendous growth in Central Florida for medical simulation with the establishment of the new medical complex at Lake Nona. This complex will incorporate state of the art modeling and simulation technology for training and education purposes.



- Emerging areas for research in modeling and simulation include the use of mixed reality and its application to training and education, and the area of cultural and socio-economic simulation models and applications.
- The need exists for increased research dollars in modeling and simulation to support common architecture development; emerging needs and requirements also exist for the application of technology to new areas.

The legislative issues identified by this panel are:

- Provide incentives to use modeling and simulation as a means by which to mitigate risk across domains (e.g. infrastructure development, health care)
- Establish incentives for the use of modeling and simulation to demonstrate return on investment for dollars spent on programs and large systems
- Increase dollars for R&D with a formulated national research agenda
- Provide incentives for workforce development dollars to be spent to encourage growth in science and engineering disciplines among the U.S. workforce

Panel #3: Regional Initiatives in Modeling & Simulation: Southwest & Midwest

Moderators: Ms. Lisa Moya, WernerAnderson

Mr. Bill Tucker, The Boeing Company

Panelists: Mr. Glyn Anderson, Game Production Services, LLC

Dr. Carolina Cruz-Neira, University of Louisiana

Mr. Lawrence J. Cox, Los Alamos National Laboratory

Dr. Jim Wall, Texas A&M University

This panel represented substantial diversity both because different regions of the country were represented and because a variety of modeling and simulation capabilities and types were discussed. The region lacks regional organizations to support collaborative and coalition activities comparable to the first two regions discussed. However, there are numerous examples of the depth and breadth of modeling and simulation efforts. These were represented on the panel by several universities along with industry and government organizations. In each case, these organizations all use modeling and simulation technologies, and see the need to collectively bring these capabilities to bear on national priorities and initiatives. Some of the highlights of this panel that were identified as just a few examples of initiatives in this region include:



- Discussion of numerous individual projects with companies, such as John Deere, in which M&S technologies were applied to improved production performance. The production time for the company was improved substantially through the use of system modeling technologies.
- There are several plans across states to identify the use of M&S technologies to improve performance of business processes and capabilities.
- A need identified by the universities for continued emphasis on research and development initiatives, and on funding to support the use of M&S in new and emerging areas, such as homeland security and homeland defense.
- A call for the region to come together to create a stronger voice for M&S across their states, and across regions of the central and south central United States.

The legislative issue identified by the panel is:

- Continue the commitment of R&D dollars to encourage the development of common architectures for applicability of M&S technologies across domains.

Panel #4: Regional Initiatives in Modeling & Simulation: Far West

Moderator: Mr. Fred Hartman, Institute for Defense Analyses

Panelists: Dr. Ron Fuchs, The Boeing Company

Mr. John Illgen, Northrop Grumman

Dr. James Peery, Sandia National Laboratories

CDR Joe Sullivan, MOVES Institute

The Far West Panel was comprised of leaders in modeling and simulation from government, academia and industry. Several recurring ideas came across in this panel that was perhaps unique from other panels. One such point was to reinforce the need and applications for M&S in the test and evaluation process, both on the government acquisition side and from industry as they bring their products to market. Both government and industry panelists agreed on this point. Another was the challenge of moving to enterprise level M&S infrastructure and reuse in the emerging service oriented architectures being embraced across industry and government.

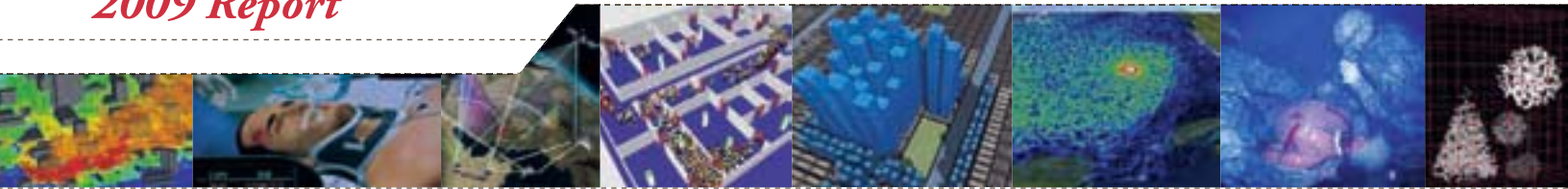
The comments made by the panel members included commentary from government, academia and industry. A summary of the highlights of this panel include:



- A description of the Naval Postgraduate School's Modeling Virtual Environments and Simulation (MOVES) Institute. MOVES, an academic program, was founded in 1996 with the launch of the Master of Science program, followed by the Doctoral program in 1999. Its program purpose is to research and reorganize the way we look at problems. Some of the key issues going forward were identified as: increasing enrollment of civilians and placement of MOVES graduates; continued evolution of the research agenda; improving M&S interoperability, composability and reuse through improved VV&A; and leveraging medical simulation advances.
- Sandia Labs provides a classic example of the necessity for using M&S for design, testing and certification when for reasons of safety, security and treaties, live testing is not an available or economic option. Key national leadership is provided in the area of research in high performance computing (HPC). The challenges in this area include: getting the work done by the traditional super computers on a chip the size of a dime that has the same peak performance, power and sustainability issues, and leveraging existing M&S software base.
- From an industry perspective, The Boeing Company has experienced 48% savings as a result of increased use of M&S in aircraft manufacturing processes and believes that M&S can replace large amounts of testing. The Operational Test and Evaluation community is frequently told to perform extensive live testing by OSD or Congress that could be more productive if properly integrated with an M&S program. Decision support and training also can benefit from greater use of M&S in broader areas (whole of government), examining unintended consequences (second order effects) and rapid model development using game concepts.
- With respect to simulation-based acquisition issues and initiatives, M&S applications should be employed through all processes and spanning the life cycle of SBA, as it can serve to reduce risk and cost throughout the system acquisition life cycle. The applications range from concept analysis to system/platform/weapon system design and development.

The legislative issues identified by this panel are:

- Continue Congressional level interest and support for HPC technologies
- Provide incentives for research into massively parallel computing in M&S applications
- Facilitate the establishment of STEM initiatives to provide the future technical workforce required to maintain the US competitive position across M&S domains and related applications
- Establish an M&S infrastructure to coordinate, facilitate, and apply M&S to the systems acquisition process
- Develop an in-depth DoD-wide M&S Plan
- Select experienced personnel to lead/report on M&S to the USD(AT&L)



- Fund and execute the DoD M&S Plan
- Formally link all DoD simulation offices to DoD infrastructure and plan execution

Following a summary and closing remarks for the day's events, the meeting was adjourned.



M&S Caucus Leadership Summit 2009 Legislative Priorities

Advance Use of Modeling and Simulation Technologies across Disciplines

The Modeling and Simulation Caucus has recently advanced the use of modeling and simulation through legislation in two critical areas of health care and education. The 4th Annual M&S Caucus Leadership Summit, hosted by the National Training and Simulation Association, elevated several key 2009 priorities. The priorities address the use of this technology to implement Science, Technology, Engineering and Mathematics (STEM) in education, to strengthen healthcare, to support research and development, and to expand workforce development. The key legislative focus areas to achieve these objectives are:

FUNDING

Specify a portion of stimulus package to integrate STEM into K-12 education

Provide grant opportunities for K-12 public education to establish new programs to enhance math and science education through the use of modeling and simulation technologies.

Provide funding to create new job training programs incorporating modeling and simulation; demonstrate return on investment through its use.

Re-Authorize the Small Business Innovation Research (SBIR) program

Provide language in the re-authorization of the SBIR program that supports research and development in new areas of modeling and simulation, to include: human capital, social and cultural research, and hardware development

Direct funding through Department of Health and Human Services to encourage use of M&S to reduce the cost of healthcare

Provide incentives to schools of medicine, nursing, and other health professionals to incorporate modeling and simulation technologies into their training and education programs. Require hospitals to demonstrate cost reduction programs by incorporating these technologies into patient care.

POLICY

Encourage cross-agency collaboration in M&S

Establish cross-agency commission to identify uses of modeling and simulation within each agency, and identify collaboration efforts that can save government dollars through re-use of technologies and application of existing technologies to new areas and demonstrated return on investment measures.

Modify ITAR regulations to provide opportunities to export M&S Technologies

Current regulations provide little opportunities for export of non-critical M&S technologies to allied nations. Modifications can allow more flexible interpretations of M&S to provide growth to industry in non-critical export areas.

For further information, please contact:

National Training and Simulation Association, 2111 Wilson Boulevard, Suite 400, Arlington, VA 22201-3061,
(703) 247-2569, bmcdaniel@ndia.org

2009 Report





2111 Wilson Boulevard Suite 400
Arlington, VA 22201-3061
(703) 247-9471
(703) 243-1659
sriemer@ndia.org
www.trainingsystems.org