

Opening Statement
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Mr. Chairman and Members of the Committee:

It is a pleasure for me to appear before you today to discuss one of America's most exciting and promising enterprises - the modeling and simulation training industry. My name is Fred Lewis, and I am the President of the National Training and Simulation Association, this country's premier organization dedicated to furthering the growth and health of this critical national asset.

Let me start by saying that simulation technologies are revolutionizing how we learn. In areas such as disaster response, emergency medicine, cultural interaction, military and law enforcement, advanced surgical procedures and predictions about complex weather systems; modeling and simulation are enabling us to prepare more quickly, more effectively and with far greater flexibility than ever before. Gone are the days when we learned from texts and then plunged headlong into the complexities of dangerous and high risk real-world situations. Now we train in virtual environments that uncannily replicate those we will face in combat, in terrorist attacks, and in the emergency room. In the last few years, we have begun a journey into virtual worlds that don't just promise to blur the distinction between simulation and reality - they will soon actually remove it.

The National Training and Simulation Association promotes the growth and use of modeling and simulation technologies through a wide variety of activities, including

scholarships and certification programs, sponsorship of extensive research, and annual events such as the recently-concluded Congressional Modeling and Simulation Expo, held in the Rayburn House Office Building with the close collaboration of the Congressional Modeling and Simulation Caucus, with which we enjoy an active and productive relationship. Our flagship activity is, of course, the annual Interservice/Industry Training, Simulation and Education Conference, or I/ITSEC, held annually in late fall in Orlando. This event, which, like the industry as a whole, is enjoying healthy growth despite an uncertain overall economy and now attracts well over 500 corporations, government and research organizations from the United States and from over 60 countries around the globe. Over one hundred research and scientific papers are presented and discussed, making I/ITSEC not only the world's largest exhibition of modeling and simulation technology, but also the world's most important annual focal point for advancement of this critical tool. With over half a million square feet of exhibit space showcasing the amazing panoply of virtual reality, modeling and simulation, I/ITSEC is truly a phenomenal sight. As an American, I take great pride in seeing this evidence of how vibrant and creative this sector of our economy is, and what great promise it holds for our future.

During my time at the National Training and Simulation Association, I have seen the modeling and simulation industry not only grow exponentially, but undergo rapid and in some cases unexpected change. The explosion in computer processing power, which began in the last decade and which is continuing unabated, has enabled simulation training to migrate from platform trainers where single individuals interact with single

training devices--the so-called man-machine interface, into a wide variety of immersive virtual environments, including those which link multiple actors into a unified training matrix. It is becoming clear that in the not too distant future we will train with avatars, wholly immersed in a three dimensional alternative world.

Creating such environments is in fact the next great technological challenge for our industry and we are on the way to creating it. With it, among other precedent- setting applications, we will be able to immerse our warfighters in new and unfamiliar cultures, allowing them to "learn by doing", by living in a virtual Afghan village, for example. I do not believe this level of technology will be achieved while we pursue our objectives in Iraq and Afghanistan, but we will see it in the not far future, and it will play an invaluable role in many critical areas of national importance.

As to today's Modeling and Simulation Industry, I would like to underscore not only that it is important to a wide variety of different domains, but also the flexibility and agility of our industry to respond to changing requirements based on changes in the threat environment. A good example of that responsiveness was the development in Orlando, and deployment to Iraq in six months of a convoy tactics trainer. Our industry had quickly and effectively answered a critical battlefield requirement to train our soldiers and marines how to react if attacked while en-route in a convoy of trucks and other vehicles.

My confidence in the modeling and simulation industry's technological capabilities is unshakable and based on the solid evidence of creativity and innovation that I have attempted to briefly outline today. Against this promising background, however, we face two challenges that each, in very different ways, threaten to hinder what otherwise would be further dramatic progress.

The first is a bureaucratic obstacle that can be removed, I am convinced, with concerted action by all interested parties. Specifically, the Economic Classification Policy Committee (ECPC) of the Office of Management and Budget has rejected, for the third time in eight years, our applications for granting unique industrial classification codes for modeling and simulation. As we have stated in our requests, granting such stature would not only bestow deserved formal status and recognition on our industry, but would also greatly facilitate tracking of economic data pertaining to modeling and simulation, at present an elusive goal. While we have some economic data for certain geographic areas where the simulation industry enjoys a pervasive presence: Orlando, Florida; Huntsville, Alabama, the Hampton Roads area in Virginia, and others--we have no unified picture of the industry's overall contribution to the health of the American economy, although we know intuitively that it is considerable and growing rapidly.

We intend to vigorously challenge this ruling, and call on all those with an interest in furthering the growth of the modeling and simulation community of practice to join with us. I will specifically call on the valuable support of the Congressional Modeling and

Simulation Caucus, which has taken a strong, creative lead many times in seeking proper national recognition of our industry. I will quickly formulate a request, supported by specific, persuasive arguments, to attain this long-delayed classification. The second challenge facing our industry is of a more fundamental nature. For a number of years, alarm bells have been alerting us to the widening gap between the U.S. and most other developed countries in the science and technology skills of our young citizens. Studies equating our achievement levels to those of some less developed countries, and indicating that we have made no improvements in our standing since about 1990 – have begun to focus public and private organizations upon the urgent need to re-ignite student interest in the "hard" sciences and to strengthen technology teaching in the classroom.

But raising awareness of the seriousness of our shortcomings may prove the easier task. Ahead of us lies the challenge of creating a sense of excitement and enthusiasm among our youth about the promise that technology and its opportunities offer for a lifetime of achievement and personal reward. Just as demanding is the need to provide enhanced instruction and a clear, viable path from classroom to careers. President Kennedy's challenge to reach the moon by the end of the 1960's motivated several generations of Americans to great achievement in the sciences and in engineering. What we now need in the 21st Century is a similar challenge, and I believe that modeling and simulation can be a key to that excitement.

Perhaps no other industry is more dependent on a reliable supply of first-class scientists and engineers than the modeling and simulation community. At the same time, modeling and simulation enjoys a built-in advantage in that young people have surrounded themselves with variations of simulation technology. Video games, in particular, are a type of virtual simulation, and in fact, serious games - based on video game technology - are an increasingly important component of the overall simulation training picture. But even with that kind of stimulation of the younger generation our downward trend continues.

We at NTSA have engaged in several efforts to try to reverse the trend, and while worthwhile and successful, they are only fractional and only affect the margins. We must do more to enhance STEM (science, technology, engineering and mathematics) education across the Nation. If we do not, then we will continue to see our American leadership in technology erode as other Nations eagerly assume the leadership position previously held by us.

I believe the United States must move briskly to improve the level of STEM education and to increase the number of students pursuing and graduating in the sciences if we are to remain at the technological forefront in a ruthlessly competitive world. Our continued wellbeing and even our survival as a successful nation depend upon our response to this challenge.

There are challenges ahead for my community, but in the exciting and dynamic world of Modeling and Simulation the way ahead is lit with the promise of being able to address our Nation's most vexing problems.