



BY PAUL HOMMERT

R&D and winning the “long war” against terror

THE EVENTS OF SEPT. 11, 2001, CREATED A SENSE OF URGENCY AND IMMEDIACY IN THIS NATION NOT SEEN SINCE THE EARLY DAYS OF THE COLD WAR.

Various sectors—including private industry, national laboratories, government and academia—responded and have done a great deal to more effectively protect the nation. Airport security is much stricter than it once was. Security at our ports and borders has been bolstered. Advances in technologies aimed at detecting, deterring and responding to terrorist attacks are real and significant.

Yet, out of necessity, those achievements were primarily realized within a do-it-now political and practical framework. The post-9/11 period emphasized deploying near-term solutions to perceived critical threats, and the nation effectively stepped up to that challenge.

Now, the federal government’s approach to homeland security needs to come of age and should include a comprehensive, long-term, systematic and strategic approach with appropriate investments. The government must steward relevant homeland-security skills, capabilities and facilities, along with difficult-to-advance, high-risk, high-reward concepts that take time to mature. A long-term commitment to homeland security research and development (R&D) is essential.

This shift is especially important as other emerging national priorities have taken the focus away from homeland security. With the financial crisis, energy costs and the Iraq war, terrorism seems to have taken a back seat to other pressing concerns.

We should not forget, however, that the last two terrorist attacks against the United States occurred within the first year of a new administration. So it is not unreasonable to suggest, as some already have, that Al Qaeda is devising its next attack at a time when homeland security is not as prominent on our national radar screen.

Past roles

When considering a long-term commitment to homeland security R&D, it helps to

recall the role that nuclear weapons have played in the national security of this country. Since 1945, this nation has successfully developed a sustained deterrent that has served as the backbone of our military arsenal. Technological superiority with long-term investment played a critical role in winning the Cold War. Similarly, winning the “Long War”—combating the potential use of weapons of mass destruction (WMD) by terrorists—requires a comparable level of diligence and enduring vigilance.

THE LEVEL OF DILIGENCE AND DEDICATION NEEDS TO BE ON A PAR WITH THE NATION’S STEADFASTNESS DURING THE COLD WAR AND OUR 50-YEAR COMMITMENT TO A NUCLEAR DETERRENT.

Breakthrough technologies and resiliency both played important roles during the Cold War and continue to do so with today’s Long War. During the Cold War, the nation faced the challenge of being resilient against possible nuclear attack, with the populace aware of, and participating in, preparedness drills. While we don’t wish to return to that environment, our societal preparedness in recovering from a WMD event is of great importance.

Science and technology advances can be critical enablers to deterrence and resiliency. One can imagine some “grand challenge” research successes that would have immense impact—such as the ability to remotely detect special nuclear materials, detect biological threats and produce drug remedies in real time, non-invasively determine the intent of terrorists or thwart cyber

threats by creating trusted networks using untrusted components. What we are able to do in the first hours of an attack makes enormous differences in the consequence to our nation.

The new agenda

These are “game-changing” homeland-security capabilities. For any of these to have a chance at becoming a reality, the following needs to take place:

- We must establish a relevant risk-based, long-term national strategy and investment in homeland security R&D.
- We must maintain national vigilance to address high-consequence, low-probability threats posed by WMD.
- We must ensure societal resiliency to future attacks by addressing response and recovery levels and use.
- We must encourage the use of systems analysis, tools and methodologies to guide development and engineering solutions that operate effectively in complex and dynamic conditions.
- We must develop robust processes to transition promising R&D concepts into operation and into use by first responders.
- And finally, we must perform a comprehensive review of different governance structures to determine the best ways to integrate the national R&D community—academia, industry and national labs.

A successful war on terror and WMD will require a thorough and enduring effort, one that can be expected to last decades. The level of diligence and dedication needs to be on a par with the nation’s steadfastness during the Cold War and our 50-year commitment to a nuclear deterrent.

We have not witnessed a successful major terrorist event against the United States since Sept. 11, 2001—but will we be able to utter that statement 50 years from now? **HST**

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