

Defense Standardization Program Journal

July/September 2006

Civil Agency Standardization

The Importance of DoD Standards
to the NASA Standardization Program
GSA and the Standardization Program
Strategic Partnering to Meet Homeland
Security Standards Needs





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Quick—how many Cabinet departments are there? Can you name them? Can you name their Secretaries? I couldn't either, but I looked it up on FirstGov.Gov; there are 15 departments. Also on the Cabinet are the Vice President; the heads of the EPA, OMB, and U.S. Trade Representative; the Drug Czar; and the White House Chief of Staff. Almost as interesting are those who are not official Cabinet members: NASA, CIA, FTC, GSA, OPM, SEC, CPSC, and USPS, just to name a few of the most recognizable organizations.

Each department, agency, commission, office, or service has its own authorizing legislation outlining its mission and goals, as well as its responsibilities and authorities. In some cases, the mission of one department leads it in a direction that may create serious conflict with the mission of another department or agency. Consider the possible conflicts among the Department of Energy seeking greater oil exploration and drilling, the Department of the Interior trying to protect precious federal lands, and the Environmental Protection Agency trying to reduce opportunities for pollution, while the Department of Transportation seeks to reduce our dependence on oil. You can see that there is potential for some potentially heated discussions. Or consider the U.S. Trade Representative and the International Trade Administration (part of Commerce) trying to enhance capabilities for U.S. companies to do business abroad, while the Department of State and the Department of Defense struggle to restrict the distribution of vital national defense technology.

A LITTLE CIVICS LESSON, PLEASE

You can go on and on making up your own scenarios. The point is that we have a government full of departments and agencies that sometimes pull in directly opposite directions—so much so that you may wonder how we ever achieve a unified federal government position on anything. The tug of war is often healthy, the varying opinions and missions provide a good balance, and we hope that we usually come up with positive solutions that respect each other's positions and ultimately do the best thing for the American people.



Gregory E. Saunders
Director, Defense Standardization Program Office

One area in which we have an opportunity to diverge, but frequently find a way to work together, is standardization policy. The needs of a big buyer like DoD are dramatically different from the needs of an organization responsible for regulating an industry for safety or environmental purposes. And yet there are many times when DoD's standardization policy needs can be lined up with those of, for example, the Environmental Protection Agency through discussion and negotiation. Where and how does this happen? Well, years ago, the Department of Commerce established a committee in which representatives from all Cabinet departments, as well as independent agencies, commissions, and other government entities, can discuss standardization issues. The committee—known as the Interagency Committee on Standards Policy (ICSP)—was formalized in the National Technology Transfer and Advancement Act of 1995.

Chaired by the National Institute of Standards and Technology (part of the Department of Commerce), the ICSP meets at least twice a year to discuss standards issues of interest to the members. The ICSP's goal is to promote consistent standards policy within governmental entities and to foster cooperation and communication among government, industry, and other private organizations involved in standards activities.

The ICSP members are representatives from each federal executive branch agency. With very good participation from the executive branches, and under the able leadership of Mary Saunders (a friend and colleague, not a relative), we find that, despite our disparate mission responsibilities, we often reach consensus on policy issues. For example, the departments, commissions, agencies, and other entities of the executive branch are

unanimous in believing that we need to participate with voluntary standards organizations and use their standards whenever they meet our needs. Historically, ICSP members have been nearly unanimous in agreeing on numerous policy positions developed to advance the needs of our standards community or address private-sector concerns.

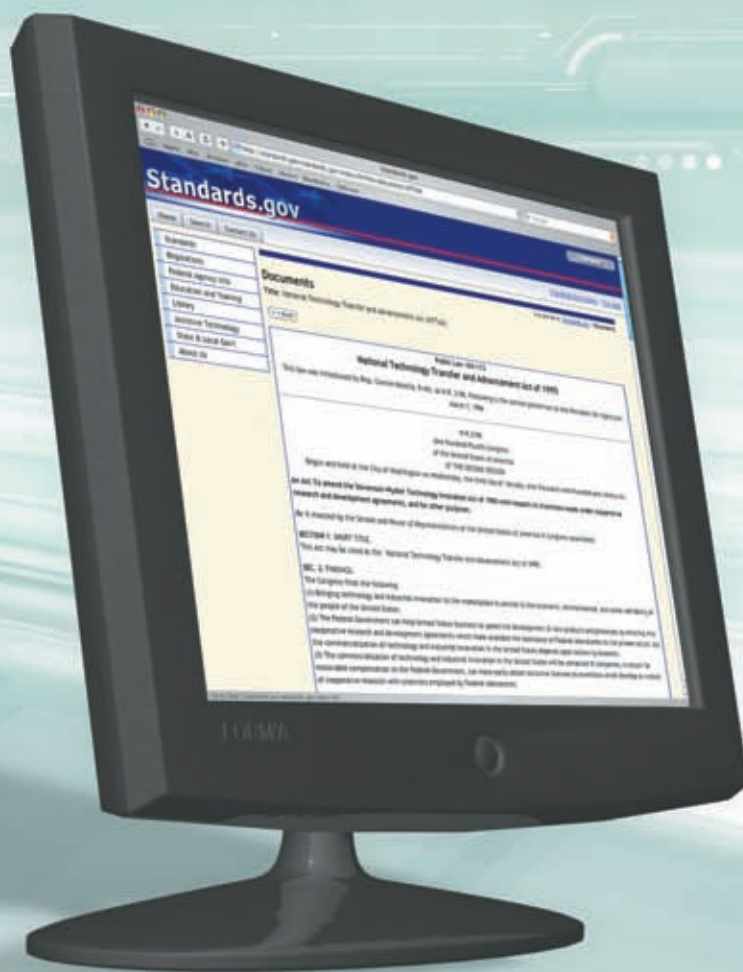
When appropriate, ICSP members have been instrumental in spearheading efforts to make our public-sector views considered and most often accepted in key standards-related legislative proposals. On numerous occasions, government and legislative experts have worked together in close cooperation to craft effective standards legislation such as the National Technology Transfer and Advancement Act. And while we all recognize there is a formal process for seeking our departments' or agencies' official positions on legislation, it can be very helpful to those drafting legislative proposals to receive input from a committee of government standards experts such as ICSP members.

For several years, it has been my privilege to represent DoD at the ICSP meetings. At these meetings and in various working groups, I have had the chance to discuss policy issues and challenges with many of my colleagues, sometimes showing them how DoD solved a problem and, at least as often, learning from them how they approached an issue or solved a problem. One of the most significant lessons I've learned from my ICSP experience is that the bringing together of divergent views, in the spirit of cooperation and increased understanding, is one of the best avenues for achieving standards policies that will further our nation's domestic and foreign goals and create a universally supportive standards environment.

Leveraging Standards in Support of Government Objectives

The Impact of the National Technology Transfer and Advancement Act on Federal Government Use of Voluntary Standards

By Mary Saunders



Voluntary standards, developed through a consensus process led by the private sector, create substantial value for federal agencies in the conduct of regulatory, procurement, and policy activities. Federal agencies are directed by both law and policy to rely on voluntary standards whenever feasible. Both the National Technology Transfer and Advancement Act (NTTAA, Public Law 104-113), which was signed into law on March 7, 1996, and Office of Management and Budget (OMB) Circular A-119, *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, recognize the valuable contributions that private-sector standards make to enabling the government to carry out its responsibilities. Equally important is the recognition in law and policy that close interaction and cooperation between the public and private sectors are critical to developing and adopting standards that serve national needs and support innovation and competitiveness.

The NTTAA directs the National Institute of Standards and Technology (NIST) to coordinate these activities across the government, working in cooperation with Standards Executives in executive branch departments, agencies, and independent commissions—more than 25 in all. NIST leads the Interagency Committee on Standards Policy (ICSP)—the committee that monitors compliance with the provisions of the act. The committee has been very active since the passage of the NTTAA. Members have shared information on both practical and policy implications of the law and its implementation, and they have worked closely with OMB to ensure full understanding of the resources that agencies bring to bear in carrying out the direction of both the law and Circular A-119.

A Key Player

The federal government is a key player in the U.S. standards system. The more than 3,500 agency representatives who participate in the private-sector-led standards development process have been instrumental in ensuring agency compliance with the NTTAA and OMB circular. Even more important, government involvement means that government users understand both the intent and the content of specific standards. The data collected over the last 10 years indicate real progress both in active participation in the standards development process and in agency reliance on private-sector standards. In 2005, government agencies reported using a cumulative total, since 1997, of more than 4,500 voluntary consensus standards in support of regulation. Agencies are also substituting voluntary consensus standards for government-unique standards. Since the act went into effect, the cumulative number of substitutions exceeds 2,000. These totals do not include the Department of Defense—the largest federal user of standards and probably the biggest proponent and beneficiary of the transition to private-sector standards. By 2005, DoD had

more than 9,000 private-sector standards on its books to support the purchase of a tremendous volume of equipment, supplies, and services. DoD case studies illustrate the substantial benefits, including millions of dollars in annual procurement savings and more reliable supplies of essential equipment.

Government representatives participate in the activities of more than 400 standards-developing organizations, at both the technical and policy levels. This participation predates the implementation of the NTTAA, but it has been bolstered by the act's formal recognition of its importance. Many of the major standards-developing organizations, in terms of the number of standards in total and those used by the government, have government agency representation on their governing boards. These include the boards of organizations like the Society of Automotive Engineers, ASTM International, and the Institute of Electrical and Electronics Engineers Standards Association. The board of the American National Standards Institute (ANSI) includes nine government agency representatives, 21 percent of the board's membership.

Many of the major standards-developing organizations, in terms of the number of standards in total and those used by the government, have government agency representation on their governing boards.

Public-Private Partnerships

We are beginning to see more examples of the government working with the private sector earlier in the technology life cycle to identify and address standards-related needs. The Department of Homeland Security was a founding member, along with NIST, of the ANSI Homeland Security Standards Panel. Such standards panels bring together stakeholders in key national priority areas to identify voluntary consensus standards in existence and those that need to be developed. These panels are vehicles for the government to make its standards needs known early and, thus, bring the resources of the private sector to bear to address those needs.

The President's call for electronic health records and a nationwide health information network led to the creation of another standards panel last fall. The Department of Health and Human Services, through its Office of the National

Coordinator for Healthcare Information Technology, commissioned ANSI to convene the Healthcare Information Technology Standards Panel in October 2005. The panel is tasked with developing information technology standards necessary to ensure that the healthcare system of the future is interoperable, robust, and secure.

The Departments of Defense, Transportation, and Energy have each contributed to the development of standards strategies for technologies ranging from aerospace to intelligent transportation systems to the hydrogen economy. The President's Office of Science and Technology Policy has led the way in the nanotechnology arena, working with private-sector interests to identify needs for nanotechnology standards and the best venues for this work to be accomplished. Government and industry representatives serve on the ANSI-accredited delegation to the new ISO technical committee (TC 229) that is developing standards for nanotechnology. Both public- and private-sector representatives also participate in the nanotechnology standards activities of ASTM International and the Institute of Electrical and Electronics Engineers.

One thing we have learned is that a number of federal agencies “get it” and are making extensive use of standards in their activities.

Looking Back and to the Future

Clearly, the NTTAA has been a catalyst for constructive change. As much as anything else, the act spurred a change in the culture of the federal government. That change is very much a work in progress. Looking back over the past 10 years, we can identify both key lessons learned and needed actions to take government standards-related activities to the next level.

One thing we have learned is that a number of federal agencies “get it” and are making extensive use of standards in their activities. They have established internal standards management systems and progressed beyond mere counting to more strategic approaches to the development and adoption of standards. Not all agencies, however, have reached this point. And they will get there only if their senior management commits to developing the necessary policies and to allocating adequate resources for agency participation in standards activities. However, senior leaders are constrained by tight budgets requiring them to prioritize their invest-

ments. And the long-term value from standards participation is often poorly understood.

A job for NIST, working with ICSP executives, is to develop the high-level rationale to convince senior management that voluntary consensus standards advance their agency's mission—and that the benefit is much greater than the cost. The rationale must be supportable by hard data. To that end, NIST has held stakeholder meetings to begin to develop the rationale for both procurement and regulatory applications. NIST also is working to identify the most promising areas in which to focus and to determine how best to communicate this information to senior leadership. This is still a work in progress.

A second lesson we have learned is that the ranks of federal standards experts are being depleted due to retirements, reorganizations, and attrition. Losses of veteran staff members drain “institutional knowledge” of the merits of using standards and the somewhat arcane process involved in developing them. To begin to address this issue, NIST recently developed and is now providing training for federal employees who are engaged in standards. NIST is also in the process of developing a handbook for agency Standards Executives, so that they will have the information necessary at their fingertips to help make decisions about the use of standards. We are also committed to improve information sharing within and among federal agencies as well as with the private sector. To that end, NIST has created an Internet portal—standards.gov—to provide a one-stop, e-government location for information related to the use of voluntary consensus standards.

A third lesson is that we need to enhance the types of data we are collecting if we want to get at the real quantitative impact of the standards-related benefits realized by agencies. Today we deal with anecdotes and single case studies. We do not have the data necessary to support sound economic analyses to quantify the benefits of greater use of private-sector standards. NIST is now laying the groundwork necessary so that relevant economic analyses can be conducted across the entire spectrum of government agencies. As a basis for determining the most relevant factors, we have begun collecting existing economic analyses of the impact of standards. Our goal is to have the tools and data in place within 3 to 5 years so that we can produce the quantitative and objective analyses necessary to demonstrate the utility of voluntary consensus standards for the government.

And finally—we are only beginning to scratch the surface on standards-related needs, problems, and inconsistencies at the state and local levels. We have learned that, in key technology areas, state and local officials are looking for federal guidance to help them with key purchasing decisions.

The Picture in 2011

We have come a long way in the past 10 years in expanding and strengthening the private-public standards partnership. And during that time, we have seen a fundamental shift in how the federal government develops and deploys standards. Through greater reliance on voluntary consensus standards, the American public, business, and the government have all benefited.

Now we need to raise the bar. Five years from now, if we are successful in further embedding the principles of the NTTAA in government decision making, the number of substantive standards-enabled accomplishments across the federal government will have multiplied. Following are several organizational achievements that NIST and other ICSP agencies hope we will be celebrating in 2011:

- Each department, agency, and independent commission has a strategic management standards policy and implementation plan in place to ensure that standards are integral to its decision-making process.
- Agencies increase their participation in voluntary consensus standards development efforts and, as a result, increase their effectiveness in meeting national goals.
- Each agency actively coordinates activities related to evaluating conformance to regulatory requirements to eliminate overlap and duplication and to minimize bureaucratic burdens on the private sector.
- State and local needs benefit from and are integrated into the practices of the federal agencies so that the development of voluntary consensus standards better address their technology needs.

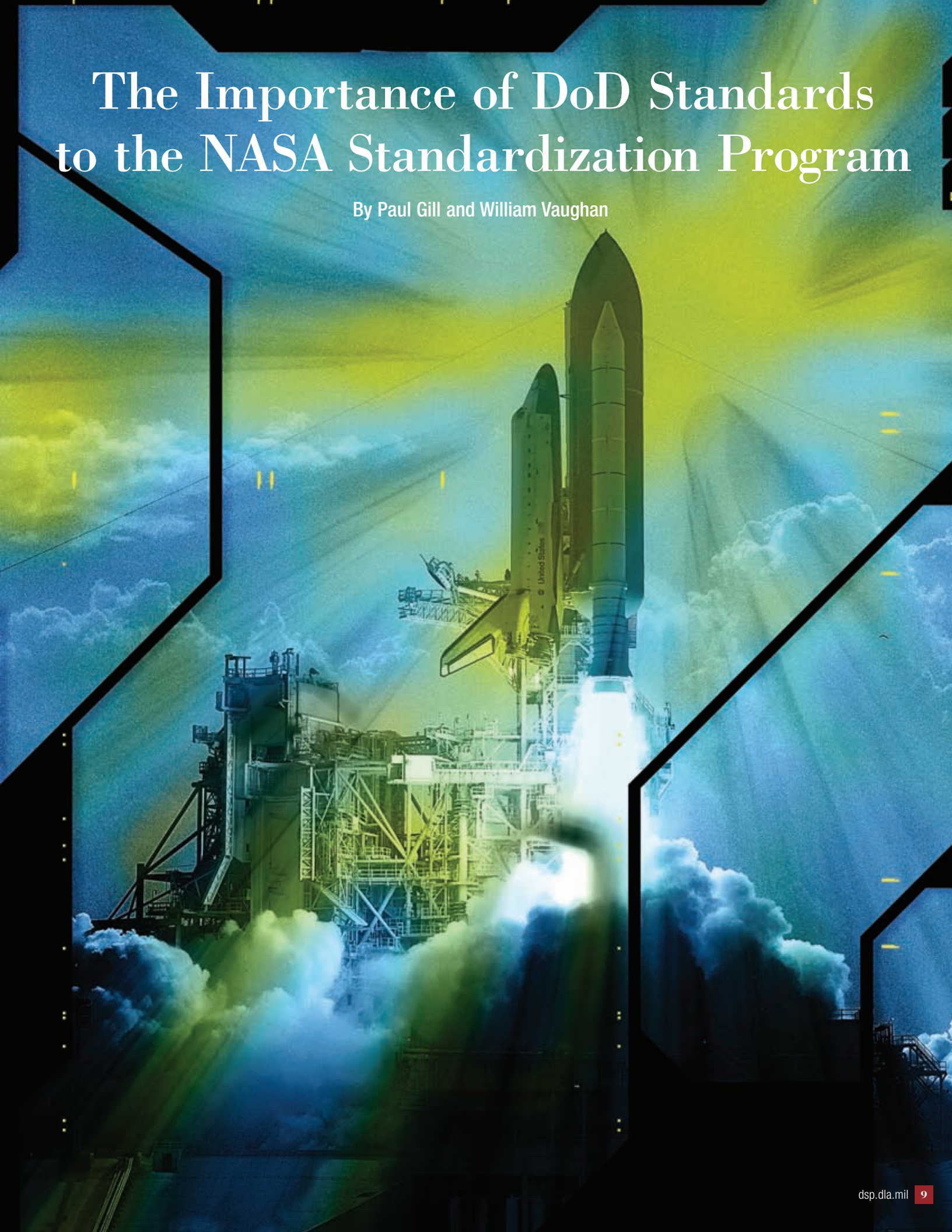
Our successes should encourage us to do more—and to become more ambitious in our collaborations. Over the next 5 to 10 years, we are likely to see more types of strategic partnerships as both the government and the private sector identify critical standards activities that will facilitate innovation and global competitiveness while also meeting broad public needs at home for protection of health, safety, and the environment.

About the Author

Mary Saunders is the chief of the Standards Services Division at NIST. The division carries out NIST's responsibilities under the National Technology Transfer and Advancement Act of 1995 and provides policy support for standards and conformity assessment activities for federal agencies. Ms. Saunders chairs the Interagency Committee on Standards Policy, which is charged with coordinating federal agency standards-related activities. She is also the government co-chair of the ANSI Homeland Security Standards Panel.✻

The Importance of DoD Standards to the NASA Standardization Program

By Paul Gill and William Vaughan



The NASA Technical Standards Program periodically gathers information about the usage of standards at the agency. As its source, it uses the program's NASA Technical Standards System (<http://standards.nasa.gov>), which supports the agency's standards needs. Over the past several years, about 54 percent of the standards documents downloaded for use by NASA's engineering staff and supporting contractors have been non-government voluntary consensus standards, illustrating NASA's compliance with Office of Management and Budget (OMB) Circular A-119, *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, and the National Technology Transfer and Advancement Act of 1995 (Public Law 104-113). Another 20 percent of the standards being used at NASA were developed in-house or by other civil government agencies. The remaining 26 percent were DoD standards.

DoD standards have played an important and key role at NASA since its origin in 1960. The use of DoD standards in the design, development, manufacture, and operation of NASA's satellites, launch vehicles, and spacecraft has been particularly important. This use of DoD standards continues today. The scope of disciplines encompassed by DoD standards in use by NASA is broad, as the following examples indicate:

- MIL-STD-810, "Environmental Engineering Considerations and Laboratory Tests"
- MIL-STD-1522, "Standard General Requirements for Safe Design and Operations of Pressurized Missile and Space Systems"
- MIL-STD-1553, "Digital Time Division Command/Response Multiplex Data Bus"
- MIL-STD-889, "Dissimilar Metals"
- MIL-STD-1472, "Human Engineering."

In addition to the current DoD standards, NASA is continuing to use some standards that DoD has can-

celled, for example, MIL-STD-973, "Configuration Management." NASA needs those standards for some long-standing programs such as the space shuttle.

NASA also uses many handbooks produced by the DoD standards program. The following are three examples:

- MIL-HDBK-217, "Reliability Prediction of Electronic Equipment"
- MIL-HDBK-340, "Test Requirement for Launch, Upper-Stage, and Space Vehicles, Vol. I: Baselines; Vol. II: Applications Guidelines"
- DOD-HDBK-343, "Design, Construction, and Testing Requirements for One of a Kind Space Equipment."

As with the DoD standards, NASA also is continuing to use some cancelled handbooks, such as MIL-HDBK-5, "Metallic Materials and Elements for Aerospace Vehicle Structures."

As is evident from this modest sample, the DoD standards and handbooks used by NASA encompass a rather wide range of disciplines—all applying to NASA's development and operation of satellites, launch vehicles, and spacecraft.

The significance of DoD standards to NASA is further illustrated in a survey of NASA and military standards on fault tolerance and reliability applied to robotics.¹ The survey noted that NASA TM-4322, "NASA Reliability Preferred Practices for Design and Test," referenced the data in MIL-HDBK-217, and it provided tables that further derated components for space use beyond the factors given in MIL-HDBK-217.

Another example of NASA working with DoD is the use of MIL-STD-1553 in the design specification of the NASA Flight Telerobotic Servicer project.

Another recent survey of standards downloaded from the NASA Technical Standards System indicated that NASA uses standards (including DoD standards) for a variety of technical activities:²

Development of requirements for programs/projects	24 percent
Support of in-house research and development	29 percent
Verification of contractor processes on programs/projects	16 percent
Acquisition of parts and materials	9 percent
Proposal evaluation	3 percent
Education and training	13 percent
Other uses	6 percent.

In addition to surveying the uses of the standards in its repository, the NASA Technical Standards Program has identified engineering lessons learned and experiences with more than 120 DoD standards and handbooks. As a result, the NASA Technical Standards System now has links from individual standards and handbooks to the relevant engineering lessons

learned. This capability, implemented recently, has proven to be of considerable interest among the users of the NASA Technical Standards System. Standards users can readily identify lessons learned and best practices applicable to their needs.³ According to a survey, the lessons-learned information is being used to support program requirements development, in-house research and development, and development of education and training activities. Standards users are also viewing the links to gather information about the general content of lessons learned linked to particular standards.

NASA's use of standards can be illustrated by considering the recently completed Exploration Systems Architecture Study, which outlines NASA's approach to implementing the President's vision for space exploration. Key to this architecture are the human and robotic lunar exploration operations for the return to the Moon and subsequent missions to Mars. The design, development, manufacture, and operation of the Crew Exploration Vehicle (CEV)



and Crew Launch Vehicle are critical elements necessary to achieving the President's vision. The first flights of the CEV will be to the International Space Station and are envisioned in the 2013 time period, with the goal of returning humans to the Moon no later than 2020.

All of this will entail dedicated engineering by both NASA and its contractors and will require the application of many technical standards, both NASA and non-NASA. Of the applicable documents identified to address the technical standards to be used in the CEV's development, about 30 percent were DoD standards and handbooks. They encompass disciplines such as flight control systems, human factors, test requirements, explosive systems, logistics management, electromagnetic compatibility reliability, system safety, electronic parts, and environmental engineering. Clearly, NASA and DoD will continue to maintain a close relationship in the area of standardization, and DoD standards and handbooks will be important to the implementation of the President's vision for space exploration. This is noteworthy, but it is not surprising because NASA and DoD share many technical interests.

NASA participates with DoD personnel on many non-government standards-developing committees sponsored by organizations such as Aerospace Industries Association, American Institute of Aeronautics and Astronautics, Society of Automotive Engineers, ASTM International, Institute of Electrical and Electronics Engineers, and American Society of Mechanical Engineers.⁴ This enables both NASA and DoD to fulfill the directives of OMB Circular A-119 relative

to government use of non-government standards. In addition, both NASA and DoD personnel are involved in the development of the respective standards prepared by each organization. Thus the exchange of information on requirements and engineering experiences has benefited both NASA and DoD. This supportive relationship will continue in the future as we move forward to meet the needs for the nation's security and space exploration.

¹Joseph R. Cavallaro and Ian D. Walker, *A Survey of NASA and Military Standards on Fault Tolerance and Reliability Applied to Robotics* (Houston, TX: Rice University, 1994).

²Paul S. Gill and William W. Vaughan, *Engineering Excellence and the Role of Technical Standards*, AIAA-2006-0573, Prepared for NASA Marshall Space Flight Center (Reston, VA: American Institute of Aeronautics and Astronautics, 2006).

³Paul S. Gill, William W. Vaughan, and Danny Garcia, "Lessons Learned and Technical Standards: A Logical Marriage," *ASTM Standardization News*, Vol. 28, No. 11, November 2001.

⁴Paul S. Gill, William W. Vaughan, and Stephen Lowell, "Participation by Federal Agencies in Voluntary Consensus Bodies," *Defense Standardization Program Journal*, August 2001.

About the Authors

Paul Gill manages the NASA Technical Standards Program, which functions under the direction of the NASA chief engineer. Before becoming involved in the NASA Technical Standards Program, he served as a lead engineer and as a co-principal investigator in several engineering discipline areas at NASA.

William Vaughan is a staff member with the NASA Technical Standards Program. He has been associated with the development, interpretation, and application of technical standards throughout his career with NASA. He is also a Research Professor on the faculty of the University of Alabama in Huntsville. ✨



Environmental Protection and Defense

By Mary McKiel

How convenient it would be to have rules and standards so complete that adhering to them would guarantee perfect health and a pristine environment, and would relieve us of the need to exercise continuous judgment, make difficult tradeoffs, and keep up sustained action. As it turns out, of course, we have plenty of elaborate statutes and rules—but reality confronts us every day in the form of new stresses that challenge the health of individuals and even entire populations, along with straining the Earth's natural resources.

For that reason, there will never be an end to the need for reasoned action and, especially, cooperation among government entities in a position to make a difference. That's the approach being taken by the U.S. Environmental Protection Agency (EPA) and DoD in tackling environmental issues. This article looks at a few of the ongoing collaborative efforts by EPA and DoD to safeguard the environment.

The Environmental Protection Agency

An introductory word or two about EPA may be useful to readers of this journal who are more familiar with DoD. EPA was established to consolidate in one agency a variety of federal research, monitoring, standard-setting, and enforcement activities to ensure environmental protection. The agency opened its doors in 1970 with a mission to protect human health and safeguard the natural environment—air, water, and land—upon which life depends. That mission continues, and for more than 35 years, EPA has been working for a cleaner, healthier environment for the American people.¹

On the occasion of its 35th anniversary, EPA issued a press release describing some of the environmental advancements made in its short history. From 1970 to 2004, total emissions of six major air pollutants dropped by 54 percent. This is particularly impressive if you consider that the gross domestic product during that period increased 187 percent, energy consumption increased 47 percent, and the U.S. population grew by 40 percent—proof that economic growth and environmental protection are not mutually exclusive. Through restoration efforts, 600,000 acres of contaminated land now provide ecological, economic, and recreational benefits. Just last year alone, EPA and its partners took action to restore, enhance, and protect nearly 830,000 acres of wetlands.

Defense and Environmental Protection Go Hand in Hand

EPA's achievements are impressive, but we don't work alone on all of this. States, tribal nations, nongovernment organizations, and other federal agencies are among EPA's partners in working toward a cleaner environment. Right at the top of EPA's

federal partnership list is the Department of Defense. DoD has a sophisticated and proactive environmental program, the considerable scope of which is evident in the department's 2005 annual environmental report to Congress.²

ENVIRONMENTAL MANAGEMENT SYSTEMS

Executive Order 13148, *Greening the Government Through Leadership in Environmental Management*, specifies goals that include full compliance with environmental laws and pollution prevention as a strategy for compliance. EPA and DoD share the obligation to implement the order, and both have provided leadership to other federal agencies on how and what to measure.

An Environmental Management System, or EMS, is a management guideline tool for integrating, into planning and operations, goals that will reduce environmental impacts and ensure compliance with laws. The idea is that if you don't deal with environmental matters systematically, you may be in danger of not complying with laws, and you surely will miss out on most if not all prevention mechanisms that

DoD has been an invaluable partner to EPA through assistance in developing EMS implementation guidance and demonstrating progress in its many facilities.

can be a savings to the environment as well as your own resources. Pollution prevention and continuous improvement require the active and creative thought we mentioned at the outset. There is no such thing as relying on the status quo in the EMS world.

EPA is tasked with providing guidance to other federal departments and agencies, as well as setting EMS in place for our own facilities. EPA is also tasked with tracking federal implementation. DoD has been an invaluable partner to EPA through assistance in developing EMS implementation guidance and demonstrating progress in its many facilities.

DoD has the lion's share of federal facilities, so when EPA has to keep track of EMS implementation, it would be impossible without lots of help from DoD. Metrics for reporting had to be devised, and here's where DoD really contributed on behalf of all federal agencies: in the interagency process that EPA set up, DoD



shouldered the burden of chairing the committee. This sounds deceptively simple—but remember that federal departments and agencies have different missions and challenges, and that also goes for EMS implementation. Working with EPA and various departments and agencies, DoD successfully steered the group to develop a rigorous and thorough system that agencies use for their own tracking, and that EPA uses for the annual report to the Office of Management and Budget.

Numerous defense installations are reported to have effective EMSs in place. A spokesman from EPA's Office of Federal Facilities says that the metrics DoD helped develop are more demanding than many initially thought possible, given the huge variations among federal facilities. The result is that the Federal Network for Sustainability highlights many DoD facilities as EMS success stories.³

COLLABORATIVE ENVIRONMENTAL TECHNOLOGY VERIFICATION

Another effective partnership between EPA and DoD is in the area of environmental technology verification (ETV). The purpose of ETV is to develop testing protocols and verify the performance of innovative technologies that could improve protection of human health and the environment. A recent memorandum of agreement (MOA) between EPA and DoD sets up coordination to facilitate environmental technology verification, reporting, technology transfer, and more, with particular emphasis on environmental protection, pollution prevention, and waste management technologies.⁴

EPA's own Environmental Technology Verification Program is designed to accelerate the development and commercialization of improved environmental technology through third-party verification and reporting of performance. The Department of Defense is an ideal partner, because its Environmental Security Technology Certification Program demonstrates and validates the most promising technologies that target DoD's most urgent environmental needs.

The collaborative projects initiated under the MOA will be mutually beneficial. The bottom line results will include improved effectiveness in environmental technology demonstration, validation, and verification, along with more widespread communication and acceptance of the results of joint and separate projects.

OTHER AREAS OF COOPERATION

DoD and EPA have unique missions but work well together in many different areas where our common goals include environmental protection and pollution prevention. In addition to the areas of EMS and ETV, other mutual interests include “green” procurement, the environmental impacts of Chesapeake Bay activities (another MOA is in place), and environmental sustainability programs.

In terms of standards per se, one of the things DoD and EPA share is support for the U.S. voluntary standards system. Both organizations are active members in the American National Standards Institute (ANSI), its policy committees, and its Government Member Forum, currently chaired by Greg Saunders, who needs no introduction to the readers here.

Through ANSI and the many other standards organizations in which EPA and DoD participate, our respective federal organizations help to translate environmental, technical, and emerging needs into language that becomes part of standards used by the industries we work with or regulate. EPA and DoD are constantly pushing forward in trying new and better ways to achieve our missions. Fortunately for the U.S. public and private sectors alike, we share at least one common set of goals, and that is to improve the environmental and human health conditions under our control.

¹For a more detailed account of EPA’s history, see <http://www.epa.gov/history/>.

²See <https://www.denix.osd.mil/denix/Public/News/OSD/DEP2005/deparc2005.html>.

³See <http://www.federalsustainability.org/initiatives/ems.htm>.

⁴See the MOA on collaborative environmental technology verification at http://www.epa.gov/etv/sitedocs/memo_agreement_estcp.html.

About the Author

Mary McKiel is the director of quality standards at EPA and, since 1997, has served as the EPA Standards Executive. Before joining EPA, she was director of quality standards at the General Services Administration for about 30 years. Dr. McKiel assisted with the development of Office of Management and Budget Circular A-119, *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*. She is a vice chairman of ANSI’s Board of Directors and a former chair of ANSI’s Government Member Forum.✻

GSA and the Federal Standardization Program

Optimizing the Use of Voluntary Consensus Standards

By Kathleen Baden



The General Services Administration (GSA) is responsible for administering the Federal Standardization Program (FSP) by developing and disseminating government-wide standardization policies and procedures, and coordinating civil and military standardization functions to avoid duplication. The goal of the program is to standardize items used throughout the federal government by optimizing voluntary consensus standards or by developing Federal Product Descriptions (FPDs) and reducing the number of sizes and kinds of items that are procured. FPDs include federal specifications and related federal qualified products lists, federal standards, and commercial item descriptions (CIDs). When used in procurement, these FPDs can generate huge savings.

The origin of the Federal Standardization Program dates back to the recommendations of the Commission on Organization of the Executive Branch of Government, 1947–1949, also known as the Hoover Commission. A task force report on the federal supply system addressed the subject of “standard specification.” It recommended that responsibility for federal specification activities should reside in a “standards division” in the “central supply organization” in the Executive Office of the President.

Those recommendations were implemented in the federal Property and Administrative Services Act of 1949, which created GSA and, within it, the Federal Supply Service (FSS). This forms the basic authority for GSA’s management of the FSP.

Federal Supply Before GSA

Before the 1949 act, the military and civilian agencies maintained their own supply and inventory programs. These agencies kept few if any records of what they stored and issued from the numerous warehouses they individually maintained, creating much duplication and posing a threat to both the national economy and security. Reorganization studies, most notably the one headed by former President Herbert Hoover, concluded that a central bureau of supply should be responsible for managing all government purchases.

Thus FSS was established as a central organization whose mission was to provide an economically efficient system for the procurement, supply, and eventual disposal of property. Its purpose was to eliminate duplicate functions, standardize product offerings, and establish a professional resource that would leverage the government’s buying power in obtaining supplies and services.

To further define GSA's role, the 82nd Congress, on July 1, 1952, approved Public Law 436, the Defense Cataloging and Standardization Act. This law established a single catalog system and related supply standardization program, and it was instrumental in establishing a uniform National Supply System. Section 11 of the law requires the "Administrator of General Services and the Secretary of Defense [to] coordinate the cataloging and standardization activities of the General Services Administration and the Department of Defense so as to avoid unnecessary duplication."

To further the National Supply System concept, GSA and DoD agreed in 1971 to eliminate avoidable overlap between their respective supply systems. The "Agreement Between the Department of Defense and the General Services Administration Governing Supply Management Relationships Under the National Supply System" divided the management of consumable items between GSA and the Defense Supply Agency (now the Defense Logistics Agency, or DLA) and established the criteria for this division. It assigned to GSA those Federal Supply Classes (FSCs) or commodities that are commonly used by federal agencies, but are not predominantly of a military nature, and are commercially available. It assigned to DLA the FSCs used in military operations or weapon system support.

GSA was specifically assigned the responsibility to procure consumable items for the executive branch agencies, including hand tools, paint, adhesives, office supplies, cleaning supplies, furniture, kitchen supplies, and outdoor equipment. Most of these products were procured using government-unique requirements included in military and federal specifications.

Transition to Commercial Products

In 1972, the Commission on Government Procurement recommended in its report, *Acquisition of Commercial Products*, that the government take greater advantage of efficiencies offered by the commercial market. Congress similarly directed improvements to the procurement process by passing the Office of Federal Procurement Policy (OFPP) Act in 1974. In May 1976, the newly created OFPP issued its Acquisition and Distribution of Commercial Products (ADCoP) policy, which required agencies to purchase commercial products and use commercial distribution systems whenever such products or distribution systems adequately satisfy the government's needs.

The focus of the ADCoP policy was to take advantage of the innovation and efficiencies of the commercial marketplace, to avoid developing government-unique products when commercial products were available, and to prevent the use of government systems for distributing products when commercial distribution channels were adequate. The policy emphasized the importance of knowing customers' needs in

conjunction with the market conditions before drafting product descriptions. Up-front analysis and market research were key in determining the acquisition strategy.

Soon after the implementation of the ADCoP policy, the commercial item description was born. GSA and DoD identified thousands of detailed government specifications for review and recommended that they be either cancelled or converted to CIDs. Converting them to CIDs resulted in many benefits. For example, when a federal specification was used to procure socket wrench sets, there was one bidder, and the unit cost was \$145. When the specification was replaced by a CID, seven companies bid and the unit cost was \$85. The total savings for 3,000 units amounted to approximately \$180,000.

Another outcome of ADCoP was the initiative to use voluntary consensus standards in acquiring commercial products. This practice was strengthened in 1978 when the Office of Management and Budget issued Circular A-119, *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*. This circular established policy pertaining to both interaction with voluntary standards bodies and the adoption and use of voluntary standards. Furthermore, it not only stated a preference for voluntary consensus standards but also encouraged the “participation by knowledgeable agency employees in the standards activities of voluntary standards bodies and standard-developing groups.”

Since 1978, the circular has been revised several times to include annual reporting requirements and to strengthen the requirement to use voluntary consensus standards and participate in developing them.

GSA captured the spirit of the circular by directing its standardization personnel to use voluntary standards in whole or in part, whenever applicable. One such instance was that GSA officially cancelled federal specification PPP-B-636, “Boxes, Shipping, and Fiberboard,” in 1994. ASTM International Standards D1974 and D5118 were cited as the preferred replacement standards for fabricating new fiberboard boxes, liners, and sleeves. Having a voluntary standard gave stakeholders, including commercial industry, easier participation in the review process. Furthermore, the voluntary standard could be updated more readily to represent new developments and improvements in the packaging industry.

The National Performance Review (NPR) in 1993 and the Federal Acquisition and Streamlining Act of 1994 reemphasized the importance of buying commercial rather than government-unique products. (Many remember, during this period, the ashtray that Vice President Al Gore smashed on national television to stress the absurdity of buying ashtrays with a 10-page federal specification.) The NPR tasked GSA to in-

crease the use of commercial descriptions within procurements and to cancel and eliminate documents that call out government-unique requirements. GSA responded by directing its procurement activities to use more commercial standards and examine the need to continue existing federal specifications. Before GSA's NPR initiative, 54 percent of the documents cited in procurements were commercial; at its completion, 80 percent were commercial. GSA cancelled 30 percent of its federal specifications and converted 36 percent to CIDs or voluntary standards.

During the 1990s, GSA continued to emphasize the importance of buying commercial off-the-shelf products, referencing voluntary consensus standards and CIDs, rather than government-unique products. The advantages included greater affordability, shorter lead-times, lower administrative costs, access to new technology, and a broader commercial product line offering more choice and variety.

GSA's Role Today

Today, GSA, as administrator of the Federal Standardization Program, promulgates policies and procedures via the *Federal Standardization Manual*. The manual provides guidance to executive agencies on developing, coordinating, approving, issuing, indexing, managing, and maintaining federal product descriptions. It also provides information on adopting and using voluntary standards. All executive agencies are required to use this manual, which complements DOD 4120.24-M, *Defense Standardization Manual*.

GSA is also responsible for indexing, printing, and distributing all FPDs. Today, there are approximately 6,500 such documents, including 4,943 CIDs, 793 federal specifications, 739 federal standards, and 28 qualified product lists. DoD prepares most of these; GSA is the preparing activity for 287.

GSA continues to mandate the use of voluntary consensus standards when available and encourages its standards developers to participate in voluntary standards groups. When a voluntary standard does not exist, an FPD may be developed and used in procurements. GSA's goal is to provide the best value to its customers, by standardizing commercial consumable items.

About the Author

Kathleen Baden is the director of the Supply Standards Division of the Product Acquisition Center, Office of GSA Global Supply. She is responsible for developing and promulgating government-wide Federal Standardization Program policies and procedures. She is also responsible for preparing and maintaining the *Federal Standardization Manual*. Before transferring to the Supply Standards Division in January 2005, she was a market analyst in the Business Development Center of GSA Global Supply. In this capacity, she was responsible for providing data analysis and market research and for planning and implementing FSS marketing strategies. ✨

Strategic Partnering to Meet Standards-Related Homeland Security Needs

By Mary Saunders



The American National Standards Institute (ANSI) Homeland Security Standards Panel (HSSP) was launched on February 5, 2003, in direct response to needs expressed for standards and conformity assessment programs related to homeland security. The HSSP's mission is to identify existing consensus standards or, if none exist, to assist the U.S. Department of Homeland Security (DHS) and those sectors requesting assistance with accelerating the development and adoption of consensus standards critical to homeland security. The panel also addresses related conformity assessment issues.

The HSSP is a public-private partnership. As such it has two co-chairs, one representing the government (Mary Saunders, National Institute of Standards and Technology) and one representing the private sector (Dan Bart, Telecommunications Industry Association). Specific homeland security issues are addressed via workshops. These workshops bring together subject matter experts to identify existing standards and conformity assessment programs, to determine where there are gaps, and to make recommendations for addressing these gaps. Further details on the HSSP structure, participants, and documents are available on the HSSP website (www.ansi.org/hssp).

This article summarizes the panel's accomplishments during its first 3 years of existence. These include the production of workshop reports and recommendations, as well as less tangible items such as promotion of the crucial role that standards play in the overall homeland security effort and significant opportunities for networking between and among government and private-sector security experts.

Accomplishments

FORUM FOR INFORMATION SHARING AND COORDINATION

One of the goals of the HSSP is to create a comprehensive cross-sector body of homeland security experts involved in standardization. Successful partner-

ships with various security initiatives have further solidified the reputation of the ANSI HSSP as the place for high-level standards matters across the broad spectrum of homeland security areas to be initially considered. The four plenary meetings held to date have allowed HSSP participants and invited stakeholders to meet, strategize, and share information on key homeland security standards issues and efforts underway. Through the forum provided by the HSSP, diverse groups were able to learn of complementary efforts and make contacts that lead to future collaboration and partnerships. Examples of these collaborations are the combining of efforts for security-related conferences and initiatives and the participation in the work of the technical committees of standards developers. The HSSP also provides DHS with a single forum to hear from, as well as address, the broad homeland security standards community. The HSSP secretary serves as a resource for homeland security standards inquiries to provide answers or further contacts for specific standards questions and to connect people and groups working on the same standards issues.

DATABASE AND CONNECTIONS WITH USER ORGANIZATIONS

The Homeland Security Standards Database (HSSD) is a comprehensive source for homeland security standards information.¹ ANSI compiled this database with input from HSSP members and support from DHS. The HSSD contains more than 6,500 standards categorized in a DHS-developed taxonomy. The HSSP workshops continue to provide important data to the HSSD in addition to submissions from standards developers and users. The information in the HSSD will continue to evolve.

ANSI is also in the process of finalizing partnerships with other homeland security online systems such as the Responder Knowledge Base (RKB) to share and leverage homeland security information.² The RKB is expected to provide critically needed guidance to

state and local first-response agencies that need standards for an overwhelming array of new security, personal protective, and communication products.

The September 2005 HSSP plenary meeting was planned closely with the DHS Science and Technology Directorate to not only bring together the homeland security standards community, but also facilitate contacts between organizations that identify user requirements and standards developers. The user requirements organizations that participated were the Association of Public Safety Communications Officials, Biometrics Consortium, Interagency Board for Equipment Standardization and Interoperability, Council on Ionizing Radiation and Measurement Standards, Process Control System Forum, and Federal Geographic Data Committee. This effort was highly successful. Participants expressed a great appreciation for the meeting and the connections that they made; they also expressed their desire to continue working with the HSSP.

PROMOTION OF HOMELAND SECURITY STANDARDS

The HSSP strives to educate and promote the important role that standards play in the area of homeland security. These key roles of the panel and homeland

security standards were cited in the Congressional Research Service's *Report for Congress—Homeland Security: Standards for State and Local Preparedness*. Panel leaders have delivered presentations focusing on the work of the panel and homeland security standards at conferences, at smaller stakeholder meetings, and also to individual organizations that are new to the process or want to learn more. Through press releases and inclusion in reports, the work of the panel has received nationwide press coverage in print and in on-line journals.

The HSSP newsletter and website are two means for providing information about homeland security standardization. The newsletter provides information on homeland security standards and related news items. The HSSP website contains resource pages with links to further homeland security information, including information on the panel and its workshops and a meeting calendar to track and help promote other events of interest to those in the homeland security community.

EMERGENCY PREPAREDNESS AND BUSINESS CONTINUITY

In 2004, the National Commission on Terrorist Attacks Upon the United States, also known as the 9/11

DHS Adopts Standards

The DHS Science and Technology Directorate has adopted a number of standards and guidelines to assist local, state, and federal procurement officials and manufacturers. Included on this list are American National Standards from ANSI-accredited standards-developing organizations such as the National Fire Protection Association, which developed a standard on personal protective equipment for first responders; the Institute of Electrical and Electronics Engineers, which developed a standard on radiological and nuclear detection equipment; and the International Committee for Information Technology Standards, which developed a standard on biometrics.

Commission, asked the HSSP to identify an existing standard, or create an action plan for developing one, in the area of private-sector emergency preparedness and business continuity. To address this request, the HSSP organized a workshop involving stakeholders from the private and public sectors. The workshop's recommendation regarding American National Standard NFPA 1600, "Disaster/Emergency Management and Business Continuity Programs," developed by the National Fire Protection Association, was delivered to the 9/11 Commission's vice-chairman at an April 2004 event that received national press coverage. This contribution was included in the recommendations section of the final report published by the 9/11 Commission. NFPA 1600 has since been referenced in national campaigns such as "DHS Ready for Business" and also in national legislation (e.g., U.S. Intelligence Reform Bill and the Private Sector Preparedness Act).

In 2005, the ISO issued a call for a national body to take the lead in the effort to develop an International Workshop Agreement (IWA) on the subject of emergency preparedness. An IWA is an immediate ISO deliverable that may be further processed to become an international standard. ISO accepted the ANSI offer to lead this effort, with the HSSP providing the basis for this leadership. An international meeting was held April 24–26, 2006, in Florence, Italy, to develop the IWA. Meeting participants recommended that future work be done by the ISO's Technical Committee 223 (Societal Security), with the proviso that the common elements identified during the workshop form the basis of an international family of standards for emergency management and business continuity.

During the December 2004 panel plenary meeting, the subject of enterprise power security and continuity was endorsed as an area to explore via a workshop.

The primary goals of the workshop were to identify all the relevant standards and guidance documents in the area of power security and continuity and to make recommendations for addressing standards gaps and conformity assessment needs. The workshop convened two meetings. Its final report, which includes a series of key recommendations for this subject area, was published in May 2006.

EMERGENCY COMMUNICATIONS

Communications in emergency situations are critical for the safety of citizens and protection of critical infrastructure, as well as for response and recovery efforts. The HSSP emergency communications workshop convened meetings in December 2004 and December 2005. The workshop agreed to focus on standards for emergency communications in three categories:

- Communications from individuals or organizations to individuals or organizations (including employer to employee, employer to employer, and employer to customer)
- Communications from individuals or organizations to government
- Communications from government to individuals or organizations.

Government-to-government emergency communications are being addressed by other programs such as DHS SAFECOM.

A breakout session on citizen preparedness, held in conjunction with the December 2004 meeting, resulted in the creation of the citizen preparedness resource web page on the HSSP website. At the December 2005 meeting, task groups were created to identify the existing standards and gaps in each of the categories listed, as well as necessary accreditation and certification programs.

BIOLOGICAL AND CHEMICAL THREAT AGENTS

Biological and chemical threat agents are clearly an important concern for the nation's homeland security. Three workshop meetings were held on this subject. The workshop's 400-page final report was published in December 2004 and submitted to DHS. The report contains a list of relevant published standards and projects under development in the areas of biological and chemical threat agents categorized by a subject-specific taxonomy developed by workshop participants.

BIOMETRICS

Biometric technologies are key to homeland security because they are becoming the foundation of many highly secure identification and verification solutions. In September 2003, a workshop meeting of subject

designed to be consistent with international standards for biometrics used in such applications as travel documents. This standard will also be used to specify definitions of photographic properties and digital image attributes and as a standard format for relevant applications, including human examination and computer-automated face recognition.

INTERNATIONAL SECURITY INITIATIVES

The ISO and International Electrotechnical Commission (IEC) Strategic Advisory Group (SAG) on security oversees ISO and IEC standardization activities in the field of security, provides advice and guidance to ISO and IEC leadership bodies relative to the coordination of work relevant to security, and identifies areas in which new standardization initiatives may be warranted. ANSI provides the chairman for the

**Recognizing that security standardization is a global effort,
the HSSP has incorporated international outreach into its
activities.**

matter experts was convened to explore the area of biometric standardization. The workshop produced a report of existing standards and projects under development. The report also addressed five key issues related to biometric standardization and conformity assessment and made recommendations for addressing these issues.

DHS adopted American National Standard INCITS 385-2004, "Information Technology: Face Recognition Format for Data Interchange," which was developed by the International Committee for Information Technology Standards. The standard is

SAG, and the HSSP steering committee serves as the body to provide inputs to the U.S. representatives. The United States plays an active role in this international body. Recently (November 2005 and April 2006), SAG met to examine key aspects of international security standardization.

Recognizing that security standardization is a global effort, the HSSP has incorporated international outreach into its activities. In addition to the ISO/IEC initiative, HSSP has forged a partnership with the European Committee for Standardization and its working group on Protection and Security of the Citizen.

Representatives of the European Telecommunications Standards Institute have participated in HSSP plenary meetings and workshops.

In 2005, the HSSP reached a formal agreement with Australia's National Centre for Security Standards (NCSS) to cooperate on security standards issues. Under the agreement, the HSSP and NCSS will collaborate to create an integrated security standards framework that will help concerned parties find useful and relevant guidance materials. Providing for an open dialogue between the two organizations, the agreement allows for the exchange of information related to identifying industry and community needs or trends for security standards. The HSSP has also had representatives from other national standards organizations, such as Canada, Israel, and Japan, participating in its work.

Looking Forward

Entering its fourth year of existence, the ANSI HSSP expects to continue the momentum established during its first 3 years as it examines the vast landscape of homeland security standardization. The importance of this effort is evidenced by the reference in ANSI's *United States Standards Strategy*—an updated version of *National Standards Strategy for the United States* and approved by the ANSI Board of Directors on December 8, 2005—to the importance of standards coordination in areas of emerging national priorities such as homeland security.

At the September 2005 ANSI HSSP plenary meeting, participants proposed a number of potential new areas of exploration. It was agreed that in 2006, workshops would be convened in the areas of lessons learned from Hurricane Katrina and the role for standards and conformity assessment programs in prevention, response and recovery, and mass/public transportation security.

Much progress has been made in the area of homeland security standardization, but there is a great amount of work left to be done as ANSI and the HSSP continue to support this critical national priority.

¹For more information about the Homeland Security Standards Database, see www.hssd.us.

²For more information about the Responder Knowledge Base, see www.rkb.mipt.org.

About the Author

Mary Saunders is the chief of the Standards Services Division at the National Institute of Standards and Technology (NIST). The division carries out NIST's responsibilities under the National Technology Transfer and Advancement Act of 1995 and provides policy support for standards and conformity assessment activities for federal agencies. Ms. Saunders chairs the Interagency Committee on Standards Policy, which is charged with coordinating federal agency standards-related activities. She is also the government co-chair of the ANSI Homeland Security Standards Panel. ✨

Keynote Address for 2006 Defense Standardization Symposium

The following is the keynote address presented by Mr. James Hall, Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs) (Acting), at the Defense Standardization Program Conference held on May 23, 2006.

Good morning. It's a pleasure to be here today to share some of my thoughts with you on the importance of standardization and standards in the Department of Defense now and in the future.

Standardization is something that we tend to take for granted. In our everyday lives, we would be surprised to buy a hair dryer, television, or personal computer and discover that the electrical plug did not fit into an outlet or operate off the current coming from that outlet. But take that same item to Europe and try to plug it in an electrical socket, and you quickly begin to appreciate the importance of standardization.

While standardization has been important to the United States military since the very beginning of our Nation, it has taken on new and heightened sense of importance and direction during the last five years during both Operation Enduring Freedom and Operation Iraqi Freedom. The stunning success of both the military campaigns in Afghanistan and Iraq will be seen by historians as the first full scale demonstration of the power of information age warfighting strategies and techniques. Such success, however, would not have been possible without the standards that you in this room have helped develop.

During Operation Enduring Freedom, the U.S. Navy's Commander Task Force 50 led



James Hall
Assistant Deputy Under Secretary of Defense
(Logistics Plans and Programs)

by the carrier Carl Vinson was able to coordinate a variety of operational actions among more than 50 coalition ships and numerous aircraft because of commonly shared standards. Picture if you will:

- Canadian and Dutch frigates standing picket guard for the U.S. guided missile cruiser *Antietam* in the North Arabian Sea, while
- the Japanese supply ship *Hamana* refuels the U.S. cruiser at sea, and off in the distance,
- British Royal Air Force tankers refuel U.S. Navy *Hornets* returning to the carrier group from a mission.

None of these seemingly routine, but essential coalition operations would have been possible if it were not for common fuel, coupling, and communication standards.

Another operational capability that will distinguish Operation Enduring Freedom and Operation Iraqi Freedom from past wars will be the widespread use of guided bombs. In 1991, during Operation Desert Storm, only about 9 percent of the bombs dropped were “smart bombs.” In contrast, the majority of bombs dropped in Afghanistan and Iraq were “smart bombs,” and to a large extent this capability is due to MIL-STD-1760. Compliance with this standard is a requirement for all smart weapons developed in DoD in order to standardize the software and the electronics interface requirements to enable target data to be passed onto the smart weapons.

While it is largely the high-tech weapons and their supporting standards that have been getting much of the attention, some very ordinary standards have also made significant contributions to our recent war-fighting efforts. Eye injuries account for 16 percent of all coalition casualties in Iraq. While flying shrapnel is the most dangerous threat to our soldiers’ eyes, the hazards that cause most of the injuries are such things as sand, dust, and debris from helicopters and high winds.

Even though soldiers had been directed to wear military-issue eye protection, according to one Army surgeon in an article from the *New England Journal of Medicine*, soldiers evidently found the Mil-Spec protective eyewear too ugly with some soldiers commenting that it looked like something a Florida senior citizen would wear. To address the soldiers’ fashion complaint, the Army was able to quickly approve several new types of commercial protective eyewear through the Rapid Fielding Initiative because there were American National Standards in place to test glasses and goggles for safety and optical protection. By providing soldiers with “cooler-looking” protective eyewear that still met the necessary standards, the rate of eye injuries has decreased markedly.

Standardization has proven itself as an important force multiplier by allowing different coalition allies and Services to work together, and by improving the operational capabilities of equipment. But standardization is also drawing increased attention for what it can do to make weapon systems more affordable.

Over 20 years ago, Norm Augustine, who at the time was President of Martin Marietta, wrote a book entitled, “Augustine’s Laws,” in which he took a humorous look at some very serious problems facing the defense industry. Augustine’s Law Number 16 predicted that: “In the year 2054, the entire defense budget will purchase just one aircraft. This aircraft will have to be shared by the Air Force and Navy 3½ days each per week except leap year, when it will be made available to the Marines for the extra day.” While the reasons that Augustine gives for the dramatic rise in the cost of weapon systems are numerous and complex, one of the reasons is our insistence on customization instead of standardization.

The importance of standardization as a cost savings tool is gaining attention in the Department. A few months ago during his confirmation hearing before the Senate Armed Services Committee, Pete Geren, the Under Secretary of the Army, had this to say in

response to a question on how the Army plans to control its escalating acquisition costs:

The DoD cannot sustain the rate of increase and cost overruns in major defense systems that it has experienced over the last decade.... The Army plans to reduce costs through standardization, economies of scale, equipment standardization, requirement discipline and common unit designs. More needs to be done DoD-wide. If confirmed, I would seek to work with the Congress in this critical area.

I can certainly affirm Under Secretary Geren's statement that standardization is one of the keys to controlling costs. In a moment, I will be handing out the 2005 Defense Standardization Awards, and just among our five award winners, there is an estimated life-cycle cost savings of over \$800 million because of standardization.

So what will be the future direction for standardization in the Department? The answer to this question lies within the recently published Quadrennial Defense Review, QDR, 2006 Report. If there is one dominant theme throughout the QDR, it is jointness, jointness, jointness, and the jointness mandated by the QDR is unobtainable without standardization. Over the last year, the Department has made some significant strides in identifying strategies to try to align standardization business processes to support joint operations, joint requirements determination, joint acquisition, and joint logistics support.

The QDR gives clear direction that future defense challenges will require the United States to forge stronger partnerships with our allies and friends internationally to promote better operational and materiel interoperability. Last year, the Joint Chiefs of Staff revised their Joint Capabilities Integration and Development System instruction and manual to require the consideration of U.S.-ratified materiel international standardization agreements when developing joint capabilities documentation. The addition of this requirement gives a new upfront importance

to NATO and other international standardization agreements as we identify and set future joint capabilities.

Another area where the QDR offers new direction is a requirement for the Department to improve its business processes to better achieve horizontal integration across the Services and Agencies to achieve effective jointness. The QDR makes it quite clear that the Service-centric approach must give way to joint capability portfolios, and that those areas that are joint capability areas will be the ones allocated resources.

With the QDR's emphasis on joint capability areas in mind, the Defense Standardization Program is launching eight initial Joint Standardization Boards to improve standardization-making decision processes among the Services and Agencies, with our allies, and with industry, and to improve the visibility and support for top-level standardization needs and initiatives identified by the Department. In some cases, such as mobile electric power, the Joint Standardization Board is simply a recognition and endorsement of long-standing joint standardization efforts. In others, such as tactical unmanned aircraft systems, the Joint Standardization Board is a new entity intended to achieve some of the joint standardization needs identified by the Under Secretary of Defense for Acquisition, Technology, and Logistics in his 2005 Unmanned Aircraft Systems Roadmap.

As a point of trivia with an important underlying message, this Roadmap uses the term "standards" 287 times to identify areas where standards exist that need to be implemented across programs or where new standards need to be developed to ensure jointness and interoperability. The Under Secretary clearly understands the critical role that standards must play if we are to achieve the goals laid out in his Unmanned Aircraft Systems Roadmap.

One topic that the QDR focused on that is near and dear to my heart is logistics. On the whole, the

QDR had some very positive things to say about our recent logistics initiatives. After some initial logistics slowness and difficulties at the outset of our recent operations in the Middle East, the QDR noted that:

- Lead times for stocked items dropped by more than 45 percent since the peaks recorded in 2003;
- Better synchronization of transportation assets allowed the Army to cut costs by \$268 million in fiscal year 2004; and
- On-time delivery rates are now at over 90 percent.

Despite these and other notable logistics achievements, the QDR laid down some significant challenges for the DoD logistics community to improve visibility into the supply chain logistics costs and performance by building a foundation for continuous improvement in performance. One capability that the QDR specifically mentions is to improve visibility into the supply chain logistics through the use of active and passive Radio Frequency Identification, or RFID. Of course, the key to RFID success will be standards to enable the sharing, integration, and synchronization of vast amounts of information across the supply chain. Right now, there are at least a dozen standards organizations, including the International Organization for Standardization and the Institute of Electrical and Electronics Engineers, working on RFID standards that will play a key role in achieving the Department's vision for implementing knowledge-enabled logistics support to the warfighter through automated asset visibility.

I mentioned at the beginning of my keynote that standardization is something that has always been

important to the United States military. In a letter that George Washington sent in June 1783 to the governors of the 13 states of the newly formed Republic, Washington highlighted four areas that he considered essential to future survival of the United States. Not surprisingly, one of the areas that Washington emphasized was the need for a strong militia to defend the Republic. What was surprising perhaps was Washington's emphasis on the need for standardization of arms and equipment. Washington wrote the governors that:

It is essential...that the same species of Arms, Accoutrements and Military Apparatus should be introduced in every part of the United States. No one, who has not learned it from experience, can conceive the difficulty, expense, and confusion which result from a contrary system.

Washington concluded his letter by stating that to address the challenges and ideas he had laid out would require the joint efforts of everyone. I'd like to conclude my talk today by echoing a similar theme that to support the warfighter defending our freedom, security, and way of life, and to bring about the transformation of the Department's business practices will require everyone's contributions. Over the next few days, we will be hearing about some of the efforts of the Joint Standardization Boards, international standardization initiatives with our allies, and private sector and industry standardization directions. I would ask that each of you give some thought as to what you can contribute in these areas, and if there is something I need to be doing, then let me know.

Thank you.

Defense Standardization Program Awards

On May 23, 2006, Mr. James Hall, the Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs) (Acting), and Mr. Gregory Saunders, Director, Defense Standardization Program Office, presented five awards to honor two individuals and three teams whose standardization efforts have made singular improvements in technical performance, greatly enhanced safety for DoD personnel, and avoided billions of dollars in costs.

2005 DISTINGUISHED ACHIEVEMENT AWARD WINNER

The 2005 Distinguished Achievement Award, which includes an engraved crystal Pentagon and a \$5,000 check, went to a three-member Navy team—**Mr. David Restifo, Mr. James Conklin, and Mr. Jimmy Smith**—that achieved tremendous savings in the *Virginia* class submarine program (PMS450) by turning to standardization initiatives to help reduce overall acquisition and operations and maintenance costs of the program. These standardization initiatives were utilized as key tools in the *Virginia* class program’s integrated product and process development (IPPD) strategy. The use of standardization succeeded in minimizing the program’s overall logistics footprint, as well as reducing the class parts library. The *Virginia* class submarine program used the innovative IPPD method to ensure that integrated logistics support and part standardization considerations were built into the design early in the process.

2005 DISTINGUISHED ACHIEVEMENT AWARD WINNER



Pictured above are Mr. Greg Saunders, DSPO Director, presenting the award check to two members of the award-winning team, Mr. James Conklin and Mr. David Restifo, and Mr. George Drakeley, Deputy Program Manager, *Virginia* Class Submarine Program.

One metric of success was the *Virginia* class program's \$27 million investment in parts standardization that has led to a projected \$789 million cost avoidance over the life of the *Virginia* class program. The impact of this success has been experienced beyond the program; because of the lessons learned and the extended application, cost avoidance is projected to be \$72 million for the USS *Jimmy Carter* (SSN-23) multi-mission platform program and \$80 million for the SSGN program.

ACHIEVEMENT AWARD WINNERS

Dr. Jose-Luis Sagripanti, of the U.S. Army's Edgewood Chemical Biological Center laboratory, developed a quantitative three-step method for determining the sporicidal efficacy of liquids, liquid sprays, and vapor or gases on contaminated carrier surfaces. This method, recently approved as ASTM Standard E2414-05, addresses the long-standing need for a proven test method to assess products and procedures used for decontamination and disinfection (DECON). Although methods applicable to materials and contamination levels are found in the clinical setting, no standards existed for evaluating the effectiveness of products and practices intended for DECON of military assets—until now.

The new standard fills the need to accurately and impartially assess the effectiveness of products and practices intended for DECON of military personnel, vehicles, weapons, equipment, buildings, ships, plans, and other military assets suspected of being contaminated after a biological attack. The three-step method provides a standardized and validated test to ensure that the military services select DECON products and practices affording adequate protection to their personnel.



Pictured above are Mr. Jim Hall; Dr. Jose-Luis Sagripanti, Award Winner; Mr. Jim Zarzicki, Supervisor; Dr. Joe Corriveau, Supervisor; Mr. Ron Davis, Army Standardization Executive; and Mr. Karim Abdian, Army Departmental Standardization Officer.

A Navy team with the responsibility for researching, visualizing, developing, testing, evaluating, procuring, and providing cradle-to-grave support for aircraft wiring support equipment and support systems was tasked to bring cost-wise technology and process reengineering solutions to the area of aircraft wiring support. As part of its task, the team analyzed the specific operational impediments and cost drivers associated with aircraft wiring repair. By standardizing support equipment, design requirements, and engineering processes associated with aircraft wiring supportability, the team developed the Aircraft Wiring Information System. This comprehensive database allows the standardization of repair tooling, specifications, and processes across all Navy and Marine Corps aircraft. The team's standardization effort has reduced the proliferation of tools and support equipment and realized a total cost avoidance of \$15.9 million.

Team members: Ms. Gail Edwards, Mr. William Peck, Ms. Leah Boise, Mr. Robert Petrie, and Mr. Benjamin Yearwood



Picture above are, left to right, Mr. Robert Hubbard, Supervisor; Mr. Jim Hall; Ms. Leah Boise, Award Winner; Mr. Robert Petrie, Award Winner; Mr. Benjamin Yearwood, Award Winner; Mr. Nick Kunesh, Navy Standardization Executive; Mr. William Peck, Award Winner; and Mr. Jeff Allan, Navy Departmental Standardization Officer.

An Air Force team, tasked with improving targeting accuracy across all Air Force imaging sensors, developed a Community Sensor Model (CSM) that eliminated proprietary, technical, and political barriers across all DoD reconnaissance systems. The team's work culminated in a breakthrough solution, substantially improving imagery intelligence interoperability. As a result of this work, the CSM interface became an emerging standard through the DoD IT Standards Registry Technical Working Group. With more than 21 models created and 4 more in development, armed forces operators will be able to measure target quality coordinates at one-third the cost of previous systems. The team carefully evaluated the current system, garnered the best ideas from both sensor builders and exploitation developers, and worked closely with national experts engaged in the development of geospatial data and standards. The CSM technical requirements document was submitted and unanimously approved by the DoD IT Standards Registry Technical Working Group for registration as an emerging standard. At the completion of the time frame for emerging standards, the CSM technical requirements document will become a defense standard.

Team members: Captain Ricardo Garcia and Ms. J. Lea Gordon



Pictured above are Mr. Jim Hall; Capt. Ricardo Garcia, Award Winner; Ms. Lea Gordon, Award Winner; Mr. Richard Sorenson, Squadron Chief Engineer; Mr. Terry Jaggars, Air Force Standardization Executive; and Mr. John Heliotis, Air Force Departmental Standardization Officer.

For many years, UHF satellite communications requirements have surpassed capacity by more than 300 percent. To meet this challenge, **Mr. Andreas Pappas** of the Defense Information Systems Agency led an effort on UHF SATCOM waveform standards and technology insertion to mitigate the TACSAT shortfall. As early as 2001–2002, it was apparent that the UHF SATCOM demand assigned multiple access (DAMA) waveforms (MIL-STD-188-181-B, -182A, and -183A) were no longer technologically current, efficient, and effective to fulfill the UHF SATCOM operational requirement. Efforts were initiated in accordance with DoD 4120.24-M policy and procedures to provide systems enhancements that will more than double the present UHF SATCOM systems capacity. After a series of standards updates and reviews, the integrated wavelength (IW) standards were approved and published in January 2004. Implementing IW into deployed software-programmable radios will provide tremendous operational and economic benefits for the warfighter.



Pictured above are Mr. Jim Hall; Mr. Andreas Pappas, Award Winner; Mr. Richard Williams, Vice Director, GIG Enterprise DISA; Mr. Alan Lewis, Chief, GIG Engineering Center; and Mr. Gerry Ring, DISA Departmental Standardization Officer.

Upcoming Events and Information

DoD Parts Management Reengineering Implementation Kickoff

The Parts Management Reengineering Working Group (PMRWG) was chartered in March 2004 by the Defense Standardization Program Office (DSPO) to reengineer DoD's parts management program. Parts management focuses primarily on part selection during weapon system design, part application, obsolescence mitigation, and standardization. Reengineering parts management will provide multiple benefits, including improved interoperability, increased operational availability, reduced life-cycle cost, and reduced logistics footprint.

On April 6, 2006, the director of DSPO briefed the final recommendations of the PMRWG to the Total Life Cycle Systems Management Executive Council. The council approved moving forward into implementation and requested periodic progress updates. The implementation phase of the DoD parts management reengineering effort was launched on May 25, 2006, following the DoD Standardization Conference.

DSPO chairs the implementation team. The team members are representatives from the military departments and the Defense Logistics Agency. Parts management experts from selected companies and trade associations serve as technical consultants.

The kickoff meeting accomplished the following objectives:

- Formally initiated the implementation phase for accomplishing the major recommendations contained

in the PMRWG's final report, *Better Serving the Warfighter*, published in October 2005

- Reviewed and revised a draft charter for the implementation team
- Kicked off project teams to address the top three recommendations in the final report:
 - Revitalize parts management within the systems engineering discipline
 - Make parts management a policy and contractual requirement, including identifying effective incentives
 - Create a Parts Management Knowledge Sharing Portal, leveraging the efforts of the Diminishing Manufacturing Sources and Material Shortages Working Group.

Full implementation of a reengineered parts management program may take years, but the initial thrust is expected to take about 12 to 18 months. The implementation team will hold meetings as needed.

Joint Standardization Boards Established

Interoperability within and among weapon systems, among the services, and with our allies is critical to our readiness and capability to respond to contingencies around the world. Interoperability is impossible without standardization. To transform our approach to standardization and respond to growing inventories of nonstandard parts that affect operational readiness and the logistics footprint in support of the warfighter, Mr. James Hall, the Defense Standardization Executive

and Acting Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs), has established Joint Standardization Boards (JSBs). Joint commodity or technology groups that already exist will simply be recognized as JSBs, and their charters will remain in effect but will be reviewed by the Defense Standardization Executive and Defense Standardization Council to ensure that they address the goals and objectives of the Defense Standardization Program. New JSBs will be chartered under the Defense Standardization Executive, overseen by the Defense Standardization Council, and will address technology standardization issues and make standardization decisions for the Department within their assigned scopes. To date, the following boards have been established:

- JSB for Fuzes and Other Initiation Systems (formerly, Fuze Engineering Standardization Working Group)
- JSB for Intermodal Equipment (formerly, Joint Intermodal Working Group)
- JSB for Medical Materiel (formerly, Defense Medical Standardization Board)
- JSB for Microelectronics and Semiconductors (formerly, Defense Microcircuits Planning Group)
- JSB for Mobile Electric Power (to be formed by the program manager for Mobile Electric Power)
- JSB for Power Source Systems (formerly, Battery Technical Working Group)
- JSB for Tactical Rigid-Wall, Soft-Wall, and Hybrid Shelters; Special Purpose Covers and Shelter

Accessories (formerly, Joint Committee on Tactical Shelters)

- JSB for Tactical Unmanned Aircraft Systems (to be formed by the Tactical Unmanned Aircraft Systems Group)

World Standards Day Paper Competition

Recognizing the vital role that partnerships play in the development and use of standards, the theme for the 2006 World Standards Day paper competition is "Standards Build Partnerships." Winners will be announced and given their awards at the U.S. celebration of World Standards Day, which will be held this year on October 11 at the Ronald Reagan Building and International Trade Center in Washington, DC.

The Standards Engineering Society and the World Standards Day Planning Committee award cash prizes for the three best papers submitted. The first-place winner will receive \$2,500 and a plaque. Second- and third-place winners will receive \$1,000 and \$500, respectively, along with a certificate. In addition, the winning papers will be published in SES's journal, *Standards Engineering*, with the first-place winner also appearing as a special article in the *ANSI Reporter*, a publication of the American National Standards Institute.

This year's competition subject is of interest to just about everyone in the standardization community. The standards system in the United States is complex, decentralized, and based on effective collaboration between the

private and public sectors, between standards users and standards developers, and between consumers and industry. Specifically, standards build partnerships between buyers and sellers (facilitating communication and market expansion), the public and private sectors (bringing together industries and their regulators), consumers and industry (allowing consumers a say in health and safety issues), as well as among nations (by fostering trade).

Contest papers, along with an official entry form, should be sent to the SES Executive Director, 13340 SW 96th Avenue, Miami, FL 33176. To be eligible for the competition, the papers must be received by midnight, September 1, 2006. For more information, go to www.ses-standards.org and click World Standards Day.

August 14–15, 2006, Cleveland, OH 2006 SES Annual Conference

SES will hold its 2006 conference at the Wyndham Hotel at Playhouse Square, in Cleveland, OH. This year's theme is "Standards Rock! Achieving Business Harmony." S. Joe Bhatia, president and chief executive officer of the American National Standards Institute, will present the keynote address, "Standardization to Meet Stakeholders Needs." For more information about the conference or to register, go to the SES website: www.ses-standards.org.

October 11, 2006, Washington, D.C. World Standards Day

The U.S. standards and conformity assessment system emphasizes positive

interactions between consumers and industry and between the public and private sectors. To pay tribute to these vital relationships, the theme of the U.S. celebration of World Standards Day 2006 is "Standards Build Partnerships." The 2006 U.S. observance of World Standards Day will be held on Wednesday, October 11, 2006, at the Ronald Reagan Building and International Trade Center in Washington, DC. The event will include a reception, exhibits, dinner, and presentation of the Ronald H. Brown Standards Leadership Award. The administrating organization for this year's event is the Standards Engineering Society. For more information, please go to www.wsd-us.org.

October 24–26, 2006, Beijing, China IFAN Members' Assembly Meeting and Workshop

The International Federation of Standards Users (IFAN) will hold its annual Members' Assembly meeting in Beijing, China, on October 24, 2006. In association with this meeting, an IFAN workshop will be held on October 25–26. The purposes of the workshop are to use the opportunity of being in China to achieve a deeper level of understanding of Chinese and non-Chinese standards, to exchange views and information on the application of standards (benefits and challenges), and to study the standardization and technical regulation systems in China. The workshop is open to all interested parties; membership in IFAN is not essential. Attendance, however, is limited and priority will be given to IFAN members.

Farewell

Anthony LaPlaca retired after more than 36 years of government service. At the time of his retirement, he was the Standards Executive for the U.S. Army Communications–Electronics Life Cycle Management Command at the Logistics and Readiness Center, Tobyhanna Army Depot, PA. In addition to his standardization duties, he was the Readiness Center’s top logistician and a leader in the field of military command and control, surveillance, and reconnaissance systems. Mr. LaPlaca is the recipient of numerous awards, including the Distinguished Executive and Meritorious Executive Presidential Rank Awards. Upon retirement, he received the Decoration for Exceptional Civilian Service and the Outstanding Service Award for Senior Executive Service Members.

Michael Cantrell retired from the U.S. Army Edgewood Chemical Biological Center (ECBC) after more than 30 years of federal service. He was a senior systems engineer and served as the senior team leader of the ECBC standardization team assisting with the resolution of questions and issues related to ECBC’s implementation of DoD and Army standardization documents. Mr. Cantrell provided input to industry forums to improve non-government standards, including EIA-649 and EIA-836, that were directly related to ECBC’s mission responsibilities. Mr. Cantrell previously served at the U.S. Army Soldier, Biological and Chemical Command.

Daniel Iwanicki retired in February 2006 with 25 years of federal service. Mr. Iwanicki worked on the Specifications and Standards Team at the U.S. Army Tank–Automotive and Armaments Command. He was a mechanical engineer whose major responsibilities included the qualified products list for tracks and track components.

Bashir Chughtai retired from the Defense Logistics Agency, Defense Supply Center Richmond (DSCR) on June 2, 2006, after 30 years of service with the government. He was the Preparing Activity (Standardization Management Activity Code GS2) for specifications on batteries, electrical equipment, power sources, electrical wire and cables, and electrical hardware. Mr. Chughtai previously supervised the Item Reduction Team at DSCR.

Dave Robertson is leaving his job as chief of the Systems Engineering Division and Center Standardization Executive at the Ogden Air Logistics Center, UT, to attend the Industrial College of the Armed Forces. He has been responsible for providing management-level advocacy and support for the Standardization Management Activity, certifying defense performance specifications prepared by the center, validating the need to either create new defense detail specifica-

tions or maintain existing detail specifications as fully active, and approving center representatives proposed for serving on national and international standardization bodies. We wish Dave well!

Promotions

On April 4, 2006, **Belinda Collins** was promoted to director of Technology Services at the National Institute of Standards and Technology (NIST). She had served as acting director since February 2004. Dr. Collins will continue to oversee the organization that provides U.S. businesses and other organizations with measurements, tests, calibrations, technical data, and other resources and services developed at NIST. She has served in various managerial and supervisory roles during her 32 years with NIST. She has also chaired the Interagency Committee on Standards Policy and the board of directors of the American National Standards Institute. Dr. Collins replaces Richard Kayser, who was named director of the NIST Materials Science and Engineering Laboratory.

Raymond Kolonchuk has been promoted to chief of the VQE Electronic Devices Team in the Sourcing and Qualifications Unit at the Defense Supply Center Columbus (DSCC), OH. Formerly, he was the MIL-S-19500 semiconductor engineer in DSCC's Qualification Activity (QA). Mr. Kolonchuk takes over the position from John Raye who retired this past January. Mr. Kolonchuk has worked in VQE for many years and has experience in both printed circuit boards and semiconductors, two of the primary areas of interest within DSCC QA.

Welcome

The Aeronautical Systems Center (ASC), Wright-Patterson Air Force Base, OH, welcomes **Thomas Christian** as the new Center Standardization Executive at ASC/Air Force Research Laboratory. He is replacing Gary Van Oss, who recently retired from federal service. In his new position, Dr. Christian has purview over all Defense Standardization Program documents. He comes to his current position in ASC from the Agile Combat Support Systems Wing, where he served as director of engineering. Previously, he provided expertise on multiple Air Force weapon systems, addressing such issues as structures, avionics, and software, mostly while serving at Robins Air Force Base, GA. He has served both the logistics side of Air Force weapon systems and the acquisition/development side. In addition, Dr. Christian has served on several national technical committees of the American Institute of Aeronautics and Astronautics. Welcome aboard!

Upcoming Issues— Call for Contributors

We are always seeking articles that relate to our themes or other standardization topics. We invite anyone involved in standardization—government employees, military personnel, industry leaders, members of academia, and others—to submit proposed articles for use in the *DSP Journal*. Please let us know if you would like to contribute.

Following are our themes for upcoming issues:

Issue	Theme
October–December 2006	Joint Standardization Boards
January–March 2007	IT Standardization

If you have ideas for articles or want more information, contact Tim Koczanski, Editor, *DSP Journal*, J-307, Defense Standardization Program Office, 8725 John J. Kingman Road, Stop 6233, Fort Belvoir, VA 22060-6221 or e-mail DSP-Editor@dla.mil.

Our office reserves the right to modify or reject any submission as deemed appropriate. We will be glad to send out our editorial guidelines and work with any author to get his or her material shaped into an article.

