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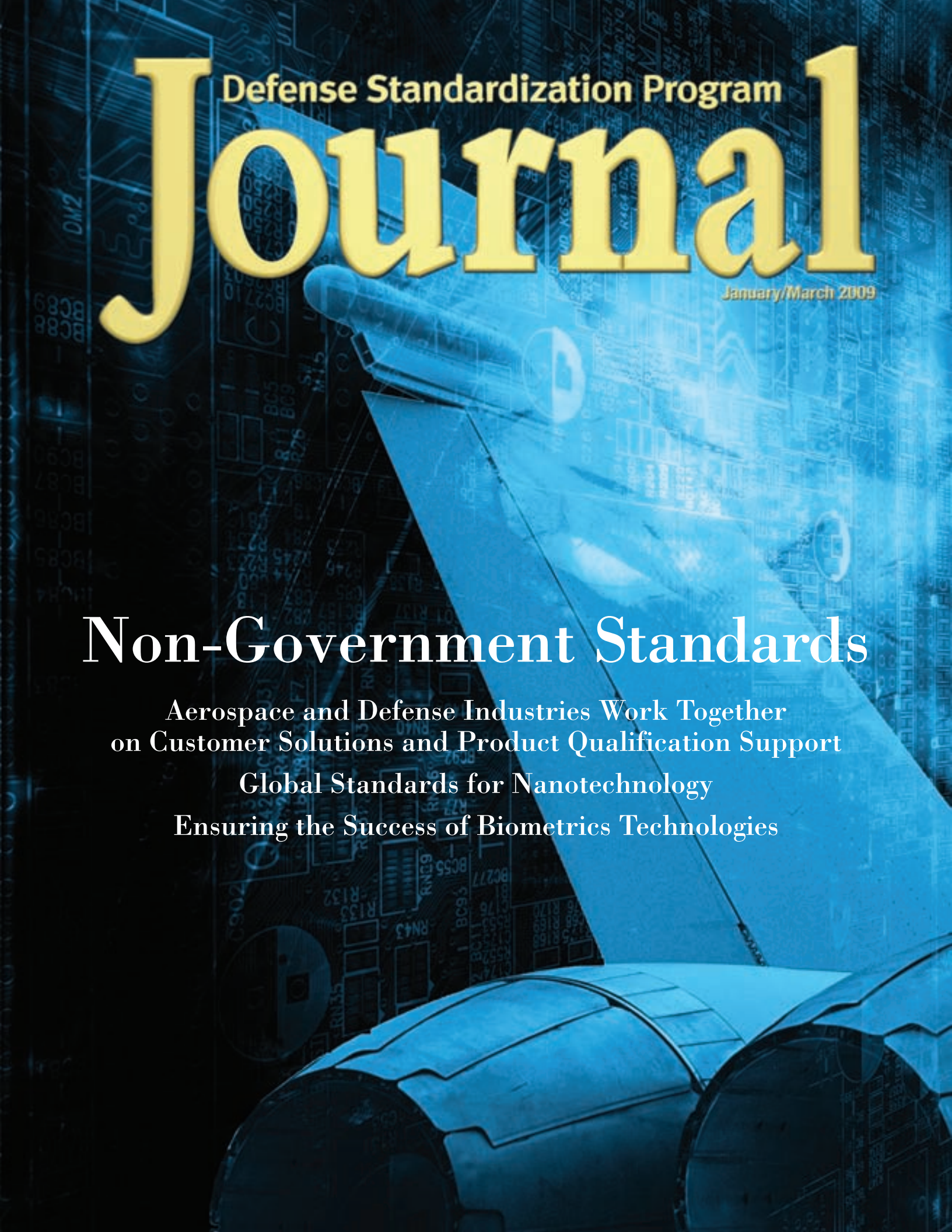
January/March 2009



Non-Government Standards

Aerospace and Defense Industries Work Together on Customer Solutions and Product Qualification Support

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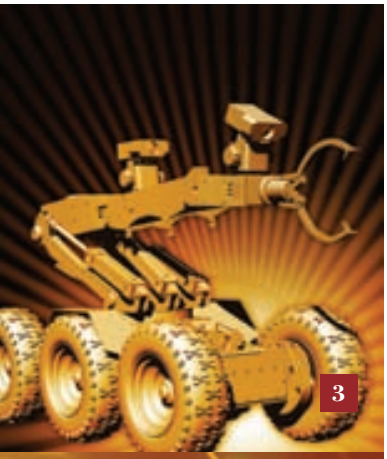

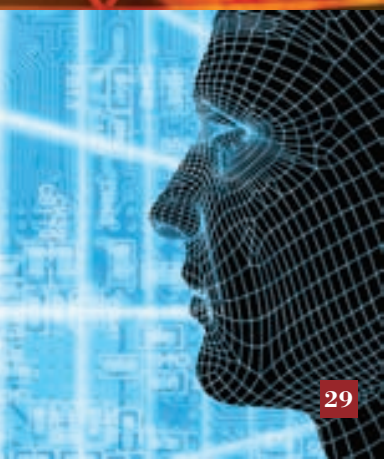

Departments

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Director's Forum

Non-Government Standards—Why Participate?

Much can be said for owning your own documents, and DoD owns thousands of them. When you own the documents, you have the flexibility to do with them as you please. You have total control over the development, approval, publication, and distribution process, as well as the technology that goes into the documents. However, although many users think the documents we own are free, they're not.

We have thousands of military specifications, standards, and handbooks essential for military applications. We distribute them free of charge from our world-class website (assistdocs.com), but it takes considerable technical resources to develop and maintain our library of MilSpecs. Furthermore, as more design and development work is being done by contractors, while at the same time our defense budgets dwindle, we are faced with the cold, hard truth that there simply are fewer technical people available to develop and maintain government-unique specifications and standards—creating an "expertise crisis" in the standards arena. One way to address this crisis is through continuous and engaged participation in the activities of non-government standards bodies (NGSBs).

I am frequently asked about participation in NGSB activities: Can we participate? Can we pay the necessary fees? Why would we want to contribute our expertise to an NGSB and then have to buy the standards from it?

Can we participate? Most certainly! Not only can we, but we are encouraged to participate through several different public policies. For many years, we have found the use of non-government standards (NGSs) and participation in NGSBs to be a good business model. In 1962, we recognized the benefits of using NGSs when we adopted 12 documents into DoD's standards system for repetitive use in procurement. Then, in the 1970s, we joined other government agencies to establish government-wide policy for using NGSs and participating in NGS organizations. This policy was documented in Office of Management and Budget (OMB) Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards," published in 1978. Though revised several times since then, the policy has remained the same: use NGSs to the greatest practical extent and participate in NGSB activities whenever possible.

In 1995, principles from the OMB circular were included in the National Technology Transfer and Advancement Act of 1995, Public Law 104-103 (NTTAA). Among other things, this law encouraged federal participation in NGSBs and reliance, whenever feasible, on standards and conformity assessment solutions developed or adopted by private, voluntary consensus standards bodies in lieu of developing government-unique standards or regulations.

Enactment of the NTTAA led OMB to revise Circular A-119. The 1998 revision established basic policies and guidance on NTTAA participation principles. I'd like to highlight two specific points on the nature of federal participation. First, the circular states that when a federal employee participates at agency expense, the employee represents the agency rather than his or her personal views; this applies equally to contractor personnel representing government

Gregory E. Saunders
Director
Defense Standardization Program Office

employees or agencies. Second, the circular makes clear that we are to participate actively and on an equal basis with other members; this includes voting and serving as chair or in other official capacities.

Can we pay the fees required for participation? The OMB circular is clear: we can pay fees to participate. The circular contains language on agency support of NGSB activities. Support should be limited to that which clearly furthers agency missions and priorities and is within agency resource constraints. Further, support should be no greater than other participants' support except when timely development of a standard is of paramount importance to an agency's mission. The following are types of support that may be provided:

- Direct financial support, such as grants, memberships, and contracts
- Administrative support, including travel costs, hosting of meetings, and secretarial functions
- Technical support, for example, cooperative testing for standards evaluation and participation of agency personnel in the activities of voluntary consensus standards bodies
- Joint planning with voluntary consensus standards bodies to promote the identification and development of needed standards
- Participation of agency personnel.

Public policy clearly encourages participation in NGSB activities and even states that we can pay appropriate fees. But this continues to be an area in which different lawyers have different interpretations. Let me summarize. One federal law prohibits agencies from paying membership fees or dues of an employee.[1] The Government Accountability Office has repeatedly found that this prohibition does not apply to memberships in an agency's name: "the general rule regarding membership fees is that an agency may use its appropriation to pay for an agency membership in a private association when the membership furthers the purpose of the appropriation."[2] Even with this history, some general counsels asserted that law restricted such payment. So, Congress addressed the issue directly in an amendment to the NTTAA stating that the law prohibiting payment of membership fees does not apply to activity undertaken in carrying out standards activities.[3] (See dsp.dla.mil, Non-Govt Standards, for the full text of the three cites.)

[1]United States Code, Title 5, Section 5946.
[2]Comptroller General Decision B-305095, December 2005.
[3]Public Law 107-107, Title XI, Section 1115.

Why should we participate in NGSB activities? There are many good reasons:

- We gain access to the commercial industrial base.
- We gain access to the latest technologies and dual-use products.
- We preserve and protect the standards expertise essential to the development of truly DoD-unique standardization documents.
- We gain opportunities to establish standards that serve national goals such as the use of environmentally sound and energy-efficient materials, products, systems, and services.
- We get a place at the private-sector standards table and can influence the shaping of industry standards to meet DoD requirements.
- We encourage long-term growth for U.S. enterprises and promote economic competition through harmonization of standards.

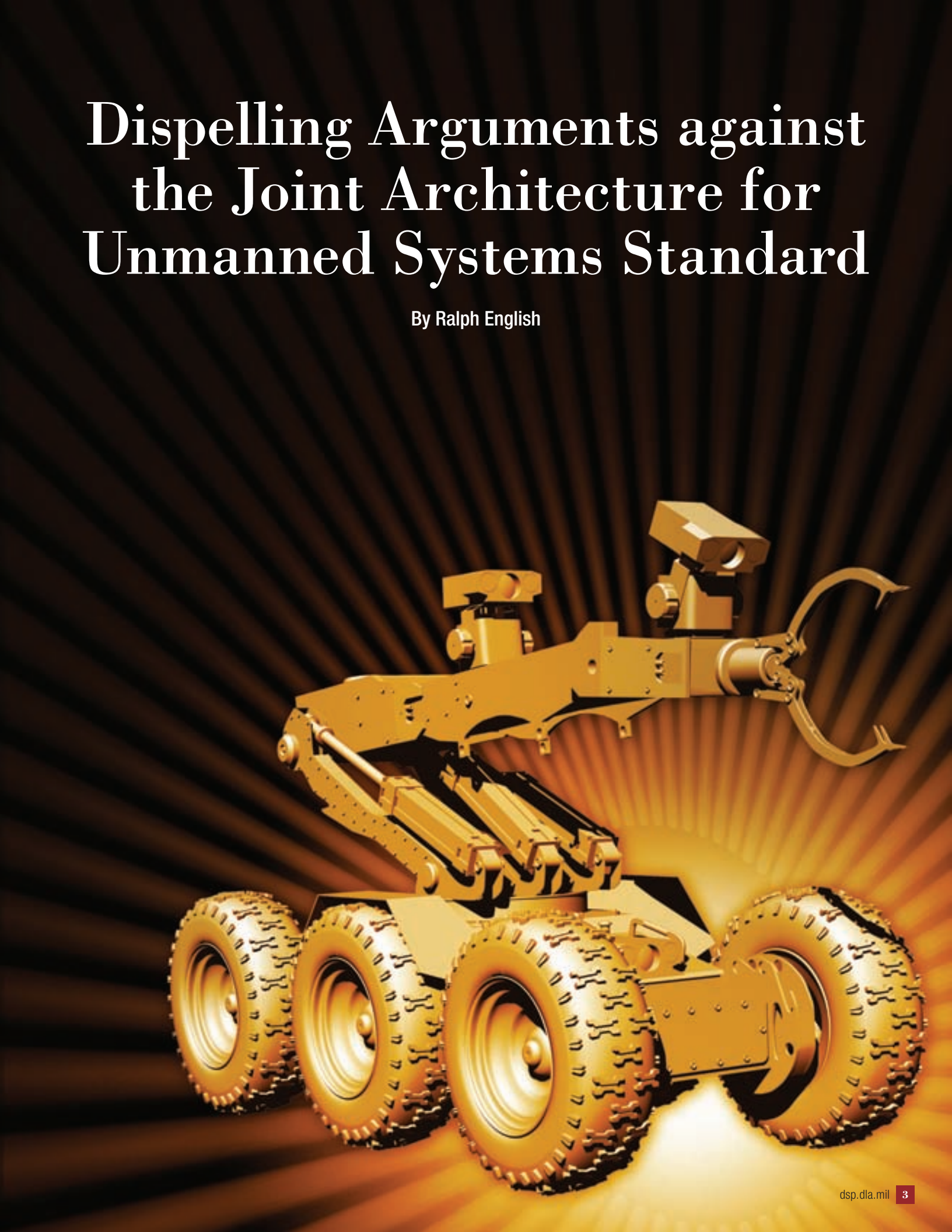
But, some say, now we have to pay for the standards we used to get for free. And we're the ones who contributed the intellectual property in the first place. Yes, we do have to buy the standards, and we require our contractors to buy them. But the long-term benefit far outweighs the short-term costs. In addition to the reasons cited above, we transfer the administrative cost to an organization for which standards development is a core competency, and we share that administrative cost with other users of the documents.

Participating in NGSBs and using NGSs is not free, but developing and maintaining military documents also cost money. And while flexibility and control over our own documents may provide a comfort level to some, partnering with industry in private-sector consensus bodies helps to spur innovation and give the warfighter a superior product. The standards we are helping to create not only are commercially acceptable, but, in the grand scheme of things, will aid the warfighter by improving performance, quality, safety, and reliability, while maximizing interoperability. The opportunity for us to leverage our shrinking resources by working closely with the hundreds of experts from all over the world who participate along with us makes this an essential part of our standards policy.

So can we participate? Resoundingly—yes. Can we pay appropriate fees? Yes, we can. And why should we do this? Although the answers to "why" are many, I believe that in today's environment, the key answer is that we simply can't afford *not* to participate.

Dispelling Arguments against the Joint Architecture for Unmanned Systems Standard

By Ralph English



The Joint Architecture for Unmanned Systems (JAUS) standard has long been a requirement of major DoD procurement efforts for unmanned systems, including the Army's Future Combat Systems. Program managers and system designers often resist this requirement, however, for numerous reasons. In many cases, opposition is caused by a lack of understanding with regard to the standard and outdated concerns that the standard is too immature to be fielded. Developers incorrectly believe that the message definitions provided by the standard are inflexible and that the standards body is slow to publish new messages needed to keep pace with an exploding technology. Commercial entities with significant market share resist the adoption of open standards in fear that increased competition will negate the financial windfall that a single-supplier, stove-piped solution gives them. These myths need to be dispelled.

In 1998, the Joint Robotics Program chartered the Joint Architecture for Unmanned Ground Systems Working Group to begin standardizing interfaces in the growing industry. A small group of government employees and contractors developed a set of documents capturing common approaches to software organization and interfaces for ground robotics. In 2002, the charter was changed to remove the ground-only scope and open the group to industry and academia. The new charter included direction to transition the work to a commercial standard. The Joint Architecture for Unmanned Systems, or JAUS, moved into the grey area between military standards and industry standards. The membership in the JAUS Working Group grew to more than 50 individuals from numerous companies, universities, and government organizations. In 2004, SAE International adopted the working group. Now, the writers and maintainers of the JAUS standard constitute AS4, the Unmanned Systems Technical Committee, which is part of the SAE Aerospace Council's Avionics Division. The membership and interest in JAUS continues to grow, but the use of the standard in fielded systems remains low. The standard needs to be promoted to a wider audience to convince users and developers alike that this standard will help the industry flourish. The journey of JAUS is far from complete. Much work has yet to be done, as would make sense in this emerging market.

The Joint Ground Robotics Enterprise (formerly the Joint Robotics Program) has continued to support the development and maturation of JAUS through the years. Other government and industry partners have contributed significantly to the effort as well. JAUS is now a requirement in a couple of large procurements and is becoming the preferred interface for a number of developers and laboratories. In fact, JAUS was used in 5 of the 35 qualifiers for the Defense Advanced Re-

search Projects Agency (DARPA) Urban Challenge in November 2007. One of the JAUS-based vehicles placed third overall.

Because JAUS has never reached maturity as a military standard, and its use in production-level systems has never been fully tested, support for the fledgling standard has been quite limited. Still, the concept has been well received by the user community and, not surprisingly, within the small group of developers that helped to create the standard. Within these groups, JAUS has shown its merit to provide a solid path to interoperability and a high degree of software reuse. An added benefit, of great value to DoD, is that JAUS helped to open the unmanned systems market to new vendors. At this point, the challenge for JAUS is to establish itself as the standard of choice for unmanned systems developers and buyers both within DoD and for commercial products.

The maturity level of the standard has increased significantly from those early years. JAUS has moved from a message-based architecture to a service-based standard. Separation of service definition, application specification, and transport interfaces provides a set of standards that have high value on their own, and when used together, the standards offer a nearly complete interoperability solution. JAUS provides users of the standard a mechanism to define new interfaces with the JAUS Service Interface Definition Language, or JSIDL. This standard, recently published by SAE, provides developers and standard writers alike a common schema for the definition of service interfaces. All standardized services published by the AS4 Technical Committee are compliant with JSIDL, or AS5684. Presently, seven service standards are in the pipeline for publication. The first JSIDL-based standard, also recently published and known as AS5710, establishes a common set of services for distributed systems communication and coordination. The AS4 Technical Committee refers to this standard as the JAUS core service set.

At the next level in the protocol stack is the JAUS transport standard, or AS5669. This standard is available for purchase, but an updated version is forthcoming.

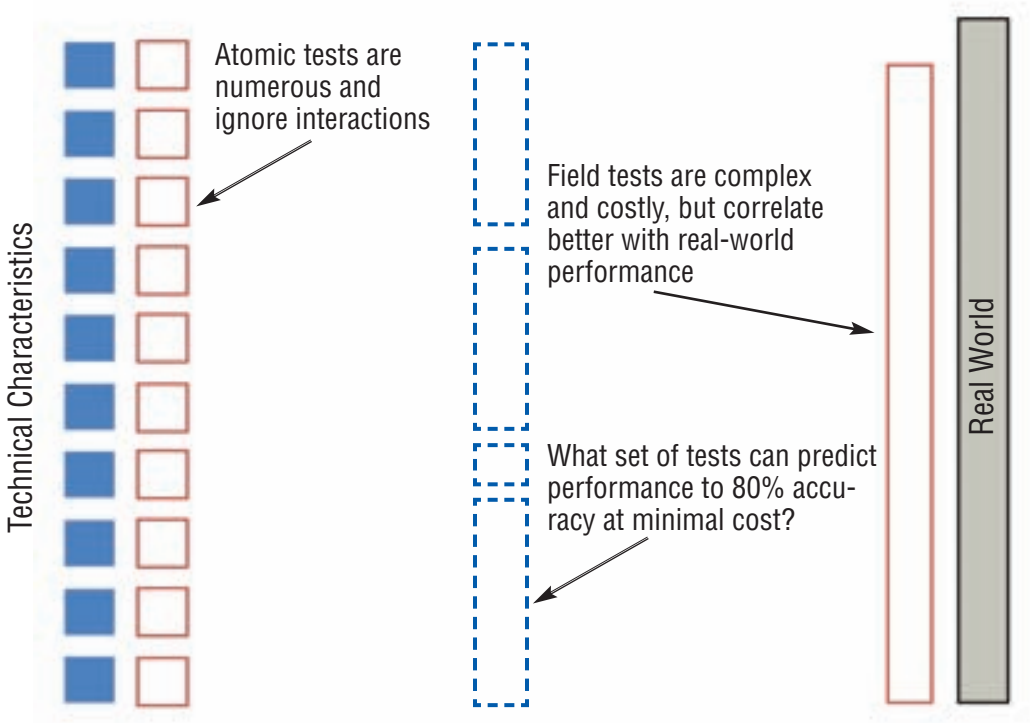
AS5669 defines the format of a JAUS message as it flows between systems in an Ethernet (Transmission Control Protocol and User Datagram Protocol) or serial data links. The composition of the standard, a two-layered architecture with a common service schema, has all of the necessary attributes of a mature logical interoperability standard. The flexibility of the standard set has the potential to provide utility to developers for many years.

The extensibility provided by JAUS fits well with the needs of commercial and military systems alike and, as has been the experience in other domains, the transition of technology from industry to the military and vice versa can be of great value to the user. Already we see significant migration of technology from the DoD unmanned systems efforts to industry and local government agencies. Technologies from the DARPA Urban Challenge are of interest to the automobile industry, and automation technologies for unexploded ordnance disposal and clearance are being applied to construction, farming, and mining equipment. Another advantage is that the use of open standards can be of value in transitioning technology. JAUS primitives allow a separation of mission functions from basic capabilities. These primitives provide information transfer for coordination of system management, discovery, access control, timekeeping, heartbeat, and event management. Layered on top of these core functions are services for generic and domain-specific mobility, manipulators, cameras, proximity sensors, position and orientation, and basic mission support. To maintain the flexibility of JAUS, no specific military or commercial application services are defined.

It may be this very flexibility and lack of one targeted application that have hindered wider acceptance of JAUS. Unmanned systems markets remain small, and the vendors are developing systems to accomplish specific functions. A challenge for unmanned systems buyers is to overcome the hesitation of the primary systems developers and manufacturers to use more open architectures. The savings realized by designers to protect their market through proprietary design at the expense of solid engineering principles such as modularity, scalability, and other life-cycle considerations may prove costly to the industry down the road. Users are already demanding plug-and-play tools for bomb disposal robots. With larger sales figures, a tiered supplier chain would likely evolve, as would standardization of component interfaces produced by these suppliers. Manufacturers would support the increased competition of suppliers using standards-based specifications. Other related payoffs of this approach include more efficient development due to the high reuse of designs and reduced ownership cost as life-cycle support benefits from the increased competition to supply replaceable parts and upgrades. Alas, until the sales of unmanned systems and components reach a point where the primary systems developers are willing to consider a supplier chain, standards such as JAUS will continue to meet some resistance.

The Measure of a Machine

The rapid proliferation of unmanned systems in military applications requires new methods for performance evaluation and prediction. Current methods include component-level tests designed to measure subsystems and design specifications such as camera resolution or manipulator arm reach. Although such measurements are easily obtainable, increasing complexity, interactions between subsystems, and "emergent" behavior become more important to actual field performance. Field trials and simulations have their own drawbacks: they tend to be costly and provide only general guidance about the systems as a whole. A set of ecologically valid tests that would be informative, specific, inexpensive, and predictive of how the entire system will perform in situ has the potential to make procurement more efficient and accurate. The Robotic Systems Technical and Operational Metrics Correlation project, sponsored by the U.S. Army and the Joint Ground Robotics Enterprise in the Office of the Secretary of Defense, aims to develop a method for identifying and correlating operationally valid measures of unmanned systems performance. This model for measurement will provide buyers a more informed and accurate representation of system performance and will reveal the technical areas in which further investment will provide the largest payoff.



Prepared by Dr. Jason Schenk, DeVivo AST, Inc.

There are other reasons to pursue the maturation of JAUS as well. Markets and economies of scale aside, point designs do not typically offer an upgrade path leading to an early end of life for products. With the rate of advancement in technologies that feed the evolution of unmanned systems, many robots developed today will be obsolete long before their mechanical components begin to fail. Standard interfaces for data and hardware provide a built-in mechanism to introduce new technologies resulting in a longer product life cycle. The same result can be achieved by applying good design principles, but a standardized set of interfaces offers many advantages. Introducing standards into the industry segment early can broaden the market across application domains as well as increase the utility, quality, and life expectancy of the systems built using the standard.

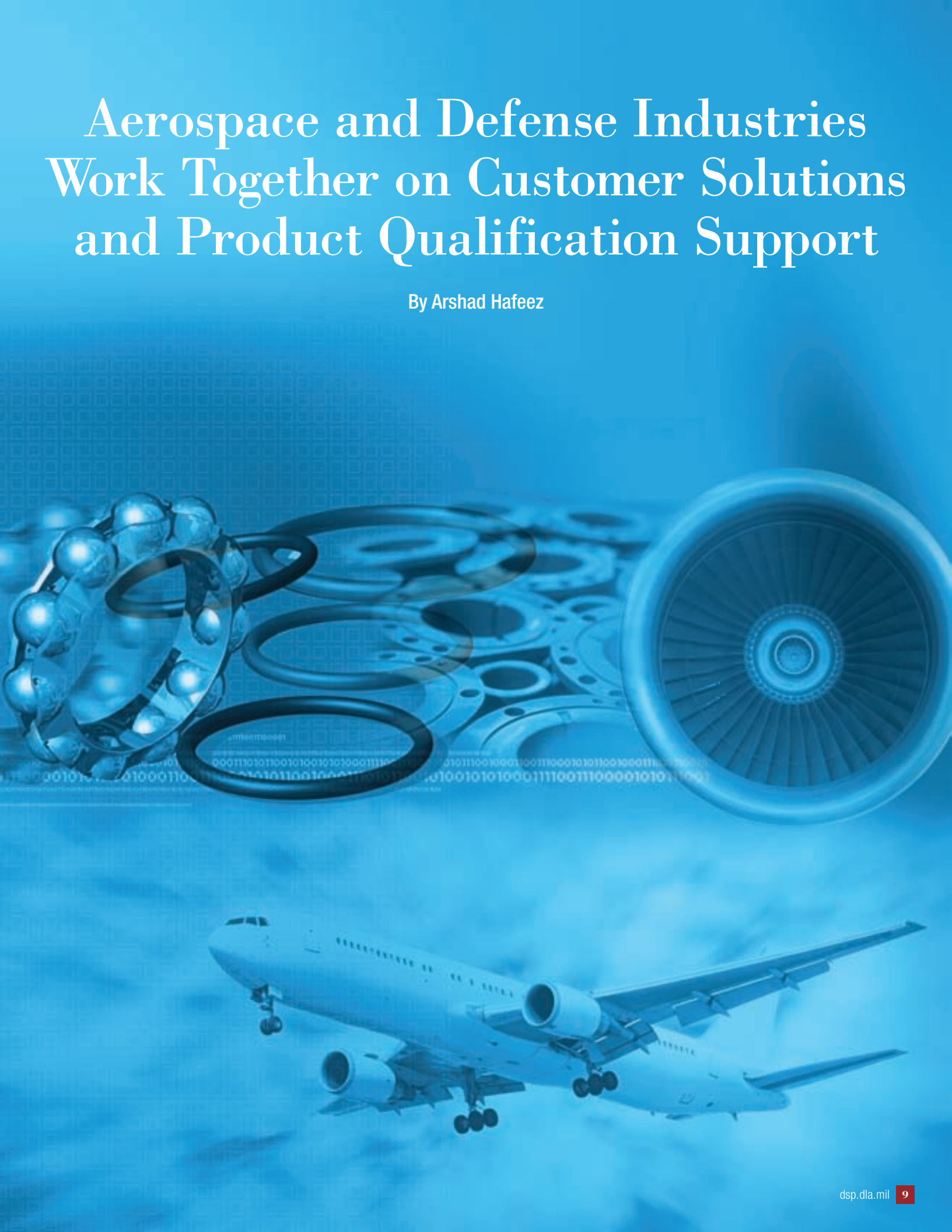
DoD has made a significant investment in the development of the JAUS standard set. In addition, a number of private companies have contributed to the cause at their own expense. The value of JAUS to these companies, the government, and future buyers and developers of unmanned systems is enormous if use of the standard is strongly promoted. In fact, the government should go so far as to mandate the use of the standard in procurements for unmanned vehicle systems. This approach will further stimulate the commercial application of the standard, resulting in more available products, more vendors, more competition, and, most important, higher quality at a lower price. The arguments against JAUS no longer stand. Stove-piped, proprietary systems work against the future of the unmanned systems industry. Highly interoperable, networked robots will provide the best value to the warfighter and commercial user.

About the Author

Ralph "Woody" English has been professionally involved with robotics since 1994 and is now the president of DeVivo AST, Inc. He has worked with simulation, autonomous survey systems, teleoperated vehicles, and standards, performing a range of duties from programming to program management. For example, he has worked on robotics programs with the Air Force Research Laboratory, Tyndall Air Force Base; with the Army Software Engineering Directorate, Future Combat Systems; and with a DARPA Urban Challenge team. Mr. English has been a contributor to the JAUS standard for over 10 years and chairs the SAE Unmanned Systems Technical Committee.

Aerospace and Defense Industries Work Together on Customer Solutions and Product Qualification Support

By Arshad Hafeez



The Performance Review Institute (PRI) is a not-for-profit organization that works with industry to develop solutions to industry needs. As an industry-managed organization, PRI is sensitive and responsive to the needs of our customers. PRI is, in fact, oriented around identifying and developing customer solutions and support to provide quality customer-driven and cost-effective business solutions to continually improve organizations throughout the world.

When it comes to quality of products, there is no single solution. The International Aerospace Quality Group, consisting of nearly 70 original equipment manufacturers, has agreed that quality is not a competitive issue and that it needs to be worked at a global level. This agreement took place 10 years after the inauguration of PRI's groundbreaking National Aerospace and Defense Contractors Accreditation Program (Nadcap). Industry and government participants in Nadcap are equal partners in the ongoing efforts to strive for higher quality. PRI's customer solutions and support have elevated the value for quality practitioners. Nadcap remains PRI's premier solution to the quality industry.

The qualified products list (QPL) program is an example of the types of customer solutions and support provided by PRI. A QPL is a document that lists manufacturers that have received a PRI product qualification approval to a specific standard for specific product designations and plant locations. The first QPL was created in 1998; now PRI has more than 14,000 aerospace- and automotive-related listings.

Did you know? The sealant program has approved more than 1,732,500 gallons of sealant since 1998.

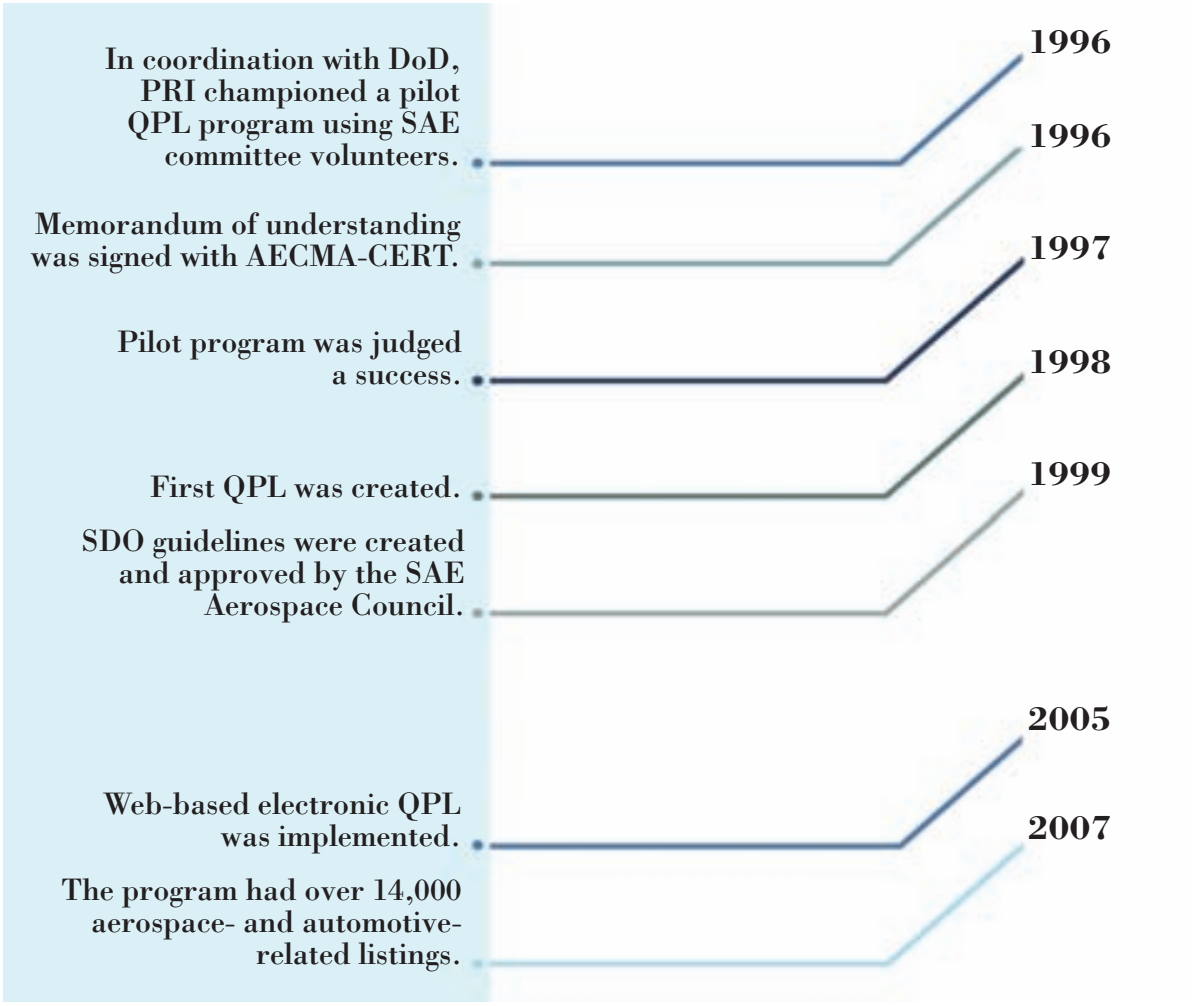
The QPL program is a vital industry mechanism for managing the qualification of products for critical applications and specifications. Specifically, it provides a uniform method for qualifying products in accordance with industry standards and requirements. Currently, aerospace and defense suppliers all over the world are audited against one set of criteria that represents a high technical standard for special processes and special products. Typically, Nadcap accreditation is required before suppliers will be listed on PRI's QPLs.

The QPL program is managed by expert representatives from industry through individual specialized qualified products groups (QPGs) governed by a Qualified Products Management Council (QPMC) comprising industry and government representatives. Industry involvement at every level makes this program uniquely suited to meet industry needs.

Generally, the QPL program operates as follows:

- Industry determines the need for a qualified products program.
- A QPMC, consisting of end-user industry experts, is established to monitor and oversee the qualification program.
- A standards developing organization (SDO) such as SAE International publishes a specification containing the QPL requirement.
- A QPG, consisting of industry and government technical experts, is established to develop the procedures and evaluation process for listing materials on the QPL.
- Suppliers submit their proposed product test plans to be reviewed and approved by the QPG.
- Suppliers submit test documentation.
- The QPG reviews data and approves products to be listed on the PRI QPL.

FIGURE 1. QPL Timeline



Note: AECMA-CERT is the European association that provides qualification of standard products to the aerospace industry.

As noted by Ron Clements of The Boeing Company, "primes can count on the integrity of PRI QPLs. The program establishes a robust review process where data submitted by suppliers is reviewed by an experienced team of Prime and DoD engineers."

In addition to providing one global benchmark for product qualification, the QPL program supports the aerospace and defense industries in another significant way. PRI has established an industry-wide alert system. Clear and honest communication is the key to guaranteeing quality in these industries. This means that when PRI is notified by a supplier, member, or auditor of a possible material discrepancy on a QPL product, the QPMC and QPG members are immediately advised. "The PRI QPL program is a vital mechanism for industry to manage the qualification of products for critical specifications and standards. Products which require PRI QPLs include fluid fittings, fluid hoses, elastomeric seals, sealants, organic coatings, propulsion lubricants, propulsion systems and composite repair materials," said Tom O'Mara, a former QPMC chairperson.

The value of PRI's industry-wide alert system has been proven many times, saving members untold dollars in recalls and rework. The following are some examples:

- A manufacturer conducted the wrong tests, which resulted in the recall of 7 out of 11 products being installed on commercial aircraft.

Participating Organizations

Airbus
American Axle and Manufacturing, Inc.
ArvinMeritor, Inc.
Bombardier, Inc.
BP plc
Cessna Aircraft Company
Chevron Corporation
CITGO Petroleum Corporation
Continental Airlines
Dana Corporation
Defense Supply Center Columbus, OH
Eaton Corporation
Exxon Mobil Corporation
GE–Aviation
GE–Transportation
General Motors Corporation
Government Procurement
Honeywell Aerospace
KLM Royal Dutch Airlines
Lockheed Martin Corporation
Mack Trucks, Inc.
Northrop Grumman
Northwest Airlines
Rolls-Royce Corporation
Rolls-Royce plc
SAFRAN Group
Shell
The Boeing Company
United Technologies Corporation
Hamilton Sundstrand
Pratt and Whitney
Sikorsky Aircraft
U.S. Air Force
U.S. Army
U.S. General Services Administration
U.S. Naval Air Systems Command
Valvoline
Visteon Automotive Systems

- An aircraft fuel systems component was manufactured from the wrong type of material, resulting in parts being pulled from inventory and preventing it from being installed on an aircraft. If installed, it could have resulted in an engine fire.
- Approved QPL parts that previously passed final inspection were pulled during a Nadcap audit compliance job. The parts were found to contain defects, resulting in their removal from the QPL.

Did you know? The gear lubricant approval process requires passing numerous laboratory tests and a 200,000-mile field test.

According to a QPMC chairperson, Stuart Bullock of Rolls-Royce plc, "the PRI QPL program, using internationally agreed processes, provides a unique opportunity for industry to manage the qualification of products of critical global standards and specifications."

The following are current PRI QPLs, along with examples of the types of products covered:

- Aerospace
  - Sealants (polysulfide, polythioether, and adhesion promoters)
  - Commercial aircraft composite repair (composite repair materials, processes, and methods)
  - Elastomer seals (O-rings, plate seals, gaskets, and other compression seals)
  - Fluid distribution systems components (fittings, hoses, clamps, tubing, and installation procedures)
  - Organic coatings (primers, topcoats, and specialty coatings such as fuel task coatings and rain erosion coatings)
  - Propulsion lubricants (synthetic turbine engine lubricants)
  - General standards for aerospace and propulsion systems (solid film lubricant)
- Automotive
  - Multipurpose gear lubricants (transmission and deferential)
  - Engine oils (spark ignition and diesel)
  - Truck brakes (over the highway).

Although the detailed scrutiny by PRI's QPL program goes a long way toward ensuring excellent quality standards, PRI's customer solutions and support strategy—"Flight Path to Supplier Excellence!"—does not rely solely on Nadcap and the QPL program. To complement those programs, PRI has launched three global solution initiatives to track

the "Flight Path to Supplier Excellence!" These initiatives address critical elements for supplier competence in the aerospace and defense industry:

- People
- Process
- Equipment
- Process control
- Experience
- Management
- Technical knowledge.

The initiatives and their objectives are as follows:

- eQuaLearn
  - Deliver professional development courses to improve targeted essential skills in the aerospace and defense workforces
  - Provide industry-tested basic tools to help suppliers manage their quality operating systems and basic understanding of quality principles
- eQuaLified
  - Deliver technical professional development courses to improve special process skills in the aerospace and defense workforces
  - Provide services to help suppliers improve special process control and achieve Nadcap accreditation
  - Implement an industry-recognized people qualification (competency validation) process with common bodies of knowledge, exams, and databases
- eQuaLPrep
  - Provide tailored services to help suppliers improve special process control and achieve Nadcap accreditation
  - Provide solutions to enhance or expand process capabilities.

In summary, industry quality and competence go beyond audits, special processing, and product qualification. A complete package is essential, requiring expertise in multiple areas. PRI—through its industry-managed structure—is addressing and providing solutions for the generations to come. Learn more at PRI's website: www.pri-network.org.

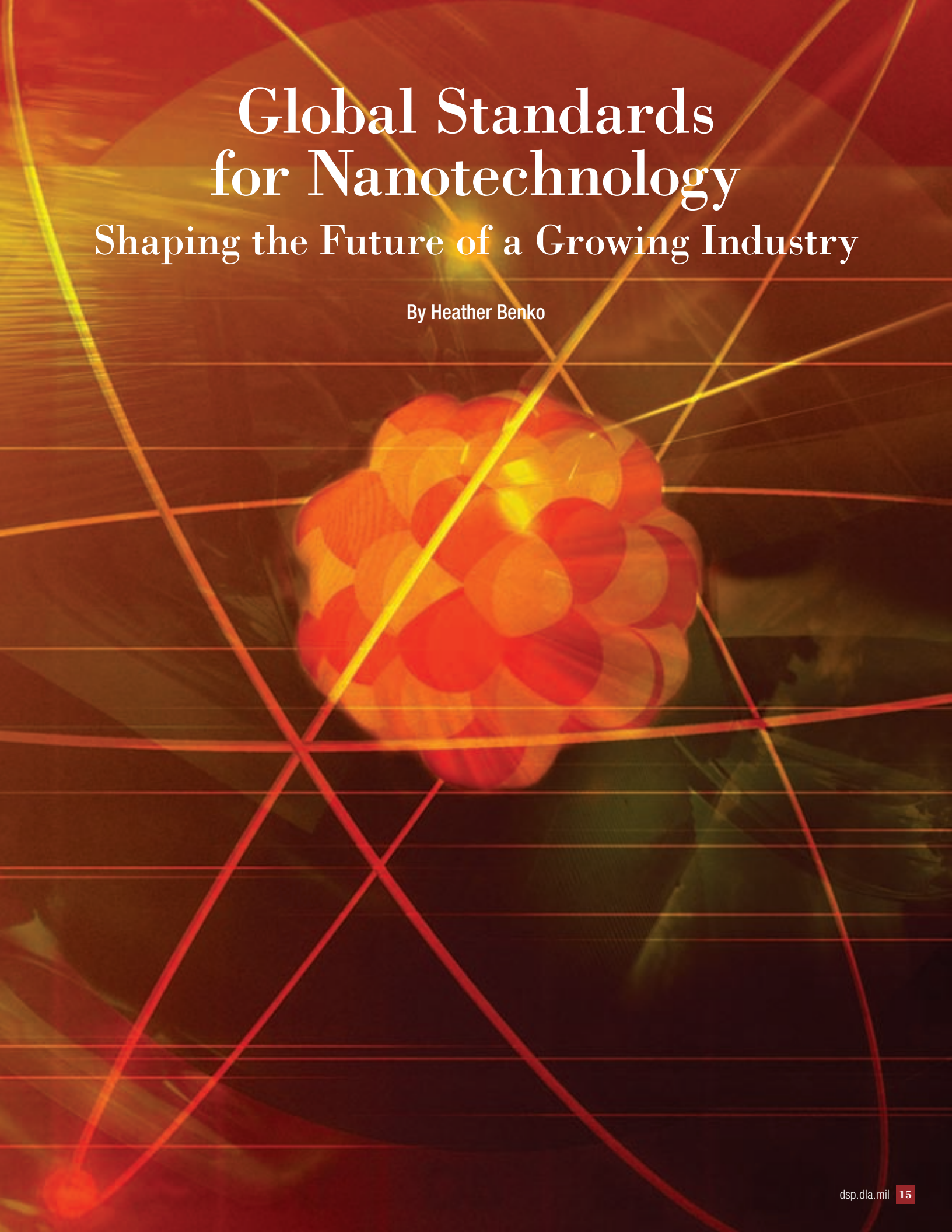
About the Author

Arshad Hafeez is the executive director of Global Business Development and Corporate Strategies, Research and Development, at the Performance Review Institute. PRI is used by more than 50 prime contractors and government agencies worldwide to manage some 2,000 accredited suppliers. He has been the recipient of various scholarships and awards, including the British Council Scholarship. He has authored and presented over 100 papers at technical conferences.

Global Standards for Nanotechnology

Shaping the Future of a Growing Industry

By Heather Benko



As the nanotechnology industry evolves, the need for globally relevant standards is becoming increasingly apparent. Standardization—of the characterization of nanoparticle properties; of nanotechnology terminology; or of health, safety, and environmental aspects of nanotechnology—will have a strong impact on the widespread commercialization of nanotechnology and its influence in areas ranging from electronics to energy conservation.

Why Standards Are Needed

As an ever-increasing array of industry sectors and government agencies embraces the rapid development of materials at the nanoscale, stakeholders around the planet have attempted to weave a new "nano" vocabulary into their communications.

Consistent and globally accepted nomenclature and terminology, the fundamental building blocks for any burgeoning industry, top the list of stakeholder needs. Until there is consensus, even terms that are frequently cited in relevant scientific literature—for example, nanotechnology, nano-object, nanostructure, nanoscale, and nanomaterial—are at risk of being interpreted differently from nation to nation and among industries.

Although some industries may already be working to coordinate efforts for a more consistent method of measuring and describing aspects of nanotechnology, others are now facing problems in cross-sector communications and business transactions regarding these new technologies. For example, different agencies within the U.S. government are using terms such as "manufactured nanomaterial" and "engineered nanoscale material" interchangeably, leading to confusion and duplicative efforts in interagency communication. Through standards, a common terminology can be developed that will facilitate communications among industry and government agencies alike and will foster a unified voice in the international arena.

The need for consistent terminology and nomenclature is just one aspect of nanotechnology standardization. Science-based standards also are needed to help understand the environmental impact of nanoscale materials throughout their life cycle, as well as to ensure the health and safety of those who work with and use nanoscale materials, from manufacture all the way to disposal.

"Standards are important for supporting research aimed to safely develop and apply nanotechnology for societal benefit and economic growth," said Dr. Clayton Teague, director of the National Nanotechnology Coordination Office, National Science and Technology Council. "Standards are equally important for research

aimed to better protect public health and the environment, and for facilitating the review and regulation of nanotechnology-based materials and products. They are therefore one of the foundational components that enable effective assessment of products created with nanoscale materials, as well as development of associated policies and best practices to protect the people who manufacture, work with, and use those materials."

Nanotechnology Standards: Initial Coordinating Activities

Concerted efforts for nanotechnology standards in the United States began in 2004, when Dr. John H. Marburger III, director of the Office of Science and Technology Policy, sent a letter to the American National Standards Institute (ANSI). Dr. Marburger wrote:

> As new materials, structures, devices, and systems are developed that derive their properties and function due to their nanoscale dimensions, it will become increasingly important to the researchers, manufacturers, regulators, and other stakeholders to have an agreed upon nomenclature with which to communicate.

Dr. Marburger asked if ANSI would facilitate the development of standards in the area of nanotechnology, starting with the development of a consistent and globally accepted terminology.

In response, ANSI formed a cross-sector coordinating body known as the ANSI Nanotechnology Standards Panel (ANSI-NSP). The panel does not itself develop standards; rather, ANSI-NSP works with other national, regional, and international standards bodies, as well as industry, academic, and government stakeholders, to establish work plans, harmonize efforts, and mitigate duplication or overlap.

By soliciting participation from nanotechnology-related sectors and academia that have not traditionally participated in the voluntary standards system, ANSI-NSP provides opportunities for experts to identify and shape the specific needs to be addressed.

A number of U.S. government agencies have participated in the panel's activities, including the Department of Defense, Department of Energy (DOE), Environmental Protection Agency (EPA), Food and Drug Administration, National Cancer Institute/Nanotechnology Characterization Laboratory (NCI/NCL), National Institute of Standards and Technology (NIST), and National Institute for Occupational Safety and Health (NIOSH).

ANSI, ANSI-NSP, and the ANSI-Accredited U.S. TAG to ISO/TC 229

The American National Standards Institute (www.ansi.org) is a private nonprofit organization whose mission is to enhance U.S. global competitiveness and the American quality of life by promoting, facilitating, and safeguarding the integrity of the voluntary standardization and conformity assessment system. Its membership comprises businesses, professional societies and trade associations, standards developers, government agencies, and consumer and labor organizations. The institute—which represents the diverse interests of more than 125,000 companies and organizations and 3.5 million professionals worldwide—is the official U.S. representative to ISO and, via the U.S. National Committee, to the IEC. In addition, it is a U.S. representative to the International Accreditation Forum.

ANSI-NSP (www.ansi.org/nsp) serves as the cross-sector coordinating body for facilitating the development of standards in the area of nanotechnology, including terminology and nomenclature; materials properties; and testing, measurement, and characterization procedures.

Reporting to the ANSI-NSP is the ANSI-accredited U.S. TAG to ISO/TC 229, which is addressing nanotechnologies. The TAG formulates positions and proposals on behalf of the United States in response to ISO standardization activities. It also provides the delegates and experts who represent the United States at meetings of the respective ISO technical committees, subcommittees, and working groups.

International Involvement

Further developments in nanotechnology standardization came in 2005 and 2006, when ISO and the International Electrotechnical Commission (IEC) each formed technical committees (TCs) to create and promote the implementation of nanotechnology standards. As the official U.S. representative to ISO as well as to the IEC via the U.S. National Committee (USNC), ANSI offers U.S. stakeholders a voice on the global stage. For each ISO TC or subcommittee on which the United States is a participating member, ANSI accredits a Technical Advisory Group (TAG) to develop and transmit our national positions on proposed standards and related activities, while the USNC approves U.S. TAGs to IEC TCs and subcommittees. The stakeholders range from industry giants and government agencies to smaller, start-up organizations and institutions that focus specifically on the research and development of nanoscale materials.

ISO/TC 229, NANOTECHNOLOGIES

ISO/TC 229 takes a broad perspective. Its focus is on developing standards that support the nanotechnology industry, specifically in the areas of terminology; nomenclature; health, safety, and the environment; measurement; and instrumentation. The committee's scope of work also includes developing specifications for reference materials and developing standards for test methods, modeling, and simulation.

Thirty-two nations, including the United States, participate in ISO/TC 229, and nine additional countries monitor the work of the TC as observers. U.S. input is developed by the U.S. TAG to ISO/TC 229, a group that is accredited and administered by ANSI. Dr. Clayton Teague chairs this TAG. Agency participants include NASA, NIST, NIOSH, NCI/NCL, DOE, EPA, U.S. Army, U.S. Navy, and U.S. Department of Agriculture Forest Service.

ISO/TC 229 technical activities are divided among four working groups (WGs):

- WG 1, Terminology and Nomenclature
- WG 2, Measurement and Characterization
- WG 3, Health, Safety, and Environment
- WG 4, Material Specifications.

The United States holds the convenorship of WG 3, leading work within ISO on standards that address the health, safety, and environmental aspects of nanotechnologies, in particular, developing science-based standards for the safe development and use of nanotechnologies. The group, which has become a focal point for nanotechnology safety experts, is led by Steven Brown of Intel Corporation (USA).

As of December 1, 2008, ISO/TC 229 has published two documents for international use:

- ISO/TS 27687, *Nanotechnologies–Terminology and definitions for nano-objects–Nanoparticle, nanofibre and nanoplate*, is intended to be the first of a series of guidance documents related to terminology and definitions covering the different aspects of nanotechnologies. It provides information on objects at the nanoscale, including three basic shapes: nanoparticles, nanofibers, and nanoplates.
- ISO/TR 12885:2008, *Nanotechnologies–Health and safety practices in occupational settings relevant to nanotechnologies*, describes health and safety practices in occupational settings relevant to nanotechnologies. Its focus is on the occupational manufacture and use of engineered nanomaterials. This document is intended to help companies, researchers, workers, and other people prevent adverse health and safety consequences during the production, handling, use, and disposal of manufactured nanomaterials.

In addition, ISO/TC 229 members accepted a set of tentative working definitions of nanotechnology and nanoscience during the committee's November 2008 plenary session. These definitions will be further refined over the coming months and will be formally presented as part of a forthcoming TC 229 document, *Framework and Core Terms*.

ISO/TC 229 has work under way on some 30 more approved items to address such critical issues as terminology, carbon nanotube characterization, and risk assessment.

IEC/TC 113, NANOTECHNOLOGY STANDARDIZATION FOR ELECTRICAL AND ELECTRONIC PRODUCTS AND SYSTEMS

IEC/TC 113 focuses on nanotechnological aspects in developing generic standards for electronics, optics, magnetics and electromagnetics, electroacoustics, multimedia, telecommunications, and so on. Dr. Thomas Chapin of Underwriters Laboratories represents the United States as chairman of IEC/TC 113, and the National Electrical Manufacturers Association administers the USNC-approved U.S. TAG to IEC/TC 113, with Brent Segal of Nantero, Inc., serving as the technical advisor to the TAG.

IEC/TC 113 has delegated work related to the performance of nanomaterials for electrotechnical components and systems to WG 3. This group is taking the lead on several publications, including IEC 62565, *Guideline for Carbon Nanotubes Specifications for Electrotechnical Applications*, currently a committee draft, and IEC 62607, *Technical Specification for the Electrical Characterization of Carbon Nanotubes (CNTs) Using 4-Probe Measurement*, an approved new work item.

In addition, IEC works collaboratively on nanotechnology standardization with ISO through WG 1 on terminology and nomenclature and WG 2 on measurement and characterization.

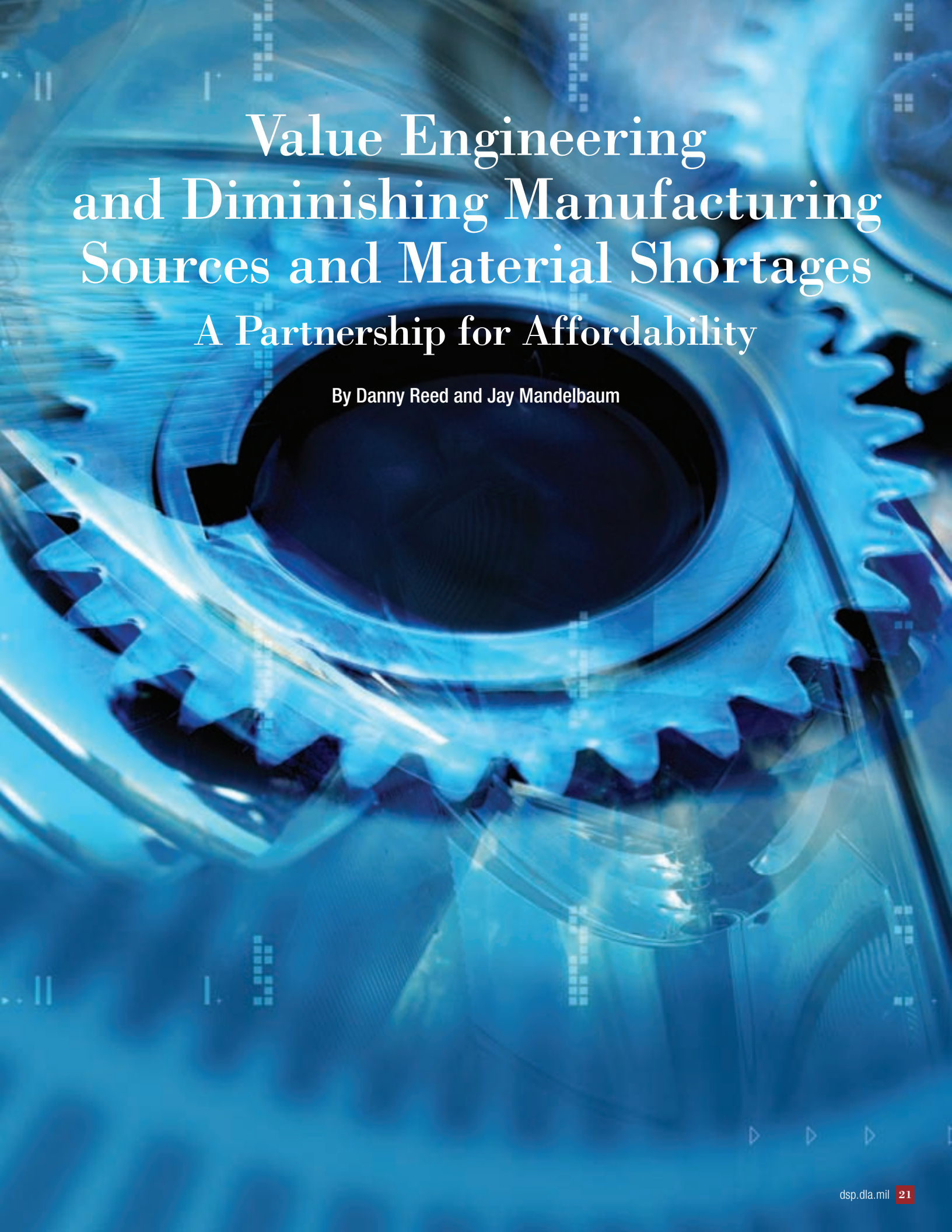
Looking Forward

Opportunities for collaboration continue to grow as standards are developed for the nanotechnology-related aspects of electronic products, health and safety, effects on the environment, and more. "Now is a great time for all interested parties to begin their participation in the TAG and the NSP because we are at an early stage in developing nanotechnology standards and specifications. Well-conceived contributions based on solid scientific and technological principles can be a major force in shaping future international standards," said Dr. Teague.

Through the work of ANSI-NSP and participation in ISO/TC 229 and IEC/TC 113, the United States has a strong influence on how nanotechnology standards will be developed, which will affect multiple industries across the globe. Interested parties are encouraged to join these efforts and participate actively in the groups of interest. For more information on ANSI-NSP, visit www.ansi.org/nsp. To participate in ANSI-NSP or join the U.S. TAG for ISO/TC 229, please contact Heather Benko (212-642-4912, hbenko@ansi.org).

About the Author

Heather Benko is senior manager of nanotechnology standardization activities in the Accreditation Services Department at ANSI. Her work includes administration of the ANSI-accredited U.S. Technical Advisory Group to ISO's TC 229, Nanotechnologies, and secretariat services for the ISO/TC 229 Working Group on Health, Safety, and Environment. In addition, Ms. Benko provides staff support to the ANSI Nanotechnology Standards Panel.



Value Engineering and Diminishing Manufacturing Sources and Material Shortages

A Partnership for Affordability

By Danny Reed and Jay Mandelbaum

DoD systems are normally designed to be operational for 10 to 20 years or longer. The development time for these systems usually lasts from 5 to 10 years. Thus, it is common for these systems to face diminishing manufacturing sources and material shortages (DMSMS) over their life cycles. Consequently, all DoD programs try to mitigate DMSMS risks to reduce costs and improve defense readiness.

Value engineering (VE) is concerned with reducing the cost to develop, produce, and support DoD systems. It is both a problem-solving discipline and an incentive mechanism for developing approaches to lower ownership cost. As such, there is a natural synergy between VE and DMSMS. In other words, DMSMS is a source of ownership cost problems, and VE provides a way to develop innovative solutions and provide funding options for these problems.

This article provides introductory information about DMSMS and VE and then describes the relationship between the VE problem-solving method and the DMSMS risk mitigation process.[1]

Introduction to DMSMS

DMSMS is defined as the loss or impending loss of manufacturers or suppliers of items or raw materials. Figure 1 defines the steps in a DMSMS risk management process.

The first step is identification and notification, that is, quick and concise communication among all stakeholders when a DMSMS case first occurs. The next step, verification, develops an understanding of the scope and extent of the pending issue from a demand perspective. Facts are gathered so that a sound decision on the appropriate DMSMS resolution option can be determined.

The third step in the DMSMS risk management process is options analysis. The *DoD Diminishing Manufacturing Sources and Material Shortages (DMSMS) Guidebook* (Version 2.1), published in November 2006, discusses options ranging from encouraging the existing source to continue production to using Defense Production Act authorities to maintain a domestic source of supply. Options analysis requires case-specific analyses to determine the most effective option or combination of options to mitigate the situation. A great deal of data are needed to support this effort. Information about alternatives is also needed.

The final step in the process is resolution/implementation. Based on the results of the options analysis step, advantages and disadvantages are developed for different alternatives. Recommendations are then presented to the decision maker. After a resolution alternative has been selected, implementation begins.

FIGURE 1. DMSMS Risk Management Process

Source: Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, *Diminishing Manufacturing Sources and Material Shortages (DMSMS) Guidebook*, Version 2.1, November 1, 2006. The guidebook cites the original source of the figure as Air Force Materiel Command DMSMS Program, *Case Resolution Guide*, Version 2.0, March 2001, available at http://www.gidep.org/data/dmsms/library/crg_2001.pdf.

Introduction to Value Engineering

VE is a systems engineering tool that reduces cost, increases quality, and improves mission capabilities across the entire spectrum of DoD systems, processes, and organizations. VE employs a simple, flexible, and structured set of tools, techniques, and procedures that challenge the status quo by promoting innovation and creativity.

The VE method is applied in a "value study" conducted in eight sequential phases collectively called the job plan.[2] The phases (which may overlap in practice) are listed below:

- Orientation phase: refine the problem and prepare for the value study
- Information phase: finalize the scope of the issues to be addressed, targets for improvement, and evaluation factors while building cohesion among value team members
- Function analysis phase: identify the most beneficial areas for study

- Creative phase: develop a large number of ideas for alternative ways to perform each function selected for further study
- Evaluation phase: refine and select the best ideas for development into specific value-improvement recommendations
- Development phase: determine the "best" alternatives for presentation to the decision maker
- Presentation phase: obtain a commitment to follow a course of action for initiating an alternative
- Implementation phase: obtain final approval of the proposal and facilitate its implementation.

ORIENTATION PHASE

Although a problem area may have been identified, the value study has a far greater likelihood of success if ample preparation time has been devoted to (1) determining what aspects of the problem will be addressed in detail and (2) preparing everything needed for the analysis itself.

INFORMATION PHASE

In many respects, the information phase completes the activities begun in the orientation phase. This work is normally carried out in the workshop setting and, therefore, is usually the first opportunity for all team members to be together. Consequently, it is important to use the information phase to motivate the team to work toward a common goal. Finalizing the scope of the issues to be addressed, targets for improvement, evaluation factors, and data collection are ideal endeavors for building that cohesion.

FUNCTION ANALYSIS PHASE

Function analysis is central to and the distinguishing feature of the VE method. A function is composed of an action verb (answers the question "What does it do?") and a noun (answers the question "What does it do this to?"). This phase ultimately determines the best opportunities for improvement by comparing the lowest possible cost for performing that function to the actual function cost.

CREATIVE PHASE

Creative problem-solving techniques are an indispensable ingredient of effective VE. By using the expertise and experience of the study team members, many new ideas will be developed. The synergistic effect of combining the expertise and experience of all team members will lead to a far greater number of possibilities.

EVALUATION PHASE

Ultimately, the decision maker should be presented with a small number of choices. In the creative phase, there is a conscious effort to prohibit judgmental thinking because it inhibits the creative process. The evaluation phase must critically assess all the alternatives to identify the best opportunities for value improvement. These opportunities retain or improve overall performance.

DEVELOPMENT PHASE

In the development phase, detailed technical analyses are made for the remaining alternatives. These analyses form the basis for eliminating weaker alternatives.

PRESENTATION PHASE

A presentation to the decision maker (or study sponsor) is made at the conclusion of the workshop. This presentation is normally the first step (not the last step) in the approval process. Typically, a decision to implement is not made at the time of the briefing.

IMPLEMENTATION PHASE

VE has unique implementation mechanisms. Final decisions resulting from this process are implemented through both value engineering proposals (VEPs) and value engineering change proposals (VECPs).

A VEP is a specific proposal developed internally by DoD personnel for total value improvement from the use of VE techniques. Because VEPs are developed and implemented by government personnel, all resulting savings accrue to the government. A VEP can also be the result of a technical support contractor effort if it is funded by the government specifically to conduct a VE study on a contract to which it is not a party.

A VECP is a proposal submitted to the government by the contractor in accordance with the VE clause in the contract. A VECP proposes a change that, if accepted and implemented, provides an eventual, overall cost savings to the government and a substantial share in the savings accrued as a result of implementation of the change for the contractor. It provides a vehicle through which acquisition and operating costs can be reduced while the contractor's rate of return is increased.

In both a VEP and VECP effort, performance is retained or improved.

Relationship of the VE Method to the DMSMS Risk Management Process

Figure 2 shows the correspondence between the phases of the VE method and the steps in the DMSMS risk management process. Both processes attempt to take a problem from

FIGURE 2. Correspondence between VE Phases and DMSMS Risk Management Steps

VE Phases	DMSMS Risk Management Steps
Orientation	Identification and Notification
Information	Verification
Function analysis Creative Evaluation	Options Analysis
Development Presentation Implementation	Resolution/implementation

identification though the implementation of a solution. However, the two processes have a great deal of synergy.

VE is a problem-solving discipline. As such, organizations use VE practitioners along with DMSMS experts to help determine solutions to the process- and product-related issues they face. Problem identification is the critical first phase of the VE method. DMSMS represents a class of problems common to acquisition and logistics organizations. Therefore, the DMSMS community is a source of problems providing an opportunity to determine and implement VE-derived solutions.

The DMSMS verification step and the VE information phase are similar; they both finalize the scope of the problem. However, the VE method has the potential to enhance the DMSMS approach. While DMSMS efforts are more ad hoc, the VE method is usually applied by a study team in a structured workshop environment. Therefore, the VE information phase also begins building cohesion among study team members. Such an environment leads to a working relationship more conducive to finding optimal solutions to problems.

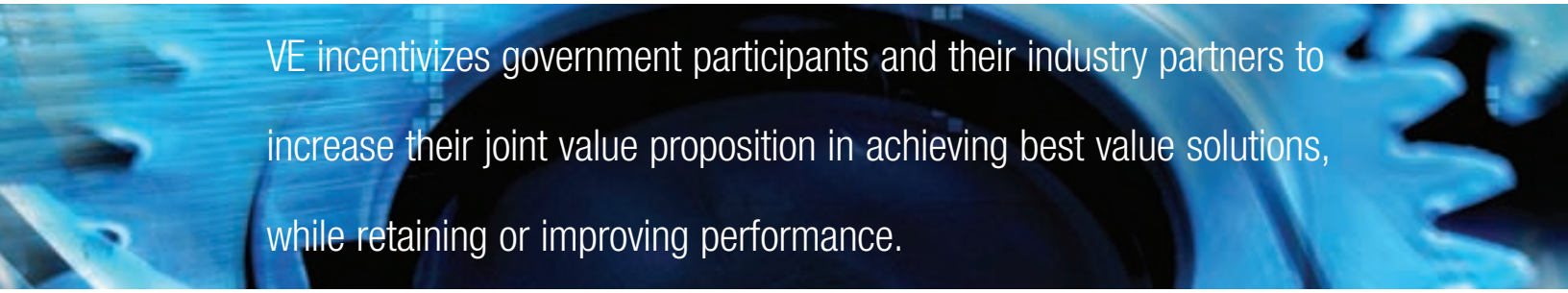
The DMSMS options analysis step has the same objectives as the VE method's function analysis, creative, and evaluation phases. Once again, the use of VE will enhance options analysis by adding structure, robustness, and rigor to the process. Function analysis is a comprehensive technique for dissecting a problem into its most basic elements and then

methodically determining the most beneficial areas for further analysis. Creative brainstorming in a professionally facilitated environment leads to the largest possible number of resolution ideas to be evaluated.

Finally, the VE development, presentation, and implementation phases correspond to the DMSMS resolution/implementation step. Through these routine activities, VE allows for its own unique and flexible implementation options.

Potential VE Contributions to DMSMS

VE develops solutions to problems by eliminating unnecessary functions and establishing new combinations of functions to be more responsive to the needs of the customer. Under DMSMS conditions, the resources required to perform a function are increasing, or are about to increase significantly. Therefore, there is a high degree of synergy between the DMSMS risk management process and the VE method, because VE systematically finds innovative solutions that reduce such costs and increase value and performance. As such, VE is ideally suited for use in resolving DMSMS issues. The DMSMS community identifies problems (ideally with plenty of lead-time to determine a solution), and the VE method develops solutions to those problems through function analysis. VE also provides funding options.



More specifically, VE is an extremely powerful tool for (1) identifying a large number of resolution options, (2) evaluating their potential for solving the problem, (3) developing recommendations, and (4) providing incentives for the investments needed for successful implementation. Thus, using the VE method provides greater opportunity for developing and implementing innovative solutions to DMSMS problems.

But the synergies are greater than as described above. The VE-enabled shared savings with the contractor is also a major factor. VE incentivizes government participants and their industry partners to increase their joint value proposition in achieving best value solutions, while retaining or improving performance. VE thus provides a successful business relationship, with a strong profit-based incentive for using a skilled engineering workforce to mitigate DoD's DMSMS issues. Through the concept of shared savings, VE rewards contractors for investing in DMSMS resolution options. In addition, the use of

VE allows DoD to spread nonrecurring engineering costs over time, making them easier to fund. Finally, the creative elements of the VE method are designed to elicit innovative approaches to problem solving that might not otherwise be considered.

The benefits of applying VE to DMSMS issues are realized regardless of the DMSMS management approach being taken. The use of the VE method typically leads to innovative solutions that can be put in place rapidly. VE changes the business case by providing incentives for the contractor to adopt an approach more beneficial to the government in the long term. VE can also find solutions with other collateral benefits because its method is designed to identify a broad range of potential solutions that have impact beyond the immediate problem at hand.

[1]This article was adapted from Institute for Defense Analyses Document D-3598, *A Partnership between Value Engineering and the Diminishing Manufacturing Sources and Material Shortages Community to Reduce Ownership Costs*, Jay Mandelbaum, Royce R. Kneece, and Danny L. Reed, September 2008.

[2]The material in this section was adapted from Institute for Defense Analyses Paper P-4114, *Value Engineering Handbook*, Jay Mandelbaum and Danny L. Reed, September 2006.

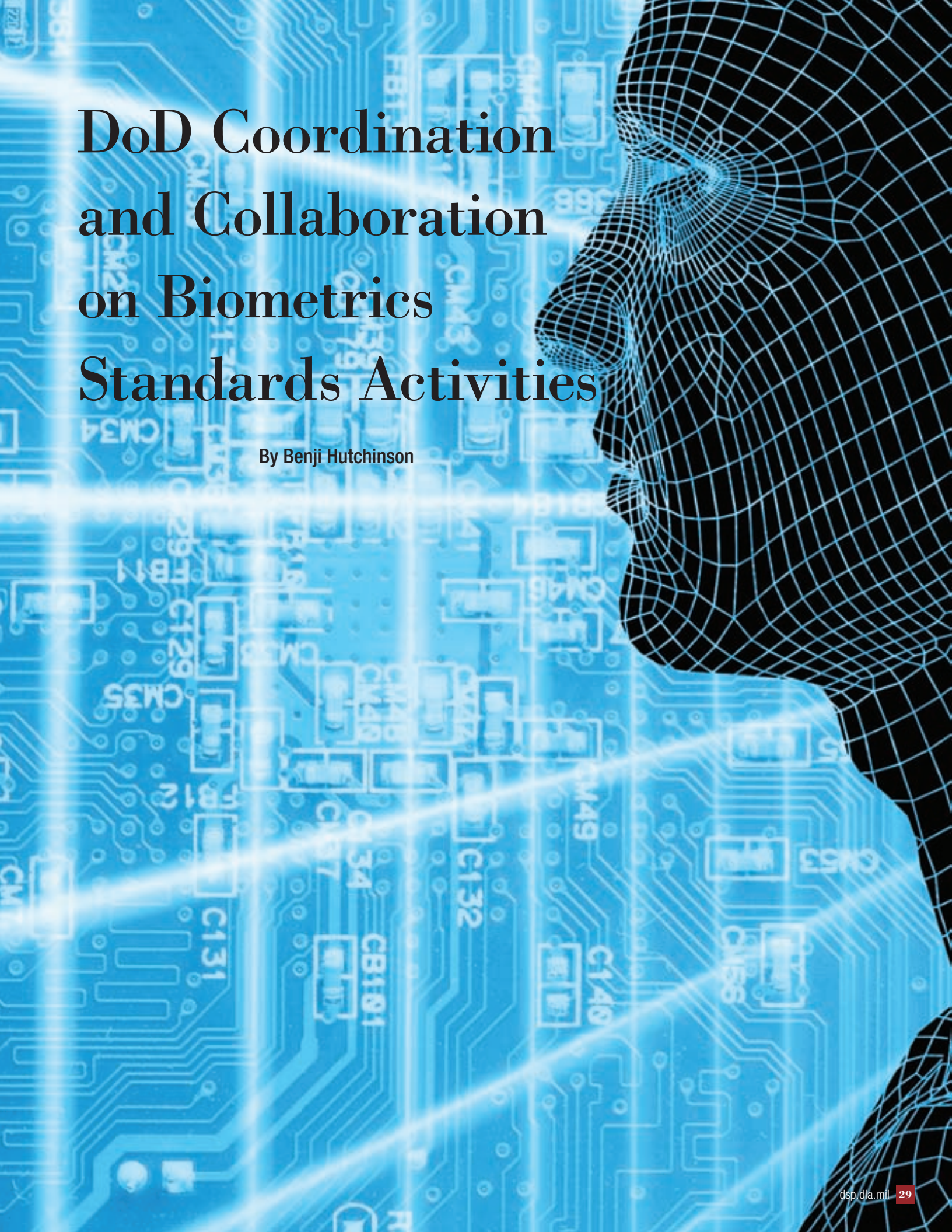
About the Authors

Danny Reed and Jay Mandelbaum are staff members at the Institute for Defense Analyses, supporting the Office of the Secretary of Defense. Dr. Reed leads initiatives on value engineering and reduction of total ownership cost. Previously, he worked for 27 years on manufacturing development for the F-16 program at Lockheed Martin.

Dr. Mandelbaum leads technology research focusing on readiness assessments, quality assurance, and systems engineering. He has spent 30 years in the federal government.

DoD Coordination and Collaboration on Biometrics Standards Activities

By Benji Hutchinson



On June 5, 2008, President George Bush signed National Security Presidential Directive (NSPD) 59/Homeland Security Presidential Directive (HSPD) 24, "Biometrics for Identification and Screening to Enhance National Security." NSPD 59/HSPD 24 outlines specific responsibilities on biometric standards for the secretaries of Defense, State, and Homeland Security; the Attorney General; the Director of National Intelligence; and the heads of other appropriate agencies. The directive instructs these leaders to "maintain and enhance interoperability among agency biometric and associated biographic systems, by utilizing common information technology (IT) and data standards, protocols, and interfaces."

DoD and several other U.S. federal agencies have long recognized the value and importance of standardizing biometrics technology to ensure interoperability and to facilitate data sharing among various joint, interagency, and multinational (JIM) partners. However, biometrics standardization requires close coordination and collaboration on a number of standards activities. DoD has collaborated and coordinated closely with the Federal Bureau of Investigation (FBI), the Department of Homeland Security, the National Institute of Standards and Technology (NIST), and other U.S. agencies on several standardization activities to ensure the consistent development, adoption, and implementation of biometrics technology across the JIM environment.

Rationale for Biometric Standards in DoD

The importance of biometric standards in DoD operations is immeasurable. Biometric standards ensure interoperability of biometric systems and provide a level of consistency throughout DoD and JIM systems. Collecting biometric data as specified by consensus-based standards is critical to support information sharing. The common implementation of standards permits biometric information to be shared and leveraged across organizations.

From an investment standpoint, the use of standards allows DoD to build biometric systems that are vendor agnostic and gives DoD the opportunity to avoid investments in proprietary equipment and software. Solutions based on open standards facilitate rapid, lower-cost integration and reduce life-cycle costs. Buying biometric systems that adhere to and implement standards reduces the time, cost, and effort required to integrate different systems and facilitates the interagency flow of biometric information, as long as all partners implement the same consensus-based standards.

DoD is required by law to use voluntary, consensus or commercial standards. The National Technology Transfer and Advancement Act (Public Law 104-113) requires federal agencies to adopt private-sector standards, particularly those developed by standards developing organizations (SDOs), whenever possible in lieu of creating proprietary, non-consensus standards.

DoD is also directed by policy—DoD Directive (DoDD) 8521.01E, "Department of Defense Biometrics"—to use consensus-based standards and to participate in national and international standards bodies:

> Biometric collection, transmission, storage, caching, tagging, and use shall be controlled through the use of DoD-approved national, international, and other consensus-based standards, protocols, best practices, and equipment to ensure consistency and support interoperability.

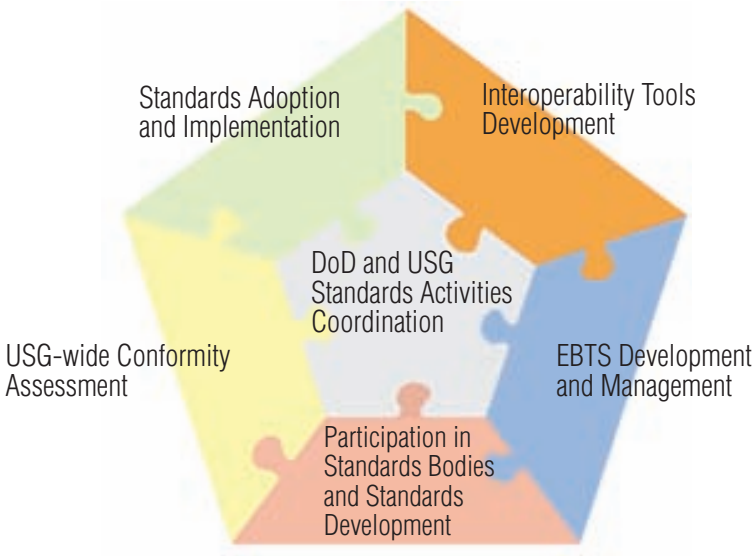
In addition, Enclosure 4 of DoDD 8521.01E requires the executive manager for DoD biometrics to, among other things, "provide for participation on national and international standards bodies to influence and accelerate standards development."

Coordination and collaboration on biometrics standards are key to fulfilling the requirements of DoDD 8521.01E. They constitute the primary role of the Biometrics Task Force (BTF)—formerly, the Biometrics Management Office.

Biometrics Task Force Standards Activities

To achieve interoperability and facilitate information sharing, the BTF leads six major biometric standardization activities within DoD:

- Coordination of DoD and U.S. government standards activities
- Participation in standard bodies and standards development
- Standards adoption and implementation
- Development and management of the DoD Electronic Biometric Transmission Specification (EBTS)
- Interoperability tools development
- Government-wide conformity assessment.



Biometric standards are effective when adopted and implemented across systems to enable interoperability within DoD and across the U.S. government. The BTF leads three collaborative efforts to build consensus and to adopt and implement published standards, as outlined in DoDD 8521.01E:

- BTF chartered and chairs the DoD Biometric Standards Working Group (BSWG).
- BTF makes recommendations to the Defense Information Systems Agency (DISA) on high-priority standards that DoD should officially adopt and implement.
- BTF leads standards efforts at the U.S. government level through participation in the Standards and Conformity Assessment Working Group (SCA WG), a component of the National Science and Technology Council (NSTC).

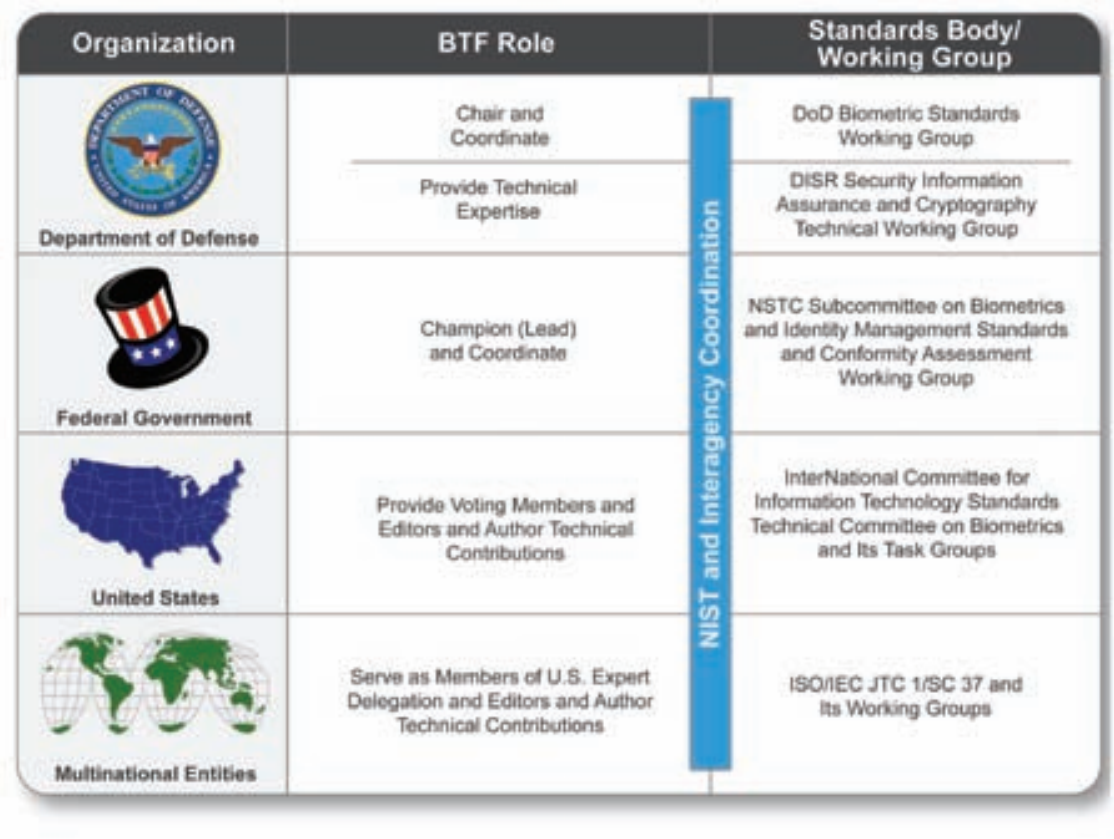
DoD Biometric Standards Working Group

In 2004, the BTF chartered the DoD BSWG to participate in the development of standards and to build consensus on standards development, evaluation, and implementation issues. The BTF revised the BSWG charter in 2008 to align its purpose and functions with the DoD biometrics governance structure and the roles and responsibilities outlined in DoD Directive 8521.01E.

To achieve the charter's goals, the BSWG coordinates and collaborates at multiple levels with various partners from government agencies, the vendor community, and members of academia, as depicted in Figure 1. Within DoD, the BSWG works closely with DISA, all four military services branches, Defense Research and Engineering, the Defense Manpower Data Center, and the Project Management Office for Biometrics, to name a few. Across the U.S. government, the BSWG works closely with NIST, the Department of Homeland Security, and the FBI among other partners. In various SDOs at the national and international levels, the BTF, on behalf of the BSWG, drives consensus and represents DoD interests in the marketplace through coordination with vendors and researchers in academia. At the national level, the BTF is a voting member of the InterNational Committee for Information Technology Standards, Technical Committee on Biometrics. At the international level, BTF serves as a member of the U.S. expert delegation to the international standards body on biometrics: ISO/International Electrotechnical Commission (IEC) Joint Technical Committee (JTC) 1/Subcommittee (SC) 37.

The BSWG facilitates this coordination and collaboration with its partners in bimonthly meetings. The BSWG annual meeting schedule coincides with the schedules of the various SDOs in which the BTF actively participates. Recent agenda topics for these meetings include (1) an FBI brief on the development of an international data interchange format for DNA as a biometric modality and (2) interagency updates from the Terrorist Screening Center on the development of a terrorist watchlist standard with biometrics data. Annual meeting schedules are posted on the BTF's website (http://www.biometrics.dod.mil/).

FIGURE 1. Roles of the Biometrics Task Force in Standards Bodies and Working Groups



Moving forward, the BSWG plans to build relationships with more internationally focused organizations. As the BSWG chair, the BTF plans to lead this charge in the international SDO for security techniques (ISO/IEC JTC 1/SC 27), the international SDO for identification cards (ISO/IEC JTC 1/SC 17), and the military standardization entities within NATO.

Adoption and Implementation of Biometric Standards at the DoD Level

The consensus-driven process of developing biometric standards leads to the publication of those standards. Upon publication, DoD must determine which standards are of the highest priority for adoption and implementation in future DoD biometrics equipment. According to DoDD 8521.01E, the BTF is to "submit recommendations for DoD adoption of published standards to DISA for review and approval." The BSWG is the primary forum for the development of these recommendations for DISA.

BTF works closely with DISA to adopt and implement high-priority biometric standards across DoD. Through coordination with the BSWG, BTF works with DoD and other government agencies to select standards that ensure national and international interoperability and data sharing. In FY08, BTF worked with DISA to identify 10 and adopt 3 standards in the DoD IT Standards Registry (DISR). (DISR is the DoD reposi-

tory for all IT standards and is maintained by DISA.) From 2005 to 2008, the BTF, working with DISA, adopted 29 biometric standards in the DISR based on recommendations developed in the BSWG. The current and future DoD adoption strategy is to move away from national standards in favor of more robust, widely adopted international standards to promote interoperability and data sharing among JIM partners.

BTF also provided technical expertise on the implementation of biometric standards. In 2008, BTF supported the DoD Director of Biometrics during the development of the interagency action plan for the NSPD 59/HSPD 24. BTF currently provides implementation guidance and expertise in the development of significant biometric standards content for various Joint Capability Integration Development System documents. This initiative focuses on developing content for joint tactical collection devices and for the biometrics enterprise core capability, or authoritative DoD database for biometric information. Close coordination among BTF, DISA, and JIM partners ensures that high-priority biometric standards are adopted and implemented consistently across DoD and the U.S. government enterprise to facilitate JIM biometric system interoperability.

BTF Collaboration and Coordination across the U.S. Government

DoD coordinates and collaborates closely with multiple U.S. government partners on biometrics standardization activities in the NSTC. This cabinet-level council is the principal means within the executive branch to coordinate science and technology policy across the federal research and development enterprise. The NSTC chartered the Subcommittee on Biometrics and Identity Management to provide technical leadership in the development and implementation of interoperable federal biometric systems and to address other important issues touching biometrics technology, including standardization. To focus specifically on biometrics standards policy for the U.S. government, the NSTC established the SCA WG, which is chaired by NIST.

The BTF is an active member and contributor to the NSTC SCA WG and its body of work. The BTF leverages the membership of the BSWG to build DoD consensus on

Biometrics Standardization Documents

NSTC Policy for Enabling the Development, Adoption and Use of Biometric Standards (2007)

Registry of USG Recommended Biometric Standards (2008)

USG Agency Action Plan and Timeline for the Development, Adoption and Use of Biometric Standards (expected 2009)

Supplemental Information on the USG Agency Action Plan for the Development, Adoption and Use of Biometric Standards (expected 2009)

standards-related documents developed in the NSTC. The NSTC SCA WG has recently focused on the development of four policy and implementation documents. In 2007, the BTF served as a coeditor in the development of *NSTC Policy for Enabling the Development, Adoption and Use of Biometric Standards*. This policy established a framework to reach interagency consensus on biometric standards adoption for the federal government. The purpose of the policy is to "enable necessary next generation Federal biometric systems, facilitate biometric system interoperability, and enhance the effectiveness of biometrics products and processes."

In 2008, the BTF contributed to the development of the first federal registry on consensus-based biometric standards, *Registry of USG Recommended Biometric Standards*, which facilitates a consistent implementation of biometric standards across the U.S. government. The BTF is developing content for two documents: *USG Agency Action Plan and Timeline for the Development, Adoption and Use of Biometric Standards*, and *Supplemental Information on the USG Agency Action Plan for the Development, Adoption and Use of Biometric Standards*. Both documents are expected to be published in mid-2009.

Looking Forward

Standardization will play a critical role in the future of interoperability as biometrics technology is increasingly incorporated into DoD's business and military processes. To meet standardization's challenges, BTF—through its collaboration and coordination efforts within the BSWG—will continue to facilitate data sharing and ensure interoperability through its work in biometric standards. Moving forward, the BTF will expand collaboration and coordination with JIM partners. The BTF will continue its participation in standards development bodies and is currently considering participation in the development of identity management standards.

As more international standards are published and adopted worldwide, BTF will expand the adoption and implementation of international biometric and identity management standards. To ensure proper implementation of these standards, the BTF, on behalf of DoD, will continue to participate in the NSTC SCA WG, with a specific focus on establishing a government-wide biometrics conformity assessment program through the NSTC. For more information, please visit the BTF website (http://www.biometrics.dod.mil/) or contact the BTF if interested in participating in future meetings of the BSWG.

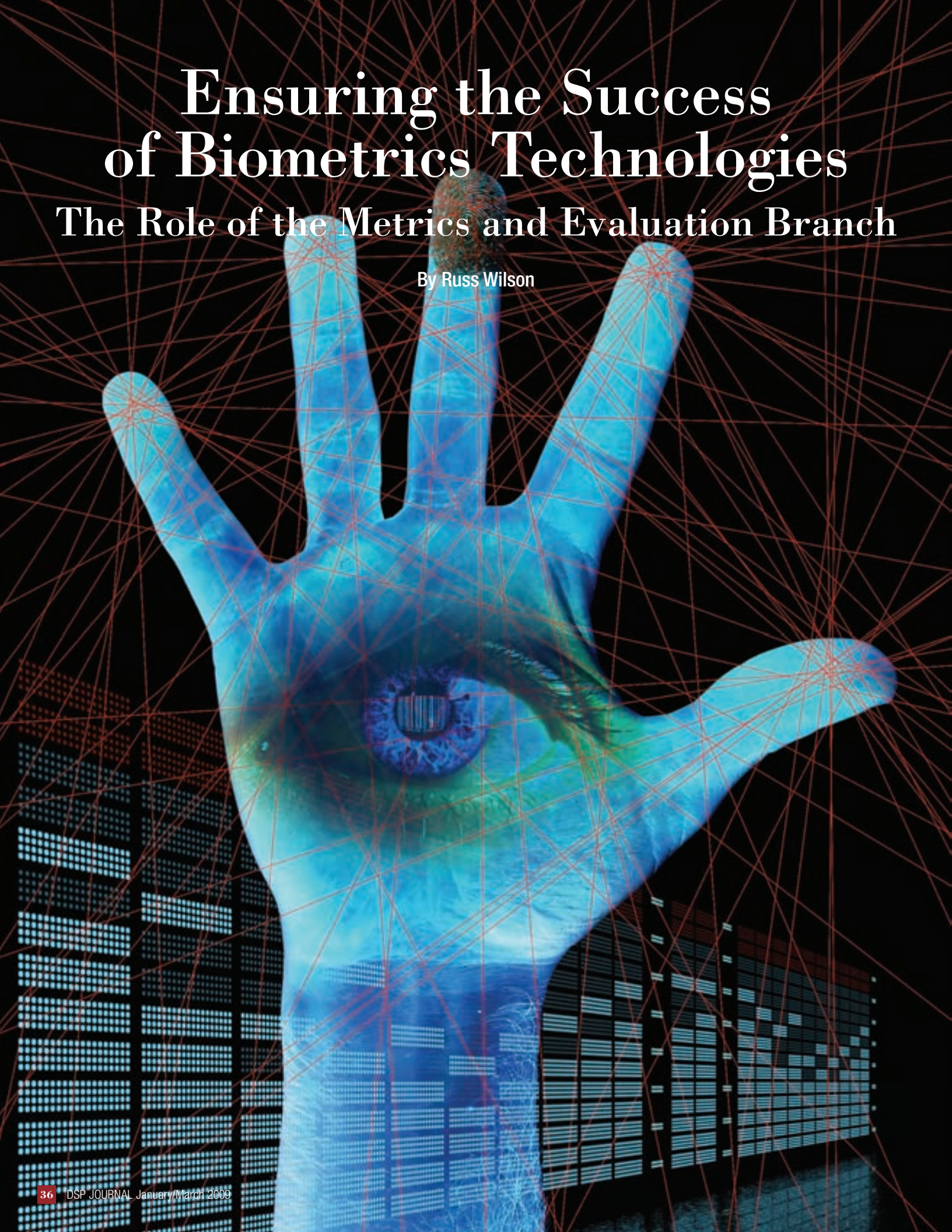
About the Author

Benji Hutchinson is a support contractor for the Standards Branch in the Capabilities Integration Division of the DoD Biometrics Task Force. He chairs the DoD Biometric Standards Working Group on behalf of the director of the BTF. Mr. Hutchinson has more than 5 years of experience supporting large-scale biometrics programs at DoD and the Department of State.

Ensuring the Success of Biometrics Technologies

The Role of the Metrics and Evaluation Branch

By Russ Wilson



The National Science and Technology Council defines biometrics as a process for "automated methods of recognizing an individual based on measurable biological (anatomical and physiological) and behavioral characteristics."[1] Biometrics applications are used in DoD to link individuals to events, transactions, various documents, and forensic evidence. With this in mind, biometrics technologies are considered powerful enablers for successful completion of military-related missions. With proper integration, biometrics technologies enable physical and logical access control and can provide heightened security over traditional methods such as badges or name, rank, and serial number. The use of biometrics takes away a potential adversary's anonymity, both in direct contact and remotely.[2]

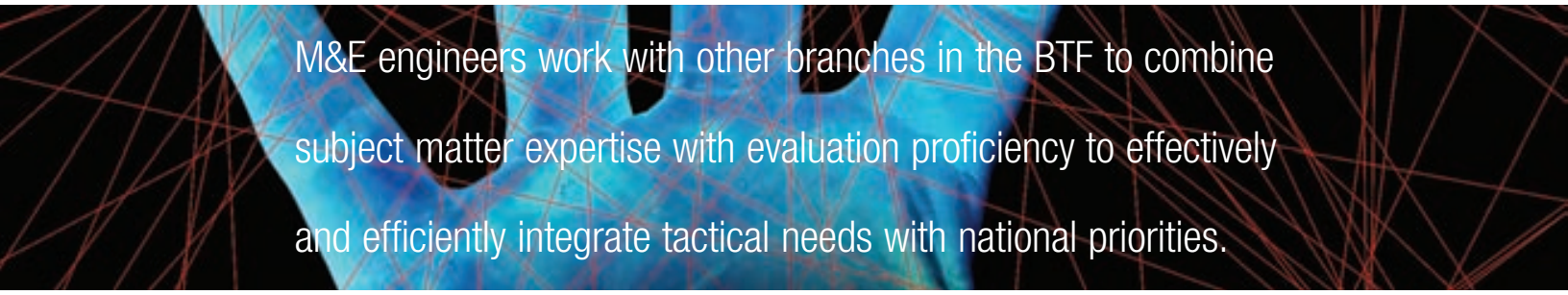
Within DoD, biometrics include finger, face, hand, iris, palm, voice, and DNA characteristics. Biometrics are the unique identifiers that can be electronically stored, retrieved, and compared with other biometrics information collected on an individual. The unique biometric identifier can then be linked with other information to facilitate information sharing and to aid decision making about individuals.[3] It is essential that biometrics technologies are interoperable with supporting infrastructures and networks. Future biometric systems and biometrics-enabled processes, units, or forces must be capable of accepting services from other systems, units, or forces and of using those services to enable them to operate effectively together. Further levels of detail regarding specific systems and methods—including necessary technology, interoperability, standards, protocols, and management improvements—are reserved for follow-on Joint Capabilities Integration Development System documents.

Biometrics-enabled technologies alone cannot succeed in DoD. Their use requires purpose, guidance, and boundaries. Standards provide the necessary guidance and boundaries needed for their success. When integrators and developers create biometrics technologies for military personnel, the Biometrics Task Force (BTF) sends in engineers from the Metrics and Evaluation Branch (M&E) to ensure that approved and emerging standards are met before those personnel are deployed. M&E engineers use biometrics standards identified in the DoD Information Technology (IT) Standards Registry (DISR).

DISR, formerly known as the Joint Technical Architecture, is an online repository for a minimal set of commercial IT standards (see http://disronline.disa.mil). DISR-identified standards are used as the "building codes" for all biometrics technologies being procured in DoD. Use of these building codes facilitates interoperability among systems and integration of new systems into the biometrics enterprise and Global Information Grid. In addition, DISR provides the capability

to build profiles of standards that programs will use to deliver net-centric capabilities. When building systems, requests for proposals and contract statements of work should be reviewed to ensure that IT standards established in initial capabilities documents, capability development documents, and capability production documents are translated into clear contractual requirements. In addition, requests for proposals and contract statements of work should contain additional requirements for contractors to identify instances in which cost, schedule, or performance impacts may preclude the use of DISR-mandated standards.

Although the importance of biometrics standards is evident to the standards bodies that create them, they are less important to others, especially those who use biometrics technologies within DoD. Standards have existed in the world since the beginning of recorded history. Take for example the calendar. The calendar is one of the earliest examples of standardization. More than 5,000 years ago, the Sumerians, in today's Iraq, devised a calendar very similar to the one we use today. Sumerian farmers divided the year into 30-day months. Each day was divided into 12 hours and each hour into 30 minutes. The



Egyptians created the first 365-day calendar.[4] They are also credited with cataloging the first year in recorded history, around 3100 BC. The Egyptians based the year's measurement on the rising of the "Dog Star," also known as Sirius, every 365 days. This was an important event, because it coincided with the annual flood of the Nile, an occurrence that enriched the soil used to plant Egypt's crops for the upcoming year. Just as farmers in ancient history required standardization to plant their crops, DoD requires standardization to ensure that biometrics capabilities properly exchange critical operational data.

The BTF M&E team exists to evaluate the nation's investments in identity management and biometrics technologies necessary to support DoD. To accomplish this mission, the team uses an identity management method—consisting of concept development, experimentation, and assessment—to determine, validate, and refine identity management mission applications, biometrics technologies, and processes required by combatant commanders today and in the future. M&E engineers work with other branches in the BTF to combine subject matter expertise with evaluation proficiency to effectively and efficiently integrate tactical needs with national priorities. The continued objective is to rapidly evaluate high-quality biometrics technologies that satisfy standards and user needs

and measurably improve mission capability. The M&E team focuses on ensuring that biometrics systems are functional, conform to standards, and are interoperable with the DoD Automated Biometric Identification System (ABIS), DoD's authoritative database, before the systems are deployed. M&E engineers provide the key safeguards to ensure that data ingested by the DoD ABIS will not corrupt its matching capability, database, or ability to share information. Further, M&E engineers help during the development of biometrics technologies to meet established, proven standards for file creation and data transmission to improve interoperability.

The M&E team's authority to test, experiment, and evaluate biometrics technologies originates from the Emergency Supplemental Appropriations Act for FY 2000 (Public Law 106-246). Section 112 of the act identifies the Department of the Army as DoD's Executive Agent for developing and implementing biometrics technologies. Since then, DoD Directive (DoDD) 8521.01E, "Department of Defense Biometrics," issued in February 2008, was created to establish policy, assign responsibilities, and describe procedures for DoD biometrics.

In addition to the M&E missions, tasks, and functions identified in Enclosure 5 of DoDD 8521.01E, M&E engineers maintain awareness of the biometrics marketplace and evaluate products useful to federal government agencies. To do this, the team acquires and tests commercial and government off-the-shelf products to determine their functionality, performance, and conformance to DoD standards. The M&E team also has worked with other test agencies to plan, conduct, and report the results of tests, simulations, experiments, and evaluations of biometrics technologies to decision makers so they can ensure that our warfighters have the right biometrics capabilities for success across the entire range of military operations. DoD Instruction 5000.2, "Operation of the Defense Acquisition System," requires test and evaluation programs to be structured to provide accurate, timely, and essential information to decision makers for programs throughout the system life cycle. As the means to this goal, M&E engineers work with developers and users to quickly identify deficiencies (technical or operational) so they can be resolved prior to production and deployment.

The continued development of biometrics standards is vital to the stability of the biometrics community of interest, not only within DoD but also throughout the federal government. As such, DoD standards development must support national needs, promote efficiency through standards harmonization, and ensure the existence of government-wide capability to collect, store, match, and exchange biometrics based on adopted standards in support of immediate and future agency missions. In addition, thorough standards conformance assessments are needed to ensure the conformance of systems used by our warfighters with existing and emerging biometrics standards. The M&E

team is prepared to meet this challenge and encourages vendors, developers, and integrators to support the development of harmonized conformance, interoperability, performance, security, human factors, and operational scenario testing programs in support of procurement actions for biometrics products, programs, and services throughout DoD.

[1]National Science and Technology Council, Subcommittee on Biometrics and Identity Management, *The National Biometrics Challenge*, August 2006.

[2]Director of Defense Research and Engineering, *2007 Department of Defense Research and Engineering Strategic Plan*, 2007.

[3]Department of Defense, *Capstone Concept of Operations for DoD Biometrics in Support of Identity Superiority*, November 2006.

[4]R.A. Parker, *The Calendars of Ancient Egypt* (Chicago: The Oriental Institute of the University of Chicago, 1950).

About the Author

Russ Wilson is a support contractor providing subject matter expertise to the Biometrics Task Force. Currently, he is performing duties and responsibilities as acting chief of the Metrics and Evaluation Branch. Mr. Wilson is a 20-year veteran of the United States Air Force and has been involved with DoD biometrics since 2002.

Program News

Topical Information on Standardization Programs

ASTM International Announces Year of the Professor

ASTM International has announced that it has designated 2009 as the Year of the Professor. During this year, ASTM International will promote the value of standards education at institutions of higher learning through the reinforcement of professors' efforts to educate students in the diverse field of standardization.

One objective of the Year of the Professor is to increase the availability of tools and information that assist educators with instructing students about standards. ASTM International will be making available such resources as the following:

- Affordable academic-oriented products, enabling professors to integrate ASTM standards into course materials
- Online educational resources at ASTM Campus, a focused area of the ASTM website for professors and students
- College and university visits and guest lectures by ASTM members and ASTM personnel.

In 2009, ASTM will recognize the contributions of educators through the ASTM International Professor of the Year Award. This award will recognize a university-level educator for exemplary use of standards in his or her curriculum or classroom setting.

For more information on this ASTM initiative, visit http://www.astm.org/campus or contact Mr. James Olshefsky, Director of External Relations, ASTM International (610-832-9714; jolshefs@astm.org).

SAE International Challenges Students in Its Collegiate Design Series

SAE International was formed in the early 1900s out of a desire for patent protection, solutions to common technical design problems, and development of engineering standards. In its inaugural year of 1905, Andrew Riker served as president and Henry Ford as vice president. By 1916, SAE's membership had grown from an initial 30 members to 1,800,

and SAE was being sought to oversee technical standards for various industries (aeronautic, tractor, etc.).

The nucleus of SAE's mission is the creation of standards. More than 14,000 volunteer mobility industry experts serve on SAE committees and provide data for standards development. SAE has developed 2,600-plus globally used and recognized standards for the ground vehicle industry. SAE's aerospace standards repository includes more than 6,700 documents and is the largest such collection of consensus standards in the world.

The SAE Collegiate Design Series (CDS) got its start in 1973 with the Recreational-Ecological Vehicle Challenge. The CDS has since grown to include 11 educational competitions throughout the United States. These events challenge student teams to design and build vehicles that are capable of meeting specific engineering challenges. This series has evolved to become an important means of demonstrating teamwork and applying engineering concepts to real-world applications. Although these competitions are held in the United States, the series attracts colleges and universities from around the globe.

The CDS comprises the following events:

Aero Design®. Students design and build a radio-controlled aircraft that can take off and land while carrying as much cargo as possible. The event features three classes of competition: regular, open, and micro.

Aero Design®, 1st Place, Micro Class—University of Minnesota

Baja SAE®. This event consists of three regional competitions to simulate real-world engineering design projects and their related challenges. Students design and build an off-road vehicle that will survive the severe punishment of rough terrain and sometimes even water.

Baja SAE®, 2nd Place, Baja Montreal—Stony Brook University

Clean Snowmobile Challenge™. Students reengineer an existing snowmobile to reduce emissions and noise, while improving the vehicle's performance characteristics. The modified snowmobiles also are expected to be cost-efficient. Teams compete in tests of endurance, acceleration, handling, rider comfort, and towing.

Clean Snowmobile Challenge™, 1st Place, Zero Emissions Class—University of Wisconsin–Madison

Formula SAE®. Students conceive, design, fabricate, and compete with small formula-style race cars. Points are awarded for static events (presentation, design, cost analysis) and dynamic events (acceleration, skid-pad, autocross, fuel economy, endurance).

Formula SAE®, 2nd Place—Missouri University of Science and Technology

Supermileage®. Students develop and build a single-person, fuel-efficient vehicle. Vehicles are powered by a small four-cycle engine.

Supermileage®, 3rd Place—École de Technologie Supérieure, University of Quebec

Each event has rules regarding the design of the project that are strictly enforced and judged. Detailed information on each competition can be found at http://students.sae.org/competitions.

Participation in these events reached new heights in 2008, as 754 collegiate teams and more than 7,000 students took part in CDS competitions. A record 23 countries were represented, and four events were sold out.

SAE International's Technical Standards Operating Board, the body within SAE that oversees the development of SAE technical standards, recently launched an initiative to better prepare engineering students for employment in mobility-related industries. Working in conjunction with SAE's Engineering Education Operating Board, which governs the CDS competitions, the Technical Standards Operating Board developed a process to provide these students with hands-on use of technical standards. This initiative acknowledges that students need to be made aware of the value that will come from the use of standards in their careers. Considering this need, technical experts from industry, academia, and government have identified more than 35 standards and recommended practices. They are classified as either "required" or "referenced" in each CDS competition's rules. These are made available, at no cost, to the student teams.

SAE is proud to be a part of this effort to support these important educational competitions. Such events challenge students to demonstrate teamwork and apply textbook theory to real-world applications, but now to also include the use of standards in these exciting SAE events.

Standards Portal Is Operational

As former U.S. Secretary of Commerce, Mr. Donald Evans noted that "the international language of commerce is standards." This concept regarding the vital role that standards play in ensuring the success of an organization's domestic and global competitiveness has been significantly enhanced through the launching of the Standards Portal, which is sponsored by the American National Standards Institute (ANSI). For more information about the portal, go to the website at www.StandardsPortal.org.

The Standards Portal is an online resource designed to answer questions faced by exporters when attempting to enter foreign markets. Its aim is to encourage international trade by helping global companies understand necessary market access and market acceptance requirements as they enter into a target market. In addition to having knowledge of market access and market acceptance requirements, these entities need to understand how individual standards and conformity assessment systems function around the world. Armed with such knowledge on navigating foreign standards and conformity assessment systems, these stakeholders can become influential players in world markets.

The Standards Portal is currently concentrating on providing technical trade information to Chinese, Indian, and U.S. stakeholders. This information generally consists of narrative descriptions of the three countries' standards and conformity assessment systems. The portal also contains profiles of key organizations (standards developing organizations, trade associations, conformity assessment bodies, government agencies) and policy documents influential in shaping these systems.

This online resource provides access to information to answer such questions as these:

- What technical requirement must my product meet to enter and compete in the Chinese/Indian/U.S. market?
- How can I get early warning about changes to these requirements?
- How can I ensure that my company's perspectives are heard and considered in the development of Chinese/Indian/U.S. requirements that could affect my business?

Any questions regarding this online resource should be directed to Mr. Steven Bipes (sbipes@ansi.org or 202-331-3607) or Ms. Elise Owen (eowen@ansi.org or 202-331-3624).

ISO 26000 Social Responsibility Standard Is Progressing through the Development Process

The ISO Working Group on Social Responsibility has reported that ISO Committee Draft (CD) 26000, Social Responsibility, has received sufficient support to advance the document to the next level in the ISO process, the Draft International Standard stage. ISO 26000 has been created to guide companies, government agencies, and other organizations toward a more sustainable global economy. The document establishes common guidance on social responsibility concepts, definitions, and methods of evaluation. Stakeholders in both developed and developing nations are the target audience for this standard. The proposed document has been written to complement public- and private-sector social responsibility initiatives, including inter-governmental agreements (Universal Declaration of Human Rights).

In December 2008, ISO/CD 26000 was first issued to determine national consensus positions and develop comments. As the U.S. member body to ISO, ANSI invited all U.S. stakeholders to review the draft standard and forward comments. In February 2009, the ANSI-accredited U.S. Technical Advisory Group to the ISO Working Group on Social Responsibility met and reached consensus on a negative voting position with comments. Voting and comments on ISO/CD 26000 closed on March 12, 2009, with more than two-thirds of the ISO national standards body votes in favor of moving the document on to the Draft International Standard stage.

The ISO Working Group on Social Responsibility will meet in May 2009 to address all comments received and attempt to improve consensus on the draft document. If progress on the document's development continues according to normal ISO timelines, the final ISO 26000 standard will likely be ready for publication by the end of 2010 or early 2011.

For further information, contact Mr. Steven Cornish (scornish@ansi.org) or Ms. Jennifer Admussen (jadmussen@asq.org).

Defense Science Board Releases Report on Buying Commercial

The Defense Science Board recently released a report called *Buying Commercial, Gaining the Cost/Schedule Benefits for Defense Systems*. The report, written by the board's Task Force on Integrating Commercial Systems into the DoD, outlines the significant opportunity DoD has in purchasing commercial or government off-the-shelf systems, as well as foreign-derivative systems, to reap advantages such as predictable and lower costs, short realization schedules, low risks, and demonstrated performance. The study for which this report is based makes recommendations to address issues in the areas of acquisition practices, experience, education, communication, organization, and leadership. The section on standards is of particular note to those in the standards community.

The report touts that the cost advantage in using commercial-derivative systems is due to their adherence to published industry standards. And although it is commonly understood that the use of global standards can ease the requirements process significantly and enable cost-effective models, the report showed that it is not a common practice for offices holding technical authority to work within commercial standards bodies. The report points out that government participation in standards communities could help to generate standards useful to both government and industry. For more information on this report, or participation in non-government standards bodies, please contact Ms. Trudie Williams, DSPO's program manager for non-government standards, at trudie.williams@dla.mil or 703-767-6875.

Qualified Products Database Continues to Be Populated

Since 2006, qualifying activities have been converting their paper-based qualified products lists (QPLs) and qualified manufacturers lists (QMLs) into electronic QPLs/QMLs in the qualified products database (QPD). Although there has been a learning curve in transitioning to the new database format, statistics show that qualifying activities are making good progress. Currently, 74 percent of the 756 QPLs have been published in the QPD. Almost 80 percent of the remaining QPLs have been partially loaded but not yet published in the QPD. Work has not yet begun on 7 percent of the QPLs. Qualifying activities must ensure that the information is current and accurate and that qualification is still required for each governing specification. Since DSPO began providing quarterly progress reports in November 2007, the number of outdated QPLs has decreased from 522 to 192. For more information on the DoD qualification program or the QPD, please contact Ms. Donna McMurray, DSPO's manager for the qualification program, at Donna.McMurry@dla.mil or 703-767-6874.

Events

Upcoming Events and Information

September 21–24, 2009, Orlando, FL

DMSMS and Standardization Conference

The DMSMS and Standardization Conference will be held September 21–24, 2009, at the Rosen Center in Orlando, FL. The theme for this year's conference is New Directions and Challenges. The conference will include focus areas on strategic partnerships, visibility into total ownership costs, opportunities for partnering, and standardization enablers. For more information and to register, please go to http://www.dmsms2009.com/index.html, or call 937-426-2808 or 703-767-1415.

People

People in the Standardization Community

Welcome

On January 1, 2009, **Robert Francis**, U.S. Army Communications-Electronics Command (CECOM) Life Cycle Management Command (LCMC) at Fort Monmouth, NJ, assumed responsibility for the standardization program for CECOM's product lines. Mr. Francis started working for the medical device industry and then switched to the Navy in support of underwater weapons systems. He worked for CECOM's Logistics Readiness Command for 16 years until joining its Product Realization Directorate in 2005. As a member of DoD's Integrated Product Team, Mr. Francis wants to contribute to improvements in its standardization program.

On January 5, 2009, **Scott White** became the Standardization Executive for the Naval Air Systems Command (NAVAIR) and the Department of the Navy Standardization Officer (DepSO), replacing Jeff Allan. Before his appointment at the Policy and Standards Office, Mr. White served as the division head and chief engineer for the NAVAIR Aviation/Ship Integration Enterprise team. A retired naval officer and graduate of the Navy's Test Pilot School, he served as a fleet naval flight officer and aerospace engineering duty officer with experience in a variety of systems engineering, flight test, and program management billets. Mr. White previously served as head of NAVAIR's Ship Integration division, as head of NAVAIR's Airworthiness division, and, while on active duty in the Navy, as a bomber-navigator. We welcome him to the standardization community.

Farewell

Jeff Carver moved from CECOM's LCMC to the Naval Air Engineering Station in Lakehurst, NJ, on January 1, 2009. After a stint in industry, he worked for 23 years in the standardization arena at the U.S. Army Electronics Research and Development Command, which ultimately became CECOM. Mr. Carver spent most of his career working for CECOM's Logistics Readiness Command until he joined CECOM's Product Realization Directorate in 2005. He was a key player in DoD's Integrated Product Team to identify improvements to its standardization program and was responsible for implementing the standardization program for CECOM's product lines. We wish him the best in his new venture.

After nearly 35 years of federal service, **Jeff Allan** retired on January 3, 2009, from NAVAIR, Patuxent River, MD. Mr. Allan worked in a variety of DoD organizations, including DSPO's predecessor, as chief of the engineering and production departments in the Defense Contract Management Command and as head of the Policy and Standards Office at NAVAIR. Mr. Allan served as the NAVAIR Standardization Executive and the Department of the Navy DepSO. He received three Meritorious Civilian Service Awards and one Distinguished Civilian Service Award. We wish him well in his retirement.

Ronald Zabielski, a DSPO program analyst, retired on January 3, 2009, with more than 32 years of federal service. While at DSPO, Mr. Zabielski was responsible for budget execution and allocation. In addition, he served as the backup for DSP automation. He was instrumental in developing requirements for the Weapon Systems Impact Tool and the Program Managers Tool. DSPO wishes him well in retirement.

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
April–June 2009	Standardization Stars
July–September 2009	Interoperability
October–December 2009	Warfighter Support

If you have ideas for articles or want more information, contact Tim Koczanski, Editor, *DSP Journal*, Defense Standardization Program Office, 8725 John J. Kingman Road, STP 5100, Fort Belvoir, VA 22060-6220 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.


DEFENSE STANDARDIZATION PROGRAM
MAKING SYSTEMS WORK TOGETHER