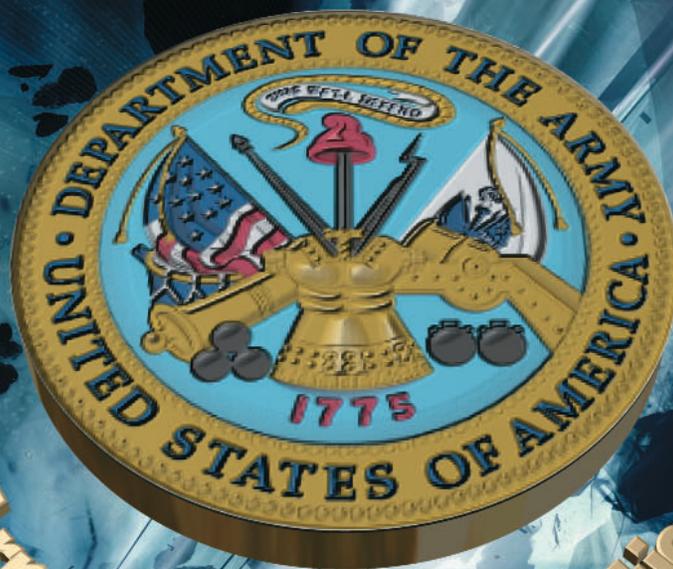


Journal

Defense Standardization Program

January/March 2004



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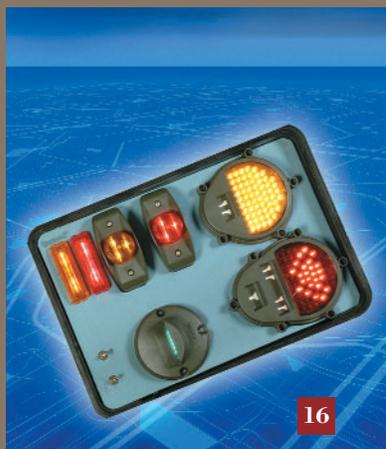
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Normally in this spot you find a message from me—sometimes opinion, sometimes an introduction to the articles in the *Journal*, sometimes additional information along the theme of the *Journal*. For this issue, I'm pleased to turn my column over to Mr. Harrell Barnett, the Army Standardization Executive, to introduce the first-ever issue devoted to the standardization work of a single military department. In coming issues, we will feature work of the other departments and some of the defense agencies, but for now, please enjoy reading about the good work being done by the Army and see how some of its standardization successes might apply to you.

Gregory E. Saunders
Director, Defense Standardization Program Office

MESSAGE FROM THE ARMY STANDARDIZATION EXECUTIVE

By Harrell R. Barnett

As the Army's Standardization Executive, I've reflected many times on the value and scope of the Army Standardization Program (ASP), often when the program's worth has been challenged. Each time, I've concluded that standardization is an enabling strategy that helps program and procurement activities achieve the Army's materiel goal to provide warfighters with equipment that is interoperable, safe to use, reliable, technologically superior, sustainable, producible, capable of being modernized as needed, and affordable. That's a tall order, and there's more: the ASP is also tightly entwined with the other U.S. military services, voluntary standards bodies, and international treaty organizations.

All this, and changes in the policies that drive the DoD acquisition and logistics systems, too. The Army has come a long way toward improving the way it does business with industry and suppliers. MilSpec Reform was a significant part of Acquisition Reform, which reduced the cost and shop-floor inefficiency imposed by prescriptive, how-to-do-it specifications and opened the door to procurement of the best products available in the commercial marketplace. The shift to specifications and standards that

emphasize performance and interface requirements enables materiel developers and sustainers to provide the latest technology to the U.S. soldier.

In today's military management environment, Army organizations are expected to reflect the business practices of their industry counterparts. Thus, the ASP must have a customer focus and must recognize that its first-line customers are the Army's Program Executive Officers (PEOs) and program managers (PMs). So when we ask, "What does the customer require?" and "How well can we deliver on that requirement?" we are talking about the developers of the materiel used by the warfighter. The PEOs and PMs have choices; they are not forced by law,



Harrell R. Barnett
Army Standardization Executive

policy, or regulation to use the ASP's products. In the final analysis, our program is only as valuable as these customers perceive it to be.

There is a whole chain of organizations tasked to meet the Army's present and future materiel needs. Before system development and acquisition even begin, research and early development organizations demonstrate feasible technology for possible incorporation in full-up systems. One such forward-looking use of advanced technology is described in articles in this issue contributed by the Joint Tactical Radio System Program Office, which give us a view of the future of standardized battlefield communications.

The program managers within the 12 Army PEOs are responsible for developing, engineering, and providing the logistics support for their respective systems. These system developers demonstrate successful engineering designs; document the design with product data, specifications, and standards; and package the documentation into a contracting solicitation to tell contractors what is needed to satisfy an Army qualitative requirement. Increasingly, these actions are driven by commercial technology developments and standards, but, throughout the process, the Army's standardization products are critical components of the acquisition and procurement actions. An article in this issue tells how the Army is working with the Society of Automotive Engineers and industry on standardization processes.

At the end of the chain, sustainment activities procure the spares to maintain systems and ensure readiness. They, too, use standardization documentation to tell contractors and maintenance depots what is needed. You might think of a tank or a helicopter as a big hunk of metal; but behind that physical mass, you can discern a structure composed of hundreds of specifications and standards. The logistician who is responsible for main-

taining its reliability and readiness must have current, accurate documents to buy spares to sustain it. And the maintainers may also use the standardized interactive electronic technical manuals described in this issue by the Army Materiel Command's Logistics Support Activity.

The ASP provides products and services to all of these customers: those who make the front-end technology decisions, those who develop systems, those who select and provide spares and repair parts, and those who buy the materiel and equipment for the Army's men and women in uniform.

The standardization community knows that those men and women are its ultimate customers. The ASP is at work in everything soldiers eat, wear, and use. These products are being tested in the field in Iraq and Afghanistan today. In this issue, articles about new vehicle blackout drive lamps, battery selection, safe heating for tents, and combat boot testing demonstrate standardization's close tie to warfighter needs.

Standardization's international component is visible in the way the warfighters and their equipment operate in a joint environment with our allies and the other U.S. military services. The ASP's role in supporting the Army's capabilities in the international arena is described in an article by the Army Departmental Standardization Officer later in this issue.

The Army is undergoing a great transformation—in policy, in doctrine, and in its role as a business enterprise. In this demanding environment, the best efforts of the standardization community are needed to support our first-line customers, the PEOs and PMs, with the standardization documentation they need to meet their life-cycle responsibilities to equip and supply the ultimate customers, the warfighters, now and in the future.

Army Standardization Program in International Affairs

By Karim Abdian

Each year, the Army develops an International Activity Plan (AIAP) that reflects the changes in the security environment from the previous year. The plan implements the Secretary of Defense's security cooperation guidance, which supports the defense strategy and applies to combatant commanders and military services alike. From an operational perspective, the war on terrorism imposes new demands on the Army to build relationships, gain access, and develop capabilities in countries that, until recently, were not high priorities.

ISAs contribute to the Army's ability to conduct military operations with allied forces.



These new strategic and operational requirements underscore the value of the Army's international activities in shaping the security environment in support of the strategic priorities: the war on terrorism and transformation. However, with the limited resources available to implement the strategy, it is more important than ever to focus on the international activities that provide the most value to the Army and the nation.

The Army Standardization Program (ASP) may be only a small part of the total effort going into the Army's international activities. Nevertheless, the ASP's role in international standardization agreements (ISAs) is a critical contribution to the achievement of the ultimate objective of the AIAP: the Army's ability to conduct military operations with allied forces.

Army subject matter experts participate in the international working groups associated primarily with NATO and ABCA (armies of America, Britain, Canada, and Australia, with New Zealand as an associate member). The groups work cooperatively to develop and update ISAs. ISAs are operational or materiel in nature. Operational ISAs contribute to the development of doctrine by the Army's Training and Doctrine Command. The preparing activities in the Army Materiel Command and other agencies such as the Corps of Engineers and Army Medical Materiel Agency implement ISAs through their domestic standardization documents. Rarely are the provisions of materiel ISAs presented in a manner that enables them to be self-implementing.

On behalf of the Army Materiel Command, the ASP participates in the Army international affairs staff's ISA coordination process. ASP personnel assess each materiel ISA, as prescribed by Defense policy, prior to its adoption as a binding international agreement. The review determines if there are in-

Canadian forces join with American troops in deployment to Afghanistan.

Other troops also provide support for coalition forces in trouble spots around the world.

herent issues that would conflict with acquisition reform policy. In addition, the implementing domestic standardization documents are examined to determine whether they contain current ISA citations. This effort results in a recommendation for or against U.S. ratification of the document, which is provided to the Army international affairs staff. Once the document is ratified by a sufficient number of nations and promulgated, the adopting nations' materiel provides interoperability among allies through commonality or compatibility of form, fit, or function.

To ensure that the adopted ISAs are not overlooked by materiel developers, the ASP is working with the Defense Standardization Program to create a Program Manager's Tool. The tool provides a readily accessible work breakdown structure for generic top-level systems, with the applicable ISA/implementing standardization documents inserted at the appropriate level of the work breakdown structure. When applied, the tool provides a one-stop opportunity for the system developer to match interoperability requirements in the operational requirements document to the standardization documents to be included in the weapon system description. DoD and Army acquisition policy requires materiel developers to consider internationally agreed upon requirements in developing their systems.

I mentioned the Secretary of Defense's guidance on security cooperation at the beginning of this article. At the 2003 AIAP



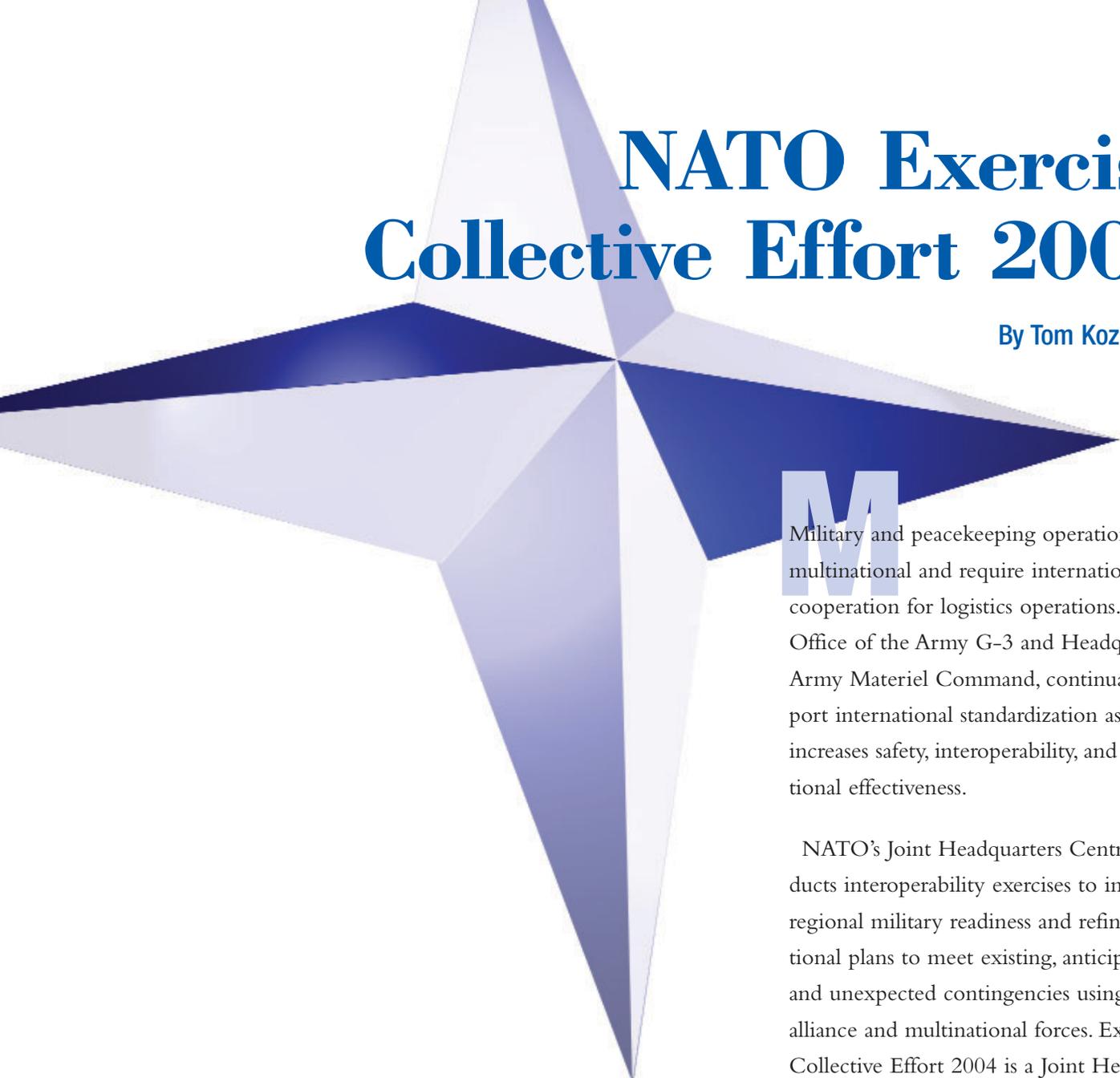
Conference, Andrew R. Hoehn, Deputy Assistant Secretary of Defense for Strategy, listed these policy themes that support the security cooperation concept as currently viewed:

- Strengthen alliances for the future by increasing U.S. influence
- Realign global posture by partnering with nations that can provide coalition capabilities for future contingencies.

The ASP supports these policy themes through its participation in the materiel international standardization arena.

About the Author

Karim Abdian is the Army Departmental Standardization Officer. He has nearly 30 years of experience in the defense and aerospace fields. Among other positions, he was the science advisor to the Commander of U.S. Army Europe, the value engineering program manager for the Army Aviation and Troops Command, and the AH-64 Apache lead engineer in the Apache Program Office. ✨



NATO Exercise Collective Effort 2004

By Tom Kozlowski

Military and peacekeeping operations are multinational and require international cooperation for logistics operations. The Office of the Army G-3 and Headquarters, Army Materiel Command, continually support international standardization as it increases safety, interoperability, and operational effectiveness.

NATO's Joint Headquarters Centre conducts interoperability exercises to improve regional military readiness and refine operational plans to meet existing, anticipated, and unexpected contingencies using both alliance and multinational forces. Exercise Collective Effort 2004 is a Joint Headquarters Centre interoperability exercise that will be held June 11–18, 2004, at the Boletice Training Area located near Cesky Krumlov in the Czech Republic.

The primary objective of the exercise is to enhance overall interoperability of NATO logistics systems and standardization of procedures and to assess the level of standardization of participating nations' logistics systems and procedures in the following areas:



Location in the Czech Republic of Exercise Collective Effort 2004.

- Ammunition handling, storage, and distribution
- Fuel handling and distribution
- Water handling, storage, and distribution
- Maintenance and recovery
- Transportation and movement.

Several NATO nations, including Belgium, Czech Republic, France, Germany, The Netherlands, Norway, Poland, and the United Kingdom, will support the exercise with equipment, vehicles, and 400 to 600 soldiers.

Materials handling equipment will be instrumental during the exercise. Members of the NATO Materials Handling Working Panel will participate in Exercise Collective Effort 2004 as observers to validate NATO materials handling standardization agreements (STANAGs). In partnership with Army G-3, subordinate commands of the

Army Materiel Command will support Army subject matter experts at the exercise.

Exercise Collective Effort 2004 will result in improved support to future NATO operations by reducing the redundancy of logistics assets of a multinational task force in a future theater of operations.

About the Author

Tom Kozlowski is an industrial engineer with the U.S. Army Materiel Command, Logistics Support Activity, Packaging, Storage, and Containerization Center at the Tobyhanna (PA) Army Depot. He specializes in international logistics and standardization. In addition, Mr. Koslowski serves as the U.S. delegate to the NATO Materials Handling Working Panel. ✨

The U.S. Army, SAE, and Industry

A New Way of Doing Business

By Jean Van Sullen

Converting two Army specifications to SAE specifications enabled procurement of commercial off-the-shelf lubricants for our automotive and wheeled vehicles.

When is the interest of the U.S. Army, the Society of Automotive Engineers (SAE), and commercial industry the same? When they need lubricant products for automotive and wheeled vehicles.

Historically, the U.S. Army has procured lubricants using military specifications, creating a unique product list of qualified manufacturers. But the Army recognized that both the military and industry have the same types of vehicles and use the same types of lubricants.

That raised this question: why not have the Army and industry work together to standardize the lubricants to meet both military and industry needs? Enter the Army's "new way of doing business," as mandated in November 1994 by the Secretary of Defense's memorandum, "Specifications and Standards, A New Way of Doing Business."

What did the Fuels and Lubricants Technology Team from the Tank-Automotive Research, Development and Engineering Center—part of the Research, Development and Engineering Command—do to implement the Army's new way of doing business? In the late 1990s, we converted two of our military specifications to SAE specifications, enabling procurement of commercial off-the-shelf lubricants for our automotive and wheeled vehicles. The two SAE specifications we adopted are SAE J2362, Lubricating Oil, Automotive Engines, and SAE J2363, Lubricating Oil for Wheeled Military Vehicles with Heavy Duty Engines.

The Fuels and Lubricants Technology Team has continued to review military specifications with a view toward adopting additional commercial specifications. Most recently, at the end of 2003, we completed the process of adopting SAE J2360, Lubricating Oil, Gear Multipurpose, to replace MIL-PRF-2105. That process includes identifying qualified products that meet the SAE specifications. The task of developing and maintaining a qualified products list (QPL) has been undertaken by the Performance Review Institute (PRI)—an affiliate of SAE. Products are included on the QPL based in part on the recommendations of PRI's Lubricants Review Committee. The QPL is available on the PRI website (www.pri.sae.org).

PRI's mission is to provide global, unbiased, independent manufacturing process and product assessments and certification services to the mobility industry for the purpose of adding value, reducing total cost, and facilitating teaming between prime contractors and suppliers. Moreover, it provides a forum for the review of the newly published SAE military/industry lubricant standards.

Continued cooperation and compromise between the military and industry will enable both entities to have the best products available for our respective customers: the soldier in the field and the public.

About the Author

Jean Van Sullen is a qualification specialist on the Fuels and Lubricants Technology Team of the Petroleum and Water Business Area, which is under the Tank-Automotive Research, Development and Engineering Center, part of the Research, Development and Engineering Command. With the government for 19 years, Ms. Van Sullen handles qualifications for fuels and lubricants for the Army's specifications for their vehicles. ✨

Future Combat System Relies on Standardization in Communications

By Gerald Doempke

The Changing Face of Combat

The Army is in the greatest strategic and tactical revolution since World War I. The trench warfare of that “war to end all wars” represented battlefield strategy and tactics that had evolved over thousands of years as opposing forces engaged in combat. Since then, each successive conflict has demanded change, with force movement becoming an increasingly important strategy.

By the end of the cold war, the concept of superpower battle forces slug-ging it out across great expanses of territory gave way to the need for ever-increasing mobility and flexibility. In addition, battle forces transitioned from service concepts—each service having its own domain—to a concept of joint forces under a joint command structure. Now, the strategic and tactical concepts emphasize speed and coordination.

Meeting the Challenges

To meet the challenges of supporting the new combat strategies and tactics, the military must apply the same principles that commercial enterprises have long recognized:

- Smaller, more flexible service fleets can outdistance and outperform the large stodgy systems of just a few years ago.
- Information integration is key to effective business competition.

The military has already proven—through numerous studies and recent battle experience—that the application of small, flexible forces has decided advantages on the battlefield. Large battle units are giving way to smaller units. Large force projections

are no longer composed of a set combination of personnel, vehicles, and weapons systems. Instead, they are built from numerous elements drawn from multiple military services. And the composition of those forces may change from conflict to conflict or even during the same conflict, as in Iraq.

Effective coordination of continually changing and moving forces requires adaptable data links enabling those forces to communicate. However, information integration has been problematic for the military. In contrast to the commercial world, which relies on the public communications infrastructure, the military not only must establish its own infrastructure, but must be able to adapt its data communications system to accommodate a changing tactical and political environment.

FCS—The Army's Answer

To respond effectively to the requirement for small, flexible operational units, the Army has been developing its Future Combat System (FCS). FCS is evolving into a system of systems consisting of many flexible and mobile vehicles and weapons systems. The FCS will enable the Army to select the combination of vehicles and weapons systems best suited to achieving the particular military objective for which the operational units are being deployed. The Army also will be able to readily reconstitute its forces as the battle environment changes.

The Army recognized that if the FCS is to succeed, it must be built

around a flexible, robust, and interoperable data network. The lack of available technology in current communications systems (even with numerous modifications) has hindered establishing such a network. Now, however, the military has the Joint Tactical Radio System (JTRS).

JTRS—The Communications Solution

JTRS is the DoD standard for radio frequency (RF) communications above 2 MHz. In addition, it will be the backbone of wireless communications, enabling data networking for the warfighter.

JTRS uses a multipurpose, software-defined radio designed around a standard Software Communications Architecture. The software has two features key to military operations:

- It can be tailored to meeting different communications needs.
- It enables interoperability of legacy and future communications systems.

Tailoring

JTRS radios are based on waveform software programs. Those programs make it possible to operate the radio in many different modes, much as various computer programs on a minicomputer make it possible to perform numerous different functions. JTRS can be a single- or multi-channel system, and in most cases, each JTRS channel can serve as a radio unto itself. Some applications can link channels, and even JTRS radios, to obtain greater operational capability and the necessary flexibility to adapt to different tactical environments.

FCS Requires a Network of Networks

Backbone network—for imagery, data, and voice communications

High-performance networks—for

- video distribution
- sensor unmanned aerial vehicles
- intra-echelon video distribution
- robotic sensors

Stub networks—for

- dismounted personnel
- loitering attack missiles/precision attack missiles
- unattended ground sensors
- SMART munitions

Designers can tailor the waveforms to meet emerging needs and adapt them as needs change. Software changes, though never easy, are more practically achievable than the expensive software and hardware changes required of current systems.

Using standardized waveform software across the family of JTRS radios makes software changes less expensive. The expense of data verification and validation is divided by the many systems utilizing such software, resulting in significant overall savings in time, money, and test certification assets, compared with the current practice of using several different communications systems.

Interoperability

Legacy systems, which will exist for a considerable time after the FCS is fielded, must be interoperable with new systems. Otherwise, the forces using different systems cannot readily communicate and achieve the flexible operations that characterize today's strategic and tactical concepts emphasizing speed and coordination.

The ability of the JTRS radios to "port" (load and operate) legacy waveform software will enable the new radios to interoperate with the legacy systems. Furthermore, the digital computer basis of JTRS will allow the system to cross-band data from one waveform system to another and, eventually, from one data system to another. Units will be able to interoperate with legacy systems, and dedicated translator systems will be able to link communications throughout the battle space, even with large numbers of legacy units present. This will enable future combat operations while the forces are

still being outfitted with new systems. History has shown that conflicts do not wait upon material readiness. Forces must be operational, even during transition and transformation.

FCS and JTRS

Information dominance and operation of a data-intensive system of systems are paramount. A standard software-defined communications system that lends itself to applications in many forms is a factor in virtually all wireless applications. The FCS challenge is thus reduced to one of developing integrated hierarchical data systems. JTRS—as the established RF communications network—meets this challenge. The commonality of radio operations will facilitate standardized man-machine interfaces, thus enhancing operator effectiveness while reducing unique training requirements.

For warfighter logistics, the JTRS concept is a bonus. The individual systems that constitute the FCS will share software and some common modules. Operational programs will be common, and standard mission/data loaders will be used wherever possible. Software changes can be accomplished using standard, easily fielded systems, and in many cases, software upgrades can be made directly over the air using radio transmissions.

The feature that makes FCS more than just the next Army system is the capability, through JTRS, to share data with the operating forces from the other services. That capability is the core of DoD's concept of a global information grid. As JTRS makes RF internetworking a reality, newer data systems solve the problem of data

interoperability and data hierarchies, such that needed data are timely and reach the right people securely and clearly, enabling coordinated battle maneuvers.

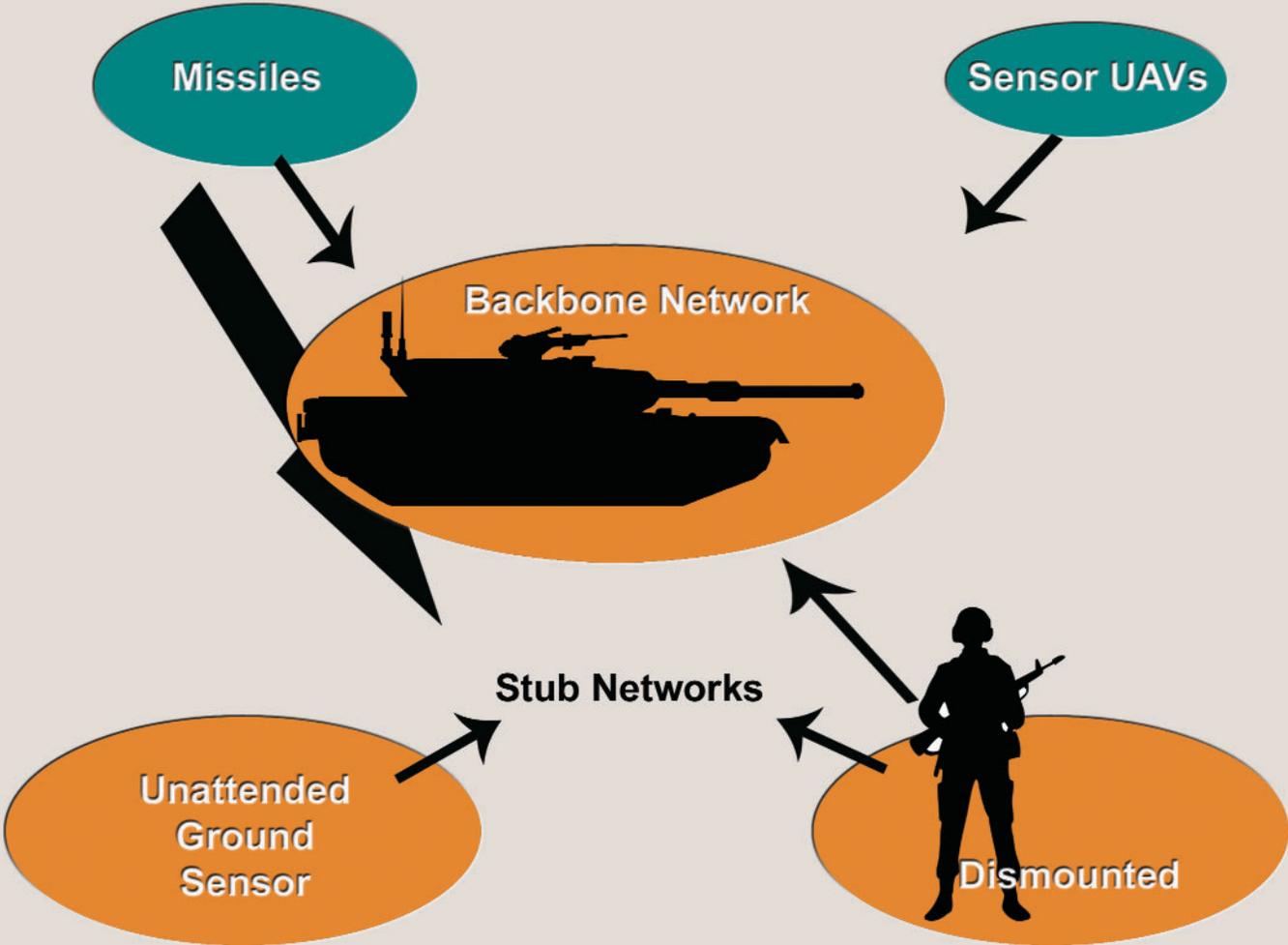
Establishing a mobile ad hoc network using JTRS will allow the military to adapt as new forces arrive at or withdraw from the battlefield. No longer will these forces be constrained by fixed networks of communications planned and programmed long before they are needed in the operational environment, which inevitably is far different from that planned. Common networking standards and protocols will enable a robust battle-space network and effective intercommunications despite ever-changing conditions and combat scenarios. The problem becomes one of coordination, using state-of-the-art automated tools, which themselves utilize the communications infrastructure.

"Jointness" is now the name of the game in warfare. With the passing of the ponderous cold war defense strategies, light, fast, adaptive, and robust information-intensive operations are needed to meet the rapidly changing conflicts our military must face. The FCS is the Army's answer to the challenge. And JTRS will be there with standardized, flexible communications.

About the Author

Gerald Doempke is a senior research analyst at Analytic Services, Inc., an independent, not-for-profit public-service research institute. He has extensive experience as a project manager and consulting engineer to various DoD components and NASA. He currently supports the JTRS Program Office. ✨

A Network of Networks



Future Army Roles Depend on Standardization

By Gerald Doempke

The Goldwater–Nichols Department of Defense Reorganization Act of 1986 codified a trend in military thinking that had been evolving since World War II. That thinking has increasingly acknowledged the military and political benefits of having forces from each of the services operating together as a joint force. Now, the concept of “jointness” extends beyond the previous service-based concepts of warfare.

Domain Focus

Traditionally, each military service has been focused on optimizing effectiveness in a predominant domain—land, sea, or air. However, today’s joint commanders no longer depend on these separate domain entities operating in unison. Instead, they depend on forces made up of diverse units from the various services, with the units integrated according to military benefit, rather than service hierarchy. The services may constitute and support the operational units, but the joint commander makes the decisions about those units’ deployment and employment. Indeed, training is now increasingly accomplished at joint facilities and in joint exercises. The same holds true for international allied and coalition forces, with the added complications of political and individual national security.

The U.S. Army is the predominant ground warfare service in the world, but it recognizes that it no longer operates as a separate entity with hierarchical interfaces with other services. Now, Army units are the core of fo-

cused operational units formed for transitory military objectives. When an objective is achieved, a different mix of operational units may be formed to meet a different objective in a new environment. Such conglomerations of diverse forces cannot operate effectively unless they can interoperate on all levels, from command and control down to equipment.

Each military service needs to concentrate on the equipment, systems, and procedures for the domain in which they predominately operate. At the same time, the services must ensure that their equipment, systems, and procedures are interoperable to enable joint capability. Interoperability depends upon joint standardization.

Wise Standardization

Wise application of standardization for interoperability means focusing on meeting joint operational requirements, not on optimizing individual systems or units or on developing one-size-fits-all solutions. For example, in command and control, it is unrealistic to as-

sume that one operational data system can be developed to work optimally for each domain. Nevertheless, the use of standardized data, coupled with a seamless information grid, can enable units to operate effectively, while also enabling the various commanders to share operational information.

Similarly, the use of a basic standard platform that each service can then optimize for its own operations will enable each service to meet its particular needs, while also enabling them to use each other's platform. For example, the Army is the predominant force in rotary wing and ground vehicle systems. However, the use of the same basic platforms across the services would have numerous benefits:

- Operational commanders could share logistics support across the battlefield, rather than being limited by individual depots and logistics chains.
- Helicopters could divert to the nearest airfield for engine, airframe, and flight avionics repairs.
- An Army unit needing air support could send target information directly to Navy or Air Force aircraft assigned to support them, without the delay of relays through voice command posts.

Such total interoperability would enable the theater commander to focus on maneuvers and firepower, without having to deal with the limi-

tations imposed by current service incompatibilities.

Integrated Approach

Developing a family of related systems, rather than separate, similar systems, has obvious economic advantages, but the real payoff is in the operational advantages. DoD can reap those benefits only if the standards are applied using an integrated, tailored, and realistic approach. To foster joint operations, every element of the military services must be involved in the development endeavor from the start.

Engineering standardization to achieve pure economic or performance goals is not the real driver. To put it another way, developing standards that do not enhance battlefield effectiveness is an exercise in futility. The battlefield is the true test, and experience has shown that effectiveness and efficiency are not forced upon successful winning military units, but are intrinsic values. The rigors of maneuver warfare leave little tolerance for long, overburdened logistics lines. Ineffective systems are soon jettisoned or used as ad hoc extra armor.

The Army, the backbone of the ground war, leads the way. Army infrastructure is pointed toward joint effectiveness, and many Army commands have already become the core of joint agencies and commands. "The Army-of-One" is not just a "buzz slogan"; it reflects how the Army is aimed to support joint standards and joint pro-

grams. The sights are refocused from the legacy of how to make the Army more effective as an entity, to how to make the Army most effective in its vital role in joint warfare.

About the Author

Gerald Doempke is a senior research analyst at Analytic Services, Inc., an independent, not-for-profit public-service research institute. He has extensive experience as a project manager and consulting engineer to various DoD components, and he has served as a consultant to NASA Headquarters for its agency-wide standardization program. ✨

New Multivolt IR-Secure Blackout Drive Lamp Significantly Reduces Logistics Footprint by Standardization

By Martin Snyder

The U.S. Army Tank-automotive and Armaments Command (TACOM), Warren, MI, has solved the Army's problems with the blackout (BO) drive lamp systems used on military ground vehicles by developing a standardized replacement for the failure-prone incandescent lamps. The new lamps use light-emitting diodes (LEDs) in a system that is infrared (IR) secure, multivolt, durable, cost-effective, and compatible across numerous Army vehicle systems.

A new military BO drive lamp had been needed for at least 20 years. The 24-volt incandescent lamp filament used in military blackout lamps for generations was a chronic problem. A 24-volt lamp filament must be much thinner in cross section than the equivalent (in power) 12-volt lamps found on automobiles. This thinning makes the lamp more susceptible to vibration failure, a problem inherent to the design of military vehicles and the various types of terrain they traverse. Recent improvements in LED technology gave the Army an opportunity to correct the vibration failure problem.

The second-generation LEDs chosen for this project provide more powerful outputs and increased wavelength variety (colors), making it possible to design a new, cost-effective, radically improved, IR secure, BO drive lamp assembly. Using the improved LEDs also enables a multivolt solution suitable both for retrofitting and use in current production. Not only does the new BO drive lamp operate on both 12-volt and 24-volt systems, it fits everything the Army manages. It can be used to retrofit all present and past tactical wheeled vehicle systems, all commercial construction equipment with BO lamps, and some major combat vehicle assets, thus fulfilling one of the primary goals of this project: standardization across platforms.

In the past, accidents resulted from the poor visibility provided by the frequently unreliable and failure-prone incandescent blackout lamps. The safety of our soldiers, both in peacetime and in conflict, was at stake when TACOM initiated the development of the all-LED solution for blackout lighting. Pledging that our soldiers would get the best BO lamp assembly that technology could provide, TACOM provided both engineering and testing guidance throughout the development stages, specifying performance parameters and establishing limits and testing requirements. Throughout development, the goal of soldier safety was in the forefront as we worked with the contractor and soldiers to produce a system that could provide sufficient light for soldiers driving vehicles in blackout conditions.



To provide guidance and testing parameters to the manufacturer for all of the BO lamp designs, TACOM selected NATO Standardization Agreement 4381, which allows a range of light outputs and would ensure NATO interoperability. The manufacturer then produced four different prototype lamps, with increasingly higher light output, that would meet the standard. These new lamps involve a delicate balance of minimal detection, IR security, and driver forward visibility. Successful implementation of our lighting goals in the new lamp design was supported by the test data gathered at three different sites: the contractor's facility, an independent test facility, and Aberdeen Proving Ground, MD.

Thirty first-run production BO drive lamps were put on Palletized Load System (PLS) trucks for soldier evaluation. TACOM briefed the soldier drivers on the new lighting design improvements and provided a survey questionnaire for them to complete after their test drives. For several nights, the soldiers drove the PLS trucks over the blackout course using the new BO drive lamps. The response on the survey questionnaires was unanimous: the soldiers thanked the developers for finally putting enough light out in front of their military vehicles in blackout mode so that they could adequately see the terrain in front of them.

In addition to the BO drive lamp, three other external lighting and signaling lamps have been made multivolt, all-LED devices. All four newly developed LED external lighting assemblies have been inserted, by engineering change proposal, in current production of the PLS, Heavy Expanded Mobility Tactical Truck, and Heavy Equipment Transporter System. Also, program managers for the HMMWV (High Mobility Multipurpose

Wheeled Vehicle) and the FMTV (Family of Medium Tactical Vehicles) have made a commitment to use the new external lighting assemblies on their future production vehicles.

The new LED assemblies offer attractive long-term cost-saving features: 12- or 24-volt performance, universal vehicle usage, NATO interoperability, and IR security. Moreover, the LED lighting assemblies and replacement lamps are less costly to procure than the old lamps, and their 100,000-hour life contributes to system life-cycle cost savings. These factors result in greater affordability of blackout lamp systems, vastly increased reliability, reduced logistics footprint, and improved readiness of vehicle systems. These benefits can be shared by the Army with other military services—for example, the Marine Corps—that use similarly equipped vehicles in their fleets.

About the Author

Martin Snyder is an electrical engineer at the Army's Tank-automotive and Armaments Command, Warren, MI, working in Team Power. He received the 2002 Defense Standardization Program Distinguished Achievement Award for leading the development of the new blackout lamps. Currently, he is involved in an effort to solve the problem of high-vibration premature failure of military incandescent driving headlamps. ✨

Testing Textiles—Lab Receives ISO Accreditation

By Missy Uhlman

In November 2002, the Textile Performance Testing Laboratory at the U.S. Army Natick Soldier Center in Natick, MA, received ISO 9001:2000 and ISO 17025:1999 accreditation for 53 tests, making it the sole lab at the Center to achieve this distinction.

This lab is equipped to perform more than 60 tests using standard test methodologies from the American Association of Textile Chemists and Colorists (AATCC) and the American Society for Testing and Materials (ASTM). When necessary, the lab creates unique tests to meet customers'

needs. Customers from across the military, government, and industry take advantage of the expertise of the textile technologists operating an array of equipment in evaluating standard textiles or materials in research and development.



Shade Room

parachute fabrics and characterizing thermal insulation of clothing. Colorfastness of dyes is determined by accelerated tests evaluating resistance to fading; weathering; and color transfer by rubbing, bleaching, perspiration, washing, and dry-cleaning.

The lab also evaluates flammability properties of materials, such as charring, melting, dripping, and degree of burn with the vertical flame test or thermal protection performance test.

Six machines are available to test tensile strength, pulling material with force ranging from less than an ounce to more than 100,000 pounds. Similarly, a pendulum-action machine applies up to 56 pounds of force to measure tear strength. Other machines rub samples of fabric using as many as five different mechanical methods to measure abrasion and pilling to enable comparisons of durability. Water repellency and resistance tests help find the appropriate materials for outer garments and shelters. A hydrostatic pressure tester measures water penetration, while spray testing measures beading and surface wetting.

Air permeability tests measure the airflow through a fabric, which is critical for testing

The appropriate test methodologies are used to test materials. However, in those rare cases when no methodology has been developed to predict a particular aspect of performance, the lab develops one:

- The lab developed a test 22 years ago to screen the properties of chemical-biological protective clothing before testing the garment with live agents, saving time and money. The lab also has the ability to and evaluates the shelf-life properties of chemical-biological protective garments.
- More recently, the lab was tasked with developing a cleaning procedure to disinfect soldiers' parachutes that might be contaminated with hoof-and-mouth disease during training in Europe. This was particularly critical because most of the recommended procedures tend to adversely affect the tensile properties of the textile material.
- Six years ago, the technologists found that the black color in the Extreme Cold Weather Clothing System was being completely removed with no way to predict why this was happening. The lab then created the "bean bag" test to check the durability of black color used in the woodland print pattern of all nylon-based materials.

For military products already in the system at Defense Supply Center-Philadelphia, technologists are called to certify government contract materials, provide technical support, and identify alternative materials when needed. Technologists also interpret and analyze data and determine its effect on item serviceability. They support the quality control of Army clothing and accessories and provide textile testing services for private entities. Socks, underwear, battle dress uniforms, Class A dress



ISO Team



Flame Test



Instron

uniforms, rain jackets, and fabrics used in footwear are among the standard items tested and evaluated.

Beyond physical and chemical properties of materials, the lab studies the qualities that affect appearance, such as shrinkage, elongation, smoothness, and crease retention. Seams and overall appearance of uniforms after multiple washings are also evaluated.

An upgraded shade room with improved lighting enables technologists to detect visual differences in fabrics and, therefore, ensure uniformity in color among different manufacturers. The room's new spectrophotometer has more than double the range of the old model for measuring near-infrared properties of camouflage clothing. The equipment is being used to develop new specifications to make uniforms undetectable by people wearing night vision goggles.

The lab's technologists participate in AATCC and ASTM committees to ensure that the textile facility stays updated on the latest developments in test methodology. Their commitment and dedication to providing the lab's customers with professional service and accurate quality testing/data and to meeting target schedules are clearly delineated in the laboratory's quality policy.

About the Author

Missy Uhlman is a clothing and individual equipment specialist at RDECOM (formally known as SBCCOM), Natick Soldier Center in Natick, MA. She has worked in the Individual Protection Directorate in the Standardization and Engineering Support area for 10 of her 15 years with the government. ✨

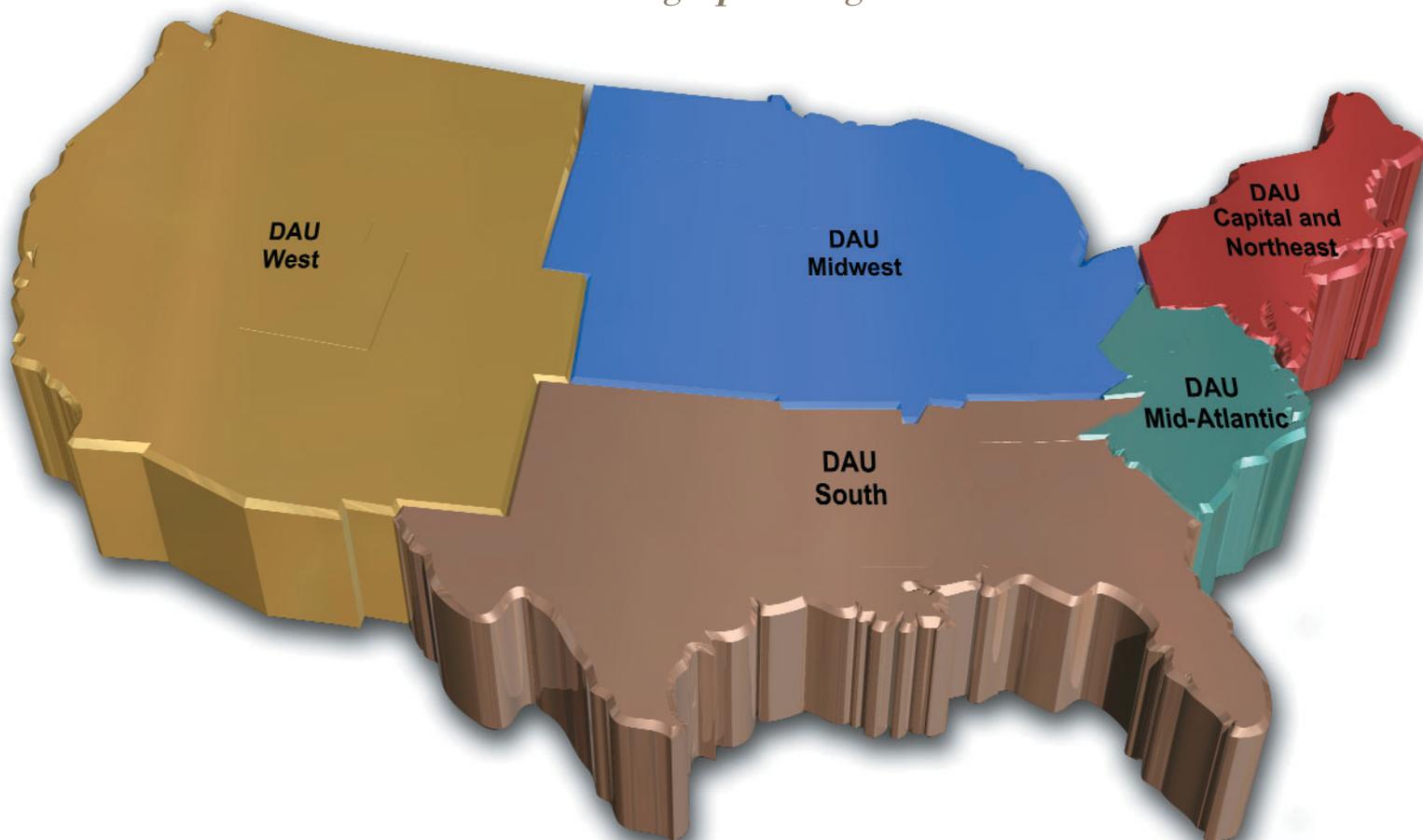
Defense Acquisition University and Support to the Defense Standardization Program

By Jim Weitzner

The Defense Acquisition University (DAU) has been undergoing a transformation over the last year and a half. Under the leadership of President Frank Anderson, the DAU has made a concerted effort to align its mission with the goals of the Under Secretary of Defense for Acquisition, Technology, and Logistics (AT&L) and to provide the AT&L community with the training and other products and services that will enable smart business decisions in providing timely and affordable capabilities to the warfighter.

To accomplish this new mission, the DAU has reorganized to collocate the acquisition schoolhouse with the AT&L workforce. This has resulted in the creation of five geographic regions: Capital and Northeast, Mid-Atlantic, South, Midwest, and West.

DAU Geographic Regions



Each of these regions provides the full spectrum of products and services necessary to support the AT&L community in that region. Among the products and services provided by the DAU are Defense Acquisition Workforce Improvement Act (DAWIA) training, performance support, continuous learning, knowledge sharing, and strategic partnerships.

DAWIA Training

DAWIA training is provided in two main categories:

- **Certification training.** Certification training consists of courses that are mandatory for Level I, Level II, or Level III certification in the 13 acquisition career fields.
- **Assignment-specific training.** Assignment-specific training consists of specialty courses that are necessary for some, but not all, members of an acquisition career field to do their jobs effectively.

These DAU courses—which may be offered as distance learning, classroom learning, or a combination—are available to defense acquisition workforce personnel based on authorization by the Director, Acquisition Career Management (DACM), of their service or agency. Non-defense acquisition workforce personnel are permitted to attend DAU courses if space is available. Individuals can apply to attend DAU classes by accessing the DAU home page (www.dau.mil) and clicking the “Enroll Here” link, then fol-

lowing the instructions appropriate to the category of student. The scheduled offerings for these classes can also be found at the DAU home page.

Classroom offerings are provided in either a resident (at a DAU facility) or on-site (at a non-DAU facility) mode. To schedule an offering of a DAU course at your facility, you should work through your training office and DACM to ascertain the need for the course and the availability of a suitable classroom. Out-of-cycle offerings (classes added to the schedule after the DAU schedule is finalized) may require host funding for student materials and for instructor travel and per diem.

The DAU currently offers five assignment-specific courses that are sponsored by the Defense Standardization Program Office.

Performance Support

Under the umbrella of performance support, the DAU offers a variety of fee-for-service products and services such as rapid deployment training, targeted training programs, course development, consulting, and coaching and mentoring:

- Rapid deployment training is the approach used by the DAU to quickly disseminate information regarding major new acquisition policies and initiatives to the AT&L workforce. Each rapid deployment training session typically lasts about 2 to 4 hours and provides an overview of the topic

and a question-and-answer period to a relatively large audience.

- Targeted training programs consist of courses that are not a part of the DAU’s DAWIA curriculum. These courses provide specialized training on such topics as the roles and responsibilities of a contracting officer’s representative, risk management, and performance-based services acquisition. Targeted training courses are typically 2 to 5 days long.
- The DAU will develop a unique course in response to a customer’s request. In addition, the DAU can tailor existing courses or otherwise adapt them to fit the specific needs of a customer. These unique or tailored courses are not a regular part of the DAU curriculum and as such do not appear on the DAU schedule of class offerings.
- Consulting and coaching/mentoring are similar in that the DAU provides direct support to a program management office or other defense acquisition activity. In the consulting role, the DAU provides analyses and other acquisition-support activities on behalf of the customer. In the coaching/mentoring role, the DAU serves as a sounding board or sanity check for the activity performing the acquisition-related work. The DAU may suggest alternative

Standardization-Related DAU Courses

Course	Title	Who Should Attend
PQM 103	Defense Specification Management Course	DoD acquisition personnel and others actively involved in the development or management of specifications, standards, handbooks, commercial item descriptions, or nongovernment standards
PQM 104	Specification Selection and Application Course	Personnel involved in setting requirements and making standardization decisions and personnel who use specifications and standards but are not actively involved in developing or managing requirements documentation
PQM 202	Commercial and Nondevelopmental Item Acquisition Course for Technical Personnel	Acquisition personnel in program management; systems engineering; acquisition logistics; test and evaluation; production, quality, and manufacturing; and related career fields involved in planning and managing the acquisition of commercial and nondevelopmental items
PQM 203	Preparation of Commercial Item Descriptions for Engineering and Technical Personnel	Acquisition personnel in program management; systems engineering; acquisition logistics; test and evaluation; production, quality, and manufacturing; and related career fields involved in generating product descriptions for commercial and nondevelopmental items and personnel involved in determining the commerciality of an item
PQM 212	Market Research for Engineering and Technical Personnel	Acquisition personnel in program management; systems engineering; acquisition logistics; test and evaluation; production, quality, and manufacturing; and related career fields involved in developing acquisition requirements, conducting tradeoff evaluations with users, or determining the commerciality of supplies or services

approaches or thought processes, but generally plays a passive role in the acquisition.

Performance support activities must be coordinated with the Associate Dean for Outreach for the DAU region responsible for the customer location so that costs can be determined and services scheduled based on the availability of the appropriate DAU personnel. The points of contact for performance support activities at each DAU region are as follows:

■ *Capital and Northeast:*

Norm McDaniel
703-805-4985 or
norman.mcdaniel@dau.mil

■ *Mid-Atlantic:*

Mark Fantasia
240-895-7346 or
mark.fantasia@dau.mil

■ *Midwest:*

Travis Stewart
937-255-4915 (ext. 3339) or
travis.stewart@dau.mil

■ *South:*

Jerry Davis
256-722-1014 or
jerry.davis@dau.mil

■ *West:*

Kevin Carman
619-524-4811 or
kevin.carman@dau.mil.

Continuous Learning

As a part of the commitment to the AT&L workforce, the DAU maintains a Continuous Learning Center (CLC) that provides a single portal for access

to continuous learning opportunities, performance support, and information. The CLC provide 53 acquisition-related modules and has been accessed by more than 100,000 registered users. These modules provide the AT&L community with an opportunity to maintain currency in a career field, learn about new policies and initiatives, access new information relative to job performance, and comply with the DAWIA requirement to complete 80 Continuous Learning Points every 2 years.

In addition to the continuous learning training provided by these modules, the CLC also provides a conference center and a reference library. The conference center provides a list of acquisition-related conferences and professional societies that may be of interest to members of the AT&L community.

Although the CLC is geared toward the needs of the AT&L community, it is also accessible to non-AT&L users. The CLC can be accessed through the DAU home page.

Knowledge Sharing

The DAU's knowledge sharing program provides the AT&L community, and others, access to the Acquisition, Technology, and Logistics Knowledge Sharing System (AKSS); a variety of communities of practice (CoPs); and the Ask-a-Professor program.

AKSS, which evolved from the old Defense Acquisition Deskbook, is

available online (akss.dau.mil) or on CD and is a valuable resource for acquisition-related information. For example, AKSS provides access to reference information, CoPs, glossaries and acronyms, other AT&L websites), news and publications, Ask a Professor, forms, education and training, software tools, acquisition events, and guidebooks and handbooks. AKSS also provides access to the legacy Deskbook (the Deskbook is no longer being maintained and no longer contains current information; it was last updated in February 2002).

AKSS's reference information includes policy documents (grouped by organization, career fields, and special topics), DoD 5000 Series, and acquisition regulation references (including the Federal Acquisition Regulation and the Defense Federal Acquisition Regulation Supplement).

The community areas option has four sections: acquisition community, service and other communities, community resource center, and other knowledge sources. Acquisition CoPs exist for such functional areas as program management, logistics, systems engineering, contract management, risk management, and facilities engineering. Each CoP provides specialized information on a broad spectrum of issues and challenges related to its defined functional area and serves as a forum for acquisition professionals to discuss relevant issues. The CoPs are accessible through the DAU home

page. Access to the information contained in the CoPs is open; however, contributors and participants in the forums must join that CoP. Standardization is one of the main topics contained in the systems engineering CoP for those who wish to contribute and share their expertise.

The Ask-a-Professor program is a DoD resource for obtaining answers to acquisition and logistics questions concerning policies and practices. Most questions are answered within 10 days by a member of the DAU faculty. Questions and answers are maintained for future reference in the following categories: acquisition logistics; acquisition policy; architect-engineer and construction contracting; business, cost estimating; business, cost financial management; communication/computer systems acquisition; contract audits/cost accounting standards; contract law; contracting; engineering and technology; environment, safety and occupational health; government-wide purchasing card; international/foreign military sales; logistics/sustainment; manufacturing, production, quality assurance; post-award procurement and contracting; pre-award procurement and contracting; program management; security; systems planning, research development, and engineering; and test and evaluation.

Strategic Partnerships

The DAU has entered into strategic partnerships with a variety of educa-

tional and training institutions that offer courses in the 13 career fields involved in defense acquisition. DAU seeks to identify course offerings that are equivalent to DAU courses and can be used to meet DAWIA requirements. The overall objective is to maximize the training and education opportunities of the acquisition workforce.

The DAU provides an interactive web-based database for DAU strategic partnerships to track and enable customers, stakeholders, and partners to query the current list of DAU partnerships. Current (and prospective) DAU students can search the file for partners in their area offering credits for DAU courses. This allows students to obtain necessary degrees for career advancement at institutions near their home station, enhancing their quality of life. Prospective partners can search the file for current DAU partners with which they have already worked. This web-based database can be accessed through the DAU home page (www.dau.mil).

About the Author

Jim Weitzner is a professor at the DAU Mid-Atlantic Patuxent River site and is the course manager for the DAU courses sponsored by the Defense Standardization Program Office. He can be contacted at 240-895-7326 or james.weitzner@dau.mil✱



IETM

Interactive Electronic Technical Manuals

A Tool for Maintenance in the 21st Century

By Rebecca Armstrong

For several years now, the Army has been producing interactive electronic technical manuals (IETMs), enabling soldiers and maintainers to quickly obtain the technical information they need to repair their equipment. However, these IETMs are not all alike: they don't all have the same look and feel, nor do they operate the same. Also, in many cases, the IETMs are not interoperable or reusable. As a result, not only do soldiers have to learn how to perform the actual maintenance procedures, but they also have to learn how to use each IETM and all of its unique features. This has created a training and usability problem and is costly.

Currently, IETMs vary because no standard exists for preparing them. Instead, the current standards for preparing Army technical manuals (TMs)—MIL-STD-40051 and MIL-STD-2361—are still focused on paper technical manuals.

To address the problem, the U.S. Army Materiel Command's Logistics Support Activity (LOGSA), in its roles as the Army's responsible organization for IETMs and the preparing activity for MIL-STD-40051, is spearheading an effort to standardize the way Army IETMs are developed. LOGSA is partnering with the Army Publishing Directorate (the preparing activity for MIL-STD-2361), the TM

developers at the major subordinate commands, the trainers, and the soldiers. LOGSA is also working with the other military services to encourage standardization across DoD.

A key part of LOGSA's effort is to update MIL-STD-40051 and MIL-STD-2361 and their associated handbooks—MIL-HDBK-1222 and MIL-HDBK-2361, respectively—to reflect the requirements for IETMs:

- MIL-STD-40051 contains content and some format requirements for TMs; it also has an associated Extensible Markup Language (XML) document type definition

(DTD) that reflects the standard's requirements. MIL-HDBK-1222 provides style and format guidance for developing Army TMs.

- MIL-STD-2361 provides pointers to MIL-STD-40051 and its DTD, as well as pointers to training and administrative publications and their DTDs. MIL-HDBK-2361 provides implementation guidance for the MIL-STD-2361 DTDs.

LOGSA and its partners are adding requirements for IETM functionality, including such things as

- point-and-click parts ordering,
- intrusive diagnostics and prognostics,
- print on demand,
- links to other systems and databases,
- maintenance data collection,
- logins,
- linking and navigation, and
- filtering.

To make the updated MIL-STD-40051 easy for TM developers to use, LOGSA and its partners are reorganizing the specification into two parts. One part will contain the requirements for paper-based manuals for those systems still requiring paper, and the other part will contain the requirements for IETMs. LOGSA will also update the associated DTD to enable all of the functionality

required by MIL-STD-40051.

MIL-STD-2361 is being updated to move to XML and to point to updated MIL-STD-40051. MIL-HDBK-2361 will be updated to provide implementation guidance for using DTD associated with MIL-STD-40051.

With IETMs developed to MIL-STD-40051 and its DTD, soldiers and maintainers will be able to

- receive training once on the use of an IETM and then apply that knowledge to any other IETM;
- perform diagnostics faster and more efficiently, enabling them to identify and fix the problems faster;
- monitor the health of their equipment if it has the necessary sensors;
- link to logistics systems and databases;
- collect maintenance data and upload the data to the logistics systems, eliminating paper forms and the need to key data into the other systems;
- quickly obtain needed data; and
- acquire parts more quickly, expediting repairs.

In sum, by using standardized IETMs developed in accordance with MIL-STD-40051 and MIL-STD-2361, soldiers will be able to get the

job done faster and better with fewer errors. Standardizing IETMs also benefits the TM developers. When the updated standards are used, TM developers will be able to share and reuse data. In other words, data can be developed once and reused in multiple weapons systems IETMs.

LOGSA and its partners expect to publish the updated MIL-STD-40051 and MIL-STD-2361, as well as their associated handbooks (MIL-HDBK-1222 and MIL-HDBK-2361), by March 2004. The updated DTD will be available in the Army SGML/XML registry and library at the same time.

IETMs are a valuable tool for Army maintainers. Standardizing them will enhance their value and save the Army time and money. The ultimate goal is to standardize IETMs across all of DoD. LOGSA's effort is a step in that direction.

About the Author

Rebecca Armstrong is an electronic publications specialist at the U.S. Army Materiel Command's Logistics Support Activity. She also is the lead action officer for technical manual specifications and standards. Ms. Armstrong has 14 years of experience in standardization and technical manual development. She received the 1996 Army Individual Defense Standardization Program Award for Outstanding Performance. ✨

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Keeping Our Best Army Coalition Relevant by Transforming Together

By Robert Maginnis, Lt. Col., U.S. Army (Retired)

The U.S. Army's most dependable allies in the global war on terrorism are also members of a 53-year-old standardization program known as ABCA (armies of America, Britain, Canada and Australia, with New Zealand as an associate member). Like our armed forces, the ABCA program is undergoing a radical transformation to remain relevant and responsive by focusing on combat interoperability.

The ABCA armies have shared the hardships and victories in far-flung countries like Somalia and Kosovo. British and Australian forces were integral to Operation Iraqi Freedom, and Canadian and New Zealand soldiers shared the burdens in Operation Enduring Freedom. As the United States continues to prosecute the war on terrorism, interoperability, especially among these most dependable allies, is paramount.

Last year, anticipating the growing importance and demands for coalition operations, ABCA leaders decided that the standardization program needed a radical transformation to remain relevant. On May 2, 2003, a year-long program review was completed, and a number of recommendations were approved by the program's leaders, which included U.S. Army Vice Chief of Staff General John Keane. ABCA's senior leaders launched a transformation effort that began this summer with a new vision, mission, goals, structures, and processes.

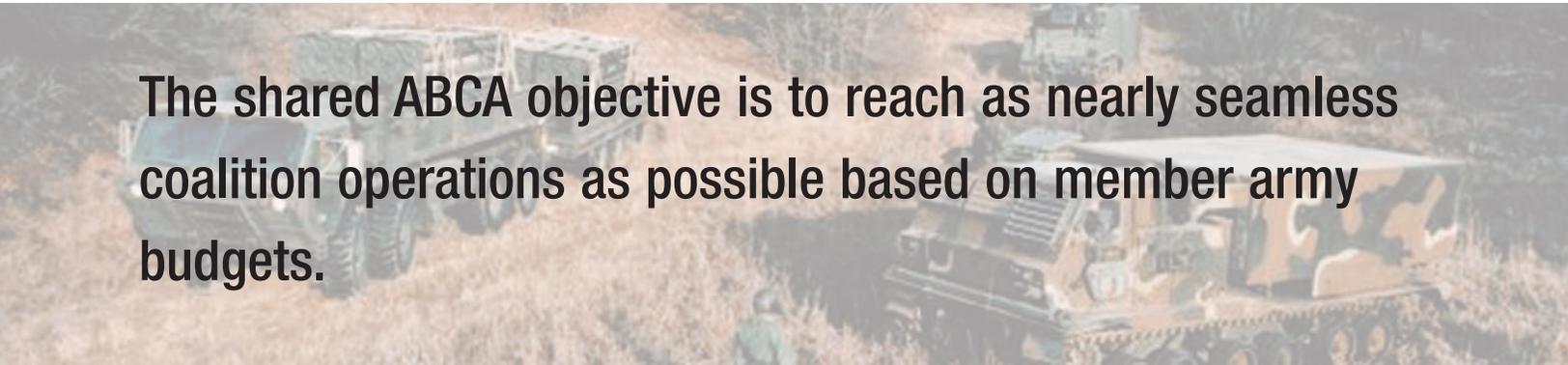
The new vision focuses like a laser on the effective integration of member armies' capabilities in a joint environment. The new mission seeks to optimize interoperability through collaboration and standardization. The goals are ambitious: relevance, responsiveness, standardization, mutual understanding, knowledge sharing, efficiency, and effectiveness.

The ABCA program was initiated after World War II by General of the Army Dwight D. Eisenhower and Field Marshal Bernard Montgomery, chief of the British Imperial General Staff. It was intended to sustain and build on the close cooperation enjoyed by the Allies during World War II. In 1947, Eisenhower and Montgomery published a "Plan to Effect Standardization" among the origi-

nal three member armies: the United States, the United Kingdom, and Canada. Australia was added to the program in 1964, and New Zealand became an associate member in 1965.

During ABCA's first 50 years, it issued thousands of standardization agreements designed to align members' doctrine and equipment. ABCA's products have helped enhance mutual understanding among our armies and increased effectiveness across hundreds of shared combat, contingency, and training experiences.

Today, the retooling of ABCA is based on the leadership's vision that, together, member armies must transform into forces that are lighter, more lethal, and quicker and that have shed their Cold War thinking.



The shared ABCA objective is to reach as nearly seamless coalition operations as possible based on member army budgets.

Making our Army more interoperable with key allies is part of the new reality in today's asymmetric global battlefield.

Transforming and simultaneously building coalition interoperability is necessary. In Iraq, ABCA members were interoperable primarily because of shared procedural measures, the use of liaison officers, and doctrinal compatibility. Much remains to be done, especially as our armies transform technically and doctrinally. The shared ABCA objective is to reach as nearly seamless coalition operations as possible based on member army budgets.

At ABCA's 50th anniversary celebration, General Shinseki emphasized the need for our armies to transform together. He noted, "Coalitions remain the essential framework for the application of military force." This viewpoint echoes former British Prime Minister Winston Churchill's pragmatic perspective about allied operations: "There is only one thing worse than fighting with allies; and that is fighting without them."

Former British Army Chief General Sir Roger Wheeler was more specific about what makes an effective coalition: "We will have to think through very carefully how we organize and fight on future battlefields, and it will be essential that we do this together with our allies." He warns that "if we get too far out of synch" our armies will "not function effectively" together. That is what ABCA is seeking to prevent, and promoting interoperability through standardization is key.

ABCA recently completed a yearlong, top-to-bottom program review that resulted in radical proposals that will help the armies close their interoperability gaps. ABCA recently demonstrated a new and

necessary responsiveness to emerging requirements. Last fall, ABCA assembled a cadre of urban operations experts to draft coalition procedures before our armies joined combat in Iraqi cities. The procedure became a chapter in ABCA's Coalition Operations Handbook, which addresses topics like forming effective coalitions, logistics, communications, and operations. The program's quick response prior to operations in Iraq—3 weeks—is indicative of the fact that ABCA is an integral and critical part of war planning.

The new ABCA will focus on the full spectrum of coalition land operations in a joint environment and will prioritize program resources around identified interoperability gaps, particularly regarding combat operating systems. A future concepts capability group will work with member armies to identify interoperability gaps and other capability groups formed around the battlefield operating systems (BOS) that will work to close those gaps.

Historically, ABCA has been a tactical-level standardization program that produced agreements promoting interchangeable or common equipment and doctrine. Now, with the armies being transformed from without and within, in the midst of an incredibly diverse landscape of missions, ABCA is incorporating lessons learned from ongoing combat and operational coalition missions.

One exciting aspect of ABCA's forward-looking initiatives is the addition of standardization representatives at the U.S. Army's Objective Force Task Force Office, part of the U.S. Army's Transformation campaign plan. ABCA officers will work closely with our forward-thinking transformers to brainstorm and exchange ideas from the embryonic concept development stage through experimentation to doctrine and equipment fielding.

Together, we must become more interoperable. As the demands on our armed forces increase across the globe, we become more dependent for mutual security. Transforming while fighting the global war on terror is not just a challenge. It is a necessity. We must capitalize on limited resources to stretch them across the landscape of dangers. We must encourage greater cooperation with important allies.

True interoperability is imperative. That is why the ABCA program, which is changing to remain relevant, is so very significant.

About the Author

Robert Maginnis is a senior systems analyst with BCP International Ltd., based in Alexandria, VA. He is also a Fox News military analyst. ✨



Improving Army Management of International Standardization

By David Diamond and George Sinks

The Changing Environment

The environment for the development of international standardization agreements (ISAs), particularly those related to system acquisition, has changed dramatically within the last decade. Traditionally, acquisition-related ISAs have been implemented through requirements documents that are tied to clear milestones and documents in the multiyear system acquisition process. Recently, however, DoD has adopted flexible, streamlined acquisition procedures that encourage more rapid “spiral” development in a system-of-systems environment. The implications of this change for international standardization remain to be seen, but it could increase the time lag between system development and promulgation of related ISAs.

At the same time, two of the most important international standardization organizations in which the Army participates—NATO and ABCA (armies of America, Britain, Canada, and Australia, with New Zealand as an associate member)—are undergoing major organizational changes. NATO’s main standardization body, the NATO Standardization Agency (NSA), has cut its committee structure by 30 percent, and NATO as a whole is attempting to define a new role for standardization within the context of NATO transformation. The ABCA program is in the midst of a similar strategic reorganization, which will include rethinking the form and aim of ABCA standardization agreements. In the long

run, these changes should increase organizational efficiency and focus standardization efforts, both internally and abroad. A short-term consequence, however, has been the reassignment or retirement of many experienced technical specialists who have traditionally led the Army's international standardization efforts.

Another challenge for Army management of ISAs stems from the existence of multiple NATO and U.S. Army focal points for developing, ratifying, and implementing NATO standardization agreements (STANAGs). Ratification draft STANAGs dealing with operational and procedural standards that have been developed by the NSA Army Board, supported by the NATO international military staff, are routed through the U.S. delegate to the NSA to the Army technical point of contact for technical review and then to the Office of the Army G-3 for policy coordination. Materiel-related STANAGs, on the other hand, are developed by NAAG Land Groups, supported by the NATO international staff, and routed through the U.S. mission to NATO to the Army technical point of contact (usually the U.S. Head of Delegation) for a final technical review and then to the Assistant Secretary of the Army for Acquisition, Logistics and Technology—ASA(ALT)—for policy coordination.

All Army STANAGs are formally ratified by the Office of the Army G-3. Despite the differences between the two Army processes for STANAGs, many of the same stakeholders participate in both development processes and produce agreements that will ultimately serve the same clients—both the operational Army and the acquisition community. In addition to losing valuable collaboration opportunities during the STANAG development process, the existence of multiple policy review processes and focal points has re-

sulted in the proliferation of standardization libraries and databases within the Army and DoD, making it difficult for Army end users to gain total visibility of and access to the full spectrum of ratified ISAs.

Meeting the Challenge

To meet the challenge posed by the combination of external change, personnel turnover, and multiple review processes, the Army has begun a concerted effort to update its policies and procedures and to develop new management tools for ISAs. A crucial first step in this effort is the revision and reissuance of the capstone Army regulation for international military standardization, AR 34-1, now titled Multinational Force Compatibility, which was published on January 6, 2004. Among other things, the new AR 34-1 redefines and clarifies the responsibilities of key Army stakeholders, including the Office of the Army G-3; the Office of the ASA(ALT); the Army Materiel Command, which currently provides the Army Standardization Executive; and the major commands and agencies that develop ISAs. This regulation also implements the DoD 4120.24-M policy requirement for service standardization executive review of all acquisition-related STANAGs prior to ratification.

In addition to updating policies and responsibilities for developing and ratifying ISAs, the Army has recognized the need to organize and facilitate user access to ratified ISAs, which had existed until recently only in paper form. As part of its responsibilities as the Army's focal point for ISAs, the Office of the Army G-3 has developed an automated web-based Office of Record, International Standardization (ORISA) library tool that contains full-text copies of all Army-ratified ISAs and associated documents. ISAs stored in the ORISA tool include NATO STANAGs, ABCA

standards, and other NATO and ABCA publications. This tool will also enable users to search NATO metadata (from AAP-4), as well as the full text of the ISAs themselves.

ORISA is now in the final stages of development and will shortly be available to government personnel and authorized contractors through a secure Army website. The Army plans to supplement this tool with a web-based collaboration capability that will enable Army users to develop, revise, and coordinate ISAs online. While ORISA will serve as a valuable resource to these users, it is not intended to be a comprehensive repository of all NATO STANAGs. Instead, ORISA augments and may be linked to other automated tools available to Army personnel, which include the Defense Standardization Program's Program Managers Tool and its ASSIST—Acquisition Streamlining and Standardization Information System—database.

Lessons Learned

The development of the ORISA library tool has yielded many valuable lessons for managing ISAs and the standardization process. The first was the importance of optimizing management tools for their desired purpose. The Office of the Army G-3 has two ISA-related management responsibilities: manage the ratification review and staffing process for NSA-developed STANAGs, and act as the Army Office of Record for all Army-ratified ISAs. The second responsibility requires simply a library tool—optimized for cataloguing, searching, and retrieving ISAs—while the first requires a more powerful knowledge management tool that supports collaboration among multiple stakeholders in developing and reviewing draft ISAs. The latter type of system must allow users to post, update, and comment on draft ISAs and a wide range of supporting

documents. Recent experience in designing knowledge management systems suggests that it is difficult to optimize a system for both a library and collaboration function at the same time. The Army thus decided to develop the ORISA library tool first and design it to act solely as a document repository, optimized for search and retrieval speed and ease of use. The ORISA library contains only ratified, promulgated ISAs, ensuring that any document a user retrieves is a valid, final copy. Limiting the library's document population avoids lengthy searches through duplicative or different versions of draft ISAs or extraneous development-phase documents, which might slow down a search. The uniformity of the document population also results in complete and highly detailed metadata, allowing the user to perform very targeted and specific search functions.

The successful development of the automated ORISA library resulted in a highly effective tool for standardization personnel, but it also emphasized the need for the collaboration tool for ISA development. Although the development of this tool has just begun, several goals and requirements have become apparent:

- The need to facilitate collaboration on development of STANAG and ABCA standards among a broad mix of U.S. stakeholders, who include technical developers, Army HQ staff, and other service representatives.
- The importance of capturing comments and documentation from the collaboration process in a central knowledge management center. This will enable proponents to more easily track ISAs as they complete various stages in the development life cycle. This would also facilitate better

access control for draft ISAs that are not yet ready for general release.

- The desire to eliminate decentralized e-mail processing and staffing, both from a security and knowledge management standpoint.

The Army is exploring several off-the-shelf and custom development options for implementing this collaboration and knowledge management system. Off-the-shelf options include the Army Knowledge Online (AKO) portal and ASA(ALT)'s International Online (IOL) system for developing and tracking international agreements. AKO has the capability of setting up simple yet flexible online collaboration centers and has the advantage of wide acceptance among a large user base. IOL is a sophisticated, slightly more complex system used by the Army to develop and track international agreements for cooperative research, development, and acquisition. Both systems allow for secure web-based user access and are appropriate for secure, but unclassified applications.

The lessons learned from the Army's management of its international standardization activities are applicable to all DoD organizations involved in defense standardization. Fundamentally, effective management of the standardization process is enhanced by

- clear delineation of responsibilities among stakeholders,
- the availability of secure collaborative tools for developing standardization agreements, and
- easily accessible tools for searching and retrieving completed agreements.

This systematic approach will help working-level personnel increase productivity through

collaboration and information sharing in an environment of shrinking resources and manpower. As standardization activities occur in an increasingly compressed time frame and through non-traditional means, this approach will be even more important to timely, cost effective achievement of required levels of standardization.

About the Authors

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Mr. Diamond has assisted both the Office of the Army G-3 and the Office of the Deputy Assistant Secretary of the Army (Defense Exports and Cooperation) with developing policies, procedures, and tools for processing ISAs.

Mr. Sinks has worked with several offices within the Office of the Secretary of Defense and Army offices involved in international military standardization activities. Most recently, he assisted the Office of the Army G-3 with developing AR 34-1, the Army's capstone regulation on multinational force compatibility.✱

The Army and International Command, Control, Communications, and Computer Interoperability

By Kevin Gulick and Bill Owen

Military standards have not delivered the desired, widespread command, control, communications, and computer (C4) interoperability. In particular, many standards have not accomplished seamless interoperability between the United States and its allies or even among the U.S. military services.¹ Lessons learned from the recent Operation Enduring Freedom and Operation Iraqi Freedom reveal greater coalition interoperability is a necessity, and the Army must deliver that capability. The Chief of Staff of the Army, in *The Way Ahead: Relevant and Ready*, clearly established the challenge:



The goal of Army Transformation is to provide relevant and ready Current Forces and Future Forces organized, trained, and equipped for joint, interagency, and multinational full spectrum operations.

C4 interoperability challenges remain even among small, cohesive groups such as ABCA (armies of America, Britain, Canada, and Australia, with New Zealand as an associate member) whose members speak the same language. ABCA has been working on interoperability since World War II—more than 50 years—yet, it has not fully realized the goal of C4 interoperability among the member armies.

If the current standards aren't meeting the challenge, is there a new or better way to achieve interoperability? To provide some insight, we will first examine why standards haven't been fully effective in the past. Then we'll describe some of the recent Army innovations to develop practical solutions to the C4 interoperability dilemma.

Ineffective Standards

C4 interoperability standards have not been effective in the past for many reasons, but some of the key reasons are the disproportionate advance of technology among the nations and the uneven implementation of these advances into the national militaries. Technology has evolved at different rates among different partners, and these advances have not been applied uniformly to doctrine, organizations, or systems. Some loosely defined standards allow too much latitude for non-interoperable implementation, and, based on time or cost constraints, they are not strictly implemented. Some standards are ratified (agreed to), but never implemented (put into practice) within the national militaries. In some cases, military standards have not kept pace with rapid growth of technology.

However, technology and poorly implemented standards are not the only reasons for the lack of C4 interoperability. The Army's push to deliver greater capability has complicated its achieving interoperability with our allies. Automation and digitization have expanded the scope of interoperability; and acquisition reform has reduced the fielding cycle. That requires the implementation of standards on a compressed cycle, but this has not occurred due to the slow development and approval process.

Military requirements documents tend to categorize international interoperability performance parameters as "objective" (nice to have) rather than "threshold" (mandatory). Because of that categorization, systems developers postpone implementing interoperability features until later in the development. With most systems development, joint interoperability is a key performance parameter, but unfortunately, that proviso does not extend to coalition partners.

To summarize, the C4 interoperability gap and the problems it creates continue to expand as technology and Army transformation evolve. Standards do not appear to be timely, responsive, or well integrated into current development cycles, and they appear to drive up the cost of acquiring new systems.

Army Innovations

In support of recent planning for the biannual ABCA exercise, the U.S. Army Chief Information Office and Headquarters Department of the Army G6 (CIO/G6) launched an Army-wide campaign to deliver greater C4 interoperability. It combined various initiatives, including building coalition architectures, adopting common tools, developing targeted standards, ensuring a feedback loop to measure success, and documenting technical results in an interoperability guide.

COALITION ARCHITECTURES

In accordance with federal mandates and joint guidance, CIO/G6 adopted architectures as the foundation of the interoperability strategy. They leveraged previous ABCA program work and integrated the full efforts of diverse Army organizations to produce a unified C4 coalition architecture for the exercise. The coalition C4 architecture defines the interoperability capabilities of the ABCA armies' current forces and serves as a baseline structure for how the U.S. Army and its most likely coalition partners will deploy with current forces.

The C4 architecture would not exist without the dedication of many players across the Army and the participation of the C4 planning staffs of the British, Canadian, and Australian armies. The U.S. Army Training and Doctrine Command's Program Integration Office for Battle Command adapted the preliminary coalition operational architecture, thus defining the information exchange requirements between the armies. The Program Executive Office for Command, Control, Communications-Tactical spearheaded the coalition systems architecture, which details current force systems. In addition, the Communications and Electronics Command developed the coalition technical architecture to specify the protocols and standards to be used. The Iowa Army National Guard and the ABCA

Interoperability and Engineering special working party were key contributors, even drafting the initial network diagram. Furthermore, the G6 Information Assurance Office drafted an information security policy and documented a certification and accreditation process for future use by the ABCA armies. The integration of these players and their products form the coalition C4 architecture.

COMMON TOOLS

Developing the C4 coalition architecture has been valuable to the U.S. Army and to the British, Canadian, and Australian armies, but it has also been time and resource intensive. To alleviate these costs in the future, the U.S. Army is adopting a common network-planning tool—NETWARS. NETWARS is a Joint Staff J-6 led initiative to develop a government C4 modeling tool based on commercial OPNET technology. Ongoing staff efforts will capture the C4 coalition architecture in an executable format. The British, Canadian, and Australian armies have agreed to use the common tool to develop future C4 models and architectures. This tool will also serve as a repository for the armies' current force capabilities, thus promoting a more dynamic analysis for current force planning and facilitating improved future force capabilities.

TARGETED STANDARDS

Using architectures as a framework highlights where systems don't satisfy operational requirements. This may initiate development of a new standard or capability. It may also define C4 protocols and standards for existing systems to ensure minimal operational capability. After completing the "as-is" coalition architecture, a "to-be" coalition architecture will be developed. Comparing the two architectures will highlight shortfalls, or gaps. Capital investment can target these gaps to enable transformation to the future force. This may include modification to doctrine or the development or evolution of a system.

Targeted standards will also help in defining desired requirements as inputs to national requirements cycles. For example, future information-sharing capabilities (collaborative tools, net-centric warfare) will likely require improved network reliability and throughput. An ABCA standard is currently in development and seeks to define common bandwidth standards to promote greater operational integration among the ABCA armies. Developing targeted standards will be more relevant to the acquisition community and productive in shaping future materiel solutions. In this way, the architectures map where standards are required.

FEEDBACK LOOP

A feedback loop is critical to measure whether C4 interoperability is sufficient or progressing. During systems development, international interoperability must be tested as planned for the ABCA exercise. New systems must be field tested with our coalition partners to demonstrate interoperability. Iterative testing by the armies will provide a continuous measure of interoperability among the ABCA armies. National testing may indicate compliance with an interface standard; however, interoperability may not result. Whether another nation does not comply with the standard or the standard is inadequate, interoperability remains the goal. Standards must be reevaluated regularly to ensure that they are effective.

INTEROPERABILITY GUIDE

The Army is pursuing adoption of an ABCA interoperability guide to capture the ABCA interoperability capabilities and shortfalls. Information on current capabilities will be used to facilitate exercise and operational planning. Information on shortfalls will be used to identify areas where the Army must provide solutions—and, likely, standards.

Summary

We have examined the shortfalls of current standards development and implementation. The Army will continue to operate with multinational coalition forces on the battlefield, so achieving interoperability with these coalition forces is imperative. The U.S. Army CIO/G6 remains dedicated to improving multinational interoperability. When employed in an integrated approach with a coalition architecture and common tools, interoperability standards—specifically targeted—remain a viable method of obtaining interoperability. To achieve success, standards must clearly focus on operational needs within a comprehensive framework, define target capabilities for future forces, and be measured through continuous testing.

About the Authors

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¹This paper considers the impact of NATO Standardization Agreements, allied publications and handbooks, and ABCA quadripartite standardization agreements and quadripartite advisory publications.



The following is a case study published by the Defense Standardization Program Office in 2002. The case study illustrates how the U.S. Army slashed operational support costs while improving performance of portable power for military vehicles and communications-electronics devices through standardization and improved technology.

Rechargeable Batteries Power the Future Force

Background

During the 1970s and 1980s, Army systems were using more than 350 different types of 1.5-volt to 30-volt military batteries. The proliferation of battery types led to high expenditures for batteries and decreasing unit readiness and interoperability.

In 1995, as the Army received increasing pressure to reduce battery-related operational support costs, the Power Sources Center of Excellence (PSCOE) in the Communications–Electronics Command (CECOM) at Fort Monmouth, NJ, was established as a forum for portable power and power management issues. PSCOE membership includes technical and logistics representatives from the Army, Air Force, Navy, Marine Corps, and Defense Logistics Agency (DLA).

Problem

Several significant trends in the Army provided impetus to establish PSCOE:

- Increasing demand for portable power
- Rising battery expenditures
- Proliferation of battery types
- Decreasing military battery industrial base
- Decreasing unit readiness and interoperability.

INCREASING DEMAND FOR PORTABLE POWER

Portable power requirements of the digitized battlefield and its equipment are increasing the demand for more powerful batteries. The current inventory of U.S. military battery-dependent equipment contains more than 456 communications–electronics (C-E) devices such as radios, laser rangefinders, telegraph terminals, global positioning systems, night vision devices, meteorological systems, and early warning sensors. Their batteries must be extremely safe, lightweight, capable of operating in a wide range of temperatures and atmospheric conditions, capable of producing more power per unit volume, and operating after long storage periods. Land Warrior is one example of a power-intensive system that has the potential to double current Army battery requirements if disposable batteries are used.

Land Warrior is an Army program that increases the lethality, survivability, and command and control capabilities of individual soldiers in close combat. The Land Warrior program also depends heavily on electronic components that require significant portable power and that most

likely will be provided by rechargeable batteries and fuel cells.

RISING BATTERY EXPENDITURES

In 1996, the Army spent approximately \$100 million on batteries, and expenditures for batteries were rising to historically high rates. Battery expenditures were distributed in approximately the percentages shown in Figure 1: 70 percent for C-E applications, 20 percent for vehicle applications, and 10 percent on aircraft and missile batteries. In addition, many other batteries, such as AA-, C-, and D-cell, were purchased through DLA and by field units using purchase cards. Batteries for C-E applications consumed approximately 18–20 percent of a typical Army unit's annual operating budget.

PROLIFERATION OF BATTERY TYPES

A proliferation of battery types stemmed from the “one mission—one

operational support costs based on allocated space for the power source.

DECREASING INDUSTRIAL BASE

Several years ago, large battery manufacturers such as Eveready and Duracell walked away from the military battery business because of low-volume demand. Compared to commercial battery demand, the military-unique battery demand was small, which in turn created higher unit costs and uncertain contractual commitments. The result was a decreasing industrial base for military batteries.

In 1996, the Army Chief of Staff challenged the Army to reduce battery expenditures by 50 percent. To meet this challenge, PSCOE focused on the following:

- Improved primary and rechargeable batteries

- Mobile electric power generators
- Forward-area charging (i.e., simplify and move battery charging capability as close as possible to the area of need).

DECREASING UNIT READINESS AND INTEROPERABILITY

Unit readiness suffered from uncertain stock availability plus the requirement to stock, store, and issue increasing numbers of battery types. Battery size and weight are critically important, especially for dismounted soldiers. Sometimes squad leaders are required to carry as much as 20 pounds of batteries to accommodate various equipments' battery requirements. The proliferation of battery types also led to a lack of interchangeability of batteries within a single Army unit and when batteries were used in equipment in joint and combined operations.



battery” philosophy. Rather than incorporate an existing battery type into a new system design, materiel developers often specified a unique battery for each system. This lack of standardization resulted in larger logistical footprints and increased

- Battery standardization
- Power management (i.e., efficient generation, storage, regulation, conservation, and consumption of power)
- Alternative power sources (e.g., thermophotovoltaics, fuel cells, and solar power)

Solution

Solutions to some problems involve improved battery technology and standardization. By dramatically decreasing the number of commercial and military primary (nonrechargeable) battery types in new equip-

ment, while encouraging the use of preferred military rechargeable batteries and chargers, PSCOE was able to significantly reduce operational support costs and shrink the logistical footprint. The result was reduced weight, enhanced operational performance, and increased interoperability and availability.

Constraints

PSCOE is addressing other constraints as it continues to solve the numerous problems associated with battery proliferation:

- Solutions must meet the demanding power requirements (e.g., reduced weight, longer operating times, reduced cost) of increasingly powerful and sophisticated military devices and equipment.
- Solutions must include the capability to operate under extreme field conditions, temperature ranges, and physical abuse.
- Soldiers must be convinced that battery-related changes improve current operating procedures and do not interfere with the mission.

A key factor is battery technology. Recent advances, such as improved rechargeable batteries, have been instrumental in success. Previously, rechargeable batteries were hampered by weight, higher initial cost, limited operating time, and the time and effort to recharge batteries. The improved rechargeable batteries minimize these constraints, require less

storage space, and provide for easier transport and disposal.

Approach

PSCOE's approach incorporated policy changes, new technology, reduced proliferation, and education. PSCOE took steps to

- reduce types of batteries and encourage preferred batteries,
- develop a battery standardization policy,
- improve battery safety and reduce environmental impact, and
- increase education and market standardization.

REDUCE TYPES OF BATTERIES AND ENCOURAGE PREFERRED BATTERIES

PSCOE developed a preferred list of commercial and military primary and rechargeable batteries by grouping all batteries into voltage categories and selected as standard batteries those with the greatest number of systems applications. The preferred list considered battery shape, size, and connector type. The Army developed an equivalent rechargeable battery for most preferred primary batteries and a single universal charger to service all rechargeable C-E batteries.

DEVELOP A BATTERY STANDARDIZATION POLICY

PSCOE developed a standardization policy to reduce the number of battery types the Army must manage and support, while improving battery safety and performance and reducing cost. PSCOE worked with Army executives to craft the following specific policy directives:

- When developing new systems that require portable power, Army program managers must select power sources from the PSCOE list of preferred commercial and military batteries or obtain a waiver from the Army Acquisition Executive. (In all new programs that require portable power, program managers select independently, or work with PSCOE to select, power sources from the approved standard list. No waivers have been issued since the policy was instituted in 1996.)
- All units (except units that use fewer than 12 batteries a year) must use rechargeable C-E batteries for garrison duty, training, and support and stability operations when the commander deems it appropriate, except in wartime operations.
- All program executive offices, deputies for systems acquisition, and program managers must field new equipment using military or commercial standard batteries with an initial issue quantity of the rechargeable battery and its charger.

IMPROVE BATTERY SAFETY AND REDUCE ENVIRONMENTAL IMPACT

As battery technology improves, PSCOE will introduce new standard primary and rechargeable batteries with safer chemistry and fewer adverse environmental impacts. Lithium-manganese dioxide

adverse environmental impacts. Lithium-manganese dioxide (Li/MnO₂) batteries are replacing older lithium-sulfur dioxide (Li/SO₂) primary batteries, and newer lithium ion (Li-Ion) batteries are replacing rechargeable nickel metal hydride (NiMH) batteries where possible.

INCREASE EDUCATION AND MARKET STANDARDIZATION

To implement battery standardization in the field and promote the benefits of rechargeable batteries, PSCOE conducts an education and marketing program that includes the following:

- Demonstrations and operational field use promote conversions to rechargeable battery power. The 3rd Battalion, 504th Parachute Infantry Regiment from Fort Bragg, NC, successfully used rechargeable batteries during its 6-month peacekeeping deployment to Kosovo in 1999. The unit endorsed using rechargeable batteries, which significantly reduced costs and increased logistical advantages.
- PSCOE visits battery maintenance shops to promote rechargeable batteries. The maintenance facilities that use rechargeable batteries provide feedback on battery use and any operational issues.
- PSCOE publishes information through websites, online databases, newsletters, and magazine articles to educate Army units on the advantages of rechargeable batteries and standardization.

- CECOM, in conjunction with the Combined Arms Support Command and Forces Command, conducted a study that proved that rechargeable batteries work in combat and that field charging does not burden manpower or cost.

Outcomes

Through standardization of primary and rechargeable batteries, the Army achieved the following results:

- Reduced the number of military-unique battery types
- Reduced battery purchases
- Reduced disposal costs
- Improved safety
- Increased battery interchangeability
- Reduced the logistics support footprint
- Improved the industrial base
- Improved contracting and pricing
- Improved stock availability
- Increased commercial content
- Increased unit readiness
- Reduced operational support costs.

REDUCED NUMBER OF MILITARY-UNIQUE BATTERY TYPES

By November 2001, the Army had reduced the number of 1.5-volt to 30-volt military-unique battery types used in new systems from more than 350 during the 1980s to 35 types. The goal is to standardize on 25 military-unique batteries. To support legacy equipment (often found in the National Guard and Army Reserves), more than 300 low-demand battery

types will remain in the logistics system inventory until the legacy equipment is disposed of or redesigned. In these cases, conversion to a preferred battery can be uneconomical. The cost of redesigning systems outweighs the benefits. The demand for these batteries is too low and the expected remaining life of the legacy equipment is too short to justify the cost of developing replacement batteries and disposing of the existing stocks.

REDUCED BATTERY PURCHASES

The Army now spends \$75 million a year on battery purchases for all applications, a 25 percent reduction from its 1996 baseline. The decrease is significant in light of increases in fielded Army systems, training, and the number of worldwide conflicts involving the U.S. Army. The growing use of rechargeable batteries accounts for a significant portion of the savings.

REDUCED DISPOSAL COSTS

Rechargeable batteries last longer and are disposed less frequently. The result is lower disposal cost. For example, with the SINCGARS AN/PRC-119 Manpack Radio, the Army can save \$417 in disposal costs or 88 percent per radio over a 3-year period on batteries alone.

IMPROVED SAFETY

The Army is moving away from older Li/SO₂ to the newer, safer Li/MnO₂ chemistry. Lithium-sulfur dioxide batteries use pressurized cylindrical cans that are hazardous when punctured or abused. The high-energy-density Li/MnO₂ cell is not

pressurized. Hazardous gases venting from older cells are a serious safety issue. Replacing older cells in most electro-optical-type devices, such as night vision goggles, with new chemistry cells avoids the possibility of a battery venting noxious gas in the face of a soldier because of a short circuit or overheating. The Army will continue to take advantage of new battery technology by replacing older preferred batteries with newer and safer chemistries.

INCREASED BATTERY INTERCHANGEABILITY

Through standardization of primary and rechargeable batteries, the Army achieved a higher level of battery interchangeability within military units and across joint and combined operations. Several foreign nations have adopted the DoD battery system and are buying U.S. Army batteries. For example, the Australian army purchases U.S. Army batteries for operational use in East Timor.

REDUCED LOGISTICS SUPPORT FOOTPRINT

Using rechargeable batteries reduces the number of batteries that must be purchased, shipped, and stored. The 3rd Battalion, 504th Parachute Infantry Regiment from Fort Bragg estimated the cost savings attributed to using rechargeable batteries for its 6-month peacekeeping mission in Kosovo to be \$665,790. The 2nd Battalion, 502nd Infantry Regiment, 101st Airborne Division (Air Assault) from Fort Campbell, KY, conducted a feasibility study for the best battery purchase plan and determined that

rechargeable batteries yielded cost and flexibility advantages.

IMPROVED INDUSTRIAL BASE

Standardization enables the Army to offer manufacturers greater production volumes. With higher volumes, a single battery now may appear on multiple contracts (typically split between two manufacturers on a 60/40 basis), and a single contract may cover multiple battery types. The Army's goal is to contract with at least two manufacturers for each primary battery type to help ensure uninterrupted supply availability.

IMPROVED CONTRACTING AND PRICING

The Army transitioned to 5-year, flexible contracts. The manufacturer bids a 5-year production with firm prices established for each performance period. Contracts contain specific testing and quality requirements. Rechargeable batteries are warranted by the manufacturer for 4 years. As sales of commercial rechargeable cells and batteries rise, the Army can take advantage of the higher volume to lower unit costs. The result is lower, more stable costs, with some battery prices reduced by 30 percent.

IMPROVED STOCK AVAILABILITY

The improved supplier base, contracting, and pricing have resulted in improved stock availability. Recently the Army attained a 90 percent battery stock availability, an improvement from the 85 percent baseline availability during the 1990s. Flexible contracting and close coordination with manufacturers made the improvement possible and increased

the likelihood of continuous deliveries.

INCREASED COMMERCIAL CONTENT

The Army also has integrated commercial components into its military-unique batteries. All rechargeable NiMH and Li-Ion batteries use commercial battery cells of the type found in laptops and cell phones. As sales of commercial rechargeable cells and batteries rise, the Army can take advantage of the higher volume and lower unit cost.

INCREASED UNIT READINESS

Increased use of longer-lasting primary and rechargeable batteries has resulted in higher unit readiness. Because of standardization and the longer life cycle of rechargeable batteries, units can reduce the number and weight of batteries they requisition, manage, and carry. For example, the BB-390 NiMH battery life is two to three times longer (depending on application) than the nickel cadmium (Ni-Cad) equivalent. The BB-2590 Li-Ion version will last even longer and weigh a pound lighter. Another benefit of rechargeable batteries is increased energy independence—units can continue to operate using rechargeable batteries even if logistics pipelines that provide battery replacements are severed or delayed.

REDUCED OPERATIONAL SUPPORT COSTS

Standardization and technology advances, which are resulting in reduced battery purchases, reduced disposal costs, increased battery interchangeability, a smaller logistics support footprint, and improved pricing,

are contributing to the overall reduction in operational support costs for portable power.

Investments and Payoffs

A 1996 CECOM study, validated by the Army Audit Agency, concluded that the average Army battalion could reduce its battery expenditures by 66 percent during a 3-year period by using rechargeable batteries for training. The study showed that a switch from primary to rechargeable batteries by five selected battalions would amount to average savings of \$300,000 in the first year and \$1.9 million in 3 years. According to

Current Status

The Army's digital battlefield will continue to drive power demands upward, especially when the Land Warrior system is introduced.

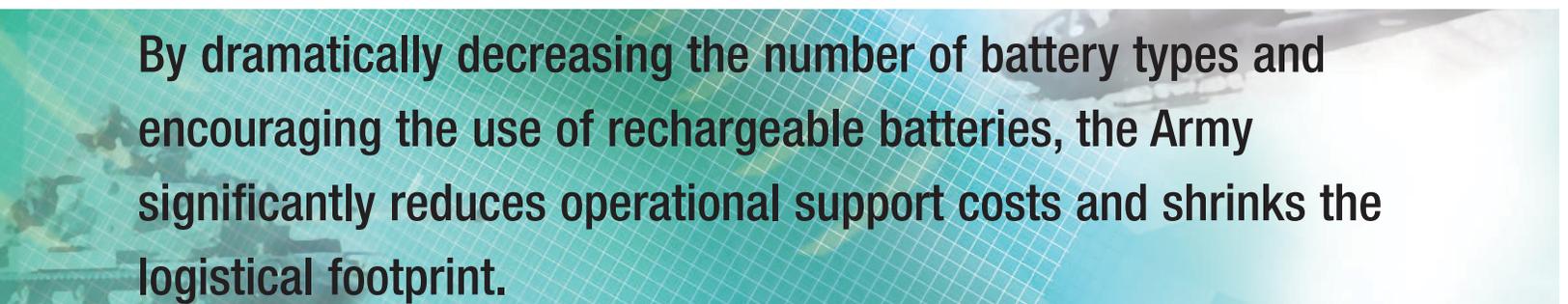
Batteries will remain the critical energy source for portable electronic equipment for many years to come.

PSCOE estimates that the Army has already achieved a 30 percent conversion rate from primary to rechargeable batteries. The largest hurdle facing further conversion is the up-front cost associated with procuring rechargeable batteries and chargers. Because individual units have diffi-

missions in Kosovo, Bosnia, and Afghanistan have used rechargeable batteries successfully, demonstrating that charging batteries in the field is not a significant issue.

PSCOE is working closely with the International Electrotechnical Commission, a nongovernment standards organization, to develop a draft standard for lead acid and nickel-cadmium batteries for use in commercial and military aircraft. Efforts also focus on developing a lithium ion battery standard for aircraft applications.

PSCOE is committed to finding the



By dramatically decreasing the number of battery types and encouraging the use of rechargeable batteries, the Army significantly reduces operational support costs and shrinks the logistical footprint.

PSCOE, savings from using rechargeable batteries may approach \$8 million to \$15 million annually if the Army maximizes their use in the field as soon as possible.

In FY97, PSCOE received \$10.7 million in Army funds to apply to the reduction of battery-related operational support costs. PSCOE promised to demonstrate a return on investment of \$33 million over the following 7 years. On the basis of quarterly sales measurements, the Army saved more than \$43 million during the first 4 years alone; of that, more than \$30 million were related to rechargeable C-E battery and charger use.

culty making this investment, PSCOE recommends that the Army, rather than individual operational units, provide the initial investment. It will cost approximately \$48 million to outfit remaining active Army, National Guard, and Army Reserve units with rechargeable batteries.

PSCOE also advocates a change in Army doctrine that would allow rechargeable battery use in combat, not just for use in training and garrison duty. PSCOE continues to inform and educate soldiers of the potential savings and operational benefits of rechargeable batteries. Several Army units deployed to peacekeeping

most power-efficient solutions for the least weight and cost. Its commitment includes investigating and developing promising new technologies such as fuel cells, thermophotovoltaics, micro-turbines, ultra-capacitors, and hybrid systems, as well as advances in power management techniques to reduce battery use and improve operating efficiency.

Lessons Learned

The following is a summary of the lessons learned in this case that might have application in other areas:

- Standardization initiatives may start with a wake-up call provided by operational, logistical,

or cost issues, which grab the attention of leaders.

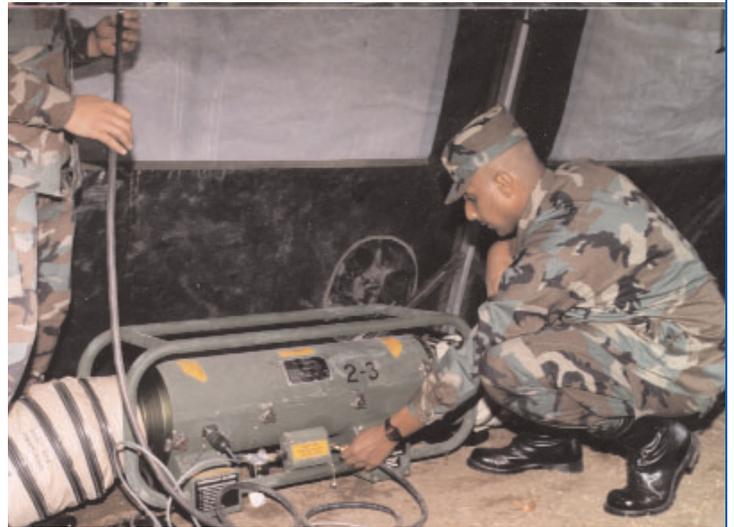
- Standardization and item reduction are one set of solutions that can improve interoperability, logistics readiness, and life-cycle cost.
- The one mission—one item philosophy often proves costly with profound implications for interoperability, logistics readiness, and life-cycle cost.
- Standardization can help create and maintain a healthy industrial base, hold down unit costs, and increase product availability.
- Standardization can yield many secondary benefits such as improved safety, reduced environmental impact, increased contract leverage, better power performance, and lower life-cycle cost.
- Successful standardization efforts may require seed money to yield early and effective results.
- Effective and creative standardization policy is a critical component for deploying standardization solutions into practice.
- Customer involvement from start to finish is essential in finding solutions that satisfy requirements.
- Education and marketing are a necessary part of the standardization strategy to ensure that all stakeholders understand the underlying reasons and benefits.
- Advocacy by operational leaders is key to convincing soldiers to adopt change.
- Clear guidance and authority to execute standardization can set the stage for success.
- When the objective is clear and strongly supported by leadership, standardization can be straightforward and uncomplicated.

The following article was published in the October 17, 2003, issue of the Army Materiel Command's "Eye on AMC" (www.amc.army.mil/news/news.htm). It is printed here with the permission of Product Manager–Force Sustainment Systems, Natick, MA.

New "Family" Showers Warmth in Tents Safely, Efficiently

Heating tents safely, effectively, and efficiently is now much simpler thanks to the Family of Space Heaters developed by Product Manager–Force Sustainment Systems located at AMC's Soldier Systems Center.

The FOSH uses the latest advances in combustion, power generation, and microprocessor technology to provide comfort and protection for soldiers, supplies, and equipment in tents during cold weather operations in the field. The FOSH replaces the old M-1941 "Pot Belly" and M-1950 "Yukon" heaters from the World War II era and eliminates the serious operational deficiencies and safety hazards associated with these antiquated heaters.



The following article is reprinted with the permission of the U.S. Army Soldier Systems Center's Public Affairs Office.

Combat Boot Testing Keeps Soldiers in Step

After thrashing through 100,000 cycles in a puddle of water, checking for a leaky boot is as simple as removing the piece of absorbent paper tucked inside.

“We beat up boots here. We beat the heck out of them,” said Michael Holthe, lead project engineer for footwear programs at AMC's U.S. Army Soldier Systems Center. “They have to be durable, but also help the person do their job.”

The Footwear Performance Laboratory, the only facility of its kind in the Department of Defense, provides a central location for testing, research, and development for all military footwear, Holthe said.

Holthe and Valerie Banville, a lab technician and project engineer, work primarily with the Army and Marine Corps, provide engineering support to the Defense Supply Center–Philadelphia, and have supported the Navy and Air Force. Other jobs include testing footwear for law enforcement officers and firefighters under contract with the National Protection Center at the Soldier Systems Center.

Currently, Holthe and Banville are assessing performance specifications for the Army's new Infantry Combat Boot. When not evaluating new product models, they are working to enhance performance, safety, comfort, and durability, or researching and developing new boots.

“[Boots] can affect oxygen consumption, fatigue, and marksmanship in



addition [to causing] lower leg injuries. We need to make footwear function in many environments but also protect the soldier and help him do the job more efficiently,” Holthe said.

Their research is sometimes collaborative, involving the Natick-based U.S. Navy Clothing and Textile Research Facility, U.S. Army Research Institute of Environmental Medicine, and Natick Soldier Center’s Textile Performance Testing Facility. Holthe also explained that the Army is partnering with industry in determining ways to improve efficiency, capability, and safety.

“To have one standardized style of footwear for 450,000 people and get more than an 80-percent approval rating makes us feel like we’re moving in the right direction,” Holthe said.

U.S. Army Soldier Systems Center is part of AMC’s U.S. Army Research, Development and Engineering Command (provisional).

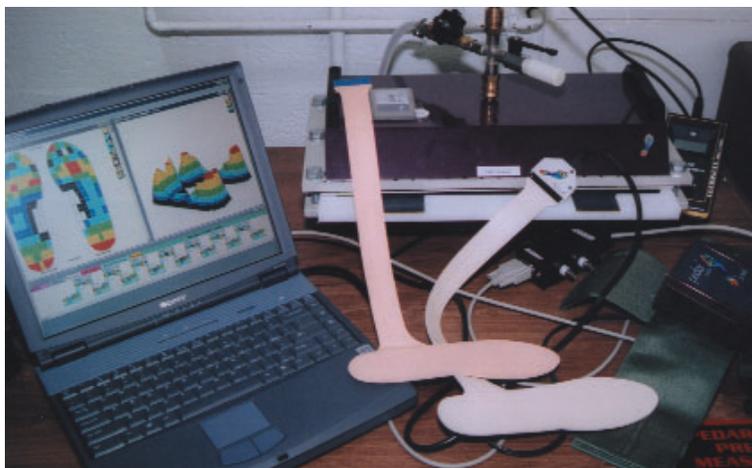
For more information, contact the U.S. Army Soldier Systems Center, Public Affairs Office at 504-233-5340, DSN 256-5340.



A hot weather boot undergoes dry testing with the whole shoe flexer.



The heated sand bath measures temperature change inside a boot.



The in-shoe pressure measurement device records data from sensor-embedded insoles worn by a human research volunteer.

The following article is reprinted with the permission of the Tobyhanna Army Depot Public Affairs Office.

Army Depot's Quality Recognized Worldwide

By Anthony Ricchiazzi, Tobyhanna Army Depot

Tobyhanna has earned registration as a globally accepted ISO 9001:2000 organization.

On Feb. 10–14, two ISO 9001 auditors from Orion Registrar, Inc., assessed components of Tobyhanna's Quality Management System to determine if the depot meets ISO registration standards.

Acceptance as an ISO 9001:2000 organization means Tobyhanna is recognized as a high performing organization that delivers quality products and services.

It positions the depot for increased teaming and competitiveness in the international marketplace, said Bob Young, chief of the depot's Quality Management Division, Business Management Directorate.

ISO is the acronym for the International Organization for Standardization, the body that establishes policies for achieving certification.

"ISO 9001 is a management system that applies systems standards to an organization and its products," Young said. "Thousands of businesses in the U.S. and worldwide are registered to the ISO 9001 standards."

Many ISO 9000 companies, such as Lockheed Martin, Motorola and Raytheon, favor doing business with organizations that are also registered.

ISO started with businesses involved in the international market as a way to establish common requirements for quality, eliminate customer inspections for products being transferred to another country and to provide methods for moving beyond minimum requirements.

Now the standards apply to any kind of organization, and they are not limited to companies that produce a tangible product.

"Sustainment, or surveillance, audits will be done to make sure we are showing continual improvement," Young said. "Registration doesn't mean automatic quality. We can't rest on our laurels and expect to produce high quality forever. Things continually change and we have to change as well to maintain that high level."

Tobyhanna Army Depot is part of AMC's U.S. Army Communications-Electronics Command.

The Defense Standardization Program Office is hosting a conference at The National Conference Center, Lansdowne, VA. The theme is "Standardization Initiatives... Government and Industry Making a Difference." During the conference, the annual standardization awards will be presented at a luncheon on March 16. To register for the conference, please visit www.dsp.dla.mil.

TUESDAY—MARCH 16, 2004

- 0830** Opening Remarks (Greg Saunders, DSPO)
- 0840** Keynote Address (Lou Kratz, DoD Standardization Executive)
- 0910** Defense Standardization Executive Panel
Moderator: Greg Saunders, DSPO
Lou Kratz, DoD Standardization Executive
Dick Barnett, Army Standardization Executive
Nick Kunesh, Navy Standardization Executive
James Engle, Air Force Standardization Executive
Christine Metz, DLA Standardization Executive
Frank Goss, NSA Standardization Executive
- 1000** Break
- 1030** Defense Standardization Executive Panel (continued)
- 1115** Panel Ends
- 1130** Defense Standardization Program Awards Luncheon
- 1330** Keeping a Pulse on Other Key Defense Acquisition Initiatives
Moderator: Steve Lowell, DSPO
DoD Corrosion Report to Congress (Dan Dunmire, OUSD(AT&L))
Interagency Board for Equipment Standardization and Interoperability (Kathleen Higgins, National Institute of Standards and Technology)
Solutions Support Envelope (Karen Rhodey, SAIC)
- 1500** Break
- 1530** Keeping a Pulse on Other Key Defense Acquisition Initiatives (continued)
Aerospace Vehicle Systems Institute (Lloyd Condra, Boeing Company)
Unique Identification of Tangible Items (Rob Leibbrandt, DP&AP)
DFARS Transformation (Stephen Cohen, OSD Acquisition Regulations)
- 1700** Adjourn

WEDNESDAY—MARCH 17, 2004

- 0830** Product/Process Certification Panel
Moderator: Mike Goy, DSPO
DoD Qualification Program Update (Donna McMurry, DSPO)
Performance Review Institute (PRI) QPLs (Tom O'Mara, NAVAIR)
Electronic Components Certification Board (ECCB) (Chuck Packard, ECCB)

March 16–18, 2004, Lansdowne, VA

- 1000** Break
- 1030** Product/Process Certification Panel (continued)
Aerospace Qualified Electronic Components (Joe Chapman, DSPO)
Qualified Suppliers Lists (Albert Cappiella, Defense Supply Center–Philadelphia)
National Institute of Building Sciences Building Product Pre-Approval Program (Earle Kennett, National Institute of Building Sciences)
- 1200** Lunch
- 1300** Standards Initiatives at Other Federal Agencies
Moderator: Steve Lowell, DSPO
General Services Administration Update of FED-STD-595 (Ronald Foster, GSA/FSS)
National Aeronautics and Space Administration (Richard Weinstein, NASA)
Department of Energy (Mary Haughey, DOE)
- 1430** Break
- 1500** Non-Government Standards (NGS) Initiatives
Moderator: Trudie Williams, DSPO
ANSI's Homeland Security Standards Panel (Dan Bart, Telecommunications Industry Association)
Future Directions for Aerospace Industry Standards (Mort Pearson, Pratt Whitney)
NAVAIR NGS Contract (Cliff Elder, NAVAIR)
- 1630** Adjourn

THURSDAY—MARCH 18, 2004

- 0830** Defense Standardization Program Automation Panel
Moderator: Scott Kuhnen, Aeronautical Systems Center
ASSIST Enhancements (Joe Delorie, DSPO)
QPL/QML Database (Donna McMurry, DSPO)
- 1000** Break
- 1030** Defense Standardization Program Automation Panel (continued)
Program Manager Tool (Joe Delorie, DSPO)
Weapon System Impact Tool (Ron Zabielski, DSPO)
NATO Standardization Tasking Review and Analysis Process (Joe Delorie, DSPO)
Information Technology Standards Enforcement (Ned Roper, DISA)
Document Automation and Production Service (DAPS) Transformation (Mack Strouss, DAPS)
- 1200** Closing Remarks (Greg Saunders, DSPO)
- 1215** Conference Ends

The Parts Standardization & Management Committee (PSMC) is a joint industry/government working group that promotes best parts management business practices supporting design and life-cycle cost savings and enhanced logistics readiness and interoperability. This diverse group—comprising experts from the parts management, standardization, engineering, reliability, configuration management, and logistics communities—pursues initiatives that support and shape current parts management trends. PSMC's biannual conferences provide a wealth of information and technical interchange through open forum discussions, educational presentations, and subcommittee work.

The group's most recent conference, "Total Life Cycle Systems Management," was held October 27–30, 2003, in San Diego, CA. The following were among the presentations at that conference:

- "DLA's Diminishing Manufacturing Sources and Material Shortages Center of Excellence Effort" (DLA/DSCC/Karta Technologies)
- "Generalized Emulation of Microcircuits and Advanced Microcircuit Emulation" (DLA/DSCC/SPARWAR Systems)
- "Long-Term Part Storage" (White Sands Missile Range)
- "DMS 101—A Comparison of Obsolescence Solutions" (Lansdale Semiconductor)
- "Reducing the Logistics Footprint" and "Program Manager's Tool" (Defense Standardization Program Office)
- "DoD EMALL" and "Electronic Commerce Code Management Association" (Defense Logistics Information System).

The agenda also included working sessions for three subcommittees: Parts Management Transformation, Plastic Encapsulated Microcircuits/Commercial Off-the-Shelf (PEMS/COTS), and Parts Management Education/Documentation.

Attendees included representatives from the Air Force Logistics Information Support Office (Battle Creek), U.S. Army Aviation and Missile Command (Redstone Arsenal), Boeing (St. Louis), Defense Logistics Information Services (Battle Creek), Defense Standardization Program Office, Defense Supply Centers (Columbus, Richmond, and Philadelphia), EDO Professional Services, Government-Industry Data Exchange Program (Corona), Honeywell (Torrance), Information Handling Services, Karta Technologies, Lansdale Semiconductor, Lockheed Martin (Moorestown), Naval Air Systems Command (Lakehurst), Naval Inventory Control Point (Philadelphia), Naval Sea Systems Command (Crane), Air Force Logistics Command (Robins AFB), Space and Naval Warfare Systems Command, SRA International, and White Sands Missile Range.

The next General Session Conference is scheduled for the week of April 19, 2004, in Orlando, FL. Information about the PSMC, its subcommittees, accomplishments, and the upcoming conference is available on the PSMC website: www.dsc.dla.mil/psmc.

April 1–3, 2004, Williamsburg, VA

Annual Mid-Atlantic Logistics Conference—Transforming Logistics Throughout the Enterprise

The District 02 Chapters of SOLE—the International Society of Logistics—are holding their sixth Annual Mid-Atlantic Logistics Conference at the Woodlands Hotel and Suites in Williamsburg, VA, April 1–3, 2004. Mr. Lou Kratz, Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs), will give the keynote address. Conference topics will include performance-based logistics, logistics management as a force multiplier, concurrent engineering supportability analysis, total distribution, supply chain management, homeland security, and total ownership cost. For more information, please visit www.mid-atlantic-log.net.

Name Change

The former National Imagery and Mapping Agency (NIMA) is now the National Geospatial-Intelligence Agency (NGA).

New DSPO Staff Member

Michael Goy has joined the Defense Standardization Program Office (DSPO), bringing 34 years of federal service and standardization program experience to the table. Mike's logistics background started in 1976 when he was an equipment specialist with the Air Force Materiel Command (AFMC) Cataloging and Standardization Center (CASC), Battle Creek, MI. In 1983, he became a branch chief for Aircraft Ground Support Equipment, then became an intern with DSPO in 1985. Mike served as division chief for Standardization Programs and Data Systems from 1988 to 1993, and he was an integral part of standardization initiatives for AFMC. In 1993, Mike took over as the cataloging team chief for the B-2 bomber program at Tinker Air Force Base, OK; he received a commendation for his team's efforts in transitioning the B-2 from a "black" program into standard support. Upon his return to CASC, Mike was assigned to the Marketing and New Business Initiatives Office and was responsible for bringing the Federal Aviation Administration, cryptologic, and special fuels logistics requirements under the CASC umbrella. CASC became part of the consolidation and centralization of cataloging functions for DoD. Mike was assigned as the comptroller/financial officer for CASC in 1997, its last year of operation. From 1998 until he joined the DSPO staff, Mike worked with the AFMC Logistics Information Support Office as a logistics systems program manager.

New Navy Standardization Executive

Nicholas Kunesh was appointed as the Deputy Assistant Secretary of the Navy for Logistics. He is the focal point for all acquisition logistics. Mr. Kunesh is also serving as the Navy Standardization Executive.

Previously, Mr. Kunesh was a senior director of supply chain management for the Broadband Communications Sector of Motorola. He was responsible for the procurement, sourcing, production control, inventory management, logistics, and customs activities for North American operations. He was accountable for revenue output, asset management, and total costs for the design, development, launch, production, distribution, and end-of-life of digital set top boxes, cable modems, wireless local area networks, and transmission products.

Mr. Kunesh's teams achieved unparalleled success in reducing inventory liabilities, increasing inventory turns, and improving material fulfillment and schedule adherence rates, as well as achieving high sustained cost reduction percentages. Streamlined processes, e-procurement, third-party warehousing, and tight control of systems with effective trained personnel were the key change drivers.

He has end-to-end supply chain experience in the biotechnology, commercial and military aviation, commercial and military shipboard and submarine navigational, and automobile audio industries. At Sperry Marine, Mr. Kunesh led the supply chain activities that were instrumental in the development, launch, and production of the first commercial off-the-shelf "Smart Ship" Integrated Bridge Systems and the Ring Laser Gyro WSN-7 platforms.

New Navy Departmental Standardization Officer

Jeffrey Allan recently became the Departmental Standardization Officer (DepSO) for the Department of the Navy. Since 1996, he has been chief of the Policy and Standards Office, Naval Air Systems Command (NAVAIR), Patuxent River Naval Air Station, MD. He is responsible for policies governing specifications and standards, management of critical safety items, and other engineering functions. Mr. Allan also serves as NAVAIR's Standardization Executive and is on the Joint Aeronautical Commanders' Group Aviation Engineering Board and a variety of multi-service/agency and government/industry committees.

Mr. Allan has 30 years of government service. He began his career at the Defense Contract Administration Services (DCAS) Region, Boston, MA. He performed technical evaluations of contractor proposals, assessed contractor progress in meeting contract technical requirements, performed earned-value management system surveillance, and conducted

value engineering efforts. Next, he worked as an engineer in the Defense Materiel Specifications and Standards Office, supporting the Office of the Secretary of Defense. He managed specifications and standards associated with environmental design and testing requirements, assessed standardization practices in defense programs, and managed processes addressing DoD adoption of commercial products and practices.

Mr. Allan worked at DCAS Headquarters, Defense Logistics Agency (DLA), first as chief of the Systems and Engineering Department and then as chief of the Production Department. He was a member of the task force that consolidated service and DLA contract administration organizations into the Defense Contract Management Command (DCMC). He subsequently served as DCMC's chief of Systems Engineering and acting deputy of the Program and Technical Support Directorate, responsible for engineering and software policies for all DoD contract management offices. Mr. Allan led or participated in more than 20 special reviews of contractor engineering and manufacturing systems and represented DCMC on numerous multi-agency committees and initiatives.

New NAVSEA Standardization Executive

Roy Rogers has served the Navy with distinction in myriad capacities for more than 30 years. He is a retired Naval Reserve Commander. Mr. Rogers is now the NAVSEA Command Standardization Executive in SEA 05Q. His previous assignment was director of NAVSEA MANTECH, coordinating command manufacturing technology projects and working with the Office of Naval Research in their execution. He was also director of the National Shipbuilding Research Program/Advanced Shipbuilding Research Program, working with the shipbuilding industry and its suppliers to foster advances in shipbuilding technologies and efficiencies in American shipbuilding.

Roy served as the SEA 04 "Submarine Factory" coordinator in the Logistics, Maintenance, and Industrial Operations Support Directorate (SEA 04). The Submarine Factory was created to facilitate coordinated corporate-wide leveraged initiatives to address the threefold increase of SSN 688 Class DMPs and EROs in the first decade of the new millennium. The Navy will invest more than \$5 billion in over 40 major submarine availabilities to be accomplished by the Submarine Factory.

Roy served as the director of the Naval Shipyard (NSY) Base Realignment and Closure, Federal Employees Compensation Act (FECA), and NAVSEA 04 Naval Reserve Office, responsible for administering the closures of Philadelphia and Long Beach NSYs. He was also tasked to reduce the NSY FECA annual bill by over \$20 million and create the "Virtual Reservist" concept for the SEA 04 Naval Reserve Program. Mr. Rogers was responsible for the operation of the NAVSEA East and West Coast FECA site offices and the establishment, operation, and subsequent privatization of the SSPORTS Environmental Detachments in Charleston and Mare Island.

Previously, he was director of the Industrial Engineering and Planning Division, the Installations and Environmental Office, and the NAVSEA Field Activity Environmental and OSH Office. Roy's first 15 years were spent in NAVSEA's Submarine Type Desk, supporting operational submarines.

New DISA Standardization Executive

In January 2004, Dr. Jeremy M. Kaplan became the Standardization Executive for the Defense Information Services Agency (DISA). He joined DISA in 1981 as project leader, then served as division chief in the Command, Control, and Communication (C3) Architecture and Mission Analysis Directorate. He led several major C3 architectural efforts, including the C3 architecture panel of the DoD-wide nuclear weapons master plan. In 1984, Dr. Kaplan became DISA's first deputy director of Strategic C3 Architecture, in the Center for Planning and Systems Integration, and in 1985, the first deputy director of Strategic C3, in the Center for C3 Systems. He integrated and expanded DISA's nuclear C3 program of architecture, systems engineering, operational test and evaluation, and communications planning.

In 1990, Dr. Kaplan became the first deputy director for Mission Support, a position that added theater C3 architecture and DoD-wide mission area planning to his strategic C3 responsibilities. In 1991, he was named first Director of the Center for Systems Engineering and Integration in DISA's Joint Tactical C3 Agency, where he was responsible for the integrated development of C3 information systems, the Worldwide Military Command and Control System, and command center information systems; the integrated development of DoD MILSATCOM; the life-cycle integration of all nuclear C3 systems; and the systems engineering and integration of major DoD joint strategic and tactical C3 systems.

In 1992, he was appointed director of the Center for Standards, in DISA's Joint Information and Engineering Organization. He reformulated the Center's mission and developed the operational concept to support its executive agent role for DoD in adopting, developing, specifying, certifying, and enforcing information technology standards.

In 1995, Doctor Kaplan became the first deputy director of C4I Integration Support Activity, in the Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence. He helped develop the analytical and integration capabilities needed to evolve and integrate DoD's command, control, communication, computers, and intelligence systems and activities. He also initiated and led the development of the Joint Technical Architecture.

From 1996 until 1998, he served as the DISA Chair, and Professor of Information Systems at the Industrial College of the Armed Forces. Then he was appointed deputy director of C4I Modeling, Simulation and Assessment at DISA. In 2001, this organization was expanded and given its current technical integration services mission.

DSPO Staff Farewells

Sharon Strickland

Sharon Strickland retired in July 2003 with 37 years of dedicated federal service. She joined DSPO in 1986, working in numerous areas. Sharon served as the action officer for the DoD Item Reduction Program, coordinating the efforts of the standardization community to reduce, to the highest degree practicable, the number of sizes and kinds of items in the Federal Supply System that are generally similar. While eliminating redundancy and identifying preferred items, the program also facilitates technology insertion and avoids the unnecessary expenditure of logistics funding.

Sharon served as the editor of the Standardization Newsletter and the Defense Standardization Program Journal. In her capable hands, DSPO's primary publication was transformed from a brief black-and-white newsletter to a full-length, full-color professional magazine.

She was program manager of the Defense Standardization Program Achievement Awards Program. In this capacity, she coordinated the preparation for and presentation of the annual DSP awards. She also coordinated myriad workshops and conferences for the DoD standardization community. Sharon served as the DoD representative to the World Standards Day Committee. She was the DSP training action officer and the DSP point of contact for the Defense Acquisition University.

Before joining DSPO, Mrs. Strickland worked for 20 years at the General Services Administration. She will be missed by the many coworkers who became her friends over the years. We wish her much health and happiness in the years ahead.

John Tascher

John Tascher retired in October 2003 with more than 38 years of dedicated federal service. During his career, John made many contributions. As a general engineer on the DSPO staff, John worked primarily on international standardization issues and activities. He developed a complete library of international standardization agreements (ISAs) from NATO, ABCA (armies of America, Britain, Canada, and Australia), and ASCC (Air Standards Coordinating Committee) for the ASSIST database. He served as the DoD metric coordinator and chairman of the DoD Metric Conversion Committee.

He served as Head of Delegation to the NATO AC/301 Cadre Group on Material Standardization. He established a database of point-of-contact information for DoD representatives to ISA groups and committees of NATO, ABCA, and ASCC.

John pushed to increase the use of performance-based requirements instead of design (“how-to”) requirements in new and existing military specifications and standards. He focused on developing new and modifying existing military specifications and standards to minimize the use of hazardous materials and ozone-depleting chemicals.

Before joining DSPO in 1985, John worked for several government organizations, including the Department of Commerce, U.S. Metric Board, National Bureau of Standards, Library of Congress, and Bryce Canyon National Park. We wish John a happy and healthy retirement.

Army Staff Welcomes and Farewells

The Army standardization staff welcomes the following new members:

- **Dr. Bruce Fink**, Army Research Laboratory (ARL), Aberdeen Proving Ground (APG), MD, is chief of the Weapons Materials Division and part of the Weapons and Materials Research Directorate at APG. Dr. Fink replaces Dr. Dennis Viechnicki, who served as the ARL Standardization Executive in the past.
- **Kurt Hogue**, Army Tank Automotive Research, Development and Engineering Center, Warren, MI, has assumed Marta Tomkiw’s standardization responsibilities.
- **Edward Jimenez** replaced Thomas Billings as the standardization contact at the U.S. Army Logistics Support Activity at Redstone Arsenal, AL.
- **MG Lester Martinez-Lopez** recently replaced LTC James Crowther at the U.S. Army Medical Materiel Agency.
- **Daniel Ojeifoh** replaced Carolyn Johnson at Army Communications-Electronics Research, Development and Engineering Center.
- **Capt. Shelly Sanders**, Army Research Laboratory, APG, MD, has assumed responsibility for Kathy Bamberg’s standardization function at ARL.

We bid farewell and extend best wishes to the following people:

- **Kathy Bamberg**, Army Research Laboratory, Weapons, Materials and Research Directorate, Aberdeen Proving Ground, MD, retired.
- **Thomas Billings**, U.S. Army Logistics Support Activity, Redstone Arsenal, AL, retired. He was chief of the Integrated Support Center.
- **Carolyn Johnson**, U.S. Army Communications-Electronics Research, Development and Engineering Center, Fort Belvoir, VA, retired.
- **Marta Tomkiw**, U.S. Army Tank Automotive Research, Development and Engineering Center, Warren, MI, was reassigned to the Management of Engineering support in the area of Power and Energy within the Engineering Business Group at the Tank Automotive Research, Development, and Engineering Center.

DAU Courses 2004

	Class	Start Date	End Date	Location
PQM 103—Defense Specification Management	002	03 Feb 2004	13 Feb 2004	Huntsville, AL
	701	27 Apr 2004	07 May 2004	Columbus, OH
PQM 104—Specification Selection and Application	003	01 Jun 2004	02 Jun 2004	Huntsville, AL
PQM 202—Commercial and Nondevelopmental Item Acquisition for Technical Personnel	702	01 Mar 2004	02 Mar 2004	Linthicum, MD
	005	05 Apr 2004	06 Apr 2004	Fort Monmouth, NJ
PQM 203—Preparation of Commercial Item Descriptions	702	03 Mar 2004	03 Mar 2004	Linthicum, MD
	703	25 Mar 2004	25 Mar 2004	Dumfries, VA
	004	07 Apr 2004	07 Apr 2004	Fort Monmouth, NJ
	005	04 Jun 2004	04 Jun 2004	Robins AFB, GA
PQM 212—Market Research for Engineering and Technical Personnel	703	04 Mar 2004	05 Mar 2004	Linthicum, MD
	704	23 Mar 2004	24 Mar 2004	Dumfries, VA
	005	08 Apr 2004	09 Apr 2004	Fort Monmouth, NJ
	705	11 May 2004	12 May 2004	Columbus, OH

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	Deadline for Articles
July–September 2004	Warfighter Support	February 15, 2004
October–December 2004	Navy Standardization	May 15, 2004
January–March 2005	Defense Laboratories	August 15, 2004
April–June 2005	Qualification & Conformity Assessment	November 15, 2003

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

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

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