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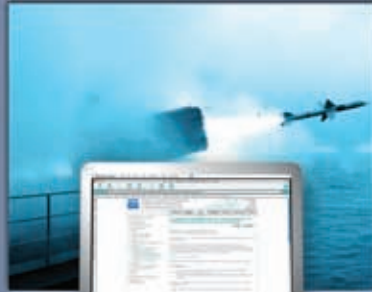# Journal

International
Standardization

The Defense Handbook
Army International Standardization
Achieving Interoperability in NATO

Contents *January/March 2006*

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Director's Forum

Cesare Balducci, Deputy Director of the NATO Standardization Agency, put it best when he stated, "There's no capability without interoperability." Now more than ever, there is increasing reliance on multi-national military forces to operate effectively together as situations erupt around the globe. As we send our warfighters to hotspots around the globe, we have become increasingly aware that we are no longer the only soldiers in the trenches. In accomplishing evolving missions and addressing shifting security requirements, more than ever we need to be interoperable with our allies.

Deployments of U.S. troops in support of Operation Iraqi Freedom and Operation Enduring Freedom have proven the need for interoperability not only within our own military services, but also with our allied forces. International standards are a critical element that will not only support U.S. servicemen and -women abroad, but also enable them to work in concert with our allies.

One of our most downloaded *Journals* has been the one in which we focused on standards activities of international treaty organizations. As rapidly as things change, we thought it was time to update that information and to provide additional information about many of the related international activities in which we are involved.

THERE'S NO CAPABILITY WITHOUT INTEROPERABILITY!

NATO, where we focus the vast majority of our international attention, has always emphasized the importance of interoperability among allied forces. Shortly after NATO's founding in 1949, in an effort to enhance military effectiveness and efficiency throughout the alliance, the predecessor to the NATO Standardization Agency (NSA) was born. The NATO Alliance and the NSA have been at the forefront of

Gregory E. Saunders
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ensuring that capabilities are met in order to support all allied forces in battle. The NSA initially set out to facilitate the standardization of administrative and operational policies and procedures as well as in the coordination of materiel activities. More recently, NATO and the NSA have been involved in more out-of-area operations. In places such as such as the Middle East, the Balkans, and in the north cone of Africa, NATO and the NSA are supporting humanitarian and peacekeeping missions, performing maritime surveillance patrols, and providing security training missions in areas where states are being built. In each of these cases, NATO Alliance members—from different member countries in different corners of the world—are converging in the international theatre. Through the use of international standards, allied systems are able to work together ensuring the safety and security of our forces abroad.

In this issue of the *Journal*, you will see firsthand the role that international standards play in defense. Some articles focus on the structure and framework of NATO, while others focus on the use of commercial (civil) standards on an international level and list some of the issues that lie ahead. Some articles discuss defense procurement through the use of international standards, and others give more background on the policies and procedures of NATO. I am hopeful that, taken together, these articles will illustrate the big picture when it comes to standards supporting the warfighter in the international arena.

In the past 10 years, there have been many debates over what constitutes an international standard. A new term introduced in the past few years has been "global standard." This is an attempt to move beyond the debate of which organization wrote or published a standard or whether national standards bodies have endorsed or voted on a standard. Instead, it focuses on the idea that technical excellence, market relevance, global acceptance, and use are more important to the users of standards than is the source or process used in developing them. In recognition of this principle, the Aerospace Industries Association has developed an industry position reflective of these concepts. A copy of the position statement is also included in this issue of the *Journal*. The Department of Defense has taken no official position on the statement, but I think that it clearly states what is important to standards users, and I hope that it will help to move the debate beyond semantics.

I hope that you find this issue of the *Defense Standardization Program Journal* informative and helpful and that you can see how the work you do in this field helps support our servicemen and -women abroad.

What Is an International Standard?

By Steve Lowell

I
If someone were to ask you to define "international standard," most of us would probably just do a Google search. Entering "definition of international standard" as an exact phrase in the Google advanced search feature produces 120 hits at this time. Excluding the large number of broken links, it becomes quite clear from this search that the overwhelming majority of online dictionaries define an international standard as one developed by the International Organization for Standardization (ISO) or the International Electrotechnical Commission (IEC), and some add the International Telecommunications Union (ITU) to the mix.

On the surface, such a definition for international standard seems reasonable and not likely to draw too many challenges. But in truth, the definition is misleading and inaccurate. Although ISO, IEC, and ITU are unquestionably important international standards developers, the collective efforts of hundreds of other international standards developers likely exceed those of these three organizations in terms of number of standards and global impact. To begin with, there are quite a few government international standards organizations, primarily under the purview of the United Nations. Among them are the Codex Alimentarius Commission, the International Civil Aviation Organization, and the International Maritime Organization. These organizations are very important in developing international standards for their particular areas.

There are also quite a few specialized international standards developers, some of which have been around for a long time. For example, the International Commission on Illumination was founded in 1913, has 38 national member bodies, and has developed more than 100 standards related to light and color characteristics. There are also many U.S.–domiciled standards developers that have global participation in their standards development, and the standards have worldwide acceptance and use. For example, ASME International developed the Boiler and Pressure Vessel Code, which is used in some 100 countries, and ASTM International, with its 30,000 plus members from over 100 countries, has developed more than 12,000 standards.

Then there are hundreds of consortia and informal standards developers whose standards, especially those in the information technology area, have a major effect on global commerce. The Internet Engineering Task Force has produced some 4,000 standards in the last 20 years. Those standards govern what is arguably the most international product of all, the Internet.

The truth of the matter is that no official, universally accepted definition exists for an international standard. Of course, you may ask: Does it really matter? Is having a universally recognized definition merely some academic exercise? Well actually, it can matter quite a bit. Twenty years ago, the United States exported more than

$900 million a year of industrial equipment to Saudi Arabia. Today, that figure is around $200 million. This drop can largely be attributed to the Saudi requirement that industrial equipment comply with international standards, specifically, ISO and IEC standards. Similarly, several years ago, the Mexican state oil company, PEMEX, sent out a request for proposals for upgrades to oil refinery equipment that would result in a $300 million contract. The request indicated that the upgrades had to meet international standards, which Mexican government officials interpreted to mean as ISO standards. In this case, the U.S. government interceded so that international standards from U.S.-domiciled international standards developers were considered acceptable.[1]

The World Trade Organization (WTO) Technical Barriers to Trade (TBT) Agreement gives international standards a favored position by stating that where "relevant international standards exist or their completion is imminent, Members shall use them, or the relevant parts of them, as a basis for technical regulations, except

[The WBO TBT Agreement] provides criteria that an international standard should be developed under processes that are transparent, open, impartial, and consensus based and that allow for meaningful input by WTO members as a minimum so that the standard does not favor any particular suppliers, countries, or regions.

when such international standards or relevant parts would be an ineffective or inappropriate means for the fulfillment of the legitimate objectives pursued." The WTO TBT Agreement goes on to state that if a technical regulation "is in accordance with relevant international standards, it shall be rebuttably presumed not to create an unnecessary obstacle to international trade."

Although these statements give a strong position for international standards in deciding trade disputes sent to the WTO for decision, the WTO TBT Agreement does not define "international standard." Instead, it provides criteria that an international standard should be developed under processes that are transparent, open, impartial, and consensus based and that allow for meaningful input by WTO members as a minimum so that the standard does not favor any particular suppliers, countries, or regions. Equally important, the standard must have global relevance and use to be considered international.

The criteria identified in the WTO TBT Agreement establish a framework for what constitutes an international standard, but the lack of definitiveness leaves interpretation up to the WTO for each TBT case it hears where international standards are involved, which can lead to some interesting discussions. For example, in a trade dispute between Peru and the European Union (EU) in 2002 over the labeling of canned sardines, the EU challenged whether a standard approved by the Codex Alimentarius Commission constituted an international standard. Peru complained to the WTO that EU regulation excluded Peruvian sardines from European markets by declaring that only sardines belonging to a particular species prevalent off the European coasts could be labeled as sardines. The EU regulation placed Peru at a great disadvantage in marketing its sardines in Europe if it couldn't label them as sardines. In its complaint to the WTO, Peru argued that the EU regulation was not in compliance with the international standard on sardines, Codex Stan 94, which identified 21 different species that could be labeled as sardines.[2]

The EU offered many different arguments for not allowing Peruvian sardines. One of the arguments was that Codex Stan 94 did not constitute an international standard, so therefore, it didn't matter that the EU regulation differed from the Codex standard. The EU argument that Codex Stan 94 did not meet the criteria for an international standard under the WTO TBT Agreement followed three lines of reasoning: (1) Codex standards are only recommendations that must be accepted by governments, and such acceptance can be unconditional, conditional, or with deviations; (2) Codex Stan 94 was accepted by only 18 countries, of which only four accepted it fully, so therefore it doesn't meet the test of global relevance; and (3) the records show that there were diverging views on this standard, so it failed to meet consensus.[3]

In the end, the WTO declared Codex Stan 94 to be an international standard and found in favor of Peru in this dispute. But it is interesting that even a standard issued by a United Nations organization can be challenged as to whether it is a "legitimate" international standard.

So why is it so difficult to come up with a universal definition of an international standard? To simplify the answer to this question, you need only consider the very divergent views of the United States and the European Union. As articulated in the 2005 *United States Standards Strategy*, the United States believes that the imprimatur of international standard should be based on internationally recognized principles that focus on global market acceptance, and that any standard that is widely recognized and used globally is an international standard regardless of the developing organization.[4] In contrast, the European Commission in its 2001 paper on international standards makes it clear that it believes that only organizations with

officially designated national member bodies can be considered international standards developers, and it is pretty clear that it considers only ISO and IEC as being legitimate sources for voluntary consensus international standards.[5]

The other difficulty in defining an international standard is in assigning values to the criteria for what constitutes an international standard. For example, an international standard is supposed to have global relevance, but what does that mean? How many countries must adopt a standard before it takes on "global relevance"? What if the top 10 nations with the largest gross national product adopt one standard, and the rest of the world adopts a different one. Which is considered more "globally relevant"?

Some argue that eventually, the forces of globalization driven by stateless, multinational corporations will result in global standards on an industry-sector basis that are market driven and originate from a variety of sources. The opposing view is that the U.S. market-driven standards philosophy is an anomaly and that, in general, governments around the world are drawn to an ISO/IEC-centered universe for reasons of administrative simplicity, the appeal of centralization, and the strong position of governments in most of the national member bodies that make up these organizations. The jury is still out, and likely will be out for some time, over which view prevails. In all likelihood, neither view will prevail. Instead, the different approaches taken by different industry sectors and different standards organizations will prevail.

Will there ever be a clear, unambiguous, universally accepted definition for international standard? Probably not for the foreseeable future, if ever. While not having such a definition can be messy at times, the current set of general criteria from the WTO on what constitutes an international standard is probably as good as it gets because this framework, while providing some definitional constraints, is broad enough to allow countries and organizations of differing viewpoints to pursue their own agendas.

[1]David Hanson, *CE Marking, Product Standards and World Trade* (Northampton, MA: Edward Elgar Publishing, Inc., 2005), pp. 144–145.

[2]World Trade Organization Panel, *European Communities—Trade Description of Sardines*, Report WT/DS231/R, May 29, 2002.

[3]Ibid, p. 12.

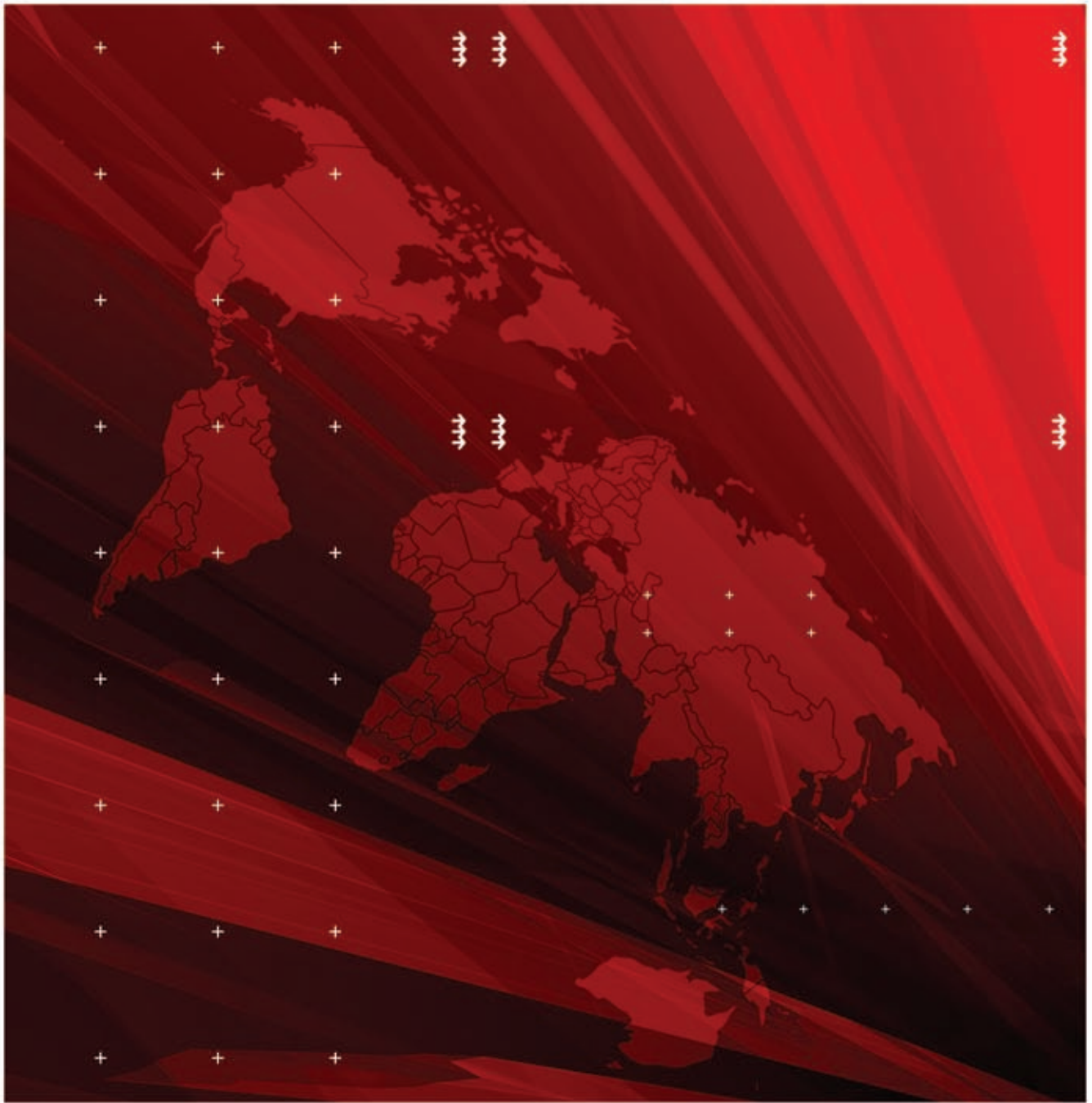[4]American National Standards Institute, *United States Standards Strategy*, 2005.

[5]European Commission, *Commission Staff Working Paper: European Policy Principles on International Standardization*, SEC(2001)1296, July 26, 2001.

About the Author

Steve Lowell is the Deputy Director of the Defense Standardization Program Office.

Beyond Borders
NATO in the 21st Century

By Ulysses Zalamea

NATO matters today to Europe and the rest of the world. Indeed, the central issue is no longer about NATO's relevancy in the post–Cold War environment. Instead, the debate has moved on to self-assured and more fundamental questions like "How global a role can and should NATO play?" and "Should NATO's new function be counter-terror-ism?" Expanding on this point, Secretary of State Condoleezza Rice, in a December 2005 meeting of the North Atlantic Council at NATO Headquarters in Brussels, Bel-gium, proclaimed that "NATO not only has a future, it has a very bright future…. It's an organization that is transforming in accordance with new challenges." The defensive al-liance, once solely focused on the collective protection of traditional territories, is finally moving out beyond the Euro-Atlantic boundaries to meet head on the prevailing secu-rity threats, two of which demand serious concern: global-scale terrorism, and the spread of weapons of mass destruction.

A casual observer needs only to check the latest headlines to get a glimpse of NATO's goals and desires. From humanitarian missions in Pakistan and the United States to peacekeeping operations in the Balkans, and from maritime surveillance patrols in the Mediterranean to security training missions in Africa and the Middle East, NATO's pres-ence stretches across the globe. At the present, more than 31,000 NATO soldiers and sailors are deployed worldwide on various operations and missions.

NATO is in Afghanistan leading the International Security Assistance Force, a multina-tional force mandated by the United Nations to assist the Afghan transitional govern-ment. Limited initially to security operations in Kabul and its immediate vicinity, the 9,000-strong force now provides security assistance to about half of Afghanistan's terri-tory, with Provincial Reconstruction Teams strategically deployed throughout the area. Just recently, NATO approved a plan to send an additional 6,000 personnel in 2006 to expand its security operations to the southern part of the country.

NATO is in Iraq training and mentoring senior security and defense officials. Follow-ing a request by the Iraqi government, NATO established a training mission in July 2004, opening the Joint Staff College at Ar-Rustamiyah in the outskirts of Baghdad a year later. To date, over 200 mid- and senior-level Iraqi officials have completed the training courses. NATO also acts as the clearing-house for all equipment and other train-ing offers from Allied countries.

NATO is in Pakistan conducting a humanitarian mission. On October 8, 2005, a mas-sive earthquake in the northern Kashmir region of Pakistan killed an estimated 73,000 people and left about a million without food or shelter. Responding to Pakistan's request for assistance, NATO airlifted more than 3,000 tons of supplies, including thousands of tents, blankets, and stoves. NATO also deployed over 1,200 engineers, doctors, and other

medical specialists, as well as logistics planners from the NATO Response Force (NRF), a newly organized rapidly deployable multinational unit.

NATO was in the United States delivering relief supplies to the victims of Hurricane Katrina. From September 12 to October 2, 2005, a NATO air-bridge of 12 cargo flights moved 189 tons of donations from Europe to the U.S. Gulf Coast. In all, 39 Euro-Atlantic Partnership Council nations, the primary consultative forum for NATO and non-member states, offered assistance to their transatlantic partner.

NATO is in Darfur training African Union (AU) peacekeepers in strategic-level planning and logistics procedures. Alarmed by escalating violence in the region, the AU decided in early 2005 to expand its peacekeeping mission in Darfur. In April 2005, the AU asked NATO for logistical support. To date, NATO has airlifted about 4,000 AU troops into the area.

NATO is in the Balkans conducting crisis-management operations with the aim of bringing peace and stability in the region. NATO's enduring involvement in the Balkans goes back to the early 1990s following the ruinous wars in the wake of Yugoslavia's disintegration. Today, with about 17,000 troops on the ground, NATO, together with the European Union, the Organization for Security and Cooperation in Europe, and the United Nations, is leading the peacekeeping operations in Kosovo and helping the governments of Bosnia, Herzegovina, and the former Yugoslav Republic of Macedonia organize their military forces.

NATO is in the Mediterranean Sea as well, establishing a strong and visible naval presence. In the aftermath of the 9/11 terrorist attacks, NATO ships deployed, as part of an operation called Active Endeavor, to the Mediterranean in support of the fight against terrorism. Since then, NATO naval forces have tracked more than 59,000 ships, boarding 80 suspected vessels. In addition, NATO combat escorts have provided protection to over 480 Allied ships transiting the Strait of Gibraltar.

This emerging trend suggests that NATO can expect more (and perhaps with little warning) "out of area" operations far away from the European heartland. Looking ahead, NATO must therefore strengthen its critical military capabilities with particular attention to the essential expeditionary requirements. These include strategic airlift and sealift; air-to-air refueling; deployable command, control and communication systems; and intelligence, surveillance, and target acquisition capability packages. Second, NATO must also strive harder for greater Allied interoperability. The deputy director of the NATO Standardization Agency, Cesare Balducci, put it plainly: "There's no capability without interoperability." For example, a streamlined, centrally managed interoperability process, in which standardization plays a major role, will be able to provide timely solutions to the lessons learned from the operating forces such as the NRF. Finally, NATO must forge closer relationships with international bodies, particularly with the European Union. As the European Union increases its security awareness and develops greater defense capabilities, deeper cooperation will ensure complementary focus, priorities, and effort. In a complex joint and multinational environment, the 26-nation NATO forces, with non-member partners and states in some situations as defined by the mission, will have to effectively fight as one to successfully confront, in distant and foreign lands, the modern threats of the 21st century.

For more information, see the official websites of NATO (www.nato.int) and the U.S. Department of State (www.state.gov).

About the Author

Ulysses Zalamea, a U.S. Navy Captain, has been assigned to the U.S. Mission to the NATO in Brussels, Belgium, since June 2005. There, he is the Deputy Director for the Armaments Cooperation Division. Working closely with Office of the Secretary of Defense principals, he also serves as the U.S. representative to the NATO Committee for Standardization and the NATO-European Union Capability Group.

NATO Framework for Civil Standards

By Claudia Urbanovsky

NATO is facing several challenges that are affecting and shaping standardization. This article provides an overview of those challenges. It includes some background on NATO standardization activities and the framework for NATO standardization. The article then addresses the part that the civilian element is taking in NATO standardization, including work done by the Civil Standards Management Working Group (CSMWG) under the aegis of the NATO Committee for Standardization to expand cooperation and coordination into the larger international realm of standardization. The article also touches on the challenges of integrating civil standards into the NATO framework of standardization in order to further interoperability of forces.

NATO Standardization Activities

NATO's standardization activities have always been directly connected with the military environment. They are shaped by factors such as threats, operational needs, new forms of conflict, technical innovation, and transformation, as well as by the negative (or positive) evolution of financial means for defense procurement or stronger integration of civil components into military systems. This environment, together with estimates of future changes, is the basis for NATO's standardization activities.

Although the challenges have grown since its beginning nearly 54 years ago, NATO standardization still has the same aim. That is, by implementing standardization agreements, nations can more easily achieve the required levels of interoperability; can better accomplish common missions and tasks in strategic, operational, tactics, and procedures of command; and can more efficiently employ techniques, material, and administrative equipment.

This aim is still very timely and appropriate, but NATO's standardization activities are now more complex due to the impact of transformation, the challenge of finding agreement among 26 member countries, and the necessity to enhance the use of civil standards within the military's standardization framework.

The Framework for NATO Standardization

NATO's standardization activities are regulated by the following key documents:

- Charter of the NATO Standardization Organization (NSO)
- *NATO Policy for Standardization*
- *Military Committee Policy for Military Operational Standardization*
- *Directive for the Development and Production of NATO Standardization Agreements and Allied Publications*
- *NATO Framework for Civil Standards*.

NATO and Civil Standards

NATO's policy and procedures governing the use of civil standards are outlined in *NATO Framework for Civil Standards*. Approved in March 2004 by the North Atlantic Council, that document also provided the NATO Standardization Agency (NSA) with the authority to coordinate cooperative efforts among international, regional, national, and specialized standards-developing organizations (SDOs). (In the past, cooperation has been based either on custom or the personal engagement of experts or staff officers of NATO.)

Today, it has become not only desirable but also possible to integrate, on a regular, organized, and competently supervised basis, relevant civil standards and other elements from the civil community into the NATO standardization framework. This will be further supported through technical cooperation agreements between the NSA and several key SDOs. Those SDOs include the American National Standards Institute, ASTM International, European Committee for Electrotechnical Standardization, European Committee for Standardization, European Telecommunications Standards Institute, GS1 (formerly EAN), International Electrotechnical Commission, ISO, and Society of Automotive Engineers (SAE).

To facilitate cooperative work among military and civil standardizers within NATO, the NATO Committee for Standardization created the CSMWG.

Currently chaired by Gregory Saunders, director of the Defense Standardization Program Office, the CSMWG comprises standardization experts from NATO and partner nations, as well as representatives of national, regional, and international SDOs. Each individual effort taken on by the CSMWG supports the 2000 policy guidance for NATO to "use suitable civil standards to the maximum practicable extent." Its activities are also geared toward the development of working relationships between military civilian standardization practitioners.

Civil and Military Standardizers Unite

CSMWG is working on guidance for the transfer of standards from SDOs into the NATO framework, as well as from the NATO framework into the civilian world, since many military standards are relevant to both communities. Good examples are certain automotive standards, standards for asset tracking, test procedures, codification-related standards, and standards for specific materials such as combustibles, paints, coatings, and batteries.

It is clear that the importation of civil standards into the military world will always outrank the exportation of NATO standards to the SDOs. However, to facilitate the two-way process, the CSMWG also is working on such crucial issues as intellectual property rights and copyrights. The working group's intent is to develop NATO policies in both domains and to make legal issues in the military environment compatible with those in the civilian one. The first set of military standards is awaiting transfer to a civil SDO, which will then take care of their future life cycles. This approach will benefit both the military and civilian communities.

The Benefits of "Going Civilian"

One of the key goals of organized and coordinated cooperation among the military and the civil standardization communities is to avoid duplication of work efforts and standards. The benefit is most certainly an indirect and relatively effortless contribution to interoperability of forces on an equipment level

and in new technologies and programs such as the NATO Network Enabled Capability. The introduction of standards (ISO, SAE, etc.) that are already in common use in the civilian environment of the NATO and partner nations will immediately bring the military community in line with worldwide best practices. The most crucial areas are telecommunications, computer technology, advanced technologies, and some specific materials.

It is clearly in the military's interest to "go civilian" where possible, rather than developing standards in isolation. Not only are defense budgets being reduced, but technology is evolving more rapidly in the civilian environment than in the military environment.

Officially admitting civil standards into the NATO standardization framework was the last step of acceptation of this reality, which has become common ever since the decomposition of the former Soviet Union and the end of the Cold War. It is not a completely new feature, nor a particularly original one; civil standards clad in "field grey" have always existed in NATO's standardization compendium. But today, *NATO Framework for Civil Standards* and all related guidance no longer leave to chance the integration of civil standards and NATO standards.

Today, due to the continued work of the NSO, in cooperation with its civilian partners from the SDOs, the use of suitable civil standards to the maximum practicable extent in the development of NATO standards has become a reality.

About the Author

Dr. Claudia Urbanovsky joined NATO in 1999 as an armaments planner after a career in the French and German defense industries. She became the civil standards coordinator in the NATO Standardization Agency, when the post was created in 2001, immediately after the NATO North Atlantic Council approved the standardization policy and endorsed the use of civil standards as one of the nine key principles of NATO standardization.✹

Standardization within NATO

By Latasha Beckman

Now more than ever, we rely on multinational military forces to operate effectively together in accomplishing evolving missions and meeting shifting security requirements. To counter new challenges and focus on coalition interoperability issues, NATO is making giant leaps forward in transforming its structure to reinforce its commitment to act as a single force. In upholding its commitment to NATO, the policy of the United States, as outlined in Joint Vision 2020 and the Cataloging and Standardization Act (10 U.S.C. 2457), is to continuously increase interoperability by standardizing equipment and operational capabilities common to NATO.

Standardization is a key ingredient in making interoperability a reality. The following is a brief summary of the principles, processes, and structure of standardization within NATO.[1]

Background

NATO is an alliance composed of 26 independent member nations from North America and Europe, and 20 partner countries. Its fundamental role is to safeguard the freedom and security of its member countries by political and military means. The alliance promotes partnership and cooperation with other countries in the Euro-Atlantic area, aimed at increasing openness, mutual confidence, and the capacity for joint action.[2] Since the conception of the North Atlantic Treaty, signed in 1949, NATO has taken on additional roles outside its original purview, including performing crisis management and humanitarian relief efforts when member countries reach consensus to do so.

However, decisions are based on recommendations from subordinate bodies within the framework of NATO's civil and military structure, which includes the North Atlantic Council (NAC), Defense Planning Committee, and Nuclear Planning Group. Each of the 26 member nations sends a delegation or mission to NATO Headquarters, which is located in Brussels, Belgium. The national delegation is composed of advisers and officials who represent their nation on a variety of subordinate bodies. The senior permanent member of each delegation is known as the permanent representative or ambassador and sits on the NAC on behalf of his or her nation. They attend weekly meetings based on instructions from their capitals to inform and explain the views and policy decisions of their nations and, conversely, report back on the positions taken by other nations.

Derived explicitly from the North Atlantic Treaty and chaired by the Secretary General, the NAC is the most senior political governing and principal decision-making body of NATO. It has the responsibility and authority to set up sub-

sidiary bodies to act in an advisory capacity, conduct studies, and make policy recommendations that provide the required information to make unanimous decisions within the alliance. Many agencies, organizations, committees, and working groups support the work of the NAC in their area of expertise, including standardization.

Fundamental Elements of Standardization

Standardization is not a means within itself, but rather a method for enhancing interoperability among coalition forces. NATO defines standardization as the process of developing concepts, doctrines, procedures, and designs to achieve and maintain the compatibility, interchangeability, or commonality necessary to attain the required level of interoperability, or to optimize the use of resources, in the fields of operations, materiel, and administration.

The elements of standardization are defined as follows:

▮ Compatibility—operate without mutual interference
▮ Interoperability—operate more effectively together by exchanging services
▮ Interchangeability—have equal performance, exchangeable with minor adjustment
▮ Commonality—use the same doctrine, procedures, or equipment.

NATO policy supports standardization and its elements as a mechanism for the alliance forces and, when appropriate, partners and other nations to work collectively as one.

The aim of NATO standardization is to enhance the alliance's operational effectiveness by attaining interoperability among alliance forces and between NATO forces and forces of partners and other nations, thus improving efficiency in the use of available resources. In the past, these four elements of standardization were the focus of NATO policy for developing, ratifying, and implementing standardization agreements that lead to a common commitment to effective joint and multinational military operations. However, in recent years, interoperability has been elevated as the essential element for achieving operational effectiveness.

Standardization Process

Within its military structure, NATO has established subordinate bodies that utilize working groups consisting of technical experts to develop international standardization agreements (ISAs) covering interoperability issues between member nations. NATO uses a top-down and bottom-up process to identify deficiencies or develop operational standardization requirements. In general, the top-down approach is based on requests from nations or NATO commands to transform a need into a standardization agreement, and the bottom-up approach is the process in which technical experts within a NATO subordinate body determine a need for a standardization agreement.

Standardization Documents

The most important product of the standardization process is the generation of ISAs between member nations. The following are the two major types of standardization documents in NATO:[3]

▌ Standardization agreement (STANAG)—an agreement among several or all the member nations to adopt like or similar military equipment, ammunition, supplies, and stores, as well as operational, logistics, and administrative procedures

▌ Allied publication (AP)—a standardization document that some or all NATO nations agree to use as a common implementing document and that is distributed down to the user level.

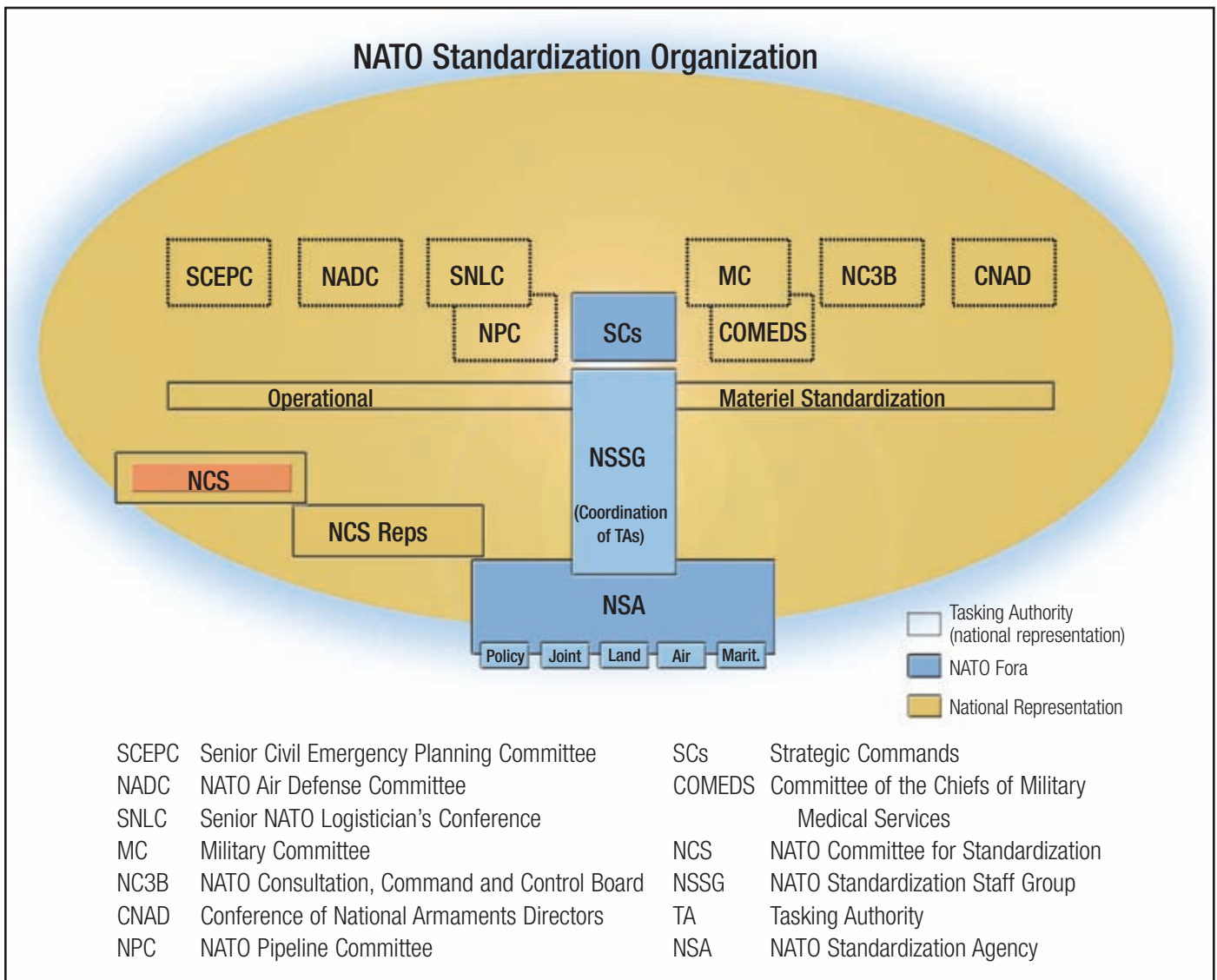The content of STANAGs and APs normally falls under one or more of the following categories:[4]

▌ Operations—standards that affect future or current military practice, procedures, or formats. They may apply to such matters as concepts, doctrine, tactics, techniques, logistics, training, reports, forms, maps, and charts, among other things.

▌ Materiel—standards that affect the characteristics of future or current materiel, including consultation, command and control (C3). They may cover production codes of practice, as well as materiel specifications. Materiel embraces complete systems, C3 systems, subsystems of weapon systems, interfaces, assemblies, components, spare parts, and consumables (including ammunition, fuel, supplies, stores, and spares).

▌ Administration—standards primarily concerned with terminology, which applies to both the "operations" and the "materiel" fields. This category also includes standards that facilitate alliance administration in fields without direct military application (such as financial matters, military ranks, the environment, and others).

In addition to STANAGs and APs, NATO policy encourages the adoption and use of suitable civil standards as much as possible.

NATO Standardization Organization

The NATO Standardization Organization (NSO) was established primarily to initiate, harmonize, coordinate, and support all standardization activities throughout the alliance. Its role is to enhance interoperability in order to help alliance forces train, exercise, and operate effectively together, and when appropriate, with forces of partner and other nations, in executing their assigned tasks. The NSO is also responsible for supporting and coordinating standardization activities of senior committees designated by the North Atlantic Council. Figure 1 illustrates the structure of the NSO and various activities that are responsible for developing ISAs.

FIGURE 1. Scheme of NATO Standardization Organization

NATO Standardization Organization

SCEPC	SCEPC	Senior Civil Emergency Planning Committee	SCs	Strategic Commands

SCEPC   Senior Civil Emergency Planning Committee
NADC   NATO Air Defense Committee
SNLC   Senior NATO Logistician's Conference
MC   Military Committee
NC3B   NATO Consultation, Command and Control Board
CNAD   Conference of National Armaments Directors
NPC   NATO Pipeline Committee

SCs   Strategic Commands
COMEDS Committee of the Chiefs of Military
        Medical Services
NCS   NATO Committee for Standardization
NSSG   NATO Standardization Staff Group
TA   Tasking Authority
NSA   NATO Standardization Agency

The NSO is composed of three essential elements:

▮ *NATO Committee for Standardization (NCS).* The NCS is the senior NATO author-
ity on overall standardization matters, oversees activities of the NSO, and reports to
the NAC. It is chaired by the Secretary General, normally represented by two per-
manent cochairmen (the Assistant Secretary General for Defense Support and the
Director of the International Military Staff). The work of the NCS is supported
and coordinated by NATO Committee for Standardization Representatives, who
are delegate-level representatives from each member nation.

▮ *NATO Standardization Agency (NSA).* The NSA is the most essential and perma-
nent element of the NSO. It is an independent NATO agency established by the
North Atlantic Council to function as the coordinator for all standardization
efforts with the goal of enhancing the combined operational effectiveness of
alliance military forces. It consists of a military and civilian staff, and it reports to

the NCS for general oversight and direction. The NSA is functionally organized into five branches (Policy and Coordination, Joint, Army, Naval, and Air) and an administrative support element. As illustrated in Figure 2, the NSA director is responsible for the activities of these branches.

FIGURE 2. NATO Standardization Agency
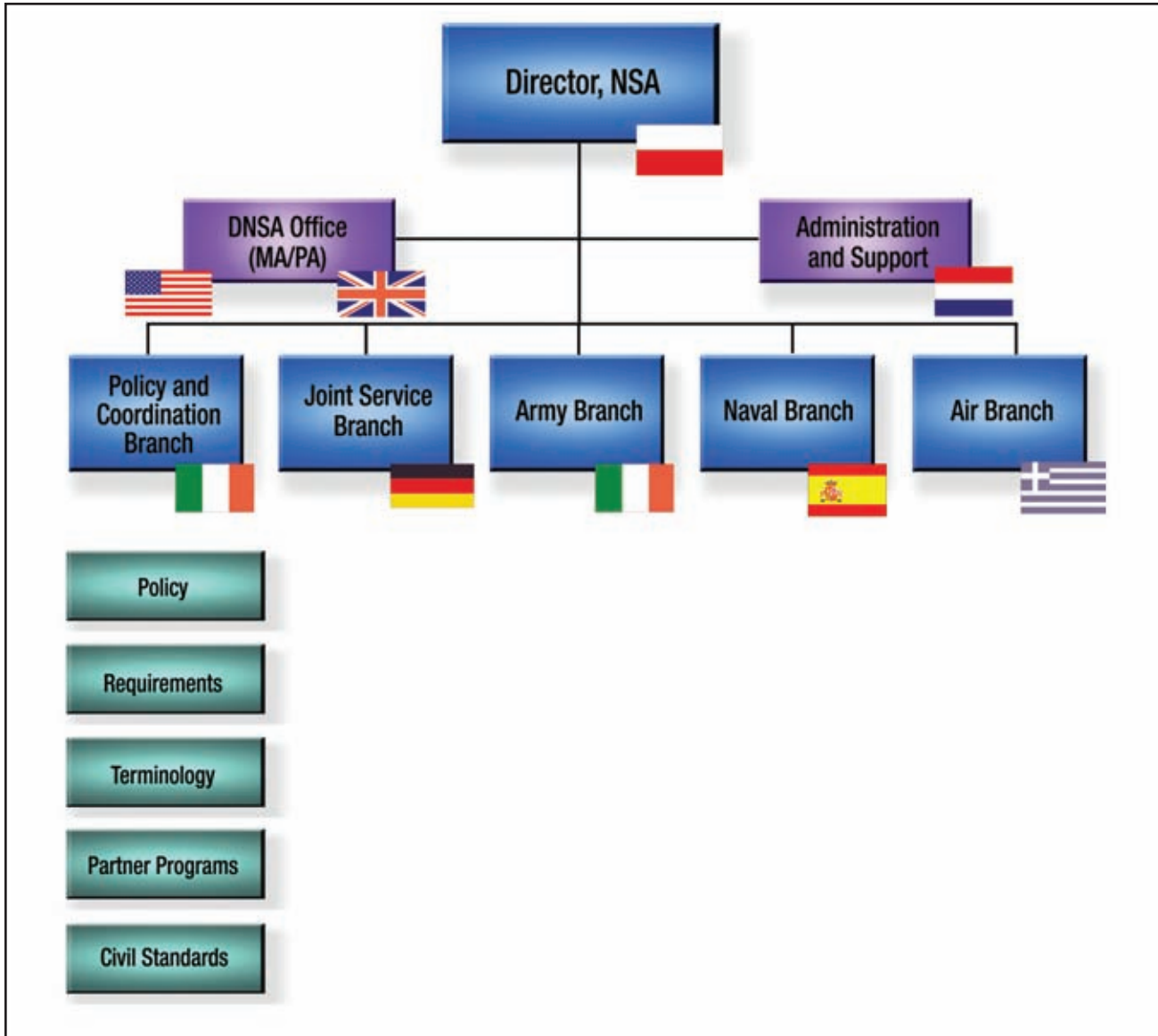
The NSA reports directly to the Military Committee (MC) for issues relating to operational standardization. As will be discussed later, NSA functions as the MC's lead agent for developing, coordinating, and assessing operational standardization.

▌ *NATO Standardization Staff Group (NSSG).* The NSSG is subordinate to the NCS. Chaired by the Deputy Director of NSA, this body was designed to be the central coordinating mechanism for standardization. Its principal task is to harmonize standardization policies and procedures and coordinate standardization activities. It is

responsible for staff liaison and preparing related documentation for the development of military standardization requirements by the strategic commands and for drafting standardization objectives for the NATO standardization program. It includes representatives from the strategic commands, staff representatives from the International Military Staff, and the International Staff supporting the standardization tasking authorities (TAs).

Each of these bodies is responsible for developing and enhancing the standardization process and for facilitating communication among member nations within the alliance.

Producers of ISAs

Within NATO, TAs have the authority to validate standardization requirements, and they assign subordinate bodies or working groups the task of producing STANAGs and APs with an emphasis on interoperability. NATO standards are agreed to and implemented by nations. Each NATO member nation is encouraged to send representation to engage in the standardization process within the TAs.

The responsibilities of the TAs are outlined in the following categories: operational, armaments, logistics, and C3 systems.

OPERATIONAL

The Military Committee is the exclusive TA for military operational standardization and requires that its subordinate bodies and commands, with a role to play in standardization, continue to develop and implement NATO operational, procedural, and technical standards for doctrine, tactics, techniques, procedures, and any related functions required in the field of joint military operations. It delegates this authority to subordinate bodies that manage the development of standardization across the range of military activities through expert working groups. These subordinate bodies are called Delegated Tasking Authorities (DTAs) and comprise representatives from each of the NATO member nations and strategic commands.

The Military Committee Standardization Boards (MCSBs) are the DTAs responsible for military operational standardization initiatives, with the aim of achieving interoperability of alliance and, where appropriate, other military forces and to optimize the use of resources. The MCSBs are as follows:

- Joint Standardization Board (MCJSB)
- Medical Standardization Board (MCMedSB)
- Land Standardization Board (MCLSB)
- Maritime Standardization Board (MCMSB)
- Air Standardization Board (MCASB).

In their respective areas of responsibility, the MCSBs focus on the development and promulgation of STANAGs and APs that improve the interoperability of alliance forces and, where appropriate, of multinational publications for use by other military forces.[5] These documents are developed by working groups and panels composed of subject matter experts, in which the United States provides representation.

The director of NSA is the principal advisor to the MC on the development and coordination of military operational standardization. As a key part of the NSO, NSA takes an active interest in all standardization–related activities, including operational standardization, in NATO.[6] As illustrated in Figure 3, the NSA provides staff support to the MCSBs pursuant to authority delegated by the MC. For example, the MCASB is supported by the Air Branch.

FIGURE 3. Relationship between NSA Branches and MCSBs
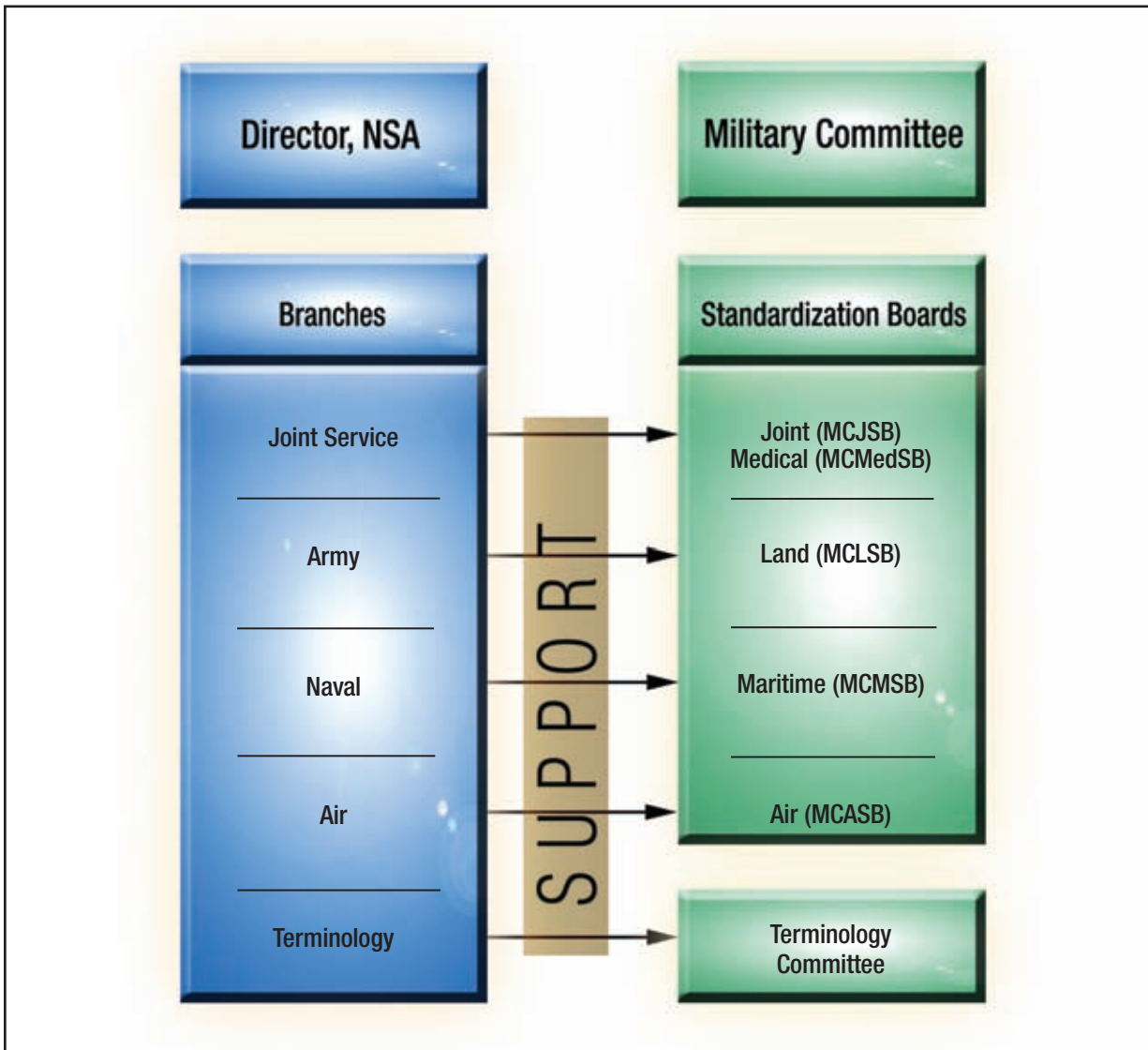
ARMAMENTS

The Conference of National Armaments Directors (CNAD) is the senior advisory body responsible for NATO armaments cooperation among NATO member nations and for the acquisition of equipment for NATO forces. The CNAD reports directly to the North Atlantic Council, the ultimate authority in NATO. Representatives of the National Armaments Directors (NADREPS), within the national delegations of member nations, undertake the routine tasks of the CNAD and direct the work of its working groups. The CNAD brings together senior officials responsible for defense acquisition within their individual nations, representatives from the Military Committee and NATO strategic commands, the chairmen of the CNAD Main Groups, and other civil and military authorities responsible for various aspects of production logistics.

The CNAD substructure consists of Allied Committees (ACs) that are supported by subordinate groups (e.g., Dependent Panels, Dependent Groups, Working Groups, and Teams). As shown in Figure 4, CNAD depends on these subordinate groups to promote standardization and cooperation in the procurement of equipment and armaments, as well as to coordinate with other TAs working on similar efforts and areas of expertise.

FIGURE 4. Conference of National Armaments Directors Substructure
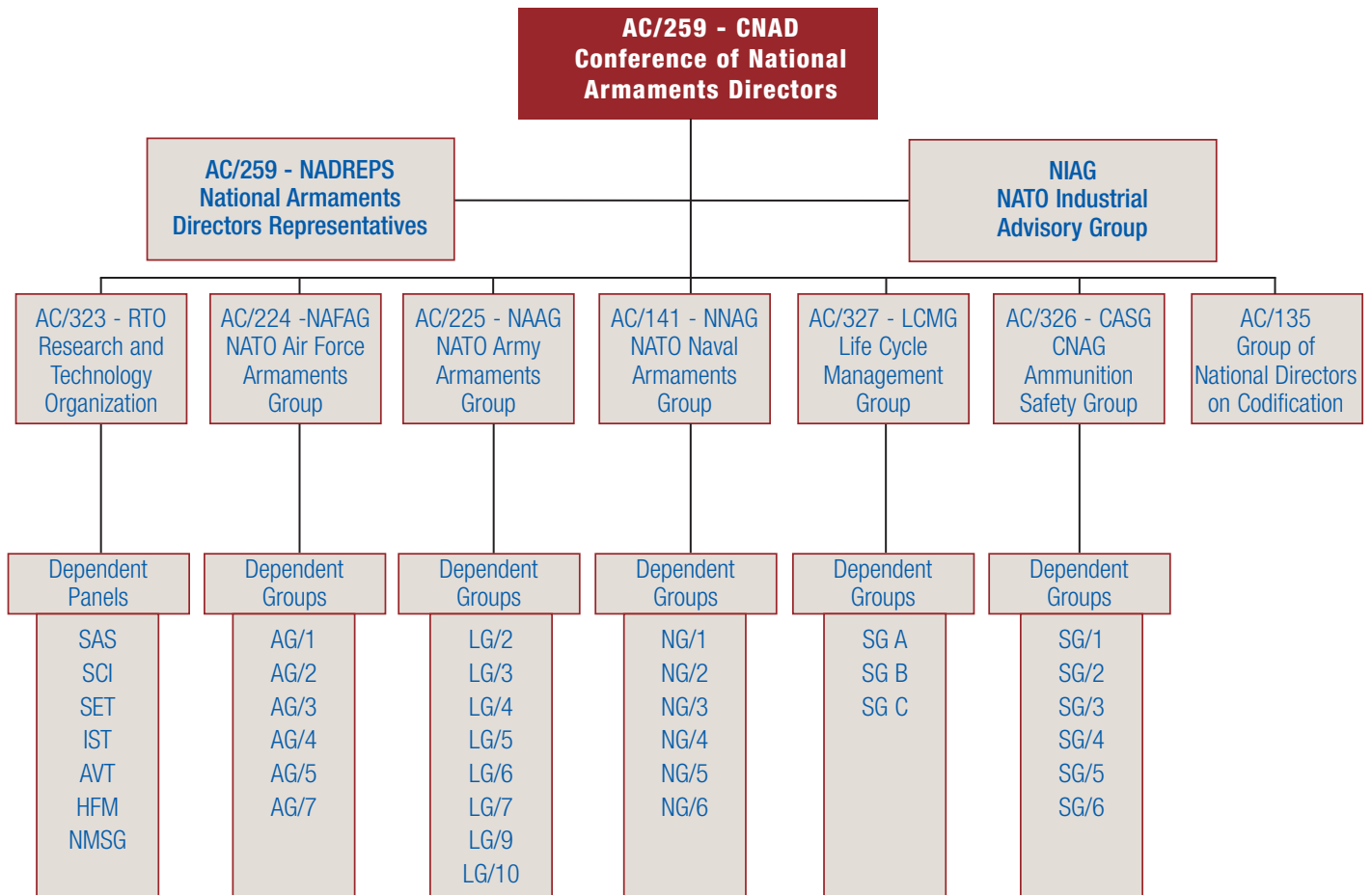
For example, the CNAD Ammunition Safety Group (CASG) (AC/326) is responsible for ammunition life cycle in support of CNAD priorities. It is composed of six groups that provide the forum for NATO, partner, and Mediterranean Dialogue nations to develop common standards and procedural guidance on munitions and explosives safety in order to foster interoperability in NATO-led operations, the potential for interchangeability of ammunition, and a basis for coordinated procurement of munitions and explosives. Another example is the Life Cycle Management Group (LCMG) (AC/327), which is composed of three subordinate groups that are ultimately responsible for standardization that will enable system life-cycle principles and processes to be enacted in armament systems, services, and equipment. This may include materiel specifications, disposal requirements, obsolescence management, logistical support, and other areas as determined by the group.

The chairman of each AC is a national representative, provided by member nations. There are as many chairmen as there are groups. Today, there are more than 400 subordinate groups at NATO, each of which can have one or more individuals representing the United States. In addition to their other duties, these representatives come from various military departments, defense agencies, and areas of expertise to support standardization in the area of armaments on behalf of the United States. The Under Secretary of Defense for Acquisition, Technology and Logistics—USD(AT&L)—serves as the U.S. representative at the NATO Conference of National Armaments Directors.

LOGISTICS

The Senior NATO Logisticians' Conference (SNLC) is responsible for the assessment of alliance consumer logistics requirements and ensuring adequate logistics support of NATO forces. The SNLC acts as the coordinating authority for logistics and, as such, is responsible for harmonizing and coordinating the development of policy recommendations and coordinated advice on civil and military logistic activities, alliance logistics interoperability, and cooperation in logistics. The conference comprises senior national civil and military representatives from member nations' departments of defense or equivalent bodies with responsibility for consumer aspects of logistics in member countries. Representatives of the strategic commands, the NATO Maintenance and Supply Agency (NAMSA), the NSA, the Committee of the Chiefs of Military Medical Services in NATO (COMEDS), and other sectors of the NATO Headquarters staff also participate in the work of the conference. The U.S. representatives to SNLC are the Director for Logistics (J4), Joint Chiefs of Staff, and the Director for Planning and Analysis, OUSD(AT&L).

C3 SYSTEMS

The NATO Consultation, Command and Control Board (NC3B) is a senior multinational body responsible for all matters relating to C3 throughout NATO. This also in-

cludes interoperability of NATO and national C3 systems, as well as providing advice to CNAD on C3 cooperative programs. The U.S. representative to NC3B is the chief information officer for the Assistant Secretary of Defense, Network Information and Integration.

National Participation

According to alliance policy, national and NATO authorities are encouraged to develop, agree on, and implement concepts, doctrines, procedures, and designs that will enable them to achieve and maintain interoperability. It must be noted that there is no one-size-fits-all approach to managing the individual elements of standardization within national capitals of NATO members. NATO recognizes that each member has unique operational and technical capabilities; therefore, it is the nations that decide when and how they contribute to this process.

Nevertheless, international standardization agreements and activities are a direct result of individual contributions from NATO member nations on a voluntary basis. The combined efforts of civilian and military personnel from member nations support a number of initiatives that promote standardization and interoperability most critical to the success of coalition operations.

From the development, ratification, and implementation of standardization agreements, all member nations of the alliance are invited to participate in the overall standardization process to reach the end state of interoperability. However, interoperability between U.S. forces and coalition partners is allied joint doctrine and defense acquisition policy. Within the U.S. Department of Defense, each military department and defense agency has established its own policies to support the U.S. position and the NATO standardization process.

[1] The information in this article regarding the structure of standardization within NATO can be found in the *NATO Handbook*, located at http://www.nato.int/docu/handbook. Other information concerning NATO is available at http://www.nato.int.

[2] Defense Link, "The Fundamental Role of NATO," updated June 11, 2003. Available at http://www.defenselink.mil/specials/nato2003/natohomep.html.

[3] North Atlantic Treaty Organization, NATO Standardization Agency, Allied Publication 6, *NATO Glossary of Terms and Definitions*, 2005.

[4] North Atlantic Treaty Organization, NATO Standardization Agency, Allied Publication 3, *Directives for the Development and Production of NATO Standardization Agreements (STANAGs) and Allied Publications (APs)*, February 2004.

[5] North Atlantic Treaty Organization, North Atlantic Military Committee, *MC Policy for Military Operational Standardization*, MC 20/10, May 27, 2004.

[6] NATO Standardization Agency, *The NSA Today*, Updated: March 21, 2002. Available at http://www.nato.int/nsa/nsa_today.htm
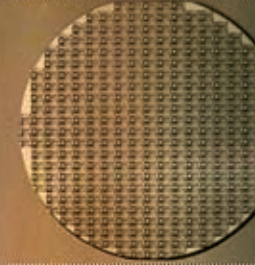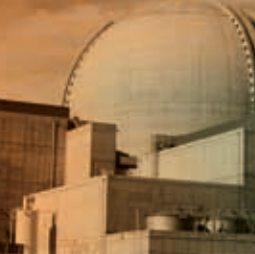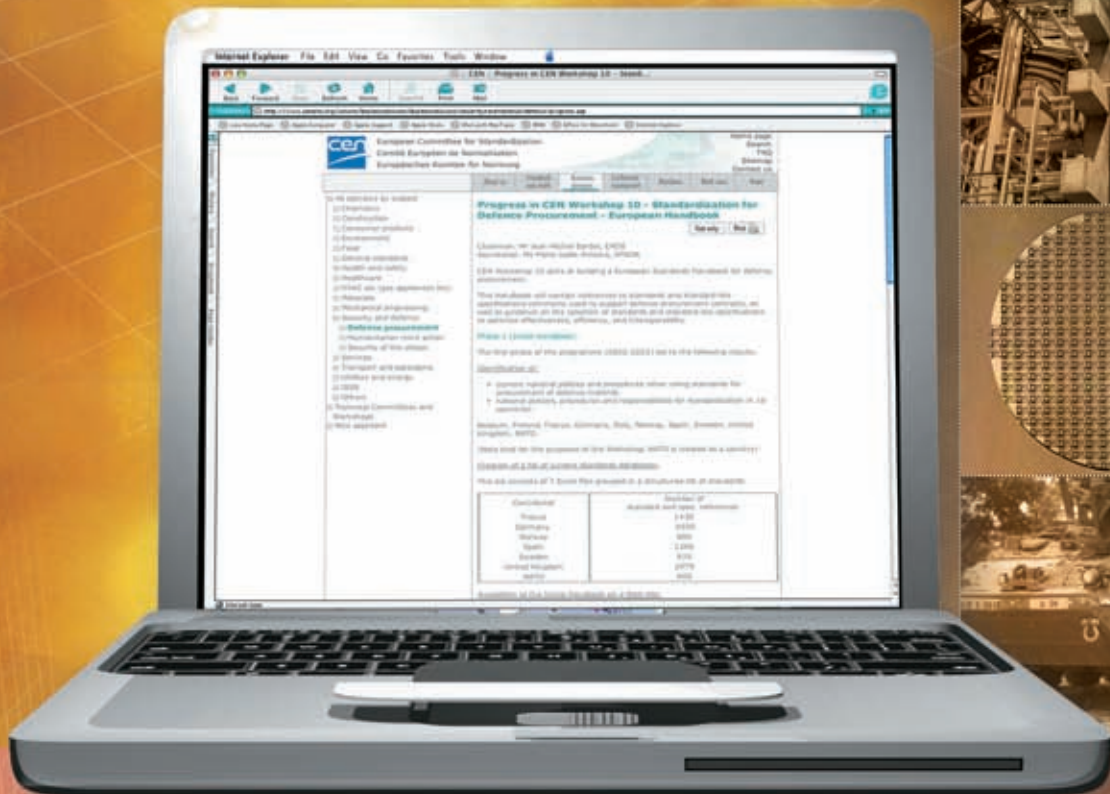
About the Author

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The Defense
Handbook

A Joint Effort to Defragment the European Defense Market through Standards Selection

By Jean-Michel Bardot

In theory, standardization should promote interoperability by reducing diversity. Yet having standards in profusion—among all sectors of society and within every country—can hinder these very goals. That problem is at the heart of recent efforts to develop the European Handbook for Defense Procurement, which seeks to enhance interoperability in future defense procurement contracts by winnowing down tens of thousands of available standards to a select and manageable group. This article explains the origin and driving purpose of this Defense Handbook, current efforts to expand its scope, and its likely future direction.

Evolving Cooperation

For centuries, individual European countries sought to develop and protect their own national defense capabilities, in terms of both their forces and their defense technology and industrial base. As a consequence, the European defense market developed in a fragmented manner.

Steps have already been taken toward operating multinational armed forces—first with NATO, through peacekeeping operations, and more recently with joint activities like projection capability.

Meanwhile, in the industrial sector, consolidations during the last 5 to 10 years have significantly contributed to the defragmentation of the defense technology and industrial base. The European Aeronautic, Defense and Space Company is certainly one of the most representative achievements in this respect. Most of the aerospace and defense industries of France (the former Aerospatiale company), Germany (Daimler-Chrysler Aerospace, or DASA), and Spain (Construcciones Aeronáuticas SA, or CASA) merged into that single company in 2000.

Despite their utmost importance in these matters, however, industrial consolidations are not the only facet of a common defense armaments policy. Achieving that also requires joint armament programs and a consistent procurement policy.

Genesis of the Handbook

Defense matters are not within the scope of the initial Rome Treaty, which established what is now the European Union (EU). Nevertheless, in the 1990s, some European countries took several initiatives to start converging their armament policies:

- From 1993 until recently, the Western European Armaments Group (WEAG) provided a forum for national armament directors from 19 countries.

- The Organization for Joint Armament Cooperation (Organisation Conjointe de Coopération en matière d'ARmement, or OCCAR) was set up in 1996, with six member states (Belgium, France, Germany, Italy, Spain, and the United Kingdom). It manages European programs such as those for the A400M transport aircraft and Tiger helicopter.

- In 1998, Germany, France, Italy, Spain, Sweden, and the United Kingdom signed the Letter of Intent agreeing to set up a suitable environment for an integrated European defense industry.

In addition to those efforts, the European Commission contracted in 1998 with a team of independent institutes, led by the University of Sussex, for a "study on the standardization systems in the defense industries in the EU member states and the USA." This research, presented in 1999, became known as the Sussex Study. If one had to sum up this significant study in a few words, these would be the highlights:

- *Vision.* A common European market for defense goods and services is the goal; reforming EU defense standardization systems is a means to achieve it.

- *Action plan.* This reform of standardization systems should
  - identify current practices in procurement and standardization, and perform a selection of standards, and
  - inform about and promote best practices.
- *Compatibility.* This reform should be compatible with its environment, in particular, civil organizations, NATO, and U.S. defense standardization reform.

aside from its traditional technical committees, dedicated to developing new standards, it operates workshops. These are more flexible than the technical committees and produce CEN Workshop Agreements, which can be considered strong recommendations based on the consensus of directly interested and contributing stakeholders (see sidebar, "About CEN Workshops"). After several meetings involving the European Commission, CEN, WEAG, and industry, CEN Workshop 10 had its kickoff meeting in May 2002.

> For the first year, the CEN Workshop 10 focused on EU member states' ministries of defense (MoDs) and, more precisely, on their current structures and processes.

In response to the Sussex Study, the European Commission organized a seminar, "European Defense Procurement in the 21st Century: Improving Efficiency and Enhancing Competitiveness—The Role of Standardization," in November 2000. As a result, the European Committee for Standardization (Comité Europeen de Normalisation, or CEN) was tasked by the commission to develop a handbook for defense procurement.

The handbook would contain references to standards and standard-like documents commonly used to support defense procurement contracts (a snapshot of the current situation), as well as a selection of standards and standard-like documents, and guidelines on their optimum use. The purpose was to ensure effectiveness, efficiency, and interoperability in future defense procurement contracts.

This was a brand new challenge for CEN, because until then, defense matters were not part of its agenda. But CEN had an effective tool at its disposal:

CEN Workshop 10

For the first year, the CEN Workshop 10 focused on EU member states' ministries of defense (MoDs) and, more precisely, on their current structures and processes. Nine countries plus NATO agreed to provide three initial sets of information, in 2003:

- A description of current processes and structures for national defense procurement
- A description of current processes and structures for national defense standardization
- A list of the standards employed in their current defense procurement programs.

This initial effort already represented a significant step forward, from a cultural point of view, as everybody knew that this information would be going public. The list of standards collected was not complete, yet it already encompassed about 12,000 items.

With an assessment of the current situation available (the initial handbook), the challenge was now to

streamline this patchwork of standards in order to

- select the most relevant and widely used ones, keeping in mind the recommendations of the Sussex Study regarding the civil, NATO, and U.S. standards environment, and
- develop recommendations for future program managers on how to use the selected standards.

At this point, in 2004, it became necessary to call for experts. It was clear that the effort could not possibly tackle, all at once, the full spectrum of interests covered by the 12,000 standards. Therefore, a first set of eight technical domains was selected, with strong involvement of the WEAG MoDs. The eight areas of expertise were chosen on practical considerations: a clear and shared definition of the scope, a sufficient number of initial standards, and the availability of specialists. Twelve countries nominated 112 specialists (with a good balance between government and industry), several of them already active in NATO and other standardization groups. These experts met several times in 2004 and early 2005, and conducted a lot of homework and electronic exchanges to select standards in the following domains:

- Batteries
- Electrical interfaces
- Electromagnetic environment
- Energetic materials
- Environmental engineering
- Fuels and lubricants
- Nuclear, biological, and chemical detectors
- Packaging.

The experts were asked to make their selection on the basis of the standards contained in the initial handbook, but also any others relevant to their domain of expertise, whatever the origin might be. They were encouraged to examine civil standards, as well as non-European ones. The only criterion was the technical and industrial relevance of their work. In September 2005, the eight selections, plus the first recommendations for each of them (in a preliminary open format), were put together and published on a website, www.defense-handbook.org.

About CEN Workshops

Besides the more formally structured technical committees for promulgating new standards, CEN operates "workshops" that offer certain advantages for developing agreements:

- The workshops are a simple and flexible working platform, open to any company or organization worldwide, for rapidly elaborating consensus documents at the European level.
- The processes for drafting a document, determining its contents, and establishing the final consensus are entirely in the hands of the participants.
- Most work is done via e-mail and Internet platforms to avoid wasting time in travel and meetings, and to exploit the process transparency available via the CEN website.
- The outcome is a CEN Workshop Agreement, available in 28 countries using CEN's network.
- The agreement is prepared on the basis of a business plan agreed to at a kickoff meeting. Once it is drafted and adopted by interested parties, it is published by CEN and reviewed again after 3 years.

These initial selections constitute Part 1 of the handbook, and they will be followed by as many parts as deemed necessary to cover the full spectrum.

Part 2 has already started, with the identification of eight new domains of expertise:

- ▌ Ammunition
- ▌ Armored ground vehicle technologies
- ▌ Fluid handling systems
- ▌ Integrated logistics support (life extension, etc.)
- ▌ Life-cycle management (technical documentation)
- ▌ Paints and coatings
- ▌ Portable power supply
- ▌ Terminology.

The participating countries are identifying experts from government and industry, and it is hoped that this step will be completed in early 2006. The specialists will meet about every 2 months and report to the plenary meetings of CEN Workshop 10, which are to be held quarterly. These plenary sessions are open to all participants with valuable expertise (representatives of Turkey, Canada, and Russia attended some meetings in 2004–2005), and they are an opportunity for the conveners of the eight expert groups to report on their progress or difficulties. The groups make extensive use of electronic exchanges between meetings.

The Way Ahead

CEN Workshop 10—the main recommendation of the Sussex Study and the first to be implemented—has now built momentum, thanks to the European Commission, which provides financial support for the secretarial work and some travel costs of the EU experts.

"Standardization is the first topic on which concrete action is being carried out on an armament-related issue in the Community framework. This is also the only example of Commission cooperation with na-

tional armament authorities prior to the creation of the European Defense Agency," said Heinz Zourek, deputy director general for Enterprise and Industry, during the July 2005 Conference on Defense Industries and Marketplace. "The Commission has thus invited the agency to promote the use of the handbook by member states for their defense procurement, once the handbook is released."

The initiative is on track and moving, yet the remaining journey is still long. As explained further below, Part 1 of the handbook requires updating and upgrading, but it is a valuable first step toward a more comprehensive approach to a common European defense procurement policy.

A number of significant events in the past 2 years are worth mentioning:

- ▌ A European Council resolution on standardization in the field of armaments was passed on March 11, 2003. On the same day, the Commission issued "Towards a European Defense Equipment Policy." Both were explicitly pushing the CEN handbook completion.
- ▌ The European Defense Agency (www.eda.eu. int) was established in 2004. The agency fully supports the concept of the handbook in relation to its work on the defense technology and industrial base and procurement best practices, and will do its part in promoting the use of the handbook. In the field of material standardization, its Armaments Directorate is assisted by the Material Standards Harmonization Team, which consists of national MoD standardization experts. The team experts already under the WEAG contributed expertise to CEN Workshop 10.
- ▌ In July 2005, the European Commission and the European Defense Agency organized a conference on "Europe's Defense Industries and

Marketplace." The Defense Handbook was one of the four items on the agenda.

- A seminar held on November 24, 2005—organized by the European Defense Agency, in conjunction with the Commission—specifically addressed standardization and reviewed the possible ways forward, based on further consideration of the Sussex Study.

- Also in 2005, NATO established a Civil Standards Management Working Group, chaired by Greg Saunders, director of the Defense Standardization Program Office. This group will rule on the transfer of standards (both ways) among NATO and civil standardization organizations (ISO, International Electrotechnical Commission), European organizations (CEN, European Committee for Electrotechnical Standardization, European Telecommunications Standards Institute), and U.S. organizations (American National Standards Institute, ASTM International, Society of Automotive Engineers).

The Future of the Defense Handbook

The reform of the European defense standardization system will not be limited to the handbook, but that represents its most significant and tangible feature so far. So, what is the Defense Handbook's future?

The current 1.0 version of Part 1, while representing a significant achievement, deserves some updating and upgrading:

- The website should be made even more user friendly.

- The selections of standards performed by the first eight expert groups still need streamlining to reduce the number of national standards, in favor of more international and dual standards.

- The recommendations coming along with the eight selections need to be reformatted in a common (standardized) format that is more easi-ly manageable from a user's point of view.

A second wave of expert groups needs to perform selections and develop recommendations for eight additional domains in 2006 (Part 2).

A communication plan must be established to promote the handbook among its potential users (government procurement agencies as well as defense industries).

Expert groups should be opened to more European member states, and non–European members should be sought.

Standardizing the Standards

Standardization is supposed to reduce diversity, thus favoring interoperability and reducing costs. But we all face a proliferation of standards—civil, military, domestic, international—that works against these goals.

The Defense Handbook is a joint effort to refocus on these basic goals. It is a tool to help defragment the European defense market, which is its primary target. The full spectrum of defense standards has not yet been addressed, which can be seen as a frustration: the tool is not yet fully available. But it can also be seen as an opportunity: the tool will be better and consensual.

About the Author

Jean-Michel Bardot has more than 30 years of experience in operations (engineering, procurement, and manufacturing) and is now vice-president for quality at the European Aeronautic, Defense and Space Company. Mr. Bardot participates in six different French or European standardization organizations, including CEN Workshop 10, which he chairs. He is also a member of the International Aerospace Quality Group and the NATO Civil Standards Management Working Group.

Army International
Standardization
An Update

By Karim Abdian

The Winter 2002 issue of the *Defense Standardization Program Journal* included an article titled "International Standardization for the 21st Century—An Army View." In its concluding paragraph, the article quoted "National Security for the 21st Century":

> Militaries are transforming and thus creating uneven and divergent capabilities. Communication and other interoperability requirements become increasingly difficult, even while coalition operations become more prevalent.

In retrospect, that statement seems to have been prophetic of what has since transpired.

Let's consider the 2002 article to illustrate what has changed, viewed from the Army's perspective.

Policy and Procedures

Army Regulation 34-1, "Multinational Force Compatibility (MFC)," defines the concept and establishes policy for MFC through international military standardization and other Army security cooperation activities. It is significant that the "Rationalization, Standardization, and Interoperability" wording of the former title has been replaced with a title indicative of the proactive, specific thrust of MFC in enhancing the U.S. Army's ability to lead or operate as a member of a coalition or alliance.

Of specific interest to the standardization community, the regulation prescribes the responsibilities and procedures for the following international standardization bodies: NATO Military Committee Land Board, NATO Army Armaments Group; American, British, Canadian, and Australian Armies (ABCA) Standardization Program; and Five Power and bilateral Senior National Representatives (Army). These international bodies and their subordinate committees develop international standardization agreements (ISAs). The Army is the U.S. lead in these activities. When a positive consensus on an ISA is reached through coordination with Army organizations and the other U.S. military departments and defense agencies, the Army international affairs office ratifies the agreement.

All ratified ISAs must have an implementing document or be self-implementing. "Self-implementing" means the ISA contains requirements that can be directly cited in a solicitation or contract. If this is not the case, an implementing document must be identified or developed to state the requirements. In the case of materiel ISAs, the document may be a military specification or standard, a federal specification or standard, or a non-government standard. Regardless of the type of document used to implement an ISA, it is crucial that the ISA and its implementing document be cross-referenced to each other. If they are not, materiel developers may be unable to locate the ISA and its implementing document to correctly reference requirements in a contract.

Organization

Prior to 2003, the Secretary of the Army assigned sole responsibility for international affairs functions within the Department of the Army to the Deputy Under Secretary of the Army for International Affairs (DUSA-IA). DUSA-IA provided oversight and advocacy for all international policies, programs, and activities, including development and ratification of ISAs. In a 2003 reorganization, DUSA-IA was disestablished. Its functions related to ISAs, including NATO standardization agreements (STANAGs) and ABCA standards, were assigned to the Department of the Army, Deputy Chief of Staff for Operations, G-3 (G-3/5/7).

Army G-3 conducts and oversees the key international standardization functions of developing and coordinating new and revised ISAs related to materiel, munitions, supply, disposal, testing, and logistics support. The actions associated with these functions include soliciting and consolidating comments on Army-led ISAs; soliciting, consolidating, and providing Army comments on other services' ISAs; maintaining records; ratifying approved agreements; and providing ratified ISAs to the cognizant international body for promulgation to the interested nations.

The office of primary responsibility is located within the same organization and maintains the database for the U.S. office of record for ISAs. As described in SD-1, *Standardization Directory*, this office manages the U.S. Army coordination of NATO STANAGs and Allied Publications, ABCA standards, and standards developed by the Air and Space Interoperability Council. The office serves as the action agent for the Department of Defense (DoD) International Military Standardization Working Group and for the ABCA Program. It also operates and staffs the U.S. National Standardization Offices for ABCA. At a parallel staff level, the Deputy Assistant Secretary of the Army for Defense Export and Cooperation is intimately involved in those international activities related to NATO materiel standardization agreements.

These Army-level activities relate to the Army Standardization Executive function, which is assigned to Headquarters, Army Materiel Command. That function is responsible for ensuring that ratified materiel agreements that are intended for use in acquisition conform to DoD acquisition policy, as set forth in DoD Instruction 5000.1 and 2, as well as the guidance in the *Defense Acquisition Guidebook*.

What's Happening in the Real World?

Joint Vision 2020 states the underlying need of interoperability for successful Army operations: "Interoperability is the foundation of effective joint, multinational, and interagency operations. Interoperability is a mandate for the joint force of 2020, especially in terms of communications,

common logistics items, and information sharing."

In its 2002 *Journal* article, the Army touched on a historical note about the defeat of the Spanish Armada in 1588 at the hands of the English. A crucial factor in the eventual English victory was the Spanish fleet's lack of standardized cannon bore caliber. The Spanish and their allies could not share ammunition among their ships. The defeat of the great armada spelled the end to Spanish dominance on the high seas and provided an important lesson for succeeding generations.

Several present-day Army projects indicate how well the need for standardization among allies and coalition partners is understood:

▮ *Standardization of 155 mm cannon and ammunition*. Five nations—the United States, Germany, Italy, Great Britain, and France—have cooperated for over 30 years to standardize elements of each nation's 155 mm cannons, propelling charges, primers, projectiles, fuses, and fuse setters with a goal of achieving interchangeability, both for training and use on the battlefield. Validation testing by the participating nations demonstrated interoperability. The U.S. Army Armament Research, Development, and Engineering Center is the U.S. lead for this continuing program as new ammunition types and cannons are developed by the member nations.

▮ *Logistics over the shore (LOTS) commercial container certification of special configured military cargo*. Specialized cargo was configured for military transport, but did not meet the requirements for commercial transport. This situation becomes a serious problem during deployments, when military air, rail, road, and sea lift assets are limited. One example

of enabling military materiel to be shipped aboard commercial vessels is the Modular Causeway System. This floating barge system is used to move supplies and equipment ashore from anchored ships when port facilities are denied. A key component in the Army's LOTS concept, the causeway system was designed according to ISO standards. However, it was not configured as a common intermodal container and was therefore prohibited by regulations from using commercial shipping. In a cooperative effort with the U.S. Coast Guard, the Army's Tank-automotive and Armaments Command developed certification test criteria, inspector training and qualification, and technical manuals for inspection and maintenance procedures. To ensure a lasting solution, there is an ongoing effort to amend Army Regulation 56-4, "Management of the Army Intermodal Containers Systems," with the appropriate certification procedures to allow special configured cargo to be shipped using commercial transport modes.

▮ *Demonstration of materiel handling interoperability*. For more than 50 years, NATO's interoperability efforts have been embodied in NATO standardization agreements, or STANAGs. However, a STANAG's utility as a force multiplier to allied forces must be proven through a validation process involving demonstrations with allied forces. Only then can commanders be assured of optimal use of available resources to accomplish missions. Effective multinational logistics requires one nation's assets to be interoperable with another nation's assets. An example of how STANAGs' requirements and nations' logistics interoperability have been tested was the participation of U.S. Army Materiel Command Logistics Support

Activity personnel in trials with 10 other nations to demonstrate interoperability between U.S. flat-rack pallet systems and allied nations' load-handling vehicles. The bottom line for the U.S. Army is that demonstrated compatibility stretches scarce resources with the use of other nations' capabilities.

■ *Measurement of the effectiveness of biological decontamination (DECON) products.* Critical to military and homeland defense operations is effective DECON of military and civilian vehicles, weapons, equipment, buildings, and other materiel. The Government Accountability Office concluded, from a study of hospital infections, that 20 percent of the disinfectants on the market were ineffective. Important lessons have been learned about the effectiveness (and ineffectiveness) of biological DECON agents, most recently from the efforts to clean up after the anthrax attacks in Washington and other locales. The problems with military DECON are similar. Until recently, the effectiveness of DECON products was not exhaustively studied because of the severity of biowarfare diseases and the manner in which contamination takes place. Now, however, the U.S. Army Edgewood Chemical Biological Center has developed a standard test method for determining the efficacy of DECON products. The test method is accurate, economical, and rapid compared with other methods. ASTM International has adopted the method as a standard—ASTM Standard E 2414-05, "Test Method for Quantitative Sporicidal Three-Step Method (TSM) to Determine Sporicidal Efficacy of Liquids, Liquid Sprays, and Vapor or Gases on Contaminated Carrier Surfaces"—and it is expected to be the referenced procedure for evaluating DECON products among allied nations and future coalition partners. As a result, dependable DECON products can be interchangeable among participating military units, increasing their interoperability in an area vital to maintaining the warfighting capability of soldiers and equipment.

These efforts to mitigate the creation of "uneven and divergent capabilities…while coalition operations become more prevalent" are only a few of the Army's accomplishments in the international sphere.

What Needs to Be Done?

The creation of uneven and divergent capabilities can be further mitigated in two ways:

■ *Use of the Program Manager's Tool (PMT).* Ratification does not complete the life cycle of NATO STANAGs or ABCA standards. They must be implemented by military specifications and standards, federal specifications, or non-government standards developed by industry consensus bodies, and then applied appropriately in solicitations and contracts. There are tens of thousands of these documents. The PMT, under development by the Defense Standardization Program Office, is designed to aid materiel developers by organizing these ISAs and their implementing documents in a generic work breakdown structure (WBS) organized by platform type, such as airframe or track or wheeled vehicle. By identifying the application of an ISA within the WBS, the PMT draws attention to international interoperability requirements and assists materiel developers with their consideration of competing requirements.
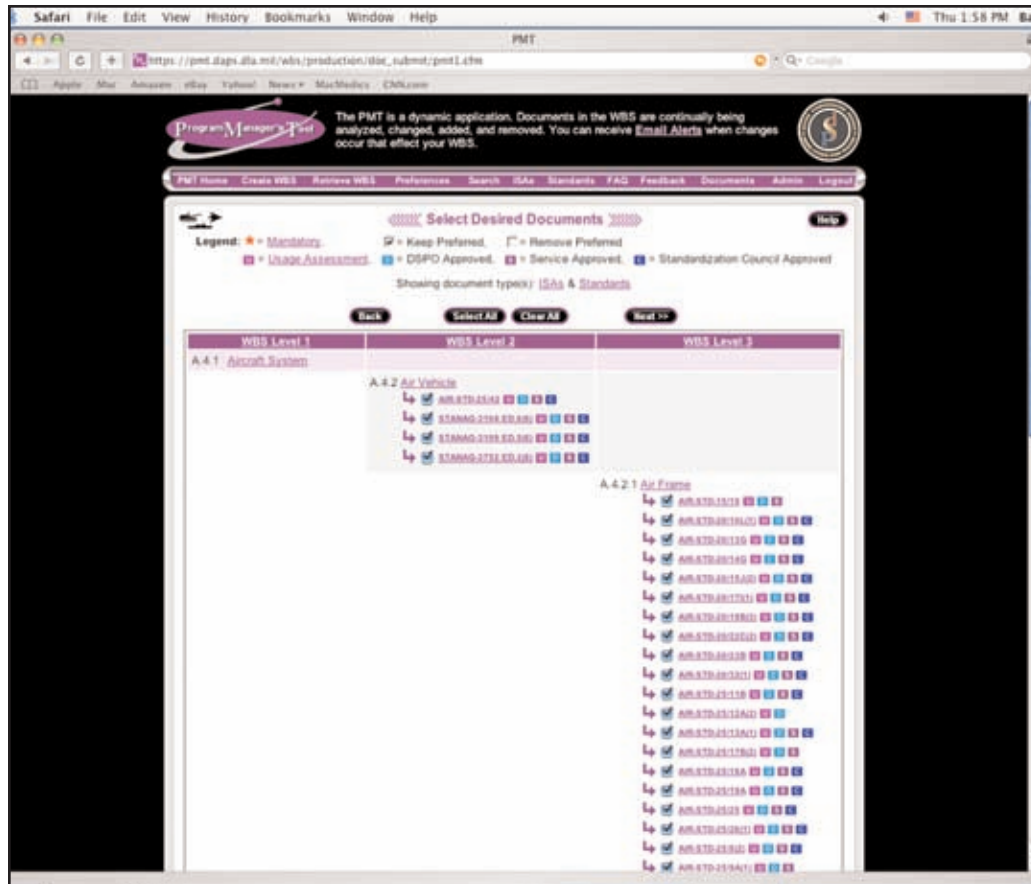
The PMT organizes ISAs and their implementing documents by platform type, which helps draw attention to international interoperability requirements.

■ *Changes to Office of the Secretary of Defense policy*. Numerous policy documents issued by DoD and the Chairman of the Joint Chiefs of Staff relate to aspects of international standardization and interoperability. The U.S. Air Force has completed a detailed analysis of these documents and has determined specific changes that are necessary to strengthen the requirements to achieve better interoperability. These are the keystone documents that drive the service implementing policy and procedures.

Conclusion

As the Army Standardization Executive noted in the last paragraph of the Army's 2002 *Journal* article, "The Army is transforming itself to meet the challenges of interoperability in a coalition envi-

ronment." The current US–UK Interoperability Plan is providing structure for an initiative to integrate units from the United States and United Kingdom into each other's brigades and divisions. The concept is for men and materiel to be integrated so thoroughly as to be virtually indistinguishable in form, fit, and function.
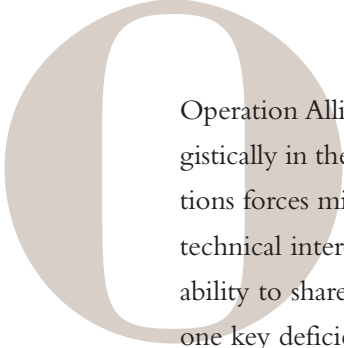
About the Author

Karim Abdian is the Army Standardization Manager. He has more than 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.✳

Achieving Interoperability in NATO

Sharing Electronic Intelligence Data

By Dennis Lynn and Eric Wexler
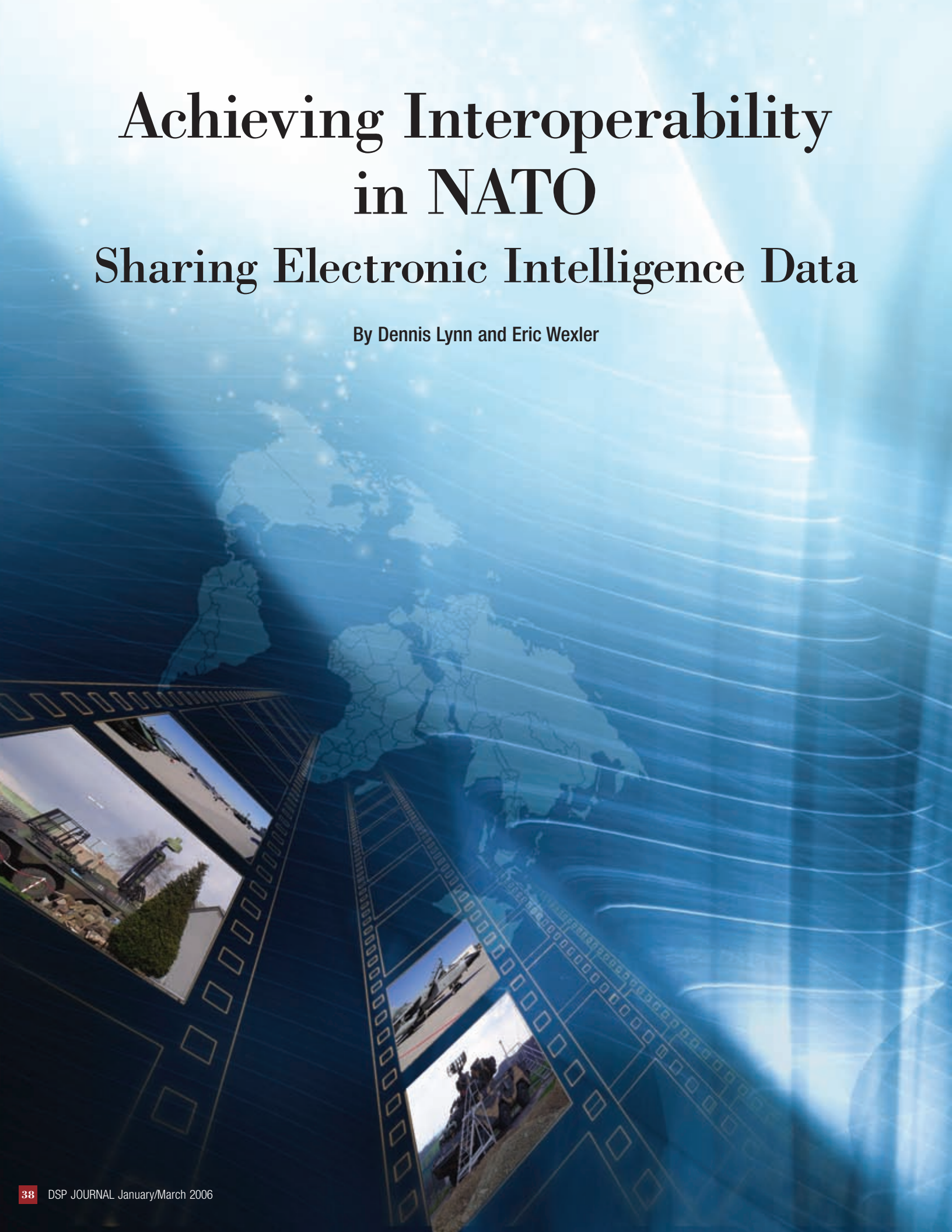
Operation Allied Force in 1999 revealed the inability of NATO forces to operate synergistically in the intelligence, suppression of enemy air defenses (SEAD), and special operations forces mission areas. Consequently, NATO leaders sought to comprehensively solve technical interoperability shortfalls experienced during those combat operations. The inability to share electronic intelligence (ELINT) data—long a problem—was identified as one key deficiency hindering mission timeliness and effectiveness. Could the Allies find a way to share sensitive emitter data?

Solving the Problem

Under the framework of the NATO defense capability initiatives, the need to improve alliance signals intelligence (SIGINT) and SEAD capabilities was sighted as a key area to be pursued. The Conference of National Armaments Directors (CNAD) tasked its subordinate body on airpower, the NATO Air Force Armaments Group, to develop technical interoperability initiatives to solve operational shortfalls.

In 2003, the ELINT/Electronic Support Measures (ESM) Ad Hoc Working Group (EE AHWG) was established to undertake the following:

▮ Create a common technical standard for sharing ELINT data to allow NATO to maintain a common threat library and enemy order of battle

▮ Improve SEAD by harmonizing the ability of NATO forces' SIGINT aircraft to conduct cooperative geolocation of threat systems such as mobile surface-to-air missile (SAM) systems (e.g., SA-6)

▮ Ensure that the work is done in conjunction with operational, technical, doctrinal, and policy support from relevant NATO and national bodies.

The newly formed EE AHWG developed an ambitious program of work using a multinational and multidiscipline approach. In time, the group grew to include teams from nine NATO organizations and 16 nations: Belgium, Canada, the Czech Republic, France, Germany, Greece, Italy, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, the United Kingdom, and the United States. Experts were drawn from national intelligence agencies, defense laboratories, acquisition directorates, operational SIGINT platforms, and industry. Later, the EE AHWG incorporated the support of key industrial participants to form a small study team to address key technological issues related to emitter location systems and data links.

With a 2-year mandate to develop interoperable capabilities, the EE AHWG addressed two questions:

▮ How will traditionally national SIGINT collection platforms (aircraft, ground

vehicles, and ships) share intelligence?

■ What do consumers of ELINT data need to improve their combat effectiveness?

The need for a common ELINT data standard was identified early in the planning, and the EE AHWG worked with several national intelligence services such as the U.S. National Security Agency, the Norwegian Intelligence Service, and others to ensure multinational acceptance for the standard. To that end, NATO standardization agreement (STANAG) 4633—"The NATO Common ELINT/ESM Reporting Format (NCERF)"—was produced. STANAG 4633 allows NATO to centrally manage a common operational intercepted database to derive electronic orders of battle and a common operational picture. Now, NATO can share data in a matter of hours, rather than days or, in some cases, weeks, as was the case in Operation Allied Force in 1999.

In addition to STANAG 4633, the group worked on several new methods to identify and geolocate mobile "pop-up" SAM systems or other high-value targets (e.g., terrorists). To accomplish this, nations agreed upon the need for interoperable data links and common message formats in order to shrink timelines from hours to minutes, thus placing decision-quality data in the hands of NATO military commanders more rapidly. Recent operations in the Middle East had revealed that enemy combatants were quickly learning that they could win conventional combat using conventional tactics. They employed several countermeasures to prevent being seen and heard. Short-duration signals are notoriously difficult to detect and geolocate from a single platform. However, when several collectors work against a single target, results can be significantly improved.

The EE AHWG decided to organize and execute a field trial—Trial Hammer 05 (TH05)—a compre-

hensive interoperability demonstration highlighting SIGINT and SIGINT support to SEAD. TH05 became an example of a technical demonstration of standardization and interoperability in an operationally relevant environment. The tri-national Polygone electronic combat range, located along the French-German border just outside Ramstein Air Base, hosted the event. TH05 tested ELINT interoperability and SIGINT support to SEAD missions over a 2-week period in April 2005 with more than 250 personnel, 25 aircraft, and 20 ground systems from 16 NATO nations and 8 NATO organizations.

Trial Hammer 05 tested capabilities to enhance NATO and national interoperability against time-sensitive targets using countermeasures and tactics such as short-duration signals, high-value emitters (e.g., mobile SAM systems), low output power, and low-probability-of-intercept techniques. Collaborative SIGINT collectors provided integrated broad areas of coverage, faster geolocation reporting, and higher precision and fidelity geolocations to NATO commanders. Lessons learned from TH05 will be applied to time-sensitive targeting.

NATO policies on SEAD, SIGINT/electronic warfare (EW) operations cell, SIGINT, and EW are now being reviewed and updated as a result of TH05. The NATO Consultation, Command and Control Agency (NC3A) has drafted the first Cooperative Geolocation Concept of Operations, which will be forwarded to Supreme Headquarters Allied Powers Europe and Allied Command Transformation following a lessons learned review of TH05. Doctrinally, issues related to electronic warfare will be addressed in *NATO Electronic Warfare Doctrine*, and issues related to SIGINT will be addressed in *NATO Signals Intelligence Policy*. With its completion, TH05 comprehensively addressed issues related to policy, doctrine, operational employment, and technical interoperability. Trial Hammer proved that

nations can work in very sensitive areas, define clear objectives, outline and produce interoperability standards, and demonstrate them successfully.

Trial Hammer 05 Firsts

TH05 tested the entire collection, analysis, and dissemination process for common ELINT/ESM sharing. In addition, testing occurred to measure how effectively multiple SIGINT/ESM aircraft can identify and geolocate a time-sensitive target such as mobile SAM systems. This activity will set the baseline for all future activities in this area and will result in the first time NATO has done the following:

❚ Conducted a joint SIGINT demonstration using ground and airborne assets

❚ Conducted a joint CNAD and Military Committee demonstration to meet operational needs in SIGINT

❚ Conducted a policy, doctrinal, technical, and operational demonstration of cooperative geolocation and ELINT collection

❚ Tested the SEAD policy and the SIGINT/EW operations cell concept

❚ Tested how dedicated SIGINT platforms can support EW/SEAD forces

❚ Operated an ELINT intercept database constructed by NC3A and populated using STANAG 4633

❚ Tested a common ELINT reporting format with operational users from 16 nations

❚ Operated in a test environment against an SA-10B Grumble/S-300 air defense system representing a proliferated, modern, double-digit SAM system.

Conclusion and Way Ahead

Trial Hammer 05 was a watershed event. TH05 proved the concept that through combined, integrated efforts (e.g., cooperative geolocation), NATO military capabilities are vastly improved over stove-piped national activities. Just 2 years ago, NATO did not have a clear vision or technical mechanism to share ELINT data. With the conclusion of Trial Hammer 05, NATO will have not only a model to accomplish sharing, but also tool sets, a common standard, and the demonstrated ability to offer policymakers the options they did not have previously.

TH05 shows what is achievable, while giving each nation the flexibility to decide its future contributions across the spectrum of conflict. However, work must continue within each nation. Common standards are good only when a majority of nations ratify and implement them. Warfighters expect and need common methods such as STANAG 4633 to accomplish this. Ratification, implementation, and demonstrations are foundational work needed to achieve multinational interoperable forces. It is through these activities that structures like the NATO Response Force will achieve a coherent, integrated intelligence, surveillance, and reconnaissance capability, allowing commanders to operate with decision-quality information.

About the Authors

Dennis Lynn works for the Deputy Assistant Secretary for Science, Technology and Engineering (SAF/AQR), and Eric Wexler works for the Director for Information Dominance (SAF/AQI), both under the Assistant Secretary of the Air Force for Acquisition. Mr. Lynn was part of the Trial Hammer management staff. Mr. Wexler has worked for 7 years on electronic warfare and signals intelligence programs and international interoperability efforts. Specifically, Mr. Wexler is the chairman of the NATO Signals Intelligence/Electronic Support Measures Working Group and is working on creating common ELINT, communications intelligence, and cooperative geolocation standards for NATO adoption. Mr. Lynn and Mr. Wexler worked together to created a STANAG for sharing ELINT data for Trial Hammer 05.✷

European Standardization

A Contribution to Safety, Competitiveness, and Interoperability

By Jan Van Herp

Europe is a continent with many different nation states, different histories, and different technological developments. But Europe is also a continent with a single market that currently embraces 29 countries—a continent with three standardization bodies that develop standards (voluntary in application), which apply across borders. This enables manufacturers to develop products according to one specification and to sell the same product to more than 460 million people. One example of such a specification is the European standard for the composition of unleaded gasoline, which safeguards car engines all over Europe.

European standards have a long tradition and are known worldwide for their strengths. They enable European industry to benefit from free trade through helping to eliminate technical barriers. With one common standard for Europe, a product can reach a far wider market with much lower development and testing costs. Manufacturers benefit from being able to use a broader basis of external suppliers, and from greater quality assurance and increased efficiency. Thus, consumers and producers alike benefit from standardization through increased product safety and quality, as well as lower prices through economies of scale.

European standards also give the European economy a strong position in the global market. For example, they enable European manufacturers to enhance trade with countries such as China and India that use European standards.

European Standardization Bodies

Development of European standards is the mission of three officially recognized European standardization organizations: European Committee for Standardization (CEN), European Committee for Electrotechnical Standardization (CENELEC), and European Telecommunications Standards Institute (ETSI).

CEN, the largest of the three European standardization organizations, is an association of national standards bodies (NSBs), associates, affiliates, and the CEN Management Center. The CEN Technical Board (CEN/BT) deals with CEN's core business—the development of standards (referred to as European standards, or ENs)—and makes decisions about the work program, among other things. The ENs are developed in 280 technical committees supported by 399 European federations and more than 60,000 experts.

The NSBs, one for each country in Europe, have a long-standing tradition of developing technical specifications. These are important in enhancing the safety of products and enabling the interoperability of different products. For example, enabling interoperability can be as simple as ensuring that a sheet of paper fits into an envelope.

The experts working on the technical committees usually join CEN via their respective national committees. Experts come from industry as well as from interest groups such as trade unions, environmental associations, and consumer associations.

CEN promotes common understanding in different sectors such as aerospace, chemicals, machinery, food, services, transport, and many others.

Standardization Principles and Products

The European standardization system is based on powerful principles—consensus, openness, and transparency—common to the three European standardization organizations. Also key is the commitment of all our national member countries to transpose European standards into national standards and to withdraw conflicting national standards.

Often, you read in the newspapers that Europe has too many regulations and that we need to "cut the red tape." Standardization is an effective tool for reducing overregulation. It is important to understand the relationship and the difference between standardization and legislation. At the top of the pyramid, as the most powerful tool, is law. Formal standards, such as ENs, come just below and directly support legislation: they are based on consensus and are transposed without change in the 29 European member countries.

CEN's product range, primarily ENs and CEN Workshop Agreements (CWAs), make it possible to respond to the different market demands of European industry. ENs are products assembling expertise from all member countries, are based on broad consensus with a public enquiry, and are often referred to in European legislation.

CWAs were introduced initially to meet the needs of the fast-moving information and communications technology (ICT) industry. CWAs can be delivered in 6 to 12 months, offering a faster and more flexible

alternative to ENs. CEN needed this type of standardization vehicle because ICT products have a much shorter life cycle compared with products in more traditional sectors.

The European Standardization Process

How does the European standardization process work? The usual route for a proposed EN is from industry through the NSBs or, where European legislation is concerned, from the European Commission (EC) or European Free Trade Association. Then, the appropriate technical committee assesses the business need. An adopted standardization project is generally allocated to a working group dealing with the specific issue. One of the values of CEN is that once a standardization project has been adopted, the NSBs refrain from developing a new national standard within the scope of the project, and refrain from revising an existing standard, without the permission of the CEN/BT. This is called "standstill" and allows efforts to be focused on European harmonization. Once the draft of an EN reaches a mature stage, it is released for public comment, a process known in CEN as the CEN Enquiry. During the public commenting stage, all interested parties (manufacturers, public authorities, consumers, etc.) may comment on the draft.

The adoption of an EN is based on a system of weighted votes by the NSBs. After CEN publishes the EN, each of the NSBs is obliged to adopt the standard as an identical national standard and to withdraw any existing national standard that is in conflict with the new EN. Hence, one EN becomes the national standard in all 29 member countries of CEN.

CWAs are developed in CEN Workshops by those with an interest in their development. Workshop participation is not based on national delegations, and there is no geographical limit on participation, so participants may come from outside Europe. However, CWAs do not have the status of an EN, and NSBs are not obliged to adopt them as national standards.

The European standardization system is unique because of its close collaboration with the European legislator. The so-called New Approach (1985) largely determines the cooperation between the legislator and the standardizers in Europe.

CEN Workshops and Agreements

A CEN Workshop is a simple and flexible working platform, open to any company or organization worldwide, for developing CEN Workshop Agreements.

CWAs are consensus documents at the European level and are available in 29 countries using CEN's network.

Preparation of CWAs is based on a business plan, to which participants agree at a kickoff meeting.

The drafting, contents, and the final consensus are entirely in the hands of the CEN Workshop participants.

Most work is done via e-mail and the Internet to avoid wasting time in travel and meetings, and to provide transparency via the CEN website.

CWAs are published by CEN and checked after 3 years.

One of the major tasks of the European standardization organizations is to help abolish technical barriers to trade. To enable this process, the European Union adopted Directive 98/34 recognizing CEN, CENELEC, and ETSI as the official European standardization bodies. It also enabled the EC to mandate that the three organizations develop harmonized ENs in support of legislation. "Harmonized" standards are then standards developed under such mandate given to the European standardization organizations in the context of one or more New Approach directives. They provide "presumption of conformity" if their titles are published in the EC Official Journal.

A benefit of the New Approach is that it is much easier for legislators to come to an agreement on essential principles rather than on technical details. Other benefits are that it eliminates the need to regularly update directives to address changes in technology, and manufacturers are not confined to one solution in meeting the requirements of a directive.

It is in the best interest of the economy to support the development of international standards. CEN and CENELEC have concluded agreements with their respective international partners, ISO and the International Electrotechnical Commission (IEC), to ensure optimal cooperation between the European and international levels.

Coordination follows formal agreements between ISO and CEN (the Vienna Agreement) and between IEC and CENELEC (the Dresden Agreement). International standards are, to the extent possible, to be adopted as ENs and then adopted as national standards, with the concomitant withdrawal of conflicting standards. This procedure ensures that the resulting international standards will cover the needs of industry and facilitate access to all markets—both European markets and global markets.

European standardization tries to keep standards as "open" as possible by focusing on performance rather than design. In our fast-moving world of technological changes, performance standards leave the door open for new developments, facilitating the accommodation of new products—those that were not foreseen when the standard was originally drafted—that meet the standards. To put it another way, research and innovation find a place in the European standardization system.

Standardization Working Groups

Not only does CEN develop standards, but, through the CEN/BT, it has created working groups to address and provide advice on specific issues related to defense and security:

- *Standardization for defense procurement—CEN/BT Working Group 125.* The impetus for creating this working group (in January 2001) was a recommendation of a study conducted by the University of Sussex (Sussex Study) and a subsequent (November 2000) conference on the role of standardization in improving efficiency and enhancing competitiveness in defense procurement. The group has focused on creating a European handbook for defense procurement. It also has addressed network-enabled abilities.
- *Humanitarian mine action—CEN/BT Working Group 126.*
- *Protection and security of the citizen—CEN/BT Working Group 161.*

The NATO Standardization Agency (NSA) has fully supported the CEN activities linked to defense and security. In addition, in November 2004, CEN, CENELEC, and ETSI signed a technical cooperation agreement with NSA, and they participate regularly in NSA's Civil Standards Management Working Group. (More details on activities in the area of defense and security can be found on the CEN website: www.cenorm.be.)

About the Author

Jan Van Herp started in CEN in 1984 as a technical officer for information technologies. He served as director of the standards program, secretary to the CEN Technical Board, and director for information systems, new standardization opportunities, and special projects. Previously, he was an officer in the Belgian Air Force and then worked for a Belgian company where he was responsible for industrial data processing.✷

Sussex Study's Recommendation

Recommendation 16 of the Sussex Study states the following:

We recommend that the Commission and the other relevant bodies undertake a bold initiative endorsed at the level of the Ministers of Defense in the Member States. We propose that the initiative should be a collaborative project to develop a European Handbook of Defense Standards and Standardization Procedures—a "living" document (preferably in electronic form) updated at regular intervals that sets out according to a common scheme all details of national defense standards regimes in Europe and their relationships to the defense procurement regimes of the Member States. The project should be co-ordinated by the Commission and WEAG (the Western European Armaments Group), with contributions from each country assembled under the supervision of the national armaments directors. We recommend also that as the Handbook project progresses, close liaison be maintained with industry and the civil Standards Development Organizations, by including representatives from these constituencies on a project management board. The Handbook will be a crucial tool in achieving administrative transparency and in promoting the development of harmonized best practice.

Safe Aerospace Products Require the Best Standards
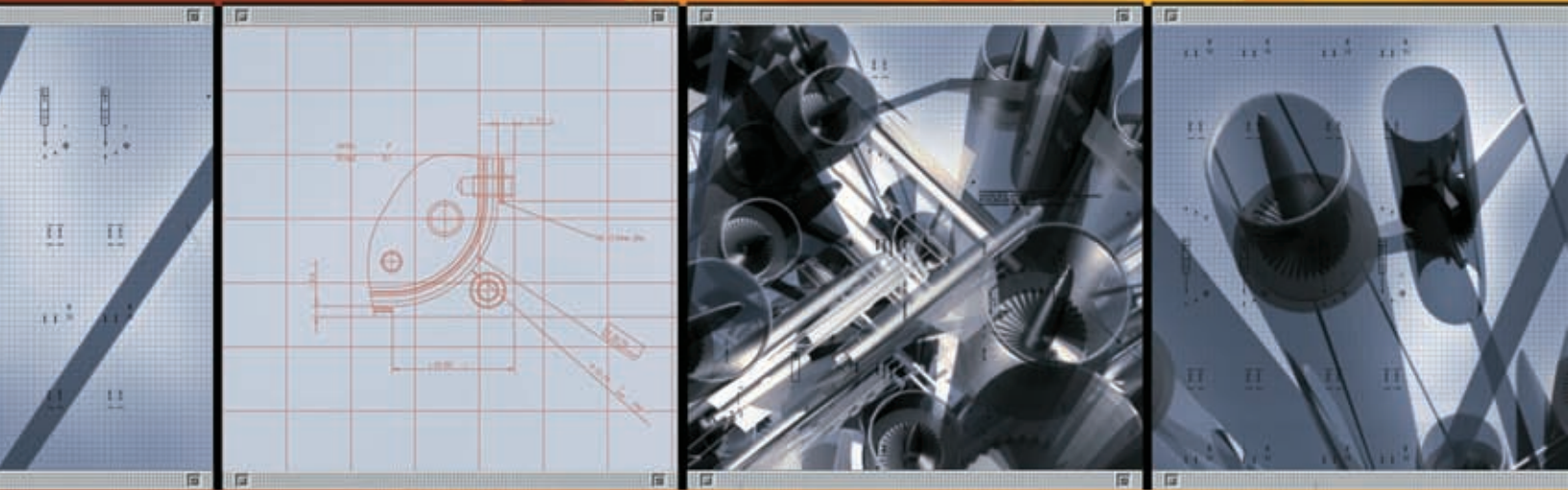
The aerospace industry uses the best technical standards available to build and operate its products. This is no surprise, considering that peoples' lives depend on safe and reliable aircraft. Yet, the industry felt compelled recently to issue a public position paper to support this obvious, common-sense practice. Developed by the Strategic Standardization Forum for Aerospace (SSFA)—a broad stakeholder group formed by the Aerospace Industries Association and including industry, government, regulatory agencies, and standards developers—the position paper defends this freedom to select the best technical standards in order to ensure the quality and safety of aerospace products. Why did the U.S. civil and military aerospace industry feel the need to defend the obvious? The simple answer: semantics.

It's generally accepted worldwide that when it comes to voluntary consensus standards, the more globally used and recognized a standard is, the more valuable it is to industry and the public at large. However, there seems to be some confusion between the terms "international standard" and "global standard." There is a growing trend for governments, ministries of defense, and contractors to require the use of "international standards" in an attempt to ensure the selection of widely used and accepted (and thus valuable) standards. This good intention is often thwarted by limiting the definition of what constitutes an "international standard" to one developed by just a few organizations.

Aerospace uses standards developed by more than 150 different industry, national, regional, and global standards developers, in addition to military, company, and program standards. It takes literally hundreds of thousands of standards to build, maintain, and operate today's complex aerospace products so vital to both the warfighter and the civilian population. If industry were limited to using just those standards developed by a very narrow definition of an "international standard," every single aerospace product would be grounded.

This first-of-its-kind industry position—reprinted on the following pages—encourages the selection of the best standards based on technical merit and urges governments, legislatures, and contractors to oppose laws or policies that mandate the use of certain standards based on which organization developed them. It seeks the recognition and acknowledgment that it takes a large number of organizations, each with its own value and merit, to produce the incredible amount of technical data used by aerospace. By increasing awareness, the SSFA hopes to ensure that no obstacles limit the selection of standards used to define aerospace products—military or civil. The quality and safety of U.S. and NATO aircraft depend on this.

Laura Hitchcock
Chair
Strategic Standardization Forum for Aerospace

Safety of Aerospace Products
Demands Freedom to Select
Most Appropriate Standards

Position of the Strategic Standardization Forum for Aerospace (SSFA):
The aerospace industry is dedicated to producing safe, reliable, and technically excellent products. In order to do so, the industry will select and use standards based on their suitability to meet safety, regulatory,

The aerospace industry urges governments, legislators, and contractors to avoid arbitrarily imposing laws or policies that mandate the use of certain standards based on which organization developed them, and inhibiting the selection of the best standards based on technical merit.

and other technical needs appropriate to their products. This principle is critical and essential to ensure safe and efficient design, build, operation and maintenance of the products of our industry. This requires selecting and using standards based on technical merit, which contain the data necessary to ensure quality aircraft. The aerospace industry urges governments, legislators, and contractors to avoid arbitrarily imposing laws or policies that mandate the use of certain standards based on which organization developed them, and inhibiting the selection of the best standards based on technical merit. Actions taken or advocated to limit or influence selection based on any factor other than suitability for the purpose potentially incur grave risks to the safety and public confidence in the aerospace industry.

Aerospace Must Continue to Choose Standards Based on Safety, Quality and Technical Excellence

SSFA Position Paper

Government Restrictions on Standards Selection Threatens Aircraft Safety

Increasingly government policies, legislatures, and even contracts are requiring the use of "international" standards to define and assess products, and then defining "international" standards as only those produced

U.S. aerospace products are defined and built using a vast range of standards including company, government, and industry standards, and are selected on the basis of merit, not source.

by certain specific bodies, most often ISO, IEC, and ITU. U.S. aerospace products are defined and built using a vast range of standards including company, government, and industry standards, and are selected on the basis of merit, not source. Acceptability of standards from alternate sources is still controlled by a regulatory process that focuses on demonstrated safety and performance, rather than the source of the documents. The industry's goal is to ensure the delivery of safe, reliable, and durable aerospace products to customers worldwide. Accordingly, regulatory authorities and legislatures must recognize that adoption of an arbitrary definition of what constitutes an acceptable "international standard" risks the safety and potential for service, as well as capability improvement in the aerospace industry.

The Need to Choose Standards Based on Technical Merit

Companies, governments, and industries select and use standards for a variety of reasons—to establish product superiority; to facilitate trade; to ensure quality, reliability, repeatability, interoperability; to comply with local, state, regional, national, or international regulation; and for many other reasons. The aerospace industry is no different in this regard. Arbitrarily forcing aerospace designers, regulators, and customers to select standards from certain Standards Developing Organizations based on their location or name, or on the process used to create the standards, would impose a radical change seemingly unrelated to any clear objective. The industry has always chosen standards considering the myriad factors that influence such selection in order to meet or exceed a wide range of requirements that include performance, safety, and quality, as well as national and international regulation and certification.

Aerospace Must Protect the Right to Choose the Best Standards to Ensure Safety

The aerospace industry needs to communicate the value of designers being able to choose the most appropriate standard for the application. The safety and technical excellence of aerospace products, as well as the specific requirements levied upon the industry by its military and commercial customers and regulatory agencies, require that the industry use standards from a wide variety of sources—with the most important criteria being the technical suitability and acceptability of the standard. The industry encourages the development of global standards (as defined in the *Future of Aerospace Standardization* Report, 2005)[1] in global venues with the involvement of all stakeholders, and supports the tenets of the World Trade Organization's definition[2] for developers of international standards.

SSFA Recommendations to Mitigate the Arbitrary Limitation of Standards Choices for Aerospace

The aerospace industry must continue to communicate the importance of designers, customers, and regulators selecting and using the appropriate standards based on technical merit, suitability for use, and integration with legacy data. The industry must solicit support of government agencies in the United States, including the U.S. Department of Commerce and the International Trade Administration, and from agencies around the world to understand and accept these standards selection principles for the aerospace industry. The industry must also solicit support from standards developers at home and abroad, national and global trade and industry associations representing the entire supply chain, other national governments and international regulators, and where appropriate, other industries besides aerospace to support this aerospace position. And if necessary, the industry must solicit support of the U.S. government to assist in identifying and opposing legislation or regulation that would frustrate these principles which are essential for safety, reliability, national and international certification of aircraft, and, ultimately, protection of the public good.

[1]"Global standards are those that are recognized throughout the world as technically suitable, accepted as meeting the design and certification requirements, and used throughout the industry. The aerospace industry needs to assert the right to choose its standards based on technical merit and suitability for use regardless of whether the document was developed by an organization with the word 'International' in its name."

[2]Annex 4 of the 2nd Triennial Review of the World Trade Organization's Agreement on Technical Barriers to Trade (TBT) establishes six basic attributes of an International Standards Developer: (1) transparency, (2) openness, (3) impartiality and consensus, (4) effectiveness and relevance, (5) coherence, and (6) development and dimension. These principles were developed to assist the global marketplace in a determination of whether or not a standards developing organization could be considered "International".

March 28–30, 2006, Williamsburg, VA
2006 Mid-Atlantic Logistics Conference

District 02 of SOLE—The International Society of Logistics—will hold the 2006 Mid-Atlantic Logistics Conference at the Woodlands Hotel and Conference Center in Williamsburg, VA. The 2006 theme is "Focused Logistics: A Knowledge-Enabled Logistics Strategy." This theme was chosen to highlight the tremendous changes within government and industry due to the emergence of logistics as a primary strategic component of the modern logistics enterprise. For more information, please go to www.mid-atlantic-log.net and click "Announcement Flyer" to learn more about the theme, as well as to see the areas that will be discussed at the conference.

May 23–25, 2006, Arlington, VA
Defense Standardization Program Outstanding Achievement Awards Ceremony and Conference

The Defense Standardization Program Outstanding Achievement Awards Ceremony and Conference will be held May 23 through May 25, 2006, at the Westin Gateway Hotel in Arlington, VA. The Westin Gateway Hotel is accessible by metro and is close to National Airport, the Pentagon, and Washington, DC. Rooms will be offered at the government per diem rate.

This year's event will be administered by SAE International and promises to be top notch in every respect. Panels and a preliminary agenda are posted on the DSP website as well as the SAE website. For more information or to register, please go to www.sae.org/events/dsp, or call 724-772-8525.

August 14–15, 2006, Cleveland, OH
55th SES Annual Conference
Standards Rock! Achieving
Business Harmony

The conference will be held in the Wyndham Hotel at Playhouse Square in Cleveland, OH. For more information, go to www.ses-standards.org and click the conference announcement.

Farewell

Gary Van Oss, the U.S. Air Force Aeronautical Systems Center Standardization Executive, retired after 34 years of Air Force service on such programs as the F-15, F-16, B-2, ATF, Global Hawk, and Predator. He finished his career as technical advisor for systems engineering and was instrumental in the development of the Aeronautical "SE Toolset" deployed on the ASC Deputy for Engineering web page.

Dennis Cross retired in January 2006 with 23 years of federal service, including 21 years as a senior electronics technician in both the former Defense Electronics Supply Center and the Defense Supply Center Columbus (DSCC). Mr. Cross worked in the specification preparing activity function in the Document Standardization Unit at DSCC. Specifically, Mr. Cross completed hundreds of standardization projects in the established reliability and high-reliability programs for electronic resistors. He was a key player in the effort to convert all the electronic resistor specifications to performance specifications during the acquisition reform efforts and also completed outstanding efforts in the standardization of established reliability and space-level chip resistors and thermistors.

Mark Hurwitz, chief executive officer and president of the American National Standards Institute (ANSI) since July 1999, retired in January 2006, calling his tenure at ANSI "the capstone of my professional career." Before joining ANSI, Dr. Hurwitz served as CEO and executive vice-president of the American Institute of Architects. He is a past executive vice-president of the Building Owners and Managers Association International and a former senior vice-president and chief operating officer of the National Association of Professional Insurance Agents.

Welcome

The Defense Standardization Program welcomes its newest addition, the **National Reconnaissance Office**, which will have the standardization code of NRO. NRO has been a user of our military spec-

ifications and standards for some time, but now believes it is important to the success of its organizational mission assurance initiatives to become more involved in review of these documents. Information on NRO's areas of interest and contacts is already in the ASSIST database and will appear in the May 2006 issue of the SD-1 *Standardization Directory*.

Joe Bhatia has been appointed as ANSI's new chief executive officer and president. The appointment was made by the ANSI Board of Directors following an intensive global search to identify a successor to Dr. Mark Hurwitz. Mr. Bhatia comes to the institute after more than 35 years at Underwriters Laboratories, Inc., where, most recently, he served as executive vice-president and chief operating officer of its international group.

Promotion

Michael Radecki was promoted to chief of the Electronics Components Team in the Document Standardization Unit at the Defense Supply Center Columbus (DSCC-VAT). Mr. Radecki will lead and manage the passive electronic components and some of the electro-mechanical component standardization programs as the specification preparing activity. Areas under his cognizance include high-reliability and established reliability standardization programs on electronic resistors, capacitors, fuses, circuit breakers, crystal and crystal oscillators, relays, filters, and switches. Mr. Radecki had previously been a lead engineer in the electronic capacitor team in DSCC-VAT since March 1997. Previously, he was an electronics engineer at the then Defense Contract Management Command-Indianapolis and also at the Aerospace Guidance and Metrology Center at Newark AFB.

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
July–September 2006	Civil Agency Standardization
October–December 2006	Joint Standardization Boards
January–March 2007	IT Standardization

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

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