Released Online
22 July 2002

CONTENTS

virtual Diplomacy

Information Technology and Peace Support Operations

Relationship for the New Millennium

Lt. Col. Donna G. Boltz
2000-2001 Senior Fellow
Jennings Randolph Program for International Peace

Introduction

The United Nations came into existence on October 24, 1945, when China, France, the Soviet Union, the United Kingdom, the United States, and a majority of other signatories ratified its charter. Some sixteen weeks later, on February 14, 1946, scientists at the University of Pennsylvania introduced the world's first electronic, large-scale, general-purpose computer—the Electronic Numerical Integrator and Computer (ENIAC). The potential roles these two creations—the United Nations and the electronic computer—would play over the next fifty years surely must have seemed unrelated in the middle of the twentieth century. Today, although that relationship is stunningly clear, it is also surprisingly undeveloped.

Of the fifty-four peace support operations (PSOs) approved by the United Nations since 1948, more than forty occurred in the past twelve years. During the same period, advances in and applications of information technology (IT) have also exploded. The twenty-first century opened with more than a dozen UN mandates for peace support operations around the globe—a globe connected by an infrastructure of telecommunications networks, ultra-fast computer processors, and consumer electronics.

Whether the future strategic (security) environment will necessitate major wars remains to be seen. However, it is clear that smaller scale contingency operations will likely dominate future conflicts. The United Nations and its member states must respond if the international community is to stem the tide of conflicts raging around the world. In an era of peace support operations, people also find themselves in a high-tech world characterized by the Internet; personal, mobile communication devices; and near-real-time news broadcasts on twenty-four hours a day news channels. Few individuals and fewer organizations in the multinational, interagency field of peace operations remain untouched by information technology—from UN headquarters to military and police in the field to an extended community of interested actors ranging from policy makers to regional and international news consumers

regional and international news consumers.

Despite rapid developments in computer technology, remote sensors, aerial imagery, and communications since the end of the Cold War, the potential of information technology in peace support operations remains largely untapped. The defense industry, which supported important IT advancement in response to military necessity through World Wars I and II and the Cold War, has not responded in kind to peace operations. For this reason, UN member states must field and refine existing IT in peace support operations while pushing for new and effective IT programs tailored to the PSO environment. Simultaneously, the United Nations must take a leadership role in developing strategy and policy for IT applications in peace operations. Against a backdrop of increased regional instability and cries for UN intervention, technologies can help promote unity of effort, ensure mission credibility and legitimacy, and save manpower and funds by improving communication and training of potential actors in these complex operations as well as to assist in overall mission accomplishment.

The UN secretary general recently assembled a group of experts—the Panel on United Nations Peace Operations—which noted that modern, well-utilized information technology is the key to improving UN peace support operations. According to the panel, the United Nations can more effectively act to prevent conflict and help societies to find their way back from war by facilitating communication and data sharing and providing UN staff the technological tools they need to do their work.[1]

To set the context for the development and integration of IT in peace support operations, this report begins with two brief sections addressing the historic development of IT and information operations (IOs), respectively; it then describes their role in peace operations. The report's objective is not to present IT as a panacea for all the challenges of these highly complex, politically charged operations. In fact, operating within the IT environment could very well introduce new and confounding challenges. Strong leadership and insightful development of IT solutions to PSO challenges, however, are cornerstones to meeting the challenges of peace operations in the Information Age.

The Information Age

What does it really mean to talk about the conduct of peace support operations in the Information Age? What defines the Information Age? How is it shaping the environment in which future operations will take place?

A recent book described the Information Age as a series of three revolutions—the first beginning with the invention of the radio, telephone, and telegraph.[2] The second revolution, the authors characterize as the introduction of the television, satellites, and early-generation computers, like the thirty-ton ENIAC, which were large and slow with limited applications. The third revolution—where some authors begin to consider a transition to an "information society"—extends from the 1980s to the present and addresses development and employment of myriad information/communications technologies. This three-revolution description spans 150 years, from the mid-1800s to the present.

Alvin Toffler, in his book considering the multifaceted impact of information technology on the "Third Wave" of developing society, argues that the transition to the Information Age began after World War II, when progress began to depend more on mind than on muscle.[3] According to Toffler, the Information Age is only some fifty-odd years old. Futurist John Naisbitt narrows the time frame further by identifying it with the period of "computer-liberation," which arrived in the 1960s and 1970s and led to the birth of the information society.[4]

Regardless of how one may define the start of this era, it is clear that billions of people around the world now thrive in an information-driven environment. In many developed countries, communication via e-mail is as much a part of "keeping in touch" as the telephone or postal service. The Information Age has welcomed a culture of transborder communication. People share information, ideas, attitudes, and opinions through instantaneous transmissions that connect the world.

Countries are acquiring and applying technologies at differing rates. According to the World Bank's latest World Development Indicators, most have Information Age capabilities. Radio remains the most available medium for receiving information, though in some countries television prevails. Personal computers are available to varying degrees in most countries, although in most developing countries access is extremely limited beyond major cities and

economic centers.[5]

In the end, information begets more information, linking more actors through more activities and interests across greater distances and cultural differences than ever before. Technology, and in particular information technology, is ushering in an increasingly connected world, affected more than ever by events occurring in far-off places. Regional instability that once evoked a "not in my backyard" response now threatens businesses, incenses interest groups, and unites the moral voices of a media-informed public that just last week didn't know the name of the country for which a peacekeeping intervention is being discussed. Commercial demands are driving the development of information technology at a phenomenal rate in the twenty-first century, but that was not always the case.

Back to Top

Developing Information Technology: An Historic Look

Defense technology played a major role in driving IT development through most of the twentieth century. In World War I, commanders sometimes used wireless telegraph to control the movement of forces. Field telephones were developed to facilitate communication in trench warfare. Photo-mapping and reconnaissance missions along with electronic and acoustic sensors provided solutions to challenges in observation, especially for artillery missions.[6] Scientists developed the ENIAC to support the U.S. Army Ordnance Department in World War II. The ENIAC computed 1,000 times faster than any existing device. Although its purpose was to compute the paths of artillery shells, the ENIAC also solved computational problems in fields such as nuclear physics, aerodynamics, and weather prediction.[7] In addition to the ENIAC, scientists in World War II developed sensors like those used in World War I to detect German U-boats that threatened Allied operations by disrupting ship movement and resupply activities. The new sonar and radar capabilities set up in Combat Information Centers (CICs) on Allied ships located these dangerous submarines. Military specialists then communicated the coordinates to Allied submarines and ships. The CICs used a combination of telephone, radar, and sonar—effectively integrating electronic communication and information processing.[8]

Given the pressing need to monitor the development and potential deployment of nuclear weapons, developments in information technology continued throughout the Cold War. The U.S. Semi-Automatic Ground Environment (SAGE) system was one such response to the Cold War threat. Designed as an air defense system in the early 1960s, SAGE sent by telephone information collected through a system of geographically dispersed radar to a central location where it was gathered and processed by a large-scale digital computer.[9] Later in the same decade, the U.S. Defense Advanced Research Projects Agency, DARPA, introduced the predecessor to the Internet—-ARPANET. What started as a simple four-node network grew to span the globe, connecting a world of ideas, societies, and actors for a host of activities far surpassing its fledgling capabilities.

The technologies developed during the two world wars and throughout the Cold War era introduced many advancements for conducting conventional war. Yet todays increasing demand on nations to participate in peace operations rather than conventional warfare suggests a critical need to fund and develop information technologies specifically to meet PSO challenges. The expectation seems to persist, however, that the residual technological advances made transforming national militaries for future conventional wars should also satisfy PSO needs. This is faulty logic at best, and it detracts from the efficient conduct of peace operations.

Retrofitting tools of war to support contingency, or peace support, operations is a slow and imperfect process. Moreover, the commander of such operations cannot wield the same degree of control over the information environment as he does over a conventional military campaign. This is apparent on multiple fronts, from information gathering to control of the media. To maintain situational dominance in the PSO environment, one needs specialized tools. The U.S. Army maintains that information, when transformed into capabilities, is the currency of victory and that the military objective in operations other than war is to establish situational dominance.[10] Information technology may be the most powerful tool in the commanders kit for achieving PSO goals while saving money, manpower, and lives and maintaining the PSO fundamentals of legitimacy, impartiality, unity of effort, use of force, and credibility. Integrating information technologies into the operational plan is a critical part of IOs.

Back to Top

Information Operations as a Force Multiplier and Deterrent

One of the greatest Information Age boons to PSOs is an increased capability to share information quickly, universally, and objectively. Conversely, obstacles to information sharing, not to mention equipment incompatibility, can threaten ITs potential contribution to a PSO success. Information operations—-a concept that originated in U.S. Army planning doctrine—-8211;have great application for actors throughout the PSO environment as a means to foster transparency, build credibility, express impartiality, and maintain legitimacy. Yet as written in PSO doctrine, information operations are relegated to support status for combat power in a peace operation. U.S. Army Field Manual 100-6 explains that "information operations integrate all aspects of information to support and enhance the elements of combat power, with the goal of dominating the battlespace at the right time, right place, and with the right weapons or resources."[11] The concept should be expanded beyond wartime applications; IOs can be both a force multiplier and a guarantor of the PSO fundamentals during these complex operations.

Information operations include a unique group of activities ranging from collecting and analyzing information, to interacting with the media, to direct communication with the local public—-including formerly belligerent factions. They also take into account communication and coordination with NGOs and international governmental organizations, whose presence most often precedes the introduction of soldiers, civilian police, and elections monitors. The military commander and civil affairs specialist have to work diligently toward establishing, developing, and maintaining functional relationships with these actors. Since impartiality is paramount to the credibility and effectiveness of humanitarian relief agencies, they may resist liaisons with soldiers and police in particular. Nevertheless, cooperative civilian/military operations enhance the credibility of the friendly force, promote consent and legitimacy, and encourage the parties to work toward peace.[12] An effective information campaign articulates the value of working together and determines the best means to facilitate communication. The following vignette demonstrates the successful integration of information technology and civil affairs.

In the Implementation Forces (IFOR) Multinational Division North (MND[N]) in 1996, Maj. Gen. William Nash, then MND(N) commander in Bosnia-Herzegovina, invited the three former warring faction commanders in his sector to observe the monitor display of a real-time downlink from an unmanned aerial vehicle (UAV) during a break in a Joint Military Commission (JMC) meeting in the Zone of Separation. The general told the commanders he wanted to show them a piece of technology employed by his force to conduct the IFOR mission. The UAV was flying over the Zone of Separation in the area of the JMC, and the commanders could see themselves on the monitor. The UAV then covered the road en route to the site. As it moved along, the commanders clearly understood that it could see personnel, equipment, and movement with great accuracy and high resolution. General Nashs point was this: I can see what you are doing anywhere, all the time, and without deploying the soldiers in sector to do the job. It was clear to the commanders that if they violated the terms of the General Framework Agreement for Peace (i.e., the Dayton Peace Accords), IFOR would know, report them, and if necessary unleash forces to deal with issues of noncompliance.[13]

General Nash understood the terrific potential information technology held for success in his peace support operation. By using the UAV, he could cover a manpower-intense mission without a considerable commitment of Task Force Eagle troops. More importantly, by highlighting the technology and its capabilities, he could evoke compliance on the part of the faction leaders without using force. This anecdote illustrates how information operations support peace operations. General Nash used IT as soft, impartial power to collect information critical to the mission. By demonstrating the technology to the faction leaders, he added the strategy of showing them the level of information available to him with the purpose of affecting their decision-making. All the while, his methods upheld the fundamentals of peace support operations because his application of the technology was transparent. His use of the technology demonstrated impartial collection abilities. Finally, most important, his reliance on information to compel appropriate response by the commanders reduced the likelihood that he would have to use force.

The general could have used the UAV very differently, and with much less impact, had he applied the technology clandestinely, as he would have during war. But peace support operations require innovative applications of existing technologies and well-thought-out and -developed information operations that synchronize those technological capabilities in planning from the outset. Leaders therefore must leverage the full power of IT in order to plan for and support information operations.

Although information operations are not easily executed, IT can expedite and strengthen their effect. Established actors such as NGOs—and in some cases, the media—have historical information that peacekeepers need both for background and for its predictive value. Moreover, by the time peacekeepers get to the field, chances are information already will have been manipulated for censorship, propaganda, and disinformation. Then, once in the field, local detractors seeking to weaken PSO credibility often have access to and employ some of the same information technologies to speed faulty, sometimes deliberately dangerous information across the theater of operation. Cellular

telephones, radios, television, and websites, when equally accessible to every force and faction within the environment, may play to the advantage of a local factional leader who is more familiar with the language and culture. Thus, PSO commanders must develop a decisive information campaign that considers the array of IT available to those who seek peace and to those who seek to disrupt the peace. Failure to use IT effectively threatens the forces ability to gain the requisite knowledge and information to conduct a successful peace support operation and simultaneously to deny adversaries information domination in the environment.

Information operations in the PSO environment integrate the skills of a group of nontraditional actors as first-tier advisors to the commander. In 1996, when the U.S. 1st Armored Divisions Task Force Eagle deployed to Bosnia, the chief of the Coalition Press Information Center in Multinational Division North was surprised to find herself sitting in the front row of chairs for the battle update brief (a nightly operational update). The task force commander had relegated the traditional warfighting personnel to the second row. His reasoning: The threats to his operation were most likely to come from loosely organized groups trying to use disinformation, rumor, and propaganda through an effective, if unsophisticated, information campaign to drive wedges between the various parties and to exacerbate feelings of dissatisfaction and disenfranchisement within the population. To counter these efforts, civil affairs, public affairs, and psychological operations experts worked together with intelligence analysts and combat arms planners and operators in an effective IO working group. They synchronized information and planned contact with publics to maintain credibility, transparency, and impartiality.[14]

Information operations touch all the actors in the PSO environment because they include the cultural and political dimensions of the operation. The measure of success is not dominating the enemy but influencing the affected parties to create the conditions for a stable environment in which businesses flourish, children regularly attend schools, and families live free from the fear of being forced from their homes. It is clear, then, that a relationship of trust and understanding must exist between and among the military, police, and civilians supporting the operation as well as members of the threatened, failing, or failed state. For information operations to be successful, as they were in IFORs MND(N), requires the understanding and full support of the commander.

The U.S. Army defines conventional psychological operations (PSYOP) as operations to convey selected information to foreign audiences with the goal of influencing behavior favorable to the originator. Psychological operations take on a different role during peace operations from those during conflict situations. Given that transparency and credibility are fundamental to peace support operations, the information communicated by all actors from the same force or coalition must be both harmonious and truthful. In an effective information campaign, planners and leaders wholly integrate PSYOP.

The information operation in IFOR, Multinational Division North, is instructive in this regard. The chief of psychological operations in Multinational Division North requested permission to use press releases developed by the commanders public affairs officer about breaking news—material that fell outside the routine approval process for PSYOP—-for timely dissemination of information to the local population. He received approval, which allowed the PSYOP team to broadcast in a timely manner over its own (PSYOP) radio stations the same information that was available to the local media via public affairs releases and announcements. PSYOP specialists also used some of the same information in their native-language newspaper, *Herald of Peace*, which was distributed to the locals. This cooperative measure ensured sharing of accurate and timely information with the local audience regardless of delivery methods.[15]

In this instance, success in sharing and transmitting information from press releases hinged on clear communication both within the command and to the local audience. The idea that the public affairs specialist and the PSYOP chief intentionally limit their own interactions may seem absurd. However, a worse situation is occurring between individual nations and agencies, which deploy state-of-the-art technologies that cannot interface. Inability to communicate is one of the most common complaints among actors in the PSO environment.

Back to Top

Information Sharing

Problems arise when NATO units communicate with non-NATO units. Military units must also be able to communicate with civilian organizations, like CIVPOL. These organizations normally do not have military equipment and their means for communications are very basic. Technically it means that you have to choose the lowest

common denominator or provide the organizations with equipment and operators.[16]

–Goran Tode, The First International Workshop, "Challenges of Peace Support into the 21st Century," Stockholm, Sweden, September 1997.

Information sharing is essential to establishing and maintaining an atmosphere of cooperation among PSO actors in the area as they begin to coordinate their respective activities. Information sharing is at the heart of unity of effort. Clearly, communication is simplest and information sharing is optimal when actors are homogenous—sharing a common language and culture—-and better yet when they are in close proximity. However, this type of homogeneity and spatial relationship rarely exists among PSO actors. Representing many countries and organizations, actors always have different languages and cultures. Add to these differences the obstacle of communicating from and between remote mission sites—whether cities be fifty miles apart or countries on different continents—the challenges are apparent.

Used as a tool to train soldiers, police, and civilians to manage language and culture gaps, information technology can help shorten time and distance and expedite relationship building. For this reason, it is critical that PSO planners in the Information Age capitalize upon IT capabilities. Planners of peace support operations must use IT to bridge gaps before the PSO environment is populated by a diverse group of actors who aspire to the same objective but cannot coordinate on the ground. The following section highlights the role of IT in information-sharing activities for military and police forces, UN headquarters, and field activities.

Back to Top

Issues of Communication Interoperability: Talking from Day One

One of the greatest obstacles to effective information sharing is the introduction of multiple communication systems without an overarching strategy toward interoperability. Equipment incompatibility creates problems ranging from failing to transmit critical information in a timely manner to developing feelings of "haves" and "have nots" among those nations contributing to peace support operations. The inability to share information across the PSO environment because of different systems confounds military personnel, UN administrators, and NGOs alike. Col. Patricia Capin, chief of the Multinational Joint Logistics Center for Headquarters, Kosovo Force (KFOR), described the early communication challenges faced by KFOR this way: "If we wanted to communicate with one another we either met somewhere or provided national equipment to our multinational counterparts (or received equipment from them). We each deployed with our own communications system, none of which could talk to the other. We need to deploy with a common system that allows us to communicate between nations and agencies from day one."[17]

Great advances in telecommunications capabilities in the 1990s, fed by a demand for systems able to support global commerce and education, have resulted in increased commercial information-sharing means and methods. Systems that once relied exclusively on cable connections now take advantage of microwave and satellite capabilities. Unfortunately in terms of interoperability, the rapid development of IT sparked competing markets globally, resulting in widely different systems designed without an eye toward operating across the multinational, interagency landscape of peace support operations. Absent a comprehensive equipment interoperability strategy, it is not surprising that communicating with the agency across the street or the force on the other side of the cantonment area has become at minimum an irritant and potentially a showstopper during a crisis.

The former deputy chief of communications for KFOR, Lt. Col. Peter Varljen, expanded on the KFOR dilemma in a recent interview. He explained that the first force in Kosovo was the Allied Command Europe Rapid Reaction Corps (ARRC), which was not NATO equipped. The ARRC telephone system, Ptarmigan, was unable to interface with the national systems of most of the other multinational brigades (MNBs). To bridge the communication gap, the ARRC provided a Ptarmigan system to each of the MNB headquarters. This short-term solution put stress on the ARRC's physical capacity for communication. The ARRC also outfitted the UN element—initially arriving without communications—with a Ptarmigan system. The only electronic communications immediately possible were between the U.S. multiple subscriber element and Ptarmigan through a NATO interface located in Mannheim, Germany. Commercial communication, Lieutenant Colonel Varljen explained, was infeasible because the only existing systems went through Belgrade—not operationally acceptable routing early in the KFOR mission.[18]

Technical problems were compounded when attempts were made to communicate with NGOs, most of which possessed small, earth station communication dishes to support satellite communications, none of which could

interface with any of the national systems. One work-around solution designed in response to the NGO link was Hotmail, which Colonel Capin explained became a depository for routine information regarding supply routes and meetings. Although equipment sharing and Internet mail domains worked as expedient field solutions, the multinational force and related agencies and organizations needed a readily deployable communications package based on an assessment addressing interoperability shortfalls—especially in the early days when stress and uncertainty were at their highest.

Despite significant communications capabilities of any single player in the scenario described above, each suffered interoperability handicaps. Although there is no "cost-free" cure to the problem of communication mismatches like these, off-the-shelf technology solutions exist. In fact, a communications infrastructure with terrific potential exists within the UN's Department of Peace Keeping Operations (DPKO), Field Administration Logistics Division (FALD). The Communications and Electronic Services Section (CESS) of FALD established an IT infrastructure that enables communications between and among all UN peacekeeping and DPKO-administered missions, their field offices, and the DPKO offices in New York City. The system relies on four satellites with near-global coverage, more than 300 small, rapidly deployable, earth station communication dishes, and some 900 portable (briefcase) terminals supported by the system of international maritime satellites called INMARSAT. With a leased digital circuit between the communications hub in Brindisi, Italy, and New York City, one public telephone network, and secured communications circuits, this network reaches thirty-two countries on four continents. When military forces are part of a UN peace support operation, the force is included in the UN communications umbrella. When working with a regional organization, a memorandum of understanding addressing communications support and terms for reimbursement must be developed between the United Nations and the regional force. In the case of Kosovo, where the regional force preceded the UN peace support operation, the UN communications infrastructure was initially unavailable. However, the existence of the supporting DPKO CESS infrastructure suggests that a standing agreement that extends IT capabilities significantly could contribute to overcoming some of the confusion attributed to poor communications interoperability in peace support operations.[19]

At the heart of the DPKO CESS infrastructure is an information management system originally developed to support a system of accounting for UN equipment in peace support operations. The Field Administration Logistics Division of DPKO developed the Field Assets Control System (FACS)—described by the project coordinator as the "kernel" for the overall project—to enhance equipment accountability and assist in budget resolution and development.[20] The system introduced a standardized program for tracking the life cycle of UN equipment in peace support operations. Using groupware—software that integrates work on a single project by several concurrent and separated users—the system provides data entries and updates to UN headquarters within minutes of input at workstations around the world. In 1997, FALD distributed the software to missions, most of which previously used "homegrown" tracking systems, and simultaneously developed a communications infrastructure to support FACS. Computer bulletin boards encouraged use of the new system and facilitated feedback, although the new system initially drew only weak response from the field. Within three years, FALD developed and refined the FACS module as the first module of the Field Mission Logistics System (FMLS). Recently completed or in development as part of FMLS are programs to track maintenance, expendable goods and supplies, contingent owned equipment, memoranda of understanding, and field personnel movement.

The DPKO Wide Area Network (WAN), which supports FMLS, also supports a mail routing operation that enables communications among and between field missions and UN headquarters. In fact, the WAN supporting DPKO makes the UN headquarters intranet available to field missions and UN peace support operation headquarters. Developers could add instant messaging to the system to enable computer conferencing and real-time dialogue.

Beyond the UN infrastructure, open source instant messaging software might be another option available to PSO actors interested in conducting online dialogue and conferencing. One example of instant messaging architecture easily accessible via the World Wide Web is "Jabber." Similar to a private chat room, this type of instant messaging allows users with access to the host server via computer or cellular telephone to participate in instant messaging among a dedicated user group. While not suitable for classified information, Jabber could facilitate real-time dialogue for routine communication.[21]

However, accessible instant messaging products like Jabber require operational telecommunications. How do actors in the PSO environment communicate when commercial telephone links may be compromised? How do they communicate in failed states or undeveloped countries where telephone connections typically do not exist? In the past, these obstacles prevented the PSO force from using commercial telecommunications.

However, emerging satellite technology soon may offer a solution. In November 2000, StarBand Communications, a U.S.-based company, launched a commercial two-way satellite Internet venture. The company seeks to establish

satellites as the leading route for high-speed Internet connections.[22] This technology could unleash the "tele-bonds" of nonsecure Internet communication and enable computers to be linked to the outside world far from telephone switches, regardless of who controls the ground-based communications hub. StarBand still is working out bugs, such as ways to make the satellite system more resistant to inclement weather. Finally, the company must decrease the operational costs of consumer satellites to become a practical application in peace support operations. Still, deployed as part of a PSO communications package, satellite-based Internet technology holds promise as a means to connect PSO actors reliably from the start.

Long recognized as an issue among allied forces conducting training operations, discussions of interoperability between nations participating in the XIV International Seapower Symposium raised the possibility of IT solutions to challenges in communication interoperability. In a panel discussion, "Interoperability in the Information Age," R. Adm. Kevin Wilson of the Royal New Zealand Navy proposed an Internet-based solution. Admiral Wilson explained that the advantage of using the Internet for communication interoperability is that it "allows remote, long-range, dynamic data retrieval and manipulation from any connected source."[23] Acknowledging that the problem with using an Internet solution is security, Admiral Wilson predicted that given IT advances, security limitations will be temporary at most.

In the same panel discussion, V. Adm. Simpson-Anderson of the South African Navy approached the problem from a more traditional point of view, that of making existing national systems interoperable. Short of purchasing a single, common system, Admiral Simpson-Anderson suggested a common interface that links existing systems. Viewing this as a more affordable solution that uses legacy systems, he acknowledged that any agreed-upon interface must link with each individual system—requiring each nation to perform input modification.[24]

The U.S. Navy is looking at a digital modular radio that may hold the key to enhancing communication with allied nations because it has a radio interconnection that facilitates interoperability between systems. The digital modular radio, available commercial technology, is attractive because it avoids the high costs and maintenance requirements associated with supporting legacy communications equipment. It holds costs down by being adaptable to different systems and not requiring an outright replacement or total purchase to provide the desired communications interface. The digital modular radio has an embedded security feature and can operate using satellite communications, line of sight, very high frequency, and high-frequency communications among different channel settings, all existing in the radio's computer software.[25]

When developing strategy and policy for IT interoperability, leaders and planners must integrate systems currently used with good results at the national and regional levels. One such system is video-teleconferencing (VTC). The United Nations and military organizations use VTC as a cost-effective (in terms of time and travel dollars) way to convene routine and ad hoc meetings. Besides bringing distantly located parties together for meetings without travel or schedule interruption, the VTC enhances voice message by allowing the incorporation of slides to illustrate briefings and concepts, which "attendees" simultaneously view and discuss. Military personnel using the VTC in peace support operations remind potential users that they need to formalize employment of the technology by establishing a protocol for recording (written) meeting minutes, recognizing speakers (especially in a time-constrained, multinational meeting), and staffing information shared following the meeting. Users who fail to develop such a protocol may find the technology frustrating and disruptive to other coordination processes.

The cellular telephone is another information-sharing tool that has proven invaluable in linking individual actors to information resources for advance warning, situation updates, and changes in guidance. Accessible mobile communications like the cell phone are particularly important because the success of peace support operations can hinge on the actions of one or two relatively junior soldiers far from headquarters. These individuals must have up-to-the-minute information for decision making at the lowest level. With satellite support, the cellular telephone gives them that kind of crucial information.

There is no question that today, well into the Information Age, technology exists to support global communications in any environment. It is encouraging that the United Nations already owns and operates a communications infrastructure capable of supporting a global network. Yet it falls short of its potential for three primary reasons. Organizational, administrative, and budgetary constraints limit the United Nations' full exploitation of its IT potential. First, organizationally, the United Nations operates as a system of parallel agencies and divisions—none of these units is empowered to take the lead in developing a standardized, interoperable, IT-based communication system. Consequently, the United Nations operates several communications networks without an overarching interoperability strategy to connect its own agencies, much less all the actors that truly represent the PSO environment—whose coordination is critical to the operation's success. Finally, tight budgets and varying priorities do not guarantee the availability of funds to develop or support effective communications before initiation of a peace support operation.

Back to Top

An Exemplary Product: Global Information Systems

Among the most promising information-sharing technologies for the PSO environment are geographic information systems (GIS). Comprising systems and software with deep commercial roots, the products rely on information from multiple actors across the peace support operation environment: military and police, NGOs and IGOs, local government, media, mission observers and monitors and open source information.

GIS's are software applications with the ability to capture, store, check, integrate, manipulate, analyze, and display data related to physical positions on the earth's surface. With applications ranging from city planning to tourism to mining information, GIS's have an important application in peace support operations because of their ability to "layer" data from multiple sources. The layers come from the expertise and experience of PSO actors. For example, in creating a GIS multilayered map, the terrain and weather data may come through military channels. NGOs may provide up-to-date information on the location of various aid agencies, while the UN High Commissioner for Refugees may add current information on resettlement progress. This example is oversimplified to illustrate the required collaboration. In actuality, several actors may be able to update information in the same area—different teams and organizations traveling between villages and towns can update road conditions, for example. GIS's integrate current information and maps to promote "information sharing, advance planning, operational cooperation and evaluation of progress toward complementary goals"[26] and provide data that can be distributed around the world using new Internet software.

Cooperating agencies have used GIS with positive results in the Balkans. In Bosnia, GIS systems were used to "correlate the pattern of ethnic expulsions with information about military lines of control of paramilitary units operating in the area at the time."[27] In Kosovo, GIS applications combined information about refugee returns, minefields, unexploded ordnance, potable water, housing status, and lines of communication.[28] This information helped UN administrators and PSO forces to manage the immense task of resettlement. This information-sharing mechanism drives agencies to collaborate in order to develop a complete picture of their common zone of activity.

The Russian application of a GIS system, known as Project Sentinel, in Kosovo advanced the Russian sector objectives of preventing the renewal of battle action, creating the conditions for refugee return, and supporting demining efforts.[29] Sentinel combined military-mapping data with dynamic information about troop movement, training activities, refugee movement, route conditions, and demining progress to meet mission requirements. The Canadian reconnaissance vehicle, Coyote—essentially a monitoring technology—has an onboard GIS that combines a television camera, thermal imager, laser range finder, ground surveillance radar, and modem for wireless transmission of the collected data up the chain of command.[30]

Nevertheless, simply collecting, integrating, and verifying layered information for GIS does not indicate a solid information-sharing regime. In April 2000, the United States Institute of Peace and the U.S. Army's 353rd Civil Affairs Command cosponsored an international conference on information sharing to support advanced planning and operational cooperation during PSOs. Among its conclusions was that an information strategy that addresses issues of data requirements, information security, and field constraints should be developed involving all major participating organizations. To elaborate, conference participants reported that relevant data needs and trained individuals to provide accurate data must be identified. They also determined that agreements should exist to inform relationships and mechanisms for identifying and disseminating data. Finally, they said that information systems that provide input for GIS must be supported within the operating environment—simple off-the-shelf technology that assumes infrastructure shortfalls.[31] To ensure compliance with these measures, it is clear that responsibility for this type of information sharing must be assigned to a PSO actor with IT capability, field presence, and requisite expertise.

The Report of the Secretary-General on the Implementation of the Report of the Panel on United Nations Peace Operations (A/55/502) acknowledges the need to establish a responsibility center to devise and oversee the implementation of a common IT strategy for the peace and security departments with a counterpart responsibility center in the offices of the special representative to the secretary general in complex peace operations. To be successful, field offices should take guidance from FALD within DPKO—the office with the technical expertise, talent, and vision to make the most of GIS.

Back to Top

A Final Note on Information Sharing

Regardless of what information systems nations adopt to break down the barriers to communication interoperability, the United Nations must take a leadership role in establishing any lasting IT strategy. Although there are numerous examples of successful applications of national IT assets, until these efforts are integrated, the value of existing technologies will remain unexploited, extant only in the anecdotes of national and regional forces. This unacceptable consequence degrades unity of effort and results in organizations being unable to attract the attention of the communication and electronics industry to develop and market PSO technology. Contributing nations must develop, test, and fund viable IT solutions to overcome their current frustration and promote effective peace support operations from the earliest days of deployment.

To speak with one voice from the PSO environment, actors must develop and transmit messages that others hear and understand. Unity of effort, impartiality, credibility, and legitimacy in peace support operations require actors to speak with one voice—from message development to communicating urgent changes that occur as a result of actions and reactions in the field. The dynamic PSO environment requires effective communications that bridge time and distance; simply arriving in the field with the means to communicate between forces and organizations, however, does not guarantee a common understanding among them. A common base of knowledge and information is required to develop a framework for an efficient working relationship.
Back to Top

Using Information Technology to Bridge the Training Gap

It is extremely important, especially as the demands of peace operations accelerate and become more complex worldwide, that training of professionals become more attuned to new technologies, specifically computer-based learning and distance-learning techniques.[32]

–Amb. George Ward, "Challenges of Peace Support into the 21st Century," Carlisle Barracks, Pennsylvania, May 2000.

Military training exercises for multinational and allied operations traditionally involve costly deployments to conduct training at a common location. The inherent characteristics of peace support operations—international response from multiple agencies and organizations—means that traditional training can be cost prohibitive in terms of both time and funds. Conducting training that requires large unit movement is expensive not only in travel funds but also in the associated costs of moving soldiers around in the field and fueling and maintaining equipment for use in the exercise. Figuring into those costs is the fact that crisis-driven deployments often occur on relatively short notice—severely compressing the schedule for troop movement alone—making efficient use of training time a critical factor in rapid response. This time crunch especially affects nations that conduct PSO training only after a unit is identified for participation in an operation. For short-notice deployments in particular, a combined exercise at a single training center is impractical when there is barely time to ready troops and equipment for movement. Military, police, and civilians participating in peace support operations can utilize the same information technologies and techniques that are employed to share information among them to support cost-effective, integrated predeployment training. The combination of computers, telecommunications infrastructures, and video-teleconferencing equipment creates a cost-effective interface for global distance education programs.

Because IT can enable predeployment training that otherwise may not occur, its use yields intangible dividends in support of PSO fundamentals. Doctrine development for peace operations is generally newer and less established than doctrine used in training for war. Consequently leaders must develop some critical skills, including negotiation, relations with civilian organizations, relations with UN headquarters, and an understanding of mission specifics, during preparatory training. At lower levels and among small units, soldiers typically do not even meet or learn about their foreign partners until they deploy. Leaders of past operations have likened this approach to assembling the team for the first time on the field the day of the big game. It is easy to see that a teaching approach that fails to develop standardized tactics, techniques, and procedures for a multinational force in the course of operations could threaten force credibility and legitimacy. Credibility is compromised when former warring factions view disparate responses among deployed actors as evidence of poor coordination and visible cracks in the ability of the force to accomplish the PSO mission. Legitimacy is at stake because a strong, coordinated response is critical to undermining the legitimacy of the malefactors and to gaining and maintaining support of the indigenous people, allies, and national

and international publics. Using IT to enable PSO training contributes to operational success by establishing relationships and standards of professionalism that enhance force credibility and legitimacy and exercise unity of effort.

Back to Top

Distance Learning

Solutions derived from the application of information technology support global training and learning in preparation for peace support operations. In modern distance learning, IT equipment bridges the gaps of time and space between the trainer and trainee, redefining distance learning. Once characterized by correspondence courses delivered through postal systems, distance learning today takes advantage of communication channels and media such as computers and associated networks, print, audio, cable, satellite, and videotape or a combination thereof. Interactive delivery systems account for the growing numbers of colleges and universities using distance learning around the world to attract students who cannot attend classes because of their locations or schedules. Audio and video conferencing (using telephone lines and satellites), and webcasting (real-time broadcasts of digital images delivered to websites) make obsolete the old "passive learning" stereotype of distance learning. Contemporary distance-learning approaches have a distinct advantage over traditional education in that they enable a dialogue between students and instructors when the two are in different places—creating a virtual classroom. Because of its ability to bridge distances between citizens, communities, states, and nations, education specialists recognize distance learning as part of the international landscape.[33]

Back to Top

Computer Simulations

Another virtual approach to training for peace support operations is the use of computer simulations to create, not the classroom, but the PSO environment. Designed to train leaders in decision making for such operations, these applications allow actors to observe the impact of decisions and refine or modify practices without actually affecting a community moving toward resettlement or a local police force reorganizing in an operation's postconflict phases, for example. The introduction of analytical tools developed specifically for peace support operations came on line slowly.

Despite early recognition of the role computer-assisted simulations could play in planning and executing peace support operations, trainers continued to rely on existing war analysis tools to fill this need. In addition, new modeling for simulations was slow to develop because the historical data about peace operations was not being assembled. Finally the reality of the ever-increasing frequency of peace support operations since the end of the Cold War sharpened the need for PSO training simulations, ranging from computer simulations specifically designed to support integrated leader training, bringing together policy makers, military leaders, NGO representatives, religious leaders, and legal experts to interactive sessions exercising soldier decision-making through packaged vignettes and scenarios.

The U.S.-based Institute for Defense Analysis (IDA) developed an experiential simulation that can be used to provide military leaders, policy makers, and NGOs—among those operating in the PSO environment—insight into the consequences of their proposed actions. The IDA computer simulation, Synthetic Environments for National Security Estimates (SENSE), simultaneously addresses economic, social, political, and military issues in a virtual exercise. Using desktop computers and interactive software, participants in a SENSE exercise identify potential crises, scope options, and test crisis action plans.[34] The software accepts the input of participants and allows them to experience the consequences of their decisions and actions. This step of moving beyond discussion and collaboration to experience is one of IT's unique contributions to training. Although computer simulations cannot replicate exactly what occurs in real-time operations, they provide invaluable interactive experiences for participants to observe possible outcomes of their decisions and to analyze and debate the impact with expert advice and input.

For the individual soldier or police officer supporting a peace operation, a decision in a stressful environment can make the difference between provoking a riot and developing the trust and respect of the local public. However, before deployment, it is difficult for soldiers to envision a village that lies halfway around the world, divided by hate

and history. Equally difficult for troops is to deal diplomatically with a throng of strangers who act and speak differently from their peers. The U.S. Institute for Creative Technologies is developing a virtual environment that transports soldiers from a studio setting with a 180-degree screen to a stressful incident played out in a Balkan village.[35] Like the leaders' "games," the vignette allows soldiers to see—ideally to learn from—the consequences of their actions. In other words, it gives troops a chance to practice likely courses of actions in a virtual setting. Comments from many participants in after-action reviews indicate that conventional situation training exercises are the best training methodology to prepare soldiers for operations. The virtual environment builds on this feedback.

Back to Top

Viking '99

In light of distance-learning capabilities and the value of computer simulations, the potential of combining the two applications is compelling. Envision a network of leaders engaging in a real-time simulation of a PSO environment without having to leave their home stations.

In late November 1999, governmental, intergovernmental, and nongovernmental organizations worked together with police and military forces from more than twenty-seven countries to restore and maintain peace in the fictitious country of Betaland. Exercise VIKING '99, a full-scale computer-assisted exercise hosted by Sweden, supported NATO and Partnership for Peace countries through communications hubs in Denmark, Finland, Latvia, and the host nation. Combining simulation software, computer hardware, telephone, fax, and radio, the exercise supported multinational participants using a scenario similar to recent conflicts in the Balkans. The scenario manager for the exercise, Swedish Maj. Raymond Iller, credits the realism of the scenario to the input of people experienced in peace support operations.[36] Working with PSO-veteran soldiers, lawyers, doctors, and aid organizations, Iller created Betaland. Players around the world experienced Betaland from their daily workspaces and local simulation centers.

Commenting on the VIKING '99 exercise, U.S. Marine Corps Capt. David M. Griesmer says that building virtual training centers to support simulated training exercises is affordable—costing as little as $15,000. Additional costs include leasing lines for Internet and teleconferencing to support the system.[37] These relatively low costs, and the fact that the technology is available using off-the-shelf hardware with specialized software designed by the United States and Sweden, puts within reach a realistic program that can be tailored to fit the peculiarities of any PSO environment.

The next step is supporting the leaders' training with soldiers who—having discussed a common definition of the use of force in a distance-learning program—are exercising restraint in a virtual village of rioting and chaos. The powerful benefit of IT training includes its own set of challenges. Common language, technical support, time zone differences, and curriculum development to support the exercises present considerable hurdles. Nevertheless, the increased tempo of peace support operations over the past decade makes clear the importance nations must assign to development of IT-supported training. UN member states should take the lead in developing model training centers. The DPKO telecommunications infrastructure could serve as the backbone for connecting IT-enhanced training programs.

Back to Top

Monitoring

The peacekeeping operation can be vital in supporting and encouraging confidence-building measures which in turn foster an atmosphere of cooperation and mutual benefit. For instance, active and continuous monitoring of mutual compliance, such as we undertake in the Multinational Force and Observers (MFO), contributes significantly to confidence building.[38]

–Maj. Gen. Trygrove Tellefsen, "Challenges in Peace Supportinto the 21st Century," Amman, Jordan, October 1998.

Although training may focus on various areas and tasks, one specific skill set that bears special mention is monitoring. Monitoring is essential to confidence building and consent maintenance in peace support operations. Of

the fifteen UN-sanctioned peace support operations ongoing during the writing of this report, all included monitoring as part of the mandate.[39] Monitoring tasks in peace support operations serve to detect and deter threats, verify agreements or resolutions, and supervise or assist with field activities. Monitoring is instrumental when the UN Security Council calls upon parties to settle a dispute in accordance with Chapter VI of the UN Charter (and in peace enforcement operations carried out within the provisions of Chapter VII of the charter). Military forces supporting peace operations monitor sanctions, military activity, police activity, elections, and the physical security of regions, demilitarized zones, and PSO camps.

Nontechnological monitoring is a manpower-intense task that relies mainly on human detection and observation conducted via patrols, observation posts, and checkpoints. Generally speaking, the larger the area and more complex the monitoring tasks, the greater the demand for personnel to conduct monitoring missions. Because budgetary constraints, national directives, and public support for peace support operations all affect the resources available, the United Nations and member states must consider IT monitoring to enhance human monitoring when possible. In addition to reducing manpower demands, IT monitoring supports PSO fundamentals of impartiality, consent, freedom of movement, and legitimacy. Monitoring technologies in and of themselves are objective and impartial in the collection of data. When forces share monitoring data with local populations and leaders, they demonstrate evenhanded application of the technology and reinforce consent and support for the PSO forces and the legitimacy of the operation.

Even a PSO force with a good reputation for professionalism can be challenged over time by rumors (or accurate reports) of partiality and bias. The information-sharing methodology must be established from the outset of the mission, not as an afterthought when problems and doubts result in a need to submit proof of rightful actions. No amount of righteous indignation on the part of the compromised force can change perceptions of mistrust, which chip away at the efficacy of the peacekeeper. Further, information can be applied as a nonlethal "use of force" to compel or support compliance. General Nash's demonstration of the unmanned aerial vehicle is a perfect example of using information technology in this manner. Just the knowledge that a force can see and report the actions of a group or individual can act as a deterrent.

To understand IT's contribution to monitoring missions, one must understand the objectives of the mission and related tasks. The Royal Netherlands Army Military Doctrine, for example, assigns "observation, monitoring and control" as a sequenced task cluster for peace operations. Each of these activities requires the PSO force to acquire, process, share, and as required, act on information regarding compliance with or violation of agreements and international laws. The level of action and force Dutch peacekeepers may apply increases as each task is required by the situation.[40]

The U.S. Army PSO doctrine lists six subtasks to the mission of "observing, monitoring, verifying and reporting any alleged violations of the governing agreements."[41] From investigating cease-fire violations and boundary incidents to verifying disarmament and demobilization, each activity affords warring factions the opportunity to observe impartiality in relation to the responsibilities of the PSO force. Planners must apply monitoring devices not purely as intelligence collectors, but as operational tools—much like radios and vehicles—to appreciate the force multiplier value of sensing devices that enable fewer peacekeepers to cover a greater mission area while increasing the coverage time for the area.

Back to Top

Optimal Use of Remote-Sensing Devices

Interest in the role IT could play in monitoring during peace support operations has led to a comprehensive study by U.S.-based Sandia National Laboratories.[42] In their report, Sandia researchers established a consent/force balance to determine the applicability of monitoring technologies to the operations. The report defines the variables of consent and force as commonly applied in peace support operations: that is, consent is the degree of agreement the parties involved in the conflict hold for the international peacekeeper's activities. Force indicates the force available and the level of use authorized for peacekeepers. Generally, peacekeeping operations are high in consent, deploying with lower force levels, while peace enforcement operations are characterized by less consent and higher force levels. However, operations can change from peacekeeping to peace enforcement or the reverse, given a dynamic operational environment. Decision makers who may summarily include or dismiss the application of monitoring technologies based on the initial conditions when deploying a PSO force should recognize the fluidity of the situation.

According to the consent/force balance developed by Sandia, operations with a high level of consent and low force capabilities should employ open and relatively unprotected systems for specific monitoring tasks. Operations with low consent levels and high force capabilities need to protect, hide, or add redundancy to monitoring devices. It is important to note that hiding the collection device suggests not a less transparent application of the technology but protection from theft or destruction. Those collecting information still can and should share data. One objective of the Sandia study was the "concept of cooperative monitoring, which is the use of monitoring and security technology to acquire and share objective information."[43] For example, in an environment with a high level of consent and low force requirement, unattended ground sensors of various types—seismic, acoustic, weight, infrared, break-beam, magnetic, microwave, and radar—can effectively monitor facilities, ports of entry, lines of control, and weapons storage. The operator can relay information collected from the multitype ground sensor system to a monitoring center for recording, action, or reporting as required. Military forces using monitoring technologies are capable of providing a continual feed of assurance by using closed-circuit televisions and digital cameras to project the images captured by some key monitoring activities. A decrease in consent and a simultaneous increase in force requirement may dictate protective and redundancy measures for some of these sensing devices.[44]

The Sandia report identified five typical monitoring missions in which technology may reduce the number of soldiers required for an operation while visibly demonstrating impartiality and enhancing the credibility of military and police forces in the mission: monitoring movement of peacekeepers and locals, monitoring facilities, monitoring checkpoints and ports of entry, monitoring lines of control, and monitoring weapons transport and storage.

The Sandia team evaluated the potential for various classes of technology to assist in the five tasks based on criteria of affordability, simplicity, durability, reliability, and validity. Ground-based sensing devices had the best applicability in static missions—where there is the strongest argument for reducing personnel. Tracking systems were recommended for monitoring movement of people, equipment, and weapons systems. Motion detectors and entry control systems were recommended for physical protection of facilities and for weapons monitoring. All these systems have the added advantage of enhancing the protection of actors in the PSO environment through early warning and constant surveillance.[45]

Back to Top

Examples of Monitoring Technologies

Among the most often cited historical cases of applying monitoring technology in a peace support operation is the U.S.-sponsored Sinai Field Mission (SFM), which ran from 1976 to 1980. The field mission used four unattended ground sensor fields with TV and infrared scanner technology to supplement human observers in monitoring the Giddi and Mitla passes, which separated the Israeli and Egyptian forces during the staged withdrawal process. Practitioners and academics alike often characterize the mission in the Sinai as "traditional peacekeeping"—and it fits the Sandia description of an environment in which monitoring technologies can be used in an open and relatively unprotected manner (high consent/low force). Although SFM used the systems successfully—identifying ninety minor violations over a four-year period—it discontinued their use chiefly because of a political decision to employ a large and visible force instead of electronic monitoring.[46] The mission employing monitoring devices used only 150 operators and support staff—many fewer than required to monitor the passes without remote sensors.[47]

More recently, the U.S. 311th Military Intelligence Battalion employed the Remotely Monitored Battlefield Surveillance System in Bosnia, Multinational Division North, to enhance the task force's ability to monitor assigned areas given identified manpower constraints. The remote ground sensors established a trip-wire system around areas where returning refugees were resettling. The sensor system, deployed during hours of limited visibility, provided information about movement in the area. The engineers captured the information in a summarized report, which they provided to the intelligence section for analysis and trend development. That information helped the force to determine which areas were potential "hot spots" for resettlement—aiding in mission development and force allocation.[48]

Back to Top

Eyes in the Sky—Complementary Surveillance

The Sandia report recommends using aerial sensors (including UAVs) to supplement ground monitoring in large, dangerous, or inaccessible areas. Satellite imagery with resolution refined to one meter can provide information on ground activity ranging from activity on military installations and around arms storage areas to route traffic and refugee movement.

UAVs are pilotless aircraft controlled by radio signals. Planners recommend the use of "drones," as they sometimes are called, to perform dull, dangerous, or dirty missions (repetitive or sustained, in a hostile environment, or in a chem-bio environment, respectively). For combat deployment, UAVs may require special engines that reduce noise signature, engines and structures that allow them to operate at high altitudes and speeds, and special chemical and biological detectors—functions that increase their cost and may not be required for peace support operations. Contemporary UAVs (aircraft only) range in cost from $1,000 to $14 million. However, the cost of the system, including the aircraft, ground control station and shelter, launching mechanism, and (typically) two to three spare aircraft, is higher.[49] Still, the system and operating costs are lower than those of manned aircraft. The observation range of the UAV (weather dependent) replaces individual PSO troops who otherwise would have to do the mission. The systems, formerly equipped with conventional cameras that required operators to recover and develop the film, now employ video and digital cameras with instant downlink capabilities.

The UAV already has established a reputation for successful deployment in peace support operations. In addition to deployment in Macedonia and Bosnia, the U.S. Navy deployed the Pioneer system off ships for flights over Haiti in Operation Provide Democracy and over Somalia in support of Operation Provide Promise/UNOSOM II.[50] NATO UAVs deployed by the United States, Germany, France, and the United Kingdom flew numerous cease-fire compliance-monitoring missions over Kosovo in 1999 and 2000. Although more than two dozen UAVs crashed over Kosovo in 1999, those losses involved no pilot deaths or injuries. All the branches of the U.S. military have contracts for UAVs. The U.S. Defense Department reports a spending plan of $30 million in UAV research and development over the next four years.[51]

The UAV alone, despite substantial peace support operations deployment, cannot address all the tasks associated with the monitoring mission. As with other monitoring technologies, redundancy—both technological and physical—is required. There will be times when troops on the ground are the preferred monitoring method—for their military and political significance.

Back to Top

The Training Imperative

One of the criticisms accompanying the employment of IT in any area of peace support operations, but perhaps most significantly at the user level in monitoring missions, is that soldiers do not know how to use the high-tech systems provided them. Three approaches may satisfy this situation. The first option, when conducting decentralized training for peace support operations, whether as part of a planned curriculum or as a "just-in-time" program, is to include training in monitoring technologies. At the Lester B. Pearson Canadian International Peacekeeping Training Centre, an annual two-week seminar entitled "Live, Move and Work" introduces potential leaders of peace support operations to the types of technology that may be applied to enhance force effectiveness in monitoring missions as well as to technologies for communication, protection, and the latest in nonlethal weapons. Classroom instruction, unless incorporated into a larger, routine PSO training program like the one at the Pearson Center, may prove impractical in terms of time and costs. The second option, which may diminish or even preempt the training requirement, is to establish contract responsibility for designing, fielding, developing, and assisting in operating the monitoring technology structure—each tailor-made for the peace support operation. A third option, a combination of the first two, may be best. That option would employ the distance-learning techniques discussed in the training section of this chapter in the development of a global training package that draws on contract expertise in monitoring technologies. Regardless of which approach an organization selects, there must be a system for fully assessing the value of using monitoring technologies. When the decision is made to use monitoring devices, trained technicians must operate them and have a complete information management system in which to record and store collected data for future analysis—all covered by a comprehensive in-country maintenance capability.

Back to Top

The Power of Information Technology in Communicating with the Public

Peacekeeping operations are carried out under the full glare of public scrutiny. By using satellites and other modern communications technology, the press is able to distribute reports and pictures faster than ever before. Incidents, sometimes embellished or slanted toward a partisan viewpoint, are screened on television the same day and the next morning are in the press to excite audiences in those countries that are parties to the dispute, as well as their allies.[52]

–Lt. Gen. M. R. Kochhar, "Challenges in Peace Supportinto the 21st Century," Delhi, India, September 2000.

Information technology's power does not reside solely in communications architecture, remote-sensing devices, and training simulations. A significant strength of the new technologies lies in their ability to communicate quickly with global publics. From international reporters recording the deployment of military forces to the faction leader using state-controlled radio to provoke violence, PSO forces must prepare to respond. They must do so without jeopardizing the credibility and legitimacy of the operation or violating a profile of impartial mission conduct. The access, filing capabilities, and pervasiveness of the modern media corps virtually guarantee that reporters will transmit all newsworthy events to international audiences—often in real time. A comprehensive information plan that is part of the overall PSO planning process must address how forces should interact with local factions and media outlets. Although arguments continue over the power of the media to lead nations and organizations into or out of these operations ("the CNN effect"), this section focuses on operating with the media and other agents disseminating information in the PSO environment.

Journalists enjoy greater access to soldiers supporting peace operations than in any other kind of military operation. Journalists often bring communications equipment superior to that of most other actors—including the military. Coupled with privately contracted transportation, this means that journalists, once dependent on PSO forces for logistic and communications support, are independent agents—often arriving before the first military response. Add to this changed reporting environment journalists' ability to file real-time or near-real-time news. Using satellites, cellular telephones, and computers, they file their stories and provide simultaneous reports of activities occurring throughout the PSO environment. Indeed, journalists file stories faster than information is transmitted up a military chain of command or through an aid organization to its leadership. One vehicle for information—around-the-clock news reporting—has created a seemingly insatiable hunger for newsworthy stories.

These three IT-driven characteristics—unfettered access, real-time reporting, and the twenty-four-hour news cycle—significantly affect peace support operations. The media can flatten the traditional organizational hierarchy through unrestricted access and compress decision-making cycles through real-time reporting. As information gatekeepers, journalists become the voice from the field, providing continuous reporting and analysis.

Leaders, planners, and managers in peace support operations need not be impeded by the IT capabilities of those desiring to communicate with publics. An effective information campaign developed as part of information operations should address not only the military's IT capabilities and how best to apply them but also the capabilities of other actors and how to support, coordinate with, or in some cases, counter them.

Back to Top

Real-Time Reporting and the 70 Percent Solution

These powerful journalistic capacities present PSO personnel with daunting challenges. Leaders and managers may feel pressed to act or make decisions based on what the media are about to report. Intensifying this pressure, guidance from higher headquarters can spring from the latest news reported on CNN, even before forces on the ground have had time to report through routine command channels.

To counter the speed with which stories can be filed from the field, leaders must trust spokespersons to respond to issues of breaking news with available facts before perfectly sterilized words have made their way down from headquarters. The 100 percent solution—triple checked and command endorsed—on a press release or statement that lands a day late, lands without impact. Addressing the essential elements of a breaking story promotes transparency and fosters credibility and impartiality. Continual feed is what sustains the twenty-four-hour news realm. Although no leader or policy maker should feel pressured to supply information to the news media, there is little room

for argument after the film has rolled if the facts are still awaiting a thorough review on the desk of the chief of staff.

The importance and immediate impact of live-feed visuals have changed the dynamics of the relationship between the spokesperson and members of the media. A common concern on both sides of the table in press conferences has always been time. In the Information Age, reporters can leverage a live image in protest when they feel they are not getting information quickly enough. Leaders in turn often feel reporters ask for too much information too quickly—especially regarding breaking news. The ability of the broadcast media to transmit real-time images to an all-news, all-the-time network can pressure leaders to produce answers and solutions as quickly as the press produces pictures. NATO spokesman Jamie Shea warns leaders and fellow spokespersons to be responsive to the media without following them slavishly—to provide timely responses to avoid the accusation of "too little, too late."[53]

Achieving realistic release authority for the 70 percent solution—that is, delivering incremental information with the command message—the approved contextual theme and tone—has to work effectively in a media-intense environment. All the information known to be factual should be made available as it is known. The intent of this strategy is maximum disclosure with minimum delay. Its success depends on three essential elements: the role of the spokesperson, the organization and deployment of the public information structure, and the education of the media corps.

Spokespersons are key personnel who must be included in operational briefings and meetings and given clear guidance on what information can be released to the media. The collateral benefit of an inclusive role for spokespersons is their education and growing understanding of the intent of senior leaders. The better informed the spokespersons, the better they can put responses in context and help the media understand what can be confounding about operational processes and procedures.

Former U.S. Assistant Secretary of Defense for Public Affairs Kenneth Bacon taught junior public affairs officers that their greatest power was their credibility, based on the trust and confidence they garnered on both sides of the microphone. Senior policy makers and military leaders must trust the intellect and prudent confidentiality of the spokesperson. Members of the media must know that the information they get is current and accurate—while understanding that spokespersons often know more than they can share on an issue.

In addition, the public information team must deploy early in the operation, in sufficient numbers and with communications equipment comparable to that being used by journalists in order to respond to the likely flood of media that will meet the first regular soldiers deployed to the operation. The story of some 500 registered media representatives in Bosnia, nearly all of whom traveled to Multinational Division North to meet the first arriving U.S. forces in 1995, is legend. If there are too few military public information experts on hand, providing adequate comment on breaking news can be difficult. In peace support operations, it is realistic to expect the media to precede the military deployment. Often they have been present for prolonged periods during which they developed deep background on the history of the conflict and appreciation of the people and culture.

Finally, the relationship between the PSO force and the media should be established and nurtured as early as possible—most significantly by working with national media before a crisis occurs. Efforts to educate the press corps on the policies, people, and equipment that comprise peace support operations will pay dividends when reporters are filling news holes in the twenty-four hour broadcast cycle. In addition, relationships forged before crises foster cooperation when breaking news and deadlines ratchet up the inherent tension between those covering the news and those making it.

Especially during the stressful and often confusing early days in an operation, commanders need a trusted spokesperson, a well-equipped public information team, and an informed press corps to keep up with the constant demand for accurate, timely information. To start with anything less risks the overall fundamental of mission transparency by providing "too little or too late" information to the throng of reporters with cameras rolling—live.

Back to Top

Media Access and the Strategic Corporal

This report started out with the observation that the contemporary relationship between IT and peace support operations is clear but undeveloped. The concept of the strategic corporal most vividly illustrates the relationship as it plays out on the ground between forces supporting peace operations and journalists covering them. The dispersed,

dynamic PSO environment forces independent decision-making responsibilities on young, junior soldiers. The former commandant of the U.S. Marine Corps, Gen. Charles Krulak, dubbed Marines operating "far from the flagpole" without the direct supervision of senior leadership "strategic corporals." They are asked to deal with a bewildering array of challenges and threats, under demanding conditions requiring maturity, judgment, and strength of character. Strategic corporals are assigned missions that require them to make well-reasoned independent decisions under extreme stress—decisions that will likely be subject to the harsh scrutiny of both the media and the court of public opinion. The ever-present, IT-equipped journalist plays a significant role in lending strategic weight to those soldiers' decisions and actions. Consequently their actions can directly affect the outcome of the larger operation.[54]

One of Jamie Shea's "Spokesman's Rules" for dealing with the media in crises and peace support operations is to flatten the management of speaking to the media as much and as quickly as possible to insure rapid and responsive reactions to their inquiries.[55] The pervasive presence of media in peace operations plays havoc with the rigorously hierarchical structure in military operations. Nevertheless, flexible leaders equip and educate their soldiers to interact with journalists within the bounds of operational security.

In light of their challenges, role, and responsibilities, strategic corporals must be given information, guidance, and license to respond to and inform reporters on the scene. In Bosnia, a number of approaches proved effective in empowering the U.S. Army soldier on the ground when dealing with the media. Among those approaches were talking points and commander's messages developed by the Task Force Commander's Information Coordination Group (CICG) and approved by the commander. They were disseminated to brigade and battalion task forces weekly via e-mail and fax for use by leaders and their soldiers in media encounters. When emergent issues arose, the CICG provided specific, timely guidance for soldier use beyond the weekly updates. That information was transmitted via telephone, command conference calls, e-mail, and fax to get it into the hands of the soldiers who needed it as soon as possible. In Kosovo, more and more soldiers operate from remote posts equipped with cellular telephones that allow them to receive immediate guidance and updated information.

Electronically disseminated messages and open communication systems provide leaders confidence that soldiers have the information they require to speak to the media. Soldiers, for their part, confident in their guidance and empowered by leaders, address journalists effectively. The end state is an informed public able to balance disinformation with a consistent story from a unified peace support force.

Back to Top

Other Voices in the Crowd

Despite the characterization of the media as gatekeepers, for the most part the press corps' application of IT in the collection and dissemination of news is balanced because of its own need to remain a credible source of information. Other agents using information technology to communicate with publics include faction leaders and local activists with distinct agendas to persuade or provoke an active response from the audience. The PSO force must be equally prepared to deal with these actors.

In Somalia, for example, General Aideed had strict control over a radio station known as Radio Mogadishu. During Operation Restore Hope, U.S. forces initially succeeded in countering the rhetoric broadcast over Radio Mogadishu by establishing their own newspaper and radio station to reach the local population. Information provided in both formats was in the Somali language and carefully drafted to be culturally sensitive. Gen. Anthony Zinni, commander of the U.S. Marines deployed for the operation, credits effective communication with preventing violent clashes on the streets in the early days of the mission.[56] Success in countering forceful propaganda can be attributed to several factors.

General Zinni's force deployed with the expertise and equipment they needed to reach the local public. They understood Somalis' preferred media of communication and crafted their messages for those vehicles. They developed informative, truthful, culturally sensitive messages, which they expressed in the language of their audience. General Zinni said he resisted those who encouraged the force to destroy Aideed's Radio Mogadishu, because doing so would contradict the U.S. value of free speech. Later, in UNOSOM II when Pakistani peacekeeping forces entered the radio station as part of a weapons inspection, the resulting firefight left twenty-four of the peacekeepers dead. By that time, forces had rotated and the information campaign had deteriorated.[57]

Back to Top

The Internet News Source

In the Millennium Report of the Secretary General of the United Nations, Secretary General Kofi Annan said, "The Internet is the fastest growing instrument of communication in the history of civilization, and it may be the most rapidly disseminating tool of any kind ever."[58] The United Nations' website, established on September 18, 1996,[59] registered an average of 129,066 site visits (hits) a day in its first year.[60] By June 2000 the site was being visited an average of 444,761 times daily.[61]

The power of the Internet, given its global reach[62] and the speed and ease with which it transfers and propagates information, portends numerous applications for peace support operations. The Internet provides information on every UN peace support operation and on regional organizations' responses to crises across the Balkans, Southwest Asia, and the Middle East.

At the same time, the Internet has introduced a new medium for journalists and propagandists alike. From the screens of computer monitors around the world, "news" glares free from the scrutiny of editors and publishers. Credentials be damned, computer "reporters" are signing their bylines in a virtual newsroom of cables and diodes. With sources unchecked, the opportunity for disinformation looms. An article written by an information specialist in the U.S. Department of State about the "web wars" in Kosovo illustrates how the Internet wields the soft power of information, despite its inherent vulnerabilities.

The Internet, economically and technically accessible to the Milosevic regime enabled the global posting of propaganda depicting Serb victims, bombings in violation of international law, and NATO aggressors. Those stories were magnified not so much by individuals accessing the website, a factor that is difficult to quantify and more difficult to interpret, but rather by media interest in the role of the Internet in the conflict. Numerous news stories regarding the Internet served to amplify information posted to the Serb websites—without apparent regard for the credibility and accuracy of information posted. In contrast, the Kosovars, lacking digital cameras and accessible websites, were unable to counter their Serbian foes with an effective Internet response.[63]

To counter Milosevic's activities, the U.S. Information Agency's Information Bureau, now operating as the U.S. State Department's Office of International Information Programs, tailored a number of activities to the Internet that can serve as a model in future information campaigns. Their Kosovo website distributed video, print, and audio information in eight languages. A public outreach listserv provided information to foreign and national opinion leaders. In a public-private partnership, Internet centers established at refugee centers in Europe and the United States allowed refugees to access information and send e-mail to trace family members—an effort aided by an on-line newspaper distributed in all locations hosting refugees. Finally, the Information Agency's cyberwatch group remained active throughout the conflict to track Kosovo coverage on the Internet and monitor Serbian disinformation.[64]

Given the Internet's potential power, participants in peace support operations must plan for its use in public information campaigns. Organizations and forces responding to international crises must become active in offering information via the World Wide Web to reach a greater audience and to add balance to the information available via the Internet.

Back to Top

Conclusion

The pace of IT development in the second half of the twentieth century clearly has outrun its application in peace support operations. While IT innovations grew through defense industry solutions to challenges during World Wars I and II and the Cold War years, commercial growth in IT exploded in the 1990s. Peace support operations, never achieving the national and international popular support of war efforts, hardly have begun to take advantage of advanced telecommunications capabilities, information systems, and broadcast media.

In the case of communications architecture, the diversity of commercially available systems has created

interoperability challenges that handicap dialogue between nations even as the incidence of crisis response becomes more frequent—and more frequently multinational. The United Nations, hamstrung by a horizontal structure and the well-nigh impossible task of consensus building among an ever-growing membership, has demonstrated neither the willingness nor the ability to assume a leadership role in highlighting IT solutions. Nor have UN member states—particularly financially able developed nations—assumed a cooperative role in deploying and testing the practicality of IT solutions in endeavors such as monitoring roles for militaries acting in support of peace operations. Nations stymied by the start-up costs and insufficient time to develop coordinated distance-learning programs enhanced by computer simulations too often continue to train unilaterally—if at all—before deploying to peace support operations. The broadcast news media, eager to attract large audiences, have magnified for all actors in these politically delicate operations how IT is changing the reporter's capabilities and redefining the relationship between the media, the public, and newsmakers.

As this new millennium continues, it seems clear that there will be many more peace support operations than full-scale wars. The solid framework for IT-enabled PSOs—evolving from the introduction of a thirty-ton computer and the signing of the UN charter some fifty years ago—must be updated without delay. The growing gaps between that framework's promise and PSO practice are unacceptable. Active involvement by UN member states to field and refine existing IT in peace support operations, while pushing for new and effective IT programs tailored to the PSO environment, is critical. Nations must redirect some of their IT warfare budgets toward preparing for this future. UN headquarters must step up to the responsibility for developing strategy and policy for emerging and existing technologies to ensure an effective IT program that serves as the foundation for response to PSO challenges today and into the future. Although information technology is not the answer to all the challenges of peace support operations, it can go a long way toward improving how actors communicate in, monitor, train for, and explain them.

Back to Top

Endnotes

1. Panel on United Nations Peace Operations, *Report of the Panel on United Nations Peace Operations, Part Five: Peace Operations and the Information Age* (New York: United Nations, A/55/305 - S/2000/809), 42.

2. David S. Alberts, Daniel S. Papp, and Alissa Tuyahov, "Historical Impacts of Information Technologies: An Overview," in *The Information Age: An Anthology on Its Impacts and Consequences. Vol. 1 Part 1: Information and Communication Revolution*, edited by David S. Alberts and Daniel S. Papp (Washington, DC: Center for Advanced Concepts and Technology, 1997), 30-32.

3. Alvin Toffler, *Creating a New Civilization: The Politics of the Third Wave* (Atlanta: Turner Publishing, 1995).

4. John Naisbitt, *Megatrends: Ten New Directions Transforming Our Lives* (London: Macdonald & Co., Ltd., 1982), 13-14.

5. International Bank for Reconstruction and Development, "The Information Age," in *1999 World Development Indicators* (Washington, DC: The World Bank, 1999), 300-303.

6. Michael Howard and John F. Guilmartin, Jr., *Two Historians in Technology and War* (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1994), 20.

7. Martin Campbell-Kelly and William Aspray, *Computer: A History of the Information Machine* (New York: Basic Books, 1996).

8. R. S. Edwards, "CIC (Fleet) Terms and Meanings," in *C.I.C. Shore Based Fighter Control, Air Warning, and Radar Notes*, OPNAV 30/37, No. 1-44 (Washington, DC: Office of the Chief of Naval Operations, March 1944), 34. Also incorporated is information from the Information Age Exhibit, Smithsonian Institute of American History, Washington, DC.

9. MITRE Corporation, "Semi-Automatic Ground Environment (SAGE): Beginnings," http://www.mitre.org/pubs/showcase/sage/sage_feature.html, accessed October 16, 2000.

10. Department of the Army, *Information Operations*, Army Field Manual 100-6 (Washington, DC: U.S. Department of

the Army, August 27, 1996), iv-v.

11. Ibid., 2-3.

12. Department of the Army, *Stability Operations and Support Operations*, Army Field Manual 3-07 (Initial Draft) (Washington, DC: U.S. Department of the Army, June 15, 2000), 4-17.

13. Telephone interview with Brig. Gen. John M. Brown, U.S. Army, January 8, 2001. BG Brown was the chief of staff, First Armored Division, during the first rotation (IFOR) in Bosnia, December 1995 to December 1996.

14. The author was the operational public affairs officer for MND(N) and organized the Commander's Information Coordination Group, June-September 1996.

15. Lt. Col. Jack C. Guy, U.S. Army Reserve, "Feedback," e-mail message to Donna Boltz, November 16, 2000.

16. Goran Tode, "Information Technology and Crisis Management," in *Challenges of Peace Support into the 21st Century*, edited by Bo Huldt, Annika Hilding, and Arita Eriksson (Stockholm: Swedish National Defense College, 1997), 173.

17. Interview with Col. Patricia Capin, U.S. Army, November 2, 2000.

18. Lt. Col. Peter J. Varljen, U.S. Army, "Overcoming Communication Incompatibility," e- mail message to Donna Boltz, November 9, 2000.

19. Interview with Rudy Sanchez, chief, CESS, FALD, January 25, 2001.

20. Interview with Susan Flores, FMLS project coordinator, FALD, January 24, 2001.

21. April Mestas, "Looking for an IM Solution," e-mail message to Donna Boltz, December 21, 2000.

22. Peter S. Goodman, "Dishing up a New Link to the Internet," *Washington Post*, November 6 2000, A-1.

23. Fourteenth International Seapower Symposium, "Panel Discusion: Interoperability in the Information Age," in *Report of the Proceedings*, edited by John B. Hattendorf and Ernest J. King. (Newport, RI: Naval War College Press, 1998).

24. Ibid.

25. Henry S. Kenyon, "One Box Covers Many Systems: Digital Modular Tool Enhances Flexibility and Reduces Logistics, Training Requirements," *SIGNAL Magazine*, December 2000, http://www.us.net/signal/CurrentIssue/Dec00/one-dec.html, accessed December 19, 2000.

26. Michael J. Dziedzic and William B. Wood, *Kosovo Brief: Information Management Offers a New Opportunity for Cooperation Between Civilian and Military Entities*, Virtual Diplomacy Series No. 9 (Washington, DC: August 2000), 1.

27. Michael J. Dziedzic and William B. Wood, *Information Technology as a Catalyst for Civil-Military Unity of Effort: The Kosovo Test Case* (unpublished report, April 2000), 2.

28. Ibid.

29. Sergey G. Korsey, "GIS in the Kosovo Ethnic Conflict Solution: The Project —Sentinel'," Environmental Systems Research Institute (ESRI), Inc., http://www.esri.com/library/userconf/proc00/professional/papers/PAP929/p929.htm, accessed January 2, 2001.

30. Cyperus, "Global Geomatics' GIS on the Digital Front Lines of Military Operations, http://www.cyperus.fr/CyperusFR?FR/Societes.nsf/communiques/C125680A0027195AC12568F7005BBF1D?OpenDocument, accessed October 25, 2000.

31. Dziedzic and Wood, *Kosovo Brief*, 4-5.

32. George Ward, "Training Doctrine," in *Challenges of Peace Support into the 21st Century* (Carlisle Barracks, PA:

U.S. Army War College, 2000), 76.

33. Gary "Lee" Frantz and James W. King, "The Distance Education Learning Systems Model (DEL)," *Educational Technology*, May-June 2000, 33-39

34. Institute For Defense Analysis, *Synthetic Environments for National Security Estimates*, Research Summaries (Alexandria, VA: Institute for Defense Analysis, 1999), executive summary.

35. Gloria Goodale, "Army Enlists Hollywood to Help Harden Its Soldiers," *Christian Science Monitor*, October 2, 2000.

36. Central Joint Command, "CIMIC: Viking 99," Swedish Armed Forces, 1999, http://www.mil.se/pfp/viking99/nepresen.html, accessed February 15, 2001.

37. Michelle Hankins, "Simulated Training Efforts Foster Interoperability, Develop Common Procedures," *SIGNAL Magazine* 53, no. 10 (June 1999) 40-41.

38. Trygoove Tellefsen, "Multinational Force and Observers' Experience in Implementing Confidence-Building Measures and Post-Conflict Peace Keeping," *Challenges of Peace Support into the 21st Century* (Amman: Jordan Institute of Diplomacy, 1998), 102.

39. Telephone interview with Fancesco Manca, deputy chief, Situation Center, DPKO, February 1, 2001.

40. Commander in Chief of the Royal Netherlands Army, Royal Netherlands Army Doctrine Publication, part I, Military Doctrine (Doctrine Committee of the Royal Netherlands Army, 1996), 185-186.

41. Department of the Army, *Stability Operations and Support Operations*, Army Field Manual 3-07 (Initial Draft) (Washington, DC: U.S. Department of the Army), 4-4.

42. Sandia National Laboratories is a multi-program laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the U.S. Department of Energy.

43. Reynolds M. Salerno et al., *Enhanced Peacekeeping with Monitoring Technologies* (Albuquerque, NM: Sandia National Laboratories, June 2000), 3.

44. Reynolds M. Salerno, Randall R. Parish, Michael G. Vannoni, and David S. Barber, *Peace Operations: The Potential Role of Monitoring Technologies* (Albuquerque, NM: Sandia National Laboratories, December 2001). For a discussion of the consent/force balance with diagram, see 12-14.

45. Ibid, 17.

46. UNIDIR Expert Meeting, "The Training of Peacekeepers in Disarmament Operations," October 16-19, 1995, http://www.mfo.org/P_Papers/tech_a.htm, accessed January 23, 2001.

47. Salerno, Parish, Vannoni, and Barber, *Peace Operations*, 44.

48. Timothy D. Tolison, "Ground Surveillance Operations in Bosnia," *Military Intelligence*, January-March 1999, 21-22.

49. Unmanned Aerial Vehicle (UAV) Forum, "Frequently Asked Questions," Adroit Systems Inc., http://www.uavforum.com/faq.htm, accessed October 23, 2000.

50. Steven E. Reid, "Operational Use of the Pioneer Unmanned Aerial Vehicle (UAV) System," SPIE Technical Conference: Airborne Reconnaissance XX; Pioneer UAV, Inc., August 1996, http://www.aaicorp.com/pui/opuse.htm, accessed October 23, 2000.

51. Stephen Willingham, "Remotely Piloted Air Vehicles Are for Coastal Warfare," *National Defense*, January 2001, http://www.ca.dtic.mil/cgi-bin/ebird?doc_url=/Jan2001/s20010102remotely.htm, accessed January 2, 2001.

52. M. R. Kochhar, "Relations Between Peacekeeping Force and Other Agencies in the Mission Including NGOs," in *The Sixth International Seminar on the Challenges of Peacekeeping and Peace Support into the 21st Century* (Delhi:

United Services Institution of India, 2000), Annex M.

53. Jamie P. Shea, "Dealing With the Media During Crises and Peacekeeping Missions," in *The First International Workshop on Challenges of Peace Support into the 21st Century*, edited Bo Huldt, Annika Hilding, and Arita Eriksson (Stockholm: Swedish National Defense College, 1998), 160.

54. Charles C. Krulak, "The Strategic Corporal: Leadership in the Three Block War," *Marines Magazine*, January 1999.

55. Shea, "Dealing With the Media," 163.

56. Gen. Anthony Zinni, "Operation United Shield (Somalia)," in *Managing Communications: Lessons from Interventions in Africa*, Virtual Diplomacy Series No. 2 (Washington, DC: January 2000), 16.

57. Warren Strobel, *Late-Breaking Foreign Policy: The News Media's Influence on Peace Operations* (Washington, DC: United States Institute of Peace Press, 1997), 119.

58. Kofi A. Annan, *We the Peoples: The Role of the United Nations in the 21st Century* (New York: United Nations Department of Public Information, 2000), 12.

59. Telephone interview with Lena Yacoumopoulou, Media and NGO Liaison Office UN Information Center, Washington, DC, December 2000.

60. Hits are logged as the number of pages the user accesses within the website.

61. Telephone interview with Ahmud Mahbub, chief of Information Technology Section, DPI, United Nations, January 10, 2001.

62. According to the U.S.-based telecommunications firm Telecordia Technologies, there are an estimated 350 million Internet users worldwide.

63. Howard Cincotta, "Web Wars and Mail Storms" (unpublished article, June 22, 1999).

64. Dena Weinstein, "Lessons Learned," Internal report of USIA's Information Bureau to the international public (n.d.).

Back to Top

About the Report

This report explores issues and initiatives raised during the "Challenges of Peace Keeping and Peace Support into the 21st Century" seminar series, which focused on the application of information technology (IT) in peace support operations. The seminar series is part of the larger "Challenges" project initiated by Annika Hilding Norberg. The project, supported by the seven partner countries: Sweden, Russia, United States, Jordan, South Africa, India, and Japan—encourages new ideas and recommendations for international cooperation in peace operations.

In 2001, during her year as a Jennings Randolph Senior Fellow at the United States Institute of Peace, Lt. Col. Donna Boltz, a seminar participant, synthesized the seminar series— discussion, researched new IT developments and uses in peace operations, and compiled this report with the able assistance of Yohann de Silva. She presented this report at the World Wide Civil Affairs Conference, New York City, June 2001, as part of the Virtual Diplomacy session.

Lt. Col. Donna G. Boltz is a career officer in the U.S. Army. Currently, she is chief of Regional Contingency Operations, Department of Defense, Office of Stability Operations.

The views expressed in this report do not necessarily reflect those of the United States Institute of Peace, which does not advocate specific policies.

Back to Top

Home | Jobs | FAQs | Contact Us | Directions | Privacy Policy | Site Map

United States Institute of Peace -- 1200 17th Street NW -- Washington, DC 20036
(202) 457-1700 (phone) -- (202) 429-6063 (fax)
Send Feedback