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We Measure Success through the Eyes of the War Fighter

Gen Duncan J. McNabb, USAF, Retired

United States Transportation Command (USTRANSCOM) provides strategic mobility to our nation. No other government, commercial, or private agency can move as much to as many places as quickly. The spirit and flexibility of the people who make up the Total Force USTRANSCOM team put the command on the world's stage. The past two years have been among the most challenging in USTRANSCOM's history. The simultaneous drawdown of 80,000 troops in Iraq, the surge of forces into Afghanistan, Haitian earthquake-relief operations, and the Pakistani flood-relief effort confronted us in 2010.[1] The year 2011 has proved no less dramatic. The "Arab Spring" began in Tunisia and quickly spread to Egypt, Libya, Bahrain, Syria, and Yemen. USTRANSCOM supported each situation, evacuating innocents, moving security forces, and delivering humanitarian-relief supplies. In Libya the command moved forces and offered around-the-clock air-refueling tanker capability for North Atlantic Treaty Organization forces while also supporting the president's travels in Brazil, Chile, and El Salvador. Then, the fourth most powerful earthquake since 1900 struck off the east coast of Japan, lasting over six minutes, literally knocking the earth off its axis, and shortening the length of a day.[2] Worse, the tsunami that followed devastated Japanese coastal areas, caused a nuclear meltdown, and even damaged property in California. USTRANSCOM's emergency airlift and air-refueling support not only evacuated over 7,500 people and 400 pets but also made available crucial transport of nuclear expertise and material to help control the reactors at Fukushima. We did all of this in addition to supporting combat operations in Afghanistan, Iraq, and the Horn of Africa. In March 2011, for the first time in USTRANSCOM history, the command supported simultaneous priority-one movements in all six geographic combatant commands—truly March madness! In the face of two unbelievably difficult years, I'm proud to say that USTRANSCOM, together with our components and commercial partners, never failed to fulfill our promises to the war fighter, the president, and our nation. Yet, even as the wars in Afghanistan and Iraq wind down, future challenges demand continued advances.

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Strategic Context Demands More with Less

Against a backdrop of rising national debt and an uncertain future security environment, USTRANSCOM can do its part to secure our nation's interests by improving the access and efficiency of our strategic mobility system—a national asymmetric advantage. The ongoing threats of global extremism, the rise of China, a nuclear North Korea, the possibility of a nuclear-armed Iran, and the war in cyberspace are but a few of the difficulties we can see on the horizon. Even as we prepare for these kinds of problems, we know we will face disaster-related humanitarian crises like those that have occurred in Indonesia, Haiti, Japan, Pakistan, New Zealand, the United States, and elsewhere. Covering this crisis spectrum demands a wide range of capability, one in which our logistical forces must be equally capable of meeting warfighter needs in uncontested, semicontested, and contested domains; favorable and unfavorable terrain; all types of weather; and places with limited or no infrastructure. In short our mobility enterprise must have assured access to the entire globe, able to reach even the remotest areas and project power where our national interests dictate we must—a tall, expensive order.

Our nation's debt of $14.5 trillion (and growing) will shape future military capability more than any other factor. The enormity of this indebtedness led Adm Mike Mullen, former chairman of the Joint Chiefs of Staff, to declare it "the most significant threat to our national security"[3]—one that we simply cannot address without considering defense. Our spending on national security—$881 billion in fiscal year 2012—consumes more than any other category of the federal budget.[4] As the debate rages in Washington over how to handle our debt issues, it seems only prudent that the Department of Defense (DOD) find ways of operating in a shrinking budget environment. To do so, we must become more efficient at all levels—strategic, operational, and tactical.

Balancing the opposing challenges of increasing access while using fewer resources will likely produce an ever-growing demand for mobility. The DOD probably will not be able to recapitalize its aging inventory of ships, planes, and vehicles on a one-for-one basis. A RAND study of 2008 concluded that the annual cost growth of all types of military aircraft has far outpaced inflation because of many factors, the lion's share coming from technological complexity of design—a trend not unique to aircraft.[5] Analyses of the US Navy's ship fleet and the US Army's / Marine Corps's tactical vehicle fleets show similar trends in cost growth. Across the board, Services are forecasting declining platform numbers because of such growth and budgetary constraints.[6] All the while, the world security environment is becoming more complex and multipolar. Quite simply, the American military will have to do more with fewer things and in more places than it ever has before. As the more-with-less trend accelerates, strategic mobility will increasingly assert itself as a multiplying force for good—a prospect that will necessitate a global network of interconnected ports in suitable positions to enable global reach.

Doing More by Expanding Mobility Access

As I told the House Armed Services Committee,

> On August 9, 2010 USTRANSCOM submitted its inaugural En Route Infrastructure Master Plan (ERIMP) 2010 to the Chairman of the Joint Chiefs of Staff. The purpose of the ERIMP is to guide the en route infrastructure investment decisions necessary to ensure we can support the regional Combatant Commander Theater Campaign and Theater Posture Plans. The ERIMP frames the en route strategy by identifying our most important enterprise-wide infrastructure requirements for improving our global access.

The plan recommended enhancements at Rota, Spain; Camp Lemonier, Djibouti; Souda Bay, Crete; and Guam. A C-17 operating from Camp Lemonier can reach two-thirds of the African continent, and its proximity to a seaport makes the camp an ideal multimodal site. "Located on the island of Crete in the central Mediterranean Sea, Souda Bay is [a key access hub] due to its proximity to the Black Sea, the Middle East, and Africa." However, its roads, aircraft parking, air operations support, and the Marathi logistics facility need attention. As our key multimodal location in the Pacific, Guam requires an air-freight terminal complex and an air-passenger terminal/joint personnel deployment center. USTRANSCOM's new role in the Unified Command Plan as the global distribution synchronizer (GDS) will help realize these improvements.[7]

This GDS authority will allow USTRANSCOM to coordinate with all combatant commands to synchronize their distribution plans, creating a more effective and efficient global distribution system for all. Improving en route ports as identified in the ERIMP offers a perfect example of what USTRANSCOM intends to accomplish in its new role as the GDS. As stated in our air component's recent "Global Mobility En Route Strategy" white paper, "For [the] strategy to succeed, it must be implemented at the operational level, which implies occasional subordination of operational efficiencies to the greater strategic need and desired long-term effect."[8] This means that the future strategic success of one combatant command will rest on decisions and investments made by another as coordinated by USTRANSCOM. These improvements will enable the command's airlift fleet to reach new areas. Ninety percent of the time, reaching a port is sufficient, but sometimes we must go the last tactical mile—a necessity that has made possible a new strategy.

Historically, we used airdrop resupply when conventional forces were cut off in an emergency. The precision and reliability of today's airdrop systems have permitted conventional ground forces to operate purposely in very remote, cutoff areas. For instance, many of the forward operating bases in Afghanistan rely almost exclusively on vertical resupply for sustainment. In Paktika Province near the Pakistan border, 12 of 18 Army forward operating locations receive their supplies through parachute drops and helicopter lift alone. "Without aerial resupply, we would have no supply," said Capt Cole DeRosa, US Army, whose company operated at one of the locations.[9] Over the last five years, demand for airdrop has increased from two million pounds in 2005 to over 100 million pounds in 2011. To put these figures in perspective, the Air Force dropped over 16 million pounds of supplies in 78 days during the 1968 siege of Khe Sahn for an average of 208,000 pounds per day. The pace in Afghanistan has averaged 275,000 pounds per day—for more than 365 days and counting. US ground forces have never before *deliberately* relied on airdrop resupply on such a wide scale as they do in today's Afghanistan conflict.[10] Airdrop is indeed effective, and recent advances have made it more efficient.

The newly fielded Low Cost Aerial Delivery System, which has taken the airdrop world by storm, includes the low-cost container as well as the low-cost, high-velocity and the low-cost, low-velocity parachutes. The high-velocity chute falls about three times as fast as the low-velocity version, sacrificing load-impact survivability to gain drop accuracy. As their names imply, these polypropylene chutes are cheaper to manufacture and purchase than conventional types.[11] Moreover, since they are one-time-use-only, we don't have to retrograde them after a resupply drop. Better still, they also come prepacked from the factory, saving countless man-hours compared to rigging legacy reusable chutes such as the G-12. In fact, if not for prepacking, we could not sustain our current airdrop volume with legacy methods. Given the cost, time, and retrograde benefits, these parachutes have rapidly replaced their legacy counterparts and are now used on 96 percent of all airdrop bundles in Afghanistan. In spite of its huge success, airdrop is

one-way-only, so we are now exploring ways to conduct two-way mobility operations just about anywhere in the world.

In the near future, hybrid airships may allow us to deliver and retrieve personnel and material directly to and from the point of need in volumes never before possible. These vehicles are a cross between traditional blimps, which rely purely on buoyancy to fly, and airplanes, which use aerodynamic lift to overcome the force of gravity. Aerodynamically shaped blimps, hybrid airships generate both buoyant and aerodynamic lift. The US military will soon take delivery of operational airships for use in a surveillance role. Several viable airlifter designs could lift 20–70 tons; others may even handle 500 tons and move at speeds in excess of 100 knots over intercontinental distances.[12] Our analysis of a 70-ton payload craft indicates that airships are less than half as expensive as C-17s on a cost-per-pound-delivered basis. Faster than ships and cheaper than planes, these aircraft can land almost anywhere—a fact that may finally enable strategic mobility to *and from* the point of need.

If operationalized, hybrid airships will revolutionize the global distribution system. Like the 40-knot, 600-ton-capacity Joint High Speed Vessel, the airship can operate without fixed infrastructure, eliminating the need to build, protect, operate, and maintain as many fixed logistical sites and thus reducing cost. For the first time ever, we could move large end items, such as tanks, by air to and from nearly anywhere on the planet. This ability could put into play the US Army / Marine Corps mounted vertical maneuver concept, but its greatest effect would involve making almost any location a multimodal port. Smartly redesigning the global en route infrastructure, exploiting airdrop, and developing new ways to deliver to the point of need will significantly expand our strategic mobility access. However, our *ability* to access the globe is only part of the solution; much of the rest depends on countries *allowing* us access.

Diplomatic entrée to air and ground space can make or break grand strategy. Afghanistan presents a valuable case study in and of itself. Had we not secured diplomatic access through Pakistan, Operation Enduring Freedom would have assumed a very different form. The addition of access troubles in the central Asian states would have left the United States only with clandestine military options, dramatically reducing our ability to provide logistics superiority and diminishing the possibility of toppling the Taliban in Afghanistan.

The Pakistan ground line of communication (PAKGLOC) links the southern seaport of Karachi with Afghanistan through border gates called Chaman and Torkham (see figure on the next page). As recently as 2008, 80 percent of all US military cargo flowing into Afghanistan moved through these two gates. This reliance on one route made us vulnerable. For instance, in October 2010 the Pakistan military shut the Torkham gate in response to a Pakistani fratricide incident with US helicopters.[13] Besides being cut off, the supplies already on the PAKGLOC began to pile up and overflow storage yards in Pakistan, spawning opportunistic pilferage. Furthermore, in 2010 historic floods that covered a fifth of the country disrupted the PAKGLOC supply lines. Even though the Defense Logistics Agency maintains a number of warehouses in-country to mitigate such incidents, success in Afghanistan demanded an alternative supply route.

Foreseeing the strategic vulnerability of the PAKGLOC, USTRANSCOM, together with the Defense Logistics Agency and our commercial partners—US Central Command (CENTCOM), US European Command, US Pacific Command, the DOD, and the Department of State—undertook what has become a major success: the Northern Distribution Network (NDN). Built in 2008, the network opened multiple air and ground lines of communication from Eastern Europe through the Central Asian states of Georgia, Azerbaijan, Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan, and Russia into Afghanistan. Much more difficult than telling carriers to take a different

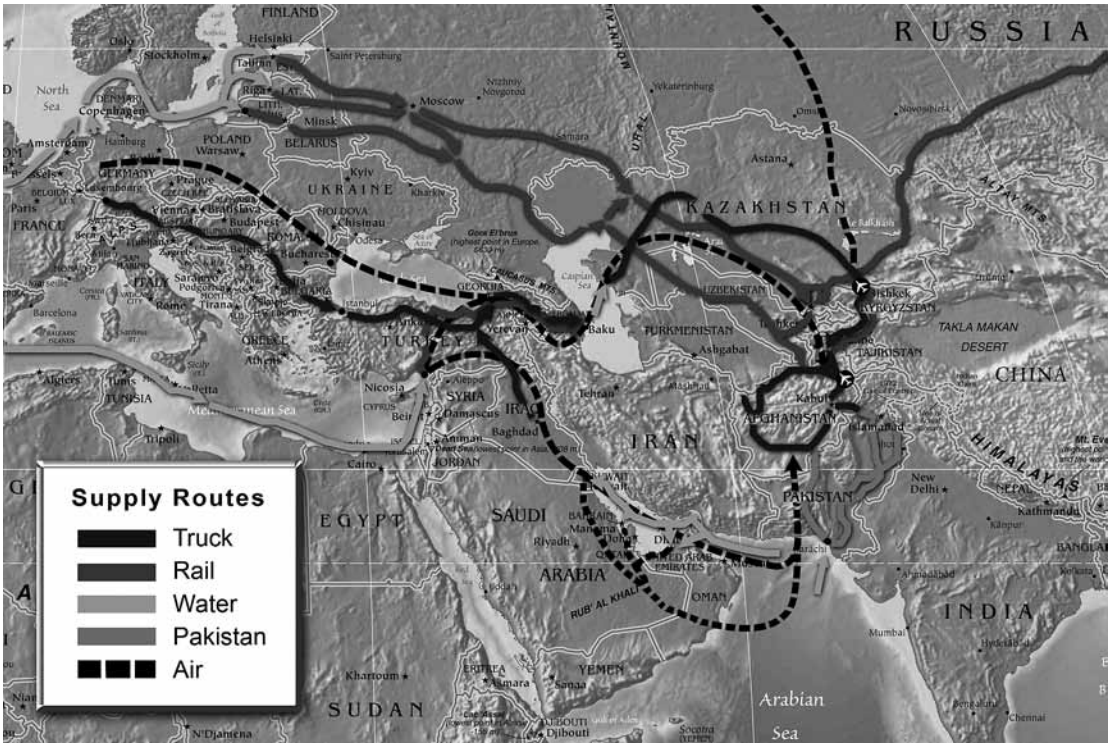

Figure. Strategic lines of communication into Afghanistan

route, this approach involves negotiating not only higher capacities and overflight counts with each country in the NDN but also such details as determining which classes of supply; originating from what countries; going to what locations, for what purposes, by which carriers; and deciding whether these items can flow one way (to Afghanistan) or both ways (to and from). These arrangements entailed extensive negotiations at all levels, down to individual air, truck, and rail operators. Success hinged on "what was in it for them," namely a stable Afghanistan and economic benefits produced by local sourcing and transit contracts. Providing a necessary strategic alternative, the NDN stands as an example of what diplomatic access "buys" and what the (potential) loss of it (Pakistan) "costs." Strategic access to airspace is similar.

Since the terrorist attacks of 11 September 2001, USTRANSCOM has moved approximately 12 million passengers supporting the CENTCOM theater of operations, about 90 percent of whom moved on contracted commercial aircraft.[14] Until June 2011, the best option for these movements called for traveling either from the eastern continental United States (CONUS) through European airspace to the theater or west across the Pacific and then through the Arabian Peninsula or the Central Asian states. In partnership with the Department of State and with the help of the National Security Council, USTRANSCOM succeeded in negotiating military-contracted commercial and military airlift routes from the CONUS; over the Arctic, Russia, Kazakhstan, Uzbekistan, Tajikistan, Kyrgyzstan; and into Afghanistan. These near-polar routes are signifi-

cantly more efficient, saving time, energy, and wear and tear on airframes. They also improve diplomatic relations as part of a larger US effort in the region to promote democracy, peace, and security. Access is essential, as is being allowed access—yet, what if we must operate in denied airspace?

Our airlift fleet can already operate safely in lower-threat environments. Designed with redundant systems (multiple engines and control systems) and protected with self-sealing fuel tanks, armor, and defensive systems, our airlift aircraft have taken fire hundreds of times, and scores have been hit in both Iraq and Afghanistan. Fortunately, we have yet to lose a US airlifter to enemy surface-to-air fire, a fact that attests to the robustness of our aircraft and tactics, the training of our crews, and our ability to stand off when necessary.

The addition of high-altitude, improved-container delivery systems and joint precision airdrop system (JPADS) platforms guided by the Global Positioning System has equipped our airlift fleet with both vertical and horizontal standoff capabilities. Traditionally, we air-drop supplies from a few hundred feet above the ground using unguided parachutes. The JPADS allows our aircraft to do so from more than 20,000 feet yet maintain accuracy because the dropped platform glides itself to a programmed landing location. The JPADS 2K airdrop system can carry a payload of between 700 and 2,200 pounds and can fly to steer points along its glide route. Larger systems boasting heavier payloads up to 30,000 pounds are undergoing tests.[15] A JPADS 2K dropped from 30,000 feet above ground level with a 3.25:1 glide ratio allows the dropping aircraft to stand off from the resupply location a distance of 16 nautical miles, enough to outrange antiaircraft artillery, man-portable air defense systems, and many tactical radar-guided surface-to-air threats. Mitigating longer-range threats will require a different approach.

The High Speed Containerized Delivery System (HSCDS) will facilitate airdrop at higher speed and low altitude. The system seeks to provide a tow-initiated, parachute-extracted container delivery system for use on C-130J and C-17 aircraft at up to 250 knots (maximum ramp open airspeed) from altitudes as low as 250 feet. The HSCDS will let war fighters conduct very low altitude, fast, and accurate resupply of up to 16,000 pounds of supplies via eight containerized delivery system bundles.[16] This system will greatly diminish aircraft exposure in higher threat areas, compared to our current chute-driven limits of 140 knots and 400–600 feet above ground level. Moreover, airdrop done this way will not compromise the ground party's position since the plane's speed and altitude do not give away the location of the drop zone. And since the aircraft maintains a higher airspeed, it has a greater stall margin, which improves flight safety. The HSCDS will further expand our access to denied areas, enhance the safety of ground parties, increase accuracy, and improve flight safety. Better access will allow USTRANSCOM to move a budget-constrained fighting force to more places—a multiplying force for good.

Using Less through Smart Efficiencies

Just as success in Afghanistan and in future crises relies upon strategic mobility access, so does our worsening national financial situation demand that we find more efficient ways to project and sustain military power. This task will not be easy, but several USTRANSCOM initiatives already under way have returned billions of dollars to the DOD—and we have more on the way. These initiatives fall into two broad classes: operational efficiencies and organizational ones. The former deliver financial and energy savings directly while the latter save indirectly by eliminating expensive overlap as well as redundancies and/or by making more efficient use of existing resources.

With regard to operational efficiencies, making the global mobility network more efficient demands a comprehensive per-

spective. Every year the strategic transportation system takes in about $14 billion via the transportation working capital fund, primarily to offset operational costs. Yet, capturing the true cost of mobility effects requires a much broader viewpoint. Global movement depends upon a network of people, infrastructure, information systems, and platforms. The national cost of acquiring, modifying, maintaining, and operating this network then helps define the perspective we need as we consider how to improve the performance of strategic mobility. We seek to lower the fully burdened cost of moving people and material after all of these costs are factored in. USTRANSCOM's global nature and viewpoint have enabled it to attain high effectiveness and high operational efficiency simultaneously.

The increasing adoption of multimodal operations and recent arctic overflights demonstrate the possibility of improving efficiency and effectiveness simultaneously. Such operations are the coordinated use of multiple modes of transportation to move forces or sustainment from its source to its destination. With visibility and tasking authority over its air, sea, and land transportation components, USTRANSCOM is uniquely positioned to drive multimodal solutions—with impressive results.

To better understand the impact of multimodal operations, let's begin with the single-mode movement of mine-resistant, ambush-protected (MRAP) vehicles to Iraq. The MRAP came from an urgent need to protect coalition soldiers from improvised explosive devices (IED), which by 2007 had claimed over 3,000 lives, accounting for 60 percent of all casualties in Iraq.[17] In response, former secretary of defense Robert Gates fast-tracked the fielding of the MRAP, which has a V-shaped hull to deflect explosions from below. USTRANSCOM flew 80 percent of the first 1,000 MRAPs directly to Iraq, primarily aboard C-5s, C-17s, and contracted An-124s before transitioning the bulk of the work to sealift. Whether flown or shipped, MRAPs then drove to their final destinations. The fact that these vehicles have saved thousands of lives, proving 10 times safer than their Humvee counterparts, demonstrates the wisdom of fielding them.[18] Shortly thereafter we needed MRAPs in Afghanistan because the insurgents there began copying their Iraqi counterparts' IED tactics with similarly deadly results. However, the MRAPs that had worked so well in Iraq were too large and ungainly for use in the mountains and primitive roads of Afghanistan.

The MRAP all-terrain vehicle (MATV) offered a solution to this problem, and USTRANSCOM transitioned it much sooner to multimodal operations. This vehicle is a smaller, much more maneuverable MRAP designed for our Soldiers in Afghanistan. Since the original award in June 2009, the DOD has contracted for 8,731 MATVs. USTRANSCOM began movement of 7,341 of them to the theater in October 2009 via CONUS air-direct. As demand for the new vehicles in Afghanistan exploded, CENTCOM raised its delivery requirement from 500 to 1,000 MATVs per month. In contrast to driving MRAPs from Kuwait into Iraq, driving MATVs up the PAKGLOC from the seaport of Karachi involves a hazardous 60-day trip, so we changed MATV deliveries from air-direct to multimodal operations in May 2010. We shipped these vehicles to seaports in-theater and then transloaded them to C-17s for the final leg into landlocked Afghanistan. Shorter-cycle distances allowed each C-17 to carry five MATVs instead of three and to make several deliveries per day. Leveraging the cost-effectiveness and bulk capacity of ships with the ability of C-17s to access Afghanistan safely, multimodal operations produced $485 million in savings during the movement of 4,210 MATVs from May 2010 through August 2011.[19]

In another real-world multimodal example, CENTCOM tasked USTRANSCOM to move a Stryker brigade, including 328 Strykers, 46 trailers, 509 containers, and 52 pieces of rolling stock from Fort Lewis, Washington, to Kandahar, Afghanistan, in May–June 2009. USTRANSCOM executed this move by shipping the equipment from the port of Tacoma, Washington, to Diego

Garcia aboard two commercial ships where it was transloaded onto C-17s and An-124s for the flight to Kandahar. Fifty C-17 and 90 An-124 sorties later, USTRANSCOM had completed the move five days ahead of schedule. Had we flown this brigade directly from the United States using available airlift (four C-17s and four An-124s), it would have cost $170 million and taken 118 days to close. As it happened, multimodal operations closed the move in 80 days at a cost of $68 million—*38 days faster* and *$102 million cheaper*. Contrary to intuition, multimodal operations have proven that in terms of effectiveness versus efficiency, you can have your cake and eat it too.

Mentioned earlier, in June 2011 USTRANSCOM began contracted commercial and military cargo flights directly from the CONUS, over the arctic, through Russia and Kazakhstan, into Afghanistan and Kyrgyzstan. These flights save money and time. For example, during a recent tanker unit rotation, swapping aircraft and personnel between Manas AB, Kyrgyzstan, and Fairchild AFB, Washington, each KC-135 saved 8.5 airframe hours and $77,000, thus completing the round-trip move 50 hours sooner than the previous routing. Commercial rotators can now fly nonstop to Manas AB from the CONUS, saving three airframe hours and $146,221 each way. Given the number of deployment and redeployment sorties flown, these savings add up in a hurry. Analysis shows that these routes will return $9.8 million, save 425 airframe hours, and spend 2,500 fewer hours in transit time per year. Again, smart global thinking enables effective, efficient operations.

Using these types of operational initiatives and smartly combining surface and air modes, USTRANSCOM is doing its part to steward our nation's resources wisely. From 2003 until June 2011, efforts such as leveraging multimodal operations and rerouting traffic over previously inaccessible airspace have allowed the command to return $4.9 billion in overseas contingency operations funds and have saved millions of gallons of fuel. These operational efforts continue today with proven success. USTRANSCOM is also hard at work improving organizational efficiencies.

Maximizing the performance of the entire distribution network calls for an organization with a holistic viewpoint and commensurate authorities. This global enterprise consists of numerous organizations like USTRANSCOM and its components, the Defense Logistics Agency together with its three regional commands and six field-level activities, 34 commercial air and 48 commercial sea partners, six geographic combatant commands and their components, as well as scores of foreign nations. Each of these parts shares a common goal of providing world-class service. However, as with any large enterprise involving so many parts, individual interests do not always align, and subsystems do not necessarily work well together. All too often we see organizational boasts of saved costs that are actually just shifted to others and stovepiped information systems that are incompatible across organizational boundaries. We also see organizational interests impeding strategic objectives. After 10 years of war, we have learned a great deal about how to best support the war fighter, and we seek to institutionalize these lessons.

Responding to former secretary of defense Gates's department-wide challenge to find $100 billion in efficiencies, USTRANSCOM proposed 15 new initiatives (12 of which were accepted). Some of them include aligning C-130 and KC-135 aircraft outside the CONUS under USTRANSCOM and making the command the DOD's lead proponent for in-transit visibility. We also proposed expanding USTRANSCOM's authorities over distribution systems in the cyber domain, transitioning theater patient movement requirements centers to detachments under the Global Patient Movement Requirements Center. In addition, we proposed strengthening the command's role in decision making regarding Service deployment and distribution.

These 12 proposals would create a more effective enterprise by unifying command and control, focusing disparate interests, eliminating redundancies, and synchroniz-

ing information systems to enable USTRANSCOM to more rapidly pivot the enterprise and optimize end-to-end support to the geographic combatant commanders. As of this writing, 10 of the 12 proposals have been accepted in some form, and implementation will soon follow. Although these proposals cross several external organizational boundaries, USTRANSCOM has also been relentlessly improving itself from within.

Specifically, in 2006 the command launched Agile Transportation for the Twenty-First Century (AT21), a multiyear program designed to give decision makers automated tools to optimize the end-to-end distribution of forces and sustainment. For years the Joint Deployment and Distribution Enterprise (JDDE) has relied on scores of incompatible information systems that "grew up" in separated stovepipes requiring tireless manual oversight and brute force to coordinate strategic distribution. This lack of integration produced an inefficient, labor-intensive patchwork that caused degraded delivery through poor utilization of aircraft, trucks, trains, and ships. AT21 will largely eliminate the manual, unsynchronized nature of legacy systems and replace them with new business processes, technology, and enhanced data integration that will allow JDDE operators to optimize the end-to-end distribution enterprise.[20]

Leveraging cutting-edge gaming technology and optimization engines, a planner in USTRANSCOM's operations center—the fusion center—will soon be able to see everything in the JDDE and conduct what-if analysis in real time with the push of a button. We will dramatically improve performance through data integration across numerous information systems, both military and commercial, as well as new business processes that functionally link the entire enterprise across organizations—and it's almost here. By the time you read this, the first increment of AT21 should have reached initial operating capability, on its way to full capability in 2016. USTRANSCOM is committed to delivering vastly improved time-definite and cost-specific mobility performance.[21]

Conclusion

In the face of unfavorable strategic headwinds caused by our national debt and uncertain security environment, the team at USTRANSCOM has set in place a strategy to balance these challenges in an effective, efficient manner. No one can be certain where the next crisis in the world may occur, but assured global access will guarantee our readiness. We will expand our strategic access by leveraging our role as the GDS to improve key infrastructure and use diplomacy to open new lines of communication, as demonstrated by the NDN and arctic overflight. We will also improve our ability to deliver to the point of need by exploiting new systems such as low-cost, high-speed airdrop and transformational systems such as hybrid airships. The historic and deliberate placement of forward operating posts beyond ground lines of communication in Afghanistan, completely reliant on aerial delivery, speaks volumes about the trust we have earned from our Soldiers, who know that USTRANSCOM and its air component will always—ALWAYS—deliver.

Even as we enhance our access, our national financial situation demands that we find ways to carry out our mission using fewer dollars. As those fewer dollars shrink our military force structure, USTRANSCOM will create strategic efficiency by enabling a smaller force to do more in more places than ever before. As we do so, the professionals in our command will relentlessly strive to provide the lowest fully burdened cost possible through multimodal, infrastructure-independent operations and future innovative ideas that one can only imagine. Our efforts through June 2011 not only have delivered over $5.6 billion in savings but also have increased effectiveness. Nevertheless, our efficiency proposals to the secretary of defense and our AT21 program will improve our organization even more by properly

aligning command relationships while eliminating redundancies and optimizing our use of technology. These initiatives will allow USTRANSCOM to pivot the enterprise rapidly in support of national objectives and ensure that strategic mobility remains one of our country's most asymmetric advantages—guaranteeing that we measure success through the eyes of the war fighter. ✪

Notes

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8. Air Mobility Command, "Global Mobility En Route Strategy," white paper (Scott AFB, IL: Air Mobility Command, 2008), 32.

9. Michael M. Phillips, "U.S. Ramps Up Airdrops to Forces in Afghanistan," *Wall Street Journal*, 22 April 2011, http://online.wsj.com/article/SB10001424052748703461504576230602684196740.html.

10. Maj Gen Burl W. McLaughlin [commander, 834th Air Division, Tan Son Nhut AB, Vietnam], "Khe Sanh: Keeping an Outpost Alive," *Air University Review*, November–December 1968, http://www.airpower.au.af.mil/airchronicles/aureview/1968/nov-dec/mclaughlin.html. During Operation Junction City (22 February–14 May 1967), another large airdrop operation during Vietnam, tactical airlifters dropped 3.4 million pounds (1,700 tons) over 82 days, averaging about 41,000 pounds (20 tons) a day. Another notable effort in Vietnam came at A Luoi in April 1968 when C-130s averaged 255.6 air-dropped tons per day; on 30 April, they set a single-day airdrop record of 380 tons, smashing the previous 225-ton record set during Khe Sahn on 18 March 1968. However, the fact that the operation lasted only nine days doesn't come close to the sustained pace in Operation Enduring Freedom. Finally, the siege of An Loc in 1972 led to a sustained effort from 15 April until 31 December 1972, when US Air Force C-130s air-dropped a total of 10,707 tons over the course of 263 days, averaging 40.7 tons per day. Ray L. Bowers, *Tactical Airlift*, United States Air Force in Southeast Asia Series (Washington, DC: Office of Air Force History, US Air Force, 1983), 339, 555. The Korean War also featured notable airdrop resupply efforts. The Chosin Reservoir emergency resupply occurred on 27 November–9 December 1950: "The first aid to reach the Marines was 25 tons of ammunition airdropped on 28 November by 16 C-47s. The next day, 16 C-47s dropped 35 tons and 15 C-119s another 80 tons of ammunition. By 1 December, the Combat Cargo Command had dedicated all of its C-119s to the Chosin resupply effort." Military Airlift Command Historical Office, *Anything, Anywhere, Anytime: An Illustrated History of the Military Airlift Command, 1941–1991* (Scott AFB, IL: Military Airlift Command, May 1991), 77. "During the two days which the FEAF [Far East Air Forces] Combat Cargo Command required to gear its dropping capability up to 250 tons per day, the limited-scale drops were continued at Yudam-ni and Sinhung-ni. On 1 December, however, the airdrop machine was in full

sway." Robert F. Futrell, *The United States Air Force in Korea, 1950–1953*, rev. ed. (Washington, DC: Office of Air Force History, United States Air Force, 1983), 258. "Between December 1 and 6, 238 C-119 sorties dropped 970.6 tons of cargo to the marines and soldiers of X Corps, mainly at Hagaru-ri and Koto-ri. The high point of this massive airdrop effort came on December 5 when 63 C-119 sorties delivered 297.6 tons of ammunition, medical supplies, and gasoline to the frozen troops. 'There can be no doubt,' Smith acknowledged, 'that the supplies received by [airdrop] proved to be the margin necessary to sustain adequately the operations of the division during this period.' " William M. Leary, *Anything, Anywhere, Any Time: Combat Cargo in the Korean War* (Washington, DC: Air Force History and Museums Program, 2000), 20. Finally, humanitarian airdrops such as those in Bosnia have been impressive and sustained but do not count as resupply of US ground forces. Still, from February 1993 to April 1994, coalition aircraft dropped 18,000 tons of humanitarian aid in Bosnia for a daily average of about 40 tons. A. Martin Lidy et al., *Bosnia Air Drop Study* (Alexandria, VA: Institute for Defense Analyses, 1999), ES-8. Over the years, numerous air assaults—Operation Overlord and Operation Market-Garden in World War II, Operation Chromite, or the assault on Munsan in Korea, to name a few—have exceeded Enduring Freedom's airdrop tonnage averages, but they were limited in duration. Nothing like today's sustained pace of airdrop resupply—day in and day out, year after year—has ever occurred before.

11. A low-cost, low-velocity bundle rigged with its associated low-cost container costs $2,850, and the low-cost, high-velocity / low-cost container $1,035. By contrast, a legacy containerized delivery system bundle using a G-12 parachute costs $4,570—or $1,420 when paired to a 26-foot high-velocity ring slot chute.

12. "Northrop Grumman Gets $517M Army Airship Contract," *Bloomberg Businessweek*, 14 June 2010, http://www.businessweek.com/ap/financialnews/D9GBB90O2.htm.

13. Jim Garamone, "Work Continues to Re-open Torkham Gate," 5 October 2010, Department of Defense, http://www.defense.gov/news/newsarticle.aspx?id = 61153.

14. Command briefing, Headquarters Air Mobility Command, 2011, slide 35.

15. See brochures for 2K Firefly, 10K Dragonfly, and 30K MegaFly available at Airborne Systems, http://www.airborne-sys.com.

16. Air Mobility Command (A3D), "High Speed Containerized Delivery System Joint Capability Technology Demonstration Concept of Operations," draft Air Mobility Command staff document (Scott AFB, IL: Air Mobility Command [A3D], June 2011), sec. 2, p. 4.

17. Clay Wilson, *Improvised Explosive Devices (IEDs) in Iraq and Afghanistan: Effects and Countermeasures*, CRS Report for Congress, RS22330 (Washington, DC: Congressional Research Service, 28 August 2007), http://assets.opencrs.com/rpts/RS22330_20070828.pdf.

18. Tom Vanden Brook, "Gates: MRAPs Save 'Thousands' of Troop Lives," *USA Today*, 27 June 2011, http://www.usatoday.com/news/military/2011-06-27-gates-mraps-troops_n.htm.

19. USTRANSCOM J3-G Sustainment Division. As of August 2011, 7,147 MATVs had been delivered: 2,672 via direct airlift, 265 via driving, and 4,210 via multimodal operations.

20. *USTRANSCOM 2010 Annual Report*, 6.

21. Ibid., 6–8.

Gen Duncan J. McNabb, USAF, Retired

General McNabb (USAFA; MS, University of Southern California) served as the commander of US Transportation Command, Scott AFB, Illinois, the single manager for global air, land, and sea transportation for the Department of Defense. Previously, the general commanded the 41st Military Airlift Squadron, earning Military Airlift Command's Airlift Squadron of the Year in 1990; the 89th Operations Group, overseeing the air transportation of our nation's leaders; the 62nd Airlift Wing, earning the Riverside Trophy as Fifteenth Air Force's outstanding wing in 1996; and the Tanker Airlift Control Center and Air Mobility Command. General McNabb's staff assignments included a variety of planning, programming, and logistical duties, such as serving as the deputy chief of staff for plans and programs on the Air Staff, chairman of the Air Force Board, and director for logistics on the Joint Staff. Prior to his last assignment, he was vice-chief of staff of the Air Force. General McNabb began his aviation service as a C-141 navigator. He later went to pilot training and finished his career as a command pilot, amassing more than 5,400 flying hours in transport and rotary-wing aircraft. The general is a graduate of Squadron Officer School, Air Command and Staff College, Air War College, and the Industrial College of the Armed Forces.