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Hard Fighting

Israel in Lebanon and Gaza

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Summary

Before the wars in Afghanistan (2001–present) and Iraq (2003–present) began, the U.S. military was largely designed for major combat operations against state actors. Over the past several years, it has made significant changes in its training, organizing, and equipping paradigms to adapt to nonstate, irregular threats in those two theaters. However, the adversaries the U.S. military has faced in these two wars have yet to employ effective standoff weaponry, such as man-portable air-defense systems (MANPADS) and antitank guided missiles (ATGMs), in large enough numbers to change how U.S. forces operate. The introduction of such weapons, if it were to occur, could radically intensify the challenges confronting U.S. forces. All that the Taliban needs to become a more lethal adversary is a state that will supply it with effective standoff weapons and training in their use.

With its current almost exclusive (and understandable) focus on irregular warfare, the U.S. joint force, particularly the U.S. Army, might be approaching a situation similar to that of the Israelis in the Second Lebanon War (2006), when the Israel Defense Forces (IDF) found itself in an unexpected "hybrid war" (defined by Frank Hoffman as a "blend of the lethality of state conflict with the fanatical and protracted fervor of irregular war"[1]). To better understand the breadth of enemy capabilities that U.S. military forces should be prepared to encounter, the U.S. Air Force and the U.S. Army asked the RAND Corporation to examine the recent experiences of the IDF in Lebanon

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[1] Frank G. Hoffman, *Conflict in the 21st Century: The Rise of Hybrid Wars*, Arlington, Va.: Potomac Institute for Policy Studies, 2007, p. 28.

and Gaza to determine what lessons the U.S. military should learn from those conflicts.

Research included a literature review and interviews with Israeli and American military officers; Israeli and American civilian employees in the national security sector; Israeli and American academics and defense analysts; American military attachés at the U.S. Embassy in Tel Aviv; individuals in Lebanon; and Israeli, American, and British journalists. The author also assessed translations of secondary sources published in Hebrew and Arabic. The final report of the Winograd Commission (named after Eliyahu Winograd, the head of the Commission for the Examination of the Events of the 2006 Campaign in Lebanon) was of particular importance. Finally, note that some portions of this monograph draw heavily on an earlier paper on the topic published by the author in 2010.[2]

Israel's Strategic Assessment: The End of Major War?

Prior to the Second Lebanon War, three relatively recent events had influenced Israeli expectations about the future of warfare:

- The war in Kosovo (1999) and initial U.S. operations in Afghanistan (2001–present) and Iraq (2003–present) revealed the implications of the revolution in military affairs, particularly in the areas of intelligence, surveillance, and reconnaissance (ISR) and precision strike. These implications fostered a belief among some in the Israeli defense establishment that standoff attack (principally by air power) was an effective means of affecting the will of the adversary and determining conflict outcomes. Standoff attack also seemed to promise lower IDF casualties (a major domestic political consideration), less collateral damage (a key consideration for managing international and regional opinion), and cost savings.

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[2] That work is David E. Johnson, *Military Capabilities for Hybrid War: Insights from the Israel Defense Forces in Lebanon and Gaza*, Santa Monica, Calif.: RAND Corporation, OP-285-A, 2010.

- The beginning of the Second al-Aqsa Intifada (2000–2006) forced the Israeli Army to focus on operations designed to stop terrorist attacks inside Israel, and a mindset of low-intensity conflict (LIC) developed. Furthermore, significant budget issues curtailed IDF training.
- The ongoing U.S. presence in Iraq after the end of major combat operations there, coupled with the low level of threat to Israel posed by its neighbors (except Syria), encouraged Israelis to believe that, for them, the era of major war had passed and that the role of ground forces was to carry out low-intensity irregular war.

The mindsets of Israel's military and political leaders were fundamentally—and understandably—shaped by these views. Defense spending was cut, armored-unit training (deemed largely irrelevant in LIC) was neglected, the IDF staffs and processes responsible for integrating air and ground operations were removed from brigades, and there was little training in air-ground integration. The IDF, and particularly the active Israeli Army, focused on stopping terrorist attacks; indeed, the IDF was very successful in suppressing the Second al-Aqsa Intifada and dramatically reducing Israeli casualties. However, the Israeli Army's almost exclusive focus on LIC resulted in a military that was generally incapable of executing the integrated joint air-ground-ISR operations associated with major combat.[3] Unfortunately for the Israelis, the Second Lebanon War (2006) demonstrated that taking a defended position from a hybrid force that is armed with standoff fires (e.g., ATGMs, mortars, MANPADS, rockets) requires forces trained and organized for integrated fire and maneuver tactics, however reduced in scale (compared with major combat operations) the size of that hybrid force might be.

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[3] This monograph broadly defines *air-ground-ISR capabilities* as the constellation of air, ground, and space means used to find, fix, and capture or kill an adversary. To be truly effective, these capabilities must be integrated across services (and agencies), and the relevant information provided by the wide array of ISR resources must be readily available at the levels that need it.

The Second Lebanon War: A Wake-Up Call

Since its inception in the early 1980s, Hezbollah has conducted raids and suicide attacks against IDF troops and against targets in Lebanon to eliminate "colonialist" influences in Lebanon and to establish an Islamic regime. On July 12, 2006, Hezbollah operatives ambushed two IDF High-Mobility Multi-Purpose Wheeled Vehicles (HMMWVs) conducting a routine patrol along the border between Israel and Lebanon, taking two soldiers hostage. This action led to the first Israeli military operation in Lebanon since the IDF's withdrawal in 2000.

Southern Lebanon offers decided advantages to the defender: Its complex terrain frequently forces military vehicles to remain on roads, thus increasing opportunities for ambush and for attacks with improvised explosive devices (IEDs) and mines. Hezbollah itself also proved an unexpectedly formidable adversary. During the years leading up to the Second Lebanon War, Hezbollah forces received extensive training in Lebanon, Syria, and Iran and learned how to blend guerilla tactics with conventional military tactics and weapons to create an innovative concept for defending southern Lebanon from an Israeli incursion. Hezbollah organized military units to conduct decentralized operations, built well-equipped bunkers across southern Lebanon, stockpiled supplies, and armed itself with effective standoff weapons (including ATGMs, rocket-propelled grenades, MANPADS, mortars, and a wide array of rockets).

The IDF initially expected to achieve its objectives—getting Lebanon to control Hezbollah and securing the return of the abducted Israeli soldiers—largely through air and artillery strikes and limited ground raids. Israel's political and military leaders were against the idea of deploying a large ground force and calling up reserves, but they ended up doing just that when IDF standoff fires did not result in success. However, the IDF had no accepted operational plan, and the ground war was improvised. Conditioned for LIC, IDF ground forces encountered real difficulties when they confronted Hezbollah, and they paid a heavy price in casualties for their lack of preparation to confront a hybrid opponent. After 34 days, a ceasefire agreement went into effect, but the war was highly problematic for Israel. This assess-

ment is reflected in the report of the Winograd Commission tasked with examining the war.

In spite of stubborn, brave fighting by many IDF troops, regular and reserve forces alike, the Israeli military as a whole, and the Israeli Army in particular (in contrast with the Israeli Air Force and, in part, with the Israeli Navy), failed to fulfill many of its missions. Despite its significant quantitative and qualitative edge, the IDF not only failed to vanquish Hezbollah but also failed to halt Hezbollah-launched rocket fire into Israel, which continued until the last day of the war.[4] Further-more, approximately 120 IDF forces were killed (and more than 1,000 were wounded) in the war, in addition to the 37 Israeli civilians who died (mostly in rocket attacks).

Hezbollah and Lebanese civilian losses were also high: Estimates suggest that 250–800 Hezbollah forces and 900–1,100 Lebanese civil-ians were killed. Nevertheless, just by surviving and showing that it could continuously launch rockets at Israel, Hezbollah was able to claim victory. The IDF's reputation as an invincible military—a repu-tation fundamental to its ability to deter potential adversaries—was severely tarnished.

Operation Cast Lead: Back to Basics

In the aftermath of the Second Lebanon War, the IDF went "back to basics," drawing up a new defense plan that emphasized building up ground forces and training them extensively in high-intensity conflict (HIC) skills, particularly combined-arms fire-and-maneuver tactics. Before the Second Lebanon War, roughly 75 percent of IDF training concerned LIC, and just 25 percent concerned HIC. After the war, the IDF decided to devote 80 percent of training to high-intensity combined-arms training. In the regular forces, training time was dou-bled, and combined-arms, live-fire exercises were instituted for brigade combat teams. The IDF began adding new heavy infantry armored

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[4]   The Commission for the Examination of the Events of the 2006 Campaign in Lebanon, *The Second Lebanon War: Final Report*, Vol. I, January 2008, pp. 232–233.

fighting vehicles (Namers) and additional tanks (Merkava IVs), and it resumed armored-force and reserve training. The Israeli Army and the Israeli Air Force also markedly increased mutual cooperation in the following realms: ISR, the integration of unmanned aerial vehicles (UAVs), and close air support. The Israeli Air Force also returned tactical air-control capabilities to Israeli Army brigades and worked closely with the Israeli Army to improve air-ground operations.

When the IDF went into the Gaza Strip in December 2008, it was markedly better prepared to fight another hybrid opponent: Hamas. Hamas had been engaged in an aggressive military buildup since the Israeli withdrawal from Gaza in 2005, increasing its force to more than 10,000 operatives, improving its command and control (C2) capabilities, developing an extensive network of tunnels to use as bunkers and traps, and procuring standoff weaponry (including short- and intermediate- range rockets, ATGMs, and a small number of MANPADS).

Hamas increased the number of rocket and mortar attacks it launched from Gaza into Israel, particularly after it gained control in Gaza. On November 4, 2008, the IDF launched Operation Double Challenge against Hamas tunnels. After that, Hamas stepped up its attacks, launching more than 700 rockets and mortars, including several longer-range Grads, into Israel.[5] In response, Israel planned a campaign that included all elements of its conventional military power: air, ground, navy, intelligence, and the reserves. On December 27, 2008, the IDF began Operation Cast Lead with a massive air attack on Hamas. Unlike the Second Lebanon War, Operation Cast Lead included, from the beginning, plans for a ground campaign and for reserve mobilization. IDF artillery and air strikes paved the way for ground maneuver by brigade combat teams, hitting Hamas positions and detonating mines and IEDs. IDF engineers used armored D-9 bulldozers to clear paths through the remaining IEDs. Armored units composed of tanks and armored personnel carriers were also a key component of the operations, providing protected, mobile precision firepower and intimidating the enemy.

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[5] Israel Defense Forces, "Rocket Statistics, 3 Jan 2009," web page, January 3, 2009. This web page also notes that 7,200 rockets and mortars were launched from Gaza at Israel between 2005 and 2008.

The IDF firepower that preceded the ground attack, and the rapidity with which the maneuver was carried out, surprised Hamas, and it was driven out of its generally well-organized and prepared positions and back to improvised positions. Although the IDF did not put a complete halt to rocket launches out of Gaza into Israel, it was able to decrease their number. Even considering that the terrain in Gaza was more conducive to IDF operations than the terrain in southern Lebanon, and that Hamas was not as formidable an opponent as Hezbollah, Israel successfully demonstrated its renewed competence in air-ground operations—a demonstration key to restoring its military deterrent.

The "Middle" of the Range of Military Operations

The Second Lebanon War showed that the IDF had a significant capability gap in "the middle." As shown in Figure S.1, there are opponents with three basic levels of military competence. Each level places different demands on the military forces designed to confront those adversaries.

Importantly, competent nonstate actors can easily transition from the low end (nonstate irregular) to the middle (nonstate hybrid). All that is needed is a state sponsor that provides weapons and training to the irregular forces. The United States itself enabled such a transition in Afghanistan in the 1980s when it gave effective standoff capabilities (including Stinger missiles) and training to the mujahedeen, helping them upgrade from an irregular force into a hybrid adversary—an upgrade that forced changes in Soviet tactics, operations, and strategy in Afghanistan. Thus, an important strategic consideration is how to deter state actors from providing capabilities to irregular actors, thus preventing the latter from becoming hybrid actors.

The military capabilities needed to deal with hybrid opponents are similar to those the IDF deployed during Operation Cast Lead and during initial air strikes in the Second Lebanon War. Table S.1 summarizes the roles of air power and ground power in dealing with the three broad levels of conflict.

Figure S.1
Levels of Adversaries and Their Associated Military Capabilities, with Examples

- Soviet Union (Afghanistan, 1970s–1980s)
- Russia (Chechnya, 1990s)
- Israel (Lebanon, 2006)
- Georgia (Georgia, 2008)
- Russia (Georgia, 2008)
- Israel (Gaza, 2008)
- United States (Afghanistan, Iraq, 2010)

- Mujahedeen (Afghanistan, 1988)
- Chechen militants (Chechnya, 1990)
- Hezbollah (Lebanon, 2006)
- Hamas (Gaza, 2008)

- Mujahedeen (Afghanistan, 1979)
- PLO (West Bank/Gaza, 2001)
- Al-Qaeda in Iraq (2007)
- Taliban (Afghanistan, 2009)

State
- *Organization:* hierarchical; brigade- or larger-sized formations
- *Weapons:* sophisticated air defenses; ballistic missiles; conventional ground forces; special operations forces; air forces; navies; some have nuclear weapons
- *Command and control:* all means; generally centralized

State-Sponsored Hybrid
- *Organization:* moderately trained; disciplined; moderate-sized formations (up to battalion)
- *Weapons:* same as irregular, but with standoff capabilities (ATGMs, MANPADS, longer-range rockets)
- *Command and control:* multiple means; semicentralized

Nonstate Irregular
- *Organization:* not well trained; little formal discipline; cellular structure; small formations (squads)
- *Weapons:* small arms; RPGs; mortars; short-range rockets; IEDs/mines
- *Command and control:* cell phones; runners; decentralized

SOURCES: Johnson, *Military Capabilities for Hybrid War*; David E. Johnson and John Gordon IV, Observations on Recent Trends in Armored Forces, Santa Monica, Calif.: RAND Corporation, OP-287-A, 2010.
NOTE: PLO = Palestine Liberation Organization. RPG = rocket-propelled grenade.
RAND *MG1085-S.1*

Table S.1
Air and Ground Power Across the Levels of Adversary Capabilities

	Irregular Warfare	State-Sponsored Hybrid Warfare	Deterrence/Major Combat Operations
The role of air power	• Overhead ISR and signals intelligence are crucial because the enemy does not mass. These capabilities are critical to finding and attacking high-value targets. • Air mobility is critical to supply and evacuation. • Air power is used mostly in ground-directed close air support with tight rules of engagement. It is key for force protection in extremis. • Air superiority is contested below 3,000 feet. Above 3,000 feet, air power is mainly invulnerable.	• Overhead ISR and signals intelligence are tightly linked with precision strike. • Air power is critical to attacking the enemy's deep strike assets and high-value targets. • Tight rules of engagement for centralized strikes and close air support are required. • Air power is used for the suppression of enemy standoff systems to support (complement) ground maneuver. • Air power complicates the enemy's ability to mass and be reinforced. • Air superiority may be contested below 20,000 feet.	• Air power is critical to deterrence achieved through global reach and strike capabilities. • Overhead ISR and signals intelligence are tightly linked with precision strike. • Strategic and operational air mobility and tankers are critical capabilities. • Air and space superiority may be contested at all levels. • Centralized control is critical. • Air power precludes large-scale ground maneuver by the enemy. • Air bases may be contested. • Operations may occur in a nuclear, biological, or chemical environment.

Table S.1—Continued

	Irregular Warfare	State-Sponsored Hybrid Warfare	Deterrence/Major Combat Operations
The role of ground power	• Ground power is focused on establishing security, obtaining human intelligence, and training indigenous forces. • Maneuver is focused on clearing, holding, and building. • Dispersed operations increase the difficulty of force protection. • Tight rules of engagement demand rigorous target identification.	• Ground power is critical to forcing enemy reaction and to uncovering hidden assets. • Combined-arms operations are fundamental to success. • Ground power closes with enemy forces. • Ground power conducts decentralized operations against dispersed adversaries. • High-intensity MCO-like operations are possible at the brigade level and below. • Lines of communication may be vulnerable.	• Troop deployment is a key signal of national commitment. • Combined-arms operations are the key to success. • Ground maneuver forces an operational reaction from the enemy. • Ground power engages ground units that avoid air attacks and indirect fire. • Ground power is critical for exploiting operational opportunities and pursuing enemy forces. • Ground power deals with hybrid or irregular threats. • Ground power is critical to establishing post–MCO security and stability. • Basing and staging may be contested. • Operations may occur in a nuclear, biological, or chemical environment.
The level of air-ground integration	• Operations are ground-centric but highly dependent on air power. • C2ISR and joint tactical air controllers are best integrated at lower echelons for direct support.	• Balanced operation requires tighter coordination and extensive training and rehearsals. • Integration ensures high responsiveness to ground units and integration at levels below the theater.	• Air power control is highly centralized. • Air superiority is critical to ground maneuver. • Integrated suppression of enemy air defenses is key. • Supported-supporting relationships depend on the operation; the air or ground commander could lead. Leadership could change during an operation.

NOTE: C2ISR = command and control, intelligence, surveillance, and reconnaissance. MCO = major combat operations.

Lessons and Recommendations

The ultimate lesson from the Israeli experiences in Lebanon and Gaza is this: An enemy's capabilities will largely determine the war a nation will have to fight. The imperative to conduct protracted low-intensity operations in Iraq and Afghanistan with limited ground forces has required the United States to make choices about training focus and combat preparation that have diminished the readiness of U.S. military forces to prevail against a hybrid enemy. In particular, the skills and processes required for integrated air-ground-ISR operations need to be assessed and strengthened. To that end, this monograph highlights the following key implications from the Israeli experiences in Lebanon and Gaza:

- Despite the smaller scale of the conflict, such hybrid opponents as Hezbollah and Hamas constitute a challenge that is qualitatively similar to that posed by major combat operations because of their training, discipline, organization, command and control, and effective standoff weapons (e.g., ATGMs, MANPADS, surface-to-surface rockets). These capabilities are "game changers": Irregular opponents who attain them can rapidly ratchet up the intensity level of a conflict, and defeating these opponents requires different skills than those used in counterinsurgency operations. After years of focusing on LIC operations in Gaza and the West Bank, the IDF (particularly the Israeli Army) was not prepared for the challenges posed by Hezbollah. The U.S. military faces similar issues after years of focusing on irregular warfare in Afghanistan and Iraq.
- There are no single-service solutions to the challenges posed by hybrid adversaries. Israel's training, organizational, and doctrinal changes after the Second Lebanon War, and particularly changes in air-ground-ISR integration, paid off in Operation Cast Lead for the IDF. Similar changes across the doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) spectrum may be necessary to prepare the U.S. joint force for hybrid opponents.

- Precision standoff fires were critical to—but not sufficient for—coping with hybrid opponents in Lebanon and Gaza, particularly when Israel's adversaries were operating among the population. Thus, as the IDF realized, joint, combined-arms operations are crucial in finding, fixing, and capturing or killing hybrid adversaries who are dispersed and concealed in complex terrain. Furthermore, because of the fleeting nature of the enemy, ground force brigades, rather than higher echelons, were the locus of decentralized tactical decisionmaking and combined-arms action in Gaza.
- Hybrid opponents (e.g., Hamas) become more visible when they take over and move into government buildings; this makes them more susceptible to precision strike. Similarly, intermediate- and long-range rockets are easier to find and destroy because of their size and the requirement that they be launched from relatively open sites. Thus, the Israeli Air Force (IAF) was very successful in finding and destroying intermediate- and long-range rockets and in attacking infrastructure targets. This is a unique capability afforded by air power, and it was particularly important in preempting the use of more-capable rockets. Additionally, only fixed-wing aircraft were capable of delivering precision ordnance with the payloads necessary to destroy large, multistory structures and tunnels.
- Persistent ISR coverage is crucial in tracking mobile opponents (particularly mortar, rocket, and ATGM crews) and high-value targets (e.g., intermediate- and long-range rockets in Lebanon, key enemy leaders). UAVs are particularly valuable because of their loitering time and because using unmanned (rather than manned) aircraft in high-threat environments eliminates the risk of losing a pilot. The ability to command and control a combination of ground forces, fixed-wing aircraft, attack helicopters, UAVs, and other assets—all operating off a "common picture" of the battlefield—is critical in attacking fleeting, time-sensitive targets and in avoiding collateral damage.
- Highly dispersed, low-signature targets (e.g., short-range rockets, ATGMs) are difficult to find and attack by air-only means, and

attacking them requires comprehensive air-ground-ISR integration at low (i.e., battalion and brigade) levels; common references (e.g., detailed maps and control measures); and a shared, real-time ISR picture.

- Successfully striking targets "amongst the people" in Gaza required a combination of exquisite interagency intelligence, precision strike, and low-yield weapons.[6] These capabilities were needed to identify targets, warn civilians, attack hidden targets (e.g., weapons caches, rockets) and avoid killing the wrong people. This level of intelligence may not be attainable by the Israelis elsewhere (e.g., in Lebanon) or by the United States in current and future conflict environments.

- Armored forces based on tanks and armored personnel carriers are key elements of any force that will fight hybrid enemies with a modicum of training, organization, effective standoff weapons (e.g., ATGMs, MANPADS), IEDs, and mines. Light and medium forces (e.g., Stryker brigade combat teams in the U.S. Army) can complement armored forces, particularly in urban and other complex terrain, but they do not provide the survivability, lethality, or mobility inherent in armored forces. Quite simply, armored forces reduce operational risks and minimize friendly casualties. Information cannot replace armor.

In light of these insights, this monograph presents the following lessons and recommendations:

- The skills and processes needed to prevail against hybrid opponents are different in many respects from those required to conduct a counterinsurgency. They require the highly integrated joint, combined-arms fire-and-maneuver skills used in major combat operations, but at a lower organizational level (i.e., the brigade combat team level). The skills and processes needed for integrated air-ground-ISR operations against hybrid adversar-

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[6] The phrase *amongst the people* is from a chapter titled "War Amongst the People" in Rupert Smith, *The Utility of Force: The Art of War in the Modern World*, New York: Vintage Books, 2005.

ies with effective standoff fires capabilities—skills and processes that may have atrophied among U.S. forces during the United States' protracted counterinsurgency operations in Afghanistan and Iraq—need to be assessed and strengthened in both the U.S. Air Force and the U.S. Army. Therefore, the combat training centers should continue their renewed emphasis on preparing forces for the full range of military operations and should incorporate hybrid operations and hybrid opposing forces into training exercises and experiments.

- U.S. Air Force and U.S. Army training, organization, and equipping efforts need to prepare forces for hybrid challenges, which could materialize in Afghanistan or elsewhere with the introduction of effective standoff weapons, particularly MANPADS. The appearance of these types of weapons in any numbers in Afghanistan could radically change how U.S. forces operate.

- The inherent nature of hybrid threats requires detailed air-ground-ISR integration, and the U.S. Air Force can make an important contribution by ensuring that it has a highly capable and senior presence in brigade staffs and in subordinate maneuver forces and staffs. In the IDF, C2 during the air-ground phase of Operation Cast Lead was pushed down to the brigade level. Intelligence, fires, and maneuver were fused because of the fleeting nature of targets, the complex operating environment, the dispersed nature of the adversary, and the need to limit collateral damage. It is reasonable to assume that the future hybrid threat environments that the U.S. joint force might face will have similar characteristics. Furthermore, the U.S. Army has adopted a brigade combat team structure not unlike that used by the IDF in Operation Cast Lead. Therefore, the U.S. Air Force and the U.S. Army should assess what kind of air operations planning and C2 capabilities should reside in U.S. Army brigades and consider the integration of capabilities from across the other military services (e.g., the U.S. Navy and U.S. Marine Corps) and federal agencies (e.g., the Central Intelligence Agency, the National Security Agency).

- The threats posed by precision standoff fire systems (e.g., MANPADS, ATGMs) are different than those posed by

irregular opponents. Technological countermeasures (e.g., jammers, active armor)—as well as tactics, techniques, and procedures—are needed to defeat these weapons.

- The U.S. joint force needs to develop and institutionalize processes to integrate and control cross-service platforms and capabilities at the level of the brigade combat team. This will be harder in the U.S. joint force than it is in the IDF because, in the latter military, the IAF owns and operates virtually every air platform (i.e., fixed-wing aircraft, rotary-wing aircraft, and most UAVs). However, integration will become more complex in the IDF as UAVs continue to proliferate in the ground forces.

- The U.S. joint force needs to develop common reference systems for urban terrain that enable rapid mutual target recognition, mensuration, and attack. These systems could include predetermined common coordinates and numbering systems for buildings.

- The U.S. joint force needs the capability to find, collaboratively observe, and strike fleeting targets among civilian populations with precision and very-low-yield weapons. This has been done in ad hoc ways in Iraq (in, for example, the 2008 battle in Sadr City) but has not yet been institutionalized (as it was in the IDF before Operation Cast Lead).

- The U.S. Air Force needs to have the capabilities required to destroy large structures (e.g., multistory buildings) and subterranean complexes like those used by Hezbollah and Hamas, but it must also be able to limit civilian casualties and collateral damage. In all likelihood, challenges in this area will increase as adversaries dig deeper and continue to operate in urban areas. Additionally, the realities of fighting in complex terrain, particularly urban areas, can require forces to drop munitions closer to friendly troops. Thus, smaller and highly precise munitions are needed to avoid fratricide.

- To effectively engage hybrid opponents, an air-ground-ISR team must receive detailed training and conduct rehearsals. Therefore, to avoid ad hoc arrangements that limit effectiveness and replicability, the U.S. Air Force and the U.S. Army should examine

existing arrangements for joint planning and execution and consider the possibility of establishing habitual relationships between air and ground forces within a theater of operations. As the IDF experience in Gaza shows, trust between air and ground forces is a combat multiplier, and only through habitual association and personal relationships can this trust be truly established.

Israel's experiences in Lebanon and Gaza show that hybrid opponents can create significant challenges for nations whose ground forces are focused on irregular warfare and whose air forces are designed to maintain a high-end deterrent and warfighting capability. The Israelis learned the hard way in Lebanon that there was a gap in the IDF's ability to carry out operations "in the middle." As the U.S. joint force prepares to confront the full spectrum of potential future challenges, Israel's experiences are well worth learning from.