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Halting the ISIS Advance: The Case for Manned versus Unmanned Aircraft

It remains to be seen whether the United States will opt for manned or unmanned airstrikes against ISIS fighters in Iraq. Today, Jacquelyn Schneider and Julia Macdonald weigh up the pros and cons of both options and remind us that any type of military response will confront significant problems.

By Julia Macdonald and Jacquelyn Schneider for ISN

Remotely piloted aircraft (RPAs), colloquially known as drones, are becoming an increasingly prevalent foreign policy tool for the United States. The U.S. has authorized over [400 covert drone strikes](#) since 2004 in Pakistan, Yemen, and Somalia while also increasingly relying on unmanned platforms for kinetic support on the battlefield in Afghanistan. As ISIS (Islamic State in Iraq and Syria) presses towards Baghdad and the Maliki government requests air support from the U.S., drones are once again being considered as a foreign policy option. A recent *US News* [opinion poll](#) shows that 77% of the U.S. public supports President Obama using drones in Iraq, while an *Economist* poll finds that the American population is approximately 10% more likely to support drone strikes than manned in Iraq.

Despite this seeming support for drones as a possible tool at the disposal of the U.S. leadership, little has been said about the relative effectiveness of unmanned airstrikes in achieving U.S. objectives compared to other, manned options available. Assuming that the U.S. continues to resist pressure to put boots on the ground, and airstrikes become the Obama administration's preferred show of force, the question remains as to whether drones or their manned counterparts are the right weapons to employ. What are the real battlefield effectiveness trade offs between manned and unmanned aircraft in the fight against ISIS?

The proceeding analysis attempts to cast some light on this question by outlining the relative merits of manned versus unmanned airstrikes in Iraq in terms of their battlefield effectiveness. What can unmanned platforms achieve against ISIS that manned cannot and vice versa? Importantly we are *not* arguing that air strikes are the best option for the U.S., nor that they are the only option on the table. Indeed, both manned and unmanned airstrikes have a number of [pitfalls](#) that we discuss in this article. Instead, we are proceeding from the assumption that *if* airstrikes are chosen, sound analysis is needed to understand which *types* of airstrikes will be more effective in achieving US battlefield objectives. More importantly, we aim to understand whether battlefield effectiveness can explain U.S. public support for drone strikes in Iraq.

The Iraqi Battlefield

In order to examine the trade off between manned and unmanned air strikes against ISIS in Iraq, we need to first understand some defining characteristics of the battlefield. ISIS' recent campaign began on June 10th with the capture of Mosul in Northern Iraq. Over the next two weeks, [ISIS advanced south](#) towards Baghdad along Iraq's main north-south highway and across the [Iraq-Syrian border](#), contesting cities and [refineries](#) along the way—including [Baiji](#) and Tikrit (the location of the former U.S. airbase at Balad).

These advances have yielded three major types of contested terrain: highways with little cover or concealment, infrastructure facilities with few civilians but significant critical components, and urban environments with heavy concentrations of civilians and extensive cover and concealment opportunities. Accordingly, these terrains also imply unique maneuver opportunities for both ISIS and Iraqi or U.S. forces. Highways feature large groupings of ISIS personnel on trucks or in commandeered Iraqi tactical transport vehicles. Unhindered by rough terrain or large logistical chains, ISIS can move quickly along these routes, though they are vulnerable to aerial identification and attack while transiting these open spaces. Oil refineries represent more of a siege-type battlefield in which ISIS has to mount a protracted attack against a fortified location. Though they can take cover and conceal, their position is also relatively fixed. Finally, the battlefield terrain includes urban environments in which ISIS has infiltrated the population and spread across a wide area, concealed, and embedded with civilians. While urban environments provide the greatest cover and concealment, ISIS is also least maneuverable in this situation as they are forced to seize and hold territory. ISIS is carrying out this campaign with an inventory of light arms, machine guns, rocket-propelled grenades, and IEDs. Further, [propaganda videos](#) suggest that ISIS may have access to rudimentary man portable air defense systems (MANPADs) and potentially light anti-aircraft artillery.

The bottom line is that battlefield effectiveness in the current fight against ISIS requires air strikes that can either hit fast-moving convoys in open areas, dynamic but relatively fixed personnel conducting sieges on critical infrastructure, or personnel holding urban terrain with high chances of civilian collateral damage. What advantages do manned and unmanned aircraft offer in these missions?

The Unmanned Advantage in Iraq

Unmanned aircraft provide three possible advantages over their manned counterparts. The first, and probably most salient, is the decreased risk to aircrew. There is no risk of a Blackhawk Down scenario in which downed American pilots become a rallying cry for rebels while decimating American popular support for involvement in the conflict. As the [U.S. Department of Defense Joint Publication 3-09, Joint Fire Support](#), asserts, "UAS provide the JFC [joint fires community] with options that have significant risk management advantages, such as persistence and minimal risk to friendly personnel." Though ISIS (even with AAA and MANPADs) has limited ability to counter aircraft above [14,000 ft \(4500 meters\)](#), the possibility of a downed pilot is still possible with manned aircraft—if only due to the inherent potential for maintenance or pilot error.

Additionally, unmanned aircraft offer persistent overhead coverage, which may be useful in tracking enemy movements over a long time period, in providing sustained coverage of enemy siege activity, or in uncovering patterns of life to target high value individuals. The [MQ-9](#), which is the premier unmanned armed asset, boasts a loiter time of 13-14 hours, even when fully loaded with four Hellfire missiles or two GBU-12s or 38s (500 lb. laser guided or GPS guided bombs). Further, its pilots and sensor operators are able to take breaks and switch out every three to four hours, allowing for trips to

the bathroom and cups of coffee that fend off physiological distractions. While some manned platforms can also provide coverage of up to 12 hours, these platforms are vulnerable to these human physical limitations and therefore may not be as effective in the final hours of the mission.

Finally, unmanned aircraft carry low yield weapons—either Hellfire missiles or 500 lb. laser guided or GPS bombs. These low yield weapons are the munitions of choice in areas with high concentrations of civilians or in cases where precision is necessary to avoid collateral damage of key infrastructure.

The Manned Advantage in Iraq

Manned aircraft are also capable of carrying low yield weapons. In fact, many manned aircraft are equipped with guns that have a lower risk estimate distance ([the distance at which there is a .1% probability of incapacitation](#)) than [unmanned platforms' most accurate weapon](#). What manned carry that unmanned cannot is a greater variety of weapons that provide greater effects. In particular, the [CBU](#) (combined effects munitions) and [BLU](#) series of bombs are designed to destroy large groupings of vehicles or personnel while 2000 lb GPS or laser-guided bombs can render highways impassable to ISIS convoys. These larger effect bombs are especially well suited to stopping or destroying ISIS as they transit along highways.

Manned aircraft are also [faster and more maneuverable](#) than their unmanned counterparts. This allows for weapons employment at greater distances from the battlefield as well as higher-aspect maneuvers to defeat missiles and artillery, making manned aircraft less vulnerable to attack from MANPADs or AAA. It also means that manned aircraft are more capable of responding quickly to emerging troops in contact (TIC) situations—particularly in battlefield terrain that is spread over a large area and containing enemy that are heavily concealed (for instance, perhaps urban terrain).

This responsiveness advantage is [multiplied by the line of sight communications available](#) between the manned platform and the ground air strike controllers. These communications are two seconds faster than unmanned, which have to be relayed via satellite link to ground control stations in the United States. These manned line of sight communications are also less vulnerable to [cyber attack](#), [weather degradation](#), and [technical malfunction](#). Therefore, manned air strikes are more likely to be able to respond to quick changes in the battlefield. This is particularly true if the changes on the battlefield are out of the unmanned aircraft's sensor field of view. For example, this could occur if ISIS is maneuvering from different directions in groups or if a siege operation is being conducted from many vantage points. Unmanned aircraft have only one sensor and must be "talked" onto operations outside of the field of view using only that sensor to orient the aircraft. Manned aircraft have the advantage of using the human eye to orient a sensor to operations occurring outside of a camera field of view—thus mitigating a "soda straw" effect and allowing for quicker responses to expansive battlefields.

The Equalizer

Where neither platform has the advantage is in weapons accuracy. The weapons employed from either an unmanned aircraft or a manned aircraft use the same targeting systems to generate coordinates. Whether it be via laser or GPS, the accuracy of the bombs or missiles that these aircraft employ is determined more by the munition's capability parameters than the aircraft's capabilities. While unmanned platforms may have better on-board intelligence sensors than some manned, actual coordinate generation for weapons employment is more dependent on ground-based intelligence and blue force assessments. Therefore, assessments of aircraft effectiveness based solely on accuracy do

not advantage either manned or unmanned platforms.

The Pitfalls of Manned and Unmanned Weaponry

What military commanders continue to remind Congress and the American public is that both manned and unmanned air strikes have some serious pitfalls in this particular combat scenario. First, both manned and unmanned are most effective when there are networks of intelligence collection and U.S. joint terminal attack controllers on the ground to coordinate air strikes. Neither of these have been promised by President Obama. Secondly, the sensors on both manned and unmanned aircraft have no ability to discriminate between ISIS members operating stolen Iraqi equipment in Iraqi uniforms and non-ISIS Iraqis operating their own equipment. This raises the risk of both civilian collateral damage and fratricide. Finally, timing is a pivotal issue in assessing the potential effectiveness of these air strikes. The best time to use either manned or unmanned aircraft may well have been when ISIS members were transiting between cities – that is, when there was a large movement of people without cover. Once ISIS are in the cities, effective air strikes are much more difficult due to ISIS' ability to hide among the civilian population and the lack of U.S. boots on the ground to provide reliable intelligence. Again, air strikes from either manned or unmanned aircraft in this situation may generate a high risk of civilian casualties.

To be decided

Drones are often considered “costless” weapons that can easily be employed without risk to U.S. lives. The U.S. administration's consideration of drones in the context of the current situation in Iraq is one example of such thinking. Yet the complexity of the current situation in Iraq poses severe challenges for any type of U.S. military action, and places important limitations on the battlefield effectiveness of unmanned weaponry. If airstrikes are chosen by Obama to halt the ISIS advance, then it will be necessary for all concerned to understand the important trade offs between manned and unmanned options, and the battlefield scenarios to which each are best suited. Only with this kind of careful analysis will the U.S. be able to effectively achieve its objectives in Iraq.

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