MANNED OR UNMANNED?
THE FUTURE OF AIR POWER DELIVERY

‘It is becoming increasingly difficult for governments across the world to sustain any operation that results in a high level of own casualties. Under these circumstances the employment on unmanned combat systems in missions that are considered “high risk” is an attractive proposition.’

—Sanu Kainikara, Papers on Air Power, p. 133.

A recent news article stated that small unmanned surveillance systems such as the Gray Eagle and Shadow—are increasingly popular with soldiers for the reconnaissance and surveillance capabilities they bring to the battlefield—have been used in a series of teaming tests with the manned Apache AH-64 E model, the latest in the US Army’s arsenal. The tests were successful, taking the two unmanned systems into the realm of true interoperability between multiple aviation systems.

Unmanned aircraft systems have been transmitting surveillance videos to pilots through a ground station control system since about 2006 and these tests demonstrated a quantum leap in interoperability by permitting the helicopter pilots to not only receive the gathered information directly, but also to be able to transmit command and control guidance to the unmanned system.

Although the control of unmanned systems from the cockpit of a manned platform has been considered a possibility for some time, it is only now that scientists have been able to deliver the first steps in this direction. However, this breakthrough poses an important question regarding the future of air power delivery—whether it is going to be with manned or unmanned airborne platforms or a combination of the two.

There is no doubt that the manner in which technology is shaping the application of air power has kept up a blistering pace in the past few decades. The unmanned platform was in its infancy just two decades ago and now it is on the cusp of being able to deliver weapons in a semi-autonomous manner. The delay in creating an autonomous weapon delivery system is not so much that of technology as that of the reluctance of human beings to accept a completely independent, weapon yielding airborne platform. Having said that it is important to flag and acknowledge the moral and ethical issues that such a system brings to the debate regarding the employment of these systems.

Stemming from this nascent development is the possibility of unmanned systems being used in the delivery of more air power roles. Conceptually there is already the understanding that unmanned systems could be very usefully employed in the ‘first-day-of-the-war’ missions that are considered to be more dangerous than ones that follow as the conflict progresses. By using unmanned systems in the suppression of enemy air defences (SEAD) and other high-risk missions the chances of having own casualties is reduced, which is a fundamental consideration in all mission planning.

The concept is now being enlarged to investigate the use of unmanned systems for more missions. While the capability does exist for these systems to perform a broader spectrum of air power missions, they also have some limitations. The current unmanned systems suffer from the disadvantages that they are relatively slow; have limited on-board self-protection suits; and are not yet capable of taking autonomous evasive action for their own safety. The fact is that so far they have only been employed in a benign air environment wherein they have not faced any aerial opposition or tangible air defence threat. However, their usefulness and superiority in the intelligence, surveillance and reconnaissance (ISR) role cannot be down-played. It is in this sphere that their interoperability with manned platforms can be enhanced and optimised. The US Army trials are the first steps in this direction.
Optimised employment of air power assets aim to achieve, in a fundamental sense, an appropriate level of control of the air in order for a military force to be able to successfully undertake other tasks. The use of unmanned systems in this role is still limited to SEAD missions and these too still require close monitoring by a manned ground control system. Autonomous SEAD missions are unlikely to be undertaken at least in the medium-term future. Further, in other aspects of achieving control of the air in a contested environment, such as air combat, the unmanned systems have currently no role to play. Autonomous air combat undertaken by unmanned platforms is still a vision and is far from reality. The history of air power is replete with examples of the gap between vision and reality becoming unbridgeable in the near-term.

In the strike role, unmanned systems have proven their credentials, even though the airspace in which they have operated so far has been uncontested. It is also true that in a contested air environment the chances of survival for the current fleet of unmanned systems are minimal. Similarly, even in the ISR role, these systems will not survive dedicated opposition and capable air defences. This primary drawback diminishes the potential impact of unmanned systems in the conduct of even semi-conventional conflicts. Here lies the dichotomy—risking human life should be the last resort and a carefully considered option in military operations; unmanned systems reduce such risk, but their own ability to achieve the desired operational and tactical objectives in a contested airspace is minimal.

Conceptual developments in optimising the application of air power have tended to focus on this dichotomy for the past few years, especially since unmanned systems have matured into weapon-delivery systems in the strike role. Complete autonomy in weapon release, even in a benign environment, is wrapped in debates regarding ethics, morality and political correctness. Therefore, the current conceptual thinking is swaying towards the control of unmanned systems by a manned platform that could stay outside the lethal range of enemy air defences and other weapon systems but act as a command and control centre for unmanned systems to operate within the lethal envelope.

A futuristic scenario that is being painted often in recent discussions is of a ‘mother’ fighter aircraft that has the ability to control a number of unmanned armed systems that range far ahead of the mother craft and which can be individually tailored to attack and neutralise both airborne and ground targets. This would assume some amount of manoeuvrability to the unmanned systems, which is a factor that scientists are currently hoping to achieve. When, and not if, this comes to pass, which by conservative estimates would be in the decades, the delivery of lethal air power will once again undergo a quantum change.

Predictions of the future are inherently a risky process. However, it can be stated with some assurance that in the not too distant future air power will be delivered by composite formations consisting of more unmanned systems, controlled by a few manned aircraft with enhanced combat capabilities but being employed principally as command and control nodes. Their combat capabilities will be very seldom brought to bear. A purely unmanned force is highly unlikely to take to the air and all capable and modern air forces will resort to an optimum mix of manned and unmanned platforms to enhance the delivery of lethal power through the air. The dilemma for military planners will be the necessity to strike the optimum balance in allocating limited resources to the manned and unmanned systems.

**Key Points**

- Unmanned systems have become extremely capable in the past decades and currently can also deliver lethal strikes
- They also have few inherent disadvantages—slow speed, lack of self-protection—that make them vulnerable when operating in contested airspaces
- It is highly likely that a composite formation composed of more unmanned systems, controlled directly by manned fighter aircraft will be the future air power delivery pattern