Drone Proliferation: An Interview With Ulrike Franke

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Specialist on European security and defence issues, Ulrike Franke, discusses the global proliferation of drone technology.

Q. Drones are a popular topic of discussion in the media and elsewhere these days. What exactly are drones and why do they have such a high profile in the media?

Drones are unmanned systems, that are mostly, though not exclusively, airborne. Alternative terms are Unmanned Aerial Vehicles (UAV), or Remotely Piloted Aerial Systems (RPAS). A drone system has four components.

- First, the *air vehicle* that carries the *payload*.
- Second, the *support systems* such as ground control station, launching apparatus, recovery systems, etc.
- Third, the *infrastructure*, which may include satellites, air bases, relay stations, etc.
- Fourth, *the pilot(s)* and/or *operator(s)* that programme the flight path, remotely pilot the vehicle, analyse the collected data, and operate the payload.

The air vehicle is the most visible element of a drone system and is usually what people refer to when they say ‘drone’. It can be defined as

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> **“ An airborne vehicle which does not carry a human operator, and may be piloted remotely, follow a pre-programmed flight path, fly autonomously, or a combination of all three. It is designed to be recoverable and carries a lethal or non-lethal payload. Non-recoverable vehicles and projectiles such as ballistic vehicles, cruise missiles, and artillery projectiles are not considered drones. ”**

There is a wide range of drones. The smallest military drone system in use at the moment is the Black Hornet, a small helicopter drone with a 12cm wingspan. The biggest is the Global Hawk, a system whose 40m wingspan rivals that of commercial airliners. Because there is such a wide range of drones, it is difficult to make generalised statements about drone use, which depends heavily on the drones’ size, payload, range and other capabilities. Drones’ raison d’être is carrying payloads, which ranges from surveillance systems to armament and beyond.

Drones have captured public imagination like few military systems before it. One explanation for this is that drones remind many of robotic systems in science fiction movies. Another reason is that drones have become known to many people in the context of the highly controversial US targeted killing operations in Pakistan, Yemen and Somalia, for which armed drones were used

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and which are now inextricably linked with many peoples' feelings and ideas about drones.

Q. For states, what are the military and political advantages of using drones, or perhaps more precisely armed drones, over piloted aircrafts?

Though difficult to generalise, one can say that broadly, the fact that drone do not carry human pilots allows them to provide militaries with previously unavailable capabilities. First, drones are attractive military instruments primarily because of the endurance they provide. Many drone types can remain in the air for very long times (24h and beyond) and thus provide good intelligence as they can loiter over targets and monitor them for long time periods. Furthermore, small drone types can provide intelligence in contexts in which larger (manned) systems cannot, such as inside buildings, or at low hierarchical levels. Armed drones also benefit from the aforementioned ameliorated ISR (Intelligence, Surveillance and Reconnaissance) capabilities that allow for more precise targeting. On average, drone systems are also often cheaper than manned alternatives.

Politically, drones have the advantage that they help to keep soldiers out of harm's way, either by removing the pilots from the battlefield completely (such as in the case of larger, satellite-controlled drones), or by providing soldiers in battle with better ISR. If used with care, drones can also help to minimise civilian casualties. Furthermore, because some types of drone operations do not require the deployment of own troops into conflict situations, it can be easier to get public and/or political support for them – or initiate such operations away from the public eye.

Q. Arguably, America's dominance of military drone technology is starting to wane. Many other countries, perhaps most notably China, are developing and deploying drones. Do you think the global spread of drone warfare is changing the character of drone use in military conflicts and, if so, how?

The US' dominance of military drone technology was never as absolute as often portrayed. More than the US, it was Israel that in the 1980s saw the potential of unmanned aerial systems and began to develop and use them. Since then, both the US and Israel have been important players in drone development and use in recent decades. Today, some 90+ states employ some type of military drones, often produced indigenously, though the US, Israel, and China are leading in the development of more sophisticated, armed systems. China in particular has been more willing than other countries to export armed drones, which today are being used by about a dozen countries around the world. In addition, as civilian drones are proliferating, non-state actors now also have drone capabilities.

One consequence of this global drone proliferation is that in today's conflicts - and even more so in future military confrontations - all sides (will) have drones. This means that anti-drone technology is becoming an important growth area. It also means that all sides will have a better battle-space awareness, making stealth an even more important capability.

Q. Another form of proliferation in drone warfare is the use of commercial drone technologies to create what are effectively flying improvised explosive devices (IEDs). It has been argued that in the hands of non-state actors, such as jihadi insurgent groups, this technology presents a significant threat, with some experts suggesting terrorists may use drones to wage chemical and biological warfare on civilian populations. What is the extent

of non-state groups' use of this technology and is this likely to present at significant threat in the West?

For decades if not centuries, drones were an exclusively military technology. This has changed over the last few years, as the civil drone sector has taken off. Today, drones are used in commercial operations from deliveries of goods to real estate. Most importantly, the hobbyist drone market has developed rapidly, with millions of personal drones being sold all over the world. Non-state actors have been quick to use this to their advantage, using drones for propaganda, ISR, and eventually attacks. Not much work or knowledge is needed to turn a hobbyist drone into a tool for nefarious purposes. Islamic State has been particularly interested in drones, investing some effort into its drone training and development programme, and using drones as flying IEDs.

The use of drones for chemical and biological weapon attacks is a possibility, but not the main concern (in such a scenario, the main concern should be that terrorist organisations have access to such weapons in the first place, not the means of delivery). More importantly, many drone researchers have warned of terrorist drone attacks in civilian contexts. Drones are an attractive tool for terrorists because they 1) allow attacking otherwise inaccessible targets (such as high-level politicians), 2) spread terror particularly effectively through attacks from the air. Very recently, such an attack was carried out in Caracas, Venzuela, when Venezuelan President Nicolás Maduro was reportedly attacked by two drones armed with explosives on August 4th. Despite some uncertainties around the attack, this incident for the first time brought to the forefront the potential threat from drones outside warzones. More such attacks can be expected in the future. The biggest concern with regard to terrorist drone activity pertains to attack on commercial airliners.

Q. How prepared are states to deal with IED use by non-state actors such as insurgent groups?

Militaries and law enforcement have recognised non-state actor drone use as a threat and are reacting accordingly. Regulators have imposed 'no drone zones' around important infrastructure or mass events, and anti-drone technology is in use around airports or prisons. However, so far, there is no perfect way to defend against such drone attacks, as existing systems tend to be inflexible and cumbersome, and expensive. Several times, states have reacted with extreme means against non-state actor drones, such as by closing airspaces and sending up fighter jets to shoot down drones. Such reactions, though understandable, are prohibitively expensive and cannot be the solution to the threat.

Q. Concepts like drones and artificial intelligence have captured the imagination of science fiction writers who, with varying degrees of optimism and pessimism, have explored where this technology may lead us in the future. What do you think the future of drone warfare will look like?

In an article, I studied different portrayals of drones in science fiction and assessed their likelihood. Drones will certainly be present on all future battlefields, including in the hands of non-state actors. As commercially available systems improve further, they will make their way back to battlefields, a development we are already seeing today. Technologically, few can expect more autonomy in drone operations, which will make drone swarms a possibility.

Image credit: US Air Force.

Dr. Ulrike Franke *is a Policy Fellow at ECFR, and part of ECFR's New European Security Initiative. She works on German and European security and defence, the future of warfare, and the impact of new technologies, such as drones and artificial intelligence. She has published widely on these and other topics, among others in Die ZEIT, FAZ, RUSI Whitehall Papers, Comparative Strategy, War on the Rocks, Zeitschrift für Außen- und Sicherheitspolitik, and regularly appears as commentator in the media. Ulrike co-hosts the Sicherheitshalber Podcast, ECFR's German podcast on security and defence, in cooperation with augengeradeaus.net. She wrote her PhD thesis on the military implications of drones. She holds a BA from Sciences Po Paris and a double summa cum laude MA degree from Sciences Po Paris (Affaires internationales/Sécurité internationale) and the University of St. Gallen (International Affairs and Governance).*

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