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**Author:** Associate Professor Nate Allen  
(Africa Center for Strategic Studies)

**Series Editor:** Professor F. Vreÿ (SIGLA)

**Turning off autopilot: Addressing the proliferation of unmanned systems in Africa's conflict zones**

**Introduction**

Over the past decade, unmanned systems have become a fixture in Africa's conflict zones. After the demonstrations of its use for surveillance and kinetic purposes during conflicts in Libya and Ukraine, [well over a third](#) of Africa's militaries have acquired military drones such as the Turkish-made Bayraktar TB-2 or the Chinese Wing Loong II. Unmanned systems, particularly of the commercial-off-the-shelf-variety, are likewise [being used by armed non-state actors](#) as well. Rapid innovation means that this is the beginning, rather than the end, of a wave of proliferation of unmanned systems. In addition to incorporating UAVs into their arsenals and operational concepts, African governments need to urgently engage in regional and global efforts to govern the spread and come to a consensus surrounding the norms of UAV use.

**Discussion**

UAVs are proliferating so rapidly in part because they are particularly useful platforms for Africa's conflicts, which tend to be fought over large distances between actors of comparatively limited means. Below is a brief overview of the five main factors influencing their spread.

The first factor is technological innovation. Where twenty years ago, UAVs were used for surveillance, surgical strikes of high value targets and as loitering munitions for the world's most advanced militaries, [technological advances](#) are making UAVs steadily more sophisticated and user-friendly. The spread of 4G and 5G networks, GPS systems, and expanding hard drive capacity have made UAVs easier to locate, and control, and increased the amount of data they can receive, store, and collect. Mobile phones, cameras, and miniaturized sensors have increased the capacity of UAVs to understand their operating environment, collect intelligence, and target hostile forces. Advances in aviation, robotics, data processing and batteries are enabling more manoeuvring capabilities and longer ranges.

Second, these technological innovations are enabling UAVs to play a unique and distinct role in combat operations and tactics. They serve, complement and, in some cases, supplant other platforms such as manned aircraft, satellites, missiles, and artillery systems. Larger, more expensive UAV platforms are beginning to accompany, and may one day completely supplant, the role of traditional combat aircraft. At the tactical level, units on the [battlefield in Ukraine](#) and elsewhere are often accompanied by small, lightweight commercial off-the-shelf drones that can serve both as platforms to survey and target the enemy; to drop mortars; as loitering munitions, and even to film propaganda. They are now a necessary part of any professional military. Increasingly, they are being used by non-state actors as well. In Africa, extremist groups including Al-Shabaab, the Islamic State of the Greater Sahara, and Boko Haram, and insurgents in Mozambique's Cabo Delgado have each been confirmed to have employed drones for surveillance and targeting purposes. Boko Haram has reportedly [added explosives and other weaponry](#) to its drones, and other non-state armed actors may not be far behind.

Third, many UAV systems are now available at low costs. Where the most-commonly used UAV platforms once cost hundreds of millions of dollars, there [are now](#) many mid-tier combat and surveillance drones that cost much less. The Turkish Bayraktar TB2, which has demonstrated its strategic utility through its ability to evade anti-aircraft systems and target logistics networks during conflicts in Libya, Ethiopia, and Ukraine, costs [around \\$5 million dollars](#) to export. The Iranian-made Shahed attack [drone costs](#) as little as \$20,000 to make and as much as \$500,000 to shoot down. Drones that are increasingly being used at the tactical level to accompany ground units are cheaper still, costing hundreds of dollars apiece. The multipurpose, Ukrainian-made [Wild Hornet](#) drone costs \$400 to manufacture and can take out a tank.

Fourth, and relatedly, low costs are enabling UAV systems to be produced by a wide variety of actors. Middle powers such as Iran, Israel, South Africa, and Turkey are carving out important niches in the global drone market. Ukraine has become [the center of a revolution](#) in the manufacture of cheap, AI-enabled drones with over 200 companies manufacturing thousands of drones per month to be used by the country's armed forces. [Private sector enterprises](#), such as Zipline, Wingcopter, ATLAN Space, and i-Drones Services Limited, are producing commercial off the shelf-drones for a wide array of uses in surveillance, agriculture, healthcare, photography and manufacturing. Over the next 4 years, Wingcopter [plans to deploy](#) 12,000 of its drones across the continent.

Finally, the strategic adaptation of continued technological innovation in drone technology is likely to continue the proliferation of unmanned systems in Africa's armed conflicts. If anything, even more radical changes are ahead. The world's leading militaries, including [the U.S.](#) and [China](#), are actively planning and testing drones to accompany combat aircraft. In 2021, Israel [became](#) the first country to use an artificial intelligence-enabled "drone swarm" to locate, attack, and kill Hamas militants. In the future, such swarms are likely to feature hundreds and even thousands of drones working without direct human intervention to achieve tactical objectives. While so far it is the air domain that has been most impacted by UAVs, unmanned systems are being used as tactical vehicles for ground combat and naval warfare. For example, naval drones [were used](#) in Ukraine's recent attack against the Kerch Bridge linking mainland Russia with the Crimean Peninsula, and in Yemen, Houthi rebels have been using [unmanned water-borne improved explosive devices](#) since 2017.

### **Synthesis and conclusions**

Even as they seek to acquire UAVs, it is imperative that African governments take steps to mitigate the risks, negative externalities and consequences of UAV proliferation. In some cases, their proliferation may benefit criminal networks and terrorist groups more than state actors, making it necessary to take steps to monitor and limit their use around certain strategic areas and installations.

Africa's militaries also need to be careful, selective and strategic about using drones for kinetic purposes. The use of UAVs to conduct strikes against military targets often backfires when they cause collateral damage and civilian harm. And the increasing use of drones and drone imagery for surveillance purposes brings with it privacy and potential data protection concerns. Finally, insofar as artificial intelligence may come to increasingly dictate how UAVs are controlled and make decisions, there is a large risk that the use of such systems may be biased or not used as intended.

This means that, even as they adopt UAVs, African governments and regional actors need to think carefully about the norms, procedures, laws and policies that will govern their proliferation and use by security sector actors. States across the continent should be taking steps to geofence and fortify potential critical infrastructure or sensitive installations; integrate UAV surveillance systems into existing data protection regimes; consider coming up with guidelines or standards governing the conditions under which they can be ethically used; and engage in broader global debates going on at the UN attempting to shape global norms for artificial intelligence.

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Dr. Nate Allen is Associate Professor with the Africa Center for Strategic Studies and a Research Fellow at SIGLA.

Email: [nathaniel.d.allen.civ@ndu.edu](mailto:nathaniel.d.allen.civ@ndu.edu)