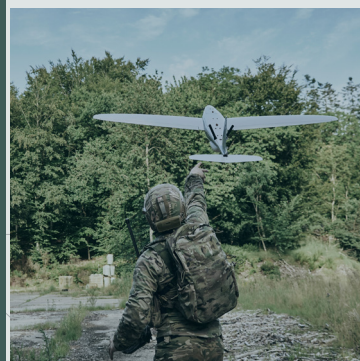




MOSAIC WARFARE REQUIRES A NEW MINDSET – AND SMARTER DRONES.

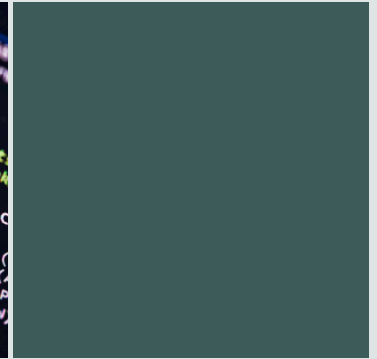
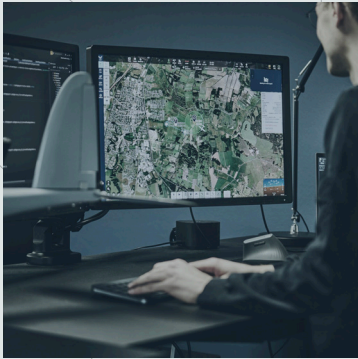


As warfare evolves, so must the tools and thinking behind it. In this interview, we speak with Dr. Neil Renic, a lecturer and researcher in modern conflict and military ethics, to explore how drones, software, and system integration are reshaping the battlefield under the emerging doctrine of mosaic warfare.



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A BATTLEFIELD NO LONGER DEFINED BY SINGLE ASSETS

The war in Ukraine has accelerated many long-anticipated military trends, but none more clearly than the widespread use of drones in roles far beyond surveillance. Drones now identify, coordinate, and execute battlefield effects in close alignment with artillery, infantry, and command infrastructure.

But the real transformation, says Dr. Neil Renic, isn't in the drone hardware. It is in how these drones are integrated into what's being called mosaic warfare.

"Mosaic warfare is about adaptability," he explains. "You move away from monolithic, high-risk platforms to a system of interchangeable, networked components. If one piece fails, another can fill the gap."

RETHINKING FORCE DESIGN: FROM JIGSAW TO MOSAIC

Traditional military force design often resembles a jigsaw puzzle: each asset with a specific role, tightly interlocked. But in mosaic warfare, the focus shifts to modularity. A drone may serve as a sensor in one mission, a strike asset in another. Or both simultaneously, depending on how it's plugged into the system.

"The goal is to be fast, flexible, scalable, and lethal," says Renic. "But also intelligent. That means integrating drones into broader battlefield systems that can share data and act rapidly."

This is where fixed-wing drones, like the RQ35 Heidrun, find their niche: platforms that are reusable, durable, and built for systems integration, not just flight.

LAYERS OF DRONES. NOT ONE-SIZE-FITS-ALL

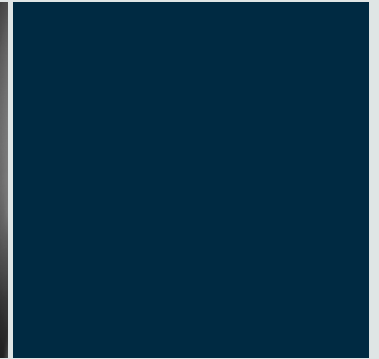
Ukraine's drone strategy reveals a diverse ecosystem: ultra-cheap FPVs for kamikaze missions, mid-tier fixed-wing drones for persistent ISR and forward observation, and high-end platforms for long-range strategic reconnaissance. Each has its place. And each depends on the network it connects to.

"Troops increasingly talk about reusability," Renic notes. "They want something dependable that can fly again and again. A \$400 drone is attractive — right until it gets jammed on first contact. Then you've lost more than money. You've lost capability."

This is why drone procurement must prioritize not just cost, but integration, survivability, and mission relevance.

IT'S THE SOFTWARE THAT WINS THE FIGHT

While the public discussion often focuses on drone models and airframes, those in uniform know the battle is being won in code and connectivity. Drones only make a difference when they compress decision cycles, shorten kill chains, and feed timely, accurate data into command networks.



"We've seen targeting loops drop from 20–30 minutes to just 3–4 minutes," says Renic. "That's not a drone breakthrough. That's a systems breakthrough. It's about data flow, command integration, and speed."

In mosaic warfare, drones are nodes in a larger connected network. The hardware matters, but the software defines its worth.

WHY DATA IS THE NEW AMMUNITION

Underpinning it all is data. Real-world battlefield data. Not just simulations or synthetic datasets. But data which trains algorithms, informs tactical AI, and empowers better decisions.

"War is unpredictable", Renic emphasizes, "and this unpredictability can lead to practical as well as moral challenges. No amount of data will 'solve' this unpredictability, but data will be essential for creating more adaptable systems."

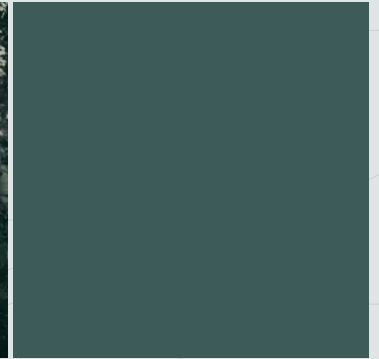
Drones that gather, transmit, and react to live data are far more valuable than isolated platforms, no matter how advanced.

THE FUTURE? INTEGRATION OVER HYPE

Mosaic warfare is no longer a theory. It is reshaping today's battlefield through the integration of drones, AI, and adaptive command networks. The focus is shifting decisively away from isolated hardware and toward connected systems that operate flexibly, rapidly, and at scale.

Victory in this new paradigm won't come from any single platform, but from how effectively systems work together. That means prioritizing not just procurement, but integration of software, data pipelines, battlefield communications, and human training.





A STRATEGIC ENABLER IN NETWORKED OPERATIONS.

The time to experiment and adapt is now. Before urgency forces compromise. Platforms like the RQ-35 Heidrun, with a modular design and software-driven integration capabilities, are built for this future: not just to fly, but to connect, coordinate, and act as part of a broader mosaic.

"The right drone isn't necessarily the flashiest," Renic concludes. "It's the one that's part of a smarter system. That's the logic of mosaic warfare."

Editor's note: With its modular platform and integration-ready architecture, the RQ-35 Heidrun exemplifies this approach. It's designed not as a standalone solution, but as a strategic enabler in networked operations

ABOUT NEIL RENIC

Neil Renic is a fellow at the Centre for Military Studies at the University of Copenhagen, a lecturer in ethics at the University of New South Wales and member of the International Committee for Robot Arms Control (ICRAC). He is also the Associate Director of the Military Ethics Research Lab and Innovation Network (MERLIN) and has several publications including "Asymmetric Killing: Risk Avoidance, Just War, and the Warrior Ethos" (Oxford University Press 2020).



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