Chapter 5: The Speed of Thought – Why Real-Time Matters in Modern Warfare

Part of the series: The Argument for Embedded Logic at the Edge vs Centralised Large AI in Modern and Future Warfare - May 2025

John Blamire

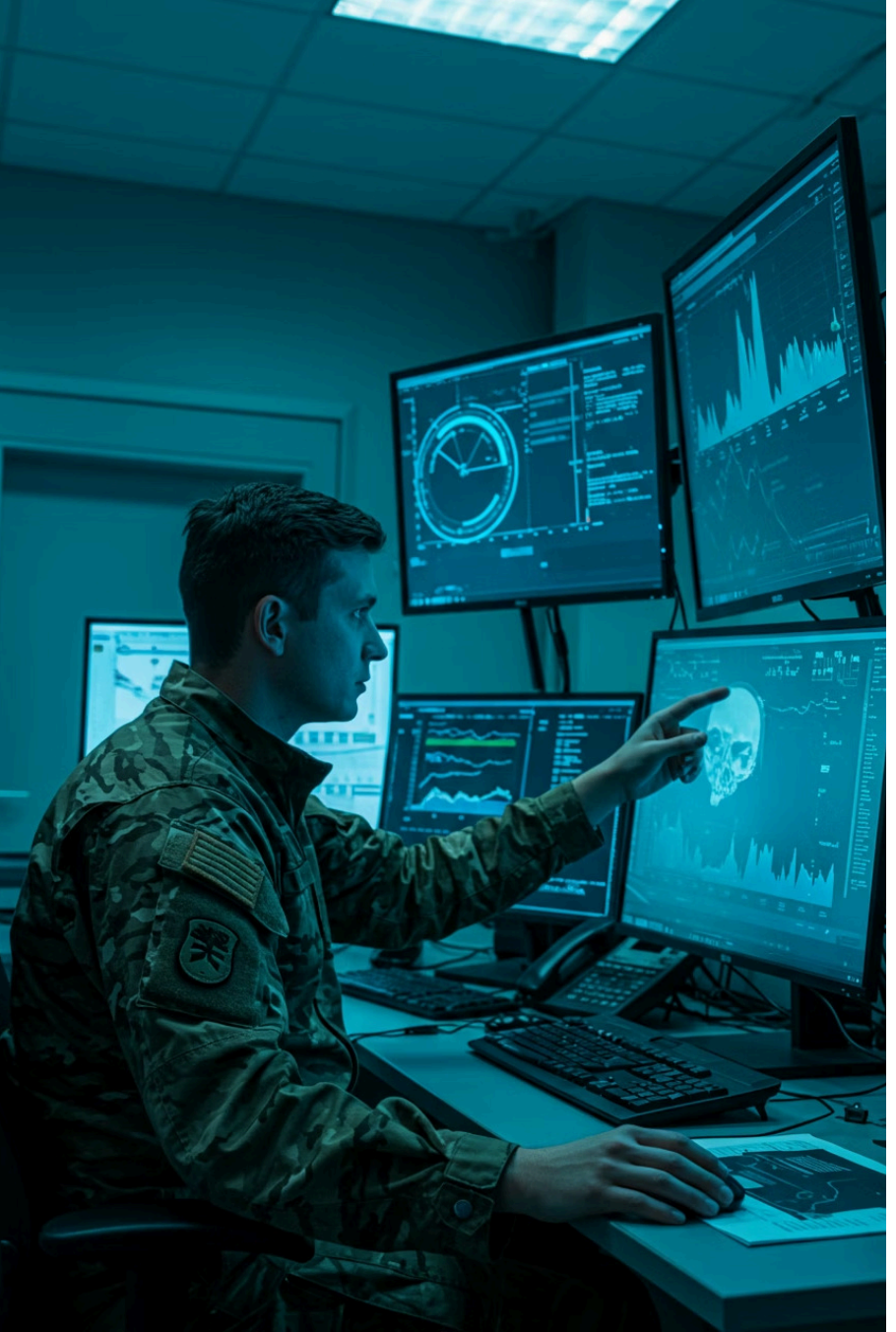
Founder - Ambient Stratagem

in: linkedin.com/in/john-blamire

The Cognitive Battlefield

In the modern battlespace, speed is more than movement—it is cognition. Whether navigating a kill box, responding to a swarm, or identifying a concealed threat in urban terrain, the tempo of tactical engagements now exceeds the bandwidth of traditional human decision-making. The fight is no longer just about firepower; it is about processing power—where and when it's needed most.

This chapter explores why real-time decision support at the edge, delivered via embedded AI logic, is now critical to mission success—and why centralised AI architectures, however powerful, cannot deliver decision advantage at the speed of the modern fight.



The Need for Speed in Modern Warfare

> "If you are not faster than your enemy in understanding, deciding, and acting—you will not be faster in surviving."
>
> — General Valerii Zaluzhnyi, Commander-in-Chief of the Armed Forces of Ukraine

War at Machine Speed

Adversaries have learned to weaponise time itself:

- Loitering munitions and first-strike drones compress engagement windows to seconds.
- Multi-domain attacks occur simultaneously across physical, digital, and cognitive domains.
- Deception and disinformation disrupt perception faster than traditional intelligence cycles can respond.

This environment punishes latency. Commanders must understand, decide, and act faster than ever before—often in environments too chaotic for reliable comms or remote support.

> "Our junior officers are now making decisions in seconds that used to take staff hours."
>
> — British Army battalion commander, 2025

The Failure of Centralised AI in Fast Ops

Centralised large AI systems, especially those dependent on cloud-hosted inference, introduce time penalties that disrupt tactical tempo:

- Data must be transmitted, interpreted remotely, and then returned—creating round-trip delays of 0.5–2 seconds under ideal conditions.
- Under degraded comms, this loop is broken entirely, leaving the operator without support when it's needed most.
- Worse, the delay introduces hesitation, as human users wait for AI input before acting—fracturing decision momentum.

Recent conflicts highlight this vividly:

- Ukraine 2024: A drone reconnaissance unit operating near Bakhmut lost visual classification support after a satellite uplink failed. Without embedded logic, operators reverted to manual assessment, missing a high-value target opportunity.
- Red Sea 2025: An ISR drone relying on cloud-based object detection misclassified a fast-approaching vessel. By the time clarification arrived, the threat had closed within kinetic range.

Embedded AI: Decision Support at the Point of Need

Real-time decision advantage requires that AI:

- Processes data locally, in the same system or device that collects it.
- Interprets context immediately, without waiting for permission from the cloud.
- Offers clarity to the human, not a replacement for human judgment.

This is the domain of embedded AI logic—trained for specific mission parameters, deployed to tactical platforms, and ready to execute under duress.

Benefits include:

- Sub-second response times, even in degraded environments.
- Mission-specific intelligence, with no dependence on general-purpose models.
- Instant feedback loops, allowing for fluid human-AI cooperation.

This architecture doesn't just support decisions—it accelerates them without compromising accountability.

Doctrinal Implication: Return of the Tactical Decision-Maker

Centralised AI fits well into strategic planning or operational analysis—but not into the fog and friction of a dismounted fight or rapid air-ground coordination.

Real-time AI at the edge brings decision authority back to the junior leader, giving them:

- Support without delay.
- Insight without instruction.
- Autonomy without being alone.

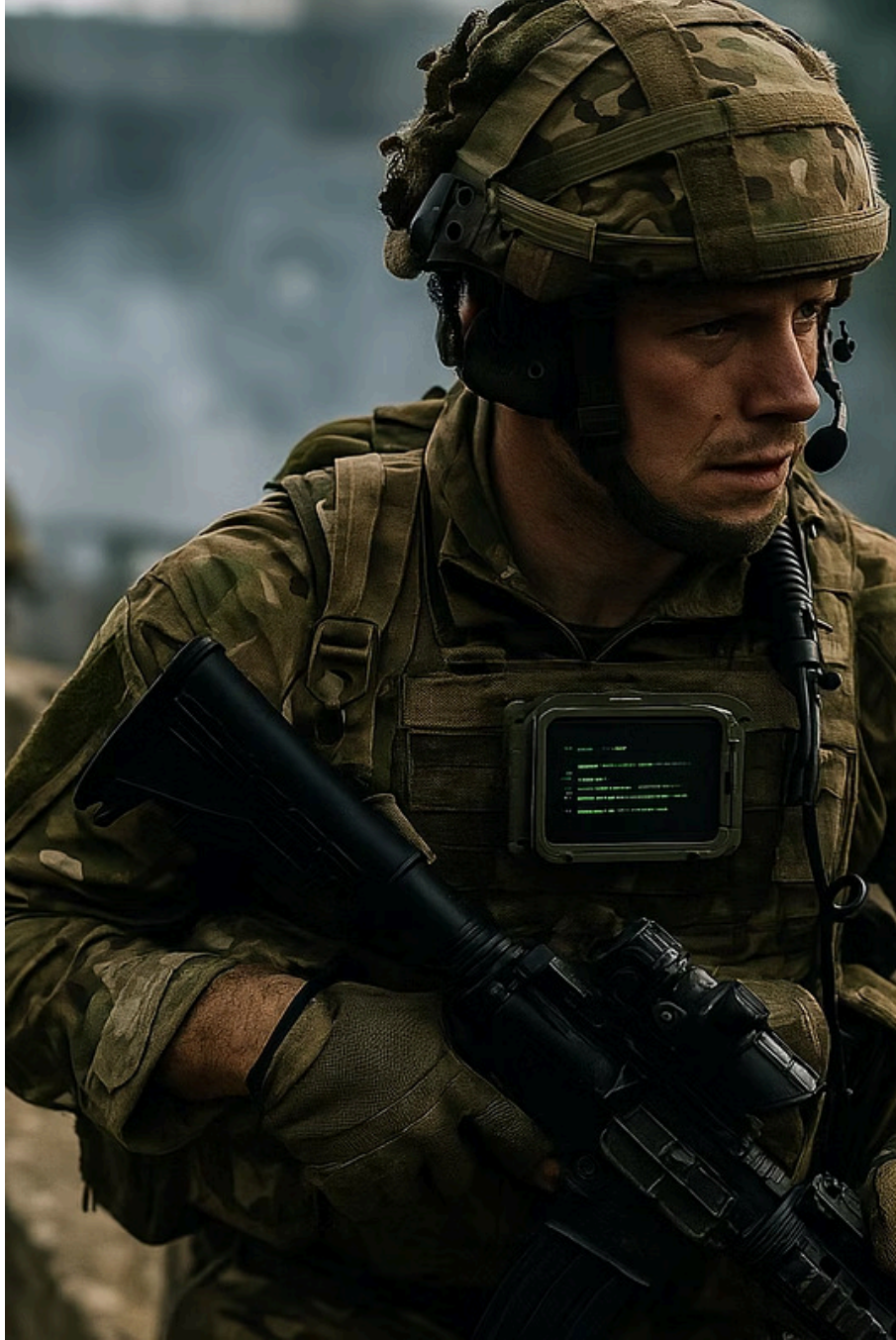
> "Speed is not just a function of sensors or shooters—it's a function of the trust you place in the person on the ground."
>
> — NATO Mission Commander, 2025

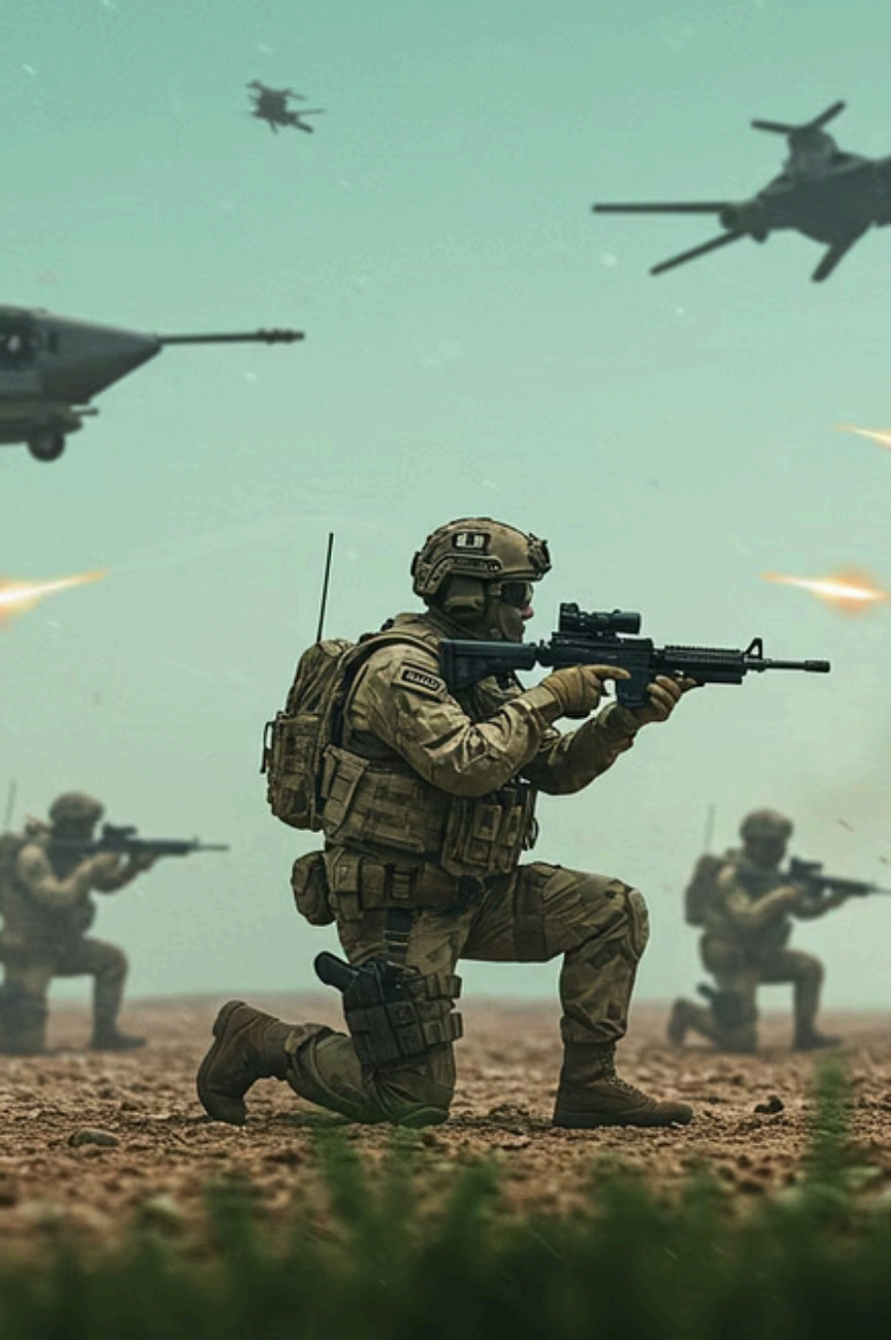
Conclusion

Modern war does not wait. Neither should the systems designed to support it.

Real-time decision advantage is now a core capability—not a feature. AI that cannot keep up with human operators under fire is not an enabler—it is a liability.

To win at the speed of the fight, AI must move to the edge—and serve the soldier, not the server.





NEXT – Chapter 6: Man + Machine – Decision Superiority Without Autonomy