Multidomain Warfare: Why Light Tactical Vehicles Must Change Their Skin

Published on 10/08/2026

The modern battlefield is no longer dominated solely by the thickness of armor or engine power. Drones flying over the operational area, electronic warfare systems degrading communications, and dense sensor networks feed commanders with more data than a single operator can process in real-time.

In this scenario, the collaboration between tactical mobility specialists like the British **Supacat** and innovative startups in the field of mixed reality like the Finnish **Distance Technologies** shows that the next big leap in military vehicles will not come from a bigger cannon, but from **how the crew manages to understand the surrounding environment**.

From Pure Mobility to the "Digital Combat Node"

Light tactical vehicles are no longer just simple transport means for troops and equipment in difficult terrains (like Supacat's HMT and Jackal platforms). Today, the strategic priority is to transform them into true **connected operational nodes**:

- **Total Integration:** They must exchange information through command and control systems, interact with advanced sensors, and operate alongside autonomous assets.
- **Flexible Architecture:** The engineering challenge is to support advanced digital capabilities throughout the vehicle's entire lifecycle while preserving mobility, reliability, and survivability.

The Invisible Threat: Cognitive Overload

With the increase in data flows from drones, surveillance systems (ISR), and command networks, the real danger for soldiers is not only ballistic but **cognitive**.

According to industry estimates, a very high percentage of losses in future conflicts is linked to autonomous systems and aerial threats. Drivers and operators must simultaneously monitor physical, aerial, electronic activity, and digital flows. If an operator is forced to constantly look away from the road to consult multiple screens or portable devices, the split second lost can prove fatal.

The Technological Response: Mixed Reality and Intuitive Interfaces

To solve the problem of information overload, the partnership between Supacat and Distance Technologies focuses on the adoption of **glasses-free mixed reality systems:**

- **Projection in the Field of View:** Critical information (navigation guidance, mission updates, threat notifications) is projected directly onto the windshield or into the driver's natural field of view.
- **Smart Filtering:** Success does not come from showing *more* data, but from presenting only the information useful for making better decisions at the exact moment they are needed.
- **Reduction of Interruptions:** Interfaces designed to be so intuitive that they eliminate visual adaptation times and allow the crew to stay focused on the maneuver.

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Towards the Autonomous and Connected Force

The future of multidomain warfare does not foresee the total replacement of humans with robots, but effective cooperation between highly trained personnel and unmanned systems (*Human-Machine Teaming*). Light vehicles will serve as the hub of this network, but for the transition to succeed in the coming years, three crucial challenges must be overcome:

1. **Interoperability:** Adoption of open architectures and common standards to ensure that different platforms communicate without friction.
2. **Resilience:** Ensuring that digital capabilities continue to operate even in intense electronic warfare contexts, with shielded GPS or degraded communications.
3. **Procurement Speed:** Military vehicles remain in service for decades, while software evolves rapidly; platforms designed from the outset to receive rapid and continuous updates are needed.

The Industrial Turn: The Acquisition of Tekne and Anti-Drone Shields

The evolution of multidomain warfare and the need to protect tactical vehicles from new threats find direct reflection in recent geopolitical and industrial dynamics. With authorization from Palazzo Chigi through the *Golden Power*, the American company **Nuburu** acquired 70 percent of **Tekne Spa**, an Italian excellence based in Abruzzo specializing in drone protection shields and EMP (electromagnetic pulse) systems. This operation, although bound by strict government

prescriptions to protect national know-how and production, transforms Tekne into the hub of an advanced platform for defense and security, demonstrating how active protection against unmanned aircraft is now an essential piece for future land operational scenarios.