Strategic Autonomy of the Skies: How Europe Must Equip Itself with Production Capabilities in Drone Warfare

Published on 30/06/2026

Modern conflict has unequivocally established the centrality of unmanned aerial systems (UAS), commonly known as drones. However, the ability to effectively deploy these platforms on the battlefield no longer depends solely on the sophistication of artificial intelligence software, but on the resilience, automation, and speed of the industrial manufacturing chain. While the United States is drastically accelerating the domestic production of critical components through the *Drone Dominance* initiative, Europe faces a geopolitical crossroads: rapidly industrialize its own supply chain or resign itself to a dangerous strategic dependence on third nations, primarily China.

The U.S. Model: Mission Speed and Manufacturing Flexibility

The leaders of the U.S. Army at the **Tobyhanna Army Depot** (Pennsylvania) have recently unveiled the operational details of the new *Advanced Manufacturing* strategy. The primary goal is to overcome a bureaucratic culture accustomed to multi-year timelines for plant start-up, reducing implementation times to just weeks or months. Under the Pentagon's impetus, the depot has inaugurated automated assembly lines dedicated to two highly vulnerable critical components: **brushless motors** and **circuit card assemblies (CCA)**.

Production data clearly indicates the scale of the effort made overseas:

- **Brushless Motors:** The new line aims for an initial target of 200,000 units, with a full capacity of **1,500 motors per day** (enough to equip 375 quadcopter drones).
- **Electronic Boards (CCA):** Responsible for the drone's vital functions (real-time video transmission, GPS modules, power management, and motor control), these boards will have a dedicated line designed to produce up to **one million units per day** by the end of fiscal year 2027.

The key element of this transformation lies in geopolitical awareness: as highlighted by the American program managers, even when the boards are physically assembled in the West, the vast majority of basic micro-components come from insecure Asian markets. Technological sovereignty must therefore be total, from raw materials to the finished product.

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The Three Pillars for a European Drone Production Strategy

The European Union and its member states cannot afford to ignore this paradigm shift. To avoid logistical isolation in the event of international escalation, Europe must structure its own industrial response based on three fundamental pillars:

1. Public-Private Partnerships (P3) to Scale Start-ups

One of the most innovative aspects of the Tobyhanna model is the opening of military infrastructure to small commercial suppliers and tech start-ups supported by *Venture Capital* funds. The army, in fact, "rents" its high-tech machinery to private entities. This approach allows young, high-innovation companies to eliminate massive initial capital costs (CapEx) and downtime related to building proprietary plants, enabling rapid scalability at reduced costs. Europe must implement similar cooperation agreements facilitated through the **European Defence Fund (EDF)**, making the arsenals and military industrial plants of individual member countries available for the benefit of deep-tech innovation champions.

2. Reconfigurable Production Lines and "Dual-Use" Flexibility

Modern defense cannot maintain rigid, exclusive, and costly production lines during peacetime; plants must be natively flexible. Minimal modifications to automated equipment allow brushless motor lines for drones to produce components for industrial robotics or land vehicles.

In the event of new global or pandemic logistical crises – similar to the semiconductor crisis that paralyzed the automotive industry in past years – such public plants could legally cooperate with European industrial giants (like Stellantis, Volkswagen, or Renault) to produce backup civilian electronic boards. This ensures the dual function of supporting the continental economy in times of crisis and keeping defense production lines constantly "warm," active, and updated.

Critical Component	Primary Function in Drone	Dual-Use Opportunity (Civil/Industrial)
Brushless Motors	Propulsion, stability, and dynamic flight control	Automotive systems, medical robotics, industrial automation
Circuit Card Assemblies (CCA)	Power supply, telemetry, GPS navigation, and video	Automotive control units, smart appliances, IoT infrastructure
Radio and Crypto Modules	Secure communication and resistance to electronic jamming	Emergency telecommunications, commercial satellite networks

3. Creation of an Organic European Industrial Base (OIB)

Europe historically suffers from chronic fragmentation of defense markets, with duplication of standards and poor interoperability. It is imperative to establish centralized coordination – a sort of integrated strategy for the Organic European Industrial Base – under the aegis of the **European Defence Agency (EDA)**. This body should map existing industrial sites in the 27 member countries, standardize the structural requirements of FPV (First-Person View) and attack drones, and distribute the production of molecular components to ensure the self-sufficiency of an entire continental ecosystem.

Conclusions: The Urgency of the Time Factor

The U.S. manufacturing development model demonstrates that in the current geopolitical context, national security is no longer protected by accumulating passive stockpiles in warehouses, but by possessing the **sovereign industrial capacity to regenerate them in real-time**. For Europe, developing an advanced, automated, and autonomous manufacturing capability in the drone sector is not merely an economic choice, but a fundamental strategic requirement for safeguarding its political and territorial sovereignty.