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MASTERS' UNION x CINGULARITY AEROSPACE

Cingularity Aerospace

Fireside Chat with CEO Mr. Vishal Markanday

About Cingularity Aerospace

Cingularity Aerospace (registered as Cingularity TEC India Pvt Ltd) is a Bengaluru-based aerospace and defence technology company. Founded in 2014 by Vishal Markanday (CEO), Samuel Gerald (CTO), and Mohit Kukreja (COO), the company designs, develops, and manufactures Unmanned Aerial Vehicles (UAVs) and precision aerospace components, with a primary focus on India's defence and armed forces establishment, alongside a smaller agricultural drone line.

The company holds AS 9100D and ISO 9001:2015 certifications, the quality-management standards required to supply into the aerospace and defence sector. It operates a 16,000-square-foot manufacturing facility with in-house composite fabrication and assembly capability, designing and building its aircraft end-to-end rather than outsourcing production.

The product portfolio spans four categories:

- **Agricultural drones** - spraying drones for crop protection and farm-level inspection.
- **ISR and tactical UAVs** - including the Sierra Tango (approximately 12-hour endurance) and Bravo Tango, a weaponisable tactical UAV unveiled at Aero India 2023. (UAV - Unmanned Aerial Vehicle)
- **Target and decoy drones** - used by the armed forces to train air-defence personnel.
- **The X-61** - the company's current flagship programme, a delta-wing ISR UAV developed in partnership with the Indian Navy's Weapons and Electronics Systems Engineering Establishment (WESEE), currently undergoing flight trials ahead of deck trials at INS Hansa, Goa.

Cingularity has served as prime contractor on programmes for the National Aerospace Laboratories (NAL) and the Defence Research and Development Organisation (DRDO), and has developed UAVs capable of GPS-denied navigation for use in contested environments.

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Leadership

Vishal Markanday is the Chief Executive Officer and co-founder, and the company's principal public representative at industry forums such as Aero India. He has spoken publicly about Cingularity's mission to accelerate indigenous development of aerospace and defence technology in India. Detailed information on his professional background prior to founding Cingularity was not available through public sources at the time of preparing this document, and is worth raising directly in the session.

He co-founded the company with **Samuel Gerald** (Chief Technology Officer) and **Mohit Kukreja** (Chief Operating Officer). The company's advisory board includes Dr. S. Christopher, former Chairman of DRDO, Lt Gen PJS Pannu, and Dr. S. N. Omkar of the Indian Institute of Science, Bangalore - reflecting the extent to which trust and institutional relationships shape competitiveness in this sector.

Industry Context

Cingularity operates within India's aerospace and defence manufacturing sector, an industry undergoing significant policy-driven transformation. Since 2021, government initiatives - including the Drone Rules 2021, a Production-Linked Incentive (PLI) scheme for domestic drone manufacturing, and a 2022 restriction on finished-drone imports - have sought to build indigenous manufacturing capability under the broader "Atmanirbhar Bharat" (self-reliant India) policy framework. Industry estimates project the Indian drone sector could reach a turnover of ₹120,000-150,000 crore by 2026.

This industry is distinguished by structural characteristics uncommon in most commercial sectors: government and defence institutions are the primary customers, procurement and sales cycles typically extend over several years, regulatory certification functions as a market-entry requirement rather than a formality, and capital requirements are substantial well in advance of revenue generation. This context is important for understanding why growth, competitive advantage, and business economics in aerospace and defence differ materially from more familiar consumer or enterprise sectors.

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Session Structure

The session is organised around eight thematic segments:

1. **Cingularity's origin and philosophy** - the founding rationale, the gap identified in India's aerospace and defence ecosystem, and how the company defines itself today (manufacturer, engineering company, defence-technology company, or a combination).
2. **Understanding the aerospace and defence industry** - barriers to entry, how the value chain functions, and where the greatest strategic value resides across design, materials, components, systems integration, software, and manufacturing.
3. **The manufacturing edge** - whether India can manufacture aerospace systems at world-class scale rather than as isolated prototypes, and what distinguishes a demonstration unit from repeatable production at volume.
4. **The unmanned and autonomous revolution** - the growing strategic role of UAVs, the relative importance of the airframe versus the intelligence layer (autonomy, sensors, avionics, mission systems), and the distinction between a consumer drone and an aerospace-grade unmanned platform.
5. **From "Make in India" to "Build in India"** - India's transition from defence importer to defence builder, and the distinction between self-reliance in manufacturing and self-reliance in underlying technology.
6. **From defence buyer to global supplier** - whether India can move beyond import substitution to become a competitive defence exporter, and how it compares with established ecosystems such as the United States, Israel, and Turkey.
7. **The economics of aerospace and defence** - why the sector is capital-intensive, how companies manage extended R&D and procurement cycles, and whether commercially sustainable businesses can be built primarily around defence customers.
8. **The next decade of aerospace and defence** - the anticipated influence of artificial intelligence, autonomy, and advanced materials, and whether manufacturing capability itself becomes a matter of strategic national interest.

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Glossary of Key Terms

UAV (Unmanned Aerial Vehicle) - An aircraft operated without a pilot on board, flown remotely or autonomously.

ISR (Intelligence, Surveillance, Reconnaissance) - Military operations focused on the collection of information rather than direct engagement.

Payload - The equipment or cargo a UAV carries in addition to its own structure and fuel.

Endurance - The maximum duration a UAV can remain airborne on a single flight.

Composite materials - Lightweight, high-strength engineered materials, such as carbon fibre, used in place of traditional metal in aircraft structures.

AS 9100D (Aerospace Standard 9100, Revision D) - The internationally recognised quality-management certification required to supply into the aerospace and defence sector.

DRDO (Defence Research and Development Organisation) - India's principal government agency for military research and technology development.

WESEE (Weapons and Electronics Systems Engineering Establishment) - A specialised Indian Navy research and development establishment; Cingularity's partner on the X-61 programme.

NAL (National Aerospace Laboratories) - A government aerospace research laboratory under the Council of Scientific and Industrial Research (CSIR).

Atmanirbhar Bharat (Self-Reliant India) - A national policy framework aimed at reducing import dependence and building domestic manufacturing capability, particularly in strategic sectors such as defence.

Indigenization - The process of shifting the design, development, and manufacturing of equipment from foreign to domestic sources.

PLI (Production-Linked Incentive) Scheme - A government programme that provides financial incentives to manufacturers based on their domestic production output.

Value chain - The sequence of stages through which a product moves from initial design to final sale, encompassing materials, components, integration, manufacturing, and distribution.

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Systems integration - The process of combining individual components into a single functioning aircraft or defence system.

Capital-intensive - A business model requiring substantial upfront investment relative to revenue, prior to significant returns being generated.

Procurement cycle - The often multi-year process by which a government or defence customer evaluates, tests, and approves a purchase.

Software-defined aircraft - An aircraft whose capabilities are increasingly enhanced through software updates rather than physical hardware modification.

Sources

- [Cingularity Aerospace - official site](#)
- [Aero India 2025: X-61 ISR UAV - Janes](#)
- [Aero India 2023: ISR/combat/kamikaze UAVs - Janes](#)
- [Cingularity Aerospace company profile - The Industry Outlook](#)
- [Tango Bravo at Aero India 2023 - ANI](#)
- [The Coming of Age of the Indian Drone Industry - Invest India](#)