

A Strategic Synthesis Briefing

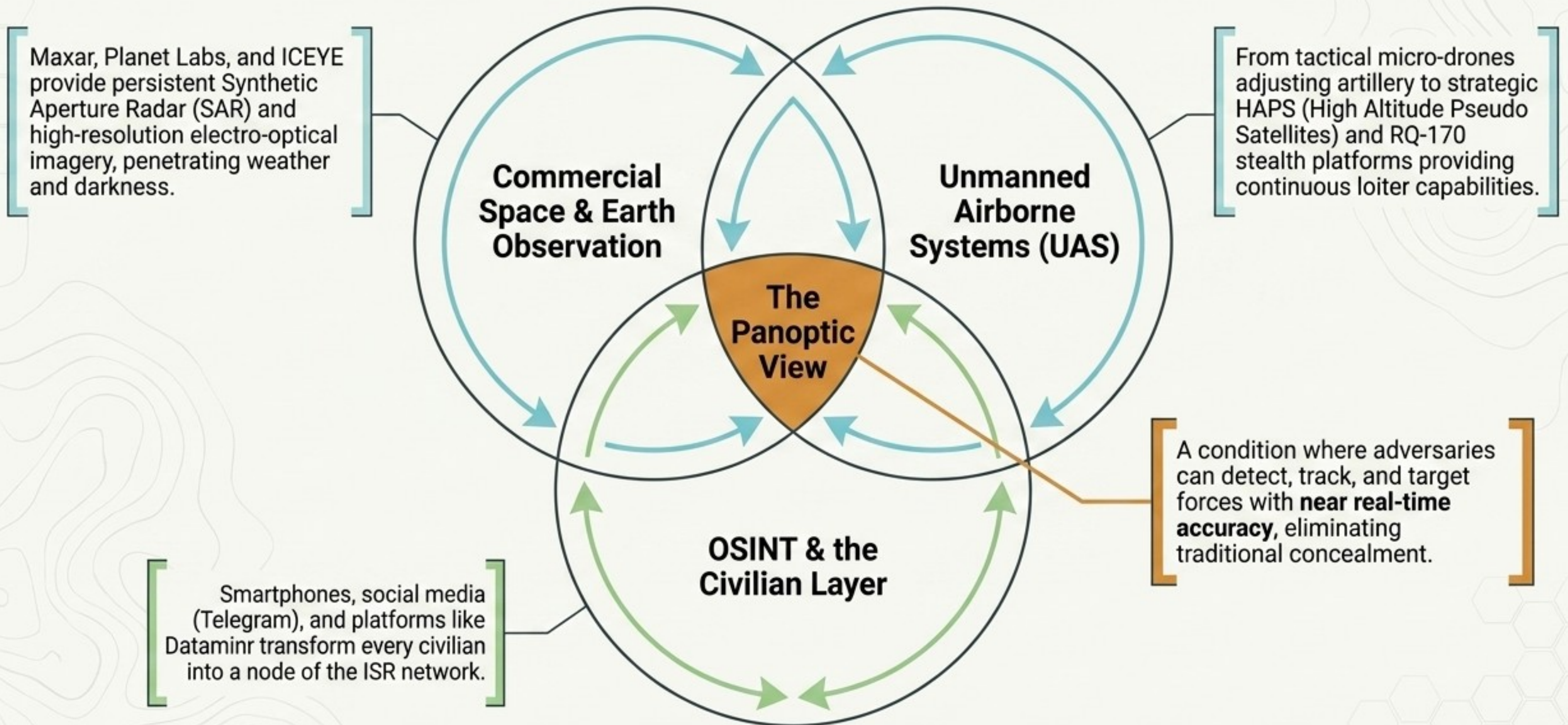
The Transparent Battlefield

GEOINT as a backbone for India's Multi-Domain Operations capability

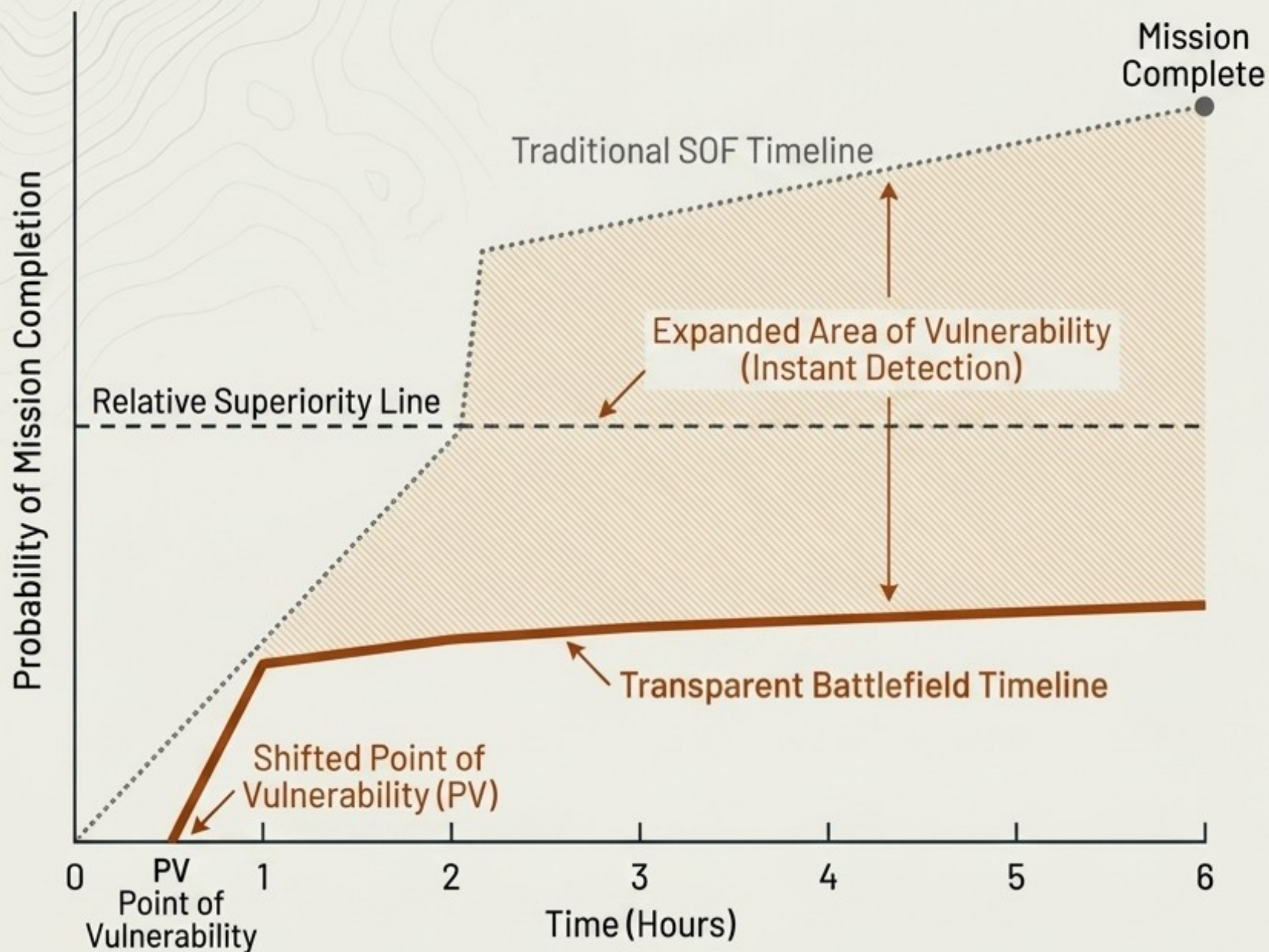
Prateep Basu, Founder

SATSURE

The Engine of Transparency: The End of the Fog of War



The Collapse of Relative Superiority



Core Concept

Special Operations rely on secrecy, speed, and surprise. The transparent battlefield systematically dismantles this information asymmetry.

The Grey Zone Paralysis

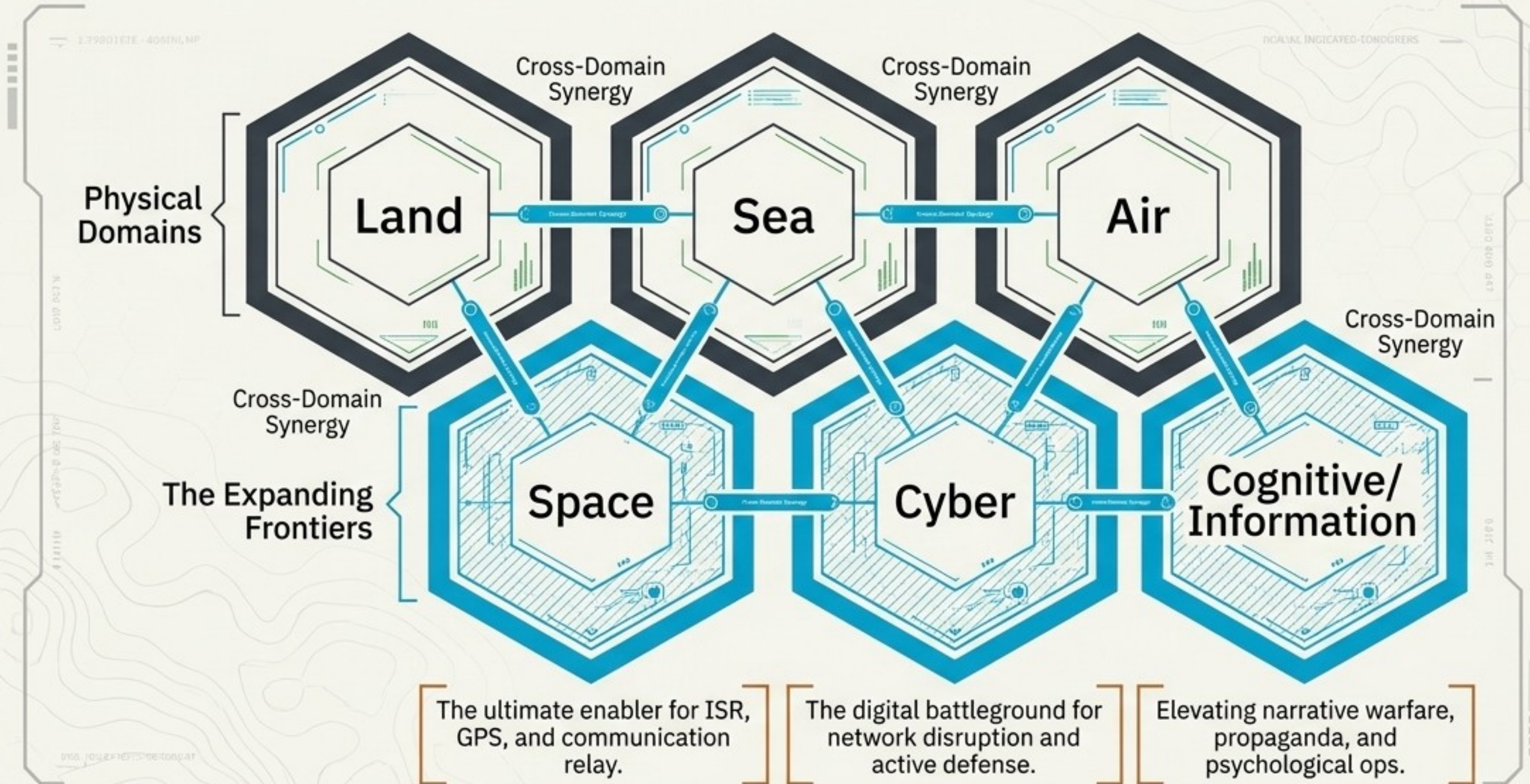
In operations below the threshold of open conflict, detection creates a response paralysis. Being seen where presence cannot be acknowledged is a structural threat to the SOF model.

The Targeting Reality

Adversaries actively prioritize SOF elements for targeting utilizing AI pattern recognition and signal interception, enforcing an exponentially higher detection penalty.

The Doctrinal Shift: Multi-Domain Operations (MDO)

A whole-of-nation framework to synchronize military and non-military capabilities across physical, virtual, and social environments, moving from platform-centric to network-centric warfare.

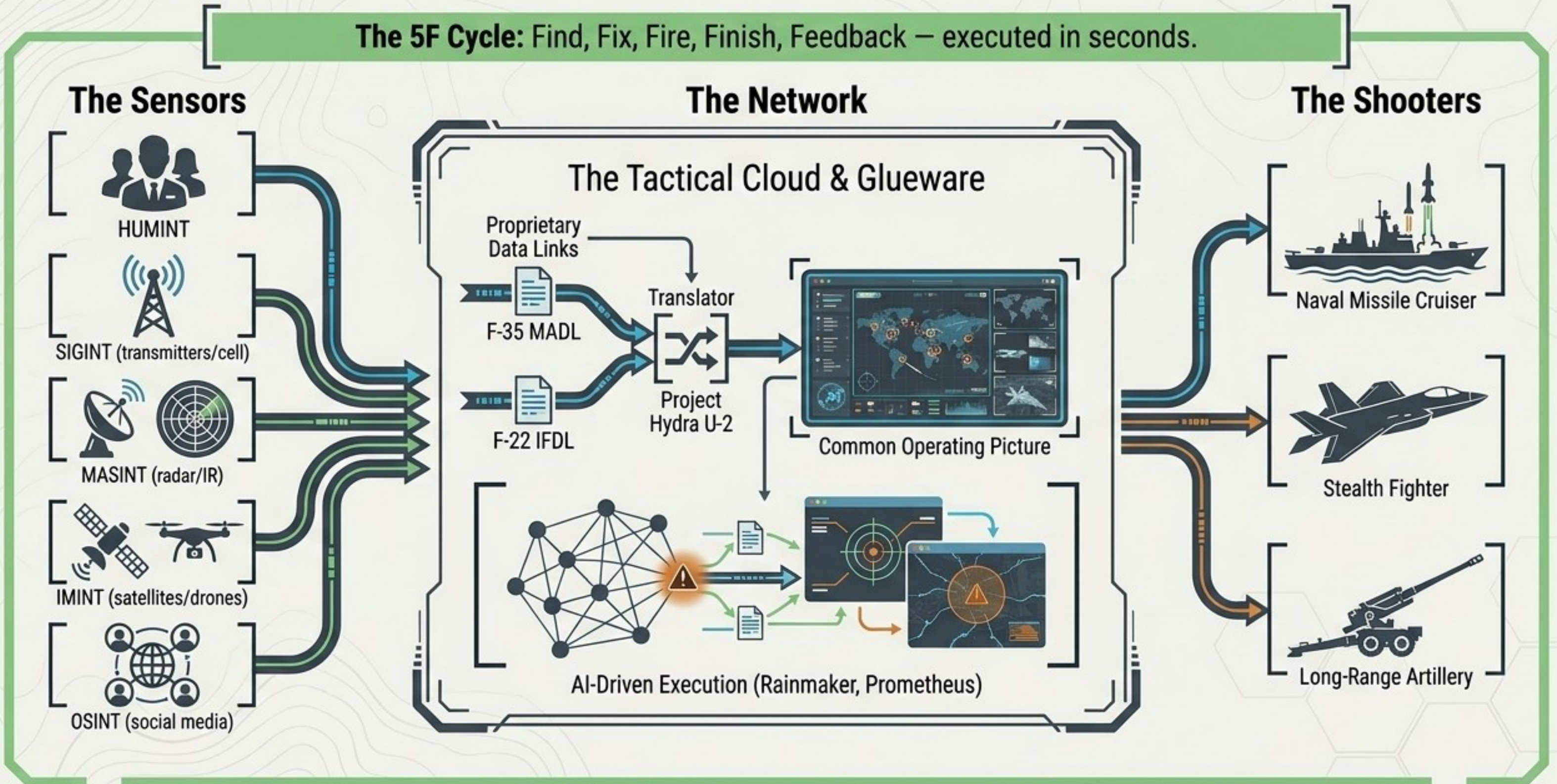


Global MDO Interpretations: A Strategic Diagnostic

	United States	China (PLA)	India
Core Philosophy	Joint All-Domain Command and Control (JADC2)	Intelligentised Warfare	Whole-of-Nation Approach (WONA)
Primary Focus	Sensor-to-shooter integration and global power projection.	The cognitive and information domains (Strategic Support Force).	Regional security (two-front threat) and truth-based narratives (Satyameva Jayate).
Unique Characteristic	Technologically advanced architecture designed to maintain worldwide military supremacy.	Seeks to paralyze adversary decision-making without necessarily firing a shot.	Integrates civil-military fusion (start-ups, academia) to offset import dependence and counter hybrid threats.

The JADC2 Architecture: Connecting the Kill Web

The 5F Cycle: Find, Fix, Fire, Finish, Feedback – executed in seconds.



Spatial Deployment of Robotic & Autonomous Systems (RAS)

Strategic & Op Support Area

Deep Fires Area - 500km+

Deep Maneuver & Close Area - 0-200km

AI-enabled cyber defense and automated PED.



Stratospheric/High-Altitude platforms for C4ISR and PNT relay.



Unattended mesh-networked sensors seeded via air-drop.



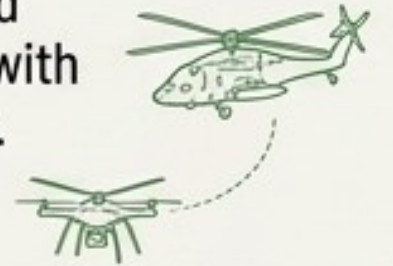
Group 4 stealth UAS (RQ-170 class) navigating via inertial guidance in GPS-denied zones.



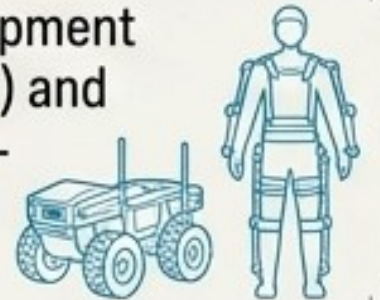
Unmanned Ground Vehicles (UGVs) prepositioned with Joint Precision Airdrop Systems (JPADS) for covert SOF resupply.



Manned-Unmanned Teaming (MUM-T) with Future Vertical Lift.



Squad Mobility Equipment Transporters (SMET) and exoskeleton human-assist systems.

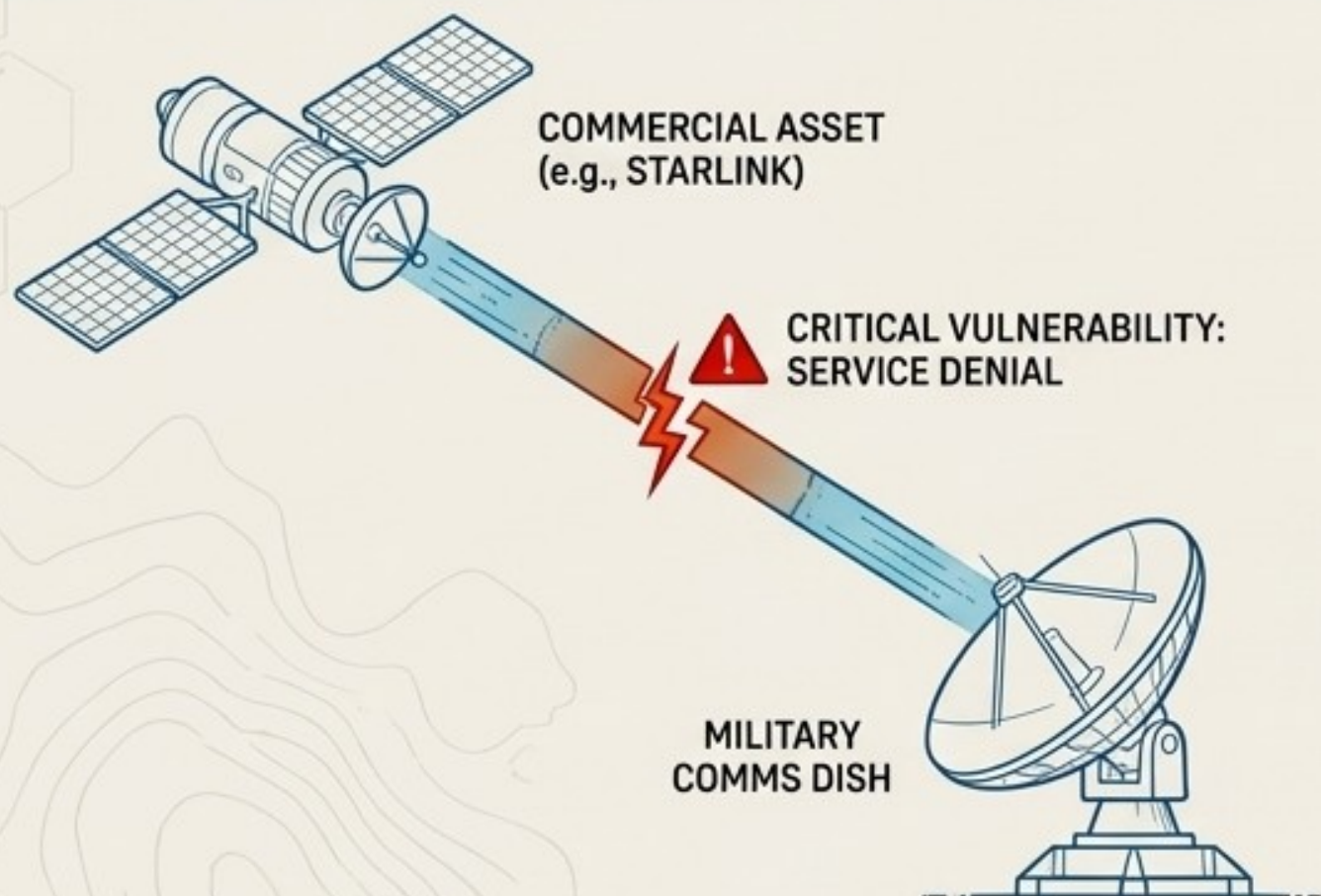


Robotic minefields and loitering munitions to fix and disrupt enemy formations.



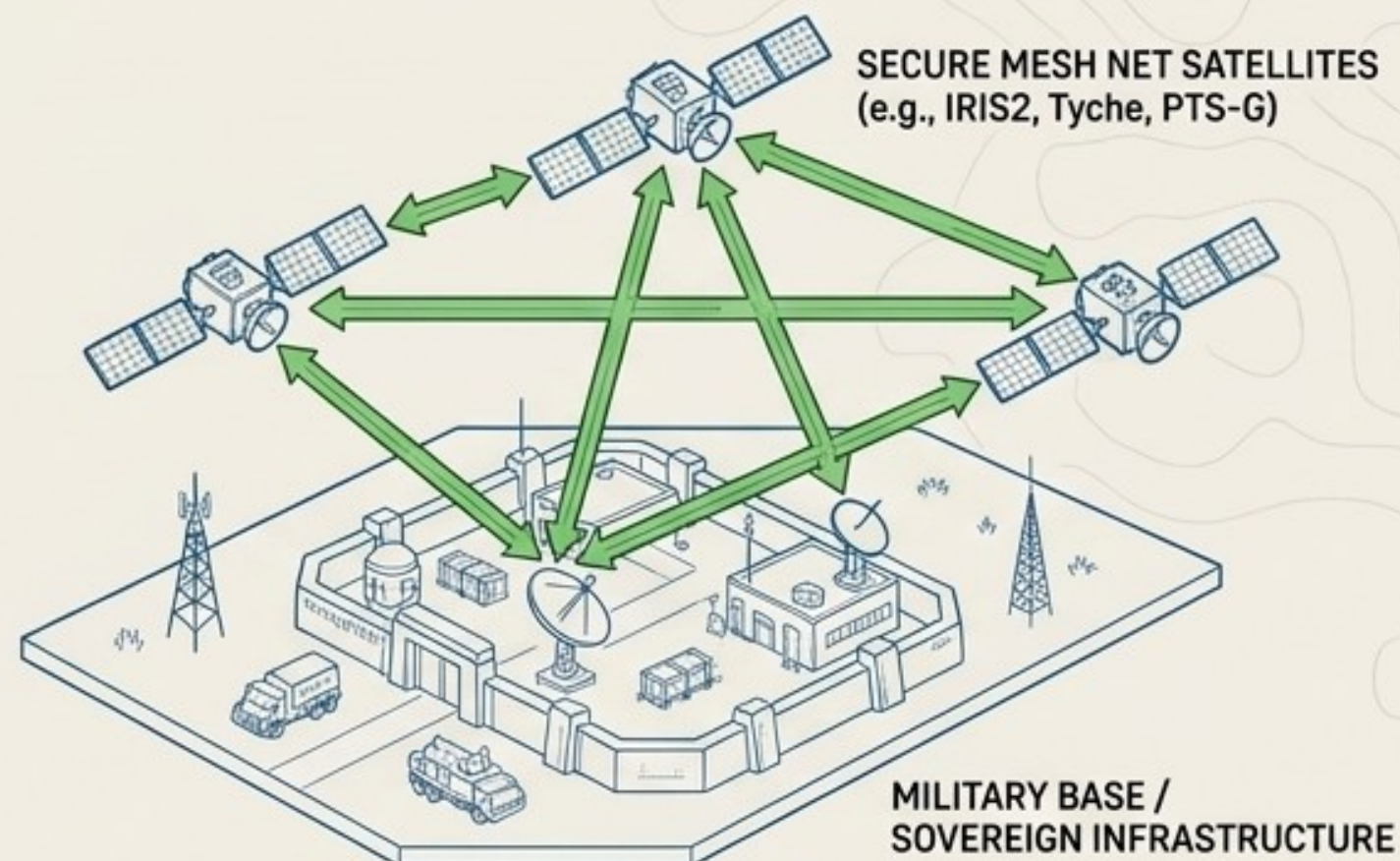
The Commercial Combatant Dilemma & Sovereign Resilience

The Integration Risk



- In Ukraine, 50,000 Starlink terminals sustained operations. However, reliance on private corporations introduces **critical vulnerabilities** (e.g., SpaceX reportedly denying coverage during a Crimean counteroffensive).
- **Vulnerabilities:** Commercial assets face legal ambiguity in war, susceptibility to GPS jamming, spoofing, and anti-satellite cyberattacks.

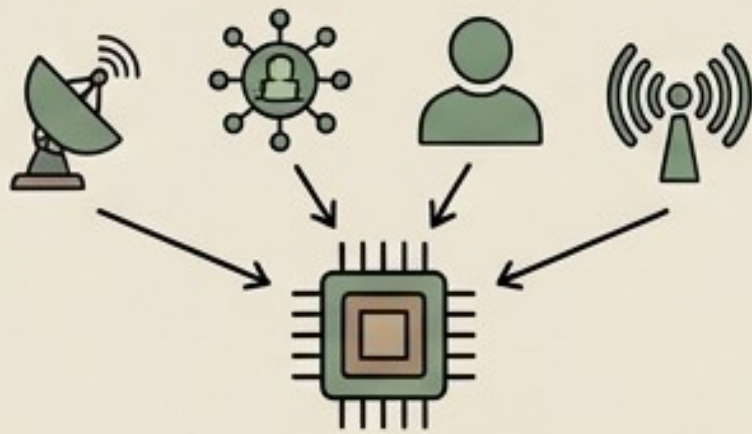
Building Sovereign Resilience



- **Redundancy:** Shifting from single-vendor reliance to multi-vendor pipelines (Capella, ICEYE, BlackSky).
- **Sovereign Constellations:** EU's IRIS2 and UK's Tyche aim to reduce dependency on US commercial fleets by 2030.
- **Hardened Infrastructure:** US Space Force Protected Tactical SATCOM (PTS-G) deploys jam-resistant, military-grade satellites built on commercial designs.

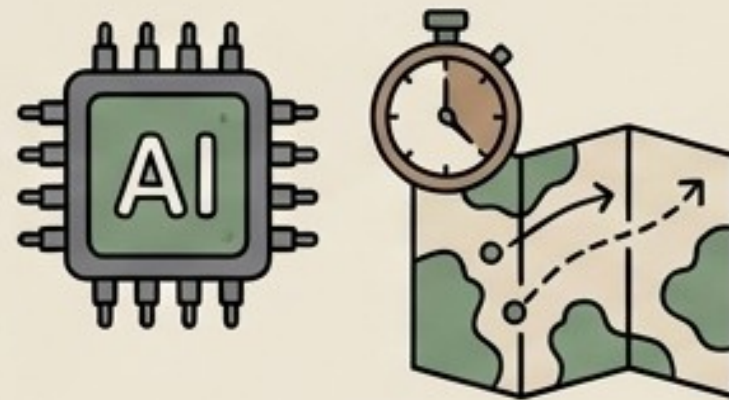
GEOINT Paradigm in Multi-Domain Operations (MDO)

Convergence of Intelligence



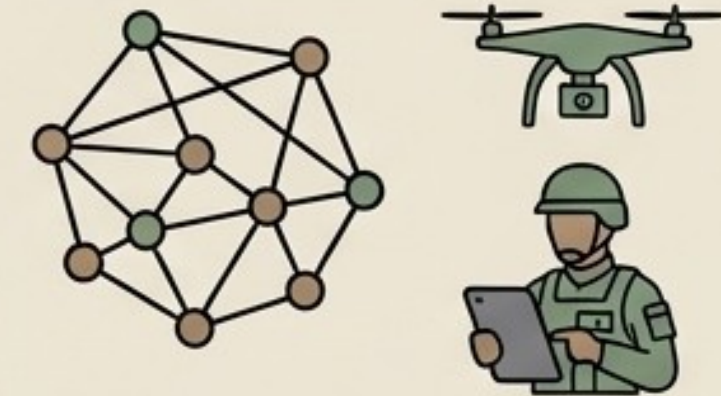
Fusing GEOINT with SIGINT, HUMINT, and CYBER to create a comprehensive, layered intelligence picture. Breaking down stovepipes for cross-domain synergy.

Real-time & Predictive Analytics



Shifting from historical reporting to real-time situational awareness. AI/ML algorithms predict adversary actions and identify fleeting targets.

Distributed & Decentralized GEOINT



Moving away from centralized processing to distributed nodes and edge processing.
Empowering tactical units with immediate access to relevant GEOINT.

SatSure & KaleidEO for Indian Defense: Advancing GEOINT

SatSure (Geospatial Big Data & Analytics)

- **AI/ML-Driven ISR:** Automating target detection and change detection in satellite imagery.
- **Predictive Intelligence:** Analyzing environmental and patterns of life data for threat anticipation.
- **Decision Support Systems:** Providing actionable insights for operational planning.



KaleidEO (High-Resolution Earth Observation)

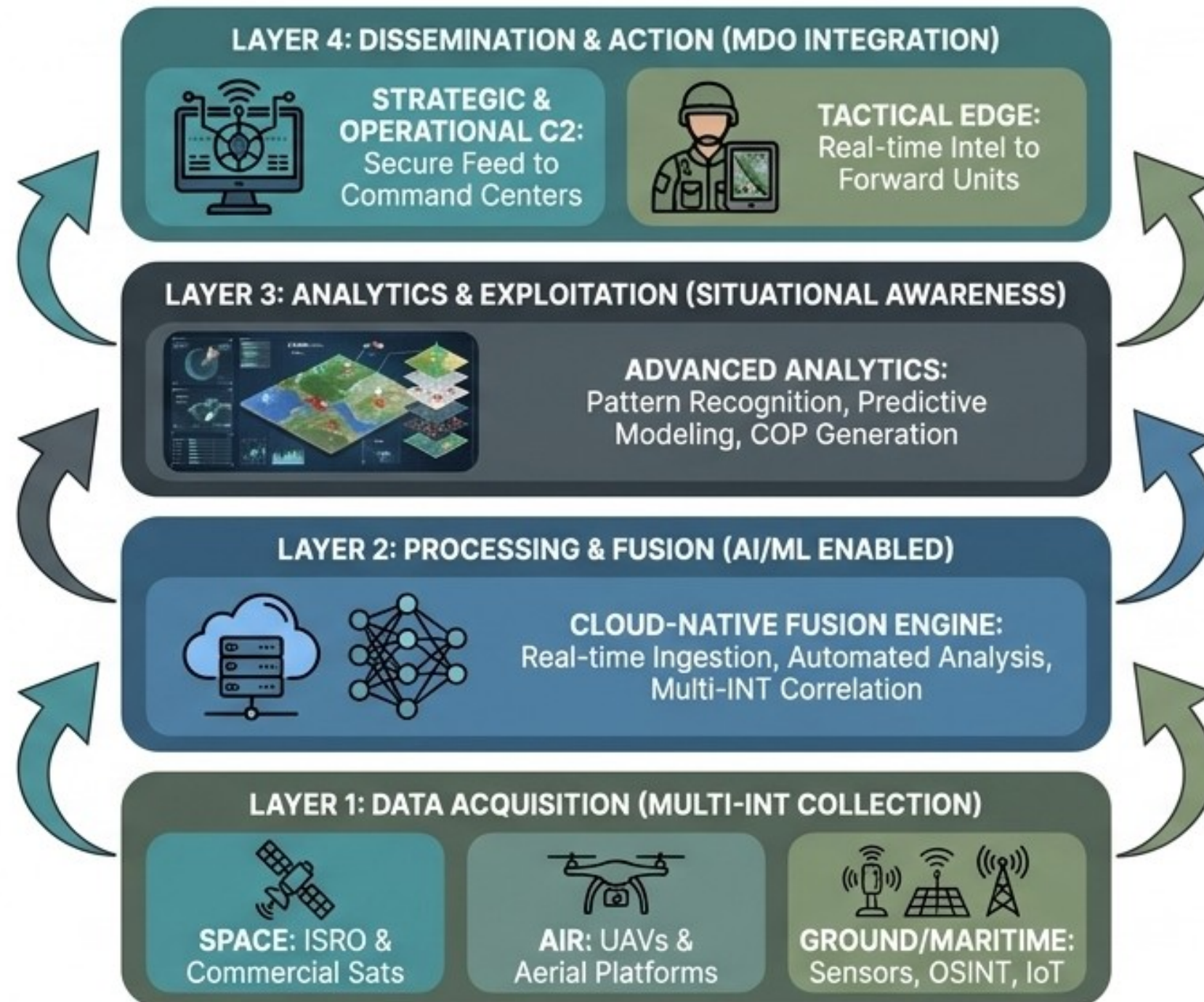
- **Advanced Payloads:** Developing indigenous, high-resolution optical and SAR payloads.
- **Edge Computing:** Enabling real-time data processing on-orbit for faster intelligence.
- **Sovereign Capability:** Strengthening India's independent GEOINT infrastructure and reduced reliance.



Combined Impact:
Integrated satellite data and advanced analytics empower Indian defense with sovereign, real-time, and predictive GEOINT capabilities.

GEOINT Stack for Modern Day MDO Capability Development in India

An integrated, multi-layered architecture designed to ingest, process, analyze, and disseminate geospatial intelligence for multi-domain operations.



Conclusion: Key Areas of GEOINT Impact for Indian Defense in MDO Capabilities

GEOINT is the foundational layer for India's MDO strategy, enabling multi-domain synergy and decision advantage.

1. Enhanced Situational Awareness

- Real-time fusion of satellite, aerial, and ground sensor data.
- Provides comprehensive Common Operating Picture (COP).
- Enables earlier threat detection and battlespace understanding.

2. Precision Targeting & Effects

- Highly accurate target acquisition and tracking.
- Facilitates effective kinetic and non-kinetic engagement.
- Minimizes collateral damage and aids BDA.

3. Multi-Domain Synchronization

- Seamless coordination of air, land, sea, cyber, & space.
- GEOINT acts as unifying fabric for cross-domain maneuver.
- Ensures synchronized fires and operational synergy.

Final Insight: Mastery of GEOINT and its integration across domains is crucial for India to achieve information dominance and secure its strategic interests in modern conflict.