



**SALAR**  
TECHNOLOGIES LLC

ENGINEERING THE FUTURE  
AMERICAN GRIT. ADVANCED SYSTEMS.  
salartechnologies.com

## Defense Electronics Reliability and Supply-Chain Resilience

Internal strategic briefing book built from the public-safe five-lane SALAR framework: design reliability analysis, predictive failure analytics, semiconductor supply-chain risk intelligence, closed-loop manufacturing stability, and limited public positioning for AI-certified lithography control.

Prepared for internal planning, outreach alignment, and white-paper development.



Vikrant Salar  
Founder & CEO

SALAR Technologies LLC  
Registered in the State of Oregon  
Oregon Registry No. 254232599

contact@salartechnologies.com  
vikrant@salartechnologies.com  
salartechnologies.com

Refocused thesis: SALAR is not just an AI company and not just a stack of patents. It is a resilience architecture for mission-critical electronics - reducing design fragility, counterfeit exposure, supplier concentration risk, manufacturing instability, and regional single-point failure.

# 1. Why this matters now

From a U.S. defense perspective, the core problem is not one single company or one single AI label. The core problem is concentration, opacity, and fragility across the electronics and semiconductor chain.

## U.S. Defense Electronics Supply-Chain Challenge Landscape

Concentration, opacity, counterfeit exposure, manufacturing instability, and vendor control risk

**200,000+**

**DOD-related suppliers**

DOD relies on a global network of over 200,000 suppliers; visibility below first tiers remains limited.

**>70%**

**China-traced suspect counterfeit**

Senate Armed Services Committee findings traced more than 70% of suspect counterfeit electronic parts to China.

**1,800**

**Suspect counterfeit cases**

Committee investigation identified roughly 1,800 cases of suspect counterfeit parts across the defense supply chain.

**40%**

**Taiwan shift 'impossible'**

Taiwan stated in 2026 that shifting 40% of chip capacity to the U.S. is impossible, underscoring concentration risk.

**5**

**SALAR response lanes**

Reliability analysis, predictive failure analytics, supply-chain intelligence, manufacturing stability, and limited public lithography control.

### What breaks first under pressure

#### Concentration

- Single-region fabs and ATP
- Raw material choke points
- Single-source board designs

#### Provenance

- Independent distributor risk
- Recycled / remarked devices
- Chain-of-custody gaps

#### Operational Control

- Manufacturing drift
- Tool or recipe excursions
- AI / software vendor lock-in

Key implication: supply-chain resilience must address hardware concentration, counterfeit/provenance exposure, manufacturing instability, and software/AI vendor dependency as one integrated system.

## 2. U.S. defense challenge landscape

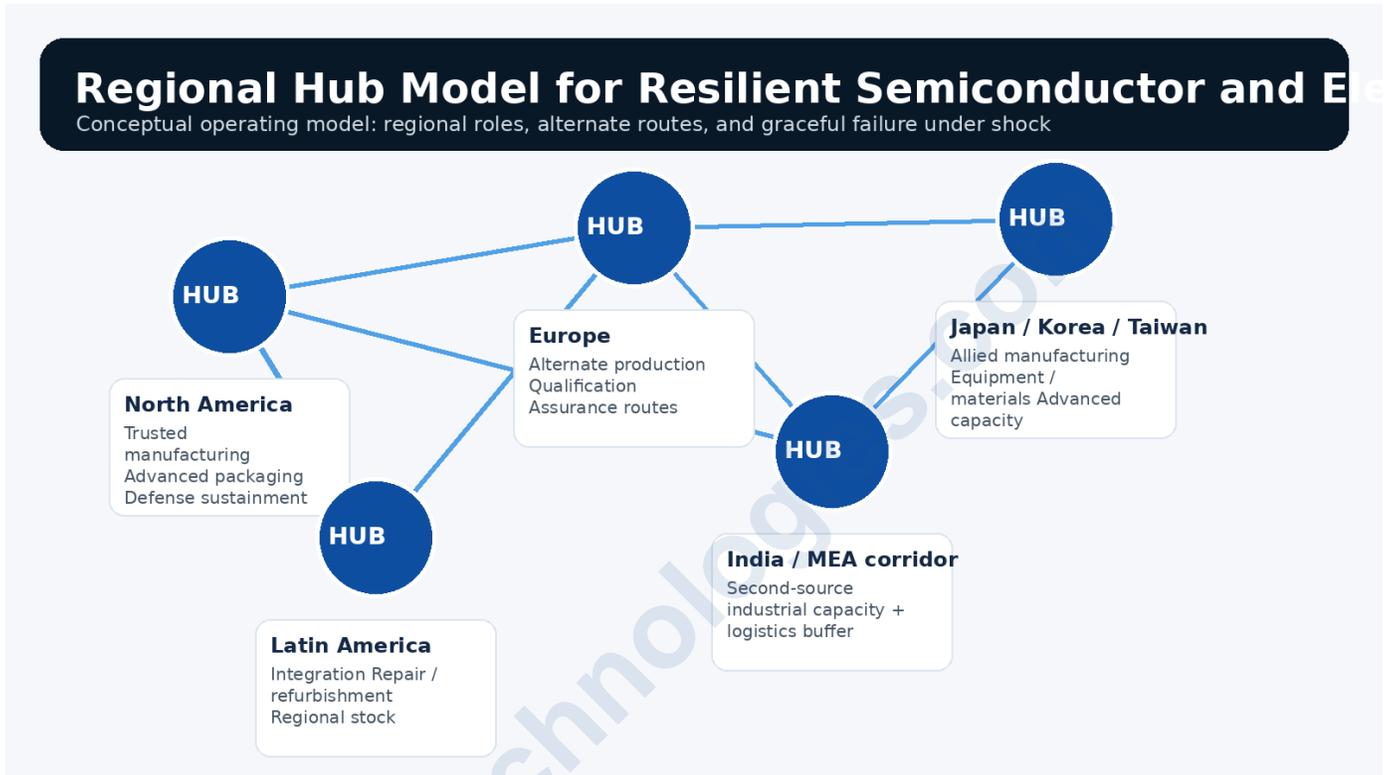
- Foreign supplier dependence: DOD relies on a global network of over 200,000 suppliers and still has limited coordinated visibility into lower tiers and country-of-origin exposure.
- Semiconductor concentration: advanced manufacturing remains concentrated in a small number of geographies, creating choke-point risk under export controls, disaster, or conflict.
- Counterfeit and provenance exposure: suspect, remarked, recycled, or poorly handled parts can enter the chain and create latent mission failures.
- Manufacturing instability: process drift and quality excursions can reduce throughput and downstream trust when demand is already stressed.
- Software / AI vendor control risk: loss of access to a critical AI or software provider can disrupt defense workflows even when the vendor is U.S.-based.

The Anthropic designation should be read less as a one-off corporate dispute and more as a signal that digital dependencies can now function like hardware choke points in defense operations.

salartech.com

### 3. Regional hub model

The strongest answer is not “move everything tomorrow.” The better answer is a differentiated regional network that can fail gracefully like the internet: if one node degrades, another carries load.



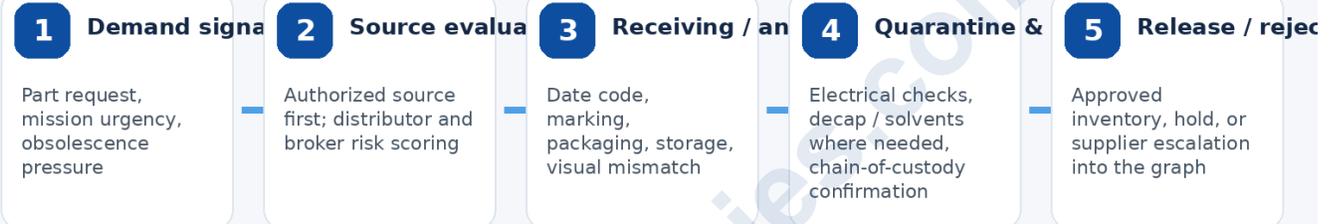
Region	Role
North America	Trusted manufacturing, advanced packaging, secure sustainment
Europe	Alternate production, qualification, assurance routes
India / MEA corridor	Second-source industrial capacity and logistics buffering
Japan / Korea / Taiwan	Allied manufacturing coordination and advanced capacity
Latin America	Integration, repair/refurbishment, regional stock positioning

## 4. Counterfeit and provenance must be a pillar

Counterfeit control should not sit in a small procurement appendix. In a defense environment, provenance should change maintenance, sourcing, and release decisions.

### Counterfeit and Provenance Control Workflow

Treat provenance as a core pillar: authorized source, anomaly flags, quarantine, test, release



**Key rule: counterfeit control cannot be treated as a side-note procurement issue. In a defense environment it must change maintenance, sourcing, and release decisions in a documented workflow.**

Operating model components:

- authorized-source preference
- chain-of-custody logic
- receiving anomaly flags
- quarantine / test / release workflow
- storage and handling history
- traceability back into the supply graph

## 5. The SALAR five-lane architecture

### SALAR Five-Lane Architecture

Five integrated layers: design, prediction, supply graph, manufacturing stability, and controlled lithography positioning

- 1 Design Reliability Analysis
- 2 Predictive Failure Analytics
- 3 Semiconductor Supply-Chain Risk Intelligence
- 4 Closed-Loop Manufacturing Stability
- 5 AI-Certified Lithography Control (public-safe)

Positioning rule: 4 filed lanes can be described directly; lithography remains high-level until filing is complete; 6G stays of

Lane 1 - Design Reliability Analysis: design for resilience at the board level so the platform is less fragile under part changes, thermal stress, and manufacturability constraints.

Lane 2 - Predictive Failure Analytics: use structured analytics to identify likely risk and maintenance priority before failure becomes a mission event.

Lane 3 - Semiconductor Supply-Chain Risk Intelligence: graph the supplier structure and identify concentration, provenance, dependency, and disruption exposure.

Lane 4 - Closed-Loop Manufacturing Stability: detect excursions early and preserve throughput and trust under stress.

Lane 5 - AI-Certified Lithography Control: keep public positioning high-level and non-enabling until filing is complete.

## 6. Filed portfolio and disclosure discipline

Lane	Status	Public treatment
Board Design Reliability Analysis Checklist Guidelines (18/311,244)	Filed	Describe directly
Profile-Based Ethernet Connectivity for Multi-Lane SoC Devices (19/431,978)	Filed	Describe directly
Graph-Based Multi-Tier Semiconductor Supply-Chain Risk Scoring and Closed-Loop Mitigation (19/515,459)	Filed	Describe directly
Closed-Loop Manufacturing Stability Systems and Methods for Multi-Domain Control Production (19/534,285)	Filed	Describe directly
AI-Certified Lithography Control	Pre-filing	High-level public-safe only

6G is intentionally excluded from the current defense / supply-chain packet. Predictive failure analytics and counterfeit/provenance control should be emphasized as solution capabilities even where they are not being represented as separately verified filed applications in the current public packet.

## 7. How the five lanes assimilate into the market

### How the Five Lanes Assimilate into the Market

Start with studies and workflows; mature into software, licensing, and deeper manufacturing engagements

#### Immediate

- Reliability studies
- Mission-risk assessments
- White papers
- Technical consulting

#### Near-term

- Pilot analytics
- Supply-chain graph reviews
- Counterfeit workflow design
- Process stability advisory

#### Mid-term

- Scoring tools
- Dashboards
- Workflow software
- Regional hub modeling

#### Longer-term

- Licensing
- Trusted manufacturing integ
- Lithography control pilots
- Enterprise analytics

Immediate market entry should come through consulting, reliability studies, mission-risk assessments, white papers, and technical strategy engagements. Pilot analytics, supply-chain graph reviews, counterfeit workflow design, and process stability advisory work follow. Software-backed scoring, dashboards, workflow tools, and licensing come after evidence and customer pull.

## 8. Working government path

The strongest immediate route is a DLA / defense research path built around one integrated problem-solution story instead of disconnected patent claims.

Step	What to do
1	Finish SAM registration and obtain active entity status / UEI.
2	Use the one-page concept summary for outreach only.
3	Use the white paper as the real technical response document.
4	Generate support letters from technical stakeholders.
5	Submit to the Contracting Office email listed in the active announcement.

Current relevant vehicle: DLA DLIR / Supply Chain Management BAA-0002-21.

Routing rule: for BAAs posted on SAM.gov, send the white paper to the Contracting Office email listed in the active announcement. If the idea is not listed within a BAA, DLA says to use Logistics.Research@dla.mil.

Key contacts to keep on file: DLASBIR2@dla.mil, RANDD.DCSO@dla.mil, Logistics.Research@dla.mil

## 9. Source notes

- GAO-25-107283, Defense Industrial Base: Actions Needed to Address Risks Posed by Dependence on Foreign Suppliers. GAO reported DOD relies on a global network of over 200,000 suppliers and still has limited visibility into lower tiers.
- Senate Armed Services Committee release on counterfeit electronic parts in the defense supply chain: more than 70% of suspect parts traced to China and approximately 1,800 suspect counterfeit cases identified.
- Reuters, February 2026: Taiwan said shifting 40% of semiconductor capacity to the U.S. is impossible, underscoring concentration risk.
- Reuters and AP, March 2026: Pentagon designation of Anthropic as a supply-chain risk, showing software/AI vendor-control risk as a real operational category.
- DLA innovation / small business routing page: BAA-0002-21, submission routing guidance, and innovation contact points.

salartechtechnologies.com