PROJECTBLUE

Market intelligence on critical material supply chains

Securing critical material supply chains for the aerospace industry:

UAVs, military and commercial trends

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Founder & Director

29 October 2026



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Forward-looking statements

This document may contain forward-looking statements that are subject to risks and uncertainties. All statements that are not historical facts contained within are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "can", "might", "believe", "may", "estimate", "continue", "anticipate", "intend", "should", "plan", "could", "expect", "predict", "potential", or the negative of these terms or other similar expressions.

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Project Blue

Comprehensive coverage of critical material supply chains – enabling a deep understanding of industry dynamics.







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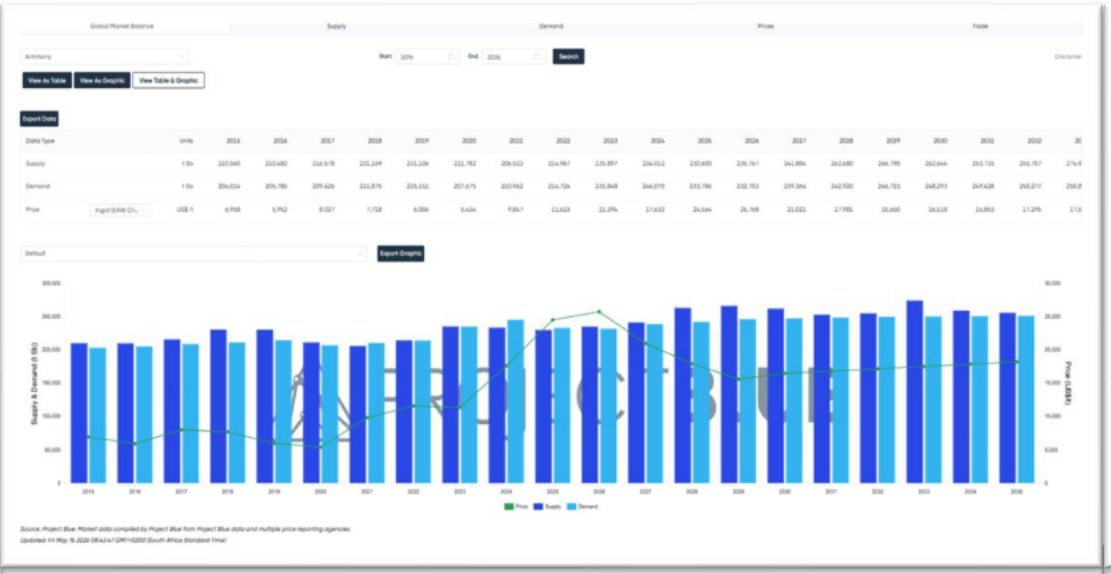
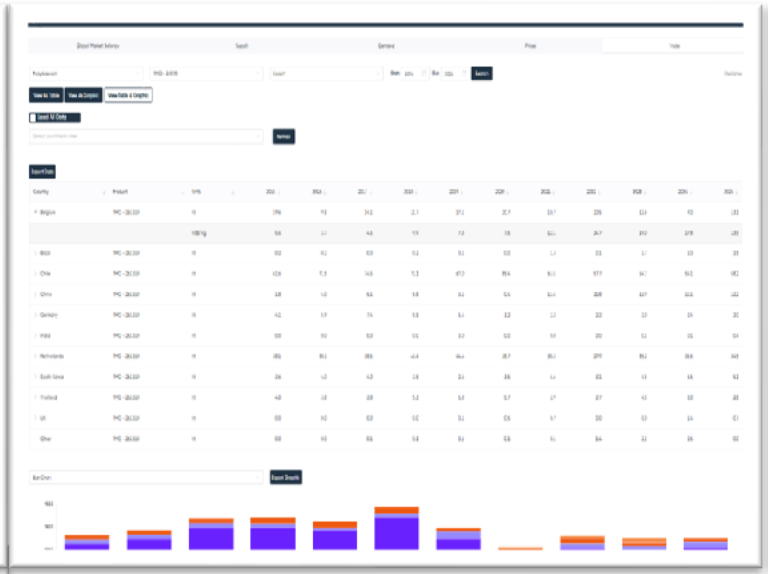
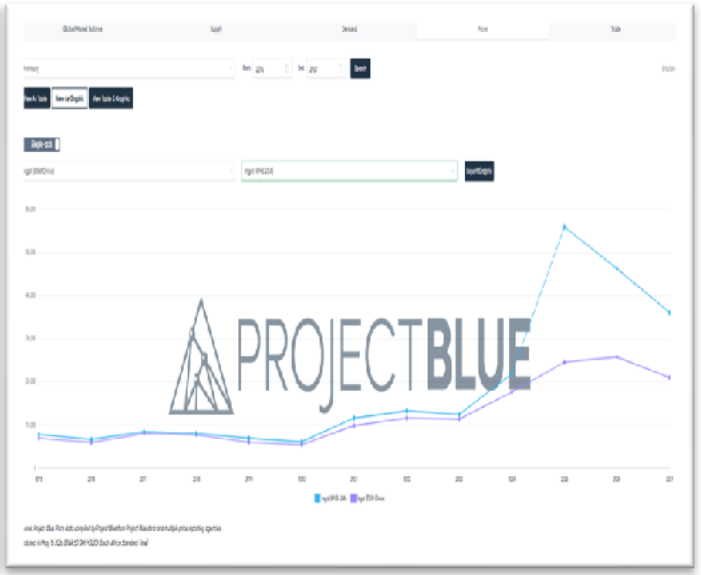
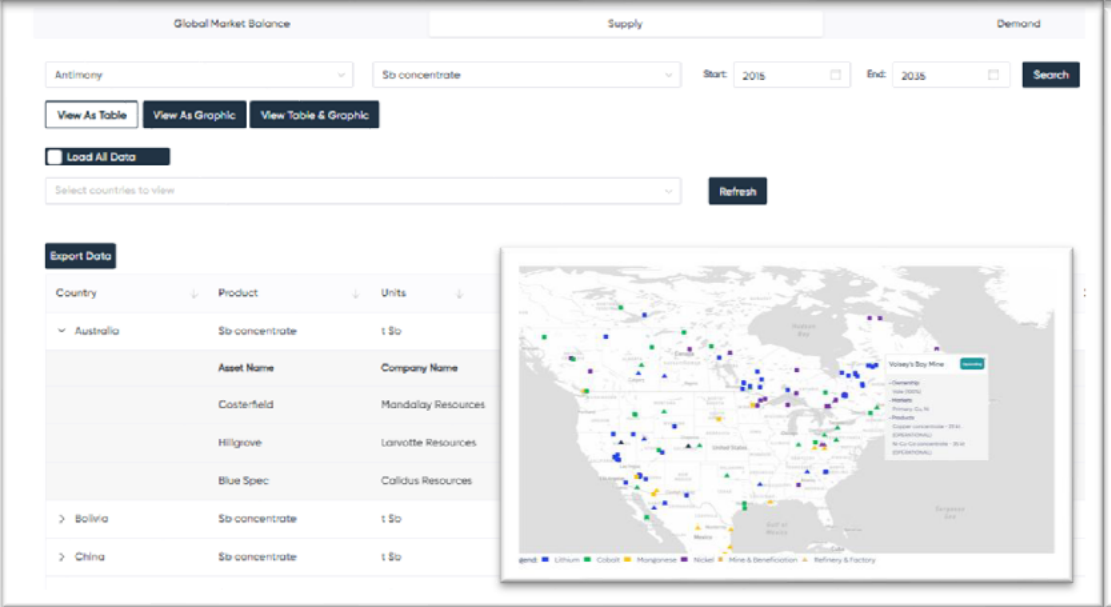
Proxima: Project Blue's critical materials intelligence dashboard

Intelligence, data, trade, prices and forecast analysis for over 40 critical materials with interactive visualisations and downloads – **all in one place**





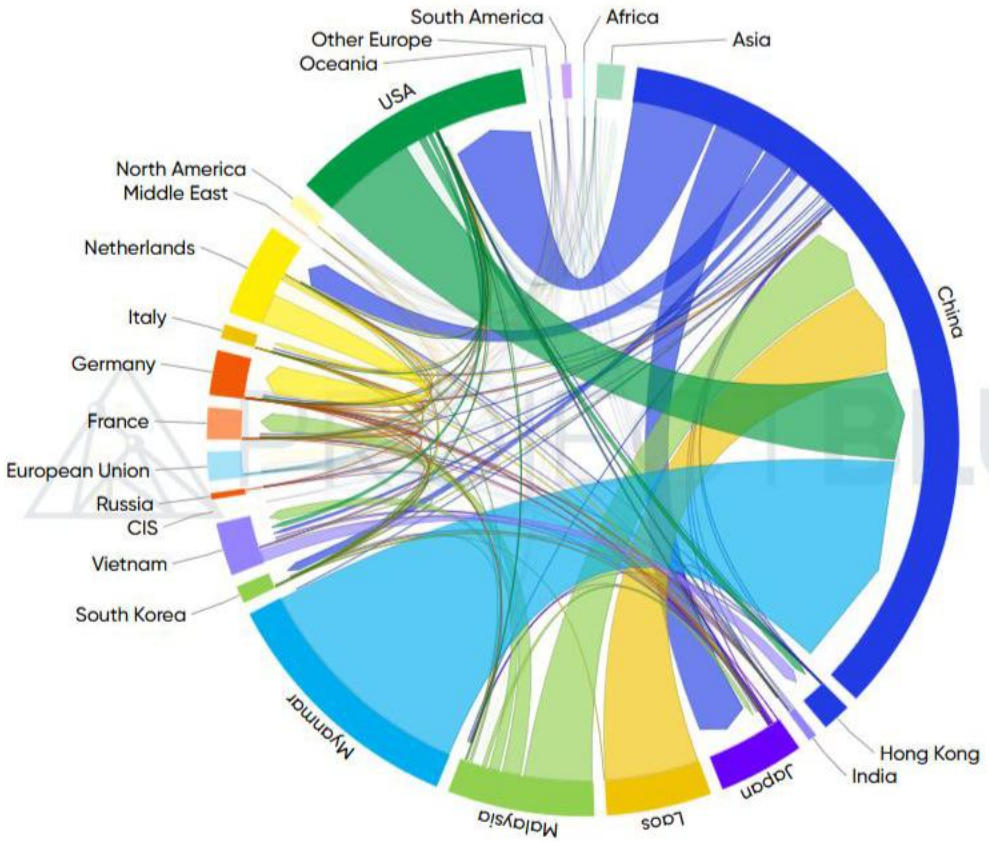


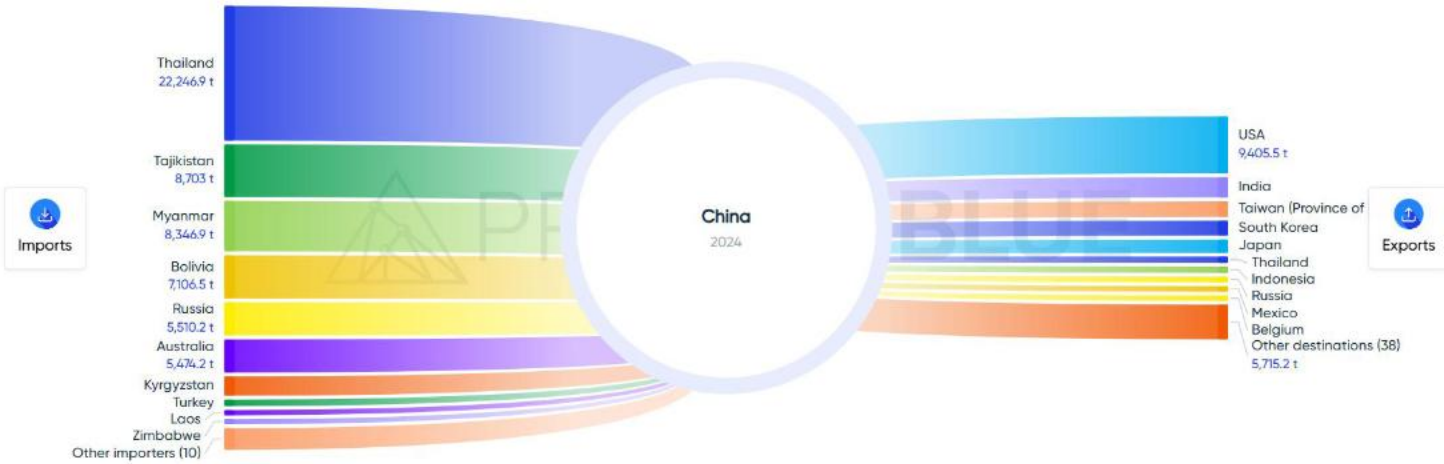






Trade flow analytics of critical material HS codes







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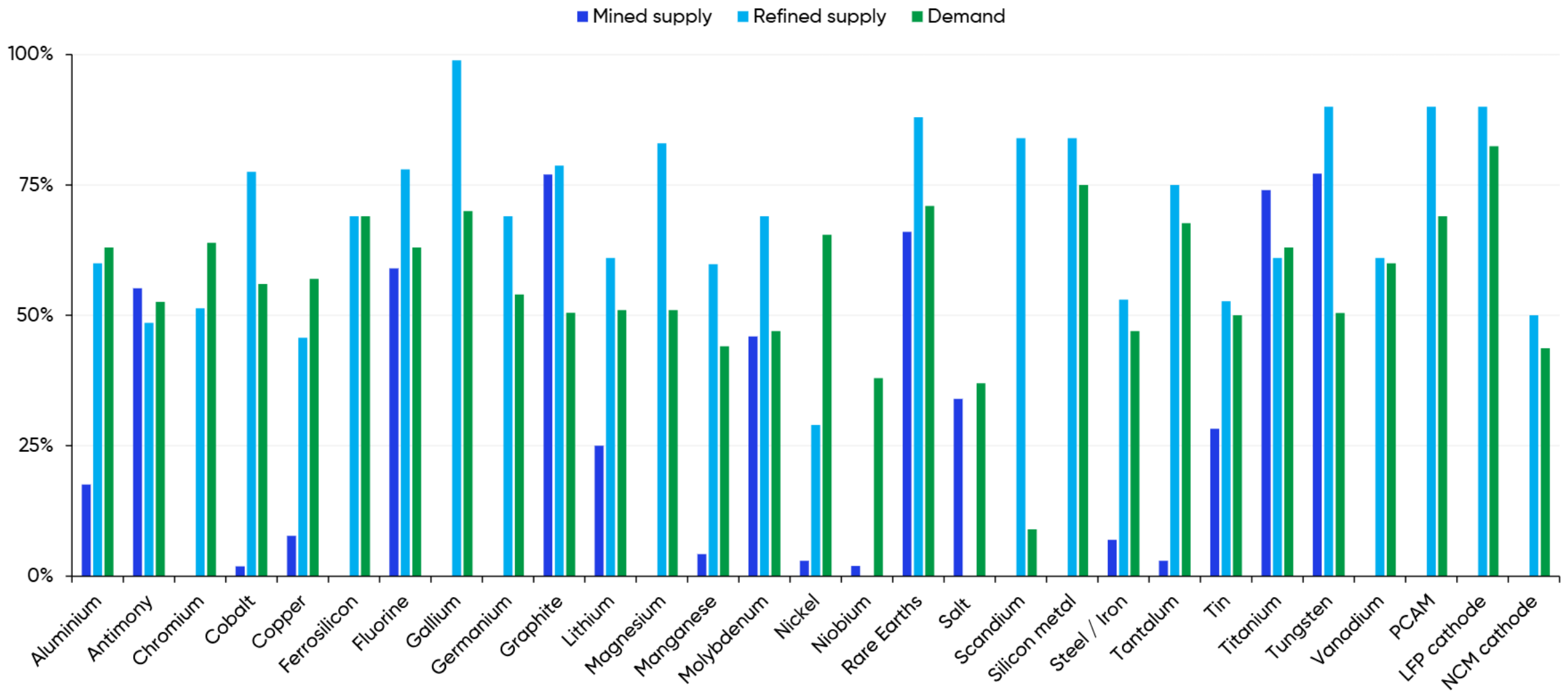
China's dominance of critical material supply and demand (2025)



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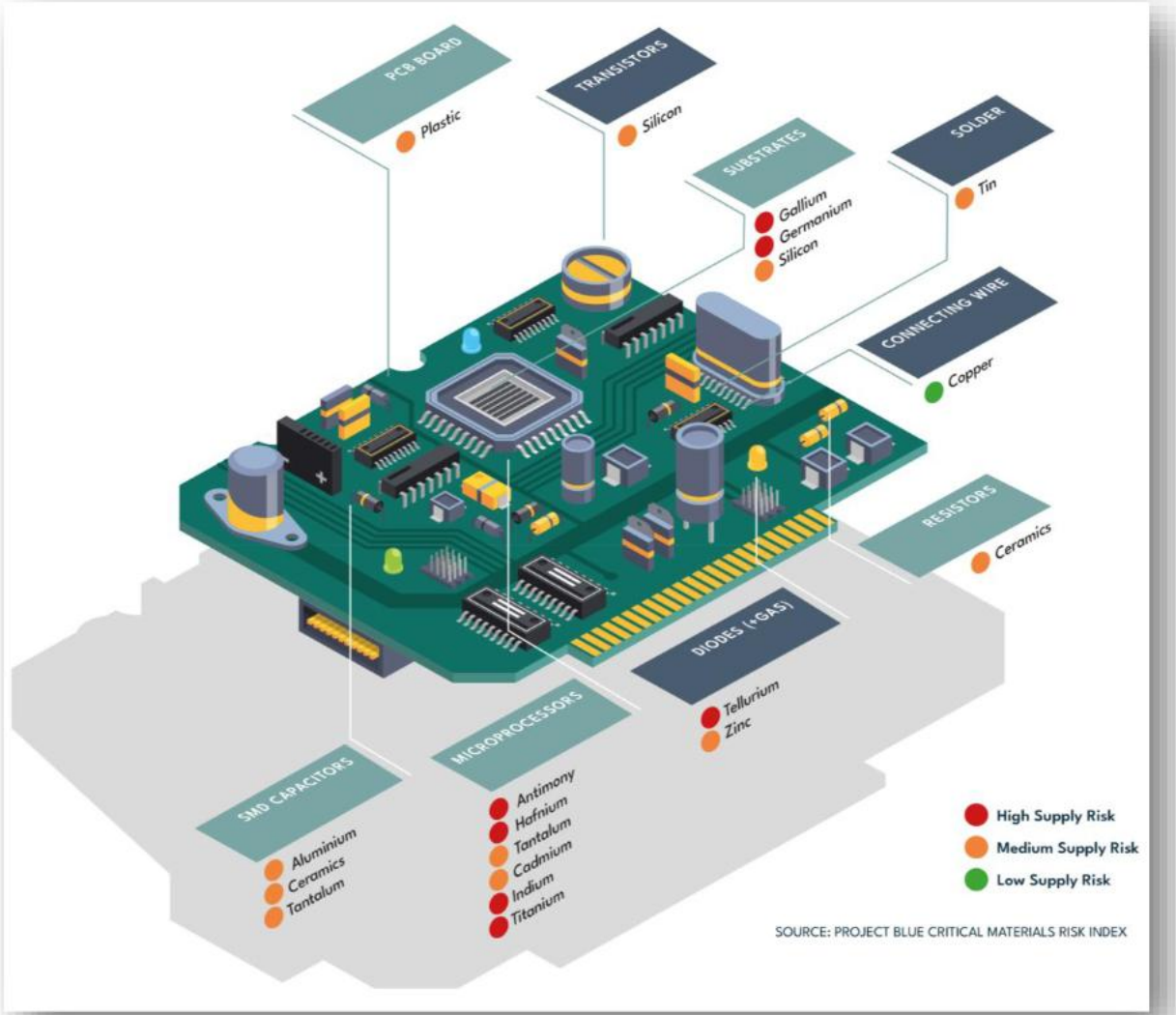
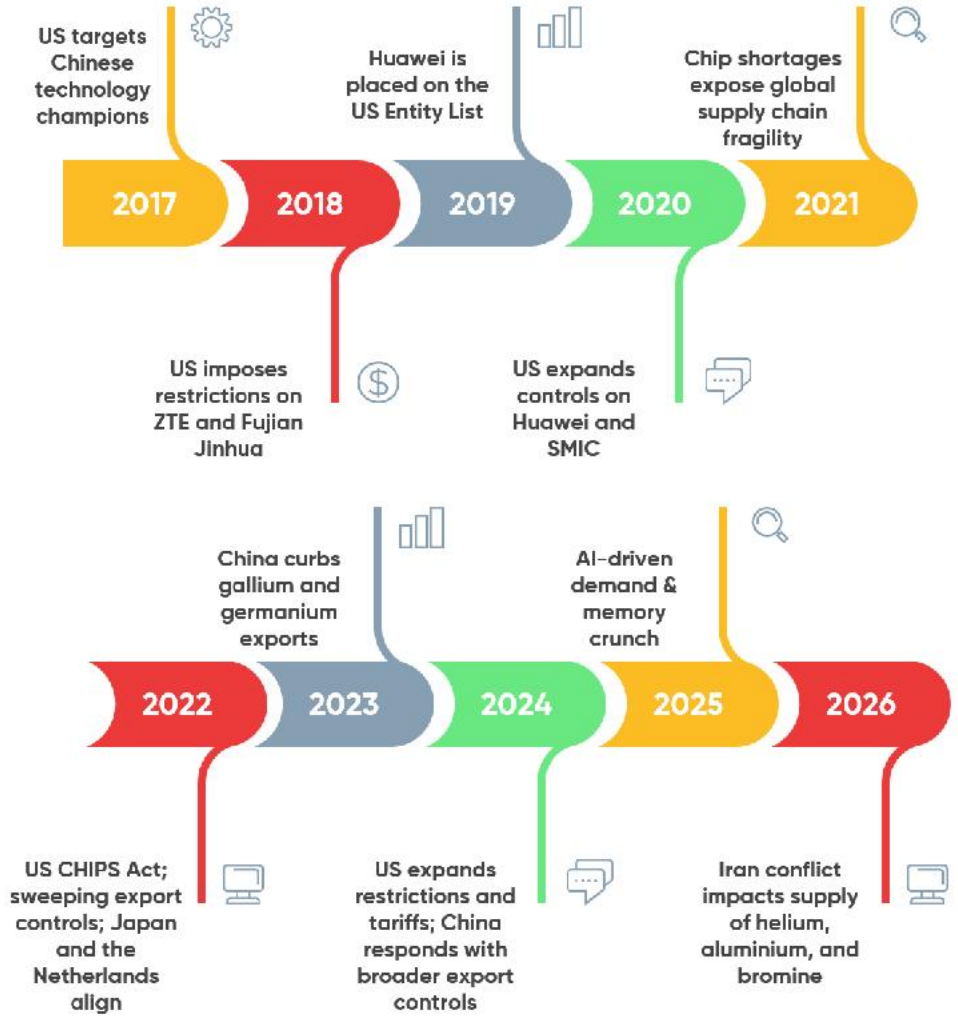
Source: Project Blue

Critical materials context: these metals are widely used in semiconductors





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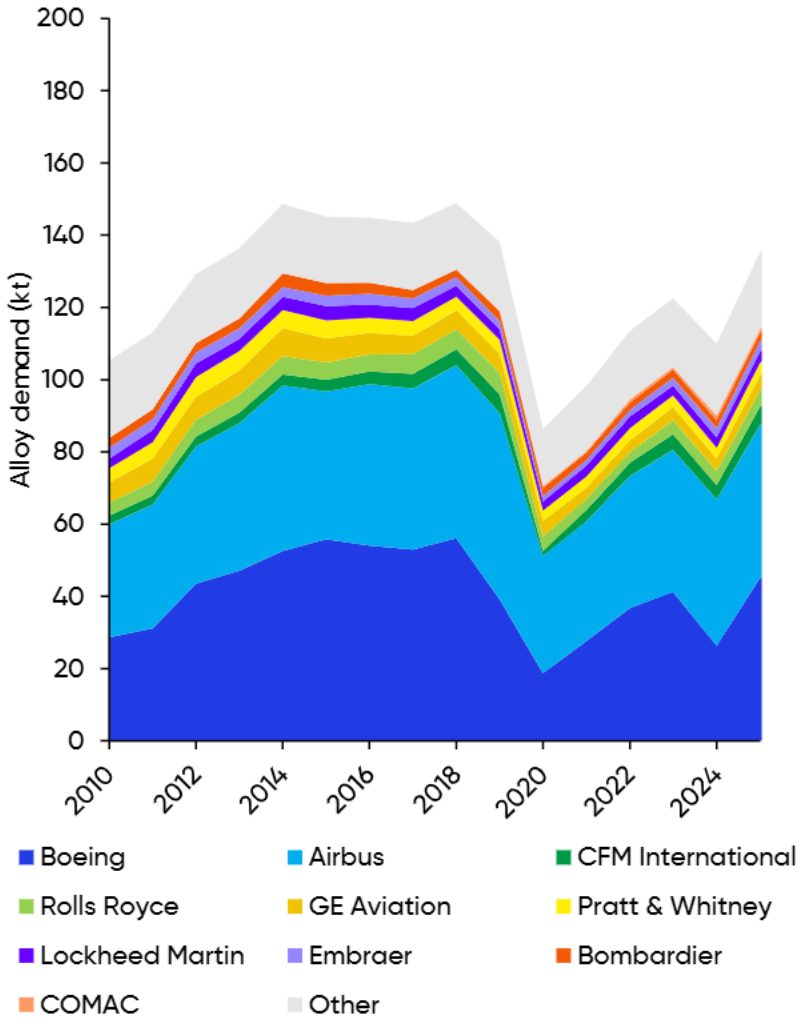
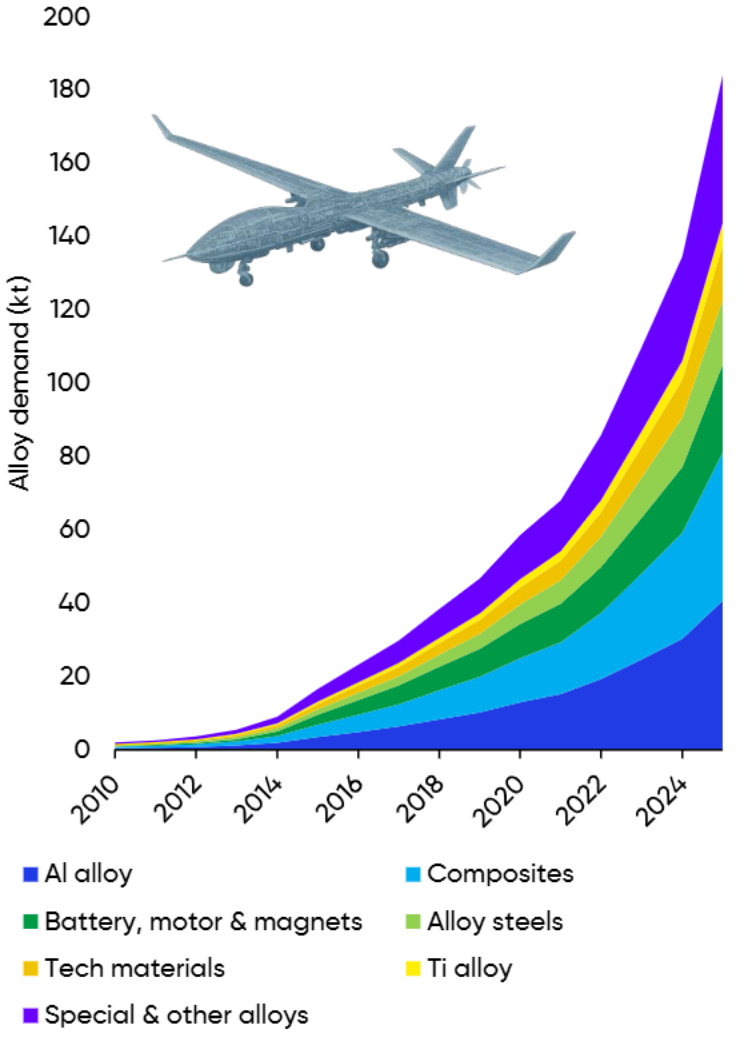
Aerospace industry

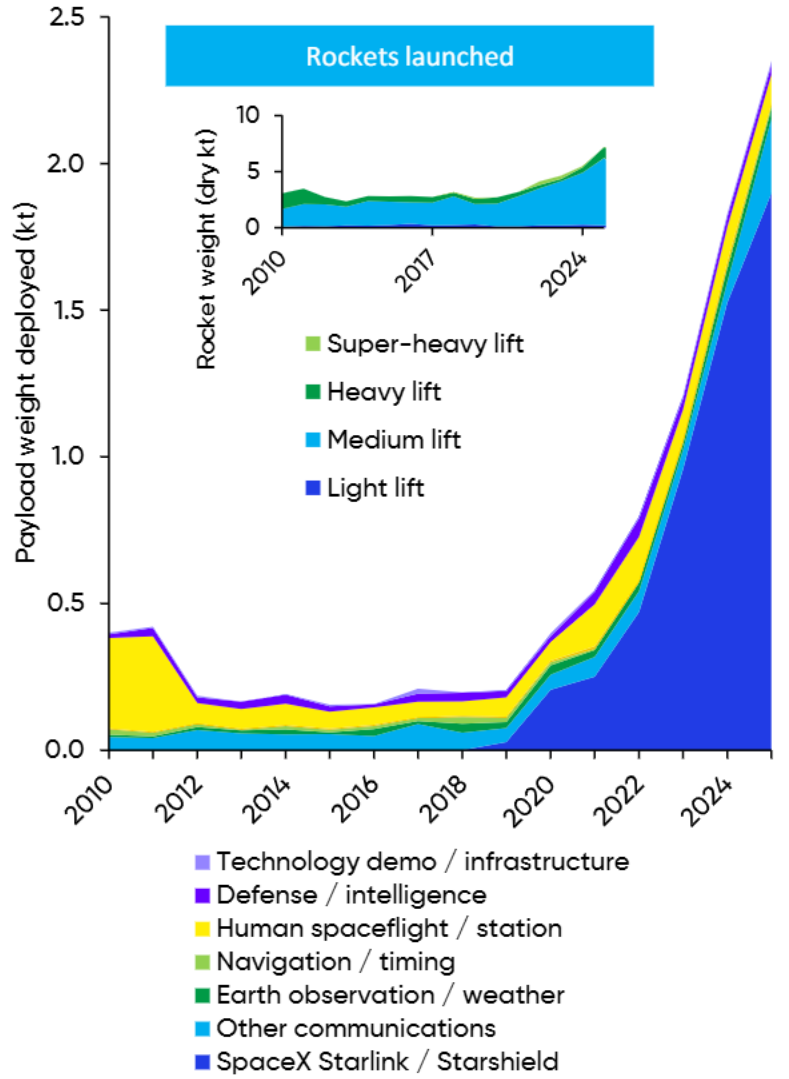
Aircraft & jet engine deliveries



Drone deliveries



Space deployments



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Why lithium-ion batteries matter in aerospace and defence

Lithium-ion batteries enable electrification, autonomy and energy resilience across aerospace and defence applications



eVTOL / ADVANCED AIR MOBILITY



SATELLITES & SPACE SYSTEMS





UAVs / UAS



NAVAL PLATFORMS



SOLDIER POWER & PORTABLE SYSTEMS

SUPPORTING THE SHIFT TO ELECTRIFIED PLATFORMS

POWERING SENSORS, COMMUNICATIONS & MISSION SYSTEMS

SUPERIOR ENERGY DENSITY & WEIGHT ADVANTAGE

STRATEGIC EDGE THROUGH ENERGY RESILIENCE & OPERATIONAL ENDURANCE

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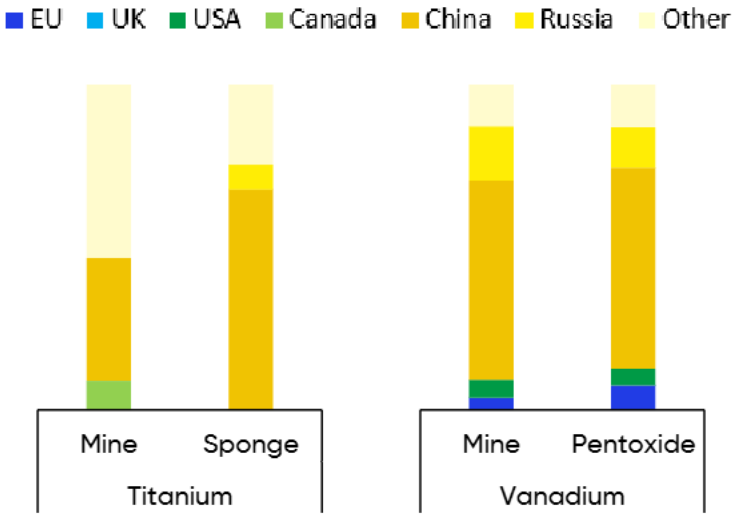
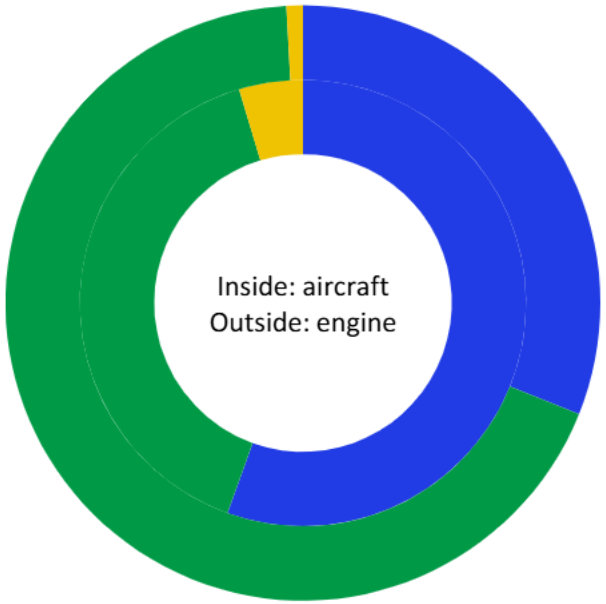
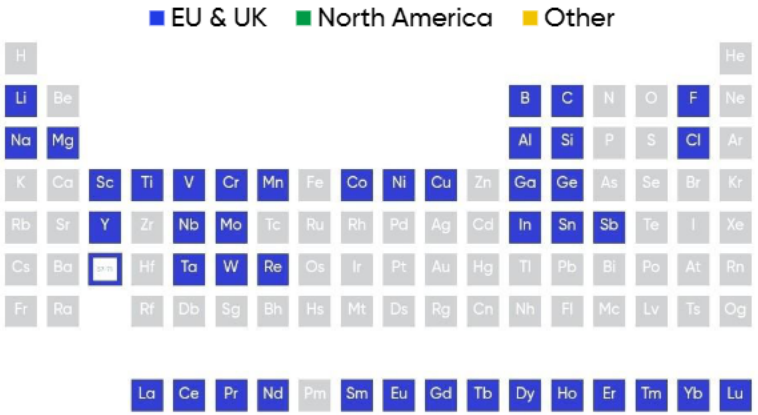
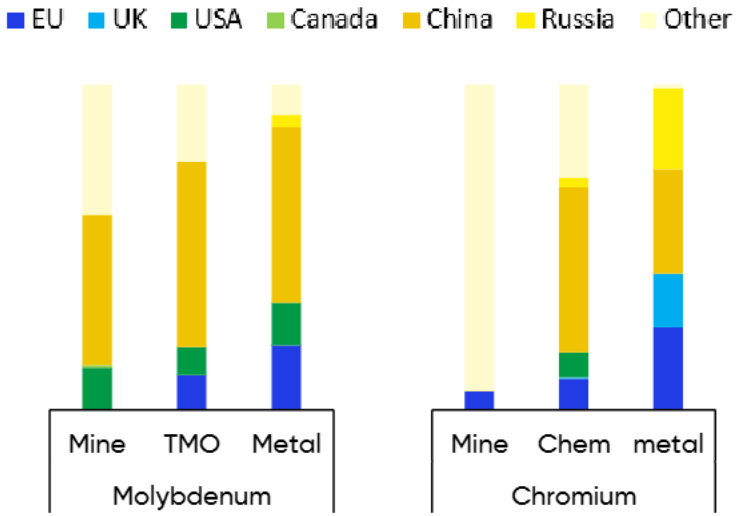
Supply chain analytics for critical materials & US-EU import reliance in 2025

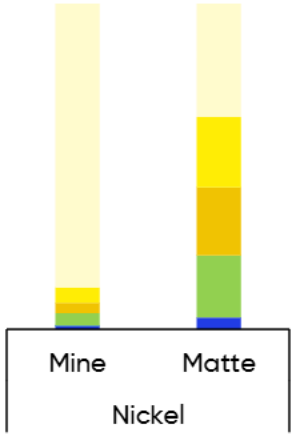


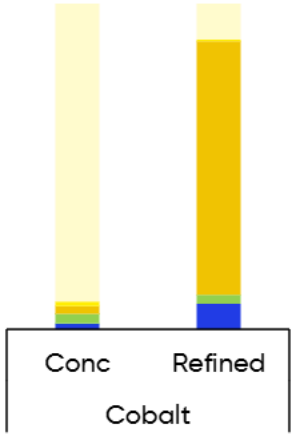
Raw material demand by final assembly lines

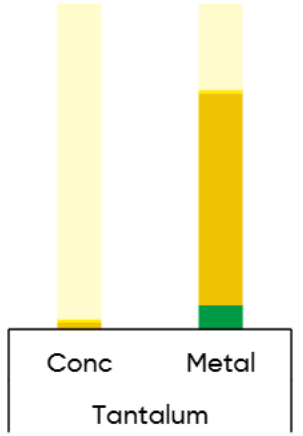


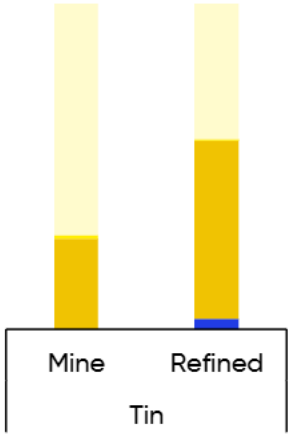












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Data Collection & Validation

Our analysis is underpinned by a comprehensive dataset of aircraft and jet engine production:

- **Primary sources**: Public disclosures from major OEMs including Airbus, Boeing, Rolls-Royce, GE Aerospace, and others
- **Supplementary inputs**: Industry publications, conference insights, and targeted primary research
- **Gap-filling approach**: Where disclosures are incomplete, we triangulate using multiple sources to ensure consistency and robustness

This approach ensures a high-confidence dataset across both commercial and non-commercial aerospace segments.

Programme & Component-Level Modelling

We have developed a bottom-up model covering:
- 100+ jet engine series
- 450+ aircraft models

Coverage of commercial, military, business aviation, helicopters, and UAVs

Each programme is disaggregated into components:
- Structural elements (e.g. fuselage, wings, casings, etc.)
- Functional systems (e.g. propulsion modules, landing gear, etc.)

Every component for each aircraft has assigned alloy compositions:
- Technical literature and OEM disclosures
- Recycling and teardown studies
- Engineering judgement aligned with functional and physicochemical requirements (e.g. temperature resistance, strength, corrosion behaviour)

This creates a detailed component → alloy → element mapping across the full aerospace system.

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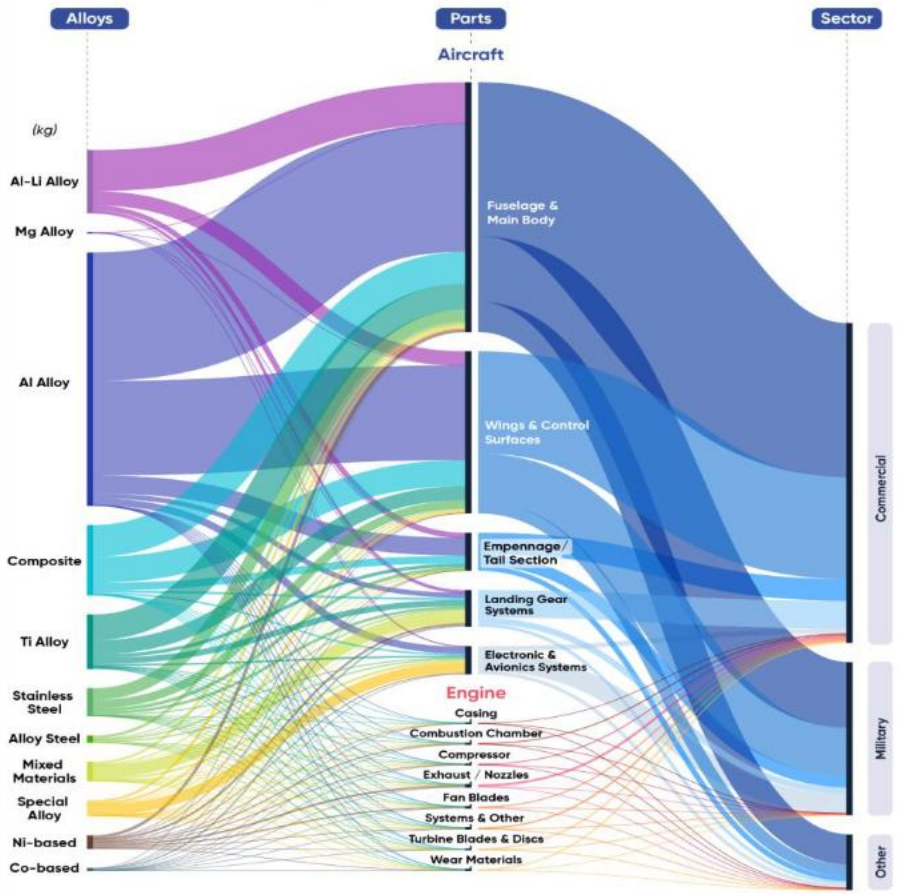
Quantifying Critical Material Flows in the Aerospace Sector



Project Blue's unique aerospace model breaks down the usage of critical materials across the supply chain, from superalloys to aircraft parts and end-use sectors.

Our model can be filtered across more than 450 aircraft programmes and over 100 jet engine programmes within commercial, military and private sectors.

Speak to our team to learn more about Project Blue's dedicated Research Services and consulting expertise, and our Aerospace & Defence 2026 conference in Washington DC in May.



Critical Materials Conference:
AEROSPACE & DEFENCE 2026

Address Willard InterContinental, Washington DC | **Date** 19 – 20 May 2026

Model analysis and impact on raw material demand

Filter over 550 Arcraft & Engines

Comac-C919

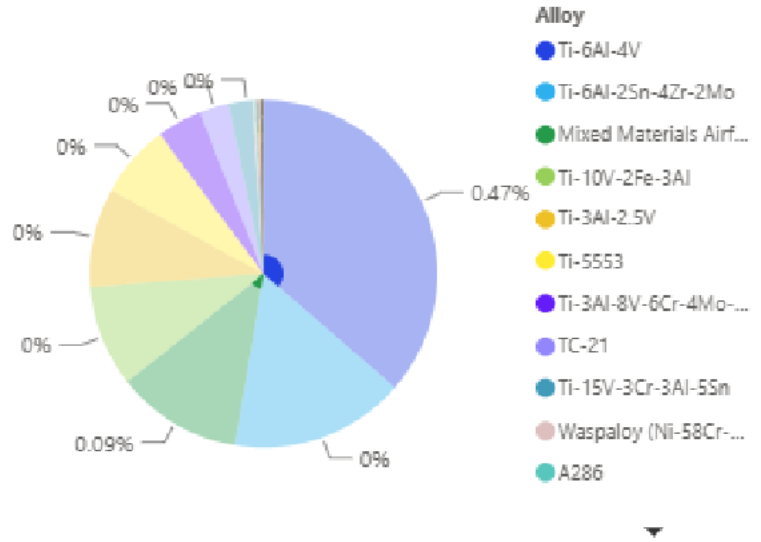
Type	OEM	Sector	Size	Generation
Aircraft	COMAC	Commercial	Narrowbody	4th Gen

› 50 Critical Materials

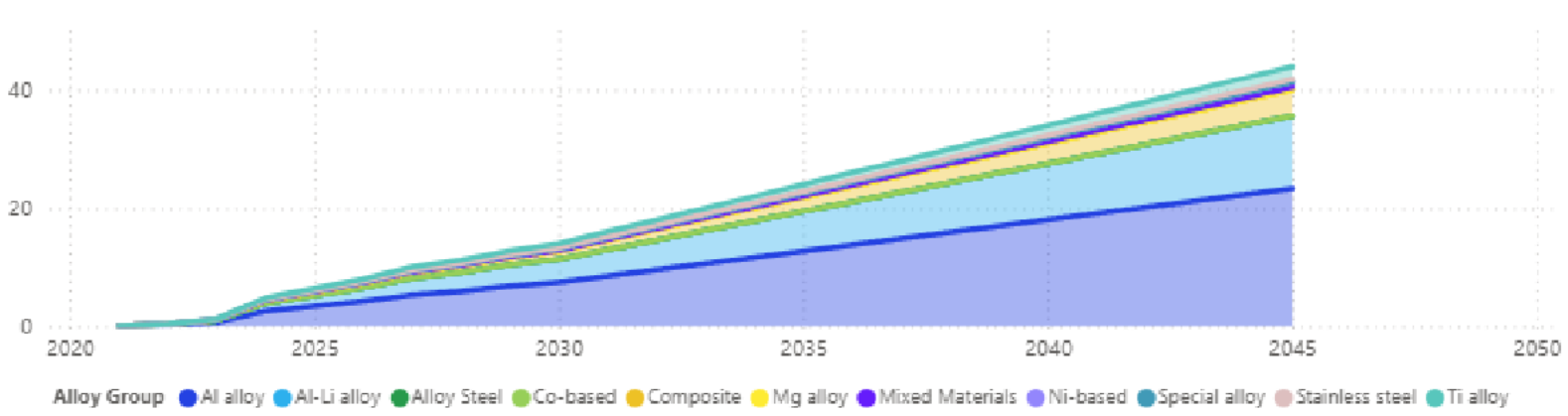
Ti

Component	Component Structural Weight (kg)	Alloy Weight for Selected Element (kg)	Component Element Weight (kg)
Fuselage	16,000.00	7,360.00	975.28
Wings	8,000.00	5,120.00	765.72
Fuselage support structures	3,000.00	1,912.50	584.33
Landing Gear	2,700.00	1,512.00	597.13
Empennage	2,500.00	1,500.00	137.99
Nacelles	2,000.00	1,200.00	276.67
Control Surfaces	1,400.00	766.50	136.15
Pylons	800.00	456.00	214.81
Electrical (wiring) systems	500.00	365.00	53.70
Doors	400.00	204.00	21.46
APU compartment	200.00	157.00	55.52
Sensors and Instrumentation	200.00	56.00	21.83
Total	**37,700.00**	**20,609.00**	**3,840.58**

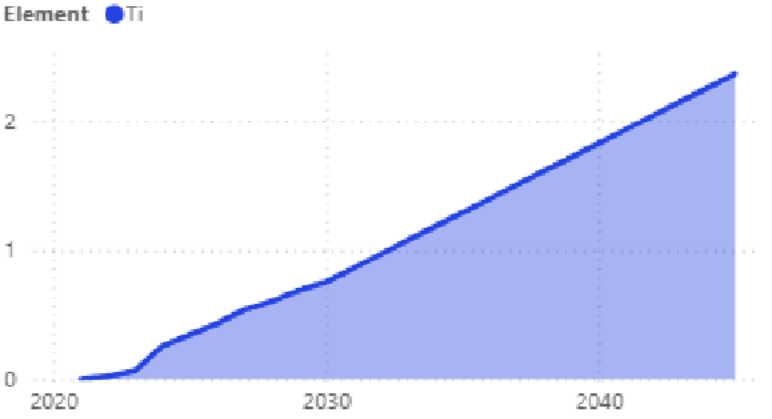
Detailed alloy by component analysis



Delivered Aircraft / Engine Fly Weight (t per year)



Delivered Element Fly Weight (t per year)



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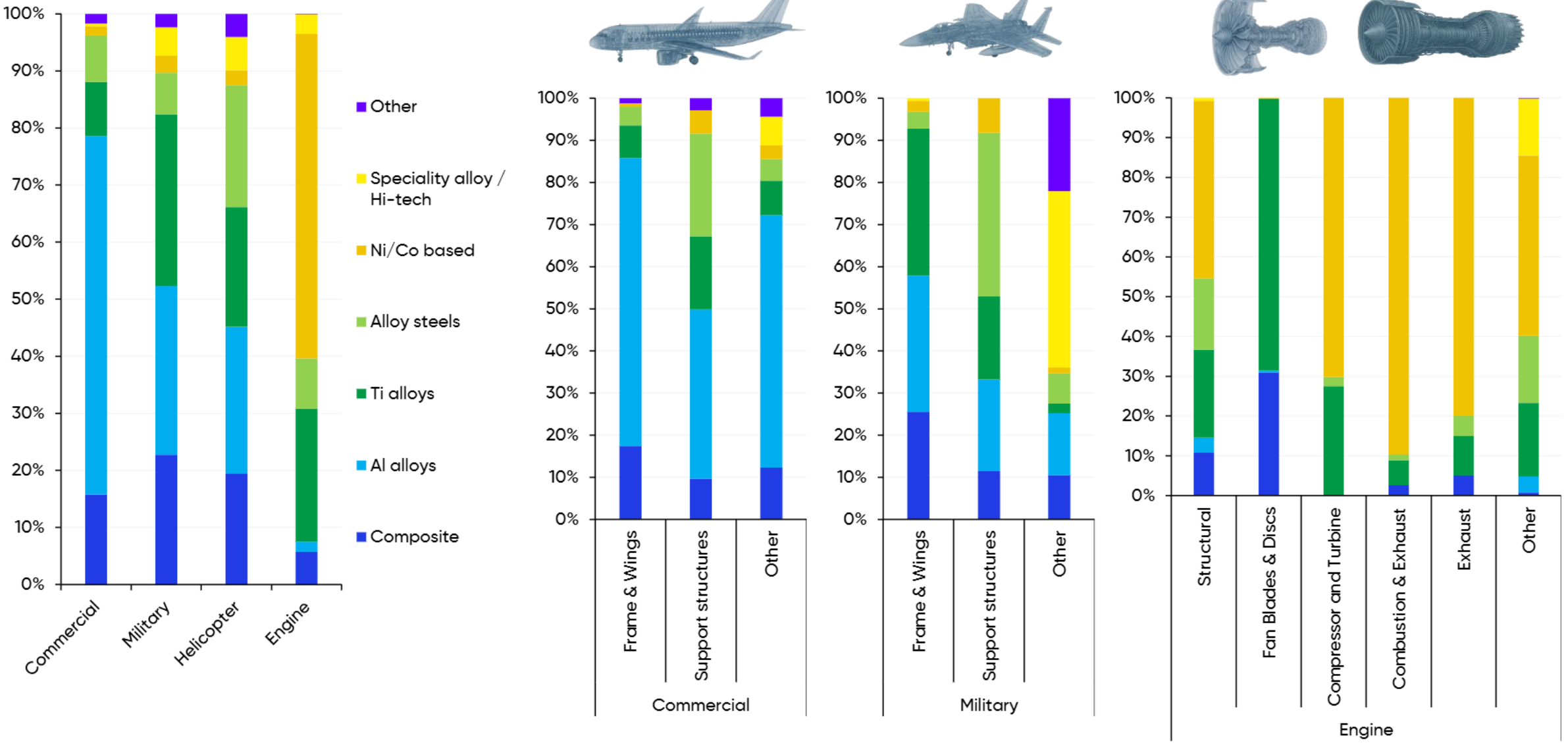
Alloy distribution in aircraft and jet engines



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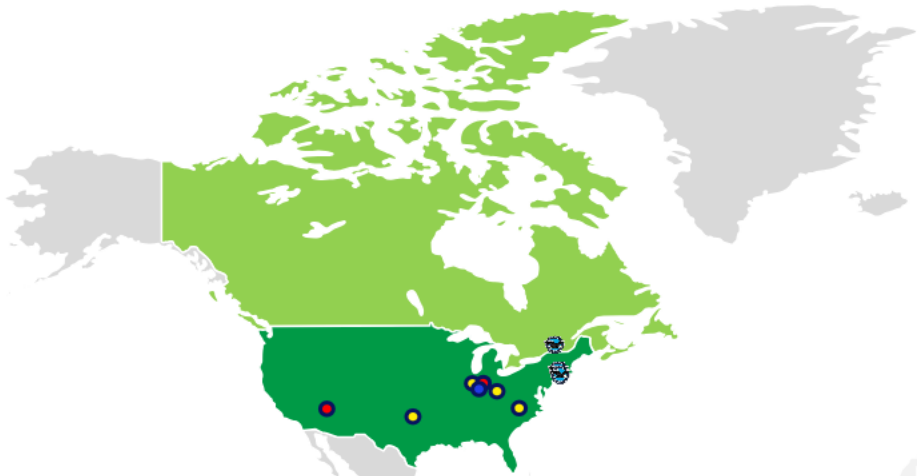
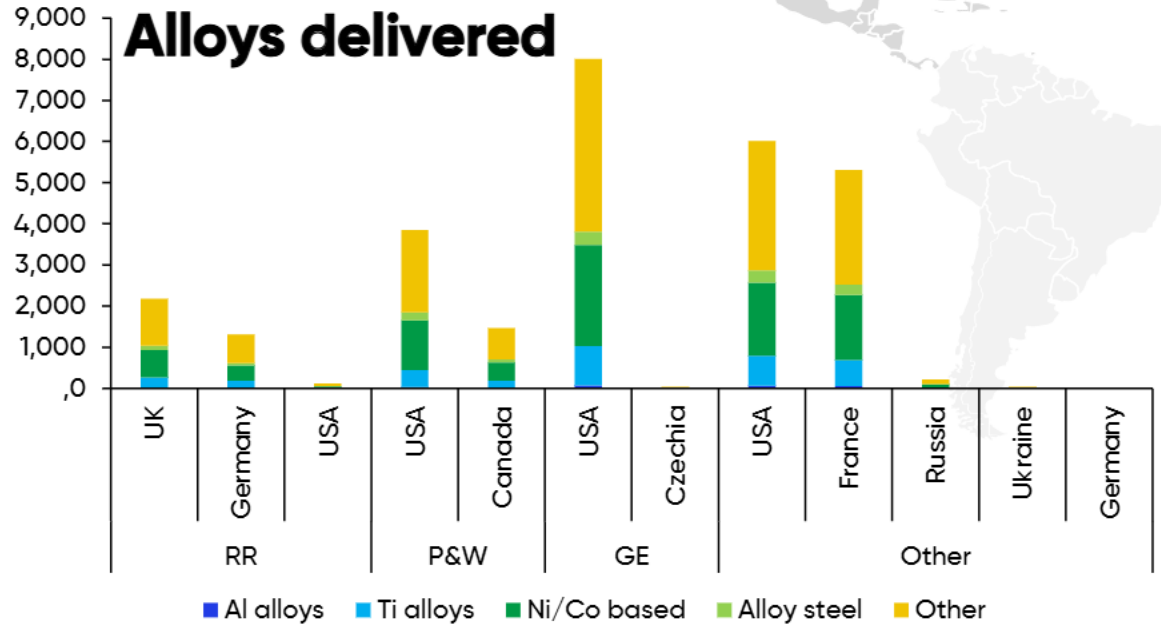
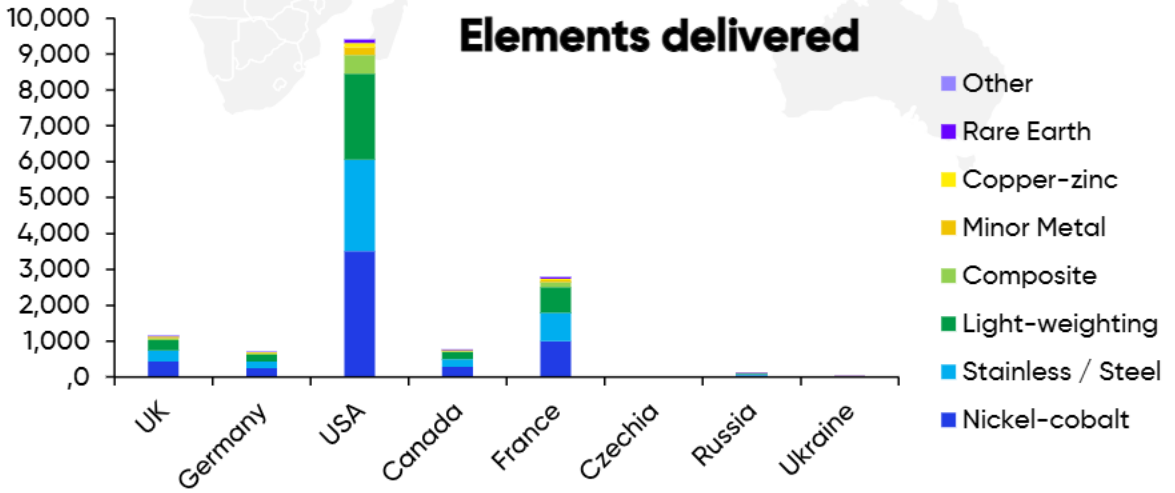
Jet engine materials delivered at FALs in 2025

Rolls-Royce
GE Aviation
Pratt & Whitney
An RTX Business
Honeywell
Aerospace
SAFRAN









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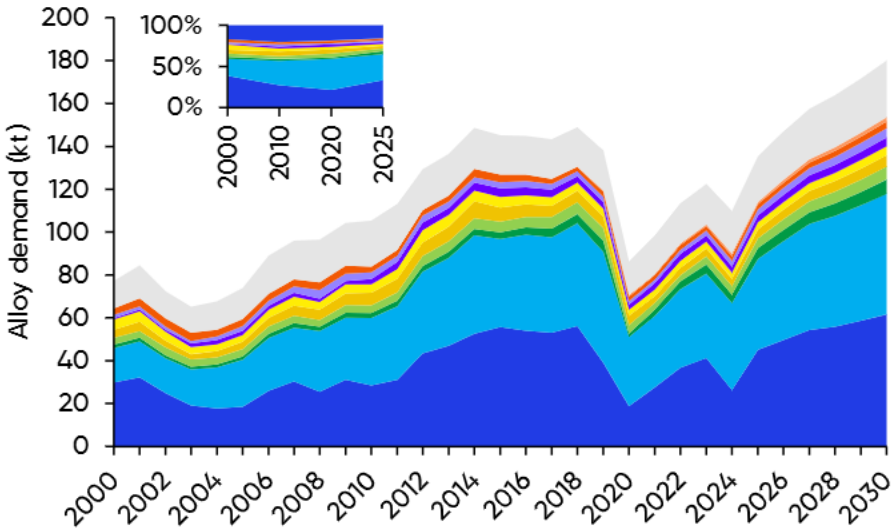
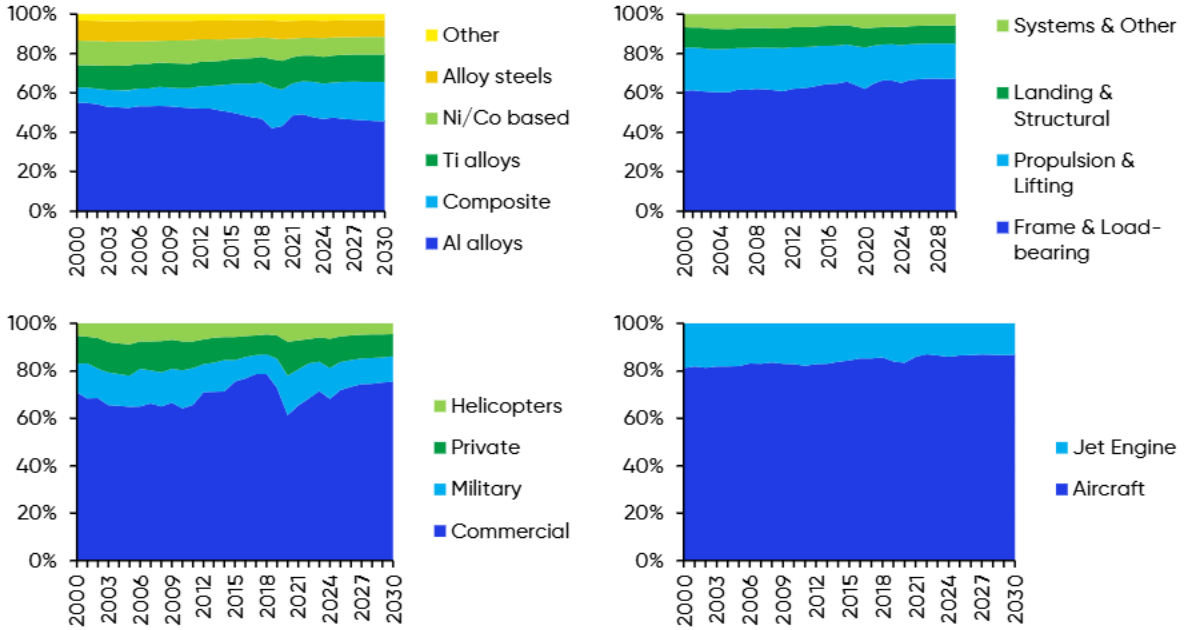
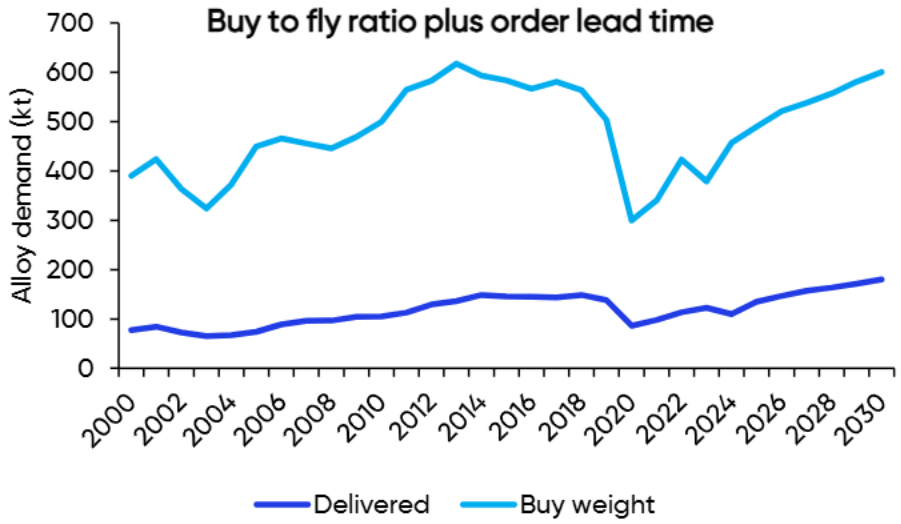
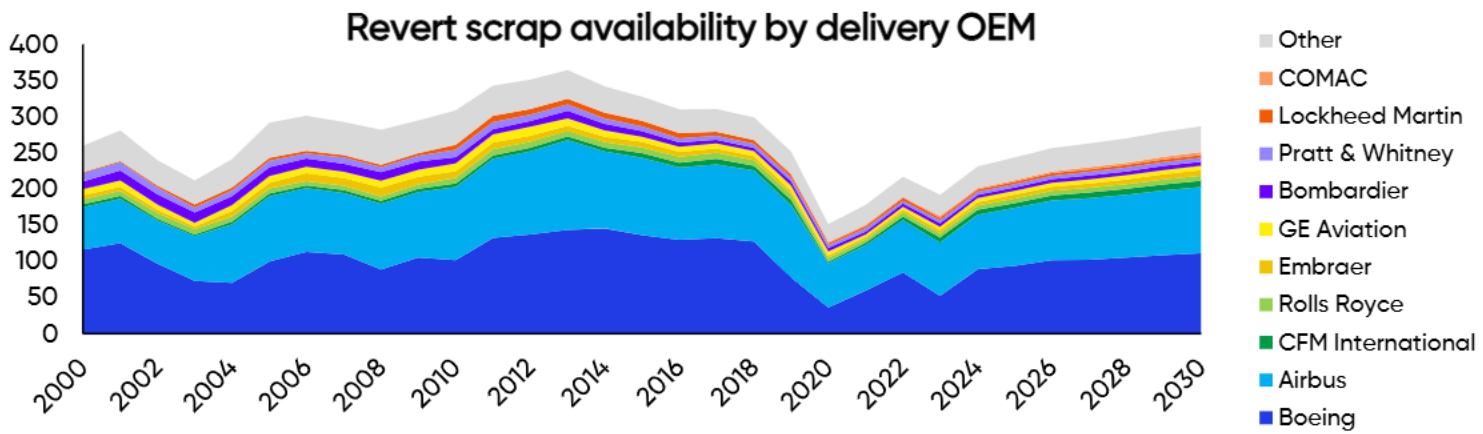
Overview and outlook of alloys delivered between 2000 and 2030











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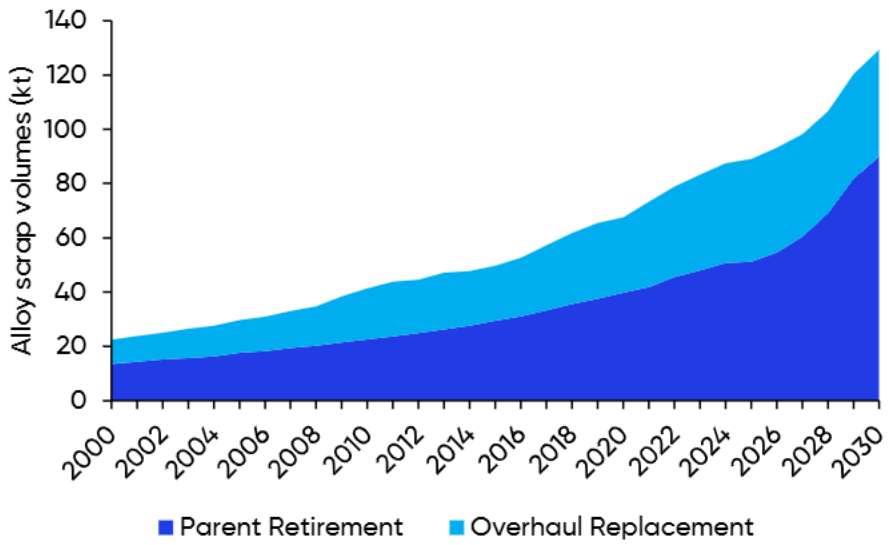
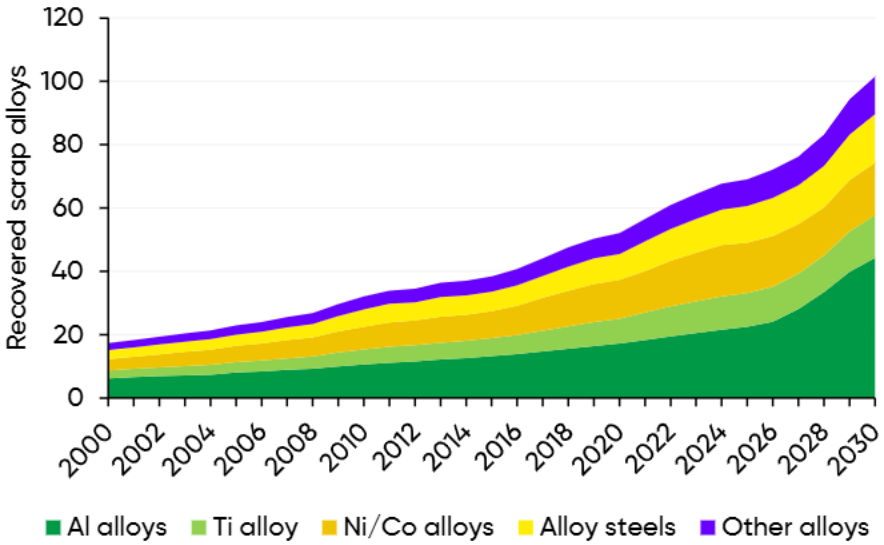
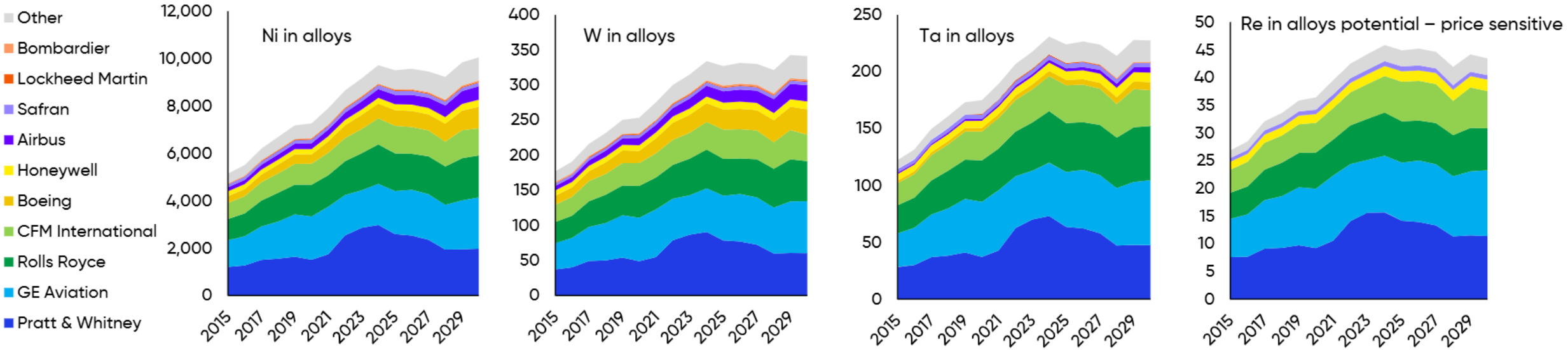
End-of life parts: availability and recovery analysis







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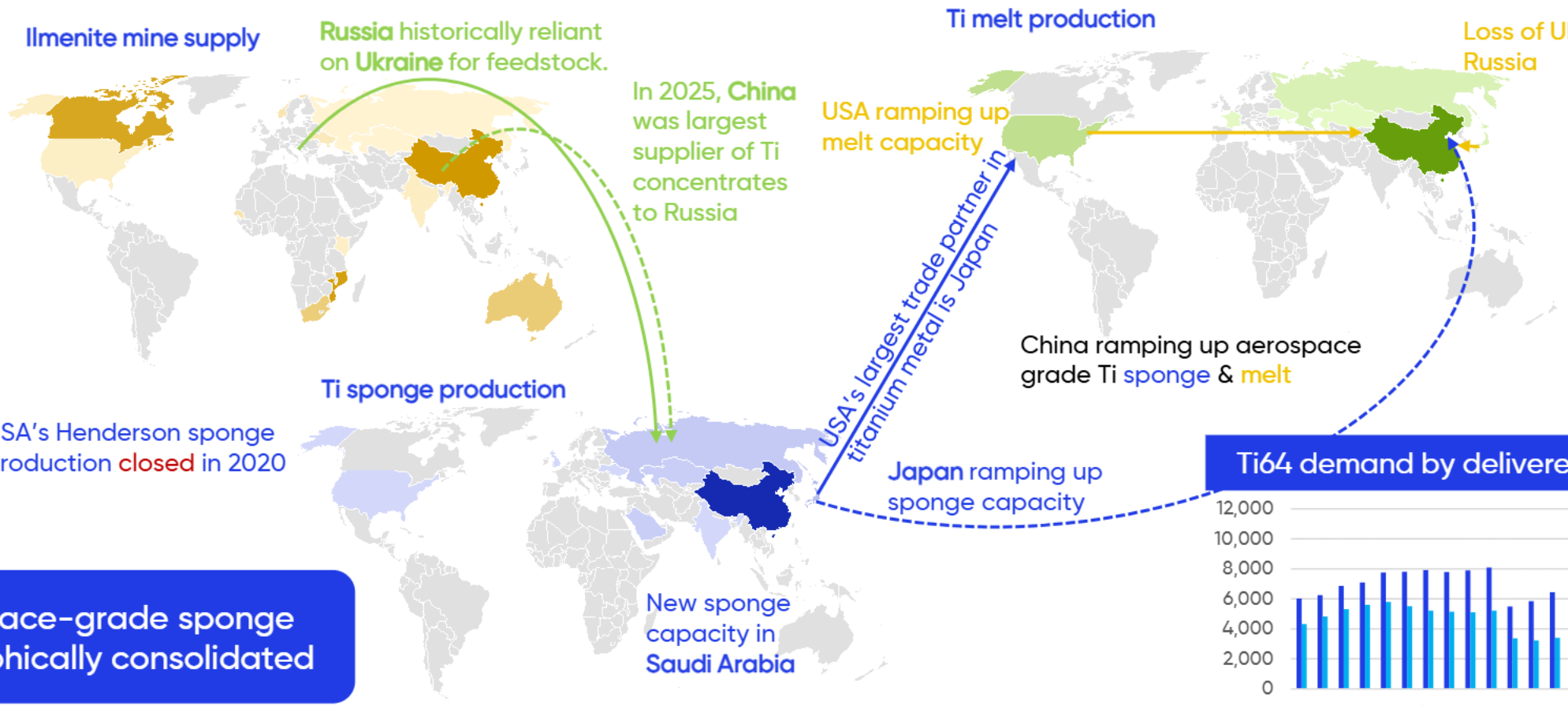
Titanium metal supply chain underpinned by global trade relationships

Titanium feedstocks must be high-grade & chlorinate-able (rutile & Ti slag)

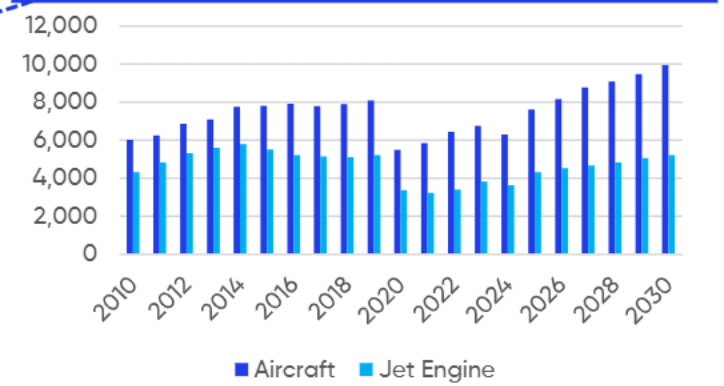
Western aerospace market has moved away from Russian Ti since 2022

EU's titanium metal imports now relying on USA, Kazakhstan & Japan



Aerospace-grade sponge geographically consolidated

Ti64 demand by delivered aircraft (t)



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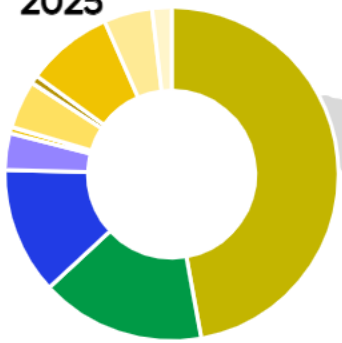
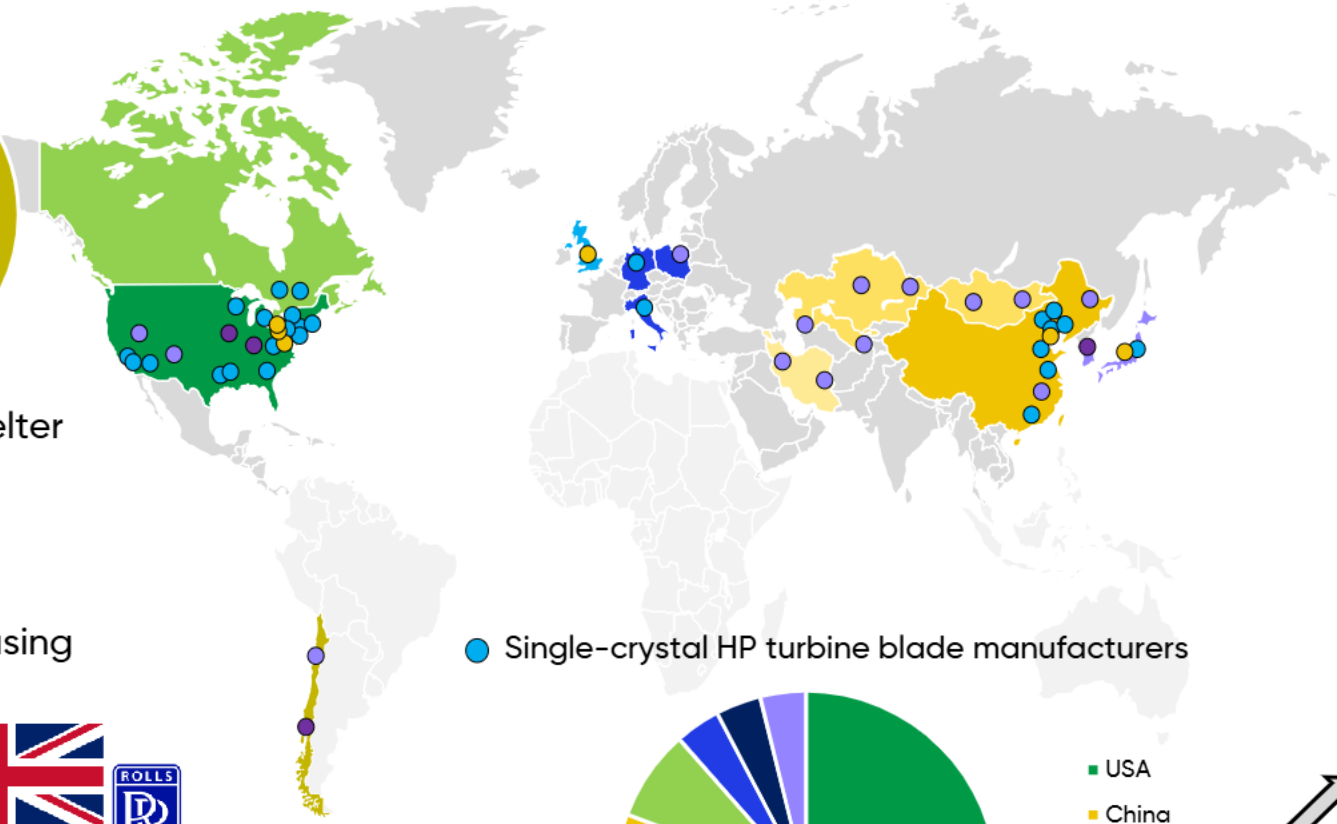
Single crystal turbine blade: rhenium case study

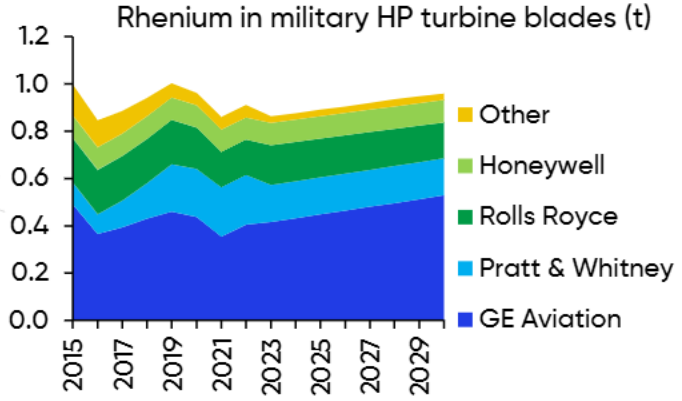
Re supply – 2025

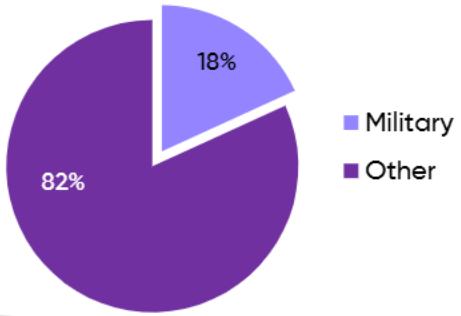


- Chile
- USA
- Poland
- South Korea
- Armenia
- Uzbekistan
- Kazakhstan
- China
- Iran



Rhenium in military HP turbine blades (t)

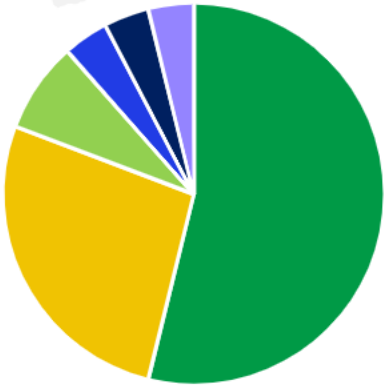




2025 – Re use in HP turbine blades

Superalloy manufacturers using Re

Single-crystal HP turbine blade manufacturers



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Understanding indirect risks: links between supply chains

Copper - 2015



Americas
Central Africa
Other

Molybdenum - 2015



2025



Primary Mo
By-product Mo

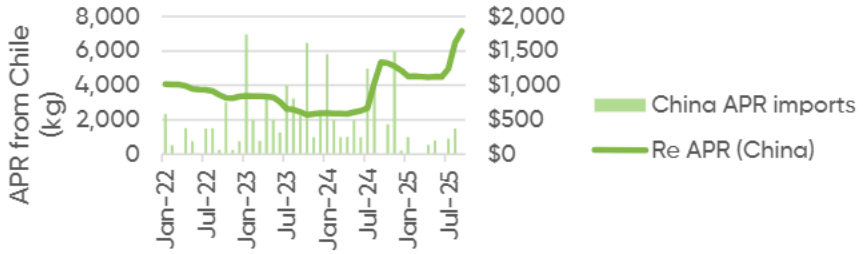
Rhenium



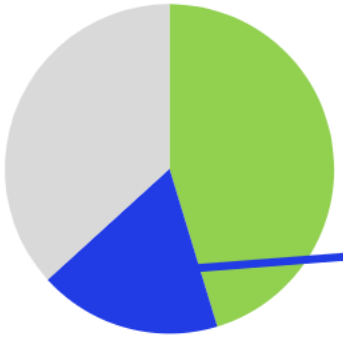
Americas
Other

High performance turbine blades





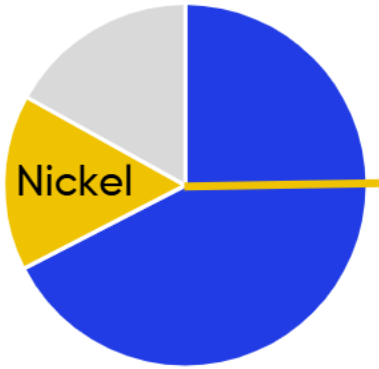
2025



Cobalt - 2015



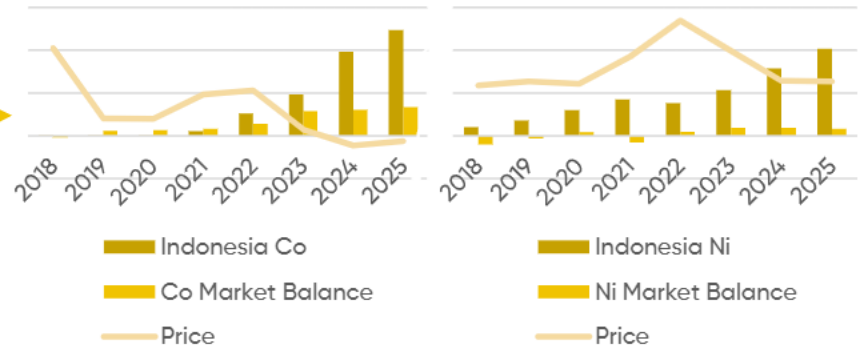
2025



Central Africa (Cu)
Indonesia (Ni)
Other

Indonesia's impact on Ni & Co

- Off the back of stainless steel , Li-ion batteries & policy -



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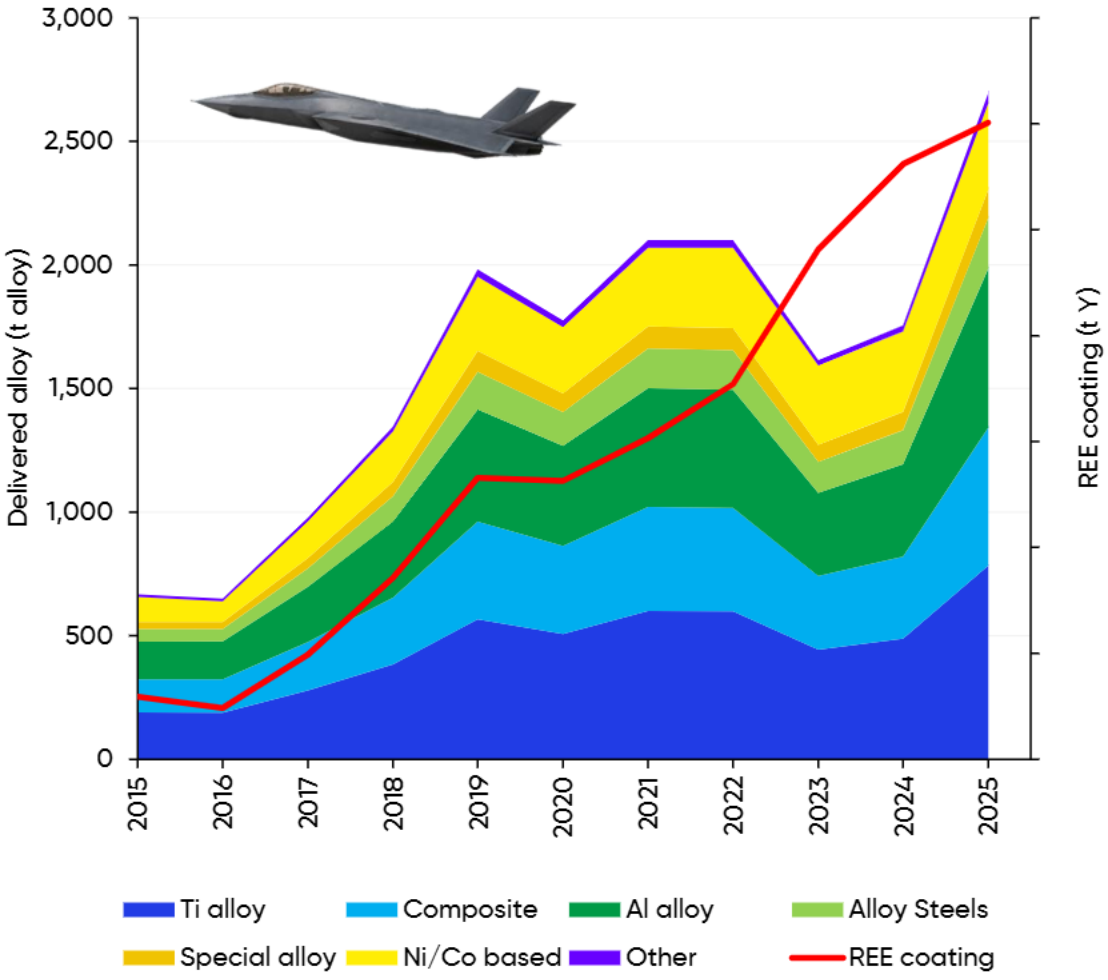
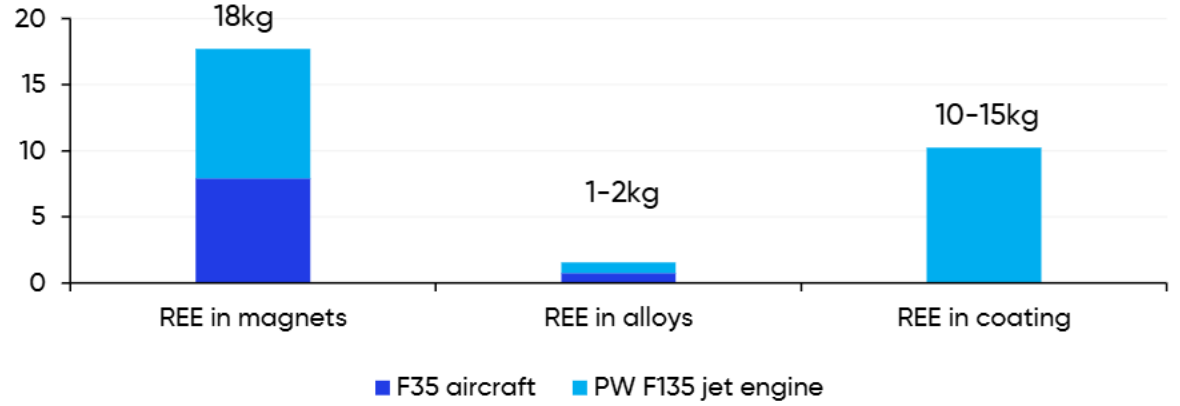
Case study: F35 & rare earth coatings

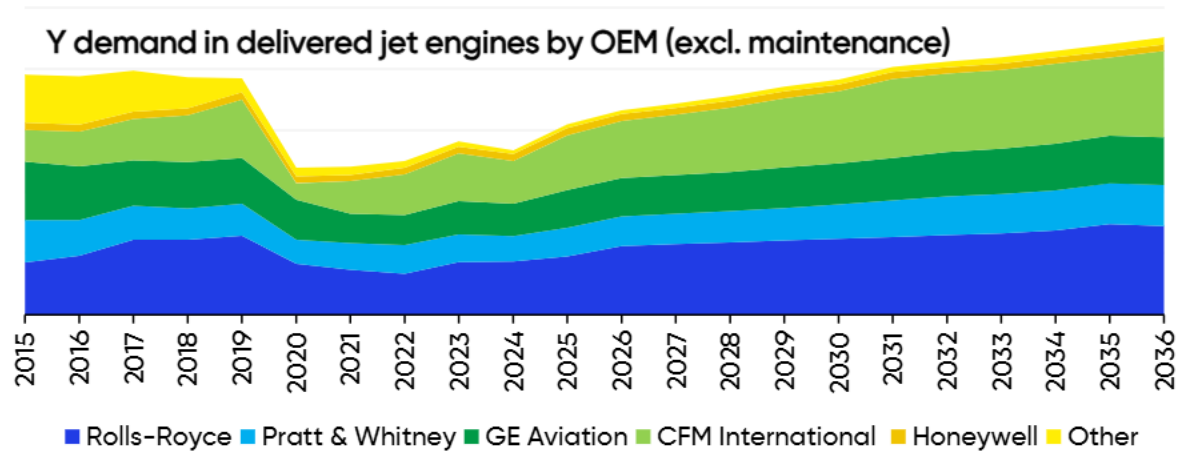
F35 & PW F135 alloy and rare earth coating



Rare earth in permanent magnet demand in F35 & PW F135



Yttria stabilised zirconia coating demand



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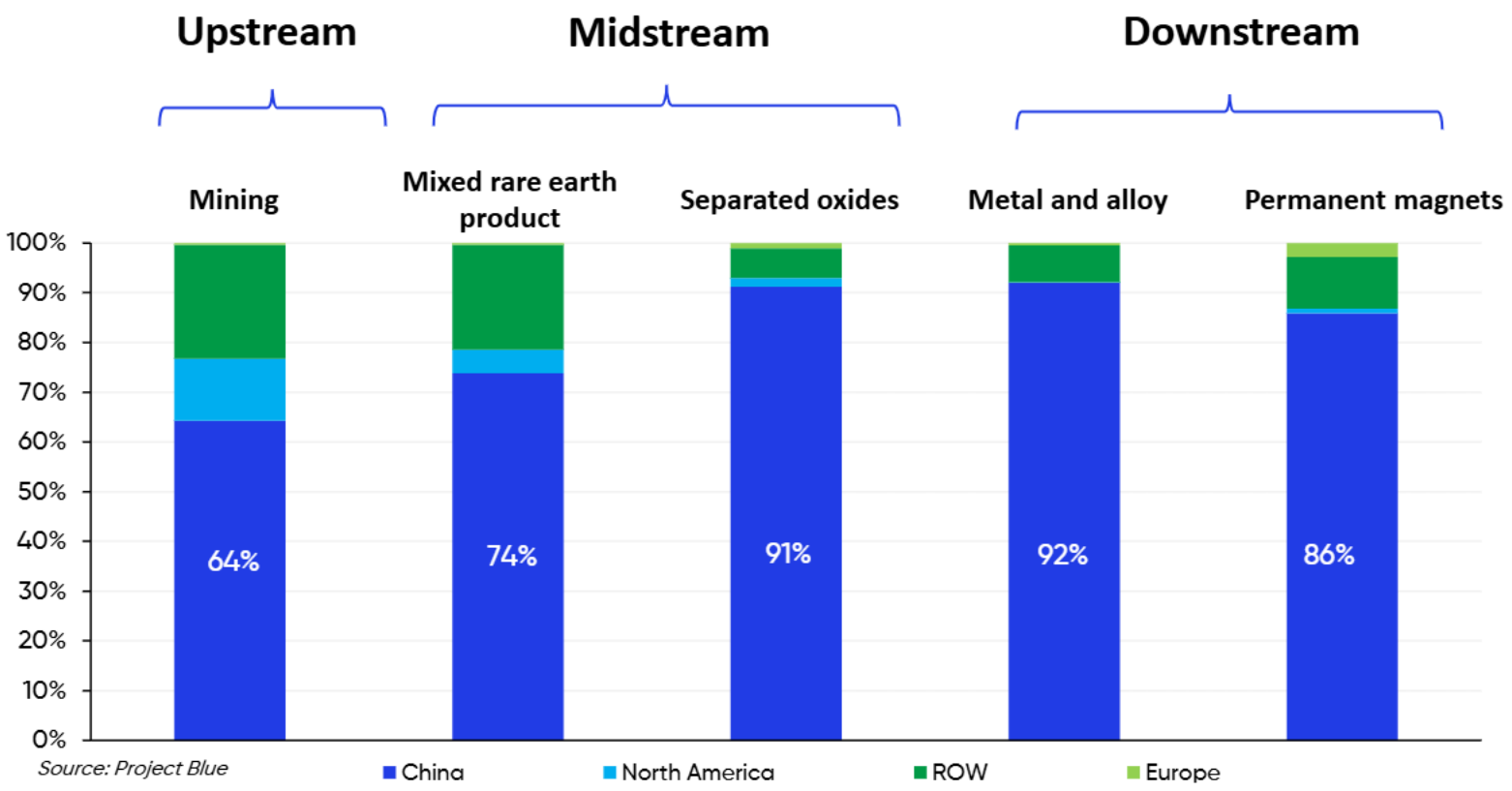
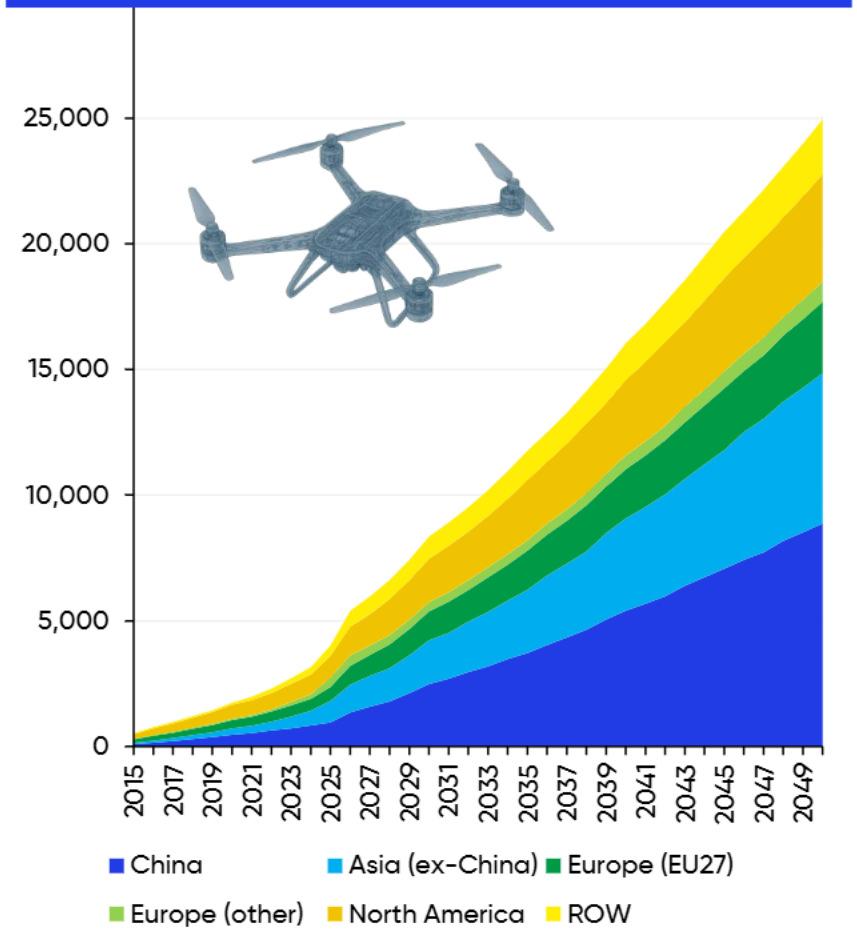
Case study: Overview on rare earth permanent magnets

Regional market share across the rare earth supply chain, 2025



Source: Project Blue

Regional demand of NdFeB magnets in drones



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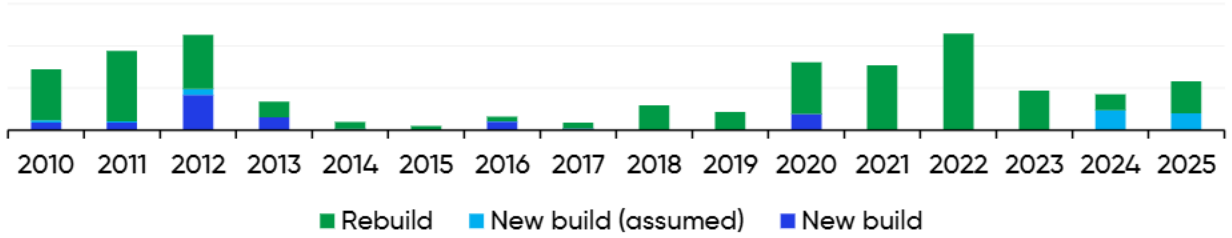
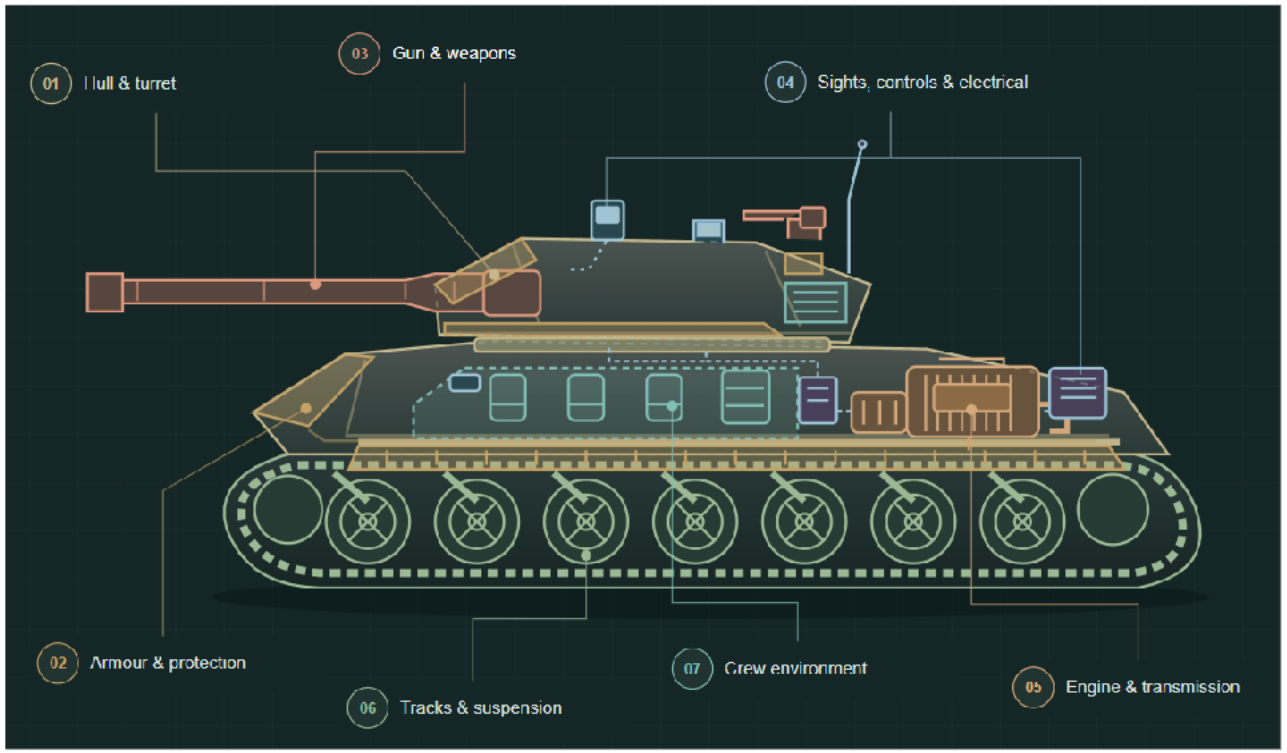
Inside the Abrams tank

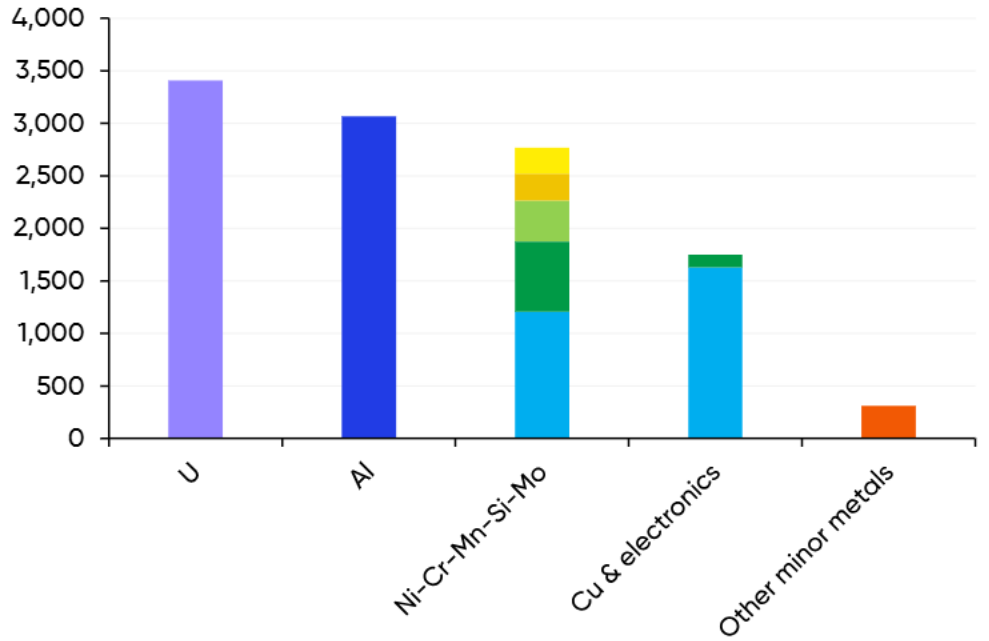
Abrams tank deliveries converted to weight





- The US Abrams tank program has consumed 70kt of raw materials since 2010.
- Rebuilds and new builds of the European Leopard 2 required less than 15kt.
- Iron accounts for over two-thirds of commodity demand, underpinned by the use of speciality steels.

Abrams tank critical material demand since 2010 (t)



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Market intelligence on critical material supply chains

Speak to our team to learn more.

Our analysts would be pleased to discuss your market interests and share more detail for our coverage.

To speak to our experts and to see more detail, please get in touch:

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