

EU resilience in critical raw materials

Cross-strategic reading through the 6C Model

STRATEGIC THESIS

Do not build a smaller European copy of China's integrated system. Reduce how decisive that system is by turning European demand, rules, finance, alliances and qualification into a distributed architecture of resilience.

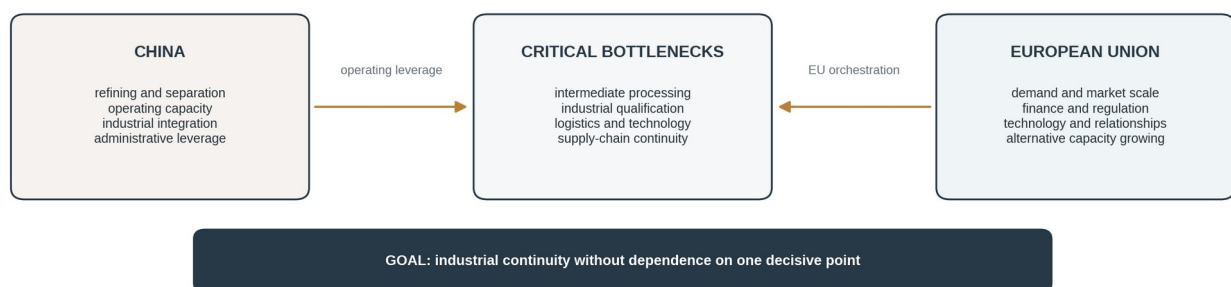
The strategic situation

Critical raw materials are now a question of industrial continuity, not only of procurement. Energy technologies, electronics, automotive manufacturing, aerospace and defence depend on value chains in which the decisive step is often not extraction but refining, separation and intermediate processing. The International Energy Agency describes China as the leading refiner for 19 of the 20 strategic minerals it analyses: competitive advantage is therefore concentrated above all in the stages that turn geological resources into material that industry can actually use.

This concentration creates a specific asymmetry. China can influence access conditions through operating capacity, industrial integration and administrative instruments; export controls introduced since 2025 have shown how industrial dependence can quickly become an economic-security issue. Yet the EU-China relationship is not a simple confrontation: trade remains important, dialogue continues, and part of Chinese supply remains economically useful.

The European Union has a different set of strengths: a large market, substantial industrial demand, financial capacity, regulatory tools, diplomatic networks and an explicit policy framework for reducing excessive dependencies. The Critical Raw Materials Act sets 2030 objectives for extraction, processing, recycling and diversification. The problem is the time required to convert these instruments into physical capacity: new plants, permits, purchase agreements, industrial qualification, recycling and reserves take years.

The decisive gap is therefore between an institutional architecture that already exists and alternative capacity that can actually be used. The strategic question is not how to "exit China", nor how to replicate its entire industrial architecture in Europe. It is how to reduce the possibility that a single processing point, administrative decision or supply route can interrupt essential European activity, without imposing costs that weaken the competitiveness the strategy is meant to protect.



The strategic tension: concentrated operating capacity versus Europe's ability to orchestrate alternatives and continuity.

The 6C simulation compares this context with the 60 strategic motors of the 6C Model. The following reading focuses on the convergences across the full set, not only the highest-ranked options.

1. What emerges from the simulation

The most important signal is not a single strategy but the consistency across different directions. The leading options do not describe a Europe trying to overpower China on the same industrial terrain. They point instead to consolidation, rule-shaping, selective use of time and the construction of a network of alliances.

In first place is **consolidate results and stabilise the context**: every gain should become durable capacity before the front is widened.

The second direction favours **redefine the rules of the game**: Europe's most credible advantage lies in making alternative supply reliable, financeable and qualifiable.

The third favours **selective patience**: do not react to every signal; distinguish bottlenecks that require immediate action from those where preserving options is more valuable.

The fourth favours **information discipline**: state the strategic direction clearly without making the entire contingency architecture public.

The fifth favours **targeted alliances**: avoid symbolic coalitions; favour partners that add processing, technology, recycling, logistics or reserve capacity.

At the weak end of the simulation, recurring themes are preventive radical renewal, the proliferation of micro-experiments, the use of time as the primary lever, the pursuit of small opportunistic gains, and the construction of barriers before robust alternatives exist. Preventive barriers are particularly revealing: an intuitive response to strategic dependence, yet they fall to 56th place. The contrast is clear: the model favours cumulative, verifiable transformation over a sequence of fast but dispersed moves.

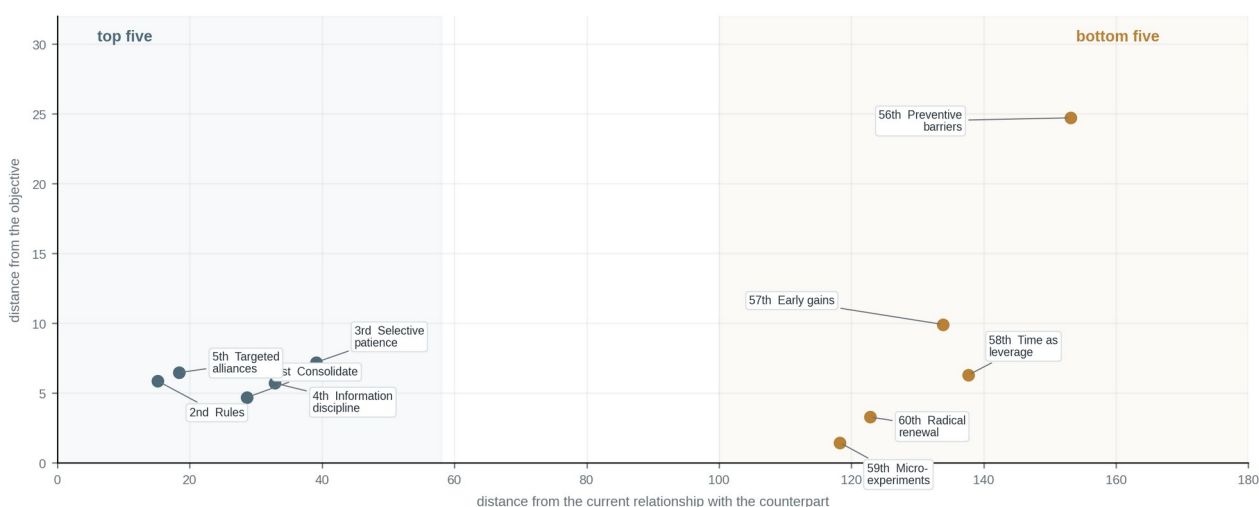


Figure 1. The top five options are much closer to the existing EU-China relationship; the bottom five require a relationship with the counterpart that is far more distant from what is currently available.

SYNTHETIC READING

The dominant direction is to build system capacity: less generalised industrial replication, more conversion of European instruments into verifiable physical continuity.

2. What the European Union should do - and what it should avoid

DO	AVOID
Organise resilience by bottleneck stage. The true strategic unit is not the name of the mineral but the stage whose interruption would stop a critical European value chain.	Do not make fully European production the centre of the strategy. Domestic physical capacity matters, but large-scale replication of the dominant system would require too much time and capital to serve as the primary response.
Use demand, finance and qualification as the engine. Alternative capacity becomes strategic when it is backed by predictable demand, credible contracts, capital and access to industrial qualification.	Do not confuse more countries with more resilience. Geographically different suppliers may still depend on the same plant, technology, equipment, logistics corridor or qualification process.
Build narrow coalitions around verified capabilities. An operational ally is valuable for what it adds to a concrete route: processing, technology, recycling, logistics, reserve capacity or raw-material access.	Do not disperse attention across many small experiments. Experimentation can be useful, but it does not replace the removal of bottlenecks that can genuinely interrupt production.
Consolidate every result before expanding. Fewer routes that are genuinely operational and replenishable are worth more than a large portfolio of announcements or projects not yet usable.	Do not start with barriers and closure. Excluding supply before robust alternatives exist can raise costs and reduce options while dependency is still high.
Preserve managed interdependence. China can remain important as long as it no longer retains the unilateral ability to determine continuity for priority European uses.	Do not let urgency become simultaneity. When time is scarce, trying to accelerate everything at once can drain resources from the points where delay would be genuinely irreversible.

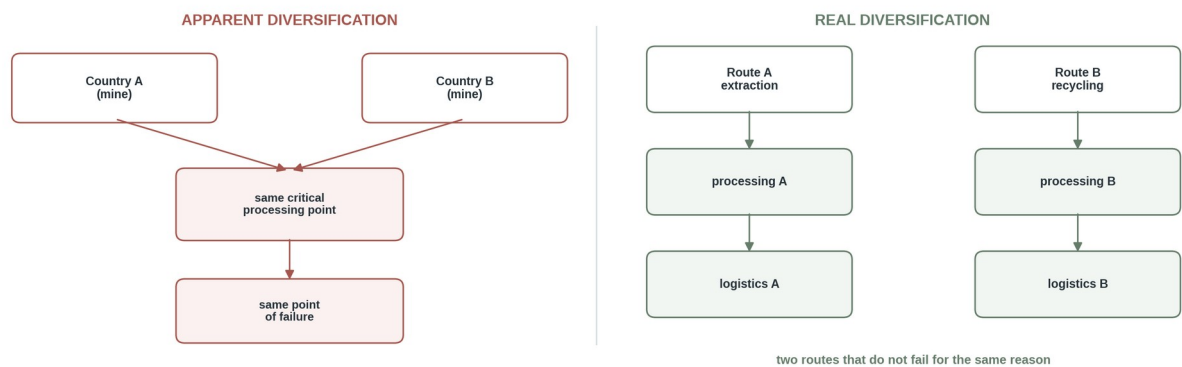


Figure 2. Two suppliers do not provide real diversification if they converge on the same processing point or critical technology.

STRATEGIC FILTER

A measure contributes to core resilience if it materially reduces the ability of one failure, one administrative decision or one route to interrupt a priority European value chain.

3. Strategic insights

The following observations are not paraphrases of a single strategic motor. They are second-level interpolations that become visible when the preferred directions, the rejected directions and the structure of the context are read together.

A. The scarce resource is credible conversion Projects, finance and agreements already exist. What remains scarce is confidence that an undertaking will become qualified material at the required cost, time and scale. The question shifts from "how many projects exist?" to "how many dependencies can actually be overcome?"	B. Diversify failure modes, not flags Geography alone is not enough. Two routes in different countries may rely on the same plant, technology or logistics system. Resilience rises when alternatives cannot be neutralised by the same event.
C. Scarce time requires deliberately slowing part of the portfolio When time is limited, simultaneity becomes dispersion. The stronger response is to accelerate only where delay would close essential options and preserve flexibility elsewhere. The paradox is that less available time requires more selectivity, not more generalised haste.	D. European regulatory power is more valuable as a guarantee than as a barrier Regulation is strategically strong when it lowers the risk of building alternative capacity: common standards, predictable qualification, credible purchasing and investment conditions. A barrier without an available alternative can increase vulnerability rather than reduce it.
E. Lower vulnerability can create more room to trade with China If Chinese supply remains useful but is no longer decisive, trade can continue without turning each tension into an existential threat to European industry. Resilience does not necessarily mean less trade; it can make interdependence more sustainable precisely because veto power is reduced.	

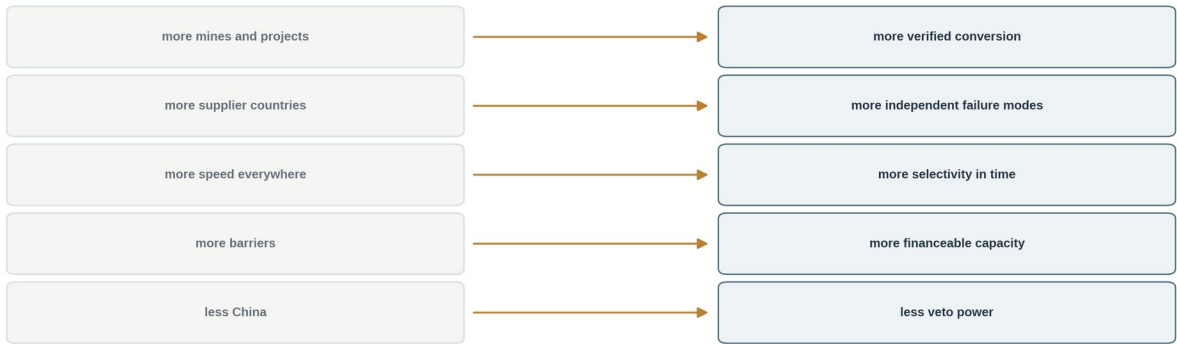
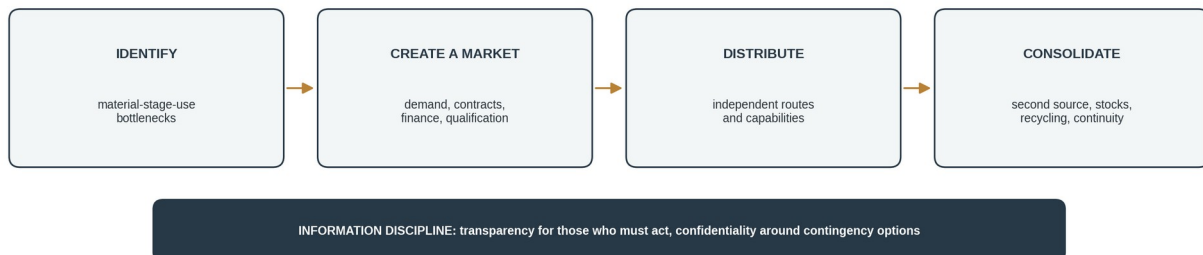


Figure 3. Five shifts in perspective that turn the direct reading into a less obvious strategic thesis.

4. The integrated strategic choice

STRATEGIC OBJECTIVE

Move from asymmetric dependence to an interdependence in which China can remain commercially important, but no single point under its control can impose an unacceptable interruption on a priority European value chain.



Architecture of the choice: advantage does not come from one measure, but from the sequence through which alternatives become verifiable capabilities.

The choice is structured as four logically connected steps.

- **Identify the decisive bottlenecks.** Focus on combinations of material, processing stage and industrial use where both concentration and the consequence of interruption are high.
- **Create a European market for resilience.** Use aggregated demand, credible purchase commitments, risk-sharing, common rules and qualification to make genuinely useful alternatives financeable.
- **Assemble distributed, specific coalitions.** Connect participants that contribute different and complementary capabilities, avoiding a new architecture that once again rests on one dominant point.
- **Consolidate before expanding.** An advance becomes strategic when it passes through announcement → finance → permitting → commissioning → qualification → delivery → second source or replenishment.

Information discipline, not deception.

The simulation ranks controlled under-signalling relatively high. In the European context, its useful interpretation should remain narrow: full transparency toward institutions, companies and allied actors who need to act; confidentiality around contingency options, internal readiness thresholds and the sequence of countermeasures. If confidentiality reduces trust or conceals a real weakness, it loses strategic value.

What success would mean in 2030

Not self-sufficiency. Success means that the most critical European uses have multiple qualified routes, alternative capacity is supported by credible demand, stocks and recycling bridge development lead times, and China remains a relevant supplier without retaining a practical veto over industrial continuity.

5. Why this reading is coherent

The simulation does not reward a single recipe. It rewards a family of logics that converge on the same reframing of the problem: moving from nominal autonomy to effective continuity capabilities.

Directions at the top	Consolidate verified progress; define rules that make alternatives usable; use time selectively; build targeted alliances; combine different instruments; stabilise the institutional architecture.
Directions rejected	Preventive radical renewal; multiplication of small experiments; time management as the main lever; pursuit of marginal gains; preventive barriers; large-scale construction that does not solve the conversion bottleneck.
Common tension	The stronger directions use resources the EU already possesses or can coordinate; the weaker ones require speed, operating control or breadth of capacity that currently belong more to the counterpart.
Consequence	The most credible European strategy is not to win on the existing scale, but to change how necessary that scale is to the continuity of European value chains.

Methodological boundary

The 6C Model compares the context with its 60 strategic motors and observes compatibility, tensions and convergences. This synthesis does not establish causality, does not replace economic and technical verification, and is not yet an operational plan. The more original strategic insights are hypotheses consistent with the full pattern of results; they must be tested against specific materials, value chains and cases before becoming executable choices.

Main sources

- International Energy Agency, Global Critical Minerals Outlook 2026.
- European Commission, RESourceEU Action Plan and Critical Raw Materials Act framework.
- European Court of Auditors, Special Report 04/2026 on critical raw materials.
- Eurostat, 2025 data on EU trade in rare-earth elements.
- Ministry of Commerce of the People's Republic of China and General Administration of Customs, official communications on export controls and licensing; EU-China dialogue, 2025-2026.

FINAL FORMULATION

Do not turn Europe into a smaller copy of the dominant system. Build a form of interdependence in which the dominant system matters less.