

# Europe's Bottleneck

## When Strategic Industries Compete for the Same Capacity

Public-Interest Strategic Briefing (PIB) 002

**Star-Insight™**  
CLARITY IN THE COMPLEXITY

# EUROPE'S BOTTLENECK

**WHEN STRATEGIC INDUSTRIES COMPETE FOR THE SAME CAPACITY**

Energy, industrial capability, regulation and strategic dependencies are converging – and the constraints in one sector ripple across all others.

|                                                                                                                                         |                                                                                                                                                        |                                                                                                                                             |                                                                                                                                                          |                                                                                                                                                               |                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>ENERGY</b><br>LIMITED SUPPLY<br>HIGH COMPETITION |  <b>INDUSTRIAL CAPABILITY</b><br>FRAGMENTED BASE<br>RISING PRESSURE |  <b>REGULATION</b><br>COMPLIANCE LOAD<br>SLOW ADAPTATION |  <b>STRATEGIC DEPENDENCIES</b><br>EXTERNAL RELIANCE<br>INCREASED RISK |  <b>INFRASTRUCTURE CONSTRAINTS</b><br>SHARED CAPACITY<br>SYSTEMIC IMPACT |  <b>DECISION CLARITY</b><br>PRIORITISE<br>CO-ORDINATE<br>DELIVER |
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# EXECUTIVE SUMMARY

**BUILDING A STRONGER, MORE RESILIENT NATIONAL ECONOMY**

Insight. Foresight. Action.

Key risks are systemic.  
The solutions must be strategic.

## THE BIG PICTURE

National prosperity depends on thousands of specialist SMEs working together in complex, interdependent systems.



**99.9%**  
of businesses  
are SMEs



**3.2M+**  
SMEs employ  
over 16M people



Critical to  
every sector,  
every region



Strong SMEs  
drive growth,  
innovation and  
national resilience



When small firms fail, the impact is multiplied across the whole system.

## THE CORE CHALLENGE

Our economy is more interconnected – and more vulnerable – than most realise.



**HIDDEN DEPENDENCIES**  
Invisible links hold systems together



**BOTTLENECKS**  
Capacity constraints create systemic risk



**SEQUENCING**  
Order and timing determine success



**PRESSURE TRANSFER**  
Stress moves and amplifies



**RESILIENCE**  
Some systems absorb shocks. Others don't.



**OPERATIONAL REALITY**  
Plans must match real-world behaviour



**DECISION LATENCY**  
Delay in insight leads to cost and risk

## WHAT THIS MEANS FOR LEADERS



**SEE THE SYSTEM, NOT JUST THE PARTS**

Understand how your decisions affect the wider ecosystem.

THINK SYSTEMS



**IDENTIFY RISK BEFORE IT HITS**

Map dependencies and constraints to expose weak points early.

ANTICIPATE



**ACT IN THE RIGHT ORDER**

Sequence initiatives to maximise impact and avoid failure.

PRIORITISE



**BUILD RESILIENCE BY DESIGN**

Strengthen capacity, diversity and flexibility across the system.

STRENGTHEN



**DECIDE FASTER. DELIVER BETTER.**

Reduce decision latency with clearer insight and better data.

MOVE WITH CONFIDENCE

## THE STAR-INSIGHT™ ADVANTAGE

We go beyond headlines. We map reality.



We uncover what others miss – Hidden structure. Blind spots. Emerging risks.



We connect what others separate – People, firms, sectors and systems.



We quantify what others assume – Evidence over opinion. Data over noise.



We flag risk before it escalates – Early warning. Clear thresholds. Actionable insight.



We turn insight into strategic advantage – Better decisions. Stronger outcomes. Lasting impact.

## PRIORITY ACTIONS FOR BOARDROOMS & POLICYMAKERS

1



**MAP CRITICAL SYSTEMS**  
Understand dependencies, constraints and concentration risks.

2



**STRENGTHEN FOUNDATIONS**  
Invest in SMEs, skills, infrastructure, innovation and digital capability.

3



**IMPROVE FLOW & CAPACITY**  
Remove bottlenecks and build redundancy where it matters most.

4



**SUPPORT SME RESILIENCE**  
Better access to finance, contracts, markets and support.

5



**REDUCE DECISION LATENCY**  
Timely data, clear accountability and faster, smarter decisions.

## THE OUTCOME



A more productive,  
resilient and  
prosperous nation

- ✓ Stronger economic growth
- ✓ More resilient supply chains
- ✓ Higher productivity
- ✓ Better jobs and opportunities
- ✓ Stronger regional outcomes
- ✓ Greater national security
- ✓ Long-term prosperity



STRONG NATIONS ARE BUILT FROM THE BOTTOM UP.  
**RESILIENT SMES. RESILIENT SYSTEMS. RESILIENT FUTURES.**  
Star-Insight™ – Systems Intelligence. Real-World Impact.



BETTER INSIGHT.  
BETTER DECISIONS.  
BETTER OUTCOMES.

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Executive-level summary of the systemic industrial and resilience risks  
emerging across Europe's interconnected strategic sectors.

## Executive Summary

Europe's industrial ambitions are expanding.

Defence capability is increasing.

Semiconductor capacity is being rebuilt.

Energy systems are being transformed.

Transport networks are being electrified.

Data centres are proliferating.

Artificial intelligence infrastructure is growing rapidly.

However, many of these ambitions increasingly compete for the same finite resources.

Engineering skills.

Electrical infrastructure.

Specialist manufacturing capability.

Semiconductors.

Maintenance personnel.

Water.

Capital.

Industrial land.

Public acceptance.

Institutional attention.

The challenge facing governments and businesses may therefore no longer be identifying worthy objectives.

It may increasingly become understanding which capabilities unlock many others, which constraints transfer pressure between sectors, and how decisions made in one area influence outcomes elsewhere.

This briefing explores whether Europe's greatest challenge may not necessarily be a shortage of ambition, but rather a shortage of shared industrial foundations.

Its purpose is not to provide definitive answers.

Instead, it seeks to surface questions, dependencies and second-order effects that may otherwise receive limited attention.

Ultimately, preserving optionality and sequencing capability investment appropriately may prove just as important as deciding what to invest in.

# STRATEGIC NAVIGATION

## Core Themes Covered In This Brief

### 1. The Shared Industrial Foundations Problem

Understanding why multiple sectors increasingly depend upon the same capabilities.

### 2. The Capability Sequencing Problem

Why some investments unlock many others.

### 3. The Pressure Transfer Problem

How constraints emerging in one sector affect others.

### 4. The Industrial Triage Problem

Why not every ambition may be deliverable simultaneously.

### 5. The Energy Competition Effect

How energy demand is becoming an increasingly strategic issue.

### 6. Efficiency versus Resilience

Reconsidering decades of optimisation.

### 7. The Hidden Dependency Problem

Looking beyond first-order constraints.

### 8. The Maintenance Economy

Preserving capability before creating new capability.

### 9. The SME Fragility Layer

Why small firms matter disproportionately.

### 10. The Multiple-Shock Convergence Problem

Understanding interacting disruptions.

### 11. The Coordination Visibility Gap

Seeing relationships between competing priorities.

### 12. The Decision Latency Problem

Why institutions often react slower than constraints emerge.

### 13. Questions Businesses Should Be Asking

Practical reflections for organisations.

### 14. Questions Governments Should Be Asking

Policy reflections.

### 15. Europe's Real Industrial Challenge

A concluding perspective.

# Persona Navigation

## Suggested Reading Pathways

### CEO

Sections **1, 2, 4, 10, 11, 12 and 15**

#### Focus

Long-term competitiveness, industrial resilience and preserving future choice.

### CFO

Sections **4, 5, 6, 9, 12 and 15**

#### Focus

Capital allocation, resilience economics, downside exposure and constrained investment.

### COO

Sections **1, 2, 3, 5, 8 and 12**

#### Focus

Operational continuity, bottlenecks, sequencing and maintenance capability.

### CTO / CIO

Sections **1, 2, 5, 7, 10 and 11**

#### Focus

Technology dependencies, semiconductors, AI infrastructure and systems visibility.

### Procurement & Supply Chain Director

Sections **1, 3, 7, 9, 10 and 14**

#### Focus

Supplier concentration, pressure transfer, dependency mapping and SME exposure.

### Sales & Commercial Director

Sections **3, 4, 5, 9 and 13**

#### Focus

Lead times, pricing pressure, delivery confidence and changing customer expectations.

## **Board / NED**

Sections **2, 4, 6, 10, 11, 12 and 15**

### **Focus**

Second-order effects, strategic prioritisation and preserving optionality.

# **Executive Dashboard**

## **What This Brief Suggests**

### **Pressure is accumulating**

Multiple strategic sectors increasingly compete for the same constrained capability.

### **Bottlenecks are becoming systemic**

Energy, engineering skills, fabrication capacity, semiconductors and SMEs may constrain multiple ambitions simultaneously.

### **Resilience requires sequencing**

Some capabilities unlock many others.

Not every investment produces the same strategic return.

### **Maintenance matters**

Capability preserved may become as valuable as capability created.

### **Decision speed matters**

Constraints often emerge faster than institutions can react.

### **Visibility matters**

Understanding the interaction between competing priorities may increasingly become a strategic capability in itself.

# Contents

## **01 - The Shared Industrial Foundations Problem**

Why strategic sectors increasingly compete for the same constrained capability.

## **02 - The Capability Sequencing Problem**

Why getting the order wrong weakens the entire system.

## **03 - The Pressure Transfer Problem**

Why stress in one sector rapidly spreads into others.

## **04 - The Industrial Triage Problem**

What happens when strategic ambition exceeds available industrial capacity?

## **05 - The Energy Competition Effect**

Why AI, manufacturing and electrification may increasingly compete for grid power.

## **06 - Efficiency vs Resilience**

Why highly optimised systems may become dangerously brittle under stress.

## **07 - The Hidden Dependency Problem**

Why critical national capability often depends on invisible choke points.

## **08 - The Maintenance Economy**

Why maintaining strategic capability may become as important as building new capability itself.

## **09 - The SME Fragility Layer**

How thousands of smaller specialist firms quietly determine national resilience.

## **10 - The Multiple-Shock Convergence Problem**

How overlapping crises amplify pressure across interconnected systems.

## **11 - The Coordination Visibility Gap**

Why fragmented visibility across systems, sectors and institutions weakens strategic coordination.

## **12 - The Decision Latency Problem**

Why slow strategic response increases cost, fragility and recovery time.

## **13 - The Questions Businesses Should Be Asking**

How exposed are organisations to hidden bottlenecks, dependency risk and constrained capability?

## **14 - The Questions Governments Should Be Asking**

Which capabilities matter most - and who currently has visibility across the whole system?

## **15 - Europe's Real Industrial Challenge**

Why coordination, sequencing and systems visibility may now matter more than demand alone.

## Key Themes Explored

- Strategic dependency
- Industrial bottlenecks
- Energy realism
- Resilience vs efficiency
- Compound shocks
- SME fragility
- Infrastructure sequencing
- Sovereign capability
- Decision latency
- Systems visibility

## Why This Matters

At first glance, this discussion may sound highly technical or relevant only to governments, defence planners or large industrial firms.

But these pressures eventually affect almost everyone.

When industrial systems come under strain, the effects spread into:

- energy prices
- infrastructure delays
- housing and construction costs
- transport systems
- public spending
- taxation pressure
- consumer prices
- export competitiveness
- investment confidence
- job markets
- national resilience

If strategic sectors compete for the same constrained capacity without proper coordination, the result may not simply be slower projects.

It may mean:

- higher costs
- delayed infrastructure
- reduced competitiveness

- increased dependency on external suppliers
- weaker resilience during future crises
- slower economic growth
- longer delivery times
- greater pressure on public finances

This is why these questions matter far beyond defence, manufacturing or infrastructure alone.

## 1 - The Shared Industrial Foundations Problem

Many strategic sectors increasingly depend on overlapping industrial capability:

- engineering labour
- specialist fabrication
- industrial energy
- semiconductors
- specialist metals
- industrial electronics
- grid access
- logistics
- project finance
- technical skills
- industrial land
- long-lead equipment
- resilient supply chains

The same fabrication capability required for defence may also be needed for:

- offshore wind
- nuclear
- rail
- aerospace
- water infrastructure
- industrial machinery
- semiconductors
- AI infrastructure
- transport systems
- telecommunications
- shipbuilding
- advanced manufacturing

The same engineering workforce may simultaneously be required by:

- defence contractors
- utilities
- grid projects
- semiconductor facilities

- infrastructure programmes
- energy providers
- advanced manufacturing firms
- AI infrastructure operators

Defence expansion increasingly competes for many of the same engineering, fabrication, semiconductor, logistics and energy capabilities required by wider industrial and infrastructure systems.

The same energy system may now be expected to support:

- electrification
- manufacturing
- AI compute
- data centres
- hydrogen production
- industrial reshoring
- advanced defence production

This is no longer a collection of isolated sector problems. It is becoming a connected industrial-system challenge.

Much of this capability ultimately sits inside thousands of smaller specialist firms that remain largely invisible until disruption, overload or financial pressure begins spreading through the wider system.



Strategic sectors increasingly compete for the same constrained industrial foundations.

## The Overlooked Risk: Strategic Sectors May Cannibalise Each Other

One of the deeper risks Europe may not yet be discussing openly enough is this:

Strategic sectors may unintentionally begin weakening each other while all trying to strengthen simultaneously.

For example:

- defence expansion may absorb fabrication capacity needed elsewhere
- AI and data centres may compete with manufacturing for power availability
- semiconductor investment may pull scarce engineering talent away from industrial sectors
- infrastructure expansion may intensify pressure on already-constrained suppliers
- grid modernisation may compete directly with transport and defence programmes for labour and equipment

Industrial bottlenecks do not stay isolated.

Pressure transfers through the system.

And resilience in one sector can unintentionally create fragility elsewhere if the wider system is not modelled properly.

## 2 - The Capability Sequencing Problem

Not all industrial investments are equal.

Some capabilities unlock many others.

Long-term industrial resilience may increasingly depend upon rebuilding the engineering, technical and vocational workforce pipelines required to sustain future infrastructure, energy, manufacturing and defence capability.

Energy increasingly becomes the foundational enabling capability behind AI expansion, advanced manufacturing, electrification, defence production and long-term industrial competitiveness.

Defence capability increasingly depends not only on military investment itself, but on the wider industrial foundations - energy, steel, semiconductors, logistics, engineering skills and manufacturing capacity - that sustain long-term operational resilience.

Some bottlenecks prevent almost everything behind them from moving.

Steel, specialist fabrication and heavy industrial processing increasingly act as enabling capabilities behind infrastructure, defence, transport, energy and wider industrial expansion.

This creates a sequencing problem.

**For example:**

| Capability                   | Enables / Unlocks                           |
|------------------------------|---------------------------------------------|
| Grid expansion               | AI, electrification, manufacturing, defence |
| Engineering education        | All strategic sectors                       |
| Semiconductor capability     | Defence, AI, automotive, manufacturing      |
| Specialist steel fabrication | Infrastructure, energy, defence             |
| Ports and logistics          | Supply-chain resilience                     |
| Maintenance capability       | Long-term operational resilience            |

**The question increasingly becomes:**

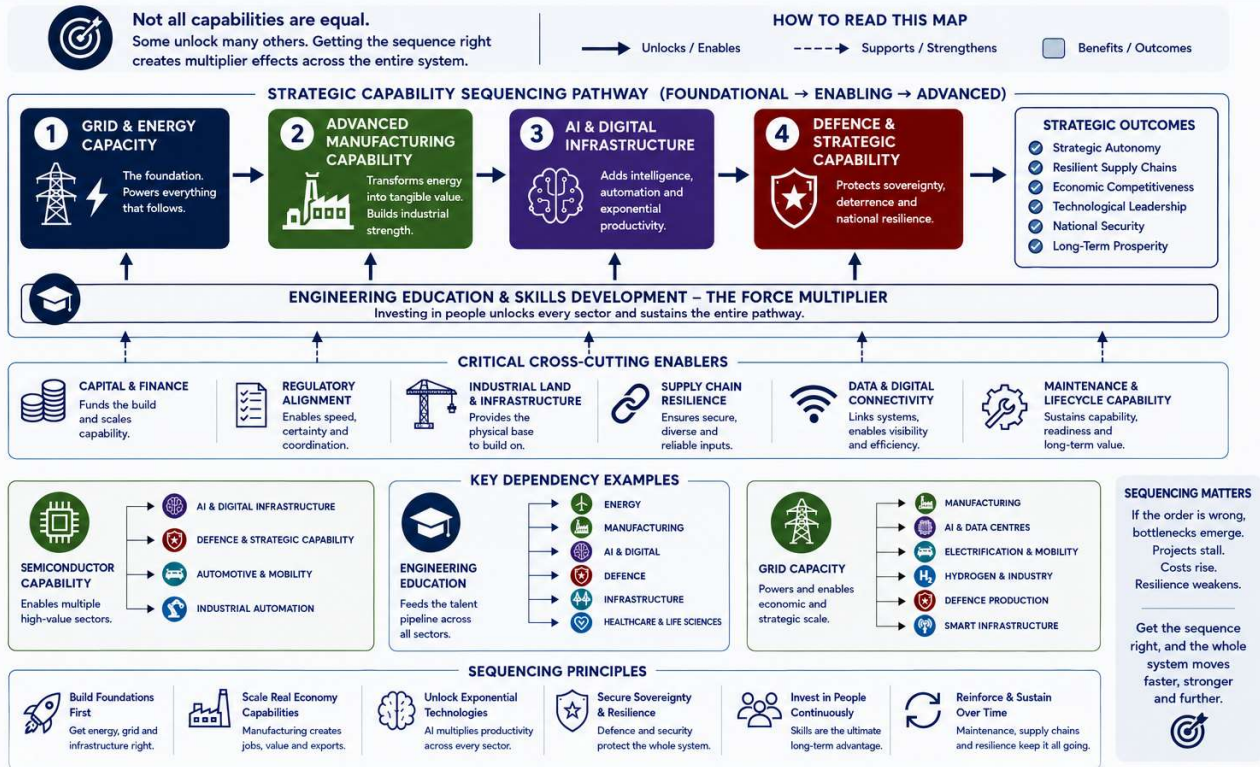
Which capability expansions unlock the greatest system-wide resilience?

That is a much deeper strategic question than simply asking:

“Which sector deserves more investment?”

# EUROPE'S CAPABILITY SEQUENCING MAP

## UNLOCKING DEPENDENCIES. BUILDING RESILIENCE. DRIVING STRATEGIC ADVANTAGE.



Some capabilities unlock wider resilience and strategic advantage across the entire system.

### 3 - The Pressure Transfer Problem

Industrial bottlenecks rarely remain isolated.

Pressure in one part of the system often transfers into multiple others through hidden operational dependency.

Rising energy demand in one strategic area increasingly creates knock-on effects across manufacturing, infrastructure, logistics and wider industrial systems competing for the same constrained capacity.

This creates second-order effects that may initially appear unrelated to the original constraint.

Smaller specialist suppliers are often least able to absorb these cascading pressures, despite frequently providing critical capability underpinning larger strategic programmes.

For example:

- defence expansion may absorb specialist fabrication capacity required by infrastructure and energy projects
- accelerated defence production may intensify competition for engineers, semiconductors, specialist metals, energy capacity and advanced manufacturing capability across wider industrial systems
- constrained steel and fabrication capacity may simultaneously delay defence production, grid expansion, transport infrastructure and industrial reshoring initiatives
- energy shortages may increase industrial operating costs across manufacturing supply chains
- semiconductor shortages may delay automation, transport, AI and defence production simultaneously
- logistics disruption may slow component delivery across multiple sectors at once
- grid constraints may delay industrial expansion despite sufficient investment capital being available

As pressure intensifies, systems begin competing for the same constrained capability:

- engineering labour
- fabrication
- transformers
- specialist electronics
- maintenance support
- project management
- industrial energy
- logistics bandwidth

This creates cascading industrial friction.

The challenge is that these interactions are often difficult to see early because:

- sectors are analysed separately
- incentives differ
- data visibility is fragmented
- supply-chain interdependencies remain partially hidden
- impacts emerge with time delay

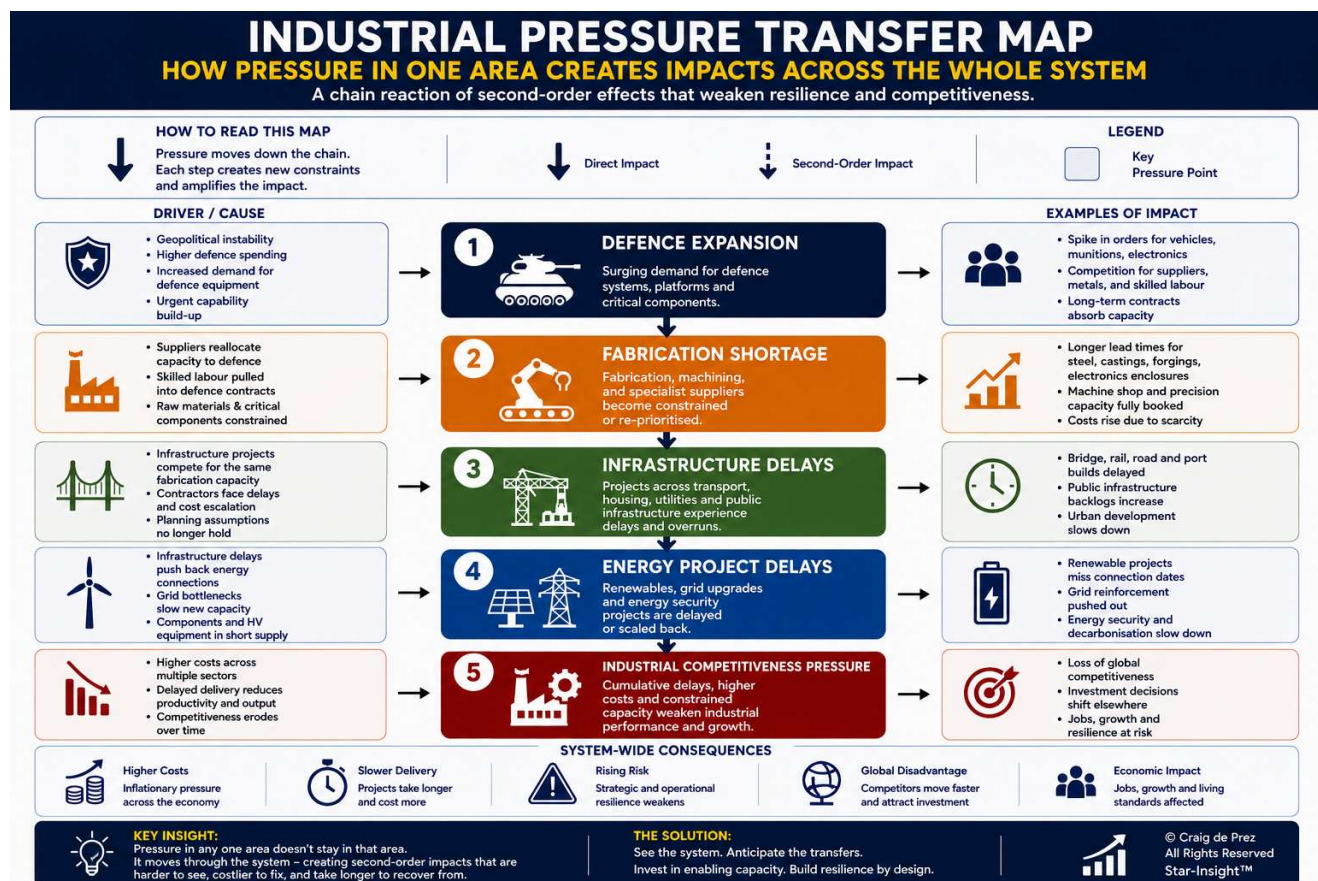
As a result, pressure amplification is often identified only after:

- costs rise
- lead times extend
- projects delay
- supplier stress increases
- resilience weakens

This is why pressure transfer matters.

Industrial systems do not fail only through direct shocks.

They increasingly weaken through interconnected pressure propagation across multiple dependent sectors simultaneously.



Pressure in one strategic area can rapidly create hidden consequences across the wider system.

## 4 - The Industrial Triage Problem

This is a difficult conversation politically, but an increasingly realistic one operationally.

At some point, there may not be enough:

- power
- engineering labour
- fabrication capacity
- semiconductors
- supplier bandwidth
- industrial land
- project finance
- grid access

for every strategic ambition simultaneously.

That means prioritisation may eventually become unavoidable.

Questions governments and industries may need to confront include:

- Which sectors are genuinely sovereign-critical?
- Which industries create the largest downstream multiplier effect?
- Which capabilities are hardest to replace?
- Which sectors can tolerate delay?
- Which investments unlock wider system capability?
- Which sectors generate the highest strategic value per unit of constrained capacity?

This is no longer simply industrial policy.

It becomes industrial triage.

# INDUSTRIAL TRIAGE MATRIX

**NOT EVERYTHING CAN BE FIXED. PRIORITISE WHAT PROTECTS PROSPERITY AND SOVEREIGNTY.**

Score each sector 1 (Low) to 5 (Critical). Focus capital, capacity and policy where it matters most.

| SECTOR                       | STRATEGIC VALUE<br>Impact on economy, jobs, innovation and growth | CAPACITY NEED<br>How much new or additional capacity is required             | SOVEREIGN IMPORTANCE<br>Critical to national security, resilience and autonomy | DEPENDENCY RISK<br>Risk from foreign reliance, fragility and chokepoints. | TRIAGE PRIORITY<br>Composite Guidance |
|------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------|
| DEFENCE INDUSTRIES           | 5 High multiplier, high wage, critical innovation spillovers      | 5 Massive uplift required across munitions, platforms, sensors, space, cyber | 5 Essential for national security and deterrence                               | 5 Extreme reliance on foreign supply chains and IP                        | CRITICAL – ACT NOW                    |
| SEMICONDUCTORS & ELECTRONICS | 5 Foundational for all sectors and technologies                   | 5 Large-scale, long-lead investment and capability build required            | 5 Cornerstone of digital sovereignty and defence                               | 5 Highly concentrated foreign control                                     | CRITICAL – ACT NOW                    |
| ENERGY SYSTEMS & GRID        | 5 Enables everything. Economic lifeline.                          | 4 Significant build-out needed for security and transition                   | 5 Vital for national survival and stability                                    | 4 High exposure to fuel and technology imports                            | HIGH – PRIORITISE                     |
| ADVANCED MANUFACTURING       | 4 Drives productivity, exports and high-value jobs                | 4 Substantial capacity expansion and skills required                         | 4 Critical for industrial base and resilience                                  | 4 Dependent on inputs, machines and know-how                              | HIGH – PRIORITISE                     |
| HYDROGEN & CLEAN FUELS       | 4 Future export potential, decarbonisation enabler                | 3 Medium-high new capacity and infrastructure required                       | 4 Supports energy security and strategic optionality                           | 3 Emerging dependencies, technology concentration                         | MEDIUM – DEVELOP                      |
| SHIPPING & LOGISTICS         | 3 Important for trade and supply chains                           | 3 Steady capacity investment needed                                          | 3 Important for trade resilience                                               | 4 High reliance on foreign fleets and ports                               | MEDIUM – DEVELOP                      |
| CHEMICALS & MATERIALS        | 3 Broad industrial enabler                                        | 3 Incremental capacity and modernisation required                            | 3 Important but substitutable in some areas                                    | 3 Regional concentration risks                                            | MEDIUM – DEVELOP                      |
| CONSUMER GOODS & RETAIL      | 2 Lower multiplier, easily substitutable                          | 2 Lower incremental capacity need                                            | 2 Low sovereign criticality                                                    | 2 Low strategic dependency risk                                           | LOW – MONITOR                         |

## SCORING GUIDE (1 = LOW, 5 = CRITICAL)

- 1 Low impact / easily substitutable / minimal risk
- 2 Below average / limited impact or exposure
- 3 Moderate / important but not critical
- 4 High / significant impact or exposure
- 5 Critical / existential impact or exposure

## HOW TO USE THIS MATRIX



Score honestly, challenge bias. Focus resources on Critical and High. Reduce Dependency Risk everywhere. Reassess quarterly, Conditions change.

## THE BRUTAL TRUTH

You cannot build everything.  
You cannot secure everything.  
You must choose.

**PRIORITISATION IS STRATEGY.**  
**EVERYTHING ELSE IS WISFUL THINKING.**

★ **RESILIENCE IS NOT BUILT BY SPREADING RESOURCES THIN. IT IS BUILT BY CONCENTRATING ON WHAT MATTERS MOST.**

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Not every strategic priority can scale simultaneously without trade-offs.

## 5 - The Energy Competition Effect

One of the least discussed but potentially most important constraints may become energy itself.

AI infrastructure, electrification, defence manufacturing, advanced industry and reshoring all increase electricity demand simultaneously.

That raises difficult questions:

- What happens if AI and data centres outbid manufacturing for power?
- Which sectors generate the highest national-value output per megawatt consumed?
- Should strategic industries receive protected energy allocation?
- Could electricity availability become one of the defining industrial bottlenecks of the 2030s?
- How much industrial growth is physically constrained by power availability rather than capital?

The issue is no longer simply energy price.

The transition also requires a large expansion in technical labour - engineers, grid specialists, maintenance technicians, fabricators and field-service capability - creating growing competition for skilled younger workforces across multiple sectors simultaneously.

The challenge increasingly becomes how limited grid capacity is prioritised between AI infrastructure, industrial reshoring, electrification, defence production and national economic resilience.

Steel and heavy industrial sectors may increasingly face difficult competitiveness pressures where high energy costs weaken domestic production capability against lower-cost international competitors.

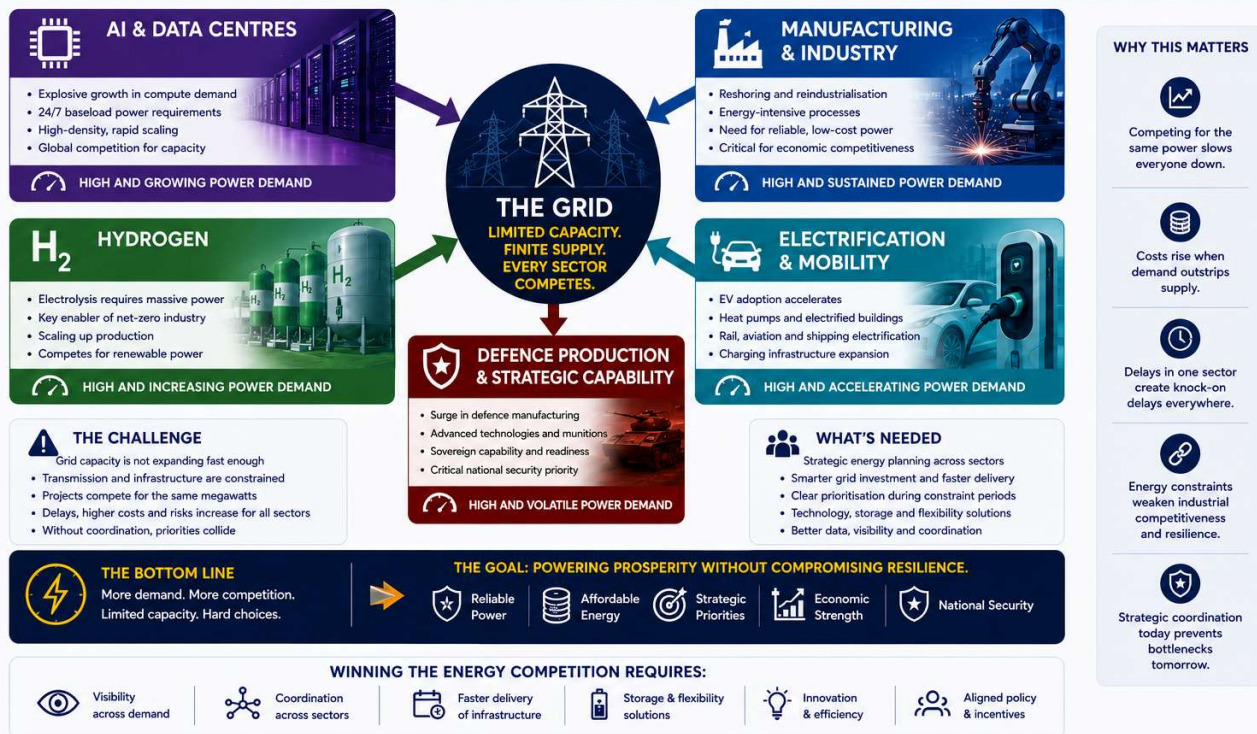
Strategic defence manufacturing and national-security infrastructure may increasingly compete for reliable energy capacity alongside AI, electrification and industrial expansion.

It becomes system-wide energy allocation and industrial prioritisation.

# THE ENERGY COMPETITION

## MANY PRIORITIES. ONE GRID. LIMITED CAPACITY.

Rising demand from multiple strategic sectors is intensifying competition for clean, reliable, and affordable power.



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AI, manufacturing, electrification and defence increasingly compete for grid power.

## 6 - Efficiency vs Resilience

For decades, industrial systems were largely optimised around:

- efficiency
- lean inventory
- supplier consolidation
- utilisation rates
- cost reduction
- global optimisation

But resilience often requires something very different:

- redundancy
- spare capacity
- multiple suppliers
- strategic reserves
- duplicated capability
- lower utilisation buffers
- regional fallback options

This creates a profound strategic tension.

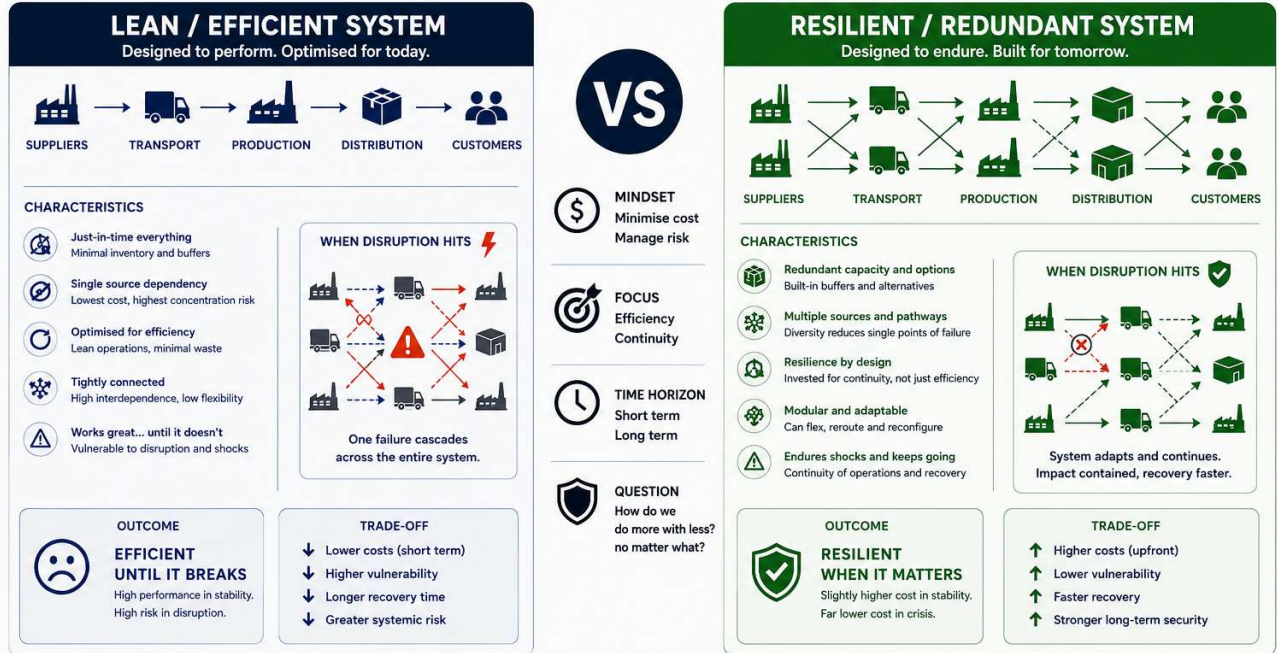
The systems that appear “inefficient” during stable periods may become the systems that survive periods of geopolitical, industrial or energy stress.

That raises a deeper question:

Have modern industrial systems become too efficient to remain resilient under simultaneous strategic pressure?

# EFFICIENCY VS RESILIENCE

TWO SYSTEMS. TWO MINDSETS. TWO OUTCOMES.



**THE REAL CHOICE:** You can optimise for efficiency. Or you can prepare for reality.  
You can't afford to ignore either. But in a crisis, resilience is what saves you.



**RESILIENCE ISN'T WASTE.**  
**IT'S INSURANCE FOR THE FUTURE.**

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Systems optimised for efficiency are not always optimised for resilience.

## 7 - The Hidden Dependency Problem

Why critical national capability often depends on invisible choke points.

Modern industrial systems often appear diversified at the surface.

But underneath, many strategic capabilities depend upon surprisingly concentrated operational foundations.

In some cases, entire sectors may rely upon:

- a small number of fabrication facilities
- limited transformer manufacturers
- specialist semiconductor tooling suppliers
- constrained engineering clusters
- vulnerable logistics corridors
- niche software platforms
- rare materials processing capability
- single-source component suppliers
- concentrated maintenance expertise

These dependencies are frequently difficult to see because they sit several layers beneath the visible supply chain. Yet they may determine whether entire systems continue functioning during periods of stress.

As governments pursue:

- reshoring
- strategic autonomy
- domestic capability expansion
- regional industrial resilience

there is a risk of unintentionally relocating vulnerability into new concentrated bottlenecks.

For example:

- too few semiconductor fabs
- too few defence suppliers
- too few fabrication sites
- too few transformer manufacturers
- too much dependency on specific ports, grids or corridors
- excessive concentration of engineering capability into limited regions

This creates a deeper strategic question:

Are we genuinely building resilience - or simply concentrating fragility into different locations?

Because concentration risk does not disappear simply because production becomes more regional.

Some strategic dependencies may now be:

- less visible
- more interconnected
- harder to replace
- slower to recover

than policymakers currently realise.

The challenge is not only identifying direct suppliers.

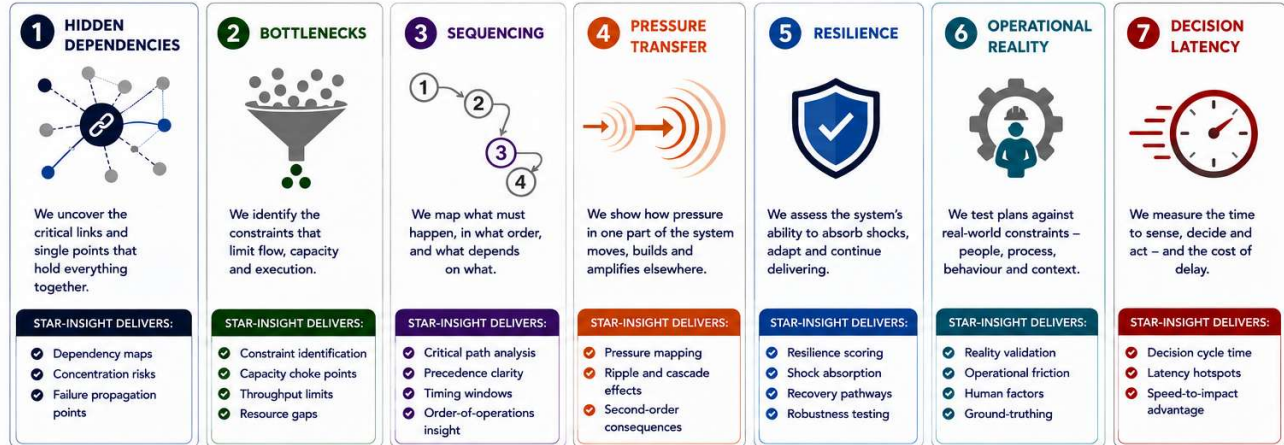
It is understanding the hidden dependency structure underneath entire strategic systems.

# STAR-INSIGHT™ METHODOLOGY PANEL

We go beyond headlines. We map reality.

**Star-Insight** is a systems intelligence methodology that reveals what others miss  
– the hidden structure, stress points and timing that determine real-world outcomes.

## WHAT STAR-INSIGHT EXAMINES THAT OTHERS OVERLOOK



### THE STAR-INSIGHT ADVANTAGE

Most commentary explains what is visible.  
**Star-Insight reveals what is decisive.**



We see the unseen.



We connect what others separate.



We quantify what others assume.



We flag risk before it escalates.



We provide clarity for confident action.



We turn insight into strategic advantage.



STAR-INSIGHT™ IS NOT OPINION.

IT IS STRUCTURE.

IT IS EVIDENCE.

IT IS ADVANTAGE.

IT IS HOW LEADERS STAY AHEAD.

Better insight. Better decisions. Better outcomes.

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Star-Insight™ provides a systems-intelligence layer for understanding how hidden dependencies, bottlenecks, sequencing and pressure transfer shape strategic outcomes.

## 8 - The Maintenance Economy

Most industrial discussion focuses on building.

Far less attention is given to maintaining.

But energy infrastructure increasingly demonstrates that resilience depends not only on building new capability, but on maintaining ageing systems that entire economies still rely upon every day.

Yet future strategic capability will require enormous maintenance support across:

- grids
- defence systems
- semiconductor facilities
- AI infrastructure
- offshore wind
- robotics
- industrial automation
- advanced manufacturing
- transport systems
- nuclear infrastructure

Sustaining these systems over decades may increasingly depend upon attracting, training and retaining a new generation of technical and engineering talent capable of supporting increasingly complex industrial infrastructure. That includes:

- maintenance engineers
- field-service technicians
- inspection capability
- spare parts ecosystems
- specialist repair capability

Europe may be underestimating the size and importance of the maintenance economy required to sustain future capability once it is built.

Maintenance capacity may eventually become as constrained as construction capacity.

Many of these maintenance ecosystems may ultimately depend upon smaller engineering, inspection, repair and specialist-service firms whose operational resilience increasingly becomes strategically important in its own right.

# THE MAINTENANCE ECONOMY: RESILIENCE DEPENDS ON WHAT WE SUSTAIN

Building is not enough. What we maintain determines what we can rely on.

## 1. WHY MAINTENANCE MATTERS

Systems degrade. Skills atrophy. Components wear. Suppliers weaken.

Without sustained maintenance, capability becomes the next constraint.



## 2. THE TRUE COST OF UNDER-MAINTENANCE

Under-investing in maintenance creates a hidden liability.



Deferred maintenance always costs more – in disruption, resilience, and recovery time.

## 3. WHAT THE MAINTENANCE ECONOMY INCLUDES

- EQUIPMENT & ASSETS**  
Planned upkeep, replacement cycles and reliability management.
- SKILLS & WORKFORCE**  
Keeping skills current. Retaining experience. Building depth.
- SUPPLY CHAIN HEALTH**  
Sustaining supplier viability, diversity and capacity.
- DATA & SYSTEMS**  
Updating software, cyber defences and digital infrastructure.
- STANDARDS & COMPLIANCE**  
Maintaining certification, safety, quality and regulatory readiness.
- ENERGY & UTILITIES**  
Maintaining power systems, grids and critical utilities.

## 4. RISKS OF NEGLECT

- Unexpected failures and outages
- Higher total cost over time
- Reduced operational readiness
- Supply chain collapse risk
- Greater vulnerability to shocks
- Loss of sovereign options

## 5. BUILDING A STRONG MAINTENANCE ECONOMY

- Plan for lifecycle, not just build
- Measure condition, not just performance
- Fund maintenance as a strategic priority
- Value and retain maintenance talent
- Strengthen supplier resilience
- Design for maintainability

## 6. MAINTENANCE IS A MULTIPLIER OF STRATEGIC ADVANTAGE

- INCREASES RELIABILITY**  
Sustained systems perform when it matters most.
- EXTENDS LIFE**  
Assets, infrastructure and capability last longer and cost less.
- REDUCES RISK**  
Fewer failures, disruptions and operational shocks.
- PRESERVES OPTIONS**  
Maintained capability keeps strategic choices open longer.
- BUILDS RESILIENCE**  
Strong maintenance creates shock-absorbing systems.
- SUPPORTS SOVEREIGNTY**  
A nation that maintains, retains the ability to act.

**RESILIENCE ISN'T JUST BUILT. IT'S MAINTAINED.**

**A NATION'S LONG-TERM STRENGTH DEPENDS ON WHAT IT CHOOSES TO SUSTAIN TODAY.**

“The best time to maintain capability was yesterday. The next best time is now.”

A strong maintenance economy protects capability, reduces long-term cost and ensures strategic systems stay ready when they are needed most.

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Long-term resilience depends not only on what nations build - but on what they continuously maintain, sustain and renew across infrastructure, skills, supply chains and strategic capability.

## 9 - The SME Fragility Layer

### The Hidden SME Risk

Large strategic programmes ultimately depend on thousands of smaller firms.

Yet many of these firms increasingly operate with limited financial buffers, ageing workforces, rising energy exposure and constrained access to long-term investment capital.

In sectors such as steel fabrication, precision engineering and specialist industrial processing, the loss of even small clusters of capability may create disproportionately large national delivery risks.

Yet SMEs are often:

- less capitalised
- more energy-sensitive
- more labour-sensitive
- more exposed to ageing workforce and apprenticeship-pipeline shortages
- more exposed to delayed payments
- more vulnerable to supply-chain shocks
- less able to absorb volatility

That creates a serious strategic question:

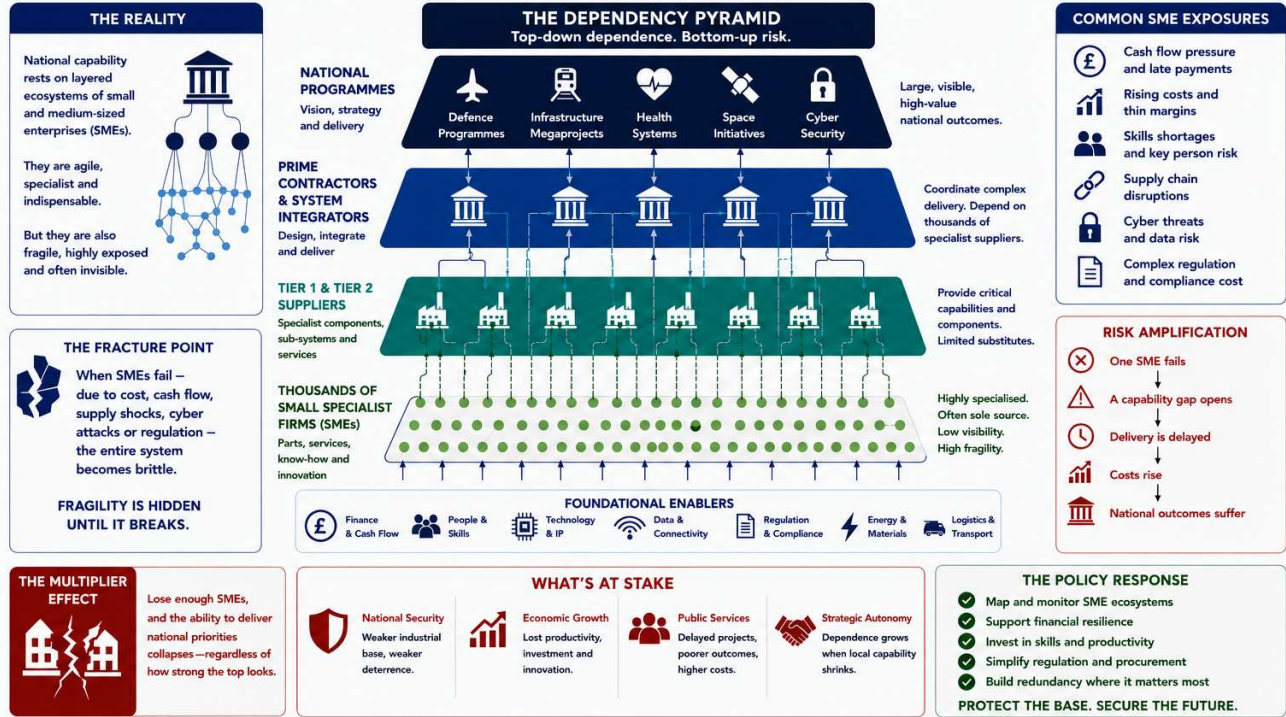
Could strategic expansion unintentionally overwhelm smaller suppliers that larger systems critically depend upon?

Because resilience at the top of the supply chain means very little if fragility spreads underneath it.

# SME FRAGILITY LAYER MAP

**LARGE NATIONAL PROGRAMMES DEPEND ON THOUSANDS OF SMALLER SPECIALIST FIRMS.**

Remove or weaken enough small firms, and even the strongest programmes will fail.



**STRONG NATIONS ARE BUILT FROM THE BOTTOM UP. RESILIENT SMEs. RESILIENT SYSTEMS. RESILIENT FUTURES.**

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Large national programmes often depend on thousands of fragile specialist firms.

## 10 - The Multiple-Shock Convergence Problem

Most planning still assumes one major disruption at a time.

Reality may look very different.

Europe could potentially face overlapping pressure from:

- cyber attacks
- energy shocks
- semiconductor shortages
- geopolitical escalation
- shipping disruption
- financial tightening
- commodity volatility
- infrastructure disruption
- extreme weather

simultaneously.

When shocks overlap:

- bottlenecks multiply
- sectors compete harder for constrained capacity
- political pressure intensifies
- recovery time lengthens
- strategic priorities collide

The challenge becomes not isolated resilience.

It becomes resilience under compound stress conditions.

## HOW SHOCKS AMPLIFY EACH OTHER



Cyber



Energy

Cyberattacks on energy systems increase outages and recovery time.



Energy



Shipping

Higher fuel costs and port disruptions create global supply chain delays.



Shipping



Semiconductors

Shipping delays reduce chip availability for every industry.



Semiconductors



Finance

Production slowdowns hit markets, profits and investor confidence.



Finance



Geopolitics

Economic stress fuels instability, protectionism and conflict risk.



Geopolitics



Cyber

State actors increase cyber operations during geopolitical tension.



**When multiple shocks converge, recovery time increases exponentially and resilience is tested to the limit.**

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Multiple simultaneous disruptions amplify pressure across interconnected systems.

## 11 - The Coordination Visibility Gap

Perhaps the deepest issue is this:

Who actually has visibility across:

- defence
- energy
- semiconductors
- AI
- manufacturing
- logistics
- labour
- infrastructure
- SMEs
- power systems
- finance
- supply chains

simultaneously?

At present:

- governments are fragmented
- sectors optimise locally
- infrastructure planning often operates separately
- incentives differ
- data is disconnected

Yet operational reality is increasingly interconnected.

Without better visibility across those interactions, decision-making becomes reactive rather than coordinated.

# THE COORDINATION VISIBILITY GAP

FRAGMENTED VISIBILITY CREATES SLOWER, WEAKER AND MORE REACTIVE DECISION-MAKING.

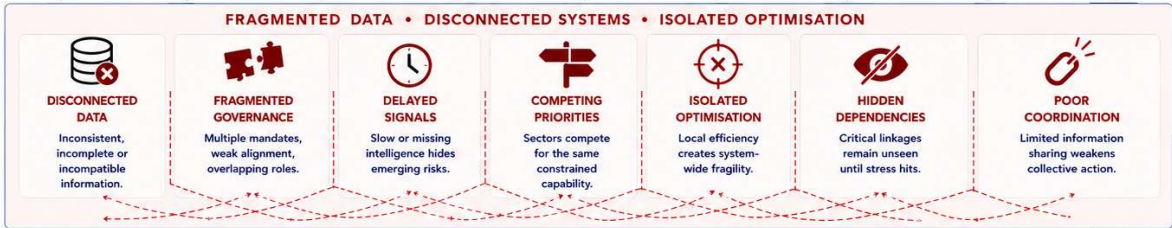
## 1. TODAY: SILOS OPERATE SEPARATELY

Each sector optimises for its own priorities.



## 2. THE VISIBILITY GAP: WHAT GETS LOST BETWEEN THE SILOS

Disconnected data. Different timelines. Conflicting priorities. Hidden dependencies.



## 3. CONSEQUENCES

The cost of poor visibility and weak coordination.



## 4. THE SOLUTION: SYSTEMS VISIBILITY AND COORDINATION

Connected insight. Aligned action. Stronger outcomes.



## ENABLERS OF BETTER VISIBILITY



Fragmented visibility across interconnected systems weakens coordination, delays response and increases strategic risk.

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Fragmented visibility across interconnected systems weakens coordination, delays response and increases strategic risk across the wider economy.

## 12 - The Decision Latency Problem

Infrastructure takes years.

Grid expansion takes years.

But energy demand from AI, electrification and industrial transition can accelerate far faster than infrastructure expansion cycles are able to respond.

Training engineers takes years.

Semiconductor facilities take years.

But bottlenecks can emerge far faster.

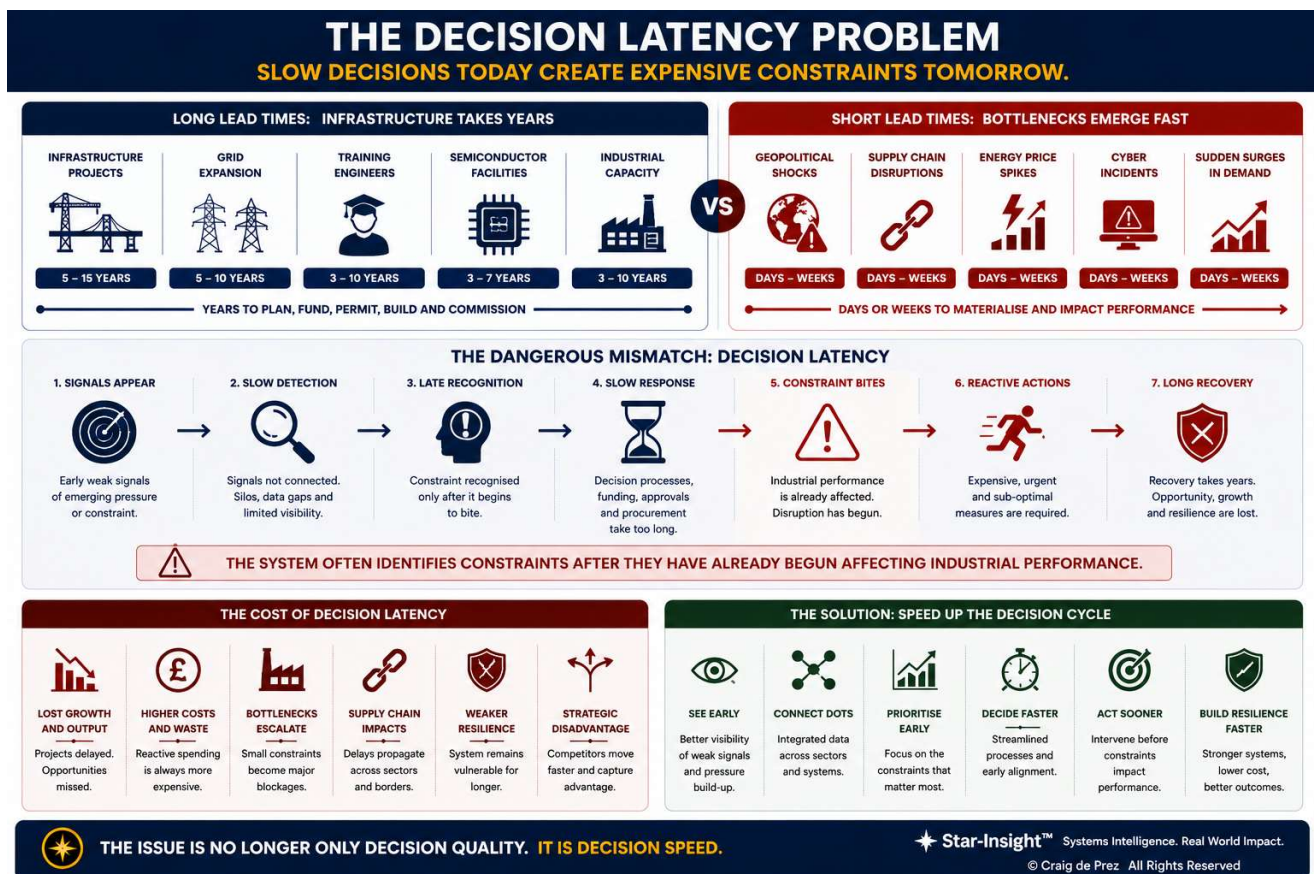
This creates a dangerous mismatch:

The system often identifies constraints after they have already begun affecting industrial performance.

In strategic sectors such as defence, delayed visibility into capability bottlenecks may weaken readiness, resilience and long-term sovereign capacity before corrective action is able to scale.

The issue therefore becomes not only decision quality.

It becomes decision speed.



When strategic systems react slower than emerging constraints develop, bottlenecks escalate faster than institutions can respond.

## 13 - The Questions Businesses Should Be Asking

Businesses should now be asking:

- Which suppliers also serve defence, energy or infrastructure sectors?
- Are we exposed to capacity diversion?
- Which lead times are likely to extend first?
- Are we dependent on constrained specialist materials or fabrication?
- Where are labour shortages likely to intensify?
- Which projects become harder to deliver profitably?
- Are we competing for the same engineering skills as strategic national projects?
- Which suppliers represent single points of failure?
- How exposed are we to grid constraints and energy availability?
- Are we resilient - or simply efficient?
- How quickly could we adapt if strategic priorities shifted suddenly?
- How exposed are critical programmes to specialist fabrication, steel-processing or engineering-capability concentration risks?
- How dependent are critical operations upon smaller suppliers that may lack the financial resilience to absorb prolonged disruption or rapid demand escalation?

## 14 - The Questions Governments Should Be Asking

Governments increasingly need a broader systems view. Not simply:

“How do we expand strategic capability?”

But:

- Which sectors are competing for the same industrial capacity?
- Which constrained capabilities unlock the greatest number of downstream sectors?
- Which bottlenecks matter most?
- Which sectors should receive priority access during constraint periods?
- How much redundancy should strategic systems contain?
- Which supply chains are most fragile underneath the surface?
- Are we building sufficient maintenance capability?
- Are we sequencing industrial expansion correctly?
- Which dependencies are least visible today but most dangerous tomorrow?
- Who is responsible for coordinating industrial visibility across sectors?
- How resilient are the long-term engineering, technical and vocational workforce pipelines required to sustain future national capability?

## 15 - Europe's Real Industrial Challenge May No Longer Be Demand

Europe's next industrial challenge may not be demand.

It may be the ability to coordinate, sequence and prioritise constrained capability across multiple strategic sectors at the same time.

That requires:

- better industrial modelling
- clearer visibility of dependencies
- stronger supply-chain intelligence
- earlier identification of bottlenecks
- realistic capacity planning
- practical operational feedback from industry
- stronger collaboration between sectors
- long-term skills and engineering planning
- infrastructure sequencing
- energy realism
- maintenance planning
- strategic redundancy thinking
- resilience modelling
- faster decision-making

Because the industrial base is no longer supporting one major transition.

It is supporting many simultaneously.

## Decision-Maker Lens Questions

### CEO

Which shared capabilities within our organisation support multiple objectives simultaneously?

### CFO

Which investments preserve the greatest degree of future optionality?

### COO

Which operational constraints are most likely to transfer pressure elsewhere?

### CTO/CIO

Which technology dependencies remain poorly understood?

### Procurement Director

How exposed are suppliers to emerging capability shortages?

### Board / NED

Where might apparently unrelated initiatives compete for the same constrained resource?

## Questions Worth Exploring Further

- Which industrial capabilities unlock the greatest number of strategic objectives?
- Which constraints are currently influencing behaviour without yet fully binding?
- How should governments sequence investments when ambitions exceed implementation capacity?
- What capabilities should be preserved even if they appear temporarily uneconomic?
- How much resilience should societies deliberately retain?

## Strategic Reference & Evidence Base

The observations and questions raised in this article draw upon a growing body of published industrial, defence, infrastructure, energy and supply-chain material emerging across Europe and the UK, including:

### European Defence Industry Programme (EDIP)

European Commission / European Defence Industrial Strategy

### KPMG – *Reimagining Defence Readiness in the EU (2026)*

### UK Government – *Invest 2035: The UK's Modern Industrial Strategy*

### OECD – Global Steel Excess Capacity Reports

### Eversheds Sutherland – *Global Supply Chain Horizons (2026)*

### ING Think – *EU Manufacturing Outlook*

### Reuters – European Semiconductor Capacity Reporting (2026)

### Foundation for European Progressive Studies (FEPS) – *Place-Based Industrial Policy*

## Important Note

This article does not attempt to predict a single outcome or claim that industrial stress will emerge uniformly across every sector.

Its purpose is to highlight the growing interaction between strategic industries that increasingly depend upon the same constrained foundations - including labour, fabrication, energy, infrastructure, semiconductors, supply chains and engineering capability.

The intention is to encourage earlier systems-level visibility, better coordination, improved sequencing and deeper operational questioning before bottlenecks become more severe.

## Final Thought

The question is no longer whether Europe should strengthen strategic capability.

The question is whether Europe has fully modelled what happens when multiple strategic sectors compete simultaneously for the same constrained industrial foundations.

Those pressures increasingly extend beyond infrastructure, energy and manufacturing alone.

They now include engineering capacity, specialist maintenance capability, workforce renewal, supply-chain resilience and the long-term sustainability of the systems modern economies depend upon.

That may become one of the defining operational and strategic questions of the next decade.

And the organisations, industries and nations that see these pressures earliest may ultimately gain the greatest strategic advantage.

## About Star-Insight™

Star-Insight™ is a strategic systems-intelligence methodology designed to help leaders understand how hidden dependencies, bottlenecks, sequencing, resilience and pressure-transfer dynamics shape real-world outcomes across interconnected systems.

Rather than analysing sectors in isolation, Star-Insight™ examines how infrastructure, energy, supply chains, labour, technology, logistics and operational capability interact across the wider economic ecosystem and explores the wider systems, dependencies and second-order effects that often remain hidden until they begin affecting outcomes.

The methodology focuses on identifying the structural constraints, coordination gaps and second-order effects that increasingly determine industrial resilience, strategic competitiveness and long-term national capability.

The Star-Insight™ Constellation was created to help business leaders, policymakers and decision-makers better understand the interconnected systems shaping economic performance, industrial capability and long-term resilience.

Better insight. Better decisions. Better outcomes.

Star-Insight™ publications are intended to stimulate discussion, improve visibility of interconnected risks and opportunities, and support better-informed decision-making.

## Strategic Systems Modelling Capability

Star-Insight™ can extend beyond strategic observation into deeper evidence-layer modelling and systems analysis, including:

- industrial dependency mapping
- quantified scenario modelling
- infrastructure and capability timelines
- energy and capacity competition analysis
- labour and workforce pipeline modelling
- supply-chain concentration analysis
- resilience and recovery modelling
- strategic bottleneck identification
- cross-sector pressure transfer analysis
- operational and decision-latency assessment

This allows organisations, industries and policymakers to move from:

**understanding systems pressure**

to:

**modelling strategic consequences before they escalate.**

## STAR-INSIGHT™ PUBLIC INTEREST BRIEF CONSTELLATION

The Star-Insight™ Public Interest Brief (PIB) Constellation is a growing library of assets that explore the strategic, operational and systemic pressures shaping organisations, industries, communities and national resilience.

### Published Titles

#### **PIB 001 - The UK Steel Challenge**

*Why steel remains a strategic capability rather than simply a commodity.*

#### **PIB 002 - Europe's Bottleneck**

*How shared industrial dependencies are reshaping resilience and competitiveness.*

#### **PIB 003 - The UK Construction Challenge**

*Understanding the foundations, constraints and opportunities within Britain's construction ecosystem.*

#### **PIB 004 – The Commercialisation of Policy**

*How Geopolitical and Regulatory Change Become Competitive Sales Tools*

#### **PIB 005 - The Defence Layer**

*The capability missing from many industrial strategy discussions.*

#### **PIB 006 - The Dependency Chain**

*Why the most important parts of a strategy are often the parts nobody talks about.*

#### **PIB 007 - The Power Gap**

*Why Electricity May Become Britain's Most Important Strategic Resource*

#### **PIB 008 - The Semiconductor Challenge**

*Semiconductors, sovereignty and strategic dependence in an increasingly uncertain world.*

#### **PIB 009 - The Memory Gap**

*Why nations that fail to retain institutional memory risk repeating the same mistakes.*

#### **PIB 010 - The Cyber-Security Challenge**

*Protecting critical systems in an interconnected economy.*

#### **PIB 011 - The Communications Challenge**

*Why information movement has become critical infrastructure.*

#### **PIB 012 - The Silicon Glen Question**

*What happens when a nation loses an ecosystem?*

Each publication forms part of the wider Star-Insight™ mission to improve visibility, understanding and decision clarity within increasingly complex operating environments.

## Additional Resources

PIB 003 forms part of a growing series of Star-Insight™ publications exploring capability, resilience, institutional memory and industrial competitiveness.

Additional tools, scorecards, workbooks and assessments referenced within this publication are currently being refined and may become available in due course.

Readers interested in related publications and future developments are invited to visit:

<https://www.reflexitmarketing.com/star-insight>

## About the Author

Craig de Prez is the creator of Star-Insight™, an independent strategic systems intelligence initiative focused on helping organisations, industries and policymakers improve decision quality in complex environments.

Drawing upon more than three decades of experience spanning sales, marketing, business development, enterprise software, industrial ecosystems and capability mapping, Craig's work explores the interdependencies that influence economic resilience, institutional memory, industrial competitiveness and long-term national prosperity.

Through Public Interest Briefings (PIBs), Strategic Observation Briefs (SOBs), Executive Assessments and related publications, Star-Insight™ seeks to identify overlooked dependencies, surface "unknown unknowns" and stimulate informed discussion about the choices facing organisations, sectors and nations.

The objective is not simply to highlight problems, but to explore practical mechanisms that help restore, repair and retain valuable capabilities before they are lost.

**Star-Insight™**

***Clarity in the Complexity.***

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