



POLEMARCH

A POLEMARCH THESIS MEMO

The Diffusion of Capability

Diffusion and concentration are not opposites. They are the two ends of the same structure.

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SAN JUAN, PUERTO RICO

Power used to require **scale**.

Force, manufacturing, capital formation, discovery, and coordination were once so expensive and institutionally complex that only states, militaries, large corporations, universities, banks, and research institutions could assemble them. That structure is breaking.

A small team can now access capabilities that recently belonged only to institutions. Intelligence is becoming cheap. Software substitutes for headcount. Drones substitute for platforms. Stablecoins substitute for legacy rails. AI-native firms substitute for organizations with thousands of employees.

But the same forces diffusing capability at the bottom are concentrating power at the top. Using intelligence gets cheaper every year. Producing frontier intelligence gets more expensive every year. The floor rises while the frontier consolidates, and the middle is squeezed from both directions.

The central structure of the next decade is simple:

Capability diffuses wherever cognition was the bottleneck. It concentrates wherever the bottleneck is physical, sovereign, capital-intensive, or regulated.

The market understands the first half. It is pricing diffusion as if it were permanent. It is not. Every major diffusion of force, capital, or coordination has eventually ended in re-consolidation at a higher level of scale. The strongest private operators of the diffusion period are not usually destroyed; they are absorbed, licensed, deputized, or converted into the new institutional layer.

The same pattern is likely now. Compute providers will become enforcement points. Constellation owners will carry sovereign traffic. Autonomous defense companies will become the new primes. Verification systems will become compliance infrastructure. Energy and grid assets will become strategic chokepoints.

Three positions follow.

— EXPLOIT THE WINDOW	back AI-native firms, autonomous systems, programmable capital rails, and other capability-dense businesses whose minimum efficient scale is collapsing.
— OWN THE CHOKEPOINTS	power generation, grid access, advanced compute, data centers, chips, spectrum, launch capacity, and the industrial base beneath them.
— BACK THE DEPUTIZED	autonomous-defense firms, verification and identity layers, regulated stablecoin and custody infrastructure, sovereign cloud, secure communications — companies that become more valuable as the state rebuilds control.

THE OPPORTUNITY IS NOT SIMPLY TO INVEST IN DIFFUSION. IT IS TO UNDERSTAND WHERE DIFFUSION ENDS.

Capability rests on five inputs.

— INTELLIGENCE	the ability to design, decide, and adapt
— PRODUCTION	the ability to make things
— FORCE	the ability to compel outcomes
— CAPITAL	the ability to finance action
— COORDINATION	the ability to bind effort toward an end

Historically, these inputs were scarce and complementary. A tenth of an army wins nothing. A tenth of a factory makes nothing. A tenth of an intelligence service is not an intelligence service. The inputs only mattered when assembled, and institutions existed because only institutions could assemble them.

The scarce resource underneath all five was **applied competence**. Production required engineers. Force required technicians. Capital required analysts. Coordination required managers. Discovery required trained researchers. Institutions were reservoirs of competence that individuals and small teams could not afford to build.

That is what changed. Machine intelligence makes competence cheaper. It does not solve every constraint, but it attacks the bottleneck that most often made scale necessary. This is why all five inputs are loosening at once.

The key distinction is between the cost of using capability and the cost of producing the frontier. The cost of using a given level of AI capability is collapsing.^{1, 3} The cost of training frontier models is rising.² Inference diffuses. Frontier production concentrates.

That is the barbell.

Capability spreads wherever cognition was the binding constraint. It spreads more slowly where the binding constraint is physical production quality, certification, sovereign permission, accumulated field data, safety, or trust.

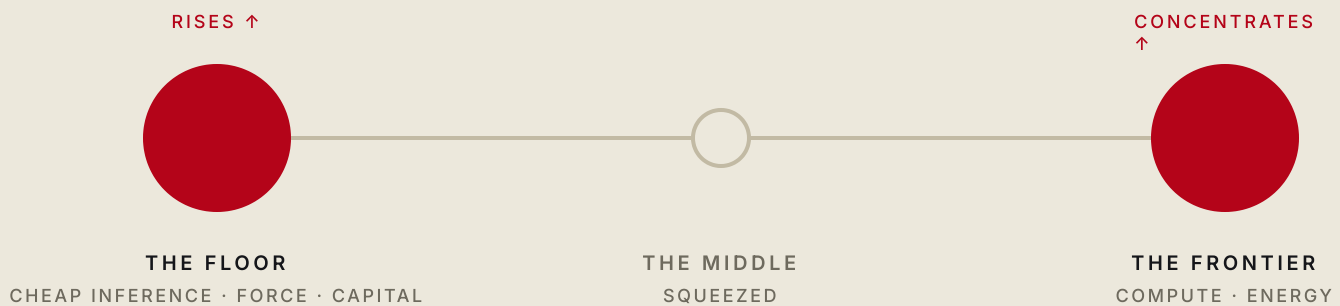
Drug development shows the limit. AI can compress candidate design, but trials, approval, liability, clinical validation, and reimbursement remain slow.¹² Aviation shows the limit. The design of a high-bypass turbofan can be known; the ability to manufacture one reliably at scale remains rare. Defense shows the limit. A prototype can be built quickly; a trusted, integrated, sovereign-approved system cannot.

Cheap competence is necessary. It is not sufficient.

At the bottom of the structure, capability is diffusing. Small teams can build software, launch companies, deploy drones, move capital, synthesize media, automate workflows, and coordinate operations with tools that were previously institutional.

At the top of the structure, the frontier is concentrating. Advanced compute, energy access, chip supply, sovereign relationships, proprietary data, launch capacity, model training, and regulated deployment are moving into fewer hands.

The middle is exposed. This is not democratization, but redistribution along a curve: the floor rises, the frontier pulls away, and the middle loses its former advantages.



The historical precedent is gunpowder.⁴ Firearms diffused force downward. The arquebus allowed a commoner trained in weeks to threaten a mounted noble whose equipment and skill required wealth, lineage, and years of training. Pikes and longbows had already weakened the mounted knight's monopoly; firearms made the shift permanent.

Artillery moved in the opposite direction. Siege cannon, foundries, engineers, logistics, and new fortifications required state scale. The same age that democratized battlefield lethality also accelerated state consolidation. **Cheap weapons weakened the local noble. Expensive artillery strengthened the crown. The middle disappeared.**

A similar pattern is visible in space. Launch costs fell, allowing universities, startups, and mid-sized states to put assets in orbit. Yet orbital infrastructure is concentrating under a handful of actors. SpaceX now operates the world's dominant low-earth-orbit satellite constellation and occupies a position closer to strategic infrastructure than ordinary vendor.⁵

Access diffused. The rails consolidated.

That is the shape of the frontier across AI, robotics, energy, aerospace, defense, biotech, and financial infrastructure. These are not separate trends. They are one structure expressed in different materials.

The exposed actor is not defined by size. It is defined by **metabolism.**

A small state can be highly capable. Israel, Singapore, the UAE, Taiwan, and South Korea are not large by population, but they are fast, specialized, technically serious, and strategically coherent. A large company can also remain advantaged if it controls a frontier layer: compute, distribution, capital, energy, sovereign access, proprietary data, or physical infrastructure.

The vulnerable position is the bureaucratic middle: too slow to compete with the floor, too undercapitalized to own the frontier.

This includes seat-based enterprise software companies whose pricing assumes every workflow still requires a human user; billable-hour services firms whose revenue depends on reselling human labor; legacy defense and aerospace contractors whose advantage is compliance, process, and program scale rather than deployment speed; mid-tier banks and payment processors caught between programmable rails below and systemically important balance sheets above; traditional media, research, and information businesses whose product was scarce analysis before intelligence became cheap; and mid-capable states too small to fund the frontier, too regulated to host the floor, and too slow to specialize.

The issue is not big versus small. The issue is **cost structure and decision speed.**

The better historical analogue is the long death of the private market for organized force.⁶

For centuries, force was not fully monopolized by the state. Mercenary captains, privateers, chartered companies, military entrepreneurs, and armed trading companies sold violence and logistics across borders. Capability lived in a market.

Then the frontier of war moved beyond that market. Gunpowder, artillery, drill, finance, shipbuilding, railways, telegraphy, industrial production, cryptography, aviation, radar, nuclear weapons, satellites, and precision systems did not simply make force more lethal. They made the highest forms of force too capital-intensive and too strategic to remain open.

The floor still rose. Small units became more lethal. Irregulars could impose greater costs. Technology diffused downward. But the frontier concentrated into states and the industrial firms attached to them. The result was the modern defense structure: not a free market for force, and not a purely state-run machine, but a fused system of sovereign demand, regulated private capability, national champions, arsenals, and prime contractors.

That is the pattern. Capability diffuses first. The frontier concentrates next. The state then rebuilds control by deputizing the strongest private operators of the diffusion period. The middle is squeezed out: too slow for the floor, too small for the frontier, and too exposed once the licensing regime arrives.

The lesson is not that the barbell is fatal. The lesson is that the hollow middle is fatal.

Four arenas show the structure clearly.

FORCE DIFFUSION

Ukraine has demonstrated the new battlefield economics. Cheap first-person-view drones now destroy systems worth orders of magnitude more. The exact damage estimates from specific operations vary,⁷ but the underlying cost structure is clear: low-cost autonomous or semi-autonomous systems can impose losses on platforms that are expensive, scarce, slow to replace, and institutionally complex.

The unit of force is moving away from the platform and toward the small team, the sensor, the munition, the software layer, and the kill chain. This is not a temporary improvisation. It is a new cost curve.

THE FIRM DIFFUSION

The AI-native firm is becoming a distinct category. The old software company scaled by hiring. The new one scales by automating. The old model treated headcount as capacity. The new model treats headcount as drag.

Revenue per employee is becoming a strategic metric, not an efficiency metric. This does not mean every lean company wins. Most will not. But the minimum efficient scale required to build a serious company is falling, and that change alone is enough to reorder venture formation, labor markets, and the structure of services.

CAPITAL DIFFUSION

Programmable capital rails are the financial version of the same shift. Crypto's headline narratives have been noisy. Speculation, leverage, fraud, and reflexive hype cycles have obscured the durable fact underneath: value movement is becoming programmable, global, software-mediated, and increasingly detached from legacy institutional rails.

Stablecoins are the clearest expression.⁸ Even after discounting inflated volume, bot activity, and trading-related churn, the direction is unmistakable. More value is moving through software rails, and more transactions are initiated by software rather than humans.

This is capital diffusion. But it will not remain permissionless forever. The largest operators of the permissionless period are already becoming the licensed custodians, exchanges, stablecoin issuers, and infrastructure providers of the regulated period.

THE FRONTIER CONCENTRATION

The frontier is concentrating around compute, energy, chips, data, and state permission. Training frontier AI models requires escalating capital. Deploying frontier systems requires cloud infrastructure, power contracts, data centers, semiconductor access, and regulatory tolerance.⁹ The bottleneck is no longer only talent or algorithms. It is increasingly electricity, permitting, interconnection, chips, cooling, and sovereign alignment.

The model layer may commoditize. The substrate will not. A model can be copied. A gigawatt cannot.

The strongest objection is simple: the frontier premium will not hold.

Open-weight models trail the frontier by months rather than years. Fast followers reproduce last year's frontier at a fraction of the cost. Yesterday's billion-dollar capability becomes tomorrow's free download. If that continues, the concentrated end of the barbell dissolves. There is no barbell, only commoditization.

The objection is half right. The cost of accessing any fixed level of capability will collapse. That is the rising floor. But the objection misses where scarcity moves when the model layer commoditizes.

Scarcity migrates down the stack: out of the weights and into compute, energy, grid access, chips, sovereign authorization, trusted deployment, and the industrial base that builds and protects all of it. Software commoditization does not eliminate concentration. It pushes concentration into slower, harder, more physical, and more sovereign layers.

That is why the kill condition for this thesis is not open-source AI. The kill condition is abundant, unconstrained energy and compute. If energy, grid access, and advanced compute become cheap, universal, and politically unconstrained within the decade, the concentration thesis fails.

Until then, commoditization at the model layer strengthens the case for owning the substrate.

The current diffusion will not last. It is an **interregnum**: the open period between the collapse of one monopoly and the construction of the next.

History tends to keep these windows short. The condottieri sold war across Renaissance Italy before permanent state armies absorbed or displaced them. Privateers operated for centuries under letters of marque before great powers restricted the practice by treaty.¹⁰ Early crypto operated outside the legacy financial system before exchanges, custodians, stablecoin issuers, and wallets were pulled into licensing regimes. Military entrepreneurs raised vast armies during the Thirty Years' War before the state rebuilt a more complete monopoly on organized force.

Power slips loose. Then it is gathered again.

The important point is that the state rarely rebuilds control alone. It deputizes the most capable private actors. The kings who ended the condottieri did not replace captains with clerks. They hired the best captains. Francesco Sforza did not merely serve the new order; he took Milan and became duke.

The same pattern is likely now. The state will not build the new control layer by itself. It will use private capability. Compute providers will enforce identity and access rules. Cloud providers will become strategic compliance infrastructure. Constellation owners will carry sovereign traffic. Autonomous defense firms will become prime contractors or prime-adjacent. Verification companies will become the trust layer for synthetic media, agents, identity, and authorization.

The re-concentration will be a fusion of state authority and private capability. The equity in that fusion is being priced during the window.

The likely accelerant is a catastrophic small-actor event: biological, cyber, autonomous, or some hybrid of the three. But a catastrophe is not required. It only changes the speed. Privateering ended by treaty. The condottieri ended through the gradual growth of state capacity. Permissionless finance is being narrowed jurisdiction by jurisdiction.

The closing comes either way. The task is to operate before it closes and own what becomes more valuable after it closes.

BY SECTOR LONG

- **The physical substrate of the frontier.** Power generation, grid infrastructure, advanced compute, chips, data centers, cooling, interconnection, spectrum, launch capacity, and the industrial base beneath them. Energy is the master constraint, which makes it the highest-quality strategic position.
 - **Capability-dense floor teams with a license trajectory.** The best companies are not merely fast – they become more valuable when the regulatory window closes. Clearest in autonomous defense, dual-use infrastructure, and security-critical systems where state adoption, compliance, and procurement become moats rather than burdens.
 - **Verification and trust infrastructure.** As convincing fakes become cheap, proof becomes scarce. The scarce layer will be identity, provenance, authorization, auditability, and trust. When agents act, documents synthesize, voices clone, and capital moves automatically, verification becomes the paid layer.
 - **Programmable capital rails.** Value movement continues to migrate from legacy institutions to software-mediated rails. The winners will be the infrastructure layers that survive regulation and become part of the licensed system.
-

BY SECTOR SHORT

The metabolic middle. Seat-based enterprise software whose pricing assumes human users remain the unit of value. Billable-hour services whose economics depend on reselling labor. Legacy defense and aerospace contractors optimized for compliance and program scale rather than speed. Mid-tier banks and payment processors caught between programmable rails and systemically important balance sheets. Traditional media, research, and information businesses whose product was scarce synthesis before intelligence became cheap.

Not underweight. Absent.

BY GEOGRAPHY LONG

- **Frontier blocs.** The United States and China remain the only full-spectrum actors capable of funding and controlling frontier stacks across AI, chips, energy, manufacturing, defense, and space.
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- **Energy-rich states.** States with cheap power, land, political alignment, and infrastructure capacity become strategically important hosts for the frontier.
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- **Nimble capability havens.** The Gulf, Singapore, Israel, Taiwan, South Korea, and select special economic zones can outperform larger states if they specialize, align with a major bloc, and move quickly.
-

BY GEOGRAPHY SHORT

Mid-capable states. Too small to fund the frontier. Too slow to host the floor. Too regulated to attract the builders. Too indecisive to specialize.

Again, the dividing line is not size. It is metabolism. **The losers are not doomed by being mid-sized. They are doomed by being slow.**

The first-order consequences are now close to consensus: compute and energy concentrate, autonomous systems reprice defense, lean teams beat heavy ones, and industrial policy returns. The useful forecasts are second-order. They are less certain, more important, and should be graded.

1

Diffusion triggers its opposite: the great re-concentration. A catastrophic small-actor event – biological, cyber, autonomous, or hybrid – provokes the largest expansion of state licensing and surveillance since the Second World War. Hardware-level identity becomes a serious policy proposal for compute, autonomy, and synthetic media.

THIS DECADE · **FALSIFIED IF** the decade ends with no triggering event and no meaningful hardening of compute, autonomy, or biosecurity controls.

2

Prices split into two regimes. Things capability can produce cheaply – software, media, analysis, synthetic labor, some goods – fall toward the cost of energy and compute. Things capability cannot easily produce – trust, prime land, provenance, scarce energy, human attention, elite access, legitimacy – rise against them.

VISIBLE BY 2030 · **FALSIFIED IF** the price ratio of non-replicable to replicable assets is flat or falling by 2030.

3

Demographic decline becomes less predictive of national decline. If output decouples from headcount, the advantage shifts from population size to capability density. Aging, high-trust, technically sophisticated societies may outperform expectations on output per worker.

THE 2030S · **FALSIFIED IF** Japan, Korea, and similar economies continue to underperform peer economies in output per worker through 2035.

4

Credentials invert. As capability becomes easier to acquire and demonstrate, elite degrees and brand-name employers lose some signaling power among the most capable builders. Apprenticeship, patronage, proof-of-work, and small houses regain importance.

MID-2030S · FALSIFIED IF elite credentials maintain or increase their wage and access premium across frontier sectors.

5

Politics reorganizes around capability. The central political divide shifts from left versus right toward accelerate versus restrain, diffuse versus control, build versus block. This axis cuts across existing coalitions.

THE 2030S · FALSIFIED IF capability politics remains subordinate to traditional partisan alignment.

6

The state's monopoly on organized force erodes before it is rebuilt. Cheap autonomy allows non-state and quasi-state actors to impose costs once reserved to militaries. The autonomous condottiere emerges before the new monopoly is established.

EARLY 2030S · FALSIFIED IF states re-monopolize force through counter-autonomy, law, and procurement before meaningful private or quasi-private erosion occurs.

A forecast that is never scored is not a forecast. It is branding. These should be reviewed annually.

Polemarch runs three positions against this structure.

POSITION ONE OWN THE SUBSTRATE

Power generation, grid assets, advanced compute, data centers, interconnection, cooling, chips, spectrum, launch capacity, and the industrial base beneath them. These are the hinges: difficult to build, hard to copy, politically sensitive, and impossible to replace with software alone. They become more valuable as the window closes.

POSITION TWO BACK THE FUTURE SFORZAS

The best floor companies are not merely fast, cheap, and software-native. They are companies whose value increases under licensing, procurement, identity, verification, or sovereign adoption. The screen is simple:

-
- Does the company become more valuable when controls arrive?
-
- Can it form government relationships quickly?
-
- Does regulation strengthen its moat?
-
- Is it infrastructure, not merely a feature?
-
- Does it sit on a path from diffusion to deputation?
-

A floor company that the closing strengthens is a different asset class from one the closing kills. The market does not yet price that distinction well.

POSITION THREE AVOID THE METABOLIC MIDDLE

- No seat-based software whose pricing assumes human users remain the unit of value.
 - No billable-hour services whose economics depend on reselling labor.
 - No legacy defense or aerospace contractors optimized for compliance and program scale rather than speed.
 - No mid-tier financial institutions caught between rails and balance sheets.
 - No traditional information businesses whose moat was scarce synthesis.
 - No businesses whose advantage is inertia.
-

The middle may generate cash. **It does not compound strategic advantage.**

The closing can be watched. The indicators are visible:

- Hardware-identity proposals for compute.
- Licensing regimes for frontier models.
- Export controls on chips and cloud access.
- Treaty drafts on autonomous weapons.
- Mandatory provenance for synthetic media.
- State-backed stablecoin regulation.
- Grid and power allocation becoming national-security issues.
- The first widely attributed autonomous atrocity.
- Procurement acceleration around private autonomous-defense firms.
- Verification layers becoming mandatory for identity, agents, payments, or documents.

Each is a hand on the dial. The work is not to predict the exact trigger. The work is to own what becomes more important after the trigger.

Thucydides wrote that the strong do what they can and the weak suffer what they must.¹¹ That line endured because the cost structure of power endured. For most of history, the strong were strong because capability was expensive, institutional, and slow to assemble. The weak were weak because they could not accumulate the inputs required to act at scale.

That cost structure is changing, but it will not stay changed. The floor is rising. The frontier is concentrating. The middle is hollowing. The window is open, and the next structure is already forming beneath it.

The central question of the century is not whether capability diffuses. It will. The question is who controls the layers where diffusion ends.

- Who owns the energy.
- Who owns the compute.
- Who verifies identity.
- Who licenses force.
- Who carries sovereign traffic.
- Who becomes infrastructure.
- Who gets deputized.
- Who gets regulated out.
- Who gets to be strong.

Polemarch exists to read that structure early and position capital before consensus catches up. The question is not whether power changes hands. It is who understands the transfer before it is complete.

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Capability is the ability to do work. Work is directed energy.

A cell, a firm, a civilization, a weapons system, and a frontier model are all temporary structures of ordered energy. None owns its order. Each borrows order from an energy gradient and maintains its shape only while the current runs.

The universe spends gradients down. Everything built in the meantime is order borrowed against that current.

Whoever holds the steepest, most durable gradient sets the terms for everyone downstream.

The diffusion of capability is the spread of access to the current. The concentration of the frontier is the contest to own its source.

All figures should be re-verified before external distribution. Numerical claims, company valuations, funding figures, satellite counts, stablecoin volumes, AI training costs, and battlefield estimates should be treated as current working assumptions rather than final diligence.

1 Epoch AI, Trends in Artificial Intelligence — frontier model training costs, training compute growth, and AI capability trends.

2 Epoch AI, How Much Does It Cost to Train Frontier AI Models? — frontier training cost growth and billion-dollar training-run projections.

3 Gundlach, Lynch, Mertens & Thompson, The Price of Progress: Algorithmic Efficiency and the Falling Cost of AI Inference — inference cost declines for fixed benchmark performance.

4 Clifford J. Rogers, "The Military Revolutions of the Hundred Years' War"; Geoffrey Parker, The Military Revolution; Charles Tilly, Coercion, Capital, and European States.

5 Public satellite tracking and reporting on Starlink constellation scale, launch cadence, and active satellite share.

6 Michael Mallett, Mercenaries and Their Masters; Jan Glete, War and the State in Early Modern Europe; David Parrott, The Business of War; William H. McNeill, The Pursuit of Power; Fritz Redlich, The German Military Enterpriser and His Work Force.

7 Reuters and public OSINT reporting on Ukraine's Operation Spiderweb and Russian aircraft losses.

8 Artemis, Chainalysis, JPMorgan, Bloomberg, and CoinDesk reporting on stablecoin volume, payment share, and market projections.

9 Futurum Group, Goldman Sachs, Reuters, and public company reporting on hyperscaler AI capital expenditure, data-center power demand, grid interconnection, and advanced-compute constraints.

10 Declaration of Paris, 1856, and historical treatment of privateering and letters of marque.

11 Thucydides, History of the Peloponnesian War, 5.89.

12 Scannell, Blanckley, Boldon & Warrington, "Diagnosing the Decline in Pharmaceutical R&D Efficiency"; Michael Polanyi, The Tacit Dimension; RAND and CSIS analyses on advanced manufacturing and aeroengine constraints.

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