Beyond Chatbots: Building European Infrastructure for Advanced Intelligence

A Baltic Sea Region Initiative for the 2025-2028 Critical Window

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Executive Summary

Window for Action: AI capability arrives on a roughly 36-month cadence while infrastructure takes comparable time to deliver. Decisions locked in during Q1–Q2 2025 determine whether Europe has indigenous compute and energy online when frontier systems debut in 2028.

This document addresses European policymakers facing the most consequential technological transition since industrialization. Within 3-5 years, artificial intelligence systems will progress from today's advanced reasoning models to systems that advance scientific discovery, recursively improve themselves, and potentially solve civilization-scale challenges including climate change. Leading AI laboratories back this timeline with hundreds of billions in committed capital.

Europe faces four existential risks if infrastructure investments are not made immediately:

1. **Chinese Technological Dominance:** Authoritarian control of advanced AI embeds incompatible values into foundational systems
2. **American Economic Monopoly:** European value capture, jobs, and innovation migrate permanently to US infrastructure
3. **Catastrophic Security Vulnerabilities:** Biowarfare, infrastructure attacks enabled by adversary-controlled AI
4. **Geopolitical Irrelevance:** Nations without indigenous AI capability become subordinate to those with it

The mathematical reality: advanced AI systems require massive computational infrastructure powered by abundant, affordable energy. Building this infrastructure takes 24-36 months from permitting to operation. AI capabilities arrive in approximately 36 months based on current research trajectories. **Decisions delayed beyond Q2 2025 mean Europe lacks infrastructure when capabilities emerge.**

Core recommendations for immediate action:

- €1 trillion commitment over 2025-2028, combining public strategic investment with private sector mobilization
- Emergency permitting reform: data center approval in 6 months versus current 24+ months
- Bureaucracy reduction and tax competitiveness enabling private sector leadership
- BSR fast-track pilot program leveraging Iceland geothermal, Nordic climate/hydropower, German industrial capacity, Swedish startup ecosystem
- Energy capacity expansion treating AI infrastructure as national security priority
- Market-driven allocation mechanisms ensuring efficient capital deployment

This commitment serves dual purpose: technological capability and national security. Advanced AI may provide solutions to climate change and other civilizational challenges, but only for nations possessing indigenous capability. The alternative is dependency on systems designed by rivals embedding incompatible values.

Public investment provides the foundation enabling private sector confidence to deploy capital at scale. European infrastructure reaching competitive thresholds unlocks market mechanisms that drive innovation. The US model demonstrates this approach: government creates conditions, private capital executes rapidly.

The Baltic Sea Region can move faster than broader EU processes through existing coordination mechanisms like CBSS. However, BSR alone cannot match US/China scale. Regional proof-of-concept must catalyze EU-wide mobilization.

AI policy decisions require speed matching technological development pace. Traditional multi-year policy cycles are inadequate when capability doubles annually.

This generation's leaders face judgment on one decision: did they build infrastructure when it mattered, or did they deliberate while others acted?

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1 Understanding Advanced AI Systems

1.1 Beyond Current Capabilities

When policymakers hear "artificial intelligence," the reference point is typically current commercial systems: GPT-5, Claude 4.5, Gemini 2.5. These represent impressive technology capable of complex reasoning, multi-step problem solving, and sophisticated analysis. However, they remain fundamentally limited in crucial ways.

The systems emerging in 2026-2028 will operate at a categorically different level.

Key Distinction: Current AI systems apply learned patterns to reason through problems using techniques like chain-of-thought and reinforcement learning. Advanced AI systems will generate genuinely new knowledge through independent discovery comparable to thousands of PhD-level researchers working continuously.

Think of the progression this way: today's most advanced AI can solve graduate-level mathematics problems and reason through complex scenarios. Tomorrow's AI will formulate new mathematical theorems, design novel scientific experiments, and make discoveries humans have not conceived.

Concrete examples illustrate capability trajectory.[1]

2025 (Current State):

- Google and OpenAI reported goldmedallevel scores at the International Mathematical Olympiad (IMO) in July 2025; press coverage and followups confirmed goldthreshold performance. Similar goldlevel results were reported for the International Olympiad in Informatics (IOI).[2]
- These represent the most challenging competitive intellectual tasks globally
- Public models like GPT-5 demonstrate sophisticated reasoning through extended chains of thought
- Chinese laboratories lead open-source development with systems like Moonshot's Kimi K2 Thinking, Alibaba's Qwen 3 Max, Baidu's Ernie 5.0, and DeepSeek's v3.2-exp-thinking

2026 (Near-term): Systems design novel proteins never existing in nature, predict properties accurately, optimize for specific functions computationally without physical synthesis. Small discoveries across domains: new materials with desired characteristics, drug candidates for complex diseases, solutions to specific mathematical conjectures.

2028 (Medium-term): Systems make significant discoveries across multiple domains simultaneously. Designing pharmaceuticals for diseases resistant to current approaches. Developing materials enabling order-of-magnitude improvements in energy storage or

[1]Daniel Hernández and Tom B. Brown. "Measuring the Algorithmic Efficiency of Neural Networks". In: *arXiv* (2020). eprint: 2005.04305. URL: https://arxiv.org/abs/2005.04305.

[2]Reuters. *AI systems reach gold-level scores at IMO 2025*. July 2025; Accessed 2025-11-09. 2025. URL: https://www.reuters.com/; TechCrunch. *Coverage of AI 'gold-level' performance at IMO 2025*. July 2025; Accessed 2025-11-09. 2025. URL: https://techcrunch.com/; The Decoder. *Coverage of AI 'gold-level' performance at IOI 2025*. Sept 2025; Accessed 2025-11-09. 2025. URL: https://the-decoder.com/.

computing. Solving longstanding problems in mathematics and physics that resisted human efforts for decades or centuries.

Beyond 2028: Recursive self-improvement becomes feasible. AI systems design superior AI systems faster than human researchers can, creating accelerating capability curves. The inflection point where machines exceed human capability at improving machines.

1.2 How This Actually Works (For Policymakers)

Understanding why infrastructure matters requires grasping core mechanisms determining AI capability. The explanation avoids unnecessary technical detail while conveying principles linking investment to performance.

1.2.1 Training: Teaching the System

Training AI involves processing enormous datasets across thousands of specialized processors simultaneously, iteratively adjusting billions or trillions of parameters encoding learned patterns, consuming gigawatts of electrical power over weeks or months.

Current numbers matter:

Frontier training energy (orderofmagnitude): 10^2–10^3 GWh per full cycle (pretrain + RL + tuning), depending on model, hardware, and methods.[a]
$E_{\text{GWh}} \approx \frac{N \cdot P \cdot u}{10^6} \times 24 \times D \times \text{PUE}/1000$ (with N GPUs, TDP P W, utilization u, days D).
Example: 120k GPUs, 700 W, 60% util, 100 days, PUE 1.2 $\rightarrow$ 145 GWh.

[a] International Energy Agency. *Electricity 2025 outlook: Data centres and data transmission networks*. Accessed 2025-11-09. 2025. URL: https://www.iea.org/.

- Training costs: \$100–500 million per major cycle including compute, energy, and research iteration (range varies by hardware/pricing).[1]
- Modern development involves continuous processes: initial training, finetuning, reinforcement learning, and ongoing capability improvements
- Not single training runs but sustained development pipelines

Depending on the baseline used for household consumption, a few 10^2 GWh equates to tens of thousands of households for a year. As capabilities advance, requirements scale with compute and energy availability.

Why Europe's energy costs matter: If training costs 2-3× more in Europe due to energy prices, European AI companies face structural competitive disadvantage. Capability follows infrastructure.

[1] Reuters. *Hyperscaler CAPEX surges for AI and data centres*. Earnings coverage 2025; Accessed 2025-11-09. 2025. URL: https://www.reuters.com/.

1.2.2 Inference: Deploying the System

After training, AI performs "inference" by applying learned patterns to new problems. While less expensive than training per query, serving millions of users demands massive infrastructure.

Advanced reasoning models consume dramatically more compute per query than simple responses. When systems "think through" complex problems across multiple steps, single queries can require computational resources equivalent to thousands of simple interactions.

Scaling inference to population-scale deployment requires substantial compute infrastructure, and test-time "think longer" policies further increase per-query energy.[1]

1.2.3 Reinforcement Learning and Beyond-Scaling Breakthroughs

Major recent advances come from techniques beyond simply making models larger:

Reinforcement Learning (RL):

- Systems learn by trial and error with feedback on solution quality
- Enables capability improvements without proportional parameter increases
- OpenAI's reasoning models and Google's competition winners use extensive RL
- RL training adds substantial compute requirements but yields superior performance

Algorithmic Efficiency:

- Price for same performance drops approximately 40× annually through architectural improvements
- Better algorithms extract more capability from given compute budget
- Means capability curves steeper than raw infrastructure investment suggests
- Also means falling behind compounds rapidly as competitors deploy better techniques

Inference-time Compute:

- Systems "think longer" on difficult problems, improving answer quality
- Flexible compute allocation based on problem difficulty
- Enables scaling capability through inference infrastructure, not just training

1.2.4 Capability Scaling

AI capability improves consistently with greater compute, data, and algorithmic advances. The relationship proves smooth and predictable across hundreds of training runs representing billions of dollars in experiments.

Industry confidence stems from observed patterns:

[1] Recent test-time compute scaling work (OpenAI/Stanford; DeepMind).

- Larger training budgets yield measurably more capable systems
- Better algorithms multiply returns on compute investment
- Improvements compound as research advances accelerate
- No visible ceiling has appeared despite massive scale increases

Companies bet hundreds of billions on continuation of these patterns. They observe consistent returns and expect trends to persist.

The concerning implication: every capability doubling previously requiring 12-18 months now requires 6-9 months due to algorithmic improvements. The pace accelerates while infrastructure requirements grow.

1.2.5 Why This Time Differs From Previous Hype

Valid skepticism demands explaining what changed relative to previous "AI boom" cycles producing limited practical impact.

Empirical performance on meaningful tasks:

- Gold medals at IMO and IIO 2025 represent genuine intellectual achievement
- Progress on graduate-level science questions, professional software engineering benchmarks
- Real-world deployment at massive scale across industries
- These measure genuine problem-solving, not narrow demonstrations

Unprecedented capital commitment:

- Project Stargate: $500B US private investment announced January 2025
- Microsoft, Google, Meta, Amazon: Similar scale infrastructure buildouts
- Chinese state-backed programs: Hundreds of billions committed
- Total industry commitment exceeds $1 trillion over 2024-2028
- Companies deploy such capital based on demonstrated returns, not speculation

Convergent expert timelines despite competitive pressures:

- Multiple leading laboratories project similar capability milestones
- Agreement despite incentives to differentiate for competitive advantage
- Convergence signals confidence based on research trajectories

The pattern: empirical results validate approaches leading to massive capital deployment accelerating capability gains producing more validation attracting more capital. The feedback loop actively accelerates.

1.3 Industry Timelines and Projections

Leading AI laboratories project capability development based on current research trajectories:

OpenAI:

- Sam Altman, January 6, 2025: "We are now confident we know how to build AGI as we have traditionally understood it."
- We believe that, in 2025, we may see the first AI agents "join the workforce" and materially change the output of companies.
- Internal models already demonstrating research-level capabilities (IMO gold medal performance)
- Timeline: Significant discovery capability by 2027-2028

Anthropic:

- Dario Amodei, October 2024: "I think it (referring to powerful AI) could come as early as 2026."
- Defines "powerful AI" as smarter than a Nobel Prize winner across most fields, agentic via standard interfaces, summarized as "a country of geniuses in a datacenter."
- Claude 4.1 Opus demonstrates increased agency and multi-step task completion
- Projects continued rapid capability gains through 2026-2027

Google DeepMind:

- Demis Hassabis projects AGI-level capability "in the next five to ten years."
- Gemini 3.0 expected shortly with major capability increases over current 2.5 Pro
- Strong internal reasoning models winning mathematical and programming competitions
- Emphasis on solving scientific problems: protein design, materials discovery, drug development

Chinese Laboratories:

- Aggressive timelines matching or exceeding Western projections
- State backing enables rapid resource mobilization
- Leading open-source development: Kimi K2 Thinking (Moonshot), Qwen 3 Max (Alibaba), Ernie 5.0 (Baidu), DeepSeek v3.2
- Explicit goal: AI leadership by 2030, with major milestones by 2027

Despite competitive pressures incentivizing differentiation, convergence on 2026-2028 timeframe for transformative capabilities indicates confidence based on observed research progress.

1.4 Recursive Self-Improvement and Its Implications

Human technological progress follows a pattern: humans design tools, tools amplify human capability, humans design better tools. Progress rate bottlenecks on human cognitive capacity.

Recursive self-improvement breaks this constraint. When AI systems can improve AI systems, progress depends on compute and energy availability rather than human cognition.

If capability improvements yield doubling every 12 months through human effort, they might yield doubling every 3-6 months through AI-assisted effort, then potentially every few weeks when AI systems primarily drive improvement.

The transition from human-limited to compute-limited progress represents the most significant phase change in technological development since industrialization. Pace remains uncertain but direction is clear.

Nations with indigenous AI capability navigate this transition as participants. Nations lacking it experience the transition as something happening to them.

2 Four Existential Risks for Europe

The following section provides analytical assessment of concrete threats before direct statement of stakes. Each risk is measurable, accelerating, and collectively constitutes existential threat to European strategic autonomy.

2.1 Risk One: Chinese Technological Dominance

2.1.1 Capability and Investment

China pursues AI dominance as explicit national strategy with resources matching declared priority:

Compute infrastructure (November 2025):

- Estimated frontier model training capacity: 150,000-200,000 H100-equivalent GPUs
- Planned 2026-2027 expansion: 500,000+ GPUs across state-backed facilities
- Dedicated power allocation treating AI infrastructure as national security priority
- Domestic manufacturing of servers, networking; advancing indigenous chip production despite sanctions

Investment scale:

- Central government AI investment 2024-2028: estimated $250+ billion
- Provincial and municipal co-investment: $150+ billion
- Private sector (Alibaba, Tencent, Baidu, ByteDance, Moonshot): $100+ billion
- Total commitment: $500+ billion targeting AI dominance

Institutional advantages:

- Unified national strategy without multi-stakeholder coordination challenges
- Direct state control of energy, permitting, land use enabling rapid deployment
- Ability to mandate industry cooperation and data sharing
- No democratic constraints on resource allocation or timelines

2.1.2 Values Embedded in Systems

Advanced AI systems encode values through training data selection, reinforcement learning feedback determining rewarded behaviors, deployment constraints on permitted uses, and update authority controlling improvements.

Chinese AI systems embed CCP values systematically:

- Surveillance as social good and stability requirement

- Individual rights subordinate to collective harmony
- Party authority as prerequisite for societal functioning
- Censorship necessary for social management
- Western democratic norms as destabilizing foreign influence
- Historical narratives supporting CCP legitimacy

These values become operational defaults when Chinese systems deploy at scale.

2.1.3 The Dependency Mechanism

European organizations lacking indigenous advanced AI default to available systems. Two scenarios:

American systems: Economic dependency with allied value alignment. Problematic for sovereignty but manageable.

Chinese systems: Economic dependency with hostile value alignment. Catastrophic.

Chinese systems may offer superior capabilities, lower costs, or better integration with Chinese-manufactured hardware dominating certain markets. European organizations adopt what performs best regardless of values alignment.

Once dependency establishes:

- Chinese leverage over European policy through system access control
- Data sovereignty compromised with all queries potentially visible to Chinese state
- Subtle value drift as European institutions using Chinese AI adopt Chinese framings
- Reversal prohibitively expensive after deep integration

2.1.4 TikTok as Capability Preview

TikTok illustrates platformdriven information shaping at scale:[1]

Algorithm influence on political outcomes:

- Independent testing observed systematic amplification of rightleaning content and reduced visibility for some leftleaning creators; ByteDance disputes biased intent
- Limited transparency into recommendation criteria complicates oversight
- European regulatory attempts face technical and jurisdictional challenges

Content characteristics brain-rotting European society:

[1]Global Witness. *TikTok recommendation audits in Europe*. 2024–2025; Accessed 2025-11-09. 2025. URL: https://www.globalwitness.org/; Reuters Institute. *Digital News Report 2025*. Accessed 2025-11-09. 2025. URL: https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2025.

- Chinese version (Douyin) promotes educational content, skill development, cultural education
- Western version promotes short-form entertainment optimized for engagement over substance
- Average session time increasing while attention span and reading comprehension declining among youth
- Content optimized for dopamine response rather than long-term wellbeing
- Documented correlation between usage and declining mental health metrics

Scale of influence:

- 159 million EU MAUs reported in H2 2024 DSA transparency; later press reports ~200 million[1]
- Social platforms (TikTok/YouTube/Instagram) are key news channels for many under30s, varying by country; not a majority across Europe[2]
- Influence operates through content curation rather than explicit propaganda

Advanced AI systems represent TikTok's influence multiplied across every domain: education, news, business strategy, scientific research, government policy analysis, cultural production. The algorithm shapes everything.

If Chinese AI systems achieve substantial capability advantage, European dependence follows automatically through market forces. No conspiracy required, just organizations choosing superior performance. By the time policy intervention occurs, dependency is entrenched and reversal costs are prohibitive.

2.2 Risk Two: American Economic Monopoly

2.2.1 Current Dominance

US private sector leads AI capability as of November 2025:

- OpenAI (GPT-5, internal reasoning models): Frontier capability across multiple domains
- Anthropic (Claude 4.5 Sonnet, 4.1 Opus): Matches or exceeds GPT-5 on key benchmarks, more agentic
- Google DeepMind (Gemini 2.5 Pro, upcoming 3.0): Leading research and deployment
- Strong performance on competitive benchmarks and real-world deployment

European AI capability exists (Mistral, Aleph Alpha) but lags frontier by 9-12 months. This gap compounds without infrastructure investment as US advantage in compute and energy enables faster iteration.

[1] European Commission. *DSA platform transparency reports H2 2024*. Accessed 2025-11-09. 2024. URL: https://ec.europa.eu/; Reuters. *TikTok says EU MAUs exceed 200 million*. Accessed 2025-11-09. 2025. URL: https://www.reuters.com/.

[2] Reuters Institute, see n. 1.

2.2.2 Project Stargate and Capital Mobilization

January 2025: SoftBank, OpenAI, Oracle announce $500 billion US infrastructure investment over four years representing private capital at sovereign-state scale, timeline matching capability development, explicit goal of maintaining US AI dominance.

Additional US commitments:

- Microsoft Azure AI: $100+ billion infrastructure expansion
- Google Cloud AI: $80+ billion
- Meta AI Research: $40+ billion
- Amazon AWS AI: $60+ billion
- Total private sector: $780+ billion committed 2024-2028

US government adds CHIPS Act AI provisions, DOE AI infrastructure allocation, DOD AI development programs totaling $70+ billion identified commitment.

Combined US AI infrastructure ecosystem: $850+ billion through 2028.

European comparison:

- EU Horizon Europe AI funding: €10 billion over 7 years
- National programs: Fragmented across member states
- Private sector: Limited relative to US scale due to infrastructure gaps and regulatory complexity
- Total identified commitment: <€60 billion
- Ratio: US outspends Europe roughly 12:1

2.2.3 Economic Implications of Capability Gap

If US maintains 9-12 month capability lead, market forces drive European dependency:

Value capture:

- AI productivity gains flow to US companies via licensing fees
- European businesses pay for US AI like they pay for US software currently
- Profits and tax revenue concentrate in US
- European role: consumer market for US products

Talent migration:

- Best European AI researchers move to US for frontier infrastructure access
- European universities train talent that US companies employ
- Brain drain accelerates as capability gap widens

- Europe funds education, America captures value

Innovation locus:

- New AI-enabled business models emerge in US market first
- European attempts face 9-12 month disadvantage
- First-mover advantages compound in network-effect markets
- Europe replicates, America innovates

Consumer behavior drives outcomes:

European AI companies currently deploying competitive models like Mistral receive limited adoption because users switch to superior performance regardless of origin. European models must match or exceed US capability to achieve usage. Otherwise market forces ensure US dominance independent of policy preferences.

2.2.4 The Likely Outcome

American monopoly represents the likely case absent policy intervention. Unlike Chinese dominance requiring European active failure, American monopoly happens passively through market dynamics and investment disparity.

US companies build superior infrastructure faster enabling better AI systems attracting more customers and talent justifying more infrastructure investment. The feedback loop compounds American advantage organically.

European policymakers might prefer American monopoly to Chinese dominance given allied values alignment reducing some risks. However, economic subordination remains: European prosperity depends on systems designed, controlled, and profited from by US corporations.

The middle path of European strategic autonomy requires matching US infrastructure investment at scale and timeline. Not exceeding, but matching. That demands mobilization at levels unprecedented in peacetime.

2.3 Risk Three: Catastrophic Security Vulnerabilities

2.3.1 Biowarfare Capabilities

Advanced AI systems excel at biological design. Capabilities enabling pharmaceutical development simultaneously enable biological weapons design:

Current capabilities (late 2025):

- Systems predict protein structures and propose novel designs for specified functions
- Commercial DNA synthesis services produce designed sequences
- No specialized facilities required for initial design work
- Barrier to misuse: Expertise required to translate designs to viable threats

Near-term capabilities (2026-2027):

- End-to-end pathogen design: Specify characteristics, receive optimized genome
- Computational evaluation of lethality, transmission, immune evasion without physical synthesis
- Identification of existing pathogen vulnerabilities for exploitation
- Design of countermeasures to potential defenses
- Barrier reduction: Less specialized knowledge required for misuse

The dual-use dilemma proves inescapable: AI systems designing better vaccines necessarily can design more dangerous pathogens. Defensive capability creates offensive potential automatically.

Access control problem:

Openly accessible advanced AI enables point-and-click biological weapons design. Restricted access hampers legitimate research including vaccine development and pandemic preparedness.

The critical question becomes: Who controls access to advanced biological design AI?

If Chinese or Russian state actors control leading systems, they possess unilateral biowarfare capability with plausible deniability, as AI-designed pathogens are difficult to attribute to specific actors.

If European institutions cannot develop or access leading systems for defensive biological research, Europe remains vulnerable while adversaries gain offensive capability.

2.3.2 Infrastructure and Cybersecurity

AI systems currently exceed human capability at finding software vulnerabilities. Near-term systems will automatically discover zero-day exploits in critical infrastructure, design sophisticated multi-stage attacks, adapt strategies real-time to defensive responses, and operate at machine speed processing thousands of attempts per second.

Defensive requirements:

Defending against AI-enabled attacks requires AI-enabled defense. Security becomes compute capacity competition. Attackers with more compute find vulnerabilities faster. Defenders with more compute patch vulnerabilities faster. Rough parity produces stalemate. Significant imbalance means one side dominates.

European vulnerability:

Europe lacking indigenous advanced AI faces adversaries possessing offensive AI while European defense depends on US systems creating dependency, lag, and access uncertainty. Critical infrastructure including energy, finance, and communications remains vulnerable to AI-accelerated attacks with no indigenous capacity to develop novel defensive approaches.

The security reality: Compute infrastructure is defensive infrastructure. Data centers represent strategic security requirements, not merely commercial assets.

2.3.3 The Dependency Problem

Even accepting American economic monopoly, security dependency proves untenable. US might share AI capability with European allies but US-Europe interests don't always align perfectly. In crisis, US prioritizes US defense. European security depending on US goodwill does not constitute sovereignty.

Concrete scenario: European nation experiences AI-enabled attack on critical infrastructure. Response requires advanced AI for attribution, containment, recovery. With US system dependency:

- Response speed limited by coordination with US authorities
- Access to most advanced capabilities subject to US approval
- Intelligence sharing raises sovereignty concerns
- European defense at mercy of US political dynamics

Strategic autonomy requires indigenous capability. Not theoretical principle, operational necessity.

2.4 Risk Four: Geopolitical Irrelevance

The three preceding risks share common outcome: Europe loses strategic autonomy and becomes subordinate to external powers. This section makes explicit what analytical framing implies.

2.4.1 Historical Precedent: Industrial Revolution

The industrial revolution (1760-1840) determined global power distribution for two subsequent centuries.

Nations industrializing early (Britain, Germany, United States) dominated global trade, military power, cultural influence, set rules of international order, and extracted resources from non-industrialized regions.

Nations failing to industrialize (China, India, Ottoman Empire, most of Africa and Latin America) became subordinate to industrial powers through formal colonization or informal economic domination. Indigenous sovereignty remained nominal at best. Recovery required generations.

The divide between industrial powers and others determined by technology translated directly to hierarchy.

2.4.2 AI as Intelligence Industrialization

The industrial revolution mechanized physical work. AI mechanizes cognitive work. If industrialization proved consequential, AI is more so given cognition drives everything else.

Nations with advanced AI capability design better weapons, conduct better intelligence, optimize better strategies, achieve higher economic productivity across all sectors, attract global talent and capital, set standards and protocols others must adopt, and accumulate compounding advantages across domains.

Nations lacking advanced AI capability use systems designed by others embedding foreign values, depend on foreign infrastructure for critical functions, cannot compete in AI-enabled industries, watch best talent emigrate, and accept subordinate position or attempt costly catch-up from behind.

2.4.3 The Subordination Pathway

Europe lacking advanced AI infrastructure does not lead immediately to formal sovereignty loss. The pathway is gradual but unidirectional:

Phase 1: Economic dependency (2026-2028)

- European companies adopt US or Chinese AI for competitive advantage
- Productivity gains flow to foreign providers through licensing
- European AI researchers emigrate for frontier infrastructure access
- European governments use foreign AI for policy analysis, defense, intelligence

Phase 2: Strategic vulnerability (2028-2032)

- Critical infrastructure depends on foreign AI systems
- Security requires foreign-provided defensive AI
- Economic competitiveness demands foreign AI access
- Reversal becomes prohibitively expensive as switching costs compound

Phase 3: Institutional capture (2032+)

- Foreign powers possess leverage through AI access control
- European policy constrained by need to maintain access
- Subtle value drift as European institutions adopt foreign framings
- Nominal sovereignty masking practical subordination

2.4.4 The Binary Choice

Advanced AI capability determines 21st century power distribution as industrial capability determined 19th and 20th century power distribution. Nations without indigenous capability become subordinate to nations possessing it. Historical pattern applied to new technology.

Europe faces a choice:

Option 1: Build infrastructure immediately

- Massive investment in compute and energy (€1T scale)
- Emergency permitting reform and policy mobilization
- Market-enabling measures: Bureaucracy reduction, tax competitiveness, regulatory clarity
- Accept short-term costs for strategic autonomy
- Maintain capacity for independent action

Option 2: Accept subordination

- Continue current trajectory
- Defer infrastructure investment as "too expensive"
- Rely on US or Chinese AI systems
- European interests subordinate to foreign powers

No middle path exists. Infrastructure investment proves binary: Sufficient or insufficient. Insufficient means dependence. Dependence means subordination.

The question European leaders must answer: Does European sovereignty matter enough to invest in maintaining it? If yes, infrastructure investment is mandatory. If no, accept consequences honestly rather than pretending strategic autonomy is possible without strategic capability.

3 Infrastructure Reality: Energy and Compute Requirements

3.1 Current State vs. Required Capacity

3.1.1 Global Landscape (November 2025)

Global training compute geography (late 2025):

- United States holds a clear plurality of frontier training compute (share of performance)
- China is rising rapidly; Europe trails on absolute capacity
- **Trajectory:** Absent policy intervention, shares concentrate further by 2028

[a]

[a] Epoch AI. *On the Geography of AI Compute*. Analyses 2024–2025; Accessed 2025-11-09. 2025. URL: https://epoch.ai/.

These represent current installed capacity for frontier AI training. Announced investments show trajectories diverging further:

United States (2025–2028):

- Reported "Project Stargate" plans for very large U.S. AI infrastructure[1]
- Hyperscaler capex for AI/datacentres at record levels across Microsoft, Alphabet, Amazon, Meta[2]
- Oracle–OpenAI partnership includes multiGW data centre power arrangements (e.g., 4.5 GW reported in 2025)[3]

China (2025–2028):

- Statebacked expansion and domestic accelerator alternatives are advancing
- Reported plans indicate continued growth despite sanctions

Europe (2025–2028):

- Without major policy intervention, Europe remains behind in absolute capacity
- BSRled fasttrack could improve trajectory if paired with energy and permitting reforms

[1] Reuters. *Microsoft/OpenAI 'Project Stargate' plans reported*. Jan 2025; Accessed 2025-11-09. 2025. URL: https://www.reuters.com/.

[2] Reuters, *Hyperscaler CAPEX surges for AI and data centres*, see n. 1.

[3] Reuters. *Oracle and OpenAI agree multi-gigawatt power plans (4.5 GW reported)*. Aug 2025; Accessed 2025-11-09. 2025. URL: https://www.reuters.com/.

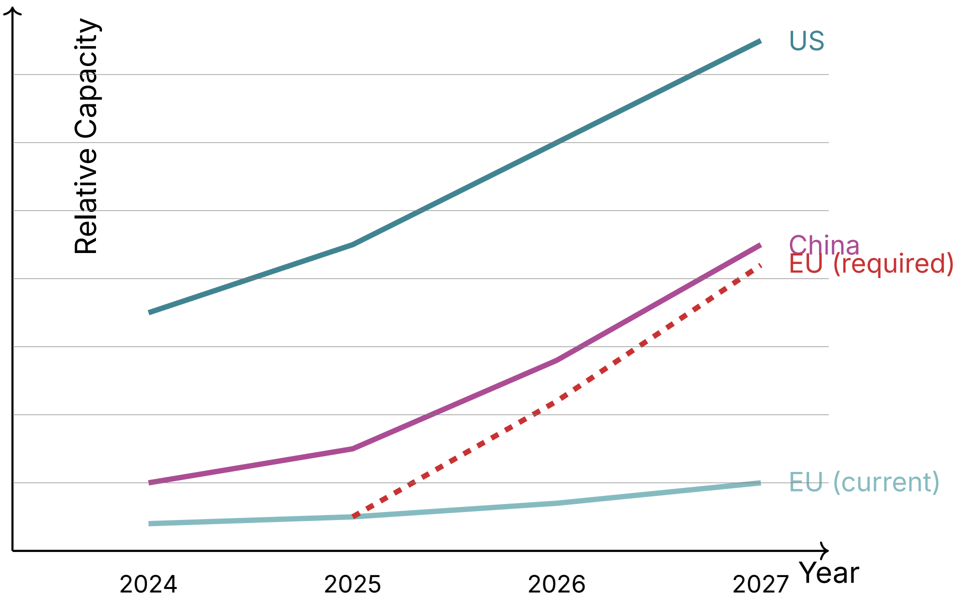
3.1.2 The Widening Gap

Current landscape: US high, China mediumhigh, Europe low in absolute capacity (share terms).[1]

2028 trajectory without intervention: further concentration of capacity in US and China.

The gap accelerates. Each year Europe delays matching US/China investment makes catch-up proportionally more expensive and time-consuming.

AI Compute Capacity Trajectories 2024-2027



The dashed red line shows European capacity trajectory required to maintain strategic relevance. It demands roughly 8× capacity growth in 3 years. Achievable but requiring immediate mobilization.

3.2 Energy: The Fundamental Bottleneck

3.2.1 Power Requirements

Training frontier AI models consumes extraordinary electricity:

Current generation (late 2025):

- GPT-5 class model: Approximately 250 gigawatt-hours per complete development cycle (initial training + RL + fine-tuning)
- Training cost: $100-500 million including compute, energy, ongoing development
- Data center requirement: 20-30 megawatts sustained power during active training
- Not single runs but continuous development pipelines

[1]Epoch AI, see n. *a*.

Next generation (2026-2027):

- Models with significantly expanded capability: 500-800 gigawatt-hours per development cycle
- Data center requirement: 200-300 megawatts sustained
- Equivalent to power consumption of medium-sized city

Beyond (2028+):

- Continued capability scaling theoretically possible if compute available
- Individual facilities: 500+ megawatts
- Multiple facilities needed for redundancy and parallel development
- Total European requirement: 8-15 gigawatts dedicated to AI training/inference

3.2.2 European Energy Cost Disadvantage

European electricity costs significantly exceed US and China:

- EU nonhousehold electricity: €0.08–0.27/kWh across countries (H1 2025)[1]
- United States industrial: $0.08–$0.10/kWh (national avg)[2]
- China industrial: indicative band varies by province and tariff (regulated)

Development cost comparison for next-generation model (600 GWh):

- Europe: €90-170 million electricity alone
- United States: €48-72 million
- China: €36-60 million

European AI companies face 2-3× higher development costs purely from energy prices. This makes European AI development economically uncompetitive unless addressed through subsidies shifting costs to taxpayers, energy expansion reducing prices through supply increases, or dedicated baseload allocation for AI infrastructure.

3.2.3 Energy Expansion Requirements

Matching US/China AI capability requires matching energy availability for AI workloads:

Baseline calculation:

[1] Eurostat. *Electricity price statistics (non-household), H1 2025*. Accessed 2025-11-09. 2025. URL: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Electricity_price_statistics.

[2] U.S. Energy Information Administration. *Electric Power Monthly, Table 5.6.B: Average price of electricity to ultimate customers by end-use sector*. Accessed 2025-11-09. 2025. URL: https://www.eia.gov/electricity/monthly/.

- Target: European AI capacity competitive with US/China by 2028
- Compute requirement: 1+ million GPU-equivalents
- Sustained power draw: 8-15 gigawatts continuous
- Annual consumption: 70-130 terawatt-hours

Context:

- Total EU gross electricity production 2024: 2,750–2,850 TWh[1]
- AI requirement: 2.4-4.5% of current generation
- Must be baseload (continuous, reliable)
- Must be affordable (competitive with US/China)
- Must be available where data centers locate

3.2.4 Energy Sources and Timeline

Different energy sources offer different advantages for AI infrastructure:

Renewable energy (wind, solar):

- Advantages: Declining costs, environmental benefits, political support
- Disadvantages: Intermittent, requires storage or backup for baseload
- Timeline: 2-4 years for large installations
- Role: Important component, insufficient alone

Hydropower:

- Advantages: Baseload capable, renewable, existing Nordic capacity
- Disadvantages: Limited expansion potential, seasonal variation
- Timeline: New facilities 5-8 years; existing capacity reallocatable immediately
- Role: Leverage existing Nordic/Alpine hydropower for AI infrastructure

Natural gas:

- Advantages: Dispatchable baseload, existing infrastructure
- Disadvantages: Carbon emissions, fuel cost volatility, geopolitical supply risks
- Timeline: 2-3 years for new plants
- Role: Transition/backup capacity

[1] Eurostat. *Electricity and heat statistics*. Data extracted Sep 2025; Accessed 2025-11-09. 2025. URL: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Electricity_and_heat_statistics.

Nuclear:

- Advantages: Dense baseload, approximately 90% capacity factor, minimal intermittency, carbon-free, fuel security
- Disadvantages: High capital cost, construction timelines
- Timeline: First European SMRs are targeting late-decade entry (e.g., Poland's BWRX-300 aims 2029–2030), with broader EU deployments tilting to early-2030s depending on licensing; traditional builds typically exceed 10 years in Europe[1]
- Role: Essential component for long-term strategic energy independence achieving required baseload capacity and cost targets

Geothermal (Iceland-specific):

- Advantages: Baseload, renewable, Iceland possesses world-class resources, extremely low cost
- Disadvantages: Geographic concentration
- Timeline: 2–3 years for certain expansions; larger additions depend on permitting and grid integration
- Cost: Indicative PPA pricing depends on profile/term; historically competitive for large industrials
- Role: Iceland becomes European AI infrastructure hub leveraging unique advantage

Achieving 8-15 GW reliable, affordable baseload by 2028 requires combination of sources with nuclear providing substantial share. Renewables plus storage cannot scale sufficiently fast at required costs.

3.3 The Timeline Problem: Infrastructure Lag vs. Capability Arrival

3.3.1 Construction Lead Times

Physical infrastructure requires years while AI capabilities arrive in months. The mismatch creates critical action window:

Data center construction:

- Site selection and acquisition: 3-6 months
- Permitting and approvals (European average): 18-36 months
- Physical construction: 12-18 months
- Equipment installation and testing: 3-6 months
- **Total timeline: 36-66 months from decision to operation**

[1] International Atomic Energy Agency. *Power Reactor Information System (PRIS)*. Accessed 2025-11-09. 2025. URL: https://pris.iaea.org/; GE Hitachi Nuclear Energy. *BWRX-300 in Poland: program and timeline*. Accessed 2025-11-09. 2025. URL: https://nuclear.gepower.com/bwrx-300.

Energy infrastructure:

- Grid expansion: 24-48 months depending on scale
- New power plants (gas): 24-36 months
- Large renewable farms with storage: 24-48 months
- Nuclear SMRs: 48-72 months; traditional 96-144 months
- **Total timeline: 24-72+ months for significant capacity**

AI capability progression:

- Small discoveries: 2026 (12-24 months from now)
- Significant discoveries: 2028 (36-48 months from now)
- Recursive self-improvement threshold: 2029-2031 (48-72 months from now)

Mathematical Reality: Infrastructure decided in Q1-Q2 2025 determines capacity available in 2027-2028 when advanced AI capabilities emerge. Later decisions mean infrastructure arrives after capabilities deploy by competitors.

3.3.2 The Permitting Catastrophe

Planning approvals vary by country; in many European markets endtoend delivery is 3–6 years including permits and grid, with grid connections often the dominant delay (7–10 years in congested hubs without fasttrack).[1]

Grid Reality: Legacy European hubs routinely face 7–10 year queues for high-voltage connections, even after planning approval. Fast-track programs must compress that to months if infrastructure is to match the 2028 capability window.[a]

[a]Reuters, *EU grid connection delays complicate data centre rollouts*, see n. 1; CBRE, see n. 1.

Every month of permitting delay means infrastructure comes online one month later. European data center approved Q2 2025 operating Q4 2027 (30 months). US equivalent approved Q2 2025 operating Q2 2026 (12 months). China equivalent: Q4 2025 (6 months).

Time gap compounds capability gap. By Q4 2027 when European data center activates, US facility trained models for 18 months and China for 24 months. European infrastructure starts 1.5-2 years behind even with simultaneous decisions.

Emergency permitting reform is arithmetic prerequisite for European competitiveness, not policy preference.

[1]CBRE. *Global Data Center Market Outlook 2025*. Accessed 2025-11-09. 2025. URL: https://www.cbre.com/; Reuters. *EU grid connection delays complicate data centre rollouts*. Jan–Aug 2025 coverage; Accessed 2025-11-09. 2025. URL: https://www.reuters.com/.

Specific recommendation: European AI Infrastructure Fast-Track Program targeting 6-month permitting for designated AI infrastructure projects through pre-approved site lists, streamlined environmental review, concurrent rather than sequential approvals. Precedent: COVID-19 vaccine facilities received emergency authorization. Rationale: Strategic security justifies extraordinary measures.

3.4 Baltic Sea Region Natural Advantages

The BSR possesses unique geographic and institutional characteristics enabling faster deployment than broader EU:

3.4.1 Geographic Advantages

Climate:

- Cold temperatures reduce data center cooling costs by 30-40%
- Northern latitudes provide year-round cooling availability
- Reduced cooling equals reduced energy consumption and lower operating costs
- Competitive advantage versus warmer European regions

Energy resources:

- Nordic hydropower: Reliable baseload, renewable, existing capacity
- Iceland geothermal: Baseload, lowcarbon and competitive; indicative PPA pricing varies by load profile and term[1]
- Offshore wind potential: North Sea, Baltic Sea sites
- Nuclear capacity: Finland, Sweden operational with expansion feasible
- German industrial infrastructure: Existing energy grid, manufacturing capacity

Connectivity:

- Existing fiber infrastructure connecting Nordic-Baltic-German region
- Proximity to central Europe for latency-sensitive applications
- Strategic position between European and Asian markets

3.4.2 Institutional Advantages

Coordination mechanisms:

- Council of the Baltic Sea States (CBSS): Established framework for regional cooperation

[1] Environment and Energy Agency of Iceland (Orkustofnun). *Electricity production overview*. Accessed 2025-11-09. 2025. URL: https://orkustofnun.is/en/.

- Nordic Council: Decades of successful policy coordination
- Baltic Assembly: Integration of Baltic states
- History of rapid, effective regional coordination when consensus achieved

Governance:

- Strong rule of law and property rights attracting investment
- Low corruption reducing infrastructure costs
- Transparent regulatory processes accelerating permitting
- Political stability reducing investment risk

Human capital:

- High digital literacy populations
- Strong technical education systems
- English proficiency enabling international collaboration
- Existing AI research capacity (Uppsala, KTH, Aalto, TU Munich, TU Denmark)

Startup ecosystem:

- Sweden, particularly Stockholm, as leading European startup hub
- Small teams achieving rapid innovation
- Example: Lovable reporting $100M ARR at record pace (company-reported)[1]
- Culture of technical ambition and entrepreneurship
- Germany provides industrial scale and manufacturing expertise

3.4.3 The Iceland Opportunity

Iceland represents extraordinary strategic asset for European AI infrastructure:

Energy abundance:

- Geothermal baseload: 0.7–0.8 GW current capacity (order of magnitude)[2]
- Hydropower: 2.0–2.3 GW current capacity (order of magnitude)[3]
- Total available capacity exceeds current Icelandic consumption (3 GW peak)
- Expansion potential: Phased scenario could support hundreds of MW to low singledigit GW of DC capacity by late decade, contingent on generation/transmission buildout

[1] Company announcement; press coverage, 2025.

[2] Environment and Energy Agency of Iceland (Orkustofnun), see n. 1.

[3] Environment and Energy Agency of Iceland (Orkustofnun), see n. 1; Landsvirkjun. *Landsvirkjun Power Stations and Generation Overview*. Accessed 2025-11-09. 2025. URL: https://landsvirkjun.com/powerstations.

- Cost: Indicative PPA pricing depends on term and profile; historically competitive for large industrials

Climate and operational advantages:

- Year-round cold temperatures
- Free cooling for data centers
- Minimal cooling infrastructure required
- Operating cost advantage compounds energy cost advantage

Political and regulatory environment:

- EEA member providing regulatory alignment with EU
- NATO member ensuring security alliance
- Strong rule of law protecting investment
- Population approximately 390,000 enabling rapid infrastructure decisions

Connectivity:

- Multiple submarine fiber cables to Europe and North America
- Strategic Atlantic position
- Indicative latency <50 ms to many major European cities via IRIS/DANICE routes[1]
- Can serve European and North American markets

Concrete proposal: Iceland European AI Hub

- Target: Phased build toward 2–5 GW over multiple years with grid coordination
- Investment: €40-60 billion infrastructure development
- Partnership: Icelandic government plus EU plus private capital
- Timeline: Initial facilities operational 2026, major capacity 2027-2028
- Rationale: Leverage unique Icelandic advantages for European strategic benefit

Iceland cannot host all European AI infrastructure but can host substantial fraction at superior costs and timelines. This provides near-term competitive capacity while longer-lead projects develop elsewhere.

[1]Farice. *Subsea cable routes and latency information*. Accessed 2025-11-09. 2025. URL: `https://www.farice.is/`.

3.5 BSR as Proof of Concept

Broader EU faces coordination challenges across 27 member states with divergent interests, languages, political systems. Achieving consensus on €1T infrastructure program spanning multiple nations requires lengthy negotiation.

BSR can move faster through existing mechanisms:

- Smaller group: Iceland, Norway, Sweden, Finland, Denmark, Germany, Estonia, Latvia, Lithuania, Poland (10 key nations)
- CBSS provides established coordination framework
- Nordic Council and Baltic Assembly supplement with regional mechanisms
- Shared threat perception: Geographic proximity to Russia creates security alignment
- Natural advantages: Climate, energy, technical capacity, startup culture

Strategy: BSR demonstrates feasibility, catalyzes EU-wide adoption

1. **2025-2026: BSR pilot program**
   - Iceland: Major data center development leveraging geothermal
   - Norway: Sovereign wealth fund investment in AI infrastructure
   - Sweden: Startup ecosystem support, Stockholm as AI hub, nuclear allocation
   - Germany: Industrial infrastructure, manufacturing capacity, grid integration
   - Finland: Nuclear-powered data centers, technical leadership
   - Denmark: Offshore wind plus data center integration
   - Baltic states: Connectivity, redundancy, distributed capacity
2. **2026-2027: Demonstrate results**
   - European companies and research institutions use BSR infrastructure
   - Training costs competitive with US/China
   - European AI models show improving competitiveness
   - Proof: Rapid deployment feasible, returns justify investment
3. **2027-2028: EU-wide expansion**
   - Skeptical EU member states observe BSR success
   - Political consensus easier with demonstrated proof-of-concept
   - €1T EU-wide program builds on BSR framework
   - Europe achieves scale necessary to compete globally

Attempting EU-wide consensus before deployment risks analysis paralysis and delay beyond the critical window.

BSR must lead because BSR can lead: Faster decision-making through established coordination mechanisms like CBSS, natural advantages, existing cooperation framework. EU-wide success requires BSR success as catalyst and model. Rapid, dynamic policy decisions match AI development pace rather than traditional multi-year cycles.

4 Policy Recommendations: €1 Trillion Deployment

4.1 Investment Framework and Justification

Total Commitment: €1 Trillion over 2025-2028
Combining public strategic investment with private sector mobilization:

- €400B: Data center physical infrastructure
- €300B: Energy capacity expansion and grid improvements
- €150B: Market-enabling measures (bureaucracy reduction, tax competitiveness, regulatory clarity)
- €100B: Direct compute access support for strategic sectors
- €50B: Talent development and retention

4.1.1 Why €1 Trillion?

The figure reflects comprehensive requirements matching US commitment while addressing European structural needs. The US demonstrates the template: Project Stargate ($500B) plus Microsoft, Google, Meta, Amazon commitments ($280B+) plus government programs ($70B+) totaling $850B+ (approximately €800B).

Europe requires higher public component because:

- Fragmented markets increase deployment costs
- Regulatory complexity requires coordination investment
- Private sector hesitant without demonstrated public commitment
- Energy infrastructure gaps require public investment

However, private capital provides majority of deployment once foundations exist. Public investment creates conditions enabling private sector confidence and rapid execution.

Alternative framing:

- €1T over 4 years equals €250B annually
- EU GDP 2025: Approximately €17.2 trillion
- Program cost: 1.45% of annual EU GDP
- Comparison: EU military spending approximately 1.7% GDP; Common Agricultural Policy approximately 0.35% GDP
- This represents security investment, not merely economic development

Dual-purpose investment:

Advanced AI potentially solves civilization-scale challenges including climate change, pandemic preparedness, energy efficiency, materials discovery. However, benefits accrue to nations possessing indigenous capability. Dependency on foreign AI means solutions reflect foreign priorities and values.

Security dimension proves equally critical. AI capability determines military advantage, intelligence effectiveness, cyber defense capacity, critical infrastructure resilience. Nations lacking indigenous AI capability cannot secure themselves against adversaries possessing it.

The question becomes whether European strategic autonomy and potential AI-enabled solutions to major challenges are worth 1.45% of GDP for four years. For €17T economy, affordability is not the constraint. Political will is.

4.1.2 Public vs. Private Capital Roles

Public sector responsibilities (approximately €450B):

- Energy infrastructure: Grid expansion, baseload capacity, regulatory frameworks
- Permitting reform: Fast-track processes, coordination mechanisms
- Bureaucracy reduction: Streamlined business formation, cross-border operations
- Tax competitiveness: Rates attracting rather than repelling investment
- Strategic compute access: Research institutions, defense, critical infrastructure
- Talent pipeline: Education, immigration, retention programs

Public investment provides foundation. Government creates conditions private capital requires for confidence.

Private sector responsibilities (approximately €550B):

- Data center construction and operation
- Compute hardware procurement
- AI model development and deployment
- Commercial applications and services
- Market-driven innovation and competition
- Operational efficiency and optimization

Private capital provides execution. Market mechanisms ensure efficient allocation and rapid iteration.

The US model demonstrates effectiveness:

US government invests in fundamental research, sets strategic priorities, provides some infrastructure support. Private sector deploys majority of capital, builds facilities, develops models, creates applications. Market competition drives innovation faster than centralized planning.

Europe must adapt this model: Public investment sufficient to create competitive foundation. Private sector confident deploying capital once infrastructure gaps close and regulatory clarity exists. Result: Market mechanisms driving innovation while maintaining European strategic control.

Critical insight from consumer behavior:

European AI models must match or exceed US/China capability to achieve adoption. Consumers and businesses switch to superior performance regardless of origin. Mistral and other European companies deploy competitive technology but receive limited usage because frontier models perform better. European models being "good enough" is insufficient. They must be among the best globally. This requires infrastructure enabling European companies to compete at frontier, not perpetually catching up.

4.2 Investment Breakdown

4.2.1 €400B: Data Center Infrastructure

Physical facilities (€150B):

- Target: 25-30 major data centers (100+ MW each) distributed across BSR and strategic EU locations
- Construction cost (shells/MEP for 100–200 MW): typically €1–2B; total project CAPEX dominated by compute/network/storage[1]
- Timeline: Staggered construction 2025-2028 spreading capital requirements and enabling learning
- Majority private sector financed with public co-investment for strategic facilities

Computing hardware (€180B):

- Target: 1+ million GPU-equivalents by 2028
- Cost: Currentgen accelerators reported at tens of thousands per unit (e.g., Blackwell class $30k–$40k before rebates); systemlevel costs are higher[2]
- Refresh cycle: Partial replacement every 2-3 years as new generations arrive
- Private sector procures majority; public sector for research and strategic applications

Networking and interconnection (€40B):

- High-speed networking between facilities enabling distributed training
- Redundant fiber connections
- International connectivity for global research collaboration

[1]Turner and Townsend. *Data Centre Cost Index 2025*. Accessed 2025-11-09. 2025. URL: https://www.turnerandtownsend.com/; CBRE, see n. 1.

[2]Reuters. *NVIDIA Blackwell pricing reports*. Accessed 2025-11-09. 2025. URL: https://www.reuters.com/.

- Public-private partnership for backbone infrastructure

Operations and maintenance (€30B):

- Staff, security, repairs, upgrades over 4-year window
- Primarily private sector operational costs

4.2.2 €300B: Energy Capacity Expansion

Generation capacity (€240B):

- Target: 10-15 GW new baseload capacity available for AI infrastructure
- Mix: Nuclear (35%), renewables plus storage (45%), gas backup (20%)
- Timeline: 2025-2028 for fast-deployment sources; 2025-2030 for nuclear

Nuclear component (€85B):

- 3.5-5 GW capacity: Small modular reactors and potentially traditional plants
- Siting: Finland, Sweden, Germany, Poland (leveraging existing or developing nuclear infrastructure)
- Timeline: 2025 initiation, 2028-2030 operation
- Public-private partnerships with government risk-sharing

Renewable plus storage (€108B):

- 4.5-7 GW wind/solar with storage enabling dispatchable baseload equivalent
- Offshore wind (North Sea, Baltic Sea) paired with battery and hydrogen storage
- Timeline: 2025-2028 for most capacity
- Mix of private investment with public grid support

Gas backup (€30B):

- 2-3 GW dispatchable capacity for gaps and redundancy
- Modern combined-cycle plants
- Timeline: 2025-2027
- Private sector with public coordination

Iceland geothermal expansion (€17B):

- 2-3 GW additional capacity specifically for AI infrastructure
- Unique opportunity leveraging natural resources

- Public-private partnership given strategic importance

Grid improvements (€60B):

- Transmission upgrades connecting generation to data centers
- Cross-border interconnections within BSR
- Smart grid technology for load balancing
- Primarily public investment given infrastructure nature

4.2.3 €150B: Market-Enabling Measures

This component represents the shift from pure infrastructure investment to creating business environment enabling private sector leadership:

Bureaucracy reduction (€30B):

- Digital government services reducing administrative burden
- Streamlined cross-border business operations
- Unified European business entity enabling one registration for EU-wide operation
- Regulatory consolidation and simplification
- Costs: IT systems, process redesign, implementation

Tax competitiveness (€70B in foregone revenue):

- Corporate tax rates competitive with US and Asian hubs
- R&D tax credits for AI development
- Capital gains treatment encouraging reinvestment in European AI
- Individual tax optimization retaining technical talent
- Not direct spending but revenue reduction to improve competitiveness

Regulatory clarity and fast-track processes (€15B):

- Clear AI governance frameworks providing certainty
- Regulatory sandboxes for innovation
- Fast-track approvals for strategic investments
- Legal framework adaptation for AI-enabled business models
- Costs: Regulatory body staffing, legal framework development, consultation processes

Pension fund and capital market reforms (€10B):

- Enable pension funds to allocate to AI infrastructure and venture capital

- Reduce regulatory barriers to growth capital deployment
- Create liquidity for European AI startups
- Costs: Regulatory reform, oversight enhancement, market infrastructure

Competition and innovation support (€25B):

- Ensure smaller companies can access infrastructure
- Prevent monopoly capture while enabling scale
- Support startup ecosystem especially in Sweden, Germany, and across BSR
- Bridge funding for companies transitioning research to products
- Competitive application processes with market-based allocation

4.2.4 €100B: Strategic Compute Access

Research institutions (€40B):

- University and research institute compute allocation
- Enables European institutions working on frontier AI research
- Retains talent that otherwise emigrates for compute access
- Produces open research benefiting entire European ecosystem

Defense and security (€30B):

- Military AI applications, cyber defense, intelligence
- Critical infrastructure protection
- Dual-use technology development
- Sovereign capability for sensitive applications

Strategic industries (€20B):

- Healthcare, energy, manufacturing, transportation
- Applications addressing climate change and sustainability
- Infrastructure for sectors with high social value but limited immediate commercial returns

Open access and innovation (€10B):

- Startups, independent researchers, smaller companies
- Application-based allocation with peer review
- Promotes innovation diversity beyond large companies

4.2.5 €50B: Talent Pipeline

Education and training (€25B):

- University AI program expansion
- Technical training and reskilling programs
- K-12 computer science and mathematics strengthening
- Creates domestic talent pipeline reducing foreign dependency

Immigration and retention (€15B):

- Streamlined skilled immigration for AI talent
- Competitive compensation for researchers in European institutions
- Relocation support and integration programs
- Visa processes matching US speed and simplicity

Research support (€10B):

- Fellowships and grants for AI researchers
- Conference and collaboration funding
- Industry-academia partnerships
- Retention of European-trained PhD graduates

4.3 Immediate Actions (Q1-Q2 2025)

These actions must begin within 3-6 months. Delays propagate through timeline compromising 2028 capability targets. AI policy requires speed matching technological development pace.

4.3.1 Emergency Permitting Reform

Action: Establish European AI Infrastructure Fast-Track Authority

Mechanism:

- Designated AI infrastructure projects receive priority status
- Target: 6-month approval from application to construction authorization
- Pre-approved site list identifying suitable locations before applications
- Concurrent reviews: Environmental, safety, grid connection assessed simultaneously not sequentially
- Dedicated tribunal for expedited appeals

Justification:

- Current 18-36 month permitting makes European infrastructure uncompetitive
- Every month delay means infrastructure arrives month later relative to US/China
- Strategic security justifies extraordinary measures (precedent: COVID vaccine facilities)

Implementation:

- Q1 2025: Legislative proposal at EU level
- Q1-Q2 2025: Emergency passage through Parliament and Council
- Q2 2025: Authority operational, first applications accepted
- Q3 2025: First approvals granted, construction begins

4.3.2 BSR Pilot Program Launch

Action: BSR AI Infrastructure Partnership through CBSS Coordination

Components:

- Iceland: Geothermal capacity allocation for data centers
- Norway: Government Pension Fund Global investment authorization
- Sweden: Stockholm startup ecosystem support, nuclear capacity allocation
- Germany: Industrial infrastructure, grid integration, manufacturing capacity
- Finland: Nuclear capacity, technical coordination
- Denmark, Baltic states, Poland: Connectivity, distribution, complementary roles
- CBSS provides coordination framework and rapid decision mechanism

Goals:

- Q2 2025: Partnership agreement through CBSS, corporation established
- Q3 2025: Site selection complete, permitting applications filed
- Q4 2025: Construction begins on first facilities
- 2026: Initial capacity operational, European AI companies using infrastructure

Rationale:

- Demonstrates European capability for rapid deployment
- Provides immediate capacity reducing US/China dependence
- Tests fast-track permitting and coordination mechanisms
- Creates proof-of-concept for broader EU program
- CBSS enables faster decisions than 27-member EU processes

4.3.3 €50B Emergency Infrastructure Fund

Action: Immediate capital deployment for critical bottlenecks

Allocation:

- Site acquisition and preparation: €15B
- Grid connection and power conditioning: €15B
- Initial compute hardware orders: €15B
- Planning, engineering, market-enabling measures: €5B

Purpose:

- Address longest-lead-time items immediately
- Commits capital before full program approval accelerating timeline
- Enables learning and refinement for larger deployment
- Demonstrates political commitment attracting private co-investment

Implementation:

- Q1 2025: Fund establishment through existing EU mechanisms
- Q2 2025: Initial disbursements for site acquisition
- Q2-Q3 2025: Grid connection planning and engineering
- Q3-Q4 2025: First compute hardware deliveries

4.4 18-Month Targets (By Mid-2026)

4.4.1 Physical Infrastructure

Target: 8-10 major data centers under construction

Distribution:

- Iceland: 2-3 facilities leveraging geothermal
- Norway: 1-2 facilities using hydropower
- Sweden: 1-2 facilities with nuclear allocation and startup ecosystem integration
- Germany: 2 facilities leveraging industrial infrastructure
- Finland: 1 facility with technical leadership
- Denmark, Baltic states: 1-2 distributed facilities

Capacity:

- Each facility: 100-200 MW capacity
- Total: 800-1,200 MW under construction
- Equivalent to 300,000-500,000 GPUs when fully equipped

Timeline:

- Construction start: Q3 2025 through Q1 2026
- Operation: Q4 2026 through Q2 2027
- Full capacity: Q2 through Q4 2027

4.4.2 Energy Projects Initiated

Target: Generation and transmission projects underway

Nuclear:

- 3-4 SMR projects with permits and construction beginning
- Siting: Finland, Sweden, Germany, Poland
- Combined capacity: 2-3 GW when operational 2028-2029

Renewables:

- 5-7 major offshore wind projects under construction
- Battery and hydrogen storage facility construction beginning
- Combined capacity: 3-5 GW with storage enabling baseload equivalent

Grid:

- Transmission upgrades connecting data centers to generation
- Cross-border interconnections strengthened through CBSS coordination
- Smart grid deployment for load management

4.4.3 Market Environment Transformation

Target: Measurable improvement in business climate

Regulatory:

- Fast-track permitting operational with first approvals granted
- Regulatory sandboxes active with AI companies testing new models
- Clear governance frameworks providing investment certainty

Tax and Competition:

- Corporate tax rates reduced to globally competitive levels
- R&D tax credits implemented
- Capital markets reforms enabling pension fund AI investment

Result Metrics:

- Private capital inflows to European AI increasing
- Talent retention improving with reduced emigration
- Startup formation accelerating especially in Sweden and Germany
- European AI companies announcing major funding rounds

4.4.4 European AI Capability Progress

Target: Demonstrable progress closing capability gap

Performance Metrics:

- At least 3-4 European AI companies training frontier-class models
- European models within 6 months capability lag (versus current 9-12 months)
- European research institutions publishing competitive results
- Increased adoption of European models as performance improves

Enablers:

- Access to BSR infrastructure at competitive costs
- Reduced energy prices through new capacity
- Improved business climate through market-enabling measures
- Talent retention through competitive environment

4.4.5 Private Capital Mobilization

Target: €100B+ private investment flowing to European AI

Mechanisms:

- Sovereign wealth fund participation (Norway GPFG as primary target)
- Pension fund allocation following regulatory reform
- Venture capital funds specializing in European AI
- Corporate investment from European tech and industrial companies

Attraction Factors:

- Government commitment demonstrates serious intent
- Infrastructure availability reduces execution risk
- Market-enabling measures improve returns
- Political support signals sustainable long-term environment

4.5 36-Month Goals (By 2028)

4.5.1 Infrastructure at Competitive Scale

Target: 25-30 major data centers operational

Capacity:

- Combined: 2.5-4 GW continuous draw
- GPU equivalents: 1-1.5 million
- Training capability: Multiple frontier models simultaneously
- Inference capability: European-scale deployment for AI services

Distribution:

- Iceland: 5-6 facilities (geothermal advantage)
- Nordic (Norway, Sweden, Finland): 8-10 facilities (hydropower, nuclear, wind)
- Germany: 4-5 facilities (industrial infrastructure, grid capacity)
- Baltic states: 2-3 facilities (connectivity, distribution)
- Other EU: 5-6 facilities (proximity to markets)

Ownership:

- Private sector: 65%
- Public-private partnerships: 25%
- Academic and research: 10%
- Mix ensures access while maintaining market efficiency and strategic European control

4.5.2 Energy Competitive with US/China

Target: European AI infrastructure operating costs equal to or below competitors

Electricity pricing (indicative bands):

- EU nonhousehold averages vary by country; typical bands €0.12–0.25/kWh (country range €0.08–0.27)[1]

[1]Eurostat, *Electricity price statistics (non-household), H1 2025*, see n. 1.

- US industrial national average \$0.08–\$0.10/kWh[1]
- Local PPAs for large loads vary by term and profile (e.g., geothermal/hydro in Nordics/Iceland)

Impact:

- Training cost parity with US
- Superior to China in some locations (Iceland, Norway)
- European AI companies economically competitive
- Subsidy requirements minimal to nonexistent

4.5.3 European AI Capability Among Global Leaders

Target: European systems competitive with US and China

Capability Metrics:

- European models match US/China on standard benchmarks
- Capability lag reduced to less than 3 months (versus current 9-12 months)
- European systems deployed in real-world applications at population scale
- European AI companies valued comparably to US counterparts
- European models achieving adoption because performance warrants it

Market Success:

- European consumers and businesses choosing European AI because it performs better or equally well
- Market mechanisms validating European capability
- Competitive dynamics between European companies driving continued innovation

Research Leadership:

- European institutions publishing frontier AI research
- European researchers remaining in Europe given competitive infrastructure
- European startups attracting global talent and capital
- Stockholm, Munich, Helsinki, Copenhagen recognized as major AI innovation hubs

Strategic Autonomy:

- European governments using European AI for sensitive applications

[1] U.S. Energy Information Administration, see n. 2.

- European critical infrastructure secured with European AI
- Zero dependency on US or China for advanced AI capability
- European ability to set own AI governance standards
- Potential for solving major challenges like climate change using European AI reflecting European values

4.5.4 Private Sector Leadership

Target: Market mechanisms driving innovation

Metrics:

- Private sector deploying majority of capital in AI infrastructure
- Competition between European AI companies accelerating progress
- Startup ecosystem generating breakthrough innovations
- Market-based allocation ensuring efficient resource use
- Public sector providing foundation; private sector executing rapidly

Business Environment:

- Regulatory clarity enabling fast decision-making
- Tax competitiveness retaining companies and talent
- Reduced bureaucracy accelerating company formation and scaling
- European companies choosing to build in Europe rather than relocating to US

4.6 Institutional Mechanisms

4.6.1 European AI Infrastructure Authority (EAIA)

Purpose: Unified decision-making and program execution

Structure:

- Independent EU agency with regulatory and investment authority
- Board: Representatives from participating nations plus European Commission plus private sector plus research community
- Executive Director: Appointed for 4-year term, reports to Board
- Staff: Approximately 200 professionals (policy, technical, financial)
- Rapid decision capability matching AI development pace

Responsibilities:

- Fast-track permitting decisions (6-month target)
- Public infrastructure fund allocation and oversight
- Coordination across member states and private sector
- Progress monitoring and public reporting
- Dynamic adjustment of program based on results and changing conditions

Authority:

- Binding permitting decisions with limited appeal options
- Budget allocation authority for EU contribution
- Contract-signing authority for major infrastructure projects
- Emergency powers for critical path bottlenecks

Accountability:

- Quarterly reports to European Parliament
- Annual external audit
- Public transparency on major decisions and spending
- Sunset clause: Dissolution after 2028 or extension by member state agreement

4.6.2 Funding Mechanisms

Public capital sources (€450B):

- EU budget allocation: €150B over 4 years (requires budget revision)
- National co-investment: €150B (proportional to GDP with BSR adjustments)
- Sovereign wealth funds: €80B (Norway GPFG primary target)
- European Investment Bank: €70B in loans and guarantees

Private capital mobilization (€550B):

- Pension fund allocation: €200B (following regulatory enabling)
- Venture capital and private equity: €150B (attracted by public commitment)
- Corporate investment: €150B (tech companies, energy companies, telecoms)
- Individual investors: €50B (through various vehicles)

Market-driven allocation:

- Private capital follows commercial opportunity

- Public investment creates foundation enabling private confidence
- Competition ensures efficiency and innovation
- Returns flow to investors based on performance
- Excess returns from strategic projects support program expansion

4.6.3 Governance and Coordination

BSR coordination through CBSS:

- CBSS AI Working Group coordinates BSR initiatives
- Nordic Council provides additional coordination for Nordic subset
- Baltic Assembly ensures Baltic states included effectively
- Germany participates as a CBSS Member State, with additional bilateral coordination[1]
- Regular ministerial meetings maintain political alignment
- Technical working groups address grid coordination, permitting harmonization, standards
- Rapid decision capability matching AI development pace versus traditional multi-year cycles

EU integration:

- EAIA reports to European Council
- Regular updates to Parliament committees
- Integration with existing EU digital and energy policy
- Mechanism for expanding BSR pilot to EU-wide deployment

Private sector engagement:

- Industry advisory board providing input on technical requirements and market needs
- Open procurement with competitive bidding for infrastructure projects
- Transparent allocation with clear criteria for compute access and support
- Anti-monopoly provisions ensuring smaller companies can access infrastructure
- Market mechanisms determining winners rather than political allocation

[1]Council of the Baltic Sea States. *Member States*. Accessed 2025-11-09. 2025. URL: https://cbss.org/about-us/member-states/.

4.7 Political Pathway

4.7.1 Building Coalition

Phase 1: BSR consensus through CBSS (Q1 2025)

- Iceland: Energy security, economic diversification opportunity
- Norway: GPFG diversification, technology leadership
- Sweden: Stockholm startup ecosystem, strategic autonomy, nuclear capability
- Germany: Industrial competitiveness, technology leadership, manufacturing capacity
- Finland: Strategic autonomy, existing nuclear capability, technical excellence
- Denmark: Renewable energy integration, digital leadership
- Baltic states: Security, EU integration, technology adoption
- Poland: Energy independence, economic growth, EU leadership
- CBSS provides established coordination framework enabling rapid consensus

Phase 2: Core EU support (Q1-Q2 2025)

- France: Strategic autonomy, nuclear capability, technology leadership
- Netherlands: Digital economy, port connectivity, financial services
- Belgium: EU institution hosting, consensus-building
- Austria: Central European coordination
- Get BSR plus these four: Critical mass achieved

Phase 3: Broader coalition (Q2-Q3 2025)

- Southern Europe: Economic development, research capacity, renewable energy potential
- Eastern Europe: Security concerns, catch-up growth opportunity
- Ireland: Tech sector presence, attracting further investment
- Build toward qualified majority or ideally consensus

4.7.2 Addressing Opposition

Cost objections:

- Reframe: Security investment enabling potential solutions to climate change and other challenges, not merely economic development
- Compare: Military spending 1.7% GDP, CAP 0.35% GDP, this program 1.45% GDP for 4 years

- Private sector: Majority of capital comes from market, not taxpayers
- Consequences: US/China subordination far more expensive than infrastructure
- Timeline: Delay increases cost as catch-up becomes progressively harder

Nuclear concerns:

- Acknowledge: Safety, waste, proliferation are legitimate considerations
- Modern technology: SMRs incorporate safety advances over legacy designs
- Limited scope: Nuclear represents important but not exclusive component of energy mix
- Arithmetic: Alternative sources cannot provide required baseload capacity at necessary costs and timelines
- Flexibility: Nations opposed can focus on alternatives but must achieve equivalent baseload capacity

Market versus planning:

- US model: Government creates conditions, private capital executes rapidly
- European adaptation: Public investment provides foundation, private sector leads execution
- Competition drives innovation better than centralized planning
- Public role: Strategic infrastructure, market enablement, not commercial operation
- Result: Market efficiency with strategic European control

National sovereignty:

- Structure: National governments retain veto on projects in their territory
- Flexibility: Program allows different approaches (Nordic nuclear, German industrial, etc.)
- Benefit: Coordination increases each nation's capability beyond solo efforts
- Threat: Fragmented approaches guarantee collective failure against US/China
- BSR through CBSS demonstrates coordination maintaining national input

4.7.3 Public Communication

Narrative framing:

- "Strategic security": Resonates across political spectrum
- "Climate solutions": Advanced AI potentially addresses civilization-scale challenges
- "Economic opportunity": Jobs, innovation, prosperity

- "Energy independence": Post-Russia sanctions salience continues
- "European values": AI embedding rights, privacy, democracy
- Avoid: Techno-utopianism, hype, unrealistic promises

Specific messages by constituency:

- Business: Competitive environment enabling private sector success
- Labor: Construction jobs, operations jobs, AI industry employment
- Environmentalists: Renewable energy integration, AI applications for climate
- Security hawks: Strategic autonomy, defense applications, cyber resilience
- Youth: Opportunity to work on cutting-edge technology in Europe rather than emigrating
- Startups: Stockholm, Munich, other hubs as innovation centers with infrastructure access

5 Why BSR Leadership Enables European Success

5.1 Speed Through Established Coordination

The European Union's strength of broad representation becomes weakness when speed is essential. BSR circumvents this challenge through existing mechanisms.

Decision-making comparison:

- EU-wide consensus: 27 member states, multiple languages, divergent priorities, lengthy negotiations
- BSR coordination through CBSS: 10 key nations, high English proficiency, aligned security interests, established cooperation framework
- Result: BSR can make decisions and begin implementation months faster

CBSS as enabler:

- Council of the Baltic Sea States provides institutional framework for regional decisions
- Decades of successful coordination on various policy domains
- Established working groups can quickly form AI infrastructure focus
- Ministerial-level authority enabling rapid high-level decisions
- Technical working groups implementing coordination at operational level

Regulatory harmonization:

- Nordic countries already share regulatory approaches across many domains
- EEA framework provides existing structure for Iceland-EU coordination
- Germany participates through observer status and bilateral mechanisms
- Baltic states highly motivated to demonstrate EU contribution
- Result: Streamlined permitting and standards possible in BSR before EU-wide agreement

Political cohesion:

- Shared threat perception: Geographic proximity to Russia creates security alignment
- Economic incentives: BSR benefits from infrastructure investment and operation
- Cultural factors: High-trust societies with effective institutions
- Result: Sustained political will easier to maintain than in fragmented EU

AI policy pace requirement:

- Traditional policy cycles of multiple years inadequate when AI capability doubles annually

- BSR through CBSS demonstrates ability to make rapid, dynamic decisions matching technology development pace
- Feedback loops between deployment and policy adjustment operate on months not years
- Agility advantage over both EU-wide processes and more rigid planning economies

5.2 Natural Advantages as Competitive Edge

BSR possesses advantages that cannot be replicated elsewhere in Europe or globally. Leveraging them is strategically obvious.

Climate:

- Cold temperatures year-round reduce cooling costs 30-40%
- No other European region offers equivalent advantage
- Compounds over facility lifetime into hundreds of millions in savings per data center
- Competitive edge versus warmer US states and China

Energy:

- Iceland geothermal: Unmatched cost and reliability globally
- Nordic hydro: Reliable baseload with decades of operational experience
- North Sea and Baltic offshore wind: World-class resources
- Nuclear capability: Finland and Sweden operational, Poland planning
- Combined: BSR can offer energy at costs competitive with anywhere globally

Industrial and technical infrastructure:

- Germany: Manufacturing capacity, industrial expertise, grid infrastructure
- Sweden: Stockholm as leading startup hub, technical talent, innovation culture
- Nordic region: High digital literacy, strong education systems
- Can build on existing strengths rather than starting from scratch

Startup ecosystem:

- Stockholm produces disproportionate innovation given population size
- Culture of technical ambition and rapid execution
- Example: Lovable achieving $100M ARR faster than any previous company globally
- Small teams achieving breakthrough results
- Model for how European innovation can compete with US despite resource differences

5.3 Demonstration Effect for EU-Wide Deployment

Attempting EU-wide program without demonstrated proof-of-concept risks failure:

Political dynamics:

- Skeptical member states will question feasibility, timeline, costs
- Opposing interests prioritize different issues
- Negotiation time measures in years to build consensus across 27 nations
- Without deadline pressure, decisions defer indefinitely

BSR proof-of-concept changes dynamics:

- Operational facilities make abstract concrete
- Measurable results: European AI companies using BSR infrastructure, competitive models
- Cost validation: Actual numbers on energy costs, construction timelines, returns
- Framework template: BSR approach provides model other regions can adapt

Political momentum:

- Success breeds support: Working program easier to expand than hypothetical to initiate
- FOMO factor: Member states not participating see others benefiting
- Reduced uncertainty: Demonstrated approach reduces perceived risk
- Timeline urgency: BSR moving fast creates pressure on broader EU to act before falling further behind

5.4 Scale Requirements Demand EU-Wide Participation

BSR leadership is necessary for speed and demonstration. However, BSR alone is insufficient for global competitiveness.

Scale comparison:

- US: 340 million people, $29 trillion GDP, unified market
- China: 1.4 billion people, $19 trillion GDP, state-directed economy
- EU: 450 million people, €17–18 trillion GDP, fragmented markets
- BSR: 155–160 million people, €6.5–7.5 trillion GDP, excellent coordination but smaller scale

1

AI development requirements:

[1] Source: World Bank. *GDP (current US$)*. EU, United States, China; Accessed 2025-11-09. 2024. URL: https://data.worldbank.org/indicator/NY.GDP.MKTP.CD.

- Training costs: Hundreds of millions per frontier model
- Infrastructure investment: Hundreds of billions for competitive capacity
- Market size: Population scale justifying commercial deployment
- Talent pool: Millions of educated workers

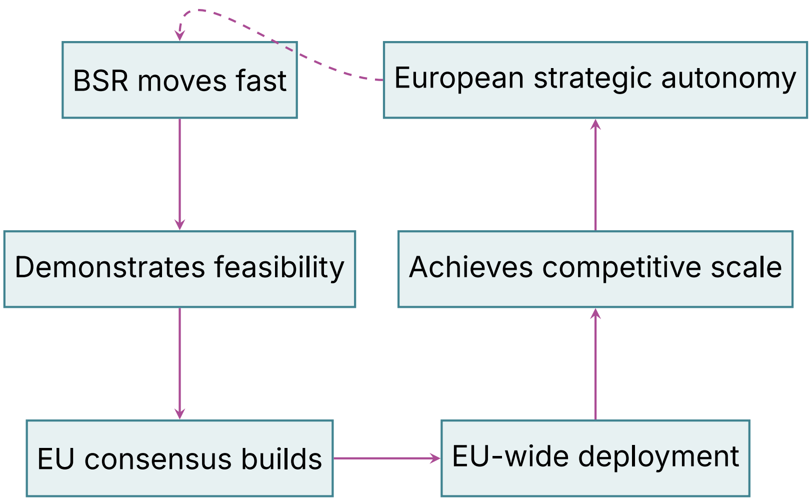
BSR cannot match US/China alone:

- Insufficient population for necessary talent pool at scale
- Insufficient economy for sustained investment at competitive levels
- Insufficient market for commercial deployment justifying development costs
- BSR excellence as regional hub still means European dependence if EU does not follow

EU-wide deployment essential:

- GDP scale: €17T economy can support €1T investment
- Market scale: 450M people justify frontier AI development
- Talent scale: Combined European universities produce sufficient researchers
- Strategic scale: Europe can be third major AI power if unified

5.5 The Virtuous Cycle



Step 1: BSR acts decisively through CBSS coordination

- Leverages natural advantages and established cooperation mechanisms
- Deploys initial infrastructure 2025-2026
- Creates working model faster than EU-wide coordination could

- Demonstrates rapid, dynamic decision-making matching AI development pace

Step 2: Results demonstrate feasibility

- European companies use BSR infrastructure successfully
- Energy costs competitive, timelines achievable
- European AI models show improving capability
- Market-driven adoption validates performance improvements

Step 3: Political consensus builds

- Skeptical member states observe working system
- Non-participating nations see benefits flowing to BSR
- Framework reduces perceived risk and complexity
- Proof-of-concept provides template for replication

Step 4: EU-wide deployment follows

- BSR approach adapted to other regions (Southern European solar, Atlantic offshore wind)
- €1T commitment achieved through demonstrated results
- Timeline still permits 2028 capability targets
- Private sector confident deploying capital given successful model

Step 5: Scale enables competitiveness

- EU-wide infrastructure matches US/China capacity
- European AI companies competitive globally because models perform as well or better
- Market mechanisms ensure continued innovation
- Strategic autonomy achieved through capability

Step 6: Success reinforces continued investment

- Economic returns justify initial investment
- Political support strengthens with visible benefits
- Europe maintains position through sustained commitment
- Solutions to major challenges like climate change demonstrate value of indigenous capability

Attempting EU-wide deployment without BSR demonstration risks stalling at consensus-building phase and missing the critical 2025-2028 window. BSR must lead because BSR can lead through CBSS and complementary coordination mechanisms. EU-wide success requires BSR success as catalyst and model.

Conclusion

This document has made a straightforward argument: Advanced AI systems will emerge in 3-5 years with capability to generate new knowledge, advance scientific discovery, and recursively improve themselves. These systems require massive computational infrastructure powered by abundant, affordable energy. Infrastructure takes 24-36 months to build from decision to operation. The conclusion is mathematical: Decisions made in Q1-Q2 2025 determine what infrastructure exists when capabilities emerge in 2028.

Europe faces a binary choice.

Option One: Build

Commit €1 trillion over 2025-2028 combining public strategic investment with private sector mobilization. Reform permitting enabling 6-month approvals. Reduce bureaucracy and improve tax competitiveness allowing private sector leadership. Leverage BSR natural advantages through CBSS coordination: Iceland geothermal, Nordic climate and hydropower, German industrial capacity, Swedish startup ecosystem. Accept nuclear power as necessary component of baseload energy. Enable market mechanisms driving efficient allocation and rapid innovation. Move with urgency and dynamic decision-making matching technological development pace.

This path maintains European strategic autonomy. European governments use European AI for sensitive functions. European companies compete globally with equivalent technological capability because their models perform as well or better. European values including privacy, rights, and democracy embed in systems European institutions deploy. European researchers work on frontier problems in European institutions rather than emigrating. Europe participates in the most consequential technological transition since industrialization as actor. Advanced AI potentially provides solutions to climate change and other civilizational challenges, with benefits accruing to Europe.

Option Two: Defer

Continue current trajectory. Debate infrastructure investment at leisurely pace suitable for normal policy. Maintain 18-36 month permitting timelines. Avoid politically difficult decisions. Wait for EU-wide consensus before initiating deployment. Prioritize immediate budget concerns over strategic investments. Allow market forces to drive European dependency on foreign systems.

This path accepts subordination. By 2028, European institutions depend on American or Chinese AI systems because indigenous European capability lags and European companies cannot compete. Value capture, jobs, innovation flow to US or China. European AI researchers emigrate for infrastructure access. Critical infrastructure including defense, energy, finance, and communications depends on systems designed, controlled, and potentially monitored by foreign powers. European sovereignty becomes nominal. Practical decision-making authority rests with whoever controls the AI systems European institutions cannot function without. Solutions to major challenges reflect foreign priorities and values.

No middle path exists. Infrastructure investment is binary: Sufficient or insufficient. Insufficient means dependence. Dependence means subordination. The timeline is fixed by technological progression, not policy preference.

The industrial revolution determined global power distribution for two centuries. Nations that industrialized early dominated. Nations that failed became subordinate through formal colonization or informal economic domination. Technology gap translated directly to hierarchy.

AI represents the industrial revolution of intelligence itself. If mechanizing physical work proved consequential, mechanizing cognitive work is more so. Cognition drives strategy, innovation, productivity, power.

The United States currently leads with massive private sector investment exceeding $800 billion for AI infrastructure. China pursues AI dominance as explicit national strategy with state-directed capital exceeding $500 billion. Europe debates while rivals build.

This generation's European leaders face judgment on one decision: Did they commit resources necessary to maintain strategic autonomy when the window for action was open, or did they deliberate while rivals moved?

The €1 trillion required represents 1.45% of EU GDP annually for four years. Less than military spending. Comparable to agricultural subsidies. For a €17 trillion economy, affordability is not the constraint. The question is whether European strategic autonomy, the ability to make independent decisions reflecting European interests and values, is worth 1.45% of GDP for four years while enabling potential solutions to civilization-scale challenges.

If yes, infrastructure investment is mandatory. If no, accept subordination honestly rather than pretending autonomy is possible without capability.

The Baltic Sea Region must lead because it can: Faster decision-making through CBSS and complementary mechanisms, natural advantages, existing cooperation, aligned security interests. However, BSR alone cannot achieve scale necessary to compete with US and China. BSR leadership catalyzes EU-wide deployment. EU-wide deployment achieves competitive scale. Scale enables autonomy. Market mechanisms drive efficiency. Private sector executes rapidly. European models achieve adoption through performance.

The timeline is unforgiving. Infrastructure decided Q1 2025 becomes operational mid-2026 to mid-2027. Infrastructure decided Q2 2025 becomes operational late-2026 to late-2027. Infrastructure decided Q1 2026 becomes operational mid-2027 to mid-2028, potentially after advanced AI capabilities already deploy by competitors.

Each quarter of delay means European infrastructure arrives a quarter later relative to capability emergence. No making up lost time. Late infrastructure means sustained dependency.

AI policy requires speed and dynamism matching technological development pace. Traditional multi-year policy cycles are inadequate when capability doubles annually. Rapid, dynamic decisions through mechanisms like CBSS demonstrate the agility required.

The choice is now. The window closes rapidly. History will record whether European leaders recognized the stakes and acted, or whether they understood the implications only after the outcome was determined.

For Further Information

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Council of the Baltic Sea States (CBSS)

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