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Strategy, Sovereignty and Silicon
How Sovereign AI Capabilities Can Increase European Competitiveness

Developing sovereign artificial intelligence capabilities can contribute to international economic security in Europe over the coming century

Foreword

As the world enters 2026, the global conversation on artificial intelligence (AI) has shifted. The initial wave of consumer fascination—defined by chatbots and image generators—is receding. In its place, a far more consequential reality is emerging: the era of sovereign AI.

For the past two years, we have watched massive capital mobilization to physically reshape national infrastructures around the world. The United States and China are no longer just training models; countries are pouring concrete, recommissioning nuclear assets, and rewriting grid regulations to secure the cognitive capacity that may define the next half-century of economic power.

For many countries, this moment represents a stark fork in the road.

Sovereignty as strategy

We are witnessing the rapid nationalization of compute. Nations are realizing that reliance on foreign technology can be a supply chain risk and vulnerability. As this report describes, the next frontier is not just about who owns the best algorithm, but who owns the energy, the AI infrastructure, and the data refineries that power it. Sovereignty is no longer about isolation; it is about having the agency to choose your own digital destiny.

The industrial awakening

Europe stands uniquely positioned in this race and still needs to address the potential exposures it faces. Europe possesses: Industrial data that describes the physical world. From automotive engineering to chemical processing, European entities hold the "ground truth" data sets required to build the next generation of physical AI.

However, the "hardware gap" is growing. While industries are ready to digitize, the grid is struggling to energize. As detailed in this report, the disconnect between digital ambition and the physical infrastructure—the "energy-AI nexus"—is likely the single greatest brake on competitiveness. Europe is at risk of having leading industrial software running on someone else's hardware. To solve this, Europe should define its own path towards sovereign AI based on its specific prerequisites and potential.

The path forward

This report informs a blueprint for mobilization. It is not meant to be the sole path forward for any one country, region, or International Organization, Instead, it outlines how Europe can leverage its massive industrial base to leapfrog the consumer AI era and dominate the industrial AI era. We do not believe this is the only way this could be achieved, but our hope is it motivates governments and society to think differently. And, to do so, requires haste. Compute capacity could be considered as critical national infrastructure with fast-track energy projects, and forge public-private partnerships (PPP) that reduce the risk of the massive capital outlays required.

The time for observation is over. The infrastructure of intelligence is being built today.

Dr. Andreas Gentner
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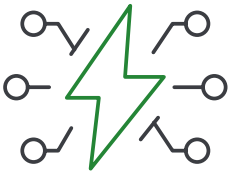
Global AI Leader

Executive summary

Sovereign AI refers to the ability of a nation to independently develop, deploy, govern, and control AI systems in alignment with its own laws, values, and strategic interests without reliance on foreign technologies, data, or infrastructure.

We are entering a historic era where the collapsing cost of cognition is transforming from digital disruption into an engine of national prosperity. This transition marks the potential end of cognitive scarcity, empowering sovereign nations to deploy leading automated defensive shields and high-fidelity domain awareness that were once the sole province of superpowers. By treating intelligence as a national utility, nations can now solve human-scale challenges, from precision healthcare to resilient energy grids, at an unprecedented scale.

However, capturing this cognitive dividend requires a fundamental shift in how we define national power. It may no longer be enough to govern the software; nations should consider needs to secure the entire vertical stack of intelligence production.[1]



Pillar I: Energy (The foundational prerequisite)

In the 21st century, sovereignty is tied to the gigawatt and the energy-intelligence nexus. For many, digital autonomy is not feasible without energy independence. As AI models scale, their energy demands move from an operational cost to a primary strategic chokepoint. To secure this pillar, consider treating the power substation as a strategic asset, co-locating high-density compute with dedicated, energy sources[2] to ensure that the intelligence engine is not vulnerable to grid shocks or foreign energy concerns.

Pillar II: Infrastructure (The physical stack)

Sovereign AI infrastructure is the new factory of the 21st century. It facilitates a shift from a world of scarce human knowledge to one of abundant, scalable reasoning. This industrialization of innovation requires a silicon-to-grid strategy, ensuring that a nation possesses the domestic or allied compute reservoirs (graphics processing units (GPUs) and data centers) necessary to process its own data under its own laws.

Pillar III: Workforce (The engine of competence)

The human capital of a country, its elite researchers, engineers and AI-literate civil servants, is a way to help enable that AI systems reflect national culture and security protocols. By democratizing access to compute, nations could retain their leading talent and close the competence gap, moving from being passive consumers of technology to active governors of their own digital destiny.

Pillar IV: Capital (The strategic accelerator)

The scale of the AI transition requires a significantly scaled investment model. Access to strategic, patient capital is the fuel that accelerates the other three pillars. Through sovereign AI funds and PPPs, countries could help mitigate the risk posed by massive infrastructure costs so that the economic surplus created by AI remains within national borders.

Introduction

2026 marks the shift from theoretical risks of AI to the industrial reality of power. We have moved beyond the era of experimentation into an era of structural transformation, where the strategic autonomy of many nations is tethered to their ability to process information at scale and speed. In this new landscape, sovereignty is not a binary status; it is a dynamic map that every nation could consciously assemble.[3]

The fundamental choice: Architect or subject?

For the modern nation, the collapse in the cost of cognition presents a paradox. While it offers a substantial cognitive dividend for innovation, it also creates new, invisible dependencies. The concept of sovereign AI has been thrust to center stage because of the breadth and national importance of AI tools expected to run on the AI tech stack, anything from national security capabilities to supply chain management programs to biotech and advanced economic modeling systems. These sensitive areas deserve protection and freedom from foreign influence or dependence.

Nations today face a fundamental choice: to become the architect of their own intelligence or the subject of a foreign digital order. To choose the former, leadership must move beyond signing high-level ethical frameworks and begin the hard work of technological industrialization. This is not a race that can be won with software alone; it requires deep physical and financial commitment.

We are no longer able to keep security policy and economic policy in separate domains.[4] In the middle of these pressures, AI technology is emerging as a potent capability with increasingly broad applications where intelligence becomes a strategic national asset. As countries continue to vie for natural resources and manufacturing capacity, they also seek access to AI infrastructure, chips, platforms and the ability to run and train models with sovereign datasets within their own borders. Reliance on foreign AI systems introduces dependence over the intelligence supply chain. By establishing digital boundaries, countries can act autonomously and maintain control over their data, AI systems and intelligence.

For Europe, national AI strategies may not be enough. To be competitive and thrive economically, Europe should continue to develop and elaborate on regional frameworks for a joint approach, joint funding and shared capabilities from across the region. Europe is a leader in energy transformation. How the region leverages this will be one determinate for how the region competes in sovereign AI.

The intelligence paradox: Infinite output, finite input

A potential illusion has taken hold in the AI economy. Because a user can generate a report for a fraction of a cent,[5] leaders perceive intelligence as a utility-elastic, weightless, and infinite.

We are witnessing a bifurcation of economic reality:

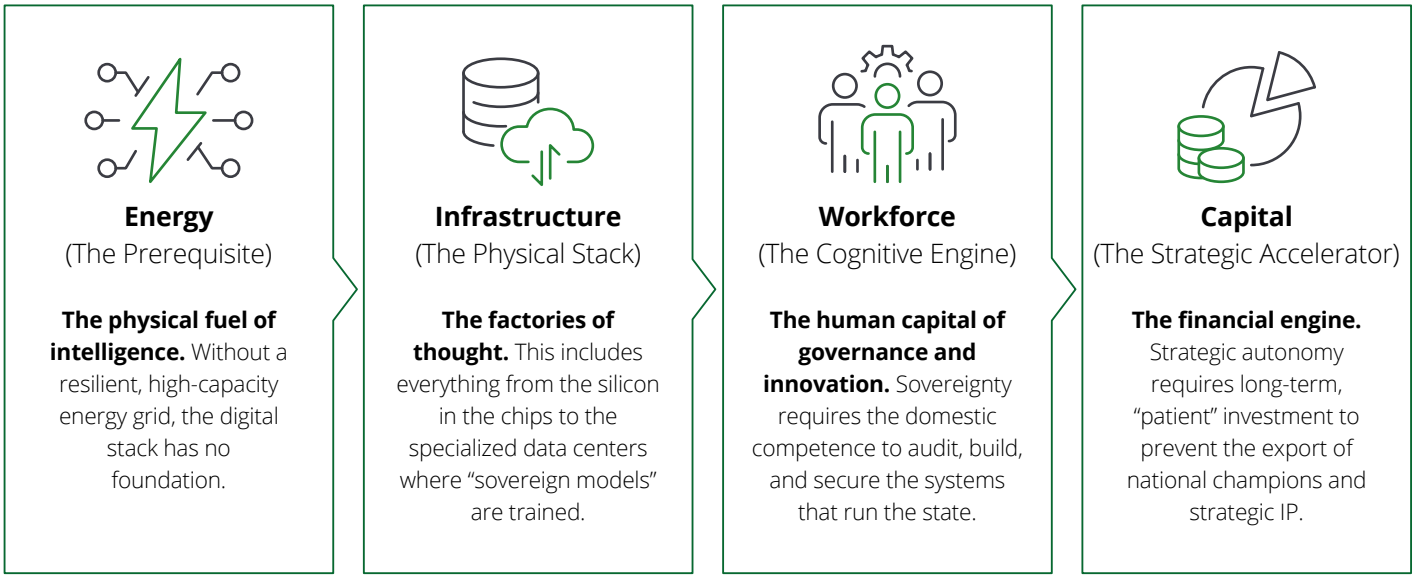
- At the edge (the user): We see infinite abundance. The unit cost of cognitive tasks is collapsing.[6] Tasks that take hours now take seconds, driving demand as digital labor proliferates across the organization.
- At the core (the nation): We see physical scarcity. Each cheap token is backed by an industrialized supply chain that is heavy, power-hungry, and capital-intensive. The infrastructure required to manufacture these tokens—gigawatt-scale energy, specialized cooling fabrication plants—is becoming more expensive, not less.

The sovereign consequence: For a nation, this means that while the consumption of AI is becoming democratized, the production of AI is not. Nations that can address the physical scarcity at the core (energy and infrastructure) could enjoy the abundance at the edge.

The four categories of the sovereign AI puzzle

Achieving sovereign AI capability is a complex mapping exercise. There is no one-size-fits-all solution; rather, each country possesses a unique set of puzzle pieces; existing strengths in ability to generate sustainable energy, access and development of the AI infrastructure stack, financial depth, and technical talent, that should be fitted together to form a coherent strategy. To navigate this, these strategic pieces can be categorized into four foundational pillars. Mapping these categories allows a nation to identify its sovereign gaps and determine where it could build domestic capacity and where it can form strategic, multi-aligned relationships.

Fig. 1 – Four pillars of the sovereign AI puzzle



Source: Deloitte Global analysis based on Silicon2Service offerings and market analysis

Energy as a strategic barrier

For decades, national security was largely reliant on the secure flow of oil and gas.[7] In the age of AI, the new strategic commodity is the reliable, scalable electron. The most immediate and formidable constraint on sovereign AI capability is not the availability of the silicon chip, but the availability of the power required to run it. As AI models scale in complexity, their energy demands are shifting from a manageable operational cost to a primary strategic chokepoint.

The data is unambiguous. By 2030 global AI data center power consumption is projected to reach 945 TWh, more than doubling from today's levels and surpassing the entire current electricity demand of Japan.[8] Unlike traditional industrial loads that fluctuate, AI training demands massive, constant, high-density power. For a sovereign nation, this energy-AI nexus means that digital autonomy is an illusion without energy independence. If a nation's AI Infrastructure is dependent on a fragile or foreign-controlled energy grid, its cognitive dividend may be neutralized by a single supply shock or grid failure.[9]

The challenge is not merely the quantity of power, but the physics of its delivery. Traditional civilian power grids were designed for widely distributed, relatively low-density loads (homes, offices, light industry). AI infrastructure is the exact inverse: it requires massive, hyper-concentrated, and continuous power.[10]

Modern AI training clusters are pushing rack power densities from the, "traditional 54 volt in-rank power distribution in use in today's data centers, designed for kilowatt-scale racks and cannot support the megawatt-scale racks coming to modern AI data centers."[11] A single hyperscale campus now demands the power equivalent of a mid-sized city,[12] delivered to a single geographic pinprick, 24 hours a day, without fluctuation. Most national grids, particularly in Europe and the United States, physically cannot handle these localized thermal and electrical loads without massive, multi-year upgrades to transmission lines and substations. The inability to deliver high-voltage power to specific sites fast enough is now a primary bottleneck for AI deployment.

The European dilemma: Regulatory ambition versus physical reality

While Europe remains a leader in digital regulation and in energy transformation policies, it is falling behind in the physical energy infrastructure required to support those regulations. The continent is caught between aggressive sustainability targets (such as the Energy Efficiency Directive (EED)[13] and the need for rapid capacity expansion. This challenge is compounded by a diverse and often politically sensitive energy landscape, making it difficult to achieve a unified approach to baseload power.[14]

Furthermore, the timeline disconnect can be paralyzing. While an AI data center can be built in 18-24 months,[15] securing the necessary grid connections in some European nations can take between seven and ten years.[16] This regulatory inertia has created a reality where 75% of data center operators in Europe now view secure access to power as their biggest challenge.[17]

This energy crunch forces a confrontation with a difficult truth: the timeline for achieving sovereign AI capability is currently faster than the timeline for the green energy transition. While the long-term goal must be sustainable AI, the short-term reality is that firm (always on) power is required immediately to secure national standing.

Many nations are now facing a sustainability-security dilemma. Stringent regulations designed for the pre-AI era, such as the EU's EED,[18] are inadvertently acting as brakes on sovereign compute buildouts. If a nation prioritizes emissions reporting over connection speed for critical infrastructure, it will cede ground to competitors who prioritize speed above all else. A sovereign strategy could benefit from a pragmatic carve-out; recognizing that AI infrastructure used for national defense and critical services may require exemptions from standard grid processes to help enable rapid deployment.

The geopolitical landscape: Energy as a means of capability

While Europe struggles with grid bottlenecks and permitting delays, global competitors are treating energy infrastructure as an important domain of national security warfare. They are actively re-engineering their systems to meet the demands of AI:

The geopolitical landscape

The United States: Recognizing grid constraints, the United States launched the Speed-to-Power Initiative, fast-tracking nuclear restarts[19] and deployment of small modular reactors (SMRs).[20] The strategy is explicit: deregulate energy production when it serves national security compute needs.[21]

China: Beijing is executing a state-directed eastern data, western computing strategy.[22] They are building massive AI compute clusters in western provinces rich in renewables and hydropower, expanding their national grid capacity from 38 GW today to a projected 64 GW by 2030—far outpacing Europe's projected growth.[23]

The Gulf states: Nations in the Gulf region are actively converting petrochemical dominance into electro-computational dominance.[24] They are constructing massive solar parks dedicated exclusively to powering new AI zones, essentially trading oil barrels for AI tokens to secure their post-carbon future.[25]

The Global South: Nations in Africa and Latin America are executing a green sovereignty strategy.[26] By leveraging stranded renewable assets, such as hydropower in Ethiopia or biofuels in Brazil, they are building low-cost sovereign compute zones.[27] Utilizing domestic green energy to process domestic data and sovereign AI, could provide an economic surplus to GDP.

The need for high-density, continuous power has triggered a global search for steady energy solutions that do not rely on fossil fuels or intermittent weather.[28]

While some global powers, including the United States and China, are aggressively pursuing a nuclear renaissance and the development of SMRs to help solve this AI power crunch, this path remains politically complex and diverse within Europe. This reality places greater strategic onus on European nations to rapidly industrialize alternative forms of firm, clean power—such as advanced geothermal, large-scale hydroelectric expansion, or massive, long-duration energy storage paired with renewables—to mitigate the risk of being left behind in the compute race. The inability to secure a viable source of 24/7 power will limit sovereign AI capability.

The path to energy sovereignty: Islanding the intelligence engine

To secure this foundational requirement, nations cannot rely solely on passive civilian grid expansion. An active dual-use energy strategy could be considered. This requires an industrial policy focused on islanding critical AI infrastructure.

This means designating specific national security power corridors where high-density compute is co-located with dedicated, resilient energy sources that are physically separate, or islanded, from civilian grid volatility. Depending on national policy and geography, this could involve direct connections to large-scale hydro, advanced geothermal plants, or massive renewable farms with integrated industrial-scale storage. In the new geopolitics of AI, the states that can generate power at scale may dictate the pace of global innovation.[29]

Case study:
The German energy-AI nexus

The context: A strategic vacuum. AI compute capacity, measured in gigawatts, is a critical component of sovereign AI strategies. The US is leading the way with 48 GW as of 2024 and plans to nearly double capacity by 2030.[30] China follows with just under 38 GW with forecast to reach 64 GW by 2030.[31] As of 2024, Europe's compute capacity sits at 16 GW, with a forecasted AI-compute demand requiring 28 GW by 2030.[32] Germany is well behind their goals with 2.7 GW of computing capacity as of 2024 and demand forecasts reaching 4.8 GW by 2030.[33]

Germany has a current capacity of 1.6 GW.[34] The country has 0.7 GW being developed and another 1.3 GW in process.[35] With these factored into the 4.8 GW goal by 2030, there remains a 1.4 GW capability gap.[36]

The existing projects in Germany are at very different stages of maturity with significant implementation uncertainties. Even with these projects, there is a "real gap" of 1.4 GW, nearly 30% of total forecasted demand—for which there are currently no planned projects.[37] This is not merely a strategic bottleneck; it is a strategic vacuum that threatens to leave German industry dependent on foreign entities for the processing of national data.

The path forward: Sovereign islanding and public-private mobilization. Germany is exploring a shift from passive grid reliance to active industrial islanding. This involves creating "national security power corridors" where AI gigafactories are co-located with dedicated, resilient energy sources, such as advanced geothermal or integrated renewable storage. Market analysis estimates AI infrastructure costs at over $35 billion per gigawatt,[38] the German strategy emphasizes the Important Project of Common European Interest (IPCEI) framework as a de facto PPP model to de-risk these sovereign assets.[39] By combining the technical virtuosity of the private sector with the state's ability to de-risk high-capital energy projects, Germany aims to build an "intelligence refinery" that helps ensure the AI capabilities remains under domestic jurisdiction, powered by sovereign electrons.

AI infrastructure as a strategic imperative

Modern sovereign security is no longer an abstract legal concept enshrined in geographic borders; it is being re-anchored in the physical "intelligence engine" of the nation. Noting, "the current buildout of AI infrastructure is as significant as the 19th century patenting of the electric lightbulb,"[40] necessitating a parallel, multi-decade buildout of the global power grid. Globally, this has triggered an infrastructure supercycle where the international data center footprint is expected to jump by about 100 GW from 2026 to 2030.[41]

The global AI infrastructure supercycle

As of late 2025, the global data center market has transitioned from a supporting utility to a primary instrument of national power, with total annual investment projected to reach nearly US$1 trillion by 2029.[42] This infrastructure supercycle is characterized by a massive shift in capital expenditure, where the world's leading hyperscalers are spending more on AI-ready "gigafactories" than the inflation-adjusted cost of the Manhattan Project during WWII.[43] In 2024 and 2025, North America alone absorbed over 8 GW of new capacity, yet vacancies in primary hubs have plummeted to record lows below 2%.[44] This scarcity has transformed into a finite strategic resource; for sovereign states, the "compute reserve" is now as vital to national resilience as the strategic petroleum reserve was in the 20th century.

The North American benchmark: The "silicon-to-grid" strategy

The United States can serve as the blueprint for an "industrial-first" AI strategy, where policy has shifted from software governance to securing the material foundations of the technology. The United States has moved to onshore semiconductor fabrication while demonstrating the critical value of data centers to technological growth.[45] A defining feature of this model is the Speed-to-Power Initiative, which bypasses traditional grid bottlenecks by fast-tracking the permitting of the 100MW+ facilities and integrating them with dedicated nuclear and geothermal energy sources.[46] By providing public access to high-end compute through the National AI Research Resource (NAIRR),[47] the United States helps ensure that sovereign-relevant research in defense, energy and healthcare is not beholden to foreign providers or private-sector companies.

The Gulf shift: From crude to compute

The Gulf Cooperation Council (GCC) nationals, led by Saudi Arabia, the United Arab Emirates and Qatar, are executing a pivot from energy exportation to intelligence production. Utilizing sovereign wealth funds that accounted for nearly 40% of global sovereign wealth fund deal-making in 2025, these nations are skipping technological

generations to build massive sovereign AI stacks.[48] Their strategy leverages subsidized, low-cost energy to offer compute services,[49] effectively positioning the region as the global "refinery" for AI training and inference. By securing "trusted ally" status for advanced chip exports, the GCC is integrating itself into the Western techno-economic network, turning sovereign AI into a primary engine for post-oil economic resilience.

The European paradox: Autonomy amidst fragmentation

Europe remains the primary arena for the sovereignty-regulation nexus, where the drive for digital autonomy is considered as a way to overcome a high "fragmentation tax" of energy costs and varied regulatory landscapes. Despite attracting US $8 billion in private AI investment in 2025, surpassing China for the first time,[50] Europe faces a significant compute deficit, with the United States currently holding 74% of global supercomputing capacity compared to China's 14% and Europe's 4.8%.[51] To counter this, the European "AI factories" initiative has committed 20 billion Euros to build localized gigafactories that prioritize data residency.[52] European AI gigafactories are targeting ~400,000 chips while the United Kingdom is gathering 120,000 GPUs.[53] In contrast, some large technology companies are planning to develop one million GPUs to advance its AI capabilities.[54]

This disparity illustrates a potential vulnerability. European leaders could see sovereign AI as a strategic necessity: it helps enable that critical national data—from capital markets to public services—remain under domestic legal jurisdiction and are protected from foreign extraterritorial surveillance.

But it means Europe may need to compete at scale or differentiate on resilience and trustworthiness.

Asia-Pacific: The edge engine

Countries in Asia-Pacific are pursuing a strategy of non-alignment, building national AI grids that are interoperable with both Western and Chinese stacks but dependent on neither.[55] The region is actively islanding its data processing.[56] This allows countries in AP to function as a neutral location for data, attracting investment from both superpowers who need neutral ground to operate.

Furthermore, the region is pioneering the mobile-first AI model. Unlike the West, where AI is often synonymous with massive desktop-based hyperscalers, Asia-Pacific is driving compute to the edge—integrating lightweight AI models directly into 5G telecommunications infrastructure and mobile devices.[57] This decentralization is a security feature, not just a technical one; by distributing intelligence across millions of devices rather than centralizing it in a few vulnerable data centers, these nations are building a meshed resilience that is harder to sanction or disable.

The Global South: The digital leapfrog

For the Global South (Africa and Latin America), leaders are framing data extraction as the 21st-century equivalent of resource extraction—where raw data is harvested cheaply, refined abroad, and sold back as expensive intelligence.[58] The African Union's Continental AI Strategy (2025/2026) and Brazil's PBIA (US$4 billion Investment Plan) focus on building sovereign data zones.[59] These are state-backed infrastructure projects designed to help enable the economic surplus of AI model training remains within the national economy.

The strategic logic here is the leapfrog. Just as these regions skipped landlines for mobile phones, they are now attempting to skip the legacy software era to jump directly to AI-native governance. By prioritizing low-cost sovereign compute—often powered by isolated renewable assets like hydro in Ethiopia or biofuels in Brazil[60]—they are creating a uniquely affordable AI ecosystem. This creates a powerful geopolitical wedge: while the Global North focuses on the most expensive, high-end chips, the Global South is building a good enough AI stack that solves real-world problems (agriculture, health) at a fraction of the cost, making them less reliant on Western aid or Chinese loans.

The table below summarizes our view on the different strategic rationales by region.

Region	Strategic Identity	Infrastructure Priority	Sovereign Logic
United States	The Innovation Hub	Massive Hyperscale/ Nuclear Power	**Dominance:** Maintain the Silicon Shield and set global standards through sheer scale
Middle East	The Global Refinery	Energy-to-Compute Conversion	**Diversification:** Convert oil wealth into intelligence wealth to secure a post-carbon future
Europe	The Regulatory Guard	Privacy-First/ Islands of Trust	**Protection** Use regulations as a defensive moat
Asia-Pacific	The Edge Engine	National AI Grids/ Mobile AI	**Autonomy:** Connectivity-driven growth to maintain independence from both US and Chinese technology blocs
Global South	The Digital Leapfrog	Sovereign Data Zones/ Low-cost compute	**Sovereign Data:** Preventing data extraction by ensuring local data is processed locally

AI infrastructure challenges

The complication continues when developing a fully sovereign AI stack, from rare earth materials to energy to multi-billion-dollar data centers to cutting-edge software, demands heavy outlays of capital and talent. On top of that, most of Europe operates on foreign cloud providers,[61] so it is no small task to extricate critical tools from these platforms and rebuild them on sovereign European platforms and sovereign clouds.

Related to these matters there are ongoing debates about the perils and potential of large language models (LLMs). Open-source LLMs can be more cost effective but come with increased risks and are less amenable to sovereignty goals. Closed models can be more secure and can better preserve sensitive data, as well as cultural and linguistic heritage, but can be more expensive. Another challenge with its own set of opportunities and trade-offs.

Case study:
Infrastructure development in the US

If 20th-century US infrastructure was defined by the Hoover Dam and the Interstate Highway System, the 21st century's equivalent is Project Stargate.

Project Stargate: Announced in January 2025, this initiative directs US$500 billion to strengthen American AI infrastructure.[62] It represents a paradigm shift from "corporate data center expansion" to sovereign-scale industrial mobilization. A coalition led by OpenAI, SoftBank, MGX, and Oracle—powered by NVIDIA's Blackwell and Rubin architectures—has committed to a US$500 billion investment to build a distributed network of AI supercomputers across the American Midwest and Southwest.[63] The crown jewel of this initiative is a planned 5 GW AI data center in Texas.[64] This is not merely a server farm; it is a vertically integrated intelligence refinery designed to train the first generation of artificial superintelligence (ASI).

Project Stargate illustrates the US strategy of dominance. By locking in 10 GW of total power capacity[65] (leveraging new nuclear and stranded renewables)[66] and securing massive quantities of next-generation GPUs,[67] the project effectively creates a compute moat. It re-industrializes the American heartland, turning rural energy-rich zones into the high-value engines of the future economy, and signals that the United States intends to win the AI race not just through software innovation, but through physical superiority.

Workforce development: Building AI-literacy

The degree to which a sovereign AI stack shapes the national economies over the coming decades hinges in large part on whether government leaders can successfully develop and retain an AI-literate workforce to continue operating and modernizing the stack. The need for technical upskilling is a well-known challenge and addressing it is a work-in-progress. But without this type of workforce, countries may not realize the full potential of their sovereign technology.

Envisioning human-AI collaboration

The workforce of the future necessitates successful human-AI collaboration.[68] For this to work, we could see organizations stop viewing AI merely as a productivity tool for humans and think of the human-AI collaboration as a hybrid workforce where organizations manage two distinct groups of employees: human and digital labor. Technology and humanity must work closely to enhance human output.[69]

Digital labor represents a rupture in classical economics: it performs work like labor, but it scales like capital. A single AI agent can be replicated ten thousand times instantly, amortized like software, and deployed without sleep. This breaks the link between headcount and output.

Defining the workforce: The future digital workforce could consist of skilled human workers collaborating with digital tools in a cohesive relationship. Technical skills could help bridge the gap between the irreplaceable human factor and the burgeoning capabilities of AI to form the dynamic, human-AI workforce of the future in a way that is accretive to global and domestic economies.

Four hurdles to sovereignty

Unfortunately, many countries face hurdles in realizing this vision. This is not the aging workforce, the skills gap, or access to talent—it is birth rates: "Birth rates in the northern hemisphere in many countries are dropping rapidly and that's going to impact the workforces and it's going to impact their economic performance."[70]

Hurdle 1: Demographic decline: The workforce is shrinking, with estimates placing 264 million Europeans in the workforce of 2023, but 223 million in the workforce of 2070, a 15% decrease.[71] In fact, economist Mario Draghi's report on European competitiveness notes: "Overall, 21% of today's population aged 20-64 remains inactive, with 8 million young people currently not in employment, education, or training."[72]

Hurdle 2: The skills gap: Countries face a talent gap between the average AI capability of the current workforce and the desired capability of the future workforce—in fact, "42% of Europeans lack basic digital skills, including 37% of those in the workforce,"[73] according to Draghi's report. However, AI tools will only grow in prevalence across economic sectors, and the current workforce is largely not ready to use these tools. On top of basic skills shortages, the European Council on Foreign Relations observed, "If current trends persist, the EU will suffer from a shortage of 8 million information and communications technology specialists by 2030."[74]

Hurdle 3: Allocation and mobility: While talent mobility capabilities are in place, there is room for improvement.[75] Draghi notes: "The EU has a highly skilled labor force, but it is suffering from persistent skills shortages across different sectors."[76]

Hurdle 4: The brain drain: Some have argued that leading talent is leaving Europe,[77] degrading Europe's ability to develop, maintain, and use sovereign AI systems. If Europe continues to lose talent, it may not be able to compete as successfully in the global market or maintain high levels of innovation, both of which may erode the benefits of its sovereign AI stack.

Taken together, these four hurdles present substantive, but not insurmountable, challenges to successfully introducing a sovereign European AI stack.

Strategic motions for reform

Europe can execute four motions to help its workforce overcome these hurdles.

Motion 1: Workforce expansion: Europe may benefit from a larger workforce that can capitalize on AI developments and leverage the capabilities of its sovereign AI stack to its fullest potential. As European leaders continue to guide more people into the workforce and sharpen their AI skills, Europe increases the scope and power of its economy so that it can compete at scale in the toughest global markets. Embracing AI as a collaborator can further enhance a growing workforce, building economic clout in the near- and long-term and pumping momentum into GDP growth.

Motion 2: Education: As President von der Leyen declared in March 2025, "By the end of the decade, we have to double the number of workers in digital and AI."[78] Henna Virkkunen, the EU Commission's Executive Vice-President for Tech Sovereignty, Security and Democracy, echoed this view, stating in April 2025 that Europe needs to improve its overall level of AI talent and affirming her commitment to this effort.[79]

Training the workforce of the future entails both developing basic AI skills across the workforce as well as developing a deep pool of AI knowledge and experience.[80] More Europeans across a broad array of industries could consider achieving a basic level of competence with AI tools, enabling them to use them with confidence, safety, and effectiveness.

Many countries could also benefit from more workers with deep knowledge of AI and related domains who could continue researching, innovating, designing, and building sovereign AI capabilities so that the economy is running on the latest sovereign technology. To help develop this knowledge, more workers can pursue advanced education in AI and related degrees; just over a third of the European workforce has achieved an undergraduate level of education, well below education levels in other regions.[81]

Universities could increase their offerings of continuing education for adult learners, coordinating their course content to reflect EU priorities. Examples of programs for professionals include the University of Berlin's AI Campus, part of its Lifelong Learning program[82] and the University of Copenhagen's Continuing Education and Lifelong Learning program in Artificial Intelligence.[83]

Looking beyond Europe, Singapore is demonstrating its commitment to upskilling its workforce through the MySkillsFuture program, which offers courses in AI.[84] This service is sponsored by the Singaporean government and aimed at adult learners and students in tertiary education.[85] Digital skills are increasing in importance; Draghi even puts them on par with literacy and arithmetic.[86]

Motion 3: Planning: The International Monetary Fund observes that, "At the national level, more efficient labor and capital allocation can help lift total factor productivity."[87] In order to support and allocate a growing and increasingly skilled workforce, governments could consider advanced workforce planning strategy and complementary tools. Europe's ability to identify gaps and deploy workers in a rapidly changing technical landscape can help ensure that Europe remains responsive to shifting employment needs.

Frameworks and policies that support worker mobility between member states by affirming consistent technical standards and competency metrics can help the EU address critical vacancies faster. The European Labor Authority's (ELA) European Network of Employment Services (EURES) helps EU workers find jobs across Europe. However, as the ELA reported in mid-2025, "Labor market imbalances across Europe are becoming increasingly severe, with shortages in highly skilled professions such as health care, engineering, and IT." In fact, the report stated that, "All 31 EURES countries reported shortage occupations nearly in all categories reaching as high as 98%." As a means to strengthen organizations like EURES to achieve more efficient worker mobility Europe could consider additional focus in this area. Getting more workers into the workforce can help address some of these gaps.

Closely related, continuous workforce planning at the national levels helps enable leaders to initiate new training foci and identify needs quickly.[88] Agentic AI tools running on Europe's sovereign AI stack can facilitate continuous workforce allocation tracking.[89] These types of tools can also accelerate the process of matching employees to positions.

Building these workforce planning capabilities on a sovereign, European AI stack could give European leaders greater ownership over talent modeling and deployment and greater capacity to address gaps. Introducing AI-powered tools running on Europe's sovereign AI stack could help deliver the dynamism Europe needs to transform its workforce into a potent economic pillar.

Motion 4: Retention: Talent retention headwinds continue to buffet Europe's attempts to strengthen its workforce.[90] Europe may benefit from implementing strong workforce retention mechanisms. One of challenge facing Europe is how to avoid losing skilled workers to jobs outside the union. It may not be possible to avoid talent erosion entirely, but well-researched, decisive action can help ensure that enough talent remains in Europe.

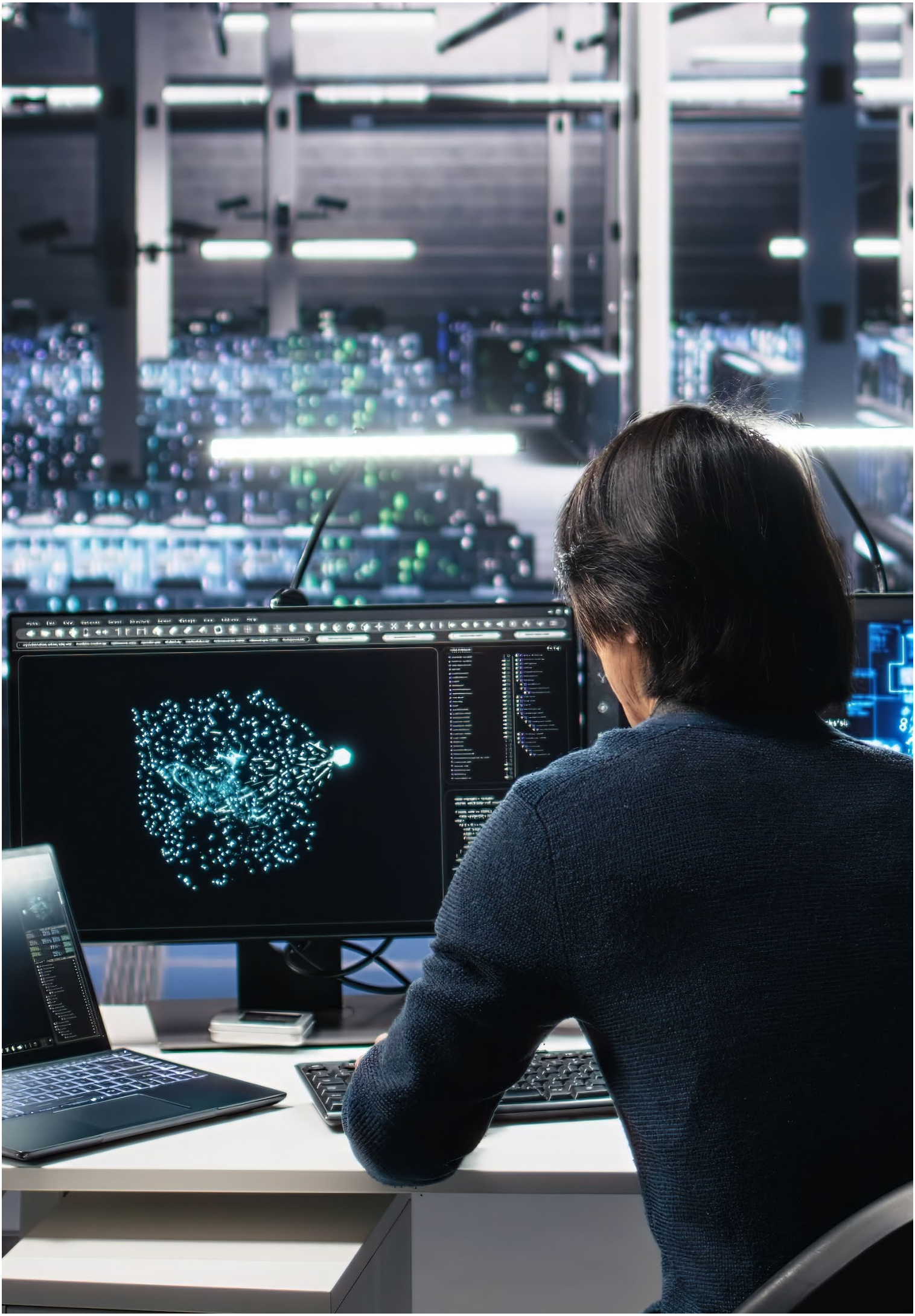
Gulf Magazine highlights a couple of draws for AI talent to transition to Saudi Arabia, including salaries, benefits, interesting work, and innovation opportunities.[91] Europe could consider looking beyond the paycheck to see what creative measures can help keep talent in Europe steps to retain talent, even smaller ones, may prove meaningful.

Conclusion: In short, the European workforce of the future could benefit from both irreplaceable human skills and AI capabilities woven together by technical literacy. The future employee has strong creativity, problem-solving, and relational skills, as well as technical fluency so that sovereign AI capabilities serve not simply as another tool in the tool belt but as true allies in work.

Case study:
Israel – the global AI talent magnet

The ecosystem advantage: Israel holds the world's highest concentration of AI talent, a density that has drawn over 430 multinational corporations (including Intel, Nvidia, and Google) to establish innovation centers within its borders.[92] This ecosystem is anchored by the 2021 National Program for Artificial Intelligence, which coordinates government-wide R&D and infrastructure, alongside a university system that aggressively bridges academic research with startup incubation.[93]

Strategic recruitment: Recognizing that domestic output alone cannot meet demand, Israel has adopted a talent strategy. The state allocated US$1.96 million to specifically recruit top-tier global AI professionals and implemented a "High-Tech Expert" visa program to fast-track entry.[94] By combining outreach with targeted financial incentives, Israel demonstrates how smaller nations can overcome demographic constraints to build world-class technical capacity.



Investing in AI sovereignty as strategy: Aligning private capital with public purpose

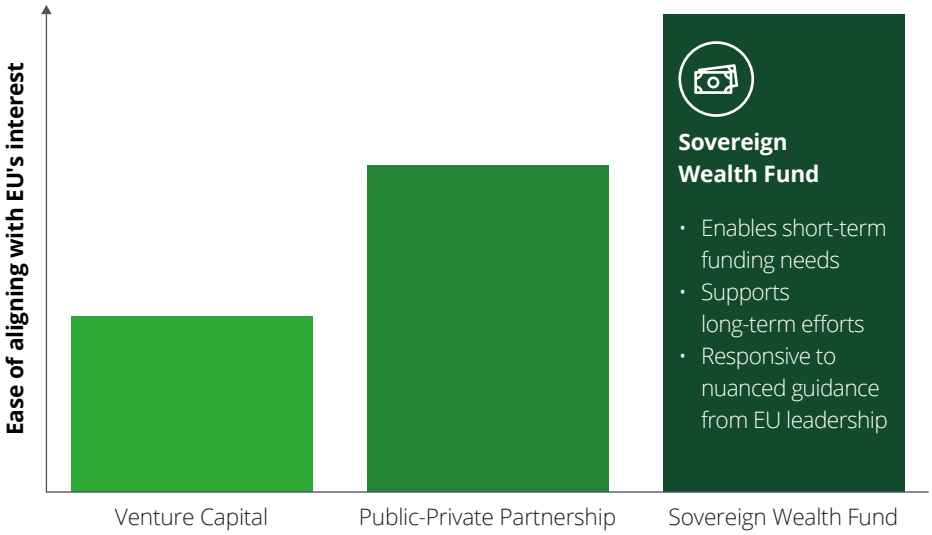
Planning for and investing in AI sovereignty is largely contingent upon an agreed upon national strategy. Such a strategy could outline what degree of risk, across sectors, a given nation is willing to accept. This in turn requires a level of AI governance across hardware/infrastructure and AI "products" (e.g., models, software). Once the national direction is defined, nations can consider several different tools that bring strategic aims to life. For example, the EU Chips Act creates investment opportunities in semiconductor and AI-related hardware, strengthening Europe's technological sovereignty. In Germany, the joint taskforce, "Improvement of the Regional Economic Structure" offers structural policy co-financing for infrastructure, location development, and cluster integration.[95]

Public-private partnerships

One of the ways nations can strive for enhanced AI sovereignty through a predefined national strategy is effective use of PPPs. When done correctly, PPPs offer a mechanism towards actualization whereby national interests are placed at the forefront. With the right level of citizen and knowledgeable engagement, public institutions can outline priorities and risks associated with an overarching national strategy. Risks and rewards are then shared among public and private organizations. As the World Economic Forum notes, "PPPs provide a framework to combine strengths from each sector: regulatory insight and public interest from governments, technical innovation from the private sector, and ethical oversight from civil society."[96]

Fig. 2 – Funding options

Methods of funding Sovereign AI



Previous examples of this include PPP conceptualizations of highway construction,[97] where financial incentives and economic structures spur development. Cooperation between experienced and financially strong companies and governments can be suitable instruments for meeting the complex requirements for the establishment of sovereign AI.

Venture capital (VC)

Venture capital is yet another way to direct investment towards prioritized AI sovereignty aims. While some countries have perfected the use of VC funds, "Europe is fragmented and less dynamic capital markets often hinder similar trajectories, leaving startups undervalued, underfunded, and vulnerable to acquisition by foreign players." Indeed, it has been widely documented that, "the Europe has fewer large-scale VC funds,"[98] making for a, "shortage of successful, high-growth potential startups, indicating a lack of demand for VC investment, rather than a deficit in its supply."[99]

Sovereign wealth funds (SWFs)

SWFs, unlike VCs, can often be easier to align to national strategy.[100] A European Sovereign Tech Fund, where investment is correlated to address short-term AI funding needs while making long-term investments that foster sovereign AI is being discussed and monitored.[101]

Challenges

The central challenge in the realization of AI sovereignty lies in the early establishment of a viable consortium that integrates all relevant components—from research and data center operation to hardware provision, energy infrastructure, and funding. High funding rates (up to US$5 billion, for example) can be achieved through a selected and legally secure combination of the appropriate funding instruments.

Without government support measures, the investments required to expand sovereign AI data centers often exceed the capacities of individual companies. Financing concepts based on free cash flow and additional bank loans often reach their limits. The internal financing capacities as well as the capital strength and debt sustainability of many companies do not allow additional borrowing to finance the necessary leap investments for the expansion of sovereign AI data centers. In addition, the expansion of credit financing is restricted by regulatory requirements such as credit ceilings or banks' capital adequacy requirements.

Recommendations

The development of sovereign AI data centers could probably be realized soon with the help of appropriate public funding. In addition to closing the financing gap and minimizing risk, public funding would have the advantage of being a strong signal for the development of further privately financed AI data centers. For the financing of AI data centers, countries may need to activate additional capital flows through suitable capital market instruments and credit financing as well as mobilizing private investors.

Mixed financing from public funding and private capital, as well as government guarantees and certainty, can help to optimize the risk-return profiles of investments in AI infrastructure and mobilize additional private capital flows. Here, for example, an AI infrastructure fund may play a role. The financing is provided by a temporary injection of equity, for example in the form of participation and hybrid capital. To attract private investors, the fund could offer its investors returns in line with the market.

This requires AI infrastructure investments to be profitable and internationally competitive. For more risky investments, guarantees by governments, for example through default guarantees, could make the risk-return profile attractive to investors. For example, the assumption of a "first-loss tranche" would be conceivable. In addition, a professional fund structure can help enable an efficient allocation of funds. An AI infrastructure fund thus can offer simplified and time-limited access to equity for companies and an improved risk-return profile for investors through guarantees. In addition, companies with more equity can leverage additional debt capital.

Public-private partnerships can be crucial for financing transformations with high financing needs (digitalization, infrastructure development, energy transition, defense), as they combine the strengths and resources of both sectors to enable large-scale investments and efficiently distribute risks. They also use leverage to multiply public funds and activate additional private capital flows.

Case study:
Lessons learned from India's successful AI funding

Perhaps the clearest example of strategic AI investment is India's stated ambition to become self-reliant. In 2022, India pushed to break down data silos.[102] The country also called for building universal digital infrastructure (via Digital India) as well as native production of IT hardware (Make in India). Recognizing that such policies are inevitably linked to energy, India also recently passed the Sustainable Harnessing and Advancement of Nuclear Energy (SHANTI) bill, paving the way to nuclear energy investment by the private sector for the first time.[103]

Further up the stack, India's has seen direct foray into AI infrastructure and models. Launched in 2024, IndiaAI Mission invested US$1.25 billion to build AI infrastructure and support AI startups across a number of sectors.[104] As documented in MIT Technology Review, "10 days after DeepSeek-R1's launch, the Ministry of Electronics and Information Technology (MeitY) solicited proposals for India's own foundation models, which are large AI models that can be adapted to a wide range of tasks. Its public tender invited private-sector cloud and data-center companies to reserve GPU compute capacity for government-led AI research."[105] The article also noted: "For a nation long restricted by limited research infrastructure, things moved at record speed, marking the convergence of ambition, talent, and political will."[106]

The results have been massive. While large technology companies continue to strike deals to build data centers in the country, India is developing its own language models with local startups, enabling access to 18,000 GPUs, including nearly 13,000 high-end H100 chips.[107]

Given this success, India continues to call for the use of mechanisms such as PPP to further encourage sovereign AI initiatives.[108] While VCs have not been the biggest player in the Indian AI arena, much progress has nonetheless been made as entrepreneurs experiment with new funding mechanisms that attract talent and spur innovation.[109]

Looking ahead: From strategic dependence to Sovereign AI

Sovereignty in 2026 is no longer a legal abstraction; it is a physical industrial achievement. The era of viewing AI as a mere digital layer atop government functions has ended. As the collapsing cost of cognition redraws the map of global power, the center of gravity has shifted from geographic borders to the ability to manufacture intelligence.

For two centuries, following the logic of Adam Smith, nations competed on three factors of production: land, labor, capital.[110] Comparative advantage meant specializing in whatever geography or population did best.

We are now witnessing a fundamental rupture: the birth of manufactured intelligence, the systemic ability to generate, refine, and deploy cognition at scale. In 2030, a nation's wealth may not be determined by its raw commodities or legacy industrial output, but by its cognitive conversion rate: how effectively it can transform energy into thought.

This shift introduces a new comparative advantage: it is no longer about "cloth versus wine."[111] It is about "tokens versus watts"—the ability to leverage these for economic return. Some nations may be able to co-locate cheap, green energy with massive compute to "manufacture intelligence" at the lowest marginal cost. Others may need to import higher-cost tokens from abroad.

The era of digital neutrality is being challenged and will evolve into a new paradigm. As we move through 2026, the global AI landscape has bifurcated into those who build the engines of intelligence and those who merely leverage them from other regions. The question is no longer whether to pursue sovereign AI, but which version of sovereignty is achievable and necessary for national survival.

We have outlined the four critical pillars: energy, AI infrastructure, workforce, and capital. However, in this new paradigm, these should not be viewed as a menu of independent options; they are an interlocked chain and pieces to the sovereign AI puzzle. A nation with capital but no energy is a checkbook with no power. A nation with AI infrastructure but no workforce is a museum of silicon. Success could be determined by a whole-of-state systems integration where these four gears turn in unison.[112]

The final imperative and the cost of inaction. The window to choose a path is closing. The energy barrier means physical capacity is being booked for decades. The capital supercycle means talent is being consolidated into a few global hubs.

For global leaders, the lesson is clear: sovereignty is not a legacy entitlement but an engineered capability. As this report has outlined, to have sovereign AI capabilities, is to be built with concrete power plants, the silicon of data centers, and the patient capital of the nation.

The countries that treat AI as a standard IT procurement challenge risk waking up in 2030 as digital communities, governed by rules they did not write, using intelligence they do not own. The nations that treat it as a grand industrial project, integrating energy, AI infrastructure, workforce, and capital, could secure their place as architects of the new intelligence order.

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