

# What Every CTO and CDO Needs to Know About Sovereign AI

## Executive Summary

As artificial intelligence becomes essential to economic growth, countries and businesses are investing in domestic compute, data centers, and large language models to build long-term technological independence. AI is rapidly becoming foundational infrastructure for governments, national security, and businesses.

Across Europe, Asia, and the Middle East, governments are investing billions in AI infrastructure and research. Nations are seeking ways to ensure they retain autonomy, control, and resilience in a world where AI underpins economic competitiveness, national security, and social governance.

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**Salvatore Salamone**

Chief Analyst, IronSpark Analysis

Salvatore Salamone brings 30+ years of experience analyzing technology and scientific developments across data infrastructure, high-performance computing, and emerging technologies. He has authored three business technology books and served as editor at leading industry publications including Network Computing, Bio-IT World, and RTInsights.

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## Introduction

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As artificial intelligence becomes essential to economic growth, countries and businesses are investing in domestic compute, data centers, and large language models to build long-term technological independence. AI is rapidly becoming foundational infrastructure for governments, national security, and businesses.

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### CORE DEFINITION

Sovereign AI refers to a country's ability to develop, host, deploy, and govern AI systems using domestic or internally controlled data, infrastructure, workforce, and ecosystems, rather than relying on foreign or external providers.

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## CHAPTER 1: WHAT TECHNOLOGY LEADERS MUST DO NOW

Sovereign AI needs immediate attention. CDOs must take several steps to ensure their organizations are prepared to engage in modern international business, where data regulations, the use of specific AI algorithms, and access to chip technology can vary from nation to nation.

- Assess the organization's current technology stack against the four sovereign AI pillars: data, model and infrastructure, workforce, and governance.
- Identify the organization's highest-exposure workloads.
- Rearchitect for modularity, not monolithic centralization. Move toward AI infrastructure deployable in federated or regionally isolated configurations.
- Embed data sovereignty requirements into AI procurement standards so every AI tool is assessed against a sovereign AI checklist before procurement.
- Engage legal, procurement, and risk functions now, before regulatory timelines force a rushed response.
- Establish a sovereign AI regulatory monitoring function to track the policy landscape in real time.
- Engage the board and executive peers now. Sovereign AI is a board-level risk with implications for market access, regulatory standing, and reputational exposure.

## CHAPTER 2: A DEEPER DIVE INTO SOVEREIGN AI

The term was popularized in 2024 by NVIDIA CEO Jensen Huang, who suggested that every nation must own its own "AI factories" to ensure sovereign AI, arguing that a nation's data - representing its language, culture, and more - is a natural resource that should be refined domestically.

Critically, sovereign AI is not synonymous with isolationism or economic independence. A country or enterprise can engage with global AI ecosystems, use internationally developed models, and partner with foreign technology firms, all while still maintaining genuine sovereignty over the decisions that matter most.

### Why Nations Are Considering Sovereign AI

Several forces are converging:

- AI is increasingly foundational to everything from healthcare diagnostics to defense systems. Dependence on external AI ecosystems carries real risk.
- Data sovereignty, security, and regulatory compliance are rising concerns.
- The race for economic and military strategic advantages motivates states to build domestic capabilities.
- Generic global AI models may not reflect local languages, ethics, norms, or regulatory expectations.

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## ILLUSTRATIVE EXAMPLE

Researchers found that while major AI labs have incorporated Swahili into multilingual models, less than 5% of AI training data involving African languages are sourced or governed by African institutions themselves, highlighting the cultural alignment gap.

## CHAPTER 3: THE FOUR ELEMENTS OF A SOVEREIGN AI STACK

A full-stack sovereign AI strategy typically includes four elements. The four pillars are interconnected and a shortcoming in any area can undermine sovereignty in the others.

### Data sovereignty

Control over where data is stored, who can access it, and the legal jurisdiction governing it.

### Model & infrastructure

Guaranteed ownership or access to the compute, models, and training pipelines needed to build and serve AI.

### Workforce & talent

Domestic capacity to design, build, maintain, and oversee AI systems. Without local talent, organizations can have their own hardware but still be unable to operate it.

### Governance & regulation

Legal, ethical, and institutional frameworks governing AI development and deployment, including auditability, explainability requirements, and procurement rules.

## CRITICAL INTERDEPENDENCY

Owning domestic compute is of limited value if all the training data sits in a foreign cloud under foreign jurisdiction. Having world-class AI researchers means little if the regulatory environment makes deployment commercially unviable.

## A Broader, More Holistic Approach

While these four pillars define the core technical foundation of a sovereign AI strategy, some organizations take a broader, more holistic view that extends beyond infrastructure and operations. For example, the World Economic Forum frames sovereign AI as a multidimensional national capability that encompasses not only technology but also economic resilience, geopolitical positioning, societal trust, and international collaboration.

In its analysis, the WEF emphasizes that sovereign AI includes a nation's ability to shape its AI innovation ecosystem, participate in global AI governance, ensure inclusive access to AI benefits, and align AI development with broader public policy objectives such as sustainability, workforce transformation, and digital equity. This perspective positions sovereign AI not just as a stack of capabilities to control, but as a strategic lever for shaping how AI impacts society, the economy, and a country's role in the global order. (See Appendix A for a deeper dive into the WEF's strategic pillars for sovereign AI success.)

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## CHAPTER 4: HISTORICAL PRECEDENTS

Although "sovereign AI" sounds like a product of the current moment, the underlying instinct is neither new nor unusual. Nations have long made deliberate decisions to own and operate critical technological infrastructure domestically.

### Weather & climate systems

UK Met Office, NOAA, Meteo-France purpose-built supercomputers and forecasting models because weather prediction underpins agriculture, aviation, disaster response, and military operations.

### Navigation satellites

EU built Galileo, Russia operates GLONASS, China launched BeiDou. GPS isn't technically inferior but reliance on a foreign-controlled network represents an unacceptable strategic vulnerability.

### Financial infrastructure

Central banks operate their own monetary policy models. India's UPI, Brazil's PIX, and the EU's SEPA framework were built to reduce dependence on foreign payment networks.

### Statistical agencies

The U.S. Census Bureau, UK's ONS, Statistics Canada exist because underlying data is too sensitive and outputs too consequential to entrust to outside parties.

### THE PATTERN

When a technology becomes sufficiently central to national welfare, security, or decision-making, nations invest in domestic capability. AI is simply the next iteration of a question nations have been answering domain by domain for decades.

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## CHAPTER 5: KEY TAKEAWAYS FOR TECHNOLOGY LEADERS

There is a lot of hype and many misconceptions when any new technology initiative begins. Sovereign AI is no different. It is important to understand what sovereignty means before developing a strategy to implement a sovereign AI approach to address issues arising from different global entities pursuing their own strategies.

**61%**

European CIOs and technology leaders plan to increase their use of local cloud providers (Gartner)

**62%**

European organizations actively pursuing sovereign solutions (Accenture)

**<5%**

AI training data involving African languages sourced or governed by African institutions (Geopolitical Monitor)

### Busting the Myths

#### Myth 1

#### **Sovereign AI means building your own frontier model**

For most enterprises and nation-states, building a frontier model is neither necessary nor economically rational. Sovereignty is about control over deployment, governance, and data. They don't need to replicate the R&D of the largest AI labs. Fine-tuned models on domestic infrastructure can achieve meaningful sovereignty.

#### Myth 2

#### **Using global cloud providers is incompatible with sovereignty**

Many hyperscalers offer sovereign cloud offerings with isolated infrastructure, local data residency, and restricted access. However, 61% of European CIOs now plan to increase use of local providers, concerned that U.S. law may still reach data stored in Europe. The right answer depends on organizational priorities and risk tolerance.

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## Appendix A: The World Economic Forum's Pillars to Sovereign AI Success

The World Economic Forum has identified six strategic pillars for nations pursuing sovereign AI. These are equally applicable to enterprise technology leaders assessing their own readiness.

### 01

#### Digital infrastructure

Nations need robust computing infrastructure, data centers, on-premises or sovereign-cloud deployments, and data localization practices so that data generated within the country is stored and processed locally.

### 02

#### Workforce development

AI talent is essential. States must invest in STEM education, vocational training, lifelong learning, retraining programs, and build the human capital to operate, innovate, and sustain the AI ecosystem.

### 03

#### Research, development, and innovation (RDI)

Government, industry, and academia must collaborate on AI foundational and applied research, commercialization of innovation, startups, and scale-ups. A vibrant innovation ecosystem is critical.

### 04

#### Regulatory and ethical framework

Clear guidelines and oversight for AI are required, covering privacy, transparency, data protection, cybersecurity, and ethics. Responsible deployment ensures public trust and legitimacy.

### 05

#### Stimulating the AI industry

Governments should encourage the growth of AI-driven businesses through incentives, public-sector adoption, public-private partnerships, and supporting vital sectors like healthcare, finance, transportation, and manufacturing.

### 06

#### International cooperation

Even as countries build domestic capabilities, they still need to engage in global cooperation. They must partner on standards, data governance, cross-border flows under agreed norms, and shared challenges such as cybersecurity threats. Sovereign AI is not about isolation but strategic resilience.

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## Appendix B: A Sampling of Current Global Sovereign AI Efforts

Many nations have undertaken sovereign AI efforts. Government agencies, local businesses, or global enterprises with local footprints will benefit from the extent and availability of the offerings that result from these efforts.

Currently, here are some of the major efforts to be aware of:

### Europe

EuroHPC AI factories across the EU. France's Mistral AI competing with U.S. models. UK's Isambard-AI supercomputer. Coordinated push to reduce reliance on U.S. cloud and comply with European data-protection rules.

### North America

U.S. CHIPS Act investing tens of billions in semiconductor manufacturing. Canada's Vector Institute, Mila, and AMII anchoring a domestic AI talent pipeline and research ecosystem.

### Asia

China's full domestic AI stack spanning Baidu, Alibaba, and Tencent. India's BharatGPT for linguistic diversity and National Supercomputing Mission. South Korea's HyperCLOVA and Japan's model investment.

### Middle East

UAE's Falcon LLM from the Technology Innovation Institute is one of the most advanced open models outside the U.S. and China. Saudi Arabia's SDAIA is coordinating national AI strategy under Vision 2030.

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## Appendix C: Evidence of an Expanding Sovereign Movement

Amid rising geopolitical tensions, organizations, particularly in Europe, are reassessing their reliance on foreign technology providers. Recent actions by U.S. entities that are accelerating this reassessment include:

### Planet Labs

Restricted access to satellite imagery of Iran and the Middle East following a U.S. government request, moving to an "indefinite" restriction.

### SpaceX / Starlink

Restricted Starlink access in specific conflict zones during critical Ukrainian operations in 2022-2023, then acted to cut unauthorized Russian access in early 2026.

### GPU export controls

As of April 2026, the U.S. government restricted export of high-performance GPUs to China and other designated countries to curb military AI advancements.

### DoD / Anthropic

In March 2026, the U.S. DoD designated Anthropic as a supply-chain risk, unprecedented, as this designation had previously only been used against foreign firms.

### ICC sanctions

U.S. sanctions on International Criminal Court judges included cancellation of credit cards and Amazon and Google accounts.

### BOTTOM LINE

These actions illustrate that an aggressive move to restrict access to technological areas is accelerating. Countries and organizations that see AI as critical to their future are taking steps to build homegrown alternatives to U.S.-controlled infrastructure.

## About the Analyst



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## About IronSpark Analysis

IronSpark Analysis is an independent analyst firm that publishes original research and works with vendors in the data and analytics space. Our analysts have decades of experience in advisory, vendor, and editorial roles, ranging from Gartner and Forrester to Network World, RTInsights, and Cloud Data Insights. Learn more at [IronSparkAnalysis.com](https://IronSparkAnalysis.com)