FROM SHIELDING TO SHAPING

Rethinking Cloud Sovereignty for the Next Phase of Globalisation and Digitalisation. A Thought Leadership Guide.

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SOVEREIGNTY AS STRATEGY: CLOUD COMPUTING AT THE CORE

Cloud computing has become the backbone of the global economy, underpinning digital platforms, software ecosystems and AI. Yet its opaque architectures, high switching costs and engineered lock-ins have created deep structural dependencies. Control over cloud infrastructure now defines market power, competitive advantage and organisational resilience. As the multilateral economic order erodes, cloud sovereignty has emerged as a decisive factor in shaping value creation, autonomy and resilience for both organisations and individuals.

At its core, cloud sovereignty is about agency - the capacity to make independent decisions over infrastructures, technologies and data. Once peripheral, it has become a strategic imperative amid rising geopolitical tensions, supply chain vulnerabilities, AI acceleration and the centralisation of digital infrastructure. Public and private organisations alike now face critical long-term choices on how to strengthen their sovereignty – through a proactive stance, deliberate cloud strategies and informed foresight.

DEFINITION: Digital sovereignty is the ability of individuals, organisations and states to act autonomously in the digital realm – exercising control over their digital infrastructure, services, data and technology. Cloud sovereignty extends these principles to the cloud ecosystem – integrating governance, technology and regulatory controls to maintain autonomy, compliance and operational independence.

UNDERSTANDING CLOUD SOLUTIONS:

PUBLIC CLOUD – scalable and affordable computing and storage resources over the internet on subscription/pay-per-use basis.
PRIVATE CLOUD – exclusive solution, hosted on-premises, offsite, or by provider, offering greater control, customisation and enhanced security.
MULTI-CLOUD – combination of multiple cloud solutions with services from different providers.
HYBRID CLOUD – combination of public and private solutions to optimise balance between control and scalability.
DISTRIBUTED CLOUD – geographically distributed solution close to the actual locations of the organisations with centralised control.
NEOCLOUDS – solutions specifically built to deliver high-performance infrastructure for AI and high-performance computing (HPC) workloads.
EDGE COMPUTING – processing and analysing data near its source to enable real-time insights, often integrated with cloud solutions for scalability and efficiency.

The global cloud market is dominated by a few hyperscalers controlling about 60–65% of capacity, with the U.S. leading over 40% and Asian providers rapidly gaining ground.

In seeking solutions tailored to their specific needs, European organisations and nations, particularly the UK and Switzerland as non-EU states, face a pivotal choice: Remain dependent on global hyperscalers or invest in sovereign, federated and trusted digital infrastructures, whether through EU initiatives or national strategies.

However, developing sovereign infrastructure can consume 1–2% of GDP, comparable to national defense, while hyperscaler dominance constrains disruption. Most nations and organisations therefore pursue a hybrid model: Sovereign or federated clouds for sensitive workloads, complemented by hyperscaler infrastructure for less critical operations.

UNDERSTANDING FUTURE FRAMEWORK CONDITIONS

To establish or strengthen sovereignty, organisations must first determine the level of control and global scalability required to meet their strategic objectives. Equally important is identifying the drivers that will shape both their degrees of freedom and the necessary level of control in the near and long term.

A Controversial Geopolitical Landscape – Rising trade barriers, national interests and emerging power blocs are slowing globalisation and driving a more fragmented world order, increasingly shaped by the Asian economic sphere and ideologies that could lead to a further fragmentation of the internet into regional or national subnetworks.

Nevertheless, global connectivity remains essential for economic development, demanding comprehensive digital solutions, while internationally active organisations must navigate increased complexity and political considerations.

A True Cost Economy – The scarcity of critical resources including semiconductor components, energy and skilled specialists – combined with increasingly stricter regulations on data handling and ESG standards, is driving up the cost of operating digital infrastructure and making rigorous cost-benefit analysis essential. Many corporate strategies underestimate the ongoing expense of complying with overlapping data regimes, where this patchwork of laws effectively acts as an innovation tax.

An Abundance of Generative Solutions - The widespread adoption of generative AI is exponentially increasing the production of digital content, from text and images to software and designs, driving demand for greater computational power and Neoclouds. Simultaneously, competition for high-quality, validated data and infrastructure capacity is intensifying.

A world of Ubiquitous Connections - The pursuit of next-generation product and solution innovations, including real-world data integration, automated production and digitally networked infrastructure and

buildings, is driving growing demand for computing power, storage and new forms of cross-industry and cross-border collaboration.

At the same time, the risk of system failures, manipulation, or cyberattacks affecting essential services and daily life is rising significantly.

An Ambivalent Awareness of Societal and Environmental Impact - As data on individual behaviour and economic and social activities proliferates, awareness of privacy issues is rising and the willingness to share data without security or compensation is declining. Simultaneously, concern over the ecological footprint and potential negative consequences of digitalisation is increasing.

THESES ON FUTURE TRAJECTORIES OF CLOUD SOVEREIGNTY

Sovereignty as a Business Model - Ensuring control over sovereignty values and objectives, digital processes and data while optimising simplicity and operational freedom is emerging as a key business model across the tech stack. Cloud providers are increasingly offering 'control layers' grounded in legal, compliance and regional runtime frameworks, catering to enterprises seeking autonomy within global supply chains. Regulatory compliance itself is becoming a product, creating new economic hierarchies between compliant and non-compliant regions.

From Regulatory Shield to Power Platform – Cloud sovereignty is evolving beyond mere compliance into a tool of geopolitical and strategic influence. Nations and corporations will increasingly leverage sovereign clouds not only to protect data but also to control the flow of computation, AI models and digital identities across borders.

Future cloud platforms will enable organisation-wide workflows and dynamic process automation, with selective AI integration that transcends traditional roles. Sovereignty will be reinterpreted far beyond compliance, shifting from reactive protection to a proactive, strategic capability.

Towards Federated Intelligence – As collaborations and ecosystems evolve to develop future-oriented products and services, AI is moving toward a distributed paradigm in which organisations, devices and cloud or edge environments collaboratively train, deploy and use machine learning models without centralising raw data.

Rather than sending sensitive data to a central cloud, each participant retains its data locally, sharing only encrypted model updates or insights that are aggregated to enhance the collective AI.

This federated learning approach forms the foundation of sovereign AI, enabling systems to learn across borders without moving data, effectively redefining the concept of "national AI": Data stays in place, while intelligence flows freely.

Digital Colonialism Reversed – As globalisation shifts, new actors from the Global South may emerge through 'sovereign leapfrogging', deploying national clouds powered by open-source technologies and local, renewable energy rather than relying on imported hyperscaler infrastructure. This could create a new knowledge geography, where innovation arises from policy-aligned, energy-conscious infrastructures, fostering a wider variety of sovereignty focused solutions but also increasing systemic complexity.

Ecological Cloud Ecosystems – Cloud infrastructures are poised to evolve into carbon-accountable, adaptive systems that integrate directly with energy markets and even biodiversity monitoring.

While executive boards often evaluate efficiency solely through traditional financial metrics, they can strengthen resilience and strategic foresight by incorporating overlooked sovereignty dimensions such as energy volatility, dependency on rare minerals and the water demands of cooling – factors essential for ensuring operational robustness and long-term efficiency.

Toward a Socially Responsible Cloud – Sovereign clouds will increasingly mediate identity, integrating decentralised digital identification, health records and citizenship into a new social architecture. This could amplify autonomy or conversely, entrench technocratic control, depending on the ethical frameworks guiding governance. This societal focus can reshape the narrative of efficiency: By externalising memory, identity and decision making to sovereign infrastructures, organisations risk eroding epistemic agility and becoming reliant on compliant clouds that obscure reality behind governance dashboards.

Reframing Globalisation through Cloud Ecosystems – The increasingly fragmented internet is becoming a malleable space. The splintering of data spheres across the U.S., China, the EU and regional blocs will not end globalisation but fundamentally redesign it. Sovereign interoperability standards such as Gaia-X will transform borders into programmable interfaces. The emerging tension between freedom and filtration marks the next digital frontier, as the future internet will be defined by how societies and cloud infrastructures balance openness and freedom with responsible governance of digital outputs.

NAVIGATING CLOUD SOVEREIGNTY

THESES ON THE FUTURE OF CLOUD SOVEREIGNTY & OPPORTUNITIES AND RISKS FOR BUSINESS, SCIENCE AND SOCIETY

SOVEREIGNTY AS A BUSINESS MODEL

Sovereignty is becoming a business model as organisations demand streamlined control over their data and operations.

FROM REGULATORY SHIELD TO POWER PLATFORM

Cloud sovereignty is evolving beyond mere compliance into a tool of geopolitical and strategic influence.

TOWARDS FEDERATED INTELLIGENCE

AI is moving to a federated design. Only AI model updates, not data cross borders, enabling sovereign AI.

DIGITAL COLONIALISM REVERSED

Sovereign leapfrogging may let Global South actors build national clouds on open-source, renewable infrastructure, diversifying innovation while adding systemic complexity.

ECOLOGICAL CLOUD ECOSYSTEMS

Cloud infrastructures are becoming carbon-accountable, adaptive systems, where resilience and long-term efficiency depend on sovereign factors.

TOWARD A SOCIALLY RESPONSIBLE CLOUD

Sovereign clouds mediating identity, health records and citizenship could enhance autonomy or enable technocratic control.

REFRAMING GLOBALISATION THROUGH CLOUD ECOSYSTEMS

Digital fragmentation is reshaping globalisation, as sovereignty standards turn borders into programmable interfaces balancing openness, freedom, and responsible governance.

SOCIOECONOMIC TRAJECTORIES

CONTROVERSIAL GEOPOLITICAL LANDSCAPE

- → Geopolitical tensions, trade barriers and competing power blocs are fragmenting both the global order and the digital landscape.
- → Global connectivity remains vital for economic development, requiring robust digital solutions that can handle growing complexity.

MIXED AWARENESS OF SOCIETAL AND ENVIRONMENTAL IMPACTS

- → Growing attention to privacy concerns emerge.
- → Growing awareness of digitalisation's ecological footprint and associated sustainability risks.

TRUE COST ECONOMY

- → Rising costs driven by scarcity and regulatory pressures.
- → An increasing need for cost-benefit analysis to uncover hidden strategic risks and prevent unnecessary expenses.

TECHNOLOGICAL TRAJECTORIES

DIGITAL ABUNDANCE

- → Generative AI is accelerating digital product creation and driving surging demand for high-performance computing.
- → Competition is intensifying for quality-controlled data and infrastructure capacity.

A WORLD OF UBIQUITOUS CONNECTIONS:

- → High demand for computing and storage is driving cross-industry collaboration and the development of new innovative solutions.
- → Real-world data and connected infrastructure drive new partnerships across sectors and countries.
- → System risks and hacking are increasing, affecting critical services and everyday life.

CLOUD SOVEREIGNTY

The integration of governance, technology and regulatory frameworks enabling organisations and states to retain autonomous, compliant and independent control over their data, digital infrastructure and cloud workloads.

STRATEGIC AREAS OF ACTION

DEVELOP A LONG-TERM, HOLISTIC PERSPECTIVE ON CLOUD

By understanding the potential and limitations of solutions to ensure control, scalability and appropriate autonomy, while clarifying organisational needs.

SOVEREIGNTY BY DESIGN

Treat sovereignty as a fundamental prerequisite rather than an optional feature, embedding its connected dimensions into the core of business strategy.

RISK-BASED SOLUTIONS

Develop a differentiated portfolio of cloud solutions that align levels of control and freedom with the varying sensitivity of data and outputs.

PROMOTE LITERACY AND STANDARDS

By building cloud understanding among policymakers, business leaders and the public - fostering cross-stakeholder dialogue to enable adaptive, forward-looking regulation.

OPEN NETWORKS

Facilitate stronger dialogue and closer collaboration between countries, economic regions, policymakers and digital blocs to improve governance and develop shared standards.

CHANGE THE NARRATIVE

Shift strategic discussion from short-term goals to long-term priorities, emphasising cybersecurity, sustainable value creation, and societal and environmental impact.

MAPPING THE WAY FORWARD

Cloud sovereignty is not isolationist but strategic. It demands sustained, interoperable approaches rather than token gestures or protectionist rhetoric. Meaningful independence depends on long term investment in standards, open ecosystems and digital capability. Not full decoupling but balanced integration with strategic control. When approached as a value-creating strategy, cloud sovereignty becomes a competitive advantage, empowering organisations to remain globally connected while safeguarding autonomy and trust.

Yet most organisations still approach cloud sovereignty defensively, reactively and through a compliance-driven lens. Designing future clouds that are autonomous, transparent and regenerative requires shifting boardroom discourse, from an exclusive focus on compliance to a proactive, value-creating perspective. This enables long-term impact and fosters genuine differentiation in an increasingly standardised environment for business and society.

SHAPING THE FUTURE OF SOVEREIGN CLOUD SOLUTIONS

1. Develop a long term and holistic perspective on cloud – Build a critical understanding of the potential and limitations of both decentralised and centralised solutions to ensure control, scalability and the appropriate level of autonomy over the medium and long term. Establish a clear perspective on relevant organisational needs to optimise capacity, avoid unnecessary costs and minimise risk exposure.
2. Sovereignty by design – Treat sovereignty as a fundamental prerequisite rather than an optional feature, embedding its connected dimensions into the core of the business strategy. Audit and manage dependencies on non-domestic cloud providers, hard- and software to minimise strategic vulnerabilities. Reimagine frameworks to establish clear and coherent norms for data flows, jurisdiction and digital rights.
3. Risk-based solutions – Develop a differentiated portfolio of cloud solutions that align levels of control and freedom with the varying sensitivity of data and outputs. Include the option of complete digital decoupling for highly critical assets. Adopt multi-cloud strategies and open standards to ensure data portability, prevent architectural lock-in and maintain flexibility across non-critical domains.
4. Promote literacy and standards – Foster cloud literacy among policymakers, business leaders and the broader public to deepen understanding of emerging technologies and their implications, enabling more adaptive, forward-looking and timely regulation. Cultivate cross-stakeholder dialogue where business, government, technology and civil society share perspectives and priorities equally.
5. Open Networks – Facilitate stronger dialogue and closer collaboration between countries, economic regions, policymakers and digital blocs to improve governance and develop shared standards.
6. Change the Narrative – Elevate strategic debates on critical challenges beyond short-term objectives by focusing on long-term cybersecurity, sustainable value creation and the broader impact on society and environment. This long-term perspective provides the foundation to reconcile market differentiation and efficiency with enduring growth and resilience.

W.I.R.E. is an independent think tank that curates the shaping of the future at the interface between science and practice. The foundation for this is a systematic early recognition of relevant developments and their translation into long-term strategies and fields of action for private and public organisations and their decision makers.

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