

Generative AI-Making and State-Making: Sovereign AI Race and the Future of Digital Geopolitics

Zhenyu Wang 

Journalism Institute, Shanghai Academy of Social Sciences, China

Correspondence: Zhenyu Wang (lucienw@sass.org.cn)

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Abstract

This article examines how intensifying global competition for sovereign AI, fueled by the rise of generative AI, is reshaping state capacity and digital geopolitics. Drawing on classical theories of state formation, this research introduces the Generative AI-Making and State-Making framework and applies it to four cases—the US, France, Brazil, and Singapore. The analysis shows that strategic pressures from the sovereign AI race compel nation-states to enter a new phase of state-building. Key findings reveal that the intensity of these state-building efforts is directly driven by elites’ perceptions of transboundary competition: the sharper the perceived rivalry, the greater the strategic investment in strengthening coercive, extractive, delivery, and informational capacities. Although states converge in their efforts to augment these capacities, their objectives and methods diverge depending on international position, geopolitical context, and domestic endowments. As a result, the sovereign AI race is not merely a technological contest but also a powerful force reshaping domestic state structures and international power dynamics. It contributes to a more complex geopolitical landscape marked by US–China bipolarity alongside the rise of regional technological powers. By tracing how governments leverage AI to reinforce capacity, this study provides a theoretically grounded perspective on the evolving nature of geopolitical competition in the AI era.

Keywords

digital geopolitics; generative AI; sovereign AI race; state-building; state capacity

1. Introduction

Twenty-first-century geopolitics is being reshaped above all by two forces: rapid technological change—most visibly the recent advances in AI—and the sharpening rivalry among major powers such as the US, China,

and Russia (Schmidt, 2022). As nations increasingly unveil AI strategies to assert ambitions for technological leadership, this competition has been framed as “the next space race”—a zero-sum contest where the victor stands to gain substantial economic, political, and military advantages, whereas the laggards risk being left behind in critical technological domains (Ulnicane, 2022). While this narrative carries a degree of exaggeration, the reality of intensified international competition over AI technologies, particularly large language models (LLMs), has become undeniable amid escalating geopolitical tensions.

The emergence of generative AI systems such as ChatGPT’s LLMs has raised global awareness of AI’s profound implications for national security, economic prosperity, and societal values. As a novel general-purpose technology (GPT), generative AI demonstrates the capacity to comprehend, learn, and simulate human cognitive processes. Unlike earlier GPTs such as electricity and the internet, which primarily delivered developmental or security benefits through economies of scale and indirect effects, generative AI directly enhances the efficiency of a wide array of economic and security-related tasks by augmenting fundamental human cognitive and creative abilities (Bresnahan & Trajtenberg, 1992; Eapen et al., 2023). This direct empowerment has led to an unprecedented rate of diffusion. For example, ChatGPT amassed 100 million active users within just two months of its launch, whereas TikTok, a leading consumer internet application, took nine months to reach the same milestone (Hu, 2023). Furthermore, the global generative AI market is projected to grow at a compound annual growth rate of 45% over the next decade (“Generative AI to become,” 2023), compared with the 9.1% compound annual growth rate of the global consumer internet market during its “golden decade” from 2010 to 2020 (IBISWorld, 2024).

The rapid proliferation of generative AI has not only forged a swift consensus among political and economic leaders on its disruptive strategic value but also triggered a systematic deployment of state capacity aimed at securing technological leadership—or at least, technological autonomy. Consequently, the competition over generative AI has escalated into arguably one of the most intense technological race in history, thereby significantly amplifying its geopolitical dimensions. Recognition of generative AI’s strategic value has spurred unprecedented investments in “sovereign AI”—defined as a nation’s capacity to develop AI systems using domestic infrastructure, data resources, workforce expertise, and commercial ecosystems (A. Lee, 2024). As this competition has become increasingly central to national strategies and international politics, scholarly debates on its implications have also intensified, particularly with respect to national strategies, governance frameworks, and public–private partnerships. However, two critical gaps remain in the discussion (Radu, 2021; Roberts et al., 2024; Von Ingersleben-Seip, 2023). First, there is still a lack of cross-national comparative analyses examining sovereign AI competition through theoretical lenses. Second, the literature does not adequately address the causal mechanisms through which this technological rivalry shapes the emerging digital geopolitical landscape.

To address these gaps, this study asks a central question: How are nation-states, the primary actors in global geopolitics, recalibrating their capacities and international postures in response to the intensifying competition over sovereign AI, particularly in the era of LLMs? This inquiry is critical because the race for sovereign AI is not merely a technological contest but a profound force reshaping the nature of state power, strategic autonomy, and the global order. Drawing on a comparative analysis of distinct national cases, this research argues that strategic pressures emanating from sovereign AI competition are compelling states to embark on a new phase of state-building, focused on augmenting specific institutional capacities—coercive, extractive, delivery, and informational. While these reconfiguration efforts exhibit convergent patterns

globally, the objectives and intensity diverge depending on national ambitions, geopolitical positioning, and unique endowments. This study contributes to the theoretical and empirical understanding of state-making under conditions of technological competition by applying classical state formation theory to the contemporary challenge of sovereign AI. It develops a theoretically grounded framework that clarifies the causal mechanisms through which AI rivalry reshapes domestic state structures and international power dynamics. Empirically, this study substantiates its claims through a comparative analysis of four countries, offering insights into the commonalities and divergences in how contemporary sovereign AI competition drives state-building. In conclusion, this article contributes to the thematic issue Technology and Governance in the Age of Web 3.0 by linking state-building theory to both centralized AI systems and decentralized Web 3.0 technologies, showing how geopolitical pressures shape governance models across different technological paradigms.

2. From Competition to Capacity: Sovereign AI and State-Making in the Intelligent Age

The competition over sovereign AI is not merely a technological race; it is also a geopolitical struggle with far-reaching consequences for international relations. This competition is multifaceted, encompassing the control of critical technologies, data resources, and market access. The concept of sovereign AI captures the essence of this complex interplay between national strategies and international interactions, making it an indispensable lens for analyzing the digital geopolitical landscape. Charles Tilly's theory of "war making and state making" (Tilly, 1985, 1992) offers a useful starting point for examining these dynamics. Tilly argued that, from the early modern period through the 19th century, the imperative of success in warfare drove states to centralize power, extract resources, and build administrative capabilities, ultimately leading to the formation of nation-states and the modern world system. However, Tilly's theory has long been criticized for its Eurocentrism and bellicist tendencies. Postcolonial scholars argue that it is ill-suited to non-European contexts (Centeno, 2002; Herbst, 2000; Jung, 2006), and other researchers in state-building studies contend that it overstates the role of warfare while neglecting other crucial factors in state formation (Sharma, 2017; Spruyt, 1994). Acknowledging these limitations, this study moves beyond Tilly's specific claim that "war made the state and the state made war" (Tilly, 1985). Instead, it builds on a broader generational assumption shared by Tilly and subsequent state formation theorists: that enduring external pressures—military, economic, or technological—generate domestic imperatives for capacity building, which in turn reshape the architecture of state power and the geopolitical order (Hui, 2017). We argue that the current race for sovereign AI represents a new manifestation of this causal mechanism, compelling states to expand strategic, administrative, and technological capacities to secure autonomy and influence within the evolving global system.

2.1. Core Mechanism of Sovereign AI Competition and State Capacity Building

This study posits a core mechanism of how sovereign AI rivalry translates external technological competition into domestic state-building dynamics. The argument begins with a consensus among national elites on the urgency of safeguarding technological sovereignty and geopolitical competitiveness. The rapid development of AI and the ensuing transboundary competition—marked by both pressure and opportunity—intensifies this consensus, compelling governments to pursue strategic investments in administrative, industrial, and cognitive capacities. The mechanism rests on two foundational pillars of state-building theory: elites' perception of external pressures and the functional demands placed on states to adapt to transforming technological and geopolitical environments.

First, elites' perception of competition is the starting point for state-building. Since Tilly, theories of state formation have underscored the central role of competitive pressures—ranging from the existential threat of war to performance-based competition in governance—in driving the development of state capacity (Cerny, 2010; Freudlsperger & Schimmelfennig, 2023; Grzymala-Busse, 2020; Thies, 2004). When elites perceive external competition as a critical challenge or opportunity for regime security, economic advantage, and power interests, these pressures and incentives prompt a reassessment of their existing capabilities and strategic orientation (Lavery, 2024; Vu, 2010), thereby fostering a collective will to enhance state capacity. The sharper and more stable the perception of rivalry, the stronger the consensus and momentum for state-building (Genschel, 2022; Reinhard, 1996, pp. 3–18).

Second, functional demands serve as a guide for state-building. The impetus arises not only from the need to centralize power in response to security threats but also from pressures to innovate institutionally and expand capacity for economic development (Hamm et al., 2012; Mann, 1984; Marquette & Beswick, 2011). To compete and succeed internationally, states often establish specialized bureaucracies to design industrial policies, while investing heavily in infrastructure, education, and R&D (Evans, 1995; Mazzucato, 2011). Weiss and Thurbon (2021) conceptualize such strategic state actions—driven by explicit international rivalry and aimed at advancing a nation's high-tech frontier—as “economic statecraft.” They distinguish between two primary drivers for this statecraft: a “geo-economic” logic, which pursues technological autonomy for commercial competitiveness, and a “geo-political” logic, which seeks technological superiority for military advantage. In both cases, the elites' perception of external threats is translated into a concrete state-building agenda that strengthens technological capacity and secures the nation's position in the international system. In other words, the functional demand to gain a competitive advantage determines the specific content of state-building.

AI exemplifies these dynamics. As a GPT, it has engendered a global, transboundary competition, further accelerated by the rapid diffusion of representative technologies like LLMs. National elites increasingly view AI as determining their country's future prospects and status (Chui et al., 2023; U.S. Department of Defense, 2023). This perception is epitomized by the rise of the “sovereign AI” concept, through which elites elevate technological advantage to a core national interest, believing that states must achieve autonomy in AI R&D and industrial application (Satariano & Mozur, 2024; “Welcome to the era,” 2024). Once consensus forms, the construction of sovereign AI capacity often enters a “state of exception” (Agamben, 2005), transcending ordinary institutional routines. In this context, political agenda-setting, policy formulation, and resource allocation become mechanisms through which state power is mobilized to meet the functional demands of AI development (International Institute for Strategic Studies, 2023). In this process, the stronger the perception of AI rivalry, the greater the willingness of elites to channel state investment toward capacity building, producing more pronounced forms of AI-related state-building. Infrastructure upgrades driven by sovereign AI competition can also enhance state “governmentality,” making decision-making and implementation more efficient and precise (Foucault, 1991). This, in turn, reinforces elites' perceptions of technological competition, generating a feedback loop. At the same time, as state capacities are reshaped in response to the functional demands of sovereign AI competition, their “strategic selectivity” makes them inherently predisposed toward actions that favor technological competition (Jessop, 1990). In this sense, the dynamics of sovereign AI competition create a self-reinforcing cycle, making state-building processes increasingly visible in practice.

2.2. Auxiliary Mechanisms: Objective Differentiation and Strategic Convergence

State-building driven by sovereign AI competition is a process marked by both divergence and convergence, primarily driven by two auxiliary mechanisms. The first is objective differentiation, rooted in states' varying positions within the international system (Katzenstein, 1985, p. 20; Waltz, 1979, p. 72). Hegemonic powers facing clear challengers (Brands & Gaddis, 2021; Gilpin, 1981, p. 186), as well as small states that are more susceptible to shifts in the international system (Ayoob, 1995; Keohane, 1969), are more likely than others to interpret the current international environment as "tense." Consequently, they tend to place greater emphasis on the disruptive impact of GPTs like AI. Under heightened pressure, such states respond more rapidly to sovereign AI competition, pursue more ambitious objectives, and commit to higher costs of state-building, yet differences in geopolitical objectives lead them to follow differentiated pathways of response.

Divergent strategies are also shaped by differences in digital capacity. The success of sovereign AI supremacy depends heavily on what Mann (1984) defined as "infrastructural power"—the state's capacity to penetrate society and thereby determine whether its decisions can be effectively implemented. However, the control of digital infrastructure by dominant technology corporations often compels states to form strategic partnerships with these firms to execute their policies, which produces a form of "modern mercantilism," where state power is used to cultivate national champions in key sectors such as AI (Jensen, 2024). Due to the uneven global distribution of these champions, approaches to national capacity-building vary significantly. AI superpowers leverage state power to expand the global reach of domestic tech giants while constraining rivals. By contrast, nations with nascent AI capabilities negotiate with foreign AI leaders for cooperation and market access, with the principal aim of using foreign capital and technology to develop their own AI industries and infrastructure.

The second auxiliary mechanism is strategic convergence, driven by the shared capacity requirements of AI competition. AI competition—particularly the development of generative AI—is characterized by enormous cost, high intensity, and complex impacts (Horowitz, 2018; Maslej et al., 2024; Schrepel & Pentland, 2024; Singla et al., 2025). These features compel states to enhance four key capacities (Tang, 2022, pp. 180–207):

- Extractive capacity: The ability to mobilize and harness sufficient capital, data, and other material resources from society to support the development of an autonomous AI production system, given the immense investment required (Besley & Persson, 2009);
- Coercive capacity: The authority of the state to deploy non-market mechanisms to mobilize industries, society, and various governmental agencies, reinforcing its political authority in implementing directive and exclusionary AI policies (Mazzucato, 2018; Weiss, 1997);
- Delivery capacity: The ability to coordinate diverse stakeholders and provide essential public goods such as research networks and AI education initiatives (Mikhaylov et al., 2018);
- Informational capacity: The ability to collect, process, and analyze data on technologies, social impacts, and global competition in order to make high-quality policy decisions (M. M. Lee & Zhang, 2017).

These four capacities determine a nation's ability to maintain competitiveness in developing sovereign AI. The preceding analysis underpins the theoretical framework of Generative AI-Making and State-Making, as illustrated in Figure 1. Within this framework, dotted lines illustrate the mechanism of objective differentiation, while solid lines depict strategic convergence. Together, they demonstrate the new wave of state capacity building driven by the perception of transboundary competition amidst the rise of AI technologies like LLMs.

The next section applies this framework through a comparative analysis of four countries that are situated differently within the international system—the US, France, Brazil, and Singapore—to empirically examine the core mechanisms proposed in this article and present a global panorama of sovereign AI.

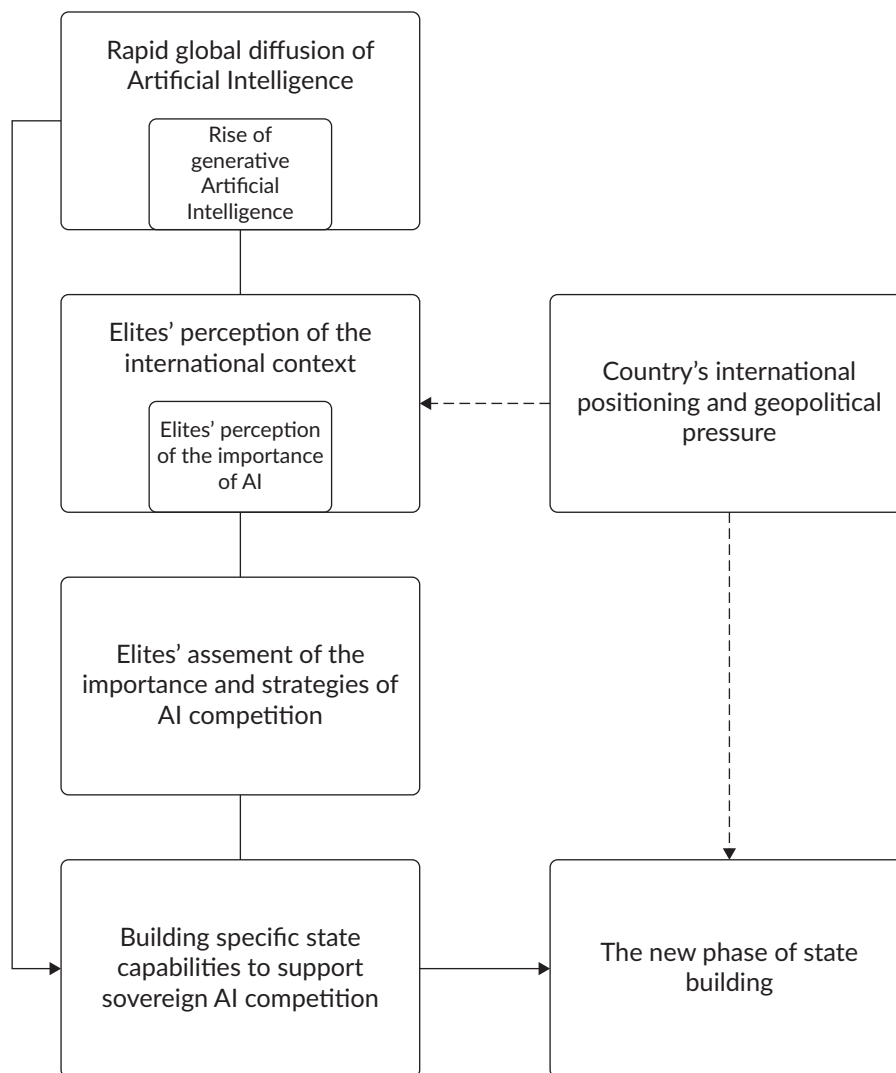


Figure 1. The mechanism of generative AI-making and state-making.

2.3. Methodology and Data Sources

This study employs a systematic comparative case study methodology to test the proposed Generative AI-Making and State-Making framework. The comparative method is well-suited for examining complex causal processes in emerging phenomena like sovereign AI competition, where large-*N* analysis is not feasible (Collier, 1993).

Case selection follows Mill's method of agreement to identify common causal mechanisms across cases exhibiting similar outcomes despite varying contexts (Ghalehdar, 2022; Mill, 1978). This design allows us to test whether elites' perception of AI competition consistently drives state capacity building across diverse national settings. This selection further reflects the principles of typicality, diversity, and influence in case

selection (Seawright & Gerring, 2008). The aim is to include cases that are not only theoretically and empirically significant but also broadly representative in terms of geopolitical power and regional distribution. The four cases—the US, France, Brazil, and Singapore—all demonstrate enhanced state capacity in response to sovereign AI competition, despite their major differences in geopolitical positions, economic strength, and technological endowment. The US, as a global superpower facing intense challenges and a global leader in AI technology, is expected to most clearly reveal the proposed mechanisms. Singapore, a least-likely case, illustrates new possibilities for small states in an AI-driven world and represents the East Asian region. France and Brazil serve as contrasting cases, revealing the potential influences of geopolitical competitive pressure and technological endowments on the shaping of state capacity. By selecting cases that vary significantly in terms of international positioning (hegemonic power vs. great power vs. regional power vs. middle power), economic development level (advanced vs. emerging economies), and technological capabilities (AI leaders vs. AI followers), we can better isolate the causal effect of sovereign AI competition perception on state-building efforts.

For each case, analysis focuses on two dimensions: (a) elites' perceptions of AI competition and their evolution over time; (b) policy initiatives and institutional reforms designed to enhance AI capabilities. This structured approach enables systematic comparison while preserving the contextual richness that is essential for understanding complex political processes.

To construct the dataset, a systematic collection strategy was employed. To capture each nation's perception of AI competition, we primarily gathered statements and materials issued by the highest executive and legislative bodies and leaders of the sample countries since 2017 (see Appendix A in Supplementary File). These include speeches and documents from official occasions (e.g., diplomatic affairs or domestic formal meetings) and official websites of national institutions. To assess state capacity building, we employ a triangulation approach (Tzagkarakis & Kritas, 2023) that relies on three multi-dimensional evaluation criteria. These are: (a) policy documents and authoritative statements that reflect elites' perceptions of competition; (b) legally binding national AI strategies aimed at developing new state capabilities; and (c) concrete establishment and implementation status of new institutions and programs tasked with implementing this capacity building. This methodological approach strengthens the reliability and validity of our findings and provides a robust foundation for evaluating and comparing state capacity transformations across the four cases in the context of sovereign AI competition.

3. Case Study: Between Global Hegemony and Regional Integration

3.1. *The Reshaped Superpower: The US's AI Strategy*

The US, as the only enduring global superpower, has officially designated China as a “strategic competitor” since 2017 (The White House, 2017). Under both the Biden and Trump administrations, this perception has intensified, with China portrayed as the most potent and dangerous adversary. This perception has fueled US motivations in AI competition and prompted extensive strategic actions with significant geopolitical implications. This section reviews the evolution of US AI policy (2017–2025), its competitive strategies, and the overarching objective of maintaining global AI hegemony.

Between 2017 and 2025, AI shifted in US policymaking from a technological opportunity to a strategic imperative. The 2017 *FUTURE of Artificial Intelligence Act* (2017) recognized AI as vital for economic prosperity. By 2019, Executive Order 13859 underscored the necessity of US leadership in AI for national security (The White House, 2019). The *National Artificial Intelligence Initiative Act of 2020* (2020) reinforced commitments to sustained leadership in AI. The 2021 *National Security Commission on Artificial Intelligence* report stressed AI's transformative potential, advocating urgent measures (National Security Commission on Artificial Intelligence, 2021). Following the emergence of GPT-based LLMs, US policy activity intensified sharply. In 2023 alone, nine administrative orders, plans, and acts were issued at the ministerial level or higher. In 2024, policy shifts emphasized US leadership amid rising tensions (The White House, 2024). In 2024, against the backdrop of rising tensions, the U.S.–China Economic and Security Review Commission urged Manhattan Project-scale AI investments (U.S.–China Economic and Security Review Commission, 2024). In 2025, executive orders under both the Biden and Trump administrations, alongside Vice President J. D. Vance's Paris AI Summit speech, reaffirmed the urgency of maintaining US AI dominance through both domestic policies and foreign toolkits (The White House, 2025a, 2025b; Vance, 2025).

Overall, US policymakers increasingly link sovereign AI competition to national security and to economic, military, and technological primacy (Horowitz et al., 2018). Since the emergence of generative AI, US policy documents have increasingly emphasized the imperative of global leadership, often through narratives of intensifying strategic rivalry (The White House, 2025a, 2025b). As a result, the US is the actor most likely to adopt high-cost measures to reinforce its technological capabilities.

Coercive capacity has expanded through direct market interventions, particularly in restricting critical AI supply chains to disadvantage competitors, most notably China. Executive Order 13859 institutionalized technological control via export bans on high-end computing chips (Bureau of Industry and Security, 2025; The White House, 2019). Between 2022 and 2024, systematic export controls on advanced chips and AI models marked a decisive departure from market principles, reflecting state-directed interventions on both supply and demand to restrict competitor access (Swanson, 2024).

Extractive capacity involves significant federal investments and public–private partnerships. While direct societal resource extraction remains limited, initiatives like the National Artificial Intelligence Research Resource pilot and the National Science Foundation (NSF) Regional Innovation Engines exemplify centralized funding mechanisms. New initiatives like the \$500 billion Stargate Initiative—a collaboration among OpenAI, SoftBank, Oracle, and MGX—represent state-led yet corporately executed resource extraction strategies. Such partnerships mobilize substantial capital to achieve national AI objectives (Friesen, 2025).

Delivery capacity is evident in administrative support for AI infrastructure, workforce development, and research platforms. Executive Order 14141 streamlined federal land acquisition for AI facilities. Initiatives like Educate AI and the National AI Research Institutes emphasize workforce training and interdisciplinary R&D (NSF, 2023a, 2023c; The White House, 2025a). The NSF's National Artificial Intelligence Research Resource Pilot program integrates computational resources and private-sector collaboration, supplemented by seven new National AI Research Institutes to advance infrastructure and innovation (NSF, 2023a, 2023b).

Informational capacity has also advanced, reflected in a dense advisory system. Key bodies include the Office of Science and Technology Policy, the National Science and Technology Council, the National AI Initiative

Office, the National Security Commission on Artificial Intelligence, and the President's Council of Advisors on Science and Technology, informing comprehensive policymaking across government and legislative sectors.

In sum, driven by geopolitical ambition to sustain hegemonic status and the perceived threat posed by China, the US has pursued explicit and exclusionary leadership in AI. To confront the complexity of rapid technological advancement, the US has undertaken aggressive measures that have ultimately reshaped the state itself. Since the emergence of ChatGPT in 2022, the generative AI era has significantly amplified the United States' sovereign AI endowments: dominance in English-language AI markets, control over advanced semiconductor supply chains, and the world's largest AI investment ecosystem (Maslej et al., 2024). The US also leverages extraterritorial jurisdiction to secure global data resources—advantages that collectively underpin its hegemonic strategy. Recent policies reaffirm this vision, presenting the US as the preferred global partner in AI cooperation (The White House, 2025a, 2025b; Vance, 2025).

As a result of these initiatives, the US government has substantially expanded its coercive power through direct market interventions and regulatory mandates. Its recent adoption of politically committed policy incentives and mission-oriented financing has also opened new pathways for enhancing extractive capacity. In terms of delivery capability, the intensifying AI competition has catalyzed the expansion of state institutions, empowering new agencies and enhancing coordination with existing bodies. These institutional developments have systematically improved the US state's informational capacity. The empirical analysis supports the theoretical hypothesis: The US has demonstrated substantial efforts to enhance all four dimensions of state capacity in response to sovereign AI competition. These efforts reflect its strategic pursuit of absolute advantage, and appear more extensive than those observed in other cases. Table 1 provides an overview of the United States' approach to sovereign AI competition.

Table 1. An overview of the sovereign AI competition in the US.

Technological Perception		
2017: AI seen as a promising technology with societal impacts.		
2019: AI recognized as crucial for national security.		
2021: AI viewed as a general-purpose technology with economic, military, and geopolitical implications.		
2024: AI framed as a global competition to maintain US leadership.		
2025: AI seen as a strategic imperative for global dominance in security and technology.		
	Institutions	Key policies and contents
Coercive capacity	Department of Commerce/Bureau of Industry and Security, Department of Defense	Use of trade controls to restrict technological diffusion, directives to guide private-sector investment, regulatory framework for the responsible diffusion of advanced artificial intelligence technology.
Extractive capacity	NSF, President	Traditional model of research funding, new state-led corporate-driven operational model, NSF regional innovation engines, Stargate initiative.

Table 1. (Cont.) An overview of the sovereign AI competition in the US.

	Institutions	Key policies and contents
Delivery capacity	Department of Defense, Department of Energy, NSF, National AI Research Institutes	Promoting development of AI infrastructure, optimizing AI talent cultivation, establishing AI research platforms, EducateAI initiative, National Artificial Intelligence Research Resource pilot program.
Informational capacity	White House Office of Science and Technology Policy, National Science and Technology Council, National Artificial Intelligence Initiative Office, National Security Commission on Artificial Intelligence, President's Council of Advisors on Science and Technology	Establishing advisory bodies, enhancing governmental information capabilities, creating regulatory frameworks, National Artificial Intelligence Research and Development Strategic Plan, National Artificial Intelligence Initiative Act of 2020.
Capability goal		
US AI capacity-building aims to maintain global leadership by securing technological, military, and economic supremacy.		

3.2. A Catching-Up Great Power: France's AI Strategy

As a UN Security Council permanent member and a core EU state, France's geopolitical vision embodies dual identities: participating as a global power and leading regionally by promoting European autonomy. This duality profoundly shapes France's AI strategy. Currently, France is the most competitive AI actor outside the US and China, exemplified by Mistral AI's \$6 billion valuation and LightOn's prominence as Europe's first publicly listed generative AI startup ("LightOn to become," 2024).

French policymakers have demonstrated an ambivalent stance toward AI competition—expressing concerns about falling behind superpowers while simultaneously projecting regional leadership. This tension has produced periodic "catch-up" policy behaviors. France's 2018 Villani Report identified AI as essential, warning of the nation becoming "a data colony" due to US and Chinese dominance. Thus, preserving independence and European coordination became central objectives (Villani, 2018). The 2021 national AI strategy reaffirmed earlier policy focuses but underwent a significant transformation in 2024 with the Artificial Intelligence Commission's (AIC) publication, which explicitly highlighted generative AI's emergence in 2022 as a pivotal inflection point. It emphasized the intense pressure from US and Chinese advances on French sovereignty and competitiveness (Commission de l'Intelligence Artificielle, 2024). President Macron's 2025 declaration of a "third way" in AI explicitly positioned France against the US and China (Chavez, 2025). The president has recently taken a highly assertive and hands-on role in promoting France's AI industry, unveiling a €109 billion investment plan that he pointedly framed as "France's Stargate" to rival US initiatives ("Intelligence artificielle: Emmanuel," 2025). This initiative extends beyond funding to include direct presidential intervention and economic diplomacy. A notable example is his personal involvement in forging a partnership between the French startup Mistral AI and US chipmaker Nvidia. According to *PYMNTS* reporting, Nvidia's CEO Jensen Huang explained that Macron personally intervened after Mistral AI sought his assistance in initiating direct contact with Nvidia's leadership to accelerate a cloud-computing partnership: "Who are they? Let me call them" ("French President rallies," 2025). And he called them. Macron himself later praised this collaboration as a "game changer" crucial for "strengthening France's technological

independence,” illustrating his aggressive, top-down effort to cultivate national champions like Mistral AI (“French President rallies,” 2025).

France has leveraged its early positioning and resource advantages to shift from supporting European coordination to explicitly claiming leadership in Europe. By 2025, the “Make France an AI Powerhouse” strategy has positioned France as Europe’s generative AI hub (Présidence de la République Française, 2025). However, its stimulus-driven policy reflects a lack of a clear model competitor, creating a reactive policy trajectory. In sum, French political elites increasingly frame AI competition as integral to maintaining national geopolitical influence and regional leadership. This perspective has prompted a significant shift in industrial policy, moving beyond market-oriented approaches toward a form of “geo-dirigisme” (Seidl & Schmitz, 2024), in which the state actively directs economic activity and resources into technologies it deems geoeconomically or geopolitically vital. However, unlike the US, France has not developed a clear narrative identifying specific competitors. Instead, it positions itself in opposition to an ambiguous notion of “technological hegemony.” Within the theoretical framework adopted here, France is not expected to pursue aggressive coercive interventions or large-scale extractive investment strategies. Rather, it is expected to adopt a balanced approach that integrates technological capacity-building with social governance considerations.

Regarding coercive capacity, France promotes technological sovereignty alongside regulatory frameworks, primarily within the EU context. While earlier strategies (République Française, 2021; Villani, 2018) focused on governance, recent policies have shifted slightly toward developing autonomous capabilities through domestic incentives. Nevertheless, compared to the aggressive market interventions by the US, France remains largely regulatory in orientation rather than overtly competitive.

France’s extractive capacity relies on government investments, R&D funds, and public–private partnerships. The 2021 national AI strategy involved €2.22 billion, including substantial public funding and private co-financing (République Française, 2021). The proposed “France & AI” fund in 2024 mobilized €10 billion to accelerate AI ecosystem development (Commission de l’Intelligence Artificielle, 2024). However, these investment scales remain significantly smaller than US initiatives (e.g., the \$500 billion Stargate Initiative).

In terms of delivery capacity, France has prioritized the development of an integrated ecosystem for AI education and research. Notably, interdisciplinary autonomous research institutes—the Instituts Interdisciplinaires d’Intelligence Artificielle, or 3IA—and computational infrastructure such as the Jean Zay supercomputer have significantly enhanced administrative capabilities (Centre National de la Recherche Scientifique, 2025; Villani, 2018). In addition, administrative efficiency has been improved through the streamlining of AI-related data processing procedures (Commission de l’Intelligence Artificielle, 2024). However, since the 3IA network is time-limited and France has not established permanent institutions aligned specifically with AI, its delivery capacity remains more limited compared to the US.

In the domain of informational capacity, France has made notable advances through new evaluation systems and societal feedback mechanisms. The establishment of the National Institute for AI Evaluation and Security (INESIA) in 2025 provides a credible institutional framework for model evaluation, strengthening governmental responsiveness (“The French government,” 2025). Furthermore, initiatives such as “AI Cafés” facilitate public engagement and enhance mutual understanding between citizens and the state in the context of AI governance

(Présidence de la République Française, 2025). While smaller in scale and less institutionalized than US efforts, France nonetheless occupies a competitive position in AI information governance.

In conclusion, the establishment of new institutions such as INESIA and the upgrading of the Commission Nationale de l'Informatique et des Libertés (CNIL; Commission de l'Intelligence Artificielle, 2024) underscore the reinforcement of the French state apparatus through participation in AI competition. Across the four dimensions, France has significantly enhanced capabilities, though in ways that are partly regulatory rather than purely developmental, which reflects distinctively European characteristics. As discussed, France's geopolitical objectives in the AI era are composite: It aims to maintain global great-power influence beyond the primary US–China rivalry while continuing to assume a leading role within Europe. Yet given the EU's deep integration and complementary economies, France faces no genuine European rival and lacks the conditions to challenge a hegemon.

Although France remains an active participant in global AI competition, it has not heavily securitized the field or framed AI development primarily in national security terms. As a result, the impact of its sovereign AI strategy on the restructuring of national capabilities is significantly more limited than that of the US. Specifically, France exercises greater restraint in the use of administrative authority, adopts a more decentralized and smaller-scale approach to resource extraction, and lags behind the US in terms of the institutionalization and systematization of administrative delivery. Unlike the US, France lacks a coherent set of formal institutions dedicated to managing AI-related affairs, which in turn constrains its informational capacity. Apart from INESIA, most improvements in informational capacity are centered on public communication and opinion feedback initiatives, while their direct impact on governmental decision-making remains unclear. Table 2 summarizes France's approach to sovereign AI competition, showing how this European power transforms the pressures brought about by technological competition into the practice of state-building.

Table 2. An overview of the sovereign AI competition in France.

Technological Perception		
2018: AI strategic awakening, concern over US–China dominance.		
2021: AI positioned as a national priority through institutional governance and European coordination.		
2024: Pressure from the generative AI wave redefining competition as a sovereignty crisis.		
2025: France asserts “third way” leadership within the European AI strategy.		
	Institutions	Key policies and contents
Coercive capacity	Secrétariat général pour l'investissement (SGPI), Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation (MESRI), Ministère de l'Économie, des Finances et de la Relance, Coordinateur national pour l'intelligence artificielle	Specification of priority development sectors, strengthening of AI ethics and data flow regulations, preferential policies for domestic AI R&D activities.
Extractive capacity	Matignon and other government departments, Bpifrance, Commission nationale de l'informatique et des libertés (CNIL)	Hybrid model combining direct government investment, R&D funds, public–private partnerships, and international data sharing, France 2030, “France & AI” Fund.

Table 2. (Cont.) An overview of the sovereign AI competition in France.

	Institutions	Key policies and contents
Delivery capacity	MESRI, Centre national de la recherche scientifique (CNRS), SGPI, CNIL	Creation of interdisciplinary AI hubs (3IA), expansion of public computing infrastructure, coordination of academic–industrial partnerships for AI innovation.
Informational capacity	Initiative nationale pour l'éthique et la sécurité de l'intelligence artificielle (INESIA), CNIL, Conseil national du numérique (CNNum)	Strengthening government decision-making capabilities by establishing AI risk prediction and model evaluation mechanisms, developing public information feedback systems, and hosting nationwide AI outreach programs such as "AI Cafés."
Capability goal		
French AI capacity-building aims to maintain global great-power influence beyond the primary US–China rivalry while continuing to assume a leading role within Europe.		

3.3. A Lagging Regional Power: Brazil's AI Strategy

Brazil, Latin America's largest economy and a leading representative of the Global South through BRICS and the G20, has lagged behind in responding to sovereign AI competition. While Colombia and Argentina introduced national AI strategies in 2019, Brazil's first comprehensive strategy emerged only in 2021. Law No. 21 primarily established regulatory guidelines without robust enforcement mechanisms or a clear technological development framework, presenting AI largely as a tool for public service improvement and economic growth rather than for sovereignty or international competition (Câmara dos Deputados, 2021).

The 2021 Brazilian Strategy for Artificial Intelligence (*Estratégia Brasileira de Inteligência Artificial*, EBIA) signaled a shift, recognizing AI's economic significance and estimating an additional 1.2% annual contribution to global GDP by 2030 (Ministério da Ciência, Tecnologia e Inovações [MCTI], 2021). Yet the strategy emphasized societal and service-related impacts more than strategic competition or sovereignty. Critics contend that the EBIA represents a passive imitation of global trends. It lacked instrumental policy mechanisms, failed to overcome collective action challenges, and showed weak integration with existing policy frameworks—rendering it an ambitious but largely ineffectual document (Filgueiras & Junquilho, 2023).

Following the rapid global spread of generative AI (Singla et al., 2025), Brazil launched IA Para o Bem de Todos (AI for the Good of All) at the Fifth National Conference on Science, Technology, and Innovation in July 2024 as a strategic update to the EBIA. Incorporated into the Programa Brasileiro de Inteligência Artificial (PBIA), the document frames AI as a disruptive force and the third wave of the ICT revolution. Crucially, it marks the first official linkage between AI and national sovereignty, portraying the global proliferation of AI strategies as "a race for dominance with geopolitical implications" (Conselho Nacional de Ciência e Tecnologia [CCT], 2024).

Compared with advanced economies like the US and France, Brazil recognized AI's strategic significance relatively late. This delay partly reflects its fragmented policymaking process: The PBIA emerged from an extended consultation involving 38 proposals, six workshops, and 30 bilateral meetings with stakeholders (CCT, 2024). Brazil's benign geopolitical setting and moderate technological capabilities further limit incentives for assertive engagement in AI competition. While Portuguese is globally widespread, its strategic

utility is diminished by the geographic separation between Brazil and other Lusophone nations, primarily in Europe and Africa (Comunidade dos Países de Língua Portuguesa, n.d.).

Structural weaknesses—including low R&D spending, weak cybersecurity, and acute digital inequality—further constrain AI development (UNESCO, n.d.). With no significant regional or global rivals, Brazil lacks strong external pressures to securitize AI. In the absence of external threats and facing relatively low international pressure, sovereign AI competition has not become a pressing political priority (de Almeida et al., 2021; Malamud, 2011). Nonetheless, the PBIA reflects growing awareness, and Brazil has begun laying the institutional groundwork to address the challenges of sovereign AI through four state capacities: coercive, extractive, delivery, and informational.

In terms of coercive capacity, Brazil relies primarily on existing regulatory frameworks, including instruments such as the *Lei Geral de Proteção de Dados Pessoais*. The 2021 EBIA and the 2024 PBIA introduced ethical guidelines, public-sector directives, and multi-level governance structures to oversee the national implementation of AI policy (CCT, 2024; MCTI, 2021). However, Brazil's coercive capacity remains limited, focusing on the oversight of AI applications rather than non-market interventions to boost technical capacities.

With respect to extractive capacity, the PBIA outlined a more coherent funding mechanism totaling R\$23.03 billion (approximately USD 4 billion), drawing from both public and private sources, and replacing previously fragmented approaches (CCT, 2024). Despite this improvement, the scale of investment remains modest compared to AI leaders, constraining Brazil's global competitiveness.

Administrative delivery capacity has shown tangible improvement. Educational reforms, targeted AI training programs, and partnerships with international firms like OpenAI have strengthened institutional implementation capacity (CCT, 2024; MCTI, 2021). Programs such as IA² MCTI and various startup incubators have further supported the development of Brazil's AI R&D ecosystem. Nonetheless, these improvements are largely concentrated in specific areas such as education and entrepreneurship, and rely on pre-existing innovation service structures rather than representing a broader expansion of the state apparatus.

Informational capacity is Brazil's most developed domain. The PBIA created the Brazilian AI Observatory and the National Center for Algorithmic Transparency and Trustworthy AI, which have enhanced the government's evidence-based decision-making through comprehensive data monitoring and risk assessment systems (CCT, 2024).

Brazil's AI policies issued in 2021 and 2024 demonstrate a gradual enhancement of national capabilities, with the most significant progress occurring in the domain of informational capacity. This emphasis on information governance aligns with Brazil's highly fragmented political structure and reflects the relatively low resource requirements of informational capacity compared to coercive, extractive, and administrative functions. Brazil continues to articulate aspirations for regional technological leadership, as evidenced by its emphasis on technological sovereignty and Lusophone AI initiatives (CCT, 2024; MCTI, 2021). However, due to limited external pressure and suboptimal strategic conditions, Brazil has made substantially less progress in strengthening coercive and extractive capacities. Consequently, its participation in sovereign AI

competition remains delayed and comparatively less influential on the global stage. Table 3 summarizes Brazil's approach to sovereign AI competition, highlighting how it mobilizes its coercive, extraction, delivery, and information capabilities to strengthen sovereignty and regional leadership, although this process is less pronounced than in the United States and France.

Table 3. An overview of the sovereign AI competition in Brazil.

Technological Perception		
2020: AI identified as an emerging technology for enhancing international competitiveness.		
2021: AI recognized as a core driver of national economic growth.		
2024: AI framed as a disruptive technology with sovereign and geopolitical consequences through technological competition.		
	Institutions	Key policies and contents
Coercive capacity	Presidência da República, Ministério da Ciência, Tecnologia e Inovação (MCTI), Ministério da Economia, Ministério da Justiça e Segurança Pública, Autoridade Nacional de Proteção de Dados	An AI regulatory framework built upon the Lei Geral de Proteção de Dados (LGPD, General Data Protection Law), a cross-institutional and directive-based approach to policy formulation and coordination.
Extractive capacity	Fundo Nacional de Desenvolvimento Científico e Tecnológico (FNDCT), Financiadora de Estudos e Projetos, Banco Nacional de Desenvolvimento Econômico e Social, Lei Orçamentária Anual, MCTI, and other institutions	Provision of non-repayable funding and credit, collaboration with the private sector to secure investment support, and promotion of open data policies within the framework of the LGPD.
Delivery capacity	MCTI, Presidência da República, Ministério da Educação e Cultura, Agência Brasileira de Desenvolvimento Industrial, FNDCT	Comprehensive education reforms, expansion of research networks, and development of innovation ecosystems, increased emphasis on technology-related disciplines, joint training initiatives with companies such as OpenAI, implementation of the IA ² MCTI program, support for entrepreneurship through Start-Up Brasil and Conecta Start-Up Brasil, and targeted investments in technological infrastructure.
Informational capacity	Ministério da Ciência, MCTI, Supremo Tribunal Federal, Comitê Gestor da Internet no Brasil, Ministério das Relações Exteriores	Development of a comprehensive information collection and analysis system, establishment of the Observatório Brasileiro de Inteligência Artificial, foundation of the Centro Nacional de Transparência Algorítmica e IA Confiável, and creation of Brazilian AI Governance Support Network and the Brazilian International Debate Participation Support Network.
Capability goal		
Brazil's AI capacity-building aims to establish regional leadership, advance technological sovereignty, and develop a Portuguese-language LLM, thereby enhancing its international influence and discursive power.		

3.4. An Unexpected Middle Power: Singapore's AI Strategy

Singapore has actively engaged in sovereign AI competition, publishing national AI strategies in 2019 and 2023, and launching a SGD 70 million national multimodal LLM project in late 2023. Although traditional geopolitical theories predict neutrality or hedging for small states like Singapore (Chang, 2022; Teo & Koga, 2022), breakthroughs in AI have reshaped its strategic calculus. The rise of generative AI—particularly the release of ChatGPT—has profoundly transformed Singapore's perception of AI's disruptive potential and its implications for regional geopolitics. As stated in the preface to its 2023 National AI Strategy 2.0, "Since the release of ChatGPT by OpenAI on 30 November 2022, Artificial Intelligence (AI) has gone mainstream" (Ministry of Communications and Information [MDDI], 2023). While Singapore lacks traditional advantages such as population size, territorial expanse, or economic scale, its longstanding national digitalization strategy and multilingual environment provide distinct comparative strengths in AI. This positioning has enabled Singapore to carve out a unique geopolitical niche and pursue regional leadership in global technological competition.

Singapore's evolving AI strategies initially framed AI as a disruptive force for society and industry (GovTech Singapore, 2017). The 2019 National AI Strategy marked a conceptual shift, identifying AI as a pivotal force in reshaping economic structures and geopolitical configurations, and emphasizing technological capability as vital to national prosperity and survival (MDDI, 2019). By 2023, the updated strategy explicitly set AI leadership as a national objective, positioning Singapore as a global frontrunner in AI innovation (MDDI, 2023).

Policymakers now view AI competition as central to advancing regional influence and national economic growth, framing it explicitly as a matter of national survival and strategic opportunity. The pressure on Singapore's political elite—stemming from the nation's position as "a tiny little island with no natural resources" in an era of intensifying global AI competition—has prompted state-led mobilization (Prime Minister's Office of Singapore, 2023). Although coercive measures are less pronounced, Singapore's approach still aligns with the competitive response model of coercion-extraction-delivery-information, with the nation's machinery continuously strengthening in the competition.

Coercive capacity is exercised mainly through government directives that guide and regulate the market to channel resources such as capital, talent, and data into the AI sector. In the 2019 National AI Strategy, the Singaporean government emphasized the need to build digital infrastructure and promote the widespread adoption of AI technologies across various sectors, particularly by applying AI to improve the quality and efficiency of public services and administrative processes (MDDI, 2019). In the 2023 National AI Strategy, Singapore plans to further strengthen the government's role in driving the deployment of AI technologies, especially in key economic sectors and public services. It also promoted collaboration between industry and the research community, aligning innovation with market demands and facilitating interdepartmental integration (MDDI, 2023).

Extractive capacity has been expanded through national AI projects. The 2019 National AI Strategy project's portfolio launched five flagship projects spanning intelligent freight planning and efficient municipal services, among five critical domains. The Singaporean government aims to drive investment in AI research through these projects, generating demand to strengthen the country's talent pool and capabilities while guiding the development of digital infrastructure. By fostering a partnership between academia,

industry, and government, Singapore has established stable funding and data foundations to support its AI competitiveness (MDDI, 2019).

Delivery capacity is pursued through the building of an ecosystem that includes dedicated platforms for research, talent cultivation, data management, and international collaboration. The 2023 strategy introduced an AI-focused innovation site and “data concierge” services, promoting public–private data flows for AI development, further strengthening the operational framework for administrative efficiency (MDDI, 2023).

Singapore has significantly advanced informational capacity through strategic infrastructure and governance frameworks. The establishment of the National AI Office under the Smart Nation and Digital Government Office ensures coordinated national AI agendas (MDDI, 2019). The 2023 AI Verify initiative by the Infocomm Media Development Authority enhanced transparency and regulatory compliance in AI research and applications, reinforcing governmental responsiveness to AI-related risks (Infocomm Media Development Authority, 2023).

Singapore’s AI strategy also emphasizes leveraging linguistic and cultural regionalization as key geopolitical assets in the sovereign AI era. Official narratives stress the importance of creating localized AI models sensitive to Southeast Asia’s diverse cultural contexts (“Singapore pioneers flagship AI initiative,” 2024). The strategic objectives outlined in 2023—selective excellence and empowerment—highlight a deliberate approach to developing regional AI capabilities complementary to dominant global models, thereby securing regional technological influence without direct confrontation with leading global powers (“Singapore builds AI model,” 2024). Upon launching its first LLM project, the Singaporean government highlighted that its primary objective was to develop sovereign capabilities by creating multimodal and localized LLMs that reflect the context and values of Southeast Asia’s diverse cultures and languages (“Singapore pioneers flagship AI initiative,” 2024). In this way, Singapore has shifted from an independent, balancing approach to becoming a regional technological core in the era of sovereign AI. Table 4 outlines Singapore’s approach to sovereign AI competition, illustrating how the development of its four key capacities has strengthened the city-state’s capabilities and positioned it as both a regional AI leader and an innovation hub in Southeast Asia.

Table 4. An overview of the sovereign AI competition in Singapore.

Technological Perception		
2017: Viewing AI as a solution to social challenges without emphasizing global competition.		
2019: The National AI Strategy framed AI competition as essential for national survival and prosperity, highlighting its geopolitical implications.		
2023: The updated strategy emphasized AI leadership, positioning Singapore as a global AI hub.		
	Institutions	Key policies and contents
Coercive capacity	Ministry of Communications and Information, and other government departments	Implementation of the 2019 and 2023 National AI Strategies by the MDDI, integration of AI policy into broader national digital governance and security frameworks.
Extractive capacity	Government of Singapore	Launch of National AI Projects and the Triple Helix Partnership, facilitating collaboration between the state, private sector, and academia to mobilize resources and drive national AI initiatives.

Table 4. (Cont.) An overview of the sovereign AI competition in Singapore.

	Institutions	Key policies and contents
Delivery capacity	Singapore Department of Statistics, and other government agencies	Building a national AI ecosystem, introducing a dedicated AI data platform, and developing data concierge services to enhance inter-agency data coordination.
Informational capacity	Smart Nation and Digital Government Office, National AI Office, Government Technology Agency, Infocomm Media Development Authority	Establishment of the National AI Office and Government Data Architecture, development of centralized digital infrastructure for public-sector employees, and creation of AI Verify and the AI Verify Foundation to enhance trust and accountability in AI governance.
Capability goal		
Singapore aims to foster deeper collaboration within Southeast Asia by developing AI technologies tailored to the region's languages, cultures, and values. By focusing on localized AI models, Singapore seeks to bridge gaps between regional countries and build a unified technological ecosystem that reflects Southeast Asia's diversity, consolidating its leadership in regional digital development.		

4. Conclusion

By integrating contemporary AI development with classical state formation theory, this study offers a novel perspective on the geopolitical implications of generative AI. We introduce the Generative AI-Making and State-Making framework to explain how sovereign AI competition reshapes state capacity and digital geopolitics. Our comparative analysis of the US, France, Brazil, and Singapore illustrates that the emergence of LLMs has accelerated international competition as nations acknowledge AI's transformative potential. The findings suggest that, under the strategic pressures and opportunities of generative AI, elite consensus drives the enhancement of state capacities across four dimensions: coercive, extractive, delivery, and informational. However, the objectives and intensity of this capacity-building vary according to a nation's position in the international system, its geopolitical pressure, and its unique endowments. Table 5 provides an overview of the distinct capacity-building paths and strategic objectives of the four cases.

Sovereign AI competition, as a GPT contest spanning geographical and policy boundaries, aligns with state-building theory: intensified external, transboundary competitive pressures catalyze state apparatus development and reinforcement. This framework requires further empirical observation of the evolving global order and refinement of digital-era state capacity concepts and measurement tools. Nonetheless, this study offers two contributions to post-fourth industrial revolution international relations. First, it situates domestic politics within the context of generative AI competition. Current literature (Brown et al., 2023) often overlooks the systemic effects of this prolonged competition on state formation, focusing instead on policy instruments or governance model variations. The universal impact of such competition on nations could exert evolutionary force on the international system, potentially culminating in structural transformation (Tang, 2010). Second, this study offers a geopolitical analysis focused on objective differentiation. Prevailing debates often spotlight great powers like the US and China while overlooking middle powers (Schindler et al., 2024; Schmid et al., 2025). However, as exemplified by Singapore, sovereign AI competition extends beyond "a game of titans." Intensifying AI rivalry also drives technologically capable

Table 5. Comparison of the sovereign AI competition approaches in the four cases.

Sample countries	US	France	Brazil	Singapore
Coercive capacity	Using coercive measures to directly intervene in markets and enterprises	Directive-driven prioritization and regulatory governance	Regulation and technological application based on existing institutional frameworks	Cross-departmental policy coordination and market regulation
	Very strong	Strong	Moderate	Strong
Extractive capacity	Government-backed, policy-committed financing totaling up to \$500 billion	Traditional public-private partnership model with a scale exceeding EUR 10 billion	A blended financing mechanism totaling approximately USD 4 billion	Systematic financing based on national AI projects, with a target of approximately USD 10 billion
	Very strong	Strong	Moderate	Strong
Delivery capacity	Institutional support for AI infrastructure, talent development, and research platforms, with direct expansion of the state apparatus	Establishment of temporary research institutions and optimization of administrative efficiency	Provision of specialized service programs in areas such as education and entrepreneurship	Building an AI ecosystem through dedicated multifunctional institutions and project platforms
	Very strong	Moderate	Moderate	Strong
Informational capacity	A federal AI advisory system based on the expansion of the state apparatus	Creation of dedicated research advisory bodies and mechanisms for publicity and feedback collection	Establishment of information processing and risk assessment institutions such as the Observatório Brasileiro de Inteligência Artificial	Establishment of new formal institutions such as the National AI Office
	Strong	Strong	Strong	Strong
Capability goal	Defeating rivals to maintain technological hegemony	Maintaining global technological leadership, technological independence, and regional influence	Preserving regional leadership and developing a Portuguese-language LLM	Becoming a regional technological hub and developing a Southeast Asia-focused LLM

nations to consolidate linguistic communities via national LLMs (e.g., Brazil in Portuguese, UAE in Arabic; Kerr & Murgia, 2023; MCTI, 2021). This dynamic signals a more complex landscape, with nations competing intensely for regional AI leadership. The growing UAE–Saudi Arabia rivalry—between the two Gulf allies traditionally bound by shared security and economic interests—exemplifies this. Despite their strategic alliance, AI competition fuels an aggressive nation-building race. Saudi Arabia’s Vision 2030, for example, identifies AI as a core enabler for achieving up to 70 percent of its national digital transformation objectives, while the UAE established the world’s first Minister of State for Artificial Intelligence in 2017 (“Saudi Arabia and UAE,” 2025).

Beyond sovereign AI, this study addresses a key theme in the thematic issue. The proposed Generative AI-Making and State-Making framework offers a versatile analytical tool for understanding state responses to technological disruption in the digital age. Its applicability transcends generative AI, extending to the broader spectrum of Web 3.0 technologies. This study's central mechanism—elites' perceptions of transboundary tech competition driving systematic state-building—operates across different technology paradigms. Comparing generative AI and blockchain governance highlights a paradox. While sovereign AI and Web 3.0 embody seemingly opposing logics—state-driven centralization versus socially-driven decentralization—this article argues against a technological determinism concerning geographical impacts. Applying this framework to Web 3.0 governance reveals a fundamental paradox in digital geopolitics. Technologies like blockchain, cryptocurrency, and decentralized autonomous organizations are designed to be decentralized and reduce dependence on state institutions; however, their development, adoption, and regulation remain deeply intertwined with state capacity. Consequently, centralized AI and decentralized Web 3.0 logics, though seemingly opposed, may paradoxically converge in shaping a global digital order characterized by regional multipolarity and an overarching US–China bipolarity.

Sovereign AI enhances state capability through the mandated integration of societal resources. By contrast, the social decentralization enabled by blockchain, while appearing to weaken national sovereignty, paradoxically reinforces it by empowering smaller units and preventing any single actor from achieving global hegemony. Despite these differences, both paradigms demand a comprehensive digital infrastructure, a critical mass of skilled talent, and immense reserves of data, capital, and market access. Fulfilling these prerequisites is contingent upon national capacity—especially extractive, informational, and delivery capabilities. Given that the US and China together account for over 40% of global GDP and 48% of global manufacturing output (Council on Foreign Relations, 2024), they hold a distinct advantage in meeting these demands. Crucially, their escalating strategic competition provides the most potent impetus for both state-building and technological advancement. This dynamic is illustrated by the significant role of figures like David Sacks, who was appointed to the chair of the President's Council of Advisors on Science and Technology and informally referred to as the White House “czar” for AI and cryptocurrency (Schleifer, 2024). Consequently, while the US and China are emerging as poles of digital geopolitics, the multipolar nature of new technologies precludes the rigid bloc formation of the Cold War.

In summary, this study's primary theoretical contribution is an analytical framework for Web 3.0 governance that links the material demands of new technologies to state strategies. It challenges deterministic or anti-state interpretations, showing that governing decentralized systems still requires understanding how geopolitical pressures shape state responses. This explains why Web 3.0 technologies, despite decentralization, display geographic clustering and national advantage similar to centralized technologies (Holicka & Vinodrai, 2022; Zhang & Lu, 2025). For centralized AI, states focus on building domestic industrial capacity and controlling key resources (e.g., advanced semiconductors, large datasets). For decentralized Web 3.0 technologies, statecraft shifts to regulatory frameworks and infrastructure oversight. Ultimately, renewed geopolitical competition drives both: Elites frame tech competition as a zero-sum game requiring greater state intervention (Mueller & Farhat, 2022). Web 3.0 (bottom-up innovation via community/tech trust) and sovereign AI (top-down security via state/legal authority) are distinct but interconnected paradigms. Their adoption reflects each country's state–market–society nexus under geopolitical pressure, not abstract utopian or dystopian visions.

We conclude with a critical reflection on our central concept of “sovereign AI.” While articulated in Westphalian terms, this concept, functioning as a “technopolitical imaginary” rather than a legal category, acknowledges digital tech’s challenge to traditional sovereignty (Pohle & Thiel, 2020). Despite its limited normative clarity, the concept underscores nation-states’ determination to defend domestic authority and external independence amid technological revolution (Oppenheim, 1905). This suggests that international technological and geopolitical competition will continue to revolve around the nation-state. Yet, technological advances are simultaneously reshaping the very substance of sovereignty and interstate relations. As emphasized throughout this article, LLMs increasingly align geopolitical competition with linguistic and ecosystem divides rather than purely territorial concerns. Thus, analyzing policy instruments and technological prowess alone is insufficient for forecasting digital geopolitics. Scholars must “bring the state back in” to the generative AI era. The same holds for Web 3.0: Even in decentralized technological systems, states remain central actors shaping rules, infrastructures, and power distributions. This study therefore contributes not only to debates on sovereign AI but also to the governance challenges of Web 3.0.

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Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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About the Author



Zhenyu Wang studies digital geopolitics and AI for social science, as an assistant professor at the Journalism Institute, Shanghai Academy of Social Sciences. He is also a researcher at the Digital Civilization and Intelligent Decision-Making Laboratory, University of Chinese Academy of Social Sciences, and is the CEO of Alogorain, an AI start-up focusing on research and decision support.