

REPORT Executive Summary - March 2025

Digital Infrastructures

A Critical Move



Our competitiveness and the efficiency of our communication systems rely heavily on digital infrastructure, the backbone of our modern society. The United States has harnessed it as a vehicle for economic dominance, from the most advanced technologies to everyday applications. China, meanwhile, wields it as an instrument of political power, ruthlessly exploiting Western divisions. At the same time, other nations are adopting increasingly intrusive forms of hybrid warfare.

The explosive declarations of the Trump administration, as well as the more measured announcements from the AI Action Summit, reflect a clear understanding of this reality. France, however, has been slow to define its stance, wavering between technological retreat, regulatory oversight, and aspirations for sovereignty across the entire value chain.

This report aims to rally public authorities around the pressing need for a clear and pragmatic strategy on digital infrastructure, encompassing data processing and telecommunications networks. The “Financing, Energy, and Talent” triad—key to American technological dominance—is equally within our grasp, supported by our energy resources and the exceptional expertise of our engineers and researchers.

We offer a strategic plan that would enable France to secure its most critical sovereign applications, reduce dependencies, maintain a leadership role in data processing and high-performance computing, and leverage the technological excellence of its network infrastructure. These immediate and actionable measures require adjustments to both national and European regulatory frameworks to foster a more business-friendly environment.

Now is the time to focus our efforts, build on our strengths, and secure our position as a global leader by excelling in strategic areas. Our freedom is at stake.

Marie-Pierre de Bailliencourt,
Managing Director, Institut Montaigne

The Franco-European announcements at the AI Action Summit in February 2025 reflect an unprecedented financial commitment: over €300 billion invested to strengthen digital infrastructure, including €109 billion for France and €200 billion for the European Union. While these investments signal a clear ambition, they are not enough to guarantee true strategic control over our infrastructure. **Data centers are only one link in the chain, and their development must be part of a global and consistent vision that integrates all the essential technological components for digital sovereignty: networks, edge, cloud, IoT, and high-performance computing.**

For France, a targeted and pragmatic approach is essential: instead of systematically trying to close the gap in sectors dominated by the United States or China, we must focus on areas in which we have a competitive advantage or strategic leverage. **Our strengths in edge computing and telecommunications, notably in 5G, together with our expertise in cybersecurity risk management and our industrial capacity to produce energy-efficient infrastructure, are key assets that must be structured into a coherent ecosystem.** This requires making deliberate strategic choices, avoiding the scattering of resources, and directing efforts towards areas in which European leadership remains achievable.

France's governance of digital infrastructure currently lacks a long-term vision. While the SGDSN (French General Secretariat for Defense and National Security) has a clear and ambitious vision for defense and cybersecurity, other institutions, such as the DGE (French General Directorate for Enterprises) and SGPI (French General Secretariat for Investment), struggle to maintain a consistent, long-term strategy, hindered by political shifts and a lack of structured oversight. Digital infrastructure that is not covered by national security is too often subject to fluctuating priorities, lacking a stable long-term strategy or sufficient funding—fiber deployment being the only notable exception.

However, the development of AI and future digital applications depends on proactive planning for the

underlying infrastructure, including computing power, storage, and the geographical distribution of data centers and networks. **This report frames the discussion by identifying critical resources and providing recommendations for a robust industrial policy on digital infrastructure, with quantifiable objectives and a clear programmatic framework.** Recent international announcements confirm that digital infrastructure is not merely a technological concern but the backbone of economic power and sovereignty in the 21st century.

Given the financial constraints facing France and Europe, the key question is not just how much to invest, but also which roadmap to follow. What digital applications must we absolutely master in the future, and how can we secure them? **In this context, edge computing offers a strategic opportunity to reclaim control over sensitive European user data, preventing it from being systematically captured and exploited by foreign infrastructure.** Unlike cloud computing, which is already dominated by American and Chinese tech giants, edge computing remains an open field. By 2025, according to the Linux Foundation, edge computing could generate four times more activity than the cloud, and process 75% of global data, making it a critical strategic lever for structuring a sovereign continuum of networks, cloud, edge, and IoT.

Europe already has strong assets to build this digital sovereignty: high-performance private 5G networks, competitive decarbonized energy, and highly skilled engineers. However, achieving this ambition requires addressing the central issue of access to high-quality data, which is essential for training AI models and deploying effective digital solutions. **In other words, sovereignty over critical digital applications depends on sovereignty over the entire underlying infrastructure. Without control over networks, cloud, edge, and IoT, strategic autonomy in future digital services is impossible to guarantee.**

Institut Montaigne recommends a categorization of priority use cases for deploying this infrastructure along three pillars: (i) sectors in which Europe has globally recognized expertise, (ii) industries

requiring strategic autonomy at either the national or European level, and (iii) areas where rapid acceleration is necessary to consolidate or strengthen a competitive advantage.



Santé

Chimie : nouvelles molécules et matériaux

Optimisation du parcours de soin

Suivi de santé numérique : surveillance, détection, gestion

Diagnostic : imagerie médicale

Détection des tendances épidémiologiques

Prédiction des épidémies et des flambées de maladie

Planification des ressources de santé



Mission Critical Systems

Renseignements militaires

Prédiction des comportements / scénarios complexes

Aide à la prise de décision

Cybersécurité : données sensibles

Cybersécurité : systèmes d'armes

Meilleure connaissance du terrain

Réseaux de communications résilients



Aviation

Propulsion alternative

Maintenance prédictive et analytique



Lanceurs spatiaux

Services de lancement à faible coût

Méga constellation de satellites



Mobilité

Véhicules autonomes

Économie circulaire et durabilité



Finance

Paiements par carte bancaire

Trading haute fréquence

Three strategic priorities: developing data processing digital infrastructure in France, exporting French excellence in digital network infrastructure, and adapting the European regulatory framework to new global technological dynamics.

At the national level, investing in data processing infrastructure is a strategic priority needed to close the gap between France and Europe on the one hand, and the United States and China on the other.

In a context where the global supercomputer market is growing by 40% annually in a strategic ‘race for computing power,’ many European countries, led by the United Kingdom, plan to increase their computing capacity twentyfold by 2030. Public exascale supercomputers like Jupiter and Alice Recoque will certainly increase Europe’s share of global computing power to 19% by 2026, but without additional investments, this share could drop to 5% by 2030. To close this gap, immediate investment is crucial, along with the involvement of European private sector players, who currently possess nearly ten times fewer GPUs than their American counterparts. At the same time, careful planning for the construction of data centers across the country is essential to accommodate these computing capacities while taking into account the economic and social interests of all stakeholders. However, France faces three major challenges. First, the electrical connection system, which operates on a «first come, first served» basis, fosters speculative practices: some players block network capacities with no real intention of building, thus slowing down strategic projects. Second, excessive administrative delays, which can reach 7 years or more, create a significant barrier. Complex environmental approvals, legal appeals, and the time required for obtaining building permits put France at a disadvantage compared to countries like Spain, where these timelines are significantly shorter. Finally, biased energy decisions favoring electricity exports limit investments, despite data center consumption being compatible with France’s power mix. Meanwhile, countries like the United Kingdom are attracting massive investments by simplifying their procedures and creating “AI growth zones,” with fast-track permits for data centers, thus enhancing their competitiveness.

At the national level again, the competitiveness and excellence of digital network infrastructure must be preserved and exported internationally, as it provides the foundation for any data-processing digital infrastructure project. Both public and private 5G notably represent an important strategic lever to strengthen the competitiveness of French companies, but also to create sovereign offerings relying on edge computing. However, in France, adoption remains limited, particularly in industrial settings, due to high costs and a lack of clear awareness of its added value. Exploiting this potential requires implementing Platform as a Service (PaaS) solutions to offer advanced 5G ‘off-the-shelf’ features at a lower cost. This is how the United States managed to compensate for the absence of telecom players in their market— using hyperscalers, which are now well-positioned in digital network infrastructure.

At the European level, a shift in scale is essential to be properly equipped with the regulatory tools needed for fair international competition. On the regulatory front, the fragmentation of the European market is a major disadvantage, with 60 active operators in Europe compared to only 4 in the United States. This disparity is compounded by structural differences: for example, T-Mobile integrates telecommunications into digital infrastructure, which is not the case in Europe. Moreover, the lack of reciprocity in access to public markets exacerbates this situation. While other countries systematically favor domestic or regional players, Europe deprives itself of the opportunity to promote truly sovereign procurement, thereby weakening its own industrial and strategic capacities.

Public Policy Recommendations

Recommendation 1

Build a sovereign offering for an end-to-end integrated cloud, network, edge, and IoT ecosystem, at both the French and European levels for uses with limited dependencies.

Recommendation 2

Immediately launch the construction of 6 additional exascale supercomputers, at the very least in France, to offer Europe a computing capacity of 9 exaflops.

Recommendation 3

Develop a comprehensive state planning strategy for electricity supply to integrate high-capacity data centers across France, anticipating future uses.

Recommendation 4

Capitalize on the launch of 35 turnkey sites to shorten the construction timelines for data centers with proven economic and social value by streamlining administrative procedures.

Recommendation 5

Launch a “task force” project to develop continuous training programs that bridge the gap between network infrastructure professions and data processing infrastructure professions.

Recommendation 6

Accelerate the deployment of 5G in industrial environments, at least for greenfield projects, by better targeting the needs of user companies (SMEs, mid-sized enterprises, and large companies).

Recommendation 7

Secure critical cable distribution nodes through a strategic policy of undergrounding both terrestrial and aerial cables.

Recommendation 8

Enhance the strategic value of French submarine cables through an integrated strategy combining enhanced surveillance, targeted investments in overseas territories, and increased influence in international bodies.

Recommendation 9

Adapt and streamline the European regulatory framework to enhance our competitiveness and foster the consolidation of players on a global scale.