

Europe stands at a pivotal moment in the global race for artificial intelligence leadership. With the EU AI Act now in force and the ambitious AI Continent Action Plan mobilizing billions in investments, including €200 billion through initiatives like InvestAI, the continent is betting heavily on becoming a hub for trustworthy, human-centric AI. Plans for AI Factories, Gigafactories, and massive compute infrastructure aim to triple data center capacity, foster sovereign models, and drive innovation in sectors from healthcare to manufacturing. Yet, beneath this surge of ambition lies a critical vulnerability: Europe's digital connectivity infrastructure lags behind what AI truly demands.

AI is not an isolated technology. Its power emerges from seamless, high-performance data flows. Training large models requires massive bandwidth to move petabytes of data; inference and real-time applications, such as autonomous systems, remote surgery, or industrial IoT, demand ultra-low latency, high reliability, and edge computing capabilities. Generative AI agents and cloud-based services amplify traffic exponentially, straining networks that must handle bursty, high-volume loads without compromise. Without robust connectivity, Europe's €200+ billion AI investments risk underperforming, confining breakthroughs to isolated data centers rather than scaling across the single market.

Unfortunately, Europe trails global peers in this foundational layer. While 5G coverage has reached impressive levels, 94% of households in some assessments by 2025, deployment of advanced 5G Standalone (SA) remains sluggish, hovering far below North American and Asian benchmarks. Fiber-to-the-home (FTTH) progress, essential for backhaul and enterprise connectivity, falls short of Digital Decade targets, with many regions delayed by regulatory hurdles, fragmented markets, and insufficient incentives for rollout. The State of the Digital Decade 2025 report underscores these gaps: despite €289 billion mobilized in national roadmaps, foundational connectivity like standalone 5G and gigabit networks lags, hindering broader AI adoption and sovereignty goals.

This shortfall is not merely technical, it is structural. Europe's telecom sector suffers from

fragmentation across 27 member states, with disparate spectrum policies, permitting delays, and competition rules that discourage the scale needed for heavy infrastructure investment. Operators face declining returns amid high capex demands, while over-reliance on non-EU cloud and compute providers exposes vulnerabilities in data sovereignty and resilience. Industry voices, including from Nokia, warn that without accelerated investment in 5G SA, fiber to enterprises, edge data centers, and AI-optimized IP-optical backbones, AI ambitions will falter. As one analysis notes, 75% of European business leaders believe current telecom limits their AI delivery, potentially delaying or constraining investments.

The stakes extend beyond economics. Trusted connectivity, secure, resilient, and aligned with European values, is indispensable for the “trustworthy AI” Europe champions. The AI Act emphasizes risk mitigation and fundamental rights; yet high-risk applications in critical infrastructure or healthcare cannot function reliably without networks that prevent breaches, ensure low-latency failover, and support secure data localization. Fragmented or under-invested networks invite cyber risks and geopolitical dependencies, undermining the very sovereignty the EU seeks through EuroStack concepts and domestic infrastructure.

Recent policy steps show promise. The proposed Digital Networks Act (DNA), unveiled in early 2026, aims to simplify rules, harmonize spectrum management, ease fiber transitions from copper, and reduce administrative burdens to unlock investment. By fostering a genuine single market for telecoms, potentially allowing consolidation for scale, the DNA could catalyze the billions needed. Complementing this, the Gigabit Infrastructure Act and extensions of security toolboxes to fiber and optics prioritize trusted networks. These reforms must go further: longer spectrum licenses, incentives for sharing, and public-private partnerships could accelerate deployment.

To truly win the AI race, Europe needs a bolder connectivity-first mindset. Policymakers should prioritize:

Europe's AI Dream is Wired for Failure Without Better Connectivity

- Massive targeted funding for advanced networks, perhaps channeling a portion of AI investment funds (from Horizon Europe, Digital Europe Programme, or InvestAI) into 5G SA, fiber, and edge infrastructure.
- Regulatory alignment that treats connectivity as strategic enabler for AI, not a separate silo, adopting competition policies that enable sustainable scale without stifling innovation.
- Security mandates ensuring all networks meet “trusted” standards, extending cybersecurity toolboxes and promoting European vendors.

Europe's edge lies in its commitment to ethical, regulated AI. But ambition without infrastructure is aspiration alone. By investing decisively in advanced, trusted connectivity, the EU can transform regulatory leadership into technological dominance, unlocking productivity gains, job creation, and a resilient digital future for all Europeans.