Why the future of AI depends on 5G

Conquering the network bottleneck that's killing your AI potential

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Artificial intelligence (AI) is ubiquitous for enterprises. It's running production lines, monitoring patients, and personalizing customer experiences in real time.

But AI's accuracy and speed depend directly on the network beneath it. When connectivity falters, models make mistakes, alerts arrive too late, and once-promising investments stall.

Today's enterprises are turning to 5G Wireless WAN (WWAN) to solve this problem. LTE networks can handle modest AI data but struggle with high-bandwidth, nonstop AI data streams. Fiber delivers the performance AI needs, but it's not always practical, as installation costs, outages, and limited reach can leave gaps. As workloads amplify, platforms and applications that rely on AI tools for decisions and input cannot afford to wait for failed connections to recover. That's where 5G WWAN complements fiber, serving as either a failover solution or the sole connection when fiber isn't feasible.

5G delivers up to ten times the bandwidth and five times lower latency than LTE. That speed not only makes real-time decisions possible, but it also keeps data moving smoothly and ensures reliable connectivity across the enterprise.

The 5G and AI relationship isn't just a one-way street — it's reciprocal. AI helps cellular networks detect and correct issues on their own, optimize traffic, and detect threats. Together, AI and 5G are stronger.

For CIOs and IT leaders, the choice is becoming unavoidable. To realize AI's potential, modernizing the network must come first.

The shift in AI adoption: From doubt to demand

AI is well on the path to becoming embedded in everyday enterprise operations. Manufacturers can now identify equipment issues before they lead to downtime. Financial institutions are using algorithms to identify fraud in real time. Retailers are personalizing pricing and promotions as customers shop.

This represents a cultural as well as a technical shift. Only two years ago, many executives were still asking, "Can we trust AI?" Today, the question is different: "Why isn't AI already doing this for me?" This change is accelerating adoption across industries.

Still, the path forward isn't always direct. IT teams are under pressure from every angle. Budgets are tight, teams are lean, and security threats are on the rise. Meanwhile, there's a constant demand for faster innovation, shrouded in a call to do more with less. The result is a wave of investment in AI, IoT, and stop-gap applications designed to deliver more value with fewer resources. But without resilient connectivity, those tools fail to deliver.

Ericsson's **2025 State of Enterprise Connectivity Report** found that 88% of U.S. businesses see 5G as critical to optimizing AI, and 93% believe advanced networks are essential to remain competitive.

For enterprises, the ROI from AI initiatives is directly tied to their network's ability to keep up. Scaling AI and modernizing the network can't happen in isolation.

The road is often easier for nimble, digital-native companies that can build with AI in mind from day one. Larger enterprises, however, often run into complexity. Legacy systems weren't designed for continuous data streams, and adding AI to outdated systems quickly exposes their limits. For most enterprises, the real obstacle isn't cost; it's the complexity of preparing legacy systems for AI.

93%

of U.S. businesses believe advanced networks are essential for competitiveness

9 out of 10 (88%)

U.S. businesses see 5G as critical to optimizing AI

Yesterday's networks aren't ready for today's AI

AI runs on massive volumes of data, moving fast and in real time. AI models learn in the cloud, where there's room to crunch the massive datasets that shape their intelligence. Once trained, they're deployed to the edge into cameras, sensors, and machines that need to make decisions instantly.

Legacy networks weren't built for this reality. Before AI, video represented the heaviest traffic most enterprises encountered. Many AI workloads now surpass what networks have previously experienced. Instead of short bursts of data, they create consistent "elephant flows" — massive streams that never stop.

When the network can't keep up, the consequences can be immediate:

> ⚠ A medical alert arrives too late to help.

> ⚠ A production line misreads a fault and shuts down.

> ⚠ A compliance system misses a data point, leaving the business exposed.

Each of these failures carries a cost, ultimately eroding the very ROI AI was meant to deliver.

Bandwidth economics favor edge processing, which significantly lightens WAN load while enhancing real-time application performance. When data is processed locally — whether in a plant, a delivery truck, or a patient's room — it reduces delay, limits backhaul traffic, and improves data control.

But edge processing is only as strong as the connectivity around it. Without a fast, reliable, and secure network, the edge becomes another bottleneck. That's where 5G makes the difference.

5G: An all-in-one solution built to deliver the performance AI depends on

Older networks lack the capacity to handle AI's continuous data streams, but that's exactly what 5G was built for. 5G reduces latency to near real-time, so a robot on a production line or a monitoring system in a hospital room can react instantly. Its bandwidth is designed for continuous streams — not just bursts, but hours of nonstop video and sensor data. Coverage extends beyond a single site, keeping fleets, retail branches, and mobile teams online. And, unlike fiber, which can take months to deploy, 5G can go live in just hours.

Security is part of the package, too. Private 5G networks and zero trust overlays on top of the macro 5G network keep workloads protected. Hybrid WAN setups with automatic failover to cellular add resilience.

Cloud-based management makes it easier for lean IT teams to see and control what's happening across distributed sites. Without centralized oversight, every location would be a one-off headache for IT. Cloud-managed solutions connect every endpoint within one dashboard so that teams can manage performance and security everywhere at once.

When 5G meets AI, the network itself gets smarter. By analyzing continuous streams of device and network data, autonomous AI systems can detect performance anomalies early and trigger corrective actions, reducing outages and maintaining uptime. Virtual network "experts" and agentic AI assist IT teams by identifying anomalies, automating fixes, and optimizing performance across sites to keep uptime high even with limited staff. In fact, **90% of U.S. enterprises** say AI improves network security by automatically detecting issues, and 89% report that it helps upskill network teams by automating analysis and reducing manual work.

As 5G and AI converge, networks evolve from reactive to self-optimizing systems. They learn, adapt, and secure themselves in real time. The result is higher performance, lower costs, and greater resilience across the enterprise.

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AI and 5G: Where intelligence meets performance

AI and 5G don't just work side by side; they depend on each other. One doesn't work to its full potential without the other.

5G gives AI the connection it needs to scale successfully, including:

Speed and responsiveness. Low-latency 5G enables split-second decisions, such as an autonomous vehicle avoiding a collision or a factory robot adjusting mid-task.

Massive bandwidth. AI models thrive on video, sensor, and IoT data. 5G networks were designed to carry these kinds of continuous, high-volume data streams.

Coverage and mobility. AI spans branches, fleets, and remote sites. 5G ensures that intelligence can move with the enterprise.

AI, in turn, helps 5G networks operate more efficiently in the real world by:

Supporting lean IT teams. AI-powered virtual experts can quickly guide administrators through complex tasks and automate routine troubleshooting that would otherwise take hours, so small teams can manage large networks with ease.

Catching problems early. By spotting subtle performance patterns, AI can warn network administrators of issues or fix them before they become outages.

Strengthening defenses. IT teams use AI to quickly identify any unusual network activity so they can eliminate security threats before they have an opportunity to harm the network.

Taken together, these capabilities mean the network becomes smarter the more AI is applied. It's about more than just keeping critical operations running smoothly. It's about creating an environment where high-stakes workloads can run without disruption.

Consider a hospital monitoring patients around the clock. The applications collecting and analyzing vitals depend on 5G's bandwidth and resilience. At the same time, the hospital's IT team is leaning on AI to keep that very network secure and performing reliably. Or imagine a retailer streaming video from dozens of cameras across hundreds of stores. Without 5G, the feeds would choke the network. Without AI, IT would struggle to sort the signal from the noise.

Investing in 5G isn't just about enabling AI. It's about creating networks that can adapt and improve because of AI.

And investing in AI isn't just about smarter applications. It's about building the intelligence that will keep tomorrow's networks running. When networks run smarter, AI projects scale faster and deliver stronger returns.

Modernize the network.
Unlock AI's ROI.

5G WWAN and edge AI provide the stability and security enterprises need to scale AI with confidence. Ericsson delivers that foundation with Wireless WAN, private 5G, and network slicing unified under the Ericsson NetCloud platform and strengthened with AI-enabled automation.

The AI opportunity is here, but only if your network can support it. Modernize with 5G WWAN to unlock the full ROI of AI.

Learn more about enterprise wireless solutions