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Built to last: Infrastructure in the age of AI

Artificial intelligence is the most disruptive force in markets right now. Yet the technology still relies on physical assets to power, connect and support its growth. Infrastructure's physical assets – power grids, toll roads, water systems – cannot be replicated or displaced by AI, making revenue streams more durable than in many other sectors. AI adoption can, however, still impact infrastructure assets by delivering operating expenditure savings through network optimization, anomaly detection and process automation.

It may also increase demand for many infrastructure assets. Those directly exposed to the AI ecosystem, such as data centers and power providers, are first order beneficiaries. But other infrastructure assets may also benefit from the uplift to GDP growth that AI-driven productivity gains can provide.

Why infrastructure holds up: HALOID

In a world where AI is disrupting so much, a natural question is: What actually holds up?

Infrastructure stands out because it has physical assets, provides essential services, and generates revenues that are often contractually backed or regulated. The HALOID framework, an extension of the more familiar HALO framework, captures this:

HA

Hard Assets

Infrastructure assets are capital-intensive, long-lived and location-specific. They are difficult to replicate and often regulated, something that helps protect and stabilize cash flows.

LO

Low Obsolescence

Infrastructure assets deliver real-world services with limited substitutes. AI can enhance how infrastructure operates, but it cannot replace the need for power networks, water systems or transport links.

ID

Inelastic Demand

Revenues are often supported by long-term contracts, regulated frameworks or strong market positions – driving more predictable cash flows.

How AI can add value

HALOID explains why AI is unlikely to displace infrastructure. But here's what AI can do – increase demand for many infrastructure assets, as well as improve how assets are run, and potentially drive 5 percent to 30 percent operating cost savings[1] through:

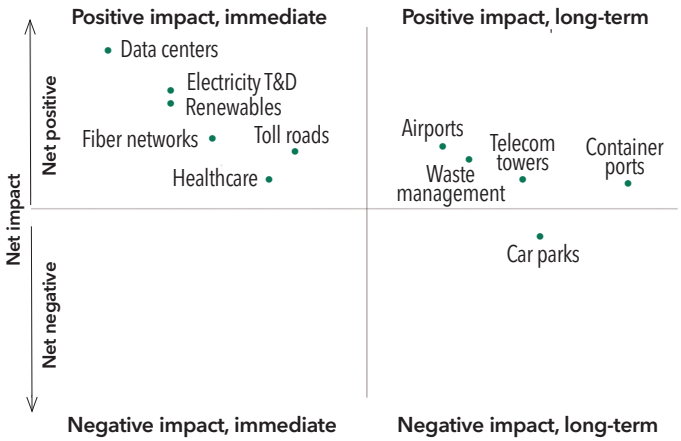
- Predictive maintenance that identifies issues before failure
- Real-time monitoring to reduce outages
- Smarter network and capacity optimization
- Automation that lowers labor intensity
- Better forecasting and resource allocation

The potential benefits to investors are compelling, with growing demand, durable contractual income and AI-driven operational efficiencies supporting multiple potential drivers of value creation.

Where AI is creating opportunity and risks to watch

The impact from AI is not uniform across infrastructure – some sectors will see a benefit in the near-term, while for others the demand uplift may be more medium term, once the productivity gains from AI become apparent. **Most infrastructure sectors stand to benefit from AI. For investors, the question is timing.**

Expected AI impact by infrastructure sector



Source: Macquarie Asset Management (May 2026)

Digital infrastructure

AI is supporting demand across data centers, fiber networks and telecom towers, as compute-intensive applications require more power, faster data movement and lower-latency connectivity. For data centers, the best locations increasingly come down to reliable power, energy efficiency and connectivity, while fiber networks are needed to move large volumes of data quickly and reliably. Over time, latency-sensitive AI applications may also support denser networks and small cell infrastructure in urban areas.

The key risks are asset-specific. AI-focused data centers may become less competitive over time if power and cooling requirements evolve faster than sites can adapt, particularly where there is limited room to scale or weak location advantage. For towers, AI-driven network optimization may allow mobile operators to get more capacity from existing assets in the near term, potentially delaying the need for new builds.

Electricity transmission and distribution

The increasing demand for power is supporting a new cycle of grid investment. The U.S. spent $115 billion on transmission and distribution in 2025 – nearly a quarter of the global total – and is expected to spend another $1 trillion between 2026 and 2035. Europe is projected to need about $1.2 trillion over the same period.[2]

The main constraint is execution. The time to connect new projects to the U.S. grid has increased from under two years in 2008 to around four to five years on average in 2025.[3]

Renewables

AI-driven data center growth is adding to electricity demand. Rapid hyperscaler data center build-out is creating a large and durable new pool of electricity demand, supporting stronger power purchasing aggrement (PPA) pricing. In the U.S. (home to more than half of global data center capacity) power demand from data centers is projected to increase from 176 terawatt-hours (TWh) to 429 terawatt-hours between 2025 and 2034, creating strong pricing tailwinds for renewables developers. Reflecting this shift, the top 10 largest data center developers accounted for 56 percent of clean power procurement by corporations in the Americas region via PPAs in 2025.[4] Higher and more volatile power prices are also increasing demand for on-site generation and storage, but grid access remains the main constraint, with interconnection queues and permitting delays slowing deployment globally.

Transport

AI's impact on transport is likely to be more indirect than in digital infrastructure or utilities, but still significant. Airports and toll roads are both exposed to GDP growth and mobility, so stronger AI-driven productivity could support long-term demand. Container ports may also benefit from AI-enabled automation, which can improve throughput and lower per shipment costs.

The key risks vary by asset type. For airports, business travel remains the main uncertainty, although stronger employment and more discretionary leisure time could help offset any moderation in corporate travel. For toll roads, AI-enabled remote work may reduce commuter frequency, even if autonomous vehicles expand the user base over time. For ports, reshoring is the main longer-term risk, but AI and robotics would need to make domestic production cost competitive with offshore manufacturing before import volumes are meaningfully affected.

Diversified infrastructure

- **Healthcare:** AI improves diagnosis accuracy and referral rates across imaging, surgery, oncology and cardiology – supporting higher volumes. AI-enabled screening and clinical decision support can also expand the treated population for underdiagnosed conditions, broadening the revenue base.
- **Waste management:** AI is likely to be a net positive for waste management, although the impact will vary across the value chain. The biggest opportunity is in recycling facilities, where AI-powered sorting systems can identify materials by type, color and composition more accurately than manual sorting. This can lower the cost per ton processed and improve the quality of recycled materials. Collection has already benefited from route optimization and process efficiencies, while disposal may face pressure over time if better sorting and higher recycling rates reduce the volume of waste sent to landfill or waste-to-energy facilities.
- **Car parks:** Core demand is intact. Long-term disruption risk is real but also location-specific. AI-enabled mobility, including ride-hailing optimization and autonomous vehicles, may reduce the time vehicles spend parked, although it is unlikely to eliminate parking demand entirely. The impact will depend heavily on location and user base.

The bottom line: The infrastructure investment case extends beyond AI

Data centers attract headlines, but the infrastructure opportunity runs much deeper. Global electricity demand is forecast to increase due to rising consumption from industry, electric vehicles, appliances, space cooling and data centers, with data center electricity demand growth accounting for less than 10 percent of global electricity demand growth between 2024 and 2030.[5] Decarbonization, deglobalization and demographics – alongside digitalization – are together driving a $151 trillion global investment need through 2050.[6]

These aren't short-term cycles. They reflect lasting changes in how economies are built, how people live and how essential services are delivered. For individual investors, these characteristics may offer potential portfolio benefits, including stable yield, consistent risk-adjusted returns and downside mitigation.

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CORPORATE OVERVIEW

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Sources

1. Macquarie Asset Management (June 2026). Represents a summary across all sectors, calculated based on proprietary research.

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