AI Data Centers and Airlines: Extraordinary Growth Doesn't Guarantee Extraordinary Returns

Mathew M. Hubbard | October 29, 2026

Here's something I find interesting about the early airline industry. It wasn't passengers who initially made commercial aviation economically viable. It was mail.

In the 1920s, some early American airlines earned as much as 95% of their revenue carrying mail under government contracts. Passenger traffic alone couldn't support the aircraft, pilots, routes, and infrastructure required to operate.

The mail paid much of the bill. Passengers came along for the ride.

I've been thinking about that while watching the enormous investments being made in AI data centers.

In a companion article, I compared AI data centers to semiconductor fabs and explored why 50 years of semiconductor boom-bust cycles may offer a warning for AI infrastructure investors. But airlines offer another interesting comparison. And it goes well beyond the cost of aircraft or the importance of filling seats.

The Business That Justifies the Infrastructure

Early airlines used mail revenue to support infrastructure that also transported passengers. Even today, freight carried in the belly of passenger aircraft can make an important contribution to route profitability. Sometimes that additional revenue can make the difference between a route that makes economic sense and one that doesn't.

Hyperscalers aren't entirely different. Microsoft, Google, Amazon, and Meta aren't simply building data centers to sell computing capacity. They're investing in infrastructure that supports much larger businesses.

Cloud computing, software, advertising, search, and other services can justify investments that might not make sense for a company whose only business was renting GPU capacity.

The financial mechanisms aren't identical. Early airlines had contractual mail revenue, while hyperscalers capture value through a combination of direct revenue, integrated services, and anticipated strategic benefits. But the underlying point is similar.

The economics of the most visible service don't necessarily explain why the infrastructure exists.

And that makes the distinction between hyperscalers and independent AI infrastructure providers particularly important.

Capacity Is Expensive. Unused Capacity Is Worse.

Once an airline commits to operating a flight, much of the cost is already committed. The aircraft, crew, airport arrangements, and much of the operating expense don't disappear because some seats remain empty.

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Airlines use sophisticated revenue management systems, but the basic economics remain. Selling additional capacity above its incremental cost can make sense even when the price contributes relatively little toward recovering the original capital investment.

AI infrastructure operators face a similar problem. Once billions have been invested in accelerators, networking, facilities, and power infrastructure, unused computing capacity generates no direct revenue.

An operator may rationally accept lower prices rather than leave expensive equipment idle. When enough operators make that same decision, pricing pressure can spread across the industry.

There's also an important difference. Commercial aircraft can remain productive for decades. AI accelerators may become economically uncompetitive much sooner as newer generations deliver better performance at lower costs per unit of computation.

Older accelerators can certainly find second lives supporting less demanding workloads, but that doesn't guarantee they'll recover their original investment. The pressure to monetize capacity while it remains competitive could be substantial.

A Century of Growth. But What About Returns?

Commercial aviation has been one of the great technological and economic successes of the past century. It transformed global transportation, connected economies, and made air travel accessible to billions of people. Yet the financial returns have been remarkably disappointing.

According to McKinsey, the global airline industry's aggregate return on invested capital has remained below its cost of capital since at least 1996, the earliest year covered by its research. That's nearly three decades of evidence that enormous growth and economic importance don't necessarily translate into adequate investor returns.

And the problem hasn't disappeared. In its June 2026 outlook, the International Air Transport Association projected airline return on invested capital of approximately 4.3%, compared with an estimated cost of capital of 8.5%.

Warren Buffett recognized this problem long ago. In Berkshire Hathaway's 2007 shareholder letter, he described airlines as an example of a business that can grow rapidly, require enormous amounts of additional capital, and still earn little or no money.

What makes his observation particularly interesting is what happened afterward. Despite that assessment, Berkshire subsequently invested billions in the four largest U.S. airlines. In 2020, Buffett sold those holdings at a substantial loss as the pandemic fundamentally changed his outlook for the industry.

Even an investor who understood the structural challenges was willing to reconsider the opportunity—and ultimately concluded that the economics had changed enough to exit. It's a useful reminder that compelling demand forecasts and attractive investment returns are not necessarily the same thing.

The airline industry can generate positive accounting profits while still failing to earn an adequate economic return on the capital invested. That doesn't mean every airline loses money. Some operators have built strong competitive positions and delivered attractive returns.

But the industry's aggregate economics tell a very different story from its extraordinary growth in passenger demand. The problem was never simply whether people wanted to fly. It was the cost of

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supplying capacity, the competitive pressure to keep that capacity utilized, and the difficulty of retaining enough of the value being created.

The Hyperscaler Advantage Cuts Both Ways

The largest AI infrastructure investors have an advantage that independent compute providers may struggle to match. They don't necessarily need every data center to generate attractive standalone returns.

The infrastructure can support profitable software, cloud, advertising, and other businesses. Proprietary technology, customer relationships, and integrated platforms may also create competitive advantages that airlines generally don't possess to the same degree. Those differences matter.

A hyperscaler could earn excellent overall returns even if the direct economics of its computing infrastructure were relatively unattractive. But that same advantage creates a problem for independent operators.

A hyperscaler may rationally continue investing because the infrastructure generates value elsewhere in its business. An independent provider whose revenue comes primarily from selling compute capacity has fewer ways to justify the same investment.

If computing capacity becomes more widely available and customers can obtain comparable performance at lower prices, the independent operator may face significant pressure on margins and utilization.

Not all compute is interchangeable. Performance, networking, power availability, software integration, and service quality all matter. But differentiation doesn't eliminate competition. And competition doesn't guarantee that the companies financing infrastructure will capture a proportional share of the value it creates.

A Great Industry Isn't Necessarily a Great Investment

I expect AI to become an increasingly important part of the global economy. I also expect some companies to make extraordinary amounts of money from it.

What I'm less convinced of is that the companies supplying the infrastructure will necessarily be among the biggest beneficiaries. We've seen industries transform the world while delivering disappointing returns to the people financing their expansion.

Commercial aviation is one example. Semiconductor manufacturing provides another lesson.

The semiconductor industry demonstrates that extraordinary demand growth doesn't eliminate boom-bust cycles. The airline industry demonstrates that a century of growth doesn't guarantee adequate returns on invested capital.

AI infrastructure may be different. But I think the burden of proof should be on those arguing that it is.

Because creating enormous value for customers and capturing that value for investors are two very different things.

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Companion article

AI Data Centers Are Semiconductor Fabs on Steroids. Why Would the Boom-Bust Cycle Be Different? — mathewhubbard.com (insert permanent URL after publication).

Sources and further reading

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