



WHAT I READ THIS WEEK

The Purchase Order

A forecast made headlines. It is really an order slip for equipment that is already sold out.

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BOTTOM LINE UP FRONT

McKinsey says AI will need 156 gigawatts of data center capacity by 2030. Today that number sits near 44. The forecast is not a prediction about software. It is a purchase order for physical equipment, and much of that equipment is already sold out for years.

A number went around this week. McKinsey projects 156 gigawatts of AI data center capacity by 2030, roughly 125 of those gigawatts added between now and then. The line traveling the internet shortened it to "AI demand reaches 156GW." Close enough for a headline, but worth saying precisely: 156 is the AI slice of data center capacity in McKinsey's middle scenario, not a hard reading of all AI power draw. Their high case adds far more. Their low case adds about half.

We did not spend our week debating the number. We spent it on what has to physically exist for the number to come true. Because a forecast like this is not a mood. It is a bill of materials.

The gap is the whole story

WHERE WE ARE VERSUS WHERE THE LINE GOES

AI-workload capacity is around 44 gigawatts today. The forecast calls for 156. That is not growth. That is close to a quadrupling in five years, and it lands on top of a system that was built for steady, predictable, decades-long planning cycles. The demand shows up fast. The supply that answers it does not.

Here is the part the headline skips. The chips are not the constraint. Nvidia is shipping. Of the roughly 12 gigawatts of US capacity announced for this year, only about a third is actually under construction. The rest waits. It does not wait on silicon. It waits on the boring gray equipment that turns grid power into something a server can use.

*In a gold rush the reliable money is rarely in the gold.
It is in the pick, the shovel, and the road the miners cannot avoid.*

Four gates, and who stands at each

THE BOTTLENECKS, AND THE COMPANIES INSIDE THEM

Every gigawatt in that forecast has to pass through four gates. None is optional. None belongs to a single AI company. This is the road, and the toll gets collected no matter which model wins.

1. Generation. Someone has to make the power.

A data center is useless without a contracted supply of electricity. This is why nuclear and independent power producers now sign twenty-year deals directly with hyperscalers.

Who is here: Constellation Energy, Vistra, and Talen have all signed multi-gigawatt power agreements with Amazon, Meta, and Microsoft. Bloom Energy sells a different answer, on-site fuel cells that skip the grid entirely, and took a multi-gigawatt order from Oracle to prove it.

2. The grid. Someone has to build the road to the door.

Generation is worthless if you cannot move it. Transmission lines and substations are the connective tissue, and building them is slow, permitted, physical work.

Who is here: Quanta Services is the contractor that actually builds transmission lines and substations at scale, carrying a backlog measured in the tens of billions.

3. The equipment. Someone has to make the gear that is sold out.

This is the tightest gate. High-voltage transformers that took 24 to 30 months to deliver before 2020 now take as long as five years. Electrical gear is under ten percent of a data center's cost and close to one hundred percent of the bottleneck.

Who is here: GE Vernova, Siemens Energy, Hitachi Energy, ABB, Schneider Electric, and Eaton make the transformers and switchgear. Prysmian and its peers make the high-voltage cable. Order books are full and lead times are the moat.

4. The last inch. Someone has to feed power to the chip.

Inside the building, voltage steps down again and again until it reaches a GPU running near one volt. New 800-volt architectures are reshaping this layer, and the specialists in it are seeing order growth to match.

Who is here: Vertiv covers power and cooling together. Vicor, Monolithic Power, and Infineon deliver the final conversion to the processor. Backlogs here are growing quarter over quarter.

Where scarcity turns into pricing power

THE PATTERN WE ACTUALLY WATCH

As we wrote last week, we do not name a winner among the robots. We do not name one here either. But the structure is worth stating plainly. When a thing is scarce, takes years to build, and has a customer with a signed order and no substitute, the maker of that thing sets the price. That is the whole logic. A five-year lead time is not a problem for the company holding the order book. It is the moat.

The risk runs the other way too, and we hold both. If the 156 turns into the low case, or capital pulls back, the same backlog that looks like a moat can soften. A forecast is a scenario, not a promise. The discipline is to own the constraint that holds up across scenarios, not the one that only works if the most optimistic line proves true.

THAT IS WHAT WE READ THIS WEEK.

The headline was a number. The business is the bill of materials underneath it, and the companies that were already sold out before the number made news. We would rather own the road than guess which traveler arrives first.

Otto Analytics

THE WEEKLY READ RETURNS NEXT WEEK.

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