

Vertiv: How Fast Should Capacity Grow?

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The decision

On August 1, 2024, Vertiv Holdings Co. had just filed its second-quarter Form 10-Q. Orders had accelerated sharply, and management had raised its full-year outlook. June backlog stood at \$7.0 billion. At the same time, the company was adding manufacturing capacity, customers were managing construction and power constraints, and Vertiv's backlog could be canceled, reduced, or deferred.

Assume CEO Giordano Albertazzi has asked the operating and capital-allocation team to set a capacity plan for the next 12 to 24 months. Should Vertiv proceed with the capacity investments already underway and release further spending in stages; accelerate broad, product-specific expansion to protect delivery and customer relationships; or prioritize smaller, flexible additions that can serve more than one product or demand path? What evidence should trigger each next commitment?

This is a hypothetical management assignment. Vertiv had not disclosed this particular internal decision or a project-level investment proposal by the cutoff. The company's \$175-200 million full-year capex outlook includes capitalized software and spending for maintenance as well as growth and innovation. It is not a discretionary expansion budget.

Vertiv and the infrastructure build-out

Vertiv supplies critical digital-infrastructure technologies and services, including power management and thermal-management systems. Its products support data centers and other applications where continuous availability matters. The company serves customers through a global manufacturing and service footprint. Its portfolio includes power equipment such as switchgear and busbar systems, integrated solutions, and air- and liquid-cooling products.

The growth opportunity appeared to be changing quickly. Artificial intelligence workloads can require dense computing and substantial power and cooling, while data-center construction depends on factors outside equipment suppliers' control. Vertiv management described AI-related pipeline and orders for shipment in 2025 and later. It also said customers were managing construction and power availability constraints. Vertiv did not disclose the dollar value or share of company orders or revenue attributable to AI, or the probability that the cited pipeline would convert.

The sector outlook was also wide. The International Energy Agency estimated that data centers, AI and cryptocurrencies used about 460 terawatt-hours of electricity in 2022. Its 2026 scenarios ranged from 620 to 1,050 TWh, with a base case just above 800 TWh. The range reflected uncertainty about technology deployment and efficiency. It included cryptocurrency and

described electricity consumption, not data-center construction, Vertiv's addressable market, or Vertiv revenue. [1]

Demand is rising faster than reported sales

For the quarter ended June 30, Vertiv reported 57% organic orders growth year over year and 10% sequentially. Trailing-twelve-month orders were 37% above the prior-year period. The company reported a quarterly book-to-bill ratio of 1.4x. Those three measures describe order activity on different bases; they do not represent sales growth or verified conversion of orders into revenue.

Net sales were \$1.953 billion, up 13% from the prior-year quarter; organic sales growth was 14%. GAAP operating profit was \$336 million. Adjusted operating profit was \$382 million, and adjusted operating margin was 19.6%, 510 basis points above the prior-year period. Management attributed adjusted margin growth to higher volume, favorable price-cost, and manufacturing and procurement productivity, partly offset by research and development and capacity investment. The cited discussion did not quantify each factor's contribution. [2]

Exhibit 1. Q2 2024 demand and results

Measure	Q2 2024	Comparison / definition
Organic orders growth	57%	Year over year; company-defined, excluding foreign exchange
Organic orders growth	10%	Sequentially
TTM orders growth	37%	Versus prior trailing twelve months
Book-to-bill	1.4x	Quarterly company-reported ratio
Net sales	\$1,953m	+13% reported; +14% organic year over year
GAAP operating profit	\$336m	Quarterly reported amount
Adjusted operating profit	\$382m	Company-defined non-GAAP measure
Adjusted operating margin	19.6%	+510 basis points year over year

Source: Vertiv Q2 2024 results release, July 24, 2024, opening highlights, results discussion and adjusted free-cash-flow/liquidity section. Organic orders exclude foreign exchange. The company defines adjusted measures in the release and reconciles adjusted operating profit to GAAP. Orders, sales and book-to-bill should be read separately. [2]

Management cautioned that the timing of larger AI-related orders could affect quarterly order flow and said trailing-twelve-month comparisons were more representative of continued growth. The distinction mattered. One quarter's order growth could signal a durable step-up, but could also reflect large projects and timing. Vertiv's disclosures did not identify order size by customer, end market, product, or expected shipment date.

Backlog: visibility with qualifications

Vertiv's July 24 presentation reported \$7.0 billion of backlog at June 30, up approximately 47% year over year and 11% from the first quarter. The first-quarter release had reported \$6.3 billion at March 31. The Q2 presentation also stated that AI-related demand was building pipeline and orders for shipment in 2025 and later. Neither backlog nor pipeline was recognized revenue.

At December 31, 2023, Vertiv's backlog was \$5.527 billion, compared with \$4.754 billion a year earlier. The company said the majority was considered firm and expected to ship within one year. It attributed roughly \$0.8 billion of backlog increase since 2022 to longer lead times and continued strong demand, including orders placed before it could fulfill them. Vertiv also warned that backlog was not necessarily indicative of future sales: customers could in some circumstances cancel, reduce, or defer orders, and the timing of bookings and sales was unpredictable. [3]

Exhibit 2. Backlog and order context

Date or measure	Reported amount	Change / context
December 31, 2022 backlog	\$4.754bn	Company-reported year-end estimate
December 31, 2023 backlog	\$5.527bn	+16.2% derived year over year; management rounded the increase since 2022 to \$0.8bn
March 31, 2024 backlog	\$6.3bn	Q1 release figure
June 30, 2024 backlog	\$7.0bn	+~47% year over year; +~11% sequentially, rounded management figures

Sources: Vertiv 2023 Form 10-K, business/backlog discussion, printed p. 6; Q1 2024 results release; Q2 2024 results presentation, slide 5. The 16.2% figure is calculated as $(\$5.5267\text{bn} - \$4.7544\text{bn}) / \$4.7544\text{bn}$. Vertiv's 10-K describes cancellation, reduction and deferral risk and says backlog is not necessarily indicative of future sales. The rounded June figure is not a precise order-conversion forecast. [3, 4, 5]

The backlog could be evidence of a supply bottleneck and unmet demand. It could also include projects whose timing or ultimate scope remained uncertain. Management's comments about construction and power constraints could delay customer projects even when demand was real. Public materials did not disclose backlog aging, cancellation rights by order cohort, customer deposits, shipment schedules, or the fraction tied to funded and grid-connected projects.

Capacity is already changing

Vertiv reported that it had approximately doubled manufacturing capacity for switchgear, busbar and integrated solutions since acquiring E&I in 2021. It opened a thermal-management facility in Pune in 2024 and said it planned to continue investing globally. In its Q2 presentation, management said the Americas modular footprint was four times its prior-year level and that Americas thermal production capacity had increased significantly since year-end 2023. The presentation provided no absolute baseline, utilization rate, or realized throughput for those comparisons. [4, 5]

First-half capital expenditures plus capitalized software were \$81.5 million. The full-year expectation was \$175-200 million. The implied remaining amount, \$93.5-118.5 million, is

arithmetic based on the forecast; it is not a separately approved expansion tranche. The filing said capex and software spending covered maintenance and growth or innovation, without a project-level split. [4]

At June 30, Vertiv had \$579.7 million in cash, \$2.108 billion of term-loan principal, \$850 million of notes, and a \$600 million asset-based revolving credit facility with no borrowings. Reported availability after letters of credit was \$585 million, subject to customary conditions. Q2 operating cash flow was \$378 million, and management-defined adjusted free cash flow was \$333 million. Net leverage was 1.8x. These figures provide financing context, but do not establish the return of additional capacity. [2, 4]

Exhibit 3. Capital and liquidity at the cutoff

Measure	Amount	Interpretation
First-half capex plus capitalized software	\$81.5m	Actual through June 30; combined measure
2024 capex plus capitalized software outlook	\$175-200m	Management forecast; includes maintenance, growth/innovation and software
Implied remainder of outlook	\$93.5-118.5m	Derived subtraction; not a disclosed discretionary growth budget
Cash at June 30	\$579.7m	Reported balance
Term-loan principal	\$2,107.5m	Reported principal outstanding
Notes	\$850m	Reported principal outstanding
ABL availability after letters of credit	\$585m	No ABL borrowing; customary conditions apply
Q2 operating cash flow / adjusted free cash flow	\$378m / \$333m	Quarter; adjusted FCF is non-GAAP

Source: Vertiv Q2 2024 Form 10-Q, MD&A “Capital Resources and Liquidity” and balance sheet; Q2 results release for adjusted free cash flow and leverage. The \$93.5-118.5m remainder is derived from the full-year forecast less first-half spending. [2, 4]

Three paths, each with a cost

The team could preserve the current pace, use supplier, staffing and process measures to raise output, and release additional capacity spending only after staged reviews of order conversion, lead times and project readiness. This path would preserve the option to wait for information and limit exposure to capacity that could be hard to redeploy. Its costs could include longer delivery times, customers qualifying other suppliers, and lost contribution if demand is durable.

It could accelerate specialized capacity across products and sites. That could relieve bottlenecks more quickly, support customer commitments and protect Vertiv's position while competitors also invested. But specialized assets, hiring and supplier commitments could be partly irreversible. Broad expansion could also arrive after project schedules changed, or create idle capacity if orders were deferred or canceled.

It could emphasize smaller or more flexible additions, such as modular equipment, common manufacturing steps, supplier reservations, cross-training, or investments that can support multiple product configurations. These could preserve options as product mix develops. Flexibility has a cost: it may require more expensive equipment, engineering work, qualification, or lower efficiency than a dedicated line. Vertiv's public disclosures did not say how readily its capacity could shift among products, what that flexibility would cost, or whether customer qualification allowed such switching.

Research on irreversible investment suggests that waiting can have value when uncertainty resolves over time, while delay may sacrifice returns or competitive position. In a theoretical review, Robert Pindyck explains how irreversibility and uncertainty can change both the threshold and size of capacity investments. These results depend on assumptions about uncertainty, asset redeployability, competition, and the ability to defer. They do not supply a Vertiv-specific hurdle rate or answer. [6]

Competitors also signaled investment. Eaton reported Electrical Americas rolling twelve-month orders up 11% and backlog up 29% organically year over year; Electrical Global orders were up 7% and backlog up 16%. Eaton said it was investing in capacity. Schneider Electric described strong North American data-center demand, supply-chain challenges, and added manufacturing capacity. These measures differ in business mix and definition. They do not establish Vertiv's market share or a like-for-like competitor capacity comparison. [7, 8]

The operating choice

The decision is not simply how much capital to spend. Vertiv would need to choose which product and location constraints to address, how much capacity to commit before customer projects were ready, and what evidence would cause management to continue, pause, or redirect investment. A staged plan might use order aging and cancellation, customer project funding and power availability, lead time, utilization, yield, contribution margin, and supplier and labor readiness as gates. Yet internal data on these measures was not included in the public record.

At the August 1 cutoff, what pace and form of capacity expansion should Vertiv pursue over the next 12 to 24 months? What should be the first commitment, what assumptions support it, and what observable evidence should trigger the next tranche?

Sources

1. International Energy Agency, *Electricity 2024: Analysis and forecast to 2026* (January 2024), chapter 2, pp. 30-31 and chart notes. [Report](#).
2. Vertiv, “Vertiv Reports 57% Organic Orders Growth ... in Second Quarter; Raises Full Year 2024 Outlook” (July 24, 2024), opening results, results discussion, adjusted free cash flow and liquidity, and guidance. [Release](#).
3. Vertiv Holdings Co., 2023 Form 10-K, filed February 23, 2024, business/backlog discussion, printed p. 6, and backlog risk factor. [SEC filing](#).
4. Vertiv Holdings Co., Q2 2024 Form 10-Q, filed August 1, 2024, MD&A “Outlook and Trends” and “Capital Resources and Liquidity,” segment discussion and balance sheet. [SEC filing](#).
5. Vertiv, *Second Quarter 2024 Results Presentation* (July 24, 2024), slide 5, “Customer demand, operations, and procurement update.” [Presentation](#).
6. Robert S. Pindyck, “Irreversibility, Uncertainty, and Investment,” *Journal of Economic Literature* 29, no. 3 (1991), pp. 1110-1148, especially pp. 1111-1121 and 1136-1141. [Article](#).
7. Eaton, “Eaton reports record second-quarter 2024 results with continued growth” (August 1, 2024), Electrical Americas and Electrical Global results. [Release](#).
8. Schneider Electric, *2024 Half Year Results* (July 30, 2024), North America discussion. [Release](#).