

Lockheed Martin - Turning Backlog into Deliveries

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Case convention: The decision and alternatives are hypothetical. Company and government statements are attributed; no private management deliberations are represented.

The decision

Imagine you advise Lockheed Martin's leadership on the next increment of production-response investment. The company has a substantial reported backlog, but the public evidence also points to supplier shortages, F-35 delivery delays, longer build times, and risks from labor and supplier costs. Management says it is evaluating capacity increases at selected operations while pursuing production efficiency and resilience. [S1, S2, S3]

Your task is to recommend where and how Lockheed should prioritize the next increment of effort and investment:

1. Expand **owned capacity** through equipment, tooling, facilities, or additional production-line resources.
2. Improve **process, workforce, and quality** through production methods, training, retention, and reduced rework.
3. Increase **supplier and subcontract capacity** through supplier development, qualification, or carefully chosen external capacity.

The alternatives frame a classroom decision; they are not a disclosed Lockheed budget or plan. You may recommend a sequence or combination, but explain what would trigger each commitment and how the company would know it is working. No public figure supplies an investment budget, delivery target, or expected return for these alternatives.

Large backlog, different work streams

Lockheed operates four principal business segments: Aeronautics, Missiles and Fire Control (MFC), Rotary and Mission Systems (RMS), and Space. Its 17 October 2023 results release reported \$16.878 billion in third-quarter net sales, up from \$16.583 billion a year earlier. Segment results varied: Aeronautics sales fell, while MFC, RMS, and Space reported growth. The reasons included program volume, new-program ramp-ups, contract timing, and profit adjustments. [S1, S2]

At 24 September 2023, Lockheed reported a **\$156.0 billion backlog**. The company defines backlog as expected sales for products and services whose control has not yet transferred to the customer. It said about 35% was expected to become revenue within 12 months and 60%

within 24 months. These figures are management estimates. Backlog is not cash received, a count of delivered units, or proof that every expected dollar is funded and profitable. For some contracts, the estimated consideration in backlog can change as technical, schedule, cost, and other risks change. [S2]

Q3 2023 measure	Reported amount or change	What it does not establish
Net sales	\$16.878 billion, +2% year over year	Awards or backlog not yet recognized as sales
Operating cash flow	\$2.891 billion	Cash available for one specific capacity investment
Free cash flow	\$2.527 billion	A GAAP measure or fully discretionary cash; LMT defines it as operating cash flow less capital expenditures
Backlog at 24 September	\$156.0 billion	Funded near-term deliveries, guaranteed revenue, or profit
Backlog expected to become revenue	35% in 12 months; 60% in 24 months	Guaranteed delivery schedule or collection of cash

Sources: Lockheed Martin Q3 2023 results and Form 10-Q. Free cash flow is a company-defined non-GAAP measure. [S1, S2]

Lockheed reported nearly all Q3 free cash flow returned through dividends and repurchases; it raised its quarterly dividend and authorized additional share repurchases. Management also described a strategy of building capacity, efficiency, and resilience in production. These facts create an opportunity-cost question for a hypothetical new commitment; they do not mean that shareholder returns are the only alternative use of capital or that reported free cash flow is entirely discretionary. [S1, S2]

Program conditions differ

Segment	Q3 2023 sales	Year-over-year change	Company explanation
Aeronautics	\$6.717 billion	–5%	Lower F-35 production-contract volume; prior-year sales recognized after a funding/authorization delay also affected comparison
Missiles and Fire Control	\$2.939 billion	+4%	Higher tactical and strike missile volume, including GMLRS and HIMARS; partly offset by lower PAC-3 volume
Rotary and Mission Systems	\$4.121 billion	+9%	New-program ramp-ups and higher volume, including Aegis and C6ISR work
Space	\$3.101 billion	+8%	Higher volume in strategic/missile defense, national-security space, and civil programs

Source: Lockheed Martin Q3 release. Sales are recognized revenue, not awards, backlog, unit deliveries, or profit. Explanations are the company's. [S1, pp. 3-6]

Aeronautics sales fell by \$372 million, or 5%, from the prior-year quarter. Lockheed attributed \$525 million of lower F-35 sales to lower production-contract volume and the comparison included \$325 million of F-35 sales recognized in Q3 2022 after contractual authorization and funding for the Lot 15 contract. Aeronautics operating profit fell \$88 million, or 12%, due in part to lower F-35 volume and lower favorable profit adjustments. This shows that program volume, timing, and contract estimates all shape reported segment results. [S1, p. 3]

The Q3 filing also states that a continuing resolution funded the federal government at fiscal 2023 levels through 17 November and did not authorize new contract and program starts. Management expected key programs to remain supported, but warned that award delays could affect results. The company expected replenishment demand to support potential capacity increases while also cautioning that long-cycle production meant new awards would not materially increase 2023 sales. [S2, pp. 27-29]

What the F-35 evidence says

The Government Accountability Office (GAO) reported that Lockheed delivered 50% of F-35 aircraft late in 2022, the highest share in six years and three times the 2021 share. The program had modified some contracted delivery dates; some aircraft initially considered late were reclassified as on time. GAO also reported that F-35A and F-35B build times increased in 2021 and remained high in 2022, and that Lockheed's scrap, rework, and repair hours were improving but still missing internal goals. GAO cited supplier staffing and quality issues and reported that Lockheed was evaluating supplier capacity and focusing on late parts most affecting production. [S3]

One constraint involved center fuselages. Program officials said shortages could delay all F-35 deliveries for 2023 through 2025 by about a month. Lockheed and the program modified delivery schedules to align with expected availability; GAO reported that center-fuselage production had increased since May 2022 to a rate supporting production-line needs. The report therefore raises a specific question: if supplier output is improving, which constraints remain, and what additional investment would resolve them? [S3]

GAO's F-35 sustainment work also described spare-parts and logistics issues and recommended that the Department of Defense reassess responsibilities, technical-data needs, and resources for future support. These findings matter to a company whose product responsibilities include both new production and sustainment, but they do not quantify a Lockheed-wide capacity deficit or an investment return. [S4]

A competitor's backdrop

Northrop Grumman reported third-quarter sales up 9%, \$15.0 billion of net awards, and an \$83.9 billion backlog on 26 October 2023. It attributed higher sales to a mix of program ramp-ups and volumes. Its results show that another major defense contractor also reported strong demand, but its portfolio, contract mix, backlog definition, and reporting measures differ from Lockheed's. They are not a matched benchmark or evidence for a specific Lockheed investment. [S5]

What research can contribute

Ilzetzki's study of monthly aircraft-production data from 61 U.S. plants during World War II examines how government demand shocks affected plant productivity. The paper estimates that a 1% demand increase was associated with about 0.33% more aircraft per labor-hour and 0.375% higher physical-unit total factor productivity after 12 months. Plants with higher initial capacity utilization responded more strongly, and high-utilization plants increased outsourced work-hours more than lower-utilization plants. The study is based on extraordinary wartime demand, standardized products, and mostly cost-plus contracts. It does not estimate modern Lockheed returns or prove that outsourcing is the best solution. [S6]

Bongers examined annual DoD acquisition data for the F/A-18E/F, F-22A, and F-35A. Basic estimates implied learning of about 14% per cumulative-output doubling for the Super Hornet, about 14.6% for the Raptor, and about 9% for the F-35A. Results were mixed when time and production-rate measures were added. The author warns that F-35 foreign production was omitted from the output series and that acquisition price is used as a production-cost proxy. The study cautions against assuming a higher production rate will automatically reduce unit cost; it does not measure Lockheed's current schedule or investment returns. [S7]

Together, the studies point to capacity utilization, production learning, and use of external capacity as possible response channels. Their findings do not identify Lockheed's current bottleneck or the economics of a specific investment. Students should treat them as hypotheses to test, not company forecasts.

Three choices to evaluate

Expand owned capacity. New equipment, tooling, facilities, or line resources could address constraints that Lockheed controls directly and retain process knowledge inside the company. The risks are lead time, labor availability, supplier dependence, demand uncertainty, and fixed-price cost exposure if expected work or schedules change.

Improve production systems and workforce. Process changes, training, retention, quality improvement, and reduced rework could raise throughput without relying only on more physical space. But the causes of higher build times and rework may differ by program; engineering changes, configuration, or parts shortages may limit what process improvements can accomplish.

Increase supplier and subcontract capacity. Supplier development, qualification, or additional outside capacity could relieve parts bottlenecks and respond faster than building every capability internally. The approach can add coordination, qualification, quality, security, intellectual-property, and second-tier supply risks. It may also be difficult to recover costs if demand or contract schedules change.

No public data show current line utilization by program, supplier-level capacity, the cause of each late delivery, incremental investment needs, or project-level contribution. You must specify the information you would require, how you would stage the commitment, and how you would measure success.

Discussion questions

1. Which production-response investment should Lockheed prioritize first, and what evidence supports that choice?
2. How should backlog and management's revenue-recognition forecast affect the decision? What can neither establish about funded deliveries or future cash?
3. Which constraints appear physical, supplier-related, workforce/process-related, technical, or funding-related? What evidence would distinguish them?
4. How do fixed-price development risks change the case for capacity investment or pre-contract commitments?
5. How would you measure whether investment improves on-time delivery, throughput, quality, and contract economics?
6. What new information would cause you to speed up, defer, or redirect investment?

Sources

- **[S1]** Lockheed Martin, Q3 2023 results release, 17 October 2023. [Official results release](#).
- **[S2]** Lockheed Martin, Form 10-Q for quarter ended 24 September 2023, filed 17 October 2023. [SEC filing](#). See MD&A and notes for sales, backlog, cash flow, funding and supply-chain discussion.
- **[S3]** U.S. Government Accountability Office, *F-35 Joint Strike Fighter: More Actions Needed to Explain Cost Growth and Support Engine Modernization Decision*, GAO-23-106047, 30 May 2023. [Official report](#).
- **[S4]** U.S. Government Accountability Office, *F-35 Aircraft: DOD and the Military Services Need to Reassess the Future Sustainment Strategy*, GAO-23-105341, 21 September 2023. [Official report](#).
- **[S5]** Northrop Grumman, Q3 2023 results release, 26 October 2023. [Official release](#).
- **[S6]** Ilzetzki, E. (2023). “Learning by Necessity: Government Demand, Capacity Constraints, and Productivity Growth.” CFM Discussion Paper 2023-05. [January 2023 version](#).
- **[S7]** Bongers, A. (2017). “Learning and forgetting in the jet fighter aircraft industry.” *PLOS ONE*, 12(9), e0185364. [Full text](#).