

Teradyne - Where to Place the Next Bet

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Decision scope: A prospective 2027 investment-allocation rule for Semiconductor Test and Robotics

Case convention: This is an author-created, explicitly hypothetical management decision exercise. Public disclosures do not establish that Teradyne's board or management had a formal reallocation mandate. No private deliberations or undisclosed budgets are represented.

The decision

On 31 July 2026, Teradyne filed its second-quarter Form 10-Q. The quarter showed a sharp increase in Semiconductor Test revenue and a smaller but improving Robotics business. Management said strategic investment had contributed to Semiconductor Test results and that judicious additional investment would be needed to support growth in 2027. The filing did not disclose a proposed budget, a binding capacity constraint, or a plan to move staff or equipment from one segment to another. [TER-3], Item 2, Overview, pp. 28-29; Results of Operations, pp. 31-35.

For this classroom exercise, assume Teradyne's leadership wants a rule for evaluating incremental 2027 investment across Semiconductor Test and Robotics. The rule must specify what evidence and milestones justify proceeding, staging, or slowing investment. It should account for Semiconductor Test's current scale and customer concentration, Robotics' growth and continuing segment loss, and the possibility that semiconductor demand or customer adoption changes. Treat allocation as a decision about proposed commitments; the case provides no evidence that people, equipment, or engineering capacity can be transferred between these businesses.

Assignment: Recommend a 2027 allocation rule. Explain how Teradyne should assess investment proposals in each business, what milestones or downside triggers should govern releases, and what information leadership should require before committing. You may recommend prioritizing one business, preserving a minimum option in both, or staging proposals against explicit evidence. Do not invent a total budget or assume a common pool of interchangeable resources.

A portfolio spanning test and automation

Teradyne sells automatic test equipment and related products and services for semiconductor, electronics and industrial customers. It reports Semiconductor Test, Product Test and Robotics as separate segments. Its chief executive officer is the chief operating decision maker; segment income before taxes is the measure used predominantly in annual budgeting and forecasting and for resource allocation. The measure is not a stand-alone incremental return on new investment. [TER-1], Note V, "Segment Information," pp. 86-87; [TER-3], Note T, pp. 26-27.

The three businesses sit at different points in the production system. Semiconductor Test addresses testing of semiconductor devices. Product Test includes test solutions for electronic products and, from April 2026, Teradyne's majority-owned MultiLane venture. Robotics sells industrial automation products. Teradyne acquired a controlling 75% interest in MultiLane Test Products Holding LLP in April 2026; the venture acquired MultiLane's test and measurement assets and was included in Product Test. Teradyne said it expected the venture to serve AI data-center equipment demand through high-speed data-connection test solutions. This is a distinct Product Test investment claim; it should not be counted as Semiconductor Test or Robotics. [TER-3], Note T, p. 26; Notes on Acquisitions, pp. 12-13; Item 2, Overview, pp. 28-29.

In 2025, Teradyne said its strategy included investing in growth opportunities across its businesses while returning capital through dividends and repurchases. It also identified industry cyclicity, intense competition, and dependence on a limited number of significant customers as risks. Five largest direct customers together represented 44% of 2025 consolidated revenue; customer categories involving specified demand overlap and should not be added. [TER-1], Item 7, "Overview," pp. 23-24; Item 1A, pp. 9-10; Note V, p. 88.

Exhibit 1. Latest quarterly segment snapshot

USD millions; fiscal quarter ended 28 June 2026 compared with the quarter ended 29 June 2025. Reported company amounts, converted from thousands; percentages in the final column are author calculations.

Reportable segment	Q2 2026 revenue	Q2 2025 revenue	Reported YoY change	Q2 2026 income (loss) before tax	Q2 2025 income (loss) before tax	Q2 2026 income / revenue, derived
Semiconductor Test	\$1,121.8	\$491.9	128.1%	\$427.3	\$95.8	38.1%
Product Test	\$107.2	\$85.1	26.0%	\$18.0	\$15.6	16.8%
Robotics	\$99.9	\$74.9	33.4%	\$(2.6)	\$(18.5)	(2.6)%
Consolidated revenue	\$1,329.0	\$651.8	103.9%	-	-	-

Source: [TER-3], Item 2, "Results of Operations," pp. 31-34; Note T, pp. 26-27. Mix of Q2 2026 revenue was 84.4% Semiconductor Test, 8.1% Product Test and 7.5% Robotics (author calculation from exact segment and consolidated amounts). Segment income before tax is Teradyne's CODM measure; these ratios are not incremental margins, cash generation, or project returns. The filing reports Robotics growth as 33.4%; calculating from exact displayed amounts gives 33.46%, which rounds to 33.5% at one decimal.

Robotics revenue increased year over year and its segment loss narrowed. The figures do not show why the loss narrowed, how product-level margins differ, or what spending would be required to reach profitability. Semiconductor Test's quarter was much larger and more profitable on this reported measure, but one quarter does not establish a durable run rate.

Exhibit 2. First-half scale and spending context

Six months ended 28 June 2026 compared with six months ended 29 June 2025. USD millions.

Segment	1H 2026 revenue	1H 2025 revenue	Reported YoY change	Share of 1H 2026 consolidated revenue, derived
Semiconductor Test	\$2,232.6	\$1,034.4	115.8%	85.5%
Robotics	\$191.2	\$143.9	32.9%	7.3%
Product Test	\$187.7	\$159.2	17.9%	7.2%
Consolidated	\$2,611.5	\$1,337.5	95.3%	100.0%

Source: [TER-3], Item 2, “Six Months 2026 Compared to Six Months 2025,” pp. 34-35; Note T, pp. 26-27. Shares are author calculations from exact amounts.

Q2 consolidated engineering and development expense was \$156.3 million, up \$37.9 million from the prior-year quarter. Management attributed the increase primarily to strategic Semiconductor Test investment and higher variable compensation across all segments. Note T separately presented segment engineering and development amounts totaling \$135.9 million. The \$20.4 million difference from consolidated expense is unreconciled in these disclosures; the segment lines are not a complete allocation of company engineering expense. Neither disclosure reports engineer counts or the return on incremental investment. Q2 property additions were \$80.5 million for Semiconductor Test, \$6.2 million for Robotics and \$3.9 million for Product Test. These are historical additions, not a 2027 proposal or a measure of constrained capacity. [TER-3], Item 2, p. 32; Note T, p. 27.

What the quarter may signal

Management said Semiconductor Test revenue reached a second consecutive quarterly record, driven primarily by AI applications across compute and memory. It reported memory revenue above \$200 million for a third consecutive quarter, citing high-bandwidth memory and DRAM testing as well as renewed NAND final-test demand. These are management's explanations of current demand, not an independent decomposition or forecast. [TER-3], Item 2, Overview, p. 29.

Management described Robotics revenue of about \$100 million as its fifth consecutive quarter of sequential growth, driven primarily by electronics-manufacturing and semiconductor customers; those customers had become Robotics' largest end market. Teradyne did not disclose customer-level cross-selling, adoption cohorts, recurring service economics, or the returns on specific Robotics investments. [TER-3], Item 2, Overview, p. 29.

Demand visibility has limits. Teradyne's annual report warned that a limited number of customers and supply partners account for substantial purchases, and that orders and end markets can be cyclical. In its FY2025 disclosure, five largest direct customers represented 44% of consolidated revenue. Customer-specific percentages include overlapping categories and should not be summed. [TER-1], Item 1A, p. 9; Note V, p. 88.

Competitors also see growth. Advantest reported higher sales and income in its Test System business for its April-June 2026 quarter, attributing demand to high-performance SoC and AI/HPC devices, DRAM and nonvolatile memory. Its management forecast continued tester-market growth but also cited foundry and advanced-packaging capacity as dependencies. The reporting scope, currency and segment definitions differ from Teradyne's; the figures are not direct margin comparisons. [ADV-1], “Overview of Business Results” and “Test System Business Segment”; [ADV-2], English Q1-A2, PDF pp. 1-2.

Cohu disclosed follow-on production orders for high-performance-computing processor testing with active thermal control, with delivery expected over the next couple of quarters. This demonstrates a competing offering and customer demand; it does not establish a Teradyne displacement or realized Cohu revenue. [COHU-2], release body, 2 April 2026.

Teradyne's MultiLane investment provides another resource claim. The filing reports approximately \$157.8 million of consideration, subject to customary post-closing adjustment, for the acquired 75% interest and related assets. It belongs to Product Test, and its strategic relevance to AI data-center interconnect testing does not show that Product Test resources can be moved to either other segment. [TER-3], Note on Acquisitions, pp. 12-13; Item 2, Overview, pp. 28-29.

Evidence about cycles, transfer and automation

Research on the semiconductor industry describes procyclical investment and reports that firms investing countercyclically may benefit in a later cycle. However, the key Tan and Mathews paper is available here only through its publisher and author-record abstracts; its methods and effect estimates could not be independently assessed. It concerns semiconductor firms broadly, not a test-equipment supplier. [Tan & Mathews (2010)], journal pp. 344-353; abstract only.

Research on resource redeployment reports that moves within incumbent semiconductor businesses can be more common than entry or full exit, and that specialized resources are less flexible. The Chang and Matsumoto study was reviewed at abstract/managerial-summary depth only. Teradyne has not disclosed whether its engineers, equipment, applications expertise or service capacity are transferable across segments, or at what cost or speed. [Chang & Matsumoto (2022)], journal pp. 237-265; abstract and managerial summary only.

Studies of industrial-robot adoption offer evidence that customer output can improve after adoption, alongside employment and organizational changes. A Spanish manufacturing-firm study used difference-in-differences and propensity-score reweighting, while noting adopters were larger and more productive before adoption. Its estimates are not a customer payback estimate for Teradyne's products, nor evidence of Teradyne's value capture. [Koch, Manuylov & Smolka (2021)], author manuscript pp. 1-4, §5 / Tables 4-5 and §6.

Questions for the leadership team

1. What does the segment snapshot establish about relative scale and recent performance?
What does it not establish about the returns to the next investment?
2. What rule should govern 2027 investment proposals in Semiconductor Test and Robotics?
What milestones, customer evidence, contribution thresholds, and downside triggers should be required?
3. How should cyclical demand, customer concentration and competitor investment affect the timing and reversibility of commitments?
4. What evidence would be needed to assess whether robotics demand is converting to durable customer value and Teradyne economics?
5. How should the distinct Product Test/MultiLane claim enter the portfolio discussion without assuming that investments or resources transfer across segments?
6. Which internal data should leadership request before deciding, and which commitments should wait for those data?

Prepare a two-page recommendation setting out an allocation rule, key evidence requirements, review cadence and conditions for revising the rule. Identify the strongest argument against your recommendation. No dollar allocation is required or supported by the public evidence in this case.

Sources and conventions

TER-1. Teradyne, FY2025 Form 10-K, accession 0001193125-26-059002, filed 19 February 2026; cited sections and printed pages appear above. [SEC filing](#).

TER-3. Teradyne, Q2 2026 Form 10-Q, accession 0001193125-26-327715, filed 31 July 2026; period ended 28 June 2026. [SEC filing](#).

ADV-1. Advantest, FY2026 Q1 financial review, published 29 July 2026; “Overview of Business Results” and “Test System Business Segment.” [Official review](#).

ADV-2. Advantest, FY2025 results Q&A summary, 27 April 2026, English Q1-A2, PDF pp. 1-2. [Official PDF](#).

COHU-2. Cohu, “\$30 Million Follow-On Orders for High-Performance Computing Test,” 2 April 2026, release body. [Official release](#).

Academic sources. Tan and Mathews, “Cyclical industrial dynamics: The case of the global semiconductor industry,” *Technological Forecasting and Social Change* 77(2), 344-353 (2010), [DOI](#); Chang and Matsumoto, “Dynamic resource redeployment in global semiconductor firms,” *Strategic Management Journal* 43(2), 237-265 (2022), [DOI](#); Koch, Manuylov and Smolka, “Robots and Firms,” *The Economic Journal* 131(638), 2553-2584 (2021), [DOI](#).

All quantitative calculations are identified as derived. Company and competitor explanations are attributed. The cited academic evidence is bounded by its recorded reading depth. The information cutoff excludes later filings, outcomes and announcements.