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How semiconductor businesses can drive growth with disciplined product management

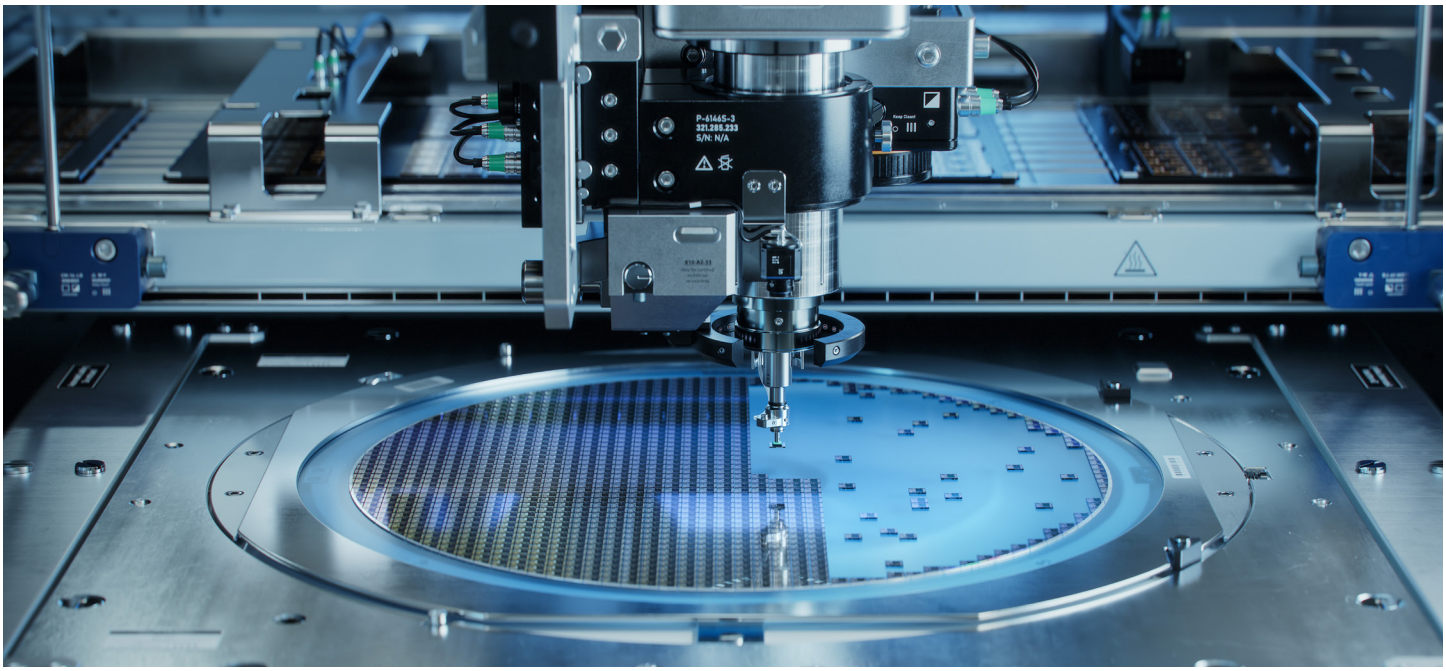
Introduction

Semiconductor chips are essential to today's technical innovation—powering everything from smartphones to server farms, cars to medical devices. And while it may seem like semiconductors are already everywhere, supporting a smarter, sustainable, and more connected world, there's still opportunity for even more growth.

After a soft year of 2023, 2024 revenues were up almost 20%, and early forecasts for 2025 call for further growth of 11% to almost $700 billion, although subsequent geopolitical complexity may result in those forecasts being lowered. Deloitte's *2025 global semiconductor industry outlook* states that the industry is on track to reach global revenues of $1 trillion by the end of the decade. The increase is fueled mainly by demand for generative artificial intelligence (AI), which requires high-performance processors, memories, and connectivity chips, and to some extent by the proliferation of smart internet-connected devices, which rely on low-power chips for edge devices and automotive semiconductors.

With innovation, performance, energy, sustainability, and customer requirements all evolving so fast, getting such a massive array of products to market quickly and profitably isn't easy. Disruptive business models, companies moving up the stack to provide system solutions, nontraditional competitors, and talent shortages add even more complexity to the mix.

To maximize value in this environment, semiconductor companies need a disciplined product management approach that helps them make the right investments in the right products, from concept and launch to value delivery and retirement.



The role of product management throughout the product life cycle

The product manager plays a critical role at a semiconductor company, serving as both connector and translator for a diverse set of stakeholders. Product managers connect external market and customer needs with the internal product and technology strategy. They translate high-level corporate strategy into real-world portfolio strategy.

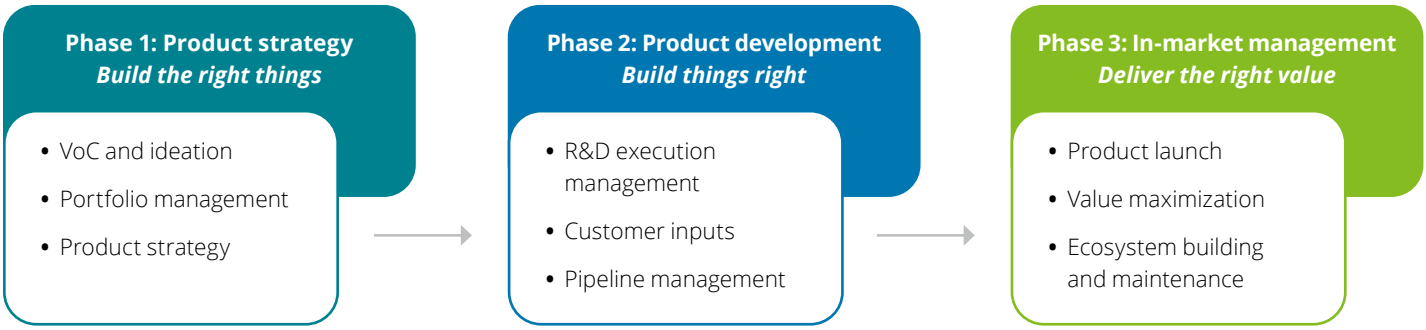
Strong product management requires mastery of key capabilities across the three major phases of the product life cycle: product strategy, product development, and in-market management. Each phase includes critical skills that semiconductor companies need to build the right things, build those things right, and deliver the right value (figure 1). And as the end-to-end owner of the product, the product manager plays a crucial role in every phase.

Phase 1: Product strategy. *Are we building the right things?* Key capabilities include voice of the customer (VoC) and ideation, portfolio management, and product strategy.

Phase 2: Product development. *Are we building the things right?* Key capabilities include R&D execution management, customer inputs, and pipeline management.

Phase 3: In-market management. *Are we delivering the right value?* Key capabilities include product launch, value maximization, and ecosystem building and maintenance.

Figure 1. The three phases of product management across the product life cycle



How semiconductor product managers measure up against other tech sectors

Deloitte compared key product management capabilities across different segments of the tech sector. Although product management capabilities have been evolving in the past decade in the semiconductor segment, maturity levels vary by company. The sample companies in this study show the semiconductor segment falling behind other tech sectors in two notable areas: portfolio management and R&D execution management (figure 2).[1] The resulting performance lag shows up as suboptimal portfolios, longer product development times, higher costs, and lower product development ROI.

Semiconductor product managers face unique challenges, each of which raises an important question:

- Does each product or feature help end users meet their objectives, improve user experience, and drive measurable ROI?
- What measurable checks and balances, and which governance processes, are needed to ensure appropriate investment and quality across the life cycle?
- Is there enough visibility into R&D execution that the business can respond promptly to market demand, changing customer needs, competitive landscape, quality and knowledge issues across the product portfolio?
- Are the right products delivered per plan, and are they monetized in line with projections?

Figure 2. Product management performance comparison across tech sectors

Sector summary	Product strategy			Product development			Product development		
	VoC and ideation	Portfolio management	Product strategy	R&D execution management	Customer inputs	Pipeline management	Product launch	Value maximization	Ecosystem building and maintenance
Semiconductor									
Hyperscaler									
Hardware									
Software									

All companies in this study have this capability Some companies in this study have this capability No companies in this study have this capability

Semiconductor product management: Three key capabilities

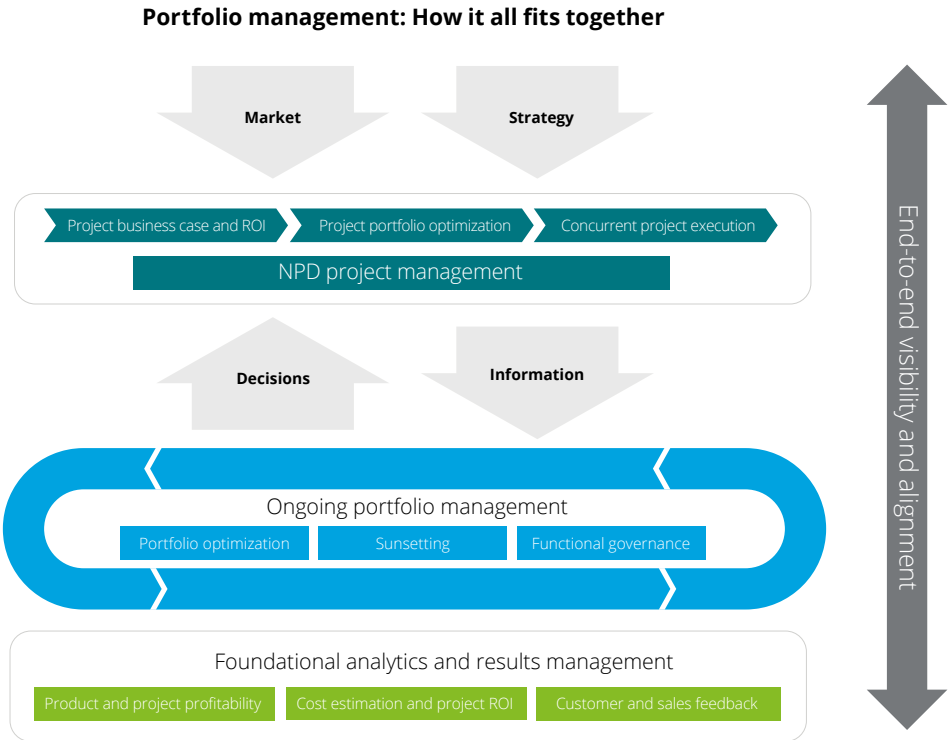
Three capabilities—portfolio management, R&D execution management, and product launch—are particularly critical (and often challenging) for semiconductor product managers.

Portfolio management

Portfolio management translates strategy into action, aligning objectives with portfolio investment and resource allocation (figure 3). This can be a challenging area for semiconductor companies; optimizing a product portfolio for demand, complexity, and profitability is a fluid process, requiring ongoing priority and resource management.

The goal of product management should always be to optimize performance—not of a single product but of the overall product portfolio. To do so, product managers need enterprise-wide visibility into the R&D pipeline, active project portfolios, and end-of-life activities. They must maintain strategic alignment at every step, aligning R&D project portfolios with product roadmaps, performing structured planning and resource allocation, and rebalancing priorities to meet changing customer needs. Advanced analytics and results management support these goals with insight into product and project profitability, cost estimates, ROI, schedules, risk analysis, and customer and sales feedback.

Figure 3. Translating strategy into action with portfolio management

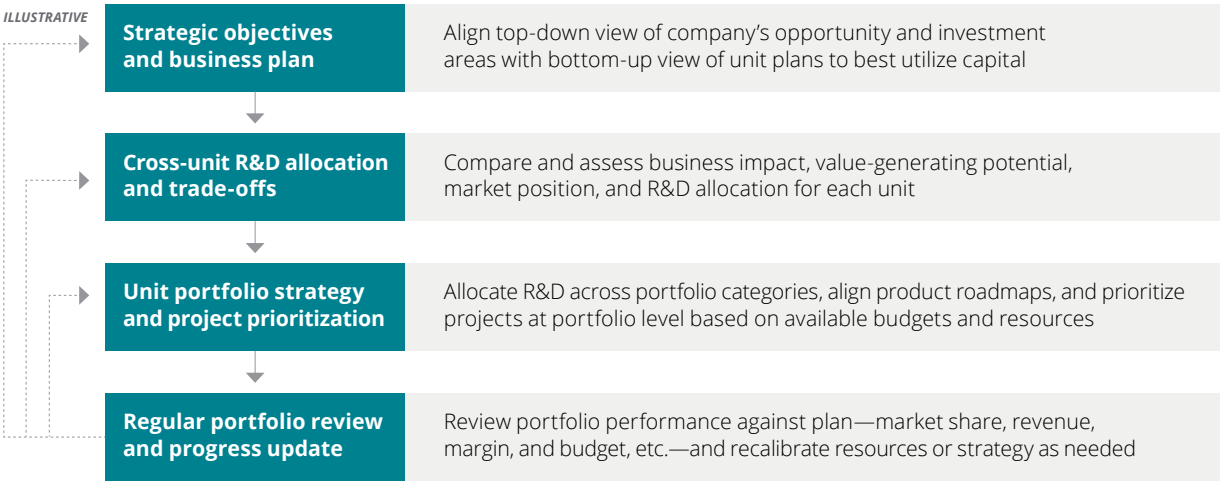


Portfolio decisions include several key considerations. Consider creating a balanced scorecard tailored to your product lines, based on these four core criteria:

1. **Desirability.** Does the solution address unmet market and customer needs, with choices grounded in customer insights?
2. **Strategic fit.** Is the offering strategically important and aligned with overall corporate strategy and product roadmap?
3. **Feasibility.** Do we currently have or can we develop the technology needed to support the solution?
4. **Commerciality.** Can we develop a profitable, defensible business in this space, with manageable risks?

Regular multilevel portfolio reviews can link portfolio strategy and execution using data, decision, and information flows that are easy to explain, understand, and implement (figure 4).

Figure 4. Portfolio management design and implementation



R&D execution management

Semiconductor companies need to deliver profitable products that satisfy customer needs, on schedule and on budget. But fast-changing markets and multiproduct pipelines can make it difficult to manage product and user requirements across the product life cycle—not to mention tracking performance metrics. Making go/no-go decisions at five key phase gates—concept, plan, develop, launch, and close—can help product managers improve accountability, maximize visibility, limit financial and technical risk, and shift gears when needed (figure 5). Although most semiconductor companies have these decision gates in place, it is critical to drive effective implementation by establishing a governance structure, setting clear decision criteria, and making unambiguous go/no-go decisions. In addition, product managers need to ensure the evolving customer and market needs are considered in each phase gate.

Figure 5. Product development decision gates

	Gate 1 Exploration to concept	Gate 2 Concept to plan	Gate 3 Plan to develop	Gate 4 Develop to launch	Gate 5 Launch to close
Business objective	**Approve concept**	**Approve plan**	**Approve execution**	**Approve launch**	**Close project**
Result	Confirms the concept has strategic fit to the organization	Commits resources to develop the solution architecture and execution plan	Commits the required resources for project execution	Commits the business to introduce offering in the market	Confirms high-volume manufacturing (HVM) is stable and moves project out of new product introduction (NPI) process

Product launch

An effective product launch is a complex cross-functional effort. Product managers must coordinate across key functions, such as marketing, engineering, sales and sales operations, supply chain, finance, and legal, to align on GTM strategy, deliver by the launch/general availability (GA) date, establish launch cadence and metrics, and track product and organizational readiness (figure 6). Post launch, the product managers will drive the activities to realize and maximize product value across the life cycle through end of life (EOL).

Figure 6. Product launch requires a coordinated cross-functional effort

How Deloitte can help

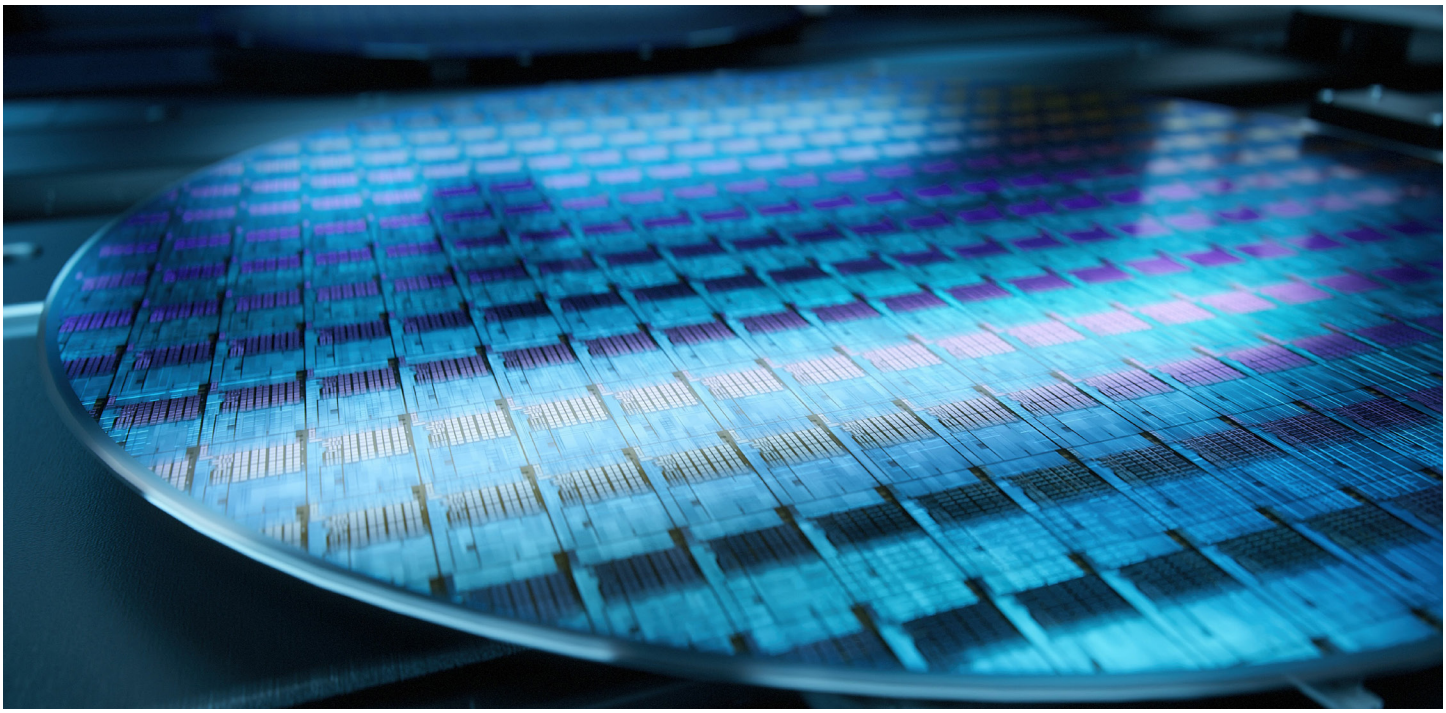
No matter where you are in your product management journey, Deloitte's product management and semiconductor industry specialists can help you. We have helped many semiconductor clients clarify product vision and strategy, refine processes, establish metrics, identify opportunities, and create a roadmap for the future —all while improving ROI.

Our client-proven approach includes three main steps:

1. **Diagnose current state.** Establish a North Star and viable improvement roadmap. Profile current capabilities against leading practices and identify key aspects of future-state design that can meet evolving business needs.

2. **Define portfolio strategy and operating model.**
   A. **Refine portfolio strategy and management.** Identify opportunities to improve portfolio strategy, technology and product roadmaps, execution metrics, and the ongoing management model.
   B. **Design business processes, operating model, and governance frameworks.** Develop and sustain a best-in-class product management practice built on structured processes and predefined business outcomes, to improve consistency, transparency, and predictability at scale.

3. **Deploy across the enterprise.** Create a robust, comprehensive implementation and change management plan to align, establish, reinforce, and communicate the new ways of working throughout the organization, supporting ongoing change long after initial deployment.



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Endnotes

1. 2024 Deloitte study of five representative companies across tech sectors. Semiconductor includes semiconductor software, design, fab, and capital equipment. Hardware includes consumer electronics and computer hardware. Software includes large software and platform companies.

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