PLM In the Boardroom – What's Holding It Back?

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May 8, 2025

PLM Road Map™ & PDT North America 2025

PLM's Integral Role in Digital Transformation From Strategy to Execution

Elevating PLM to an Enterprise Business Solution, the PLM Professional's Road Map to Success

May 7 & 8

Three questions asked by engineering managers (and PLM vendors).

Q1 Why isn't PLM data **the** topic in the Board Room?

Why do bean counters (and ERP) get all the attention when engineering (and PLM) does all the work?

A1 The board's first duty is fiduciary. (It can be easy to forget that cost-control is Job 1.)

Q2 But isn't product design (PLM) the key to controlling product cost?

A2 PLM controls projected product cost, not fully-loaded/actual cost.

Q3 But doesn't PLM make engineering more efficient, which reduces cost?

A3 Engineering cost is important, but it's a fraction of production cost.

Engineering (and PLM) will have a bigger role in the Board Room when it can reliably decrease cost of production.

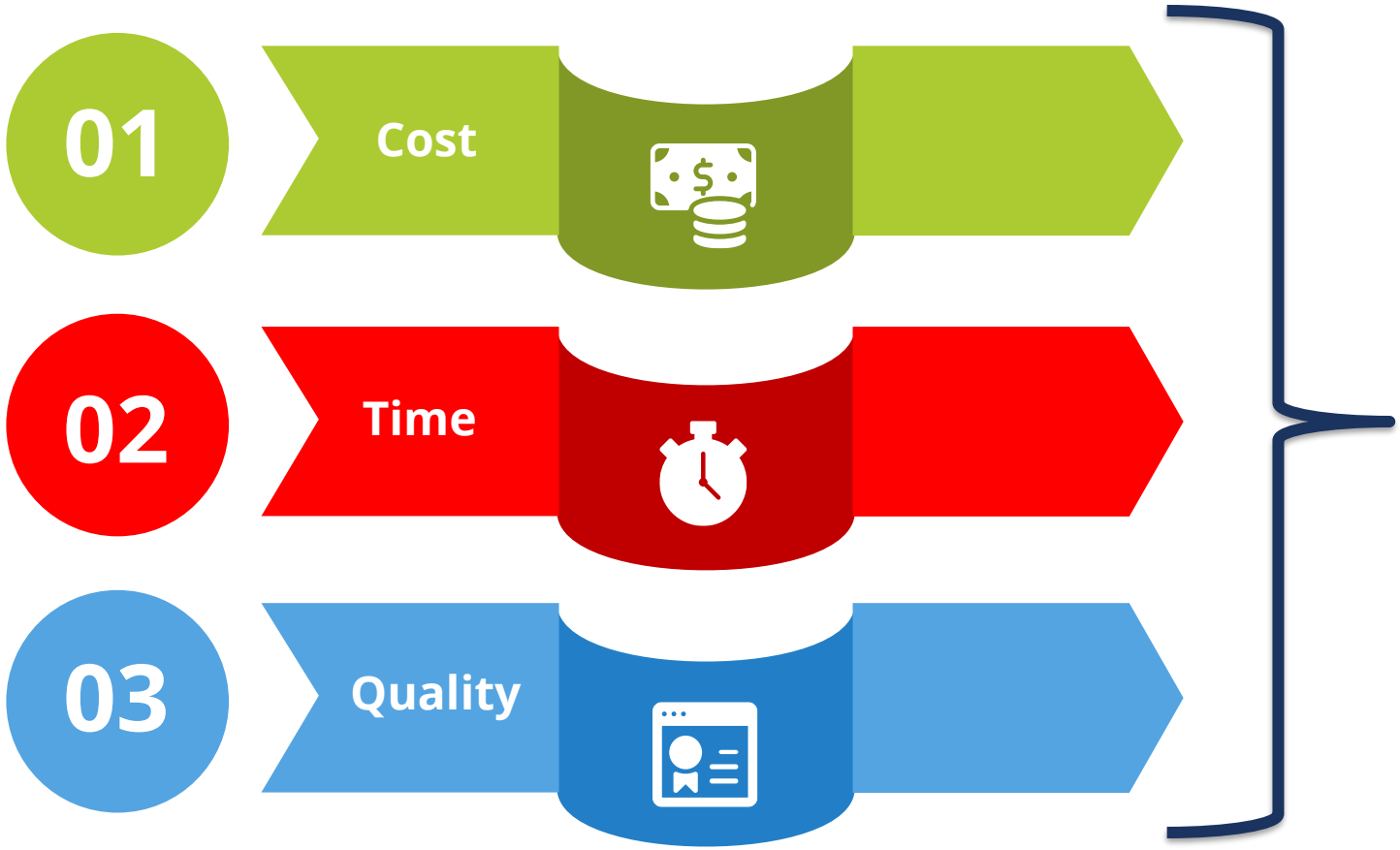
Comparing engineering cost (CR&D) to production cost (COGS)?

- Cost of R&D (CR&D) includes engineering personnel, facilities, and technology expenses.
- Cost of goods sold (COGS) includes manufacturing personnel, facilities, capital equipment, supply chain, and inventory expenses.

Industry	N	Avg Rev (2018-23)	Avg CR&D/Rev (2018-23)	Avg COGS/Rev (2018-23)
Aerospace and Defense	39	$12.1B	6.8%	71.4%
Automobiles and Components	181	$15.2B	5.1%	79.4%
Industrial Machinery	235	$3.6B	5.0%	70.9%

COGS is 10-15X higher than CR&D.

How is PLM helping manage product development trade-offs?

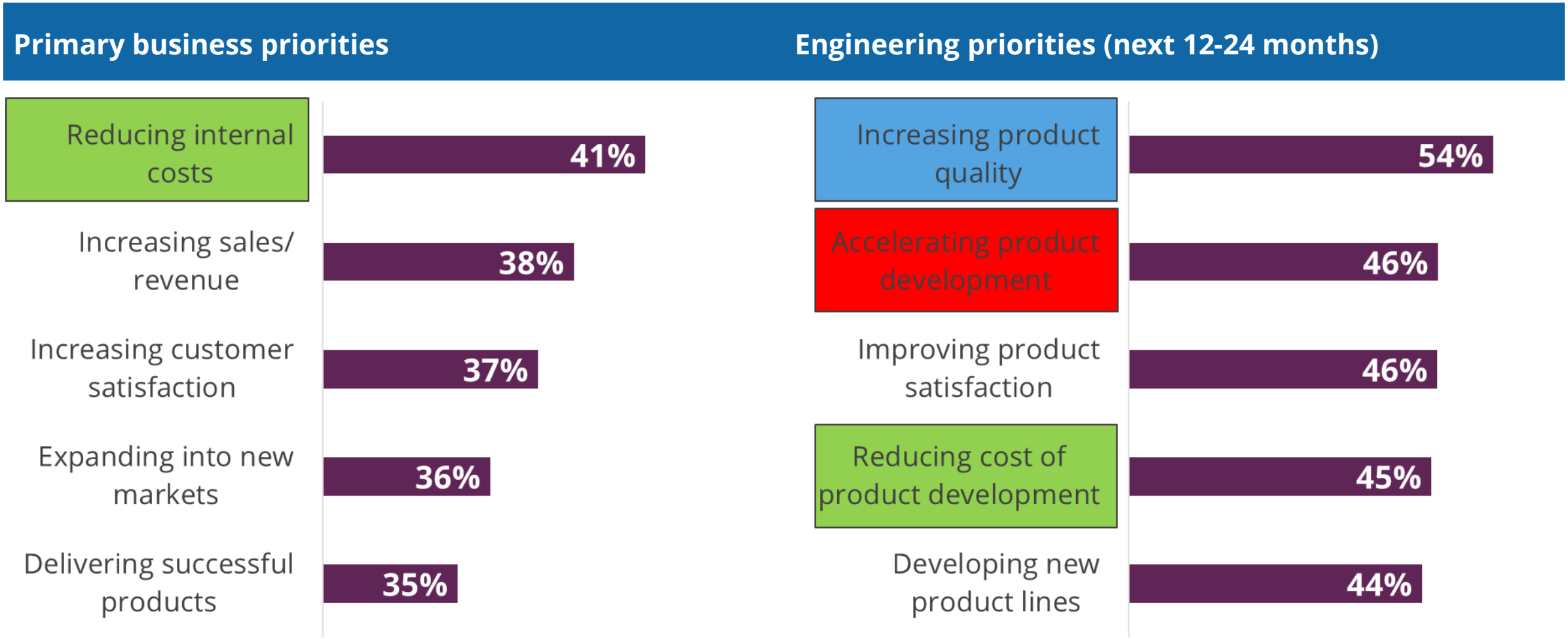


You can only deliver two.

The Current State of PLM

A brisk walk through some data.

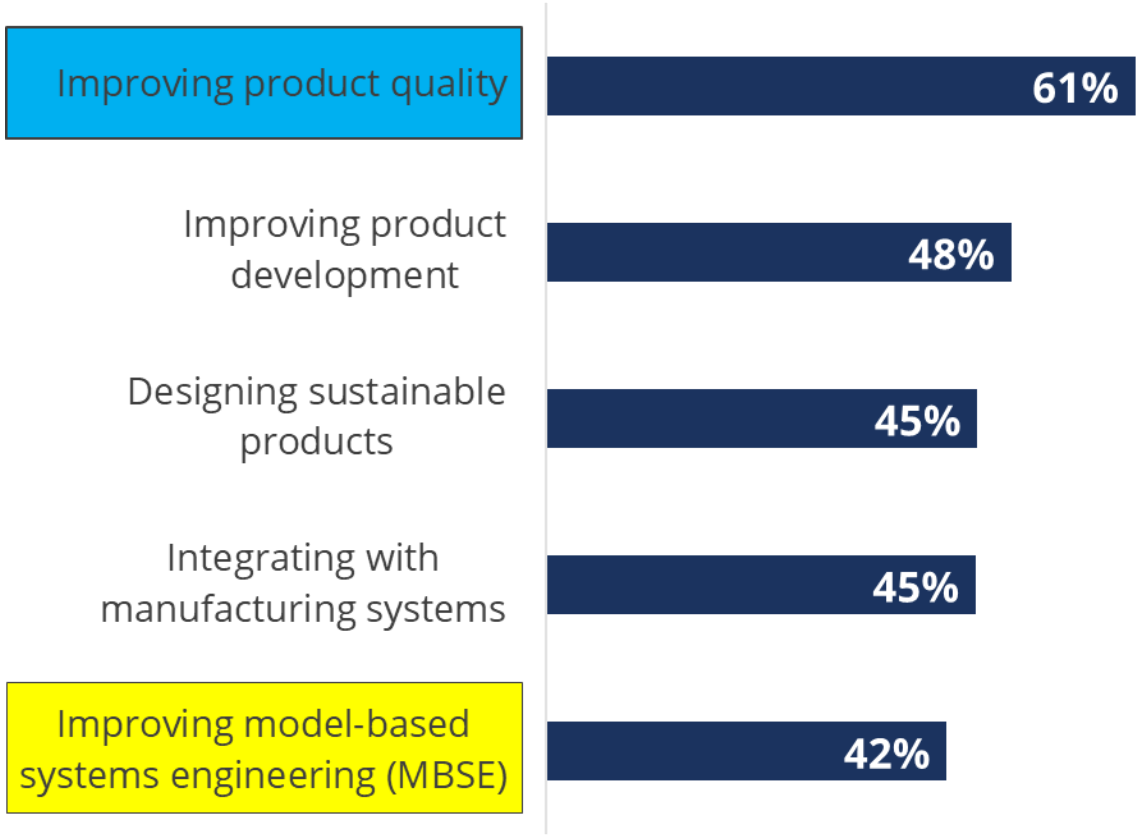
There's a disconnect: corporate concerns vs. engineering priorities.



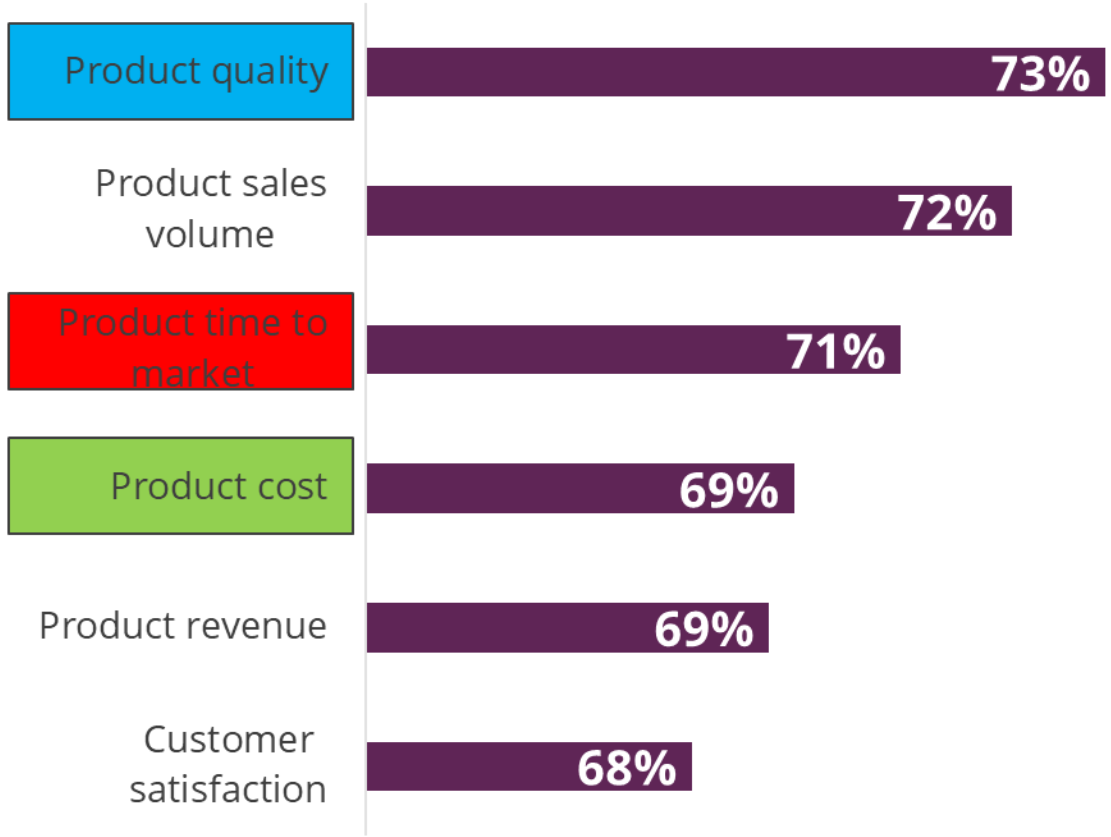
Base=Respondents are primary decision maker for PLM, N=445, EOVC Industries N=159
Notes: Managed by IDC's Global Primary Research Group.; Data Weighted By IT spending By Country; Multiple dichotomous table - total will not sum to 100%; Use caution when interpreting small sample sizes.
Source: Product and Service Innovation Survey, IDC, June, 2023

PLM focus is on quality, but NPD stats suggest bigger problems

Top PLM drivers



New product delivery metrics (vs targets)



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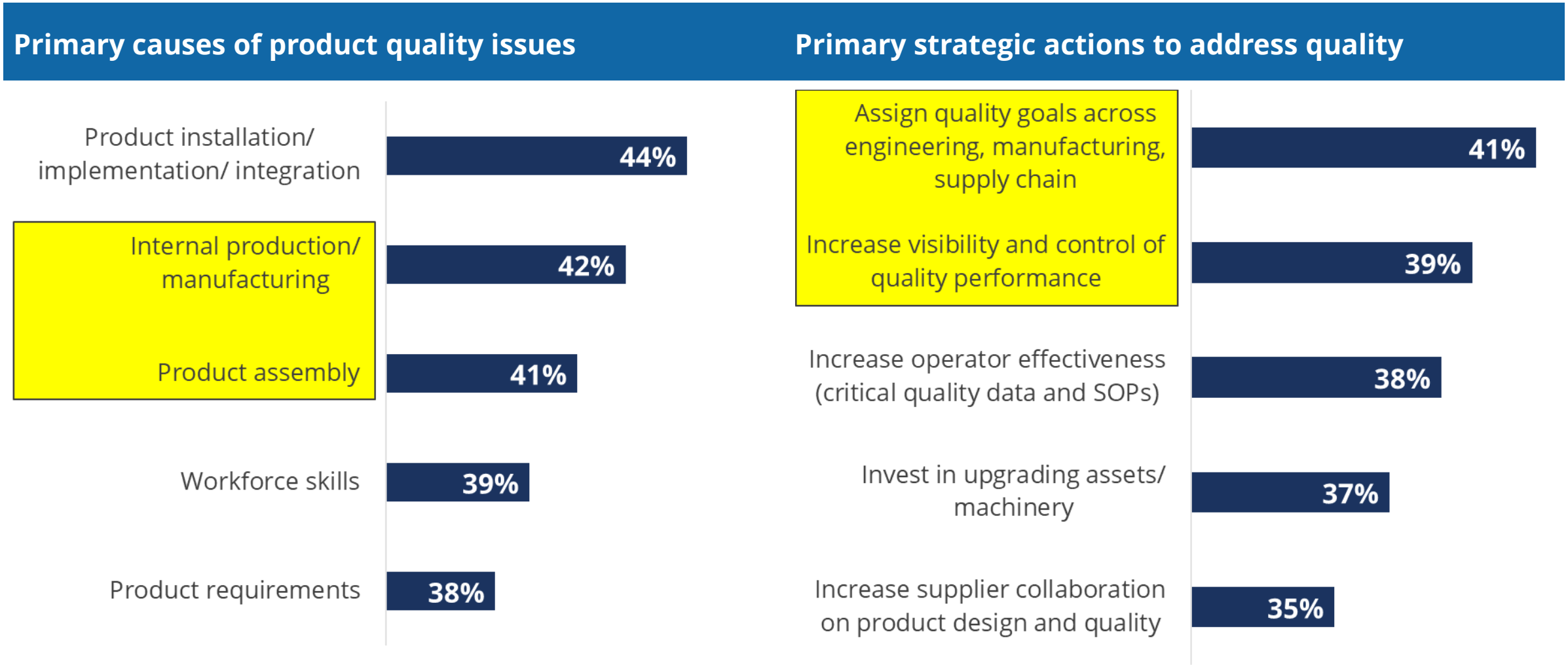
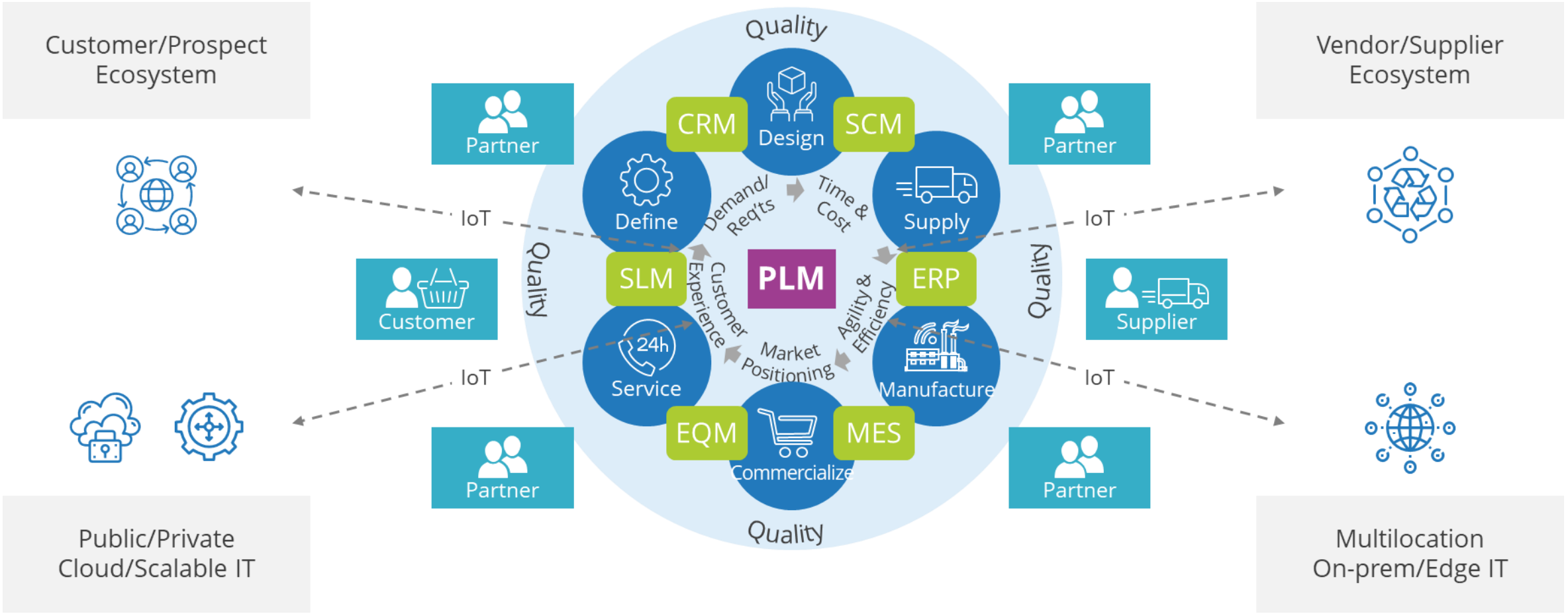
The board is looking for someone to own all quality and cost goals…



Base=All Respondents, N=521, Discrete Manufacturing N=288
Notes: Managed by IDC's Quantitative Research Group.; Data Not Weighted; Multiple dichotomous table – total will not sum to 100%; Use caution when interpreting small sample sizes.
Source: Product Quality and Digital Transformation Survey 2024, IDC, June, 2024

PLM maintains the digital threads that define the product ecosystem:

Weaving together product development, manufacturing, supply chain, service. Balancing cost, time, and quality.



Source: IDC, 2025

The board will notice when engineering reduces cost of production.

Start by identifying the relationship between CR&D vs. COGS (cost of engineering vs. production)

The opportunity for engineering (PLM) in the Board Room.

1) 80% of product cost is locked in during product design*.

2) Gross Profit = Revenue - Cost of Goods Sold (COGS).

3) COGS (personnel, capital expenses, inventory) is 10-15X higher than CR&D.

4) Poor product design has an outsize impact on COGS, but so does good design (DFM/A).

5) Increasing engineering budget can have a big impact on profits (if properly allocated).

* 1993 MIT research paper indicates that about 60% of product cost is locked in during product design (at least for consumer products).

Engineering efforts to leverage DFM/A practices, are falling short.

"In a perfect world, if we have 1,000 parts to manufacture there should be only 1,000 releases [from design to manufacturing]. The reality is that we receive 1,600 releases, which means 60% of the parts are released at least twice. That's a 60% failure rate.

70% of those redesigned/re-released parts are driven by manufacturing due to tolerances, poor design, and ergonomic feasibility/assembly issues. The other 30% of those redesigns are design changes that get approved after release to manufacturing.

All these problems I just described, affect suppliers and the supply chain as well."

— Director of Manufacturing, Automotive Company

Currently managing 6 plants (Spring, 2025)

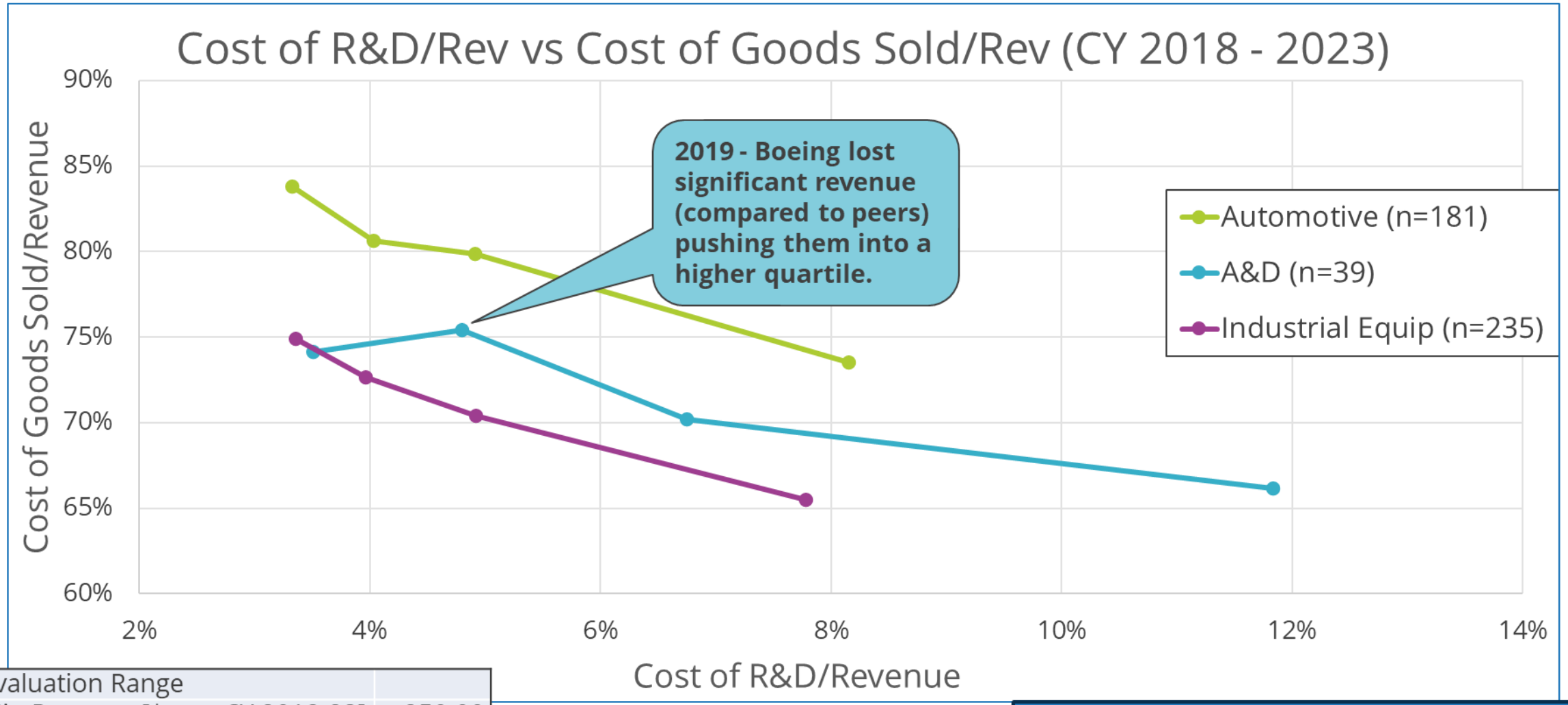
Segmenting previous table by CR&D shows inverse correlation with COGS.

Industry (segmented by CR&D/Rev)	N	Avg Rev (2018-23)	Avg CR&D/Rev (2018-23)	Avg COGS/Rev (2018-23)
Aerospace and Defense	**39**	**$12.1B**	**6.8%**	**71.4%**
Top (75-100%)	10	$12.9B	11.8%	66.1%
Upper (50-75%)	10	$6.5B	6.8%	70.2%
Lower (25-50%)	9	$21.3B	4.8%	75.4%
Bottom (0-25%)	10	$8.7B	3.5%	74.1%
Automobiles and Components	**181**	**$15.2B**	**5.1%**	**79.4%**
Top (75-100%)	46	$13.2B	8.2%	73.5%
Upper (50-75%)	45	$28.9B	4.9%	79.9%
Lower (25-50%)	45	$5.9B	4.0%	80.6%
Bottom (0-25%)	45	$12.8B	3.3%	83.8%
Industrial Machinery	**235**	**$3.6B**	**5.0%**	**70.9%**
Top (75-100%)	59	$1.4B	7.8%	65.5%
Upper (50-75%)	59	$3.8B	4.9%	70.4%
Lower (25-50%)	58	$4.5B	4.0%	72.6%
Bottom (0-25%)	59	$4.6B	3.4%	74.9%

Boeing anomaly

Easier to see this in chart format.

There is an inverse correlation between CR&D and COGS.



Evaluation Range	
Min Revenue [$mm, CY 2018-23]	250.00
Min CR&D/Rev [CY 2018-23]	3.00%
Max CR&D/Rev [CY 2018-23]	20.00%

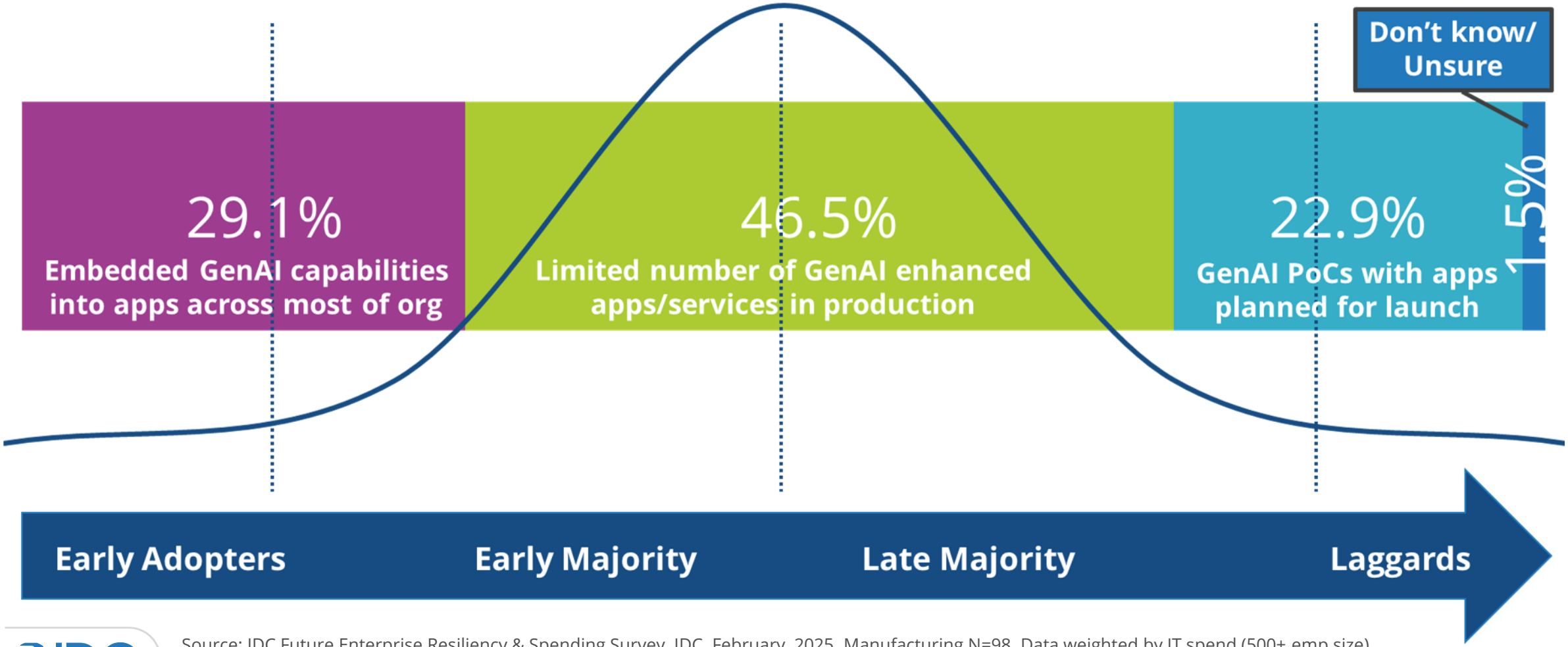
Manufacturers segmented into quartiles based on Cost of R&D/Revenue (Top 25%, Upper Middle, Lower Middle, Bottom 25%)

Source: IDC, 2025

What about AI and GenAI?

GenAI has "Crossed the Chasm" – now widely adopted in manufacturing.

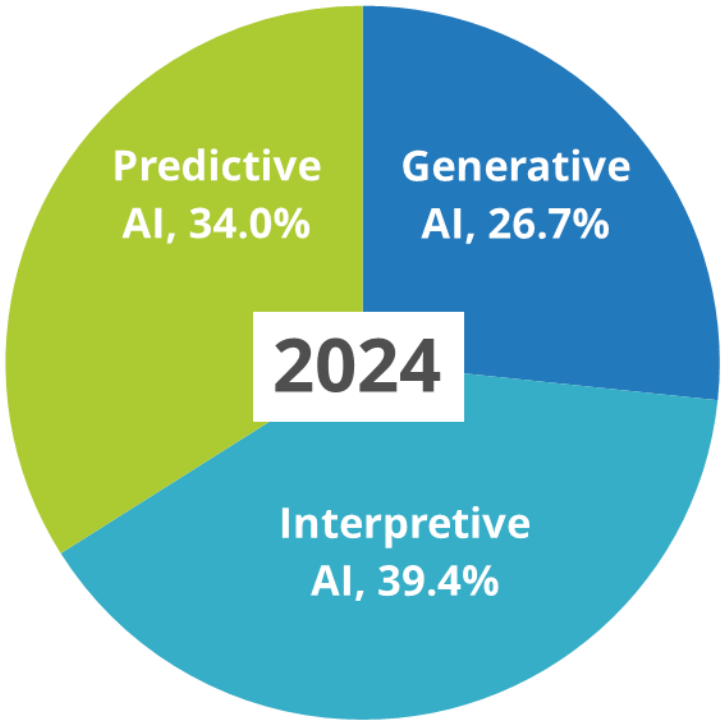
What is your organization's current state of evaluating or using Generative AI (GenAI)?



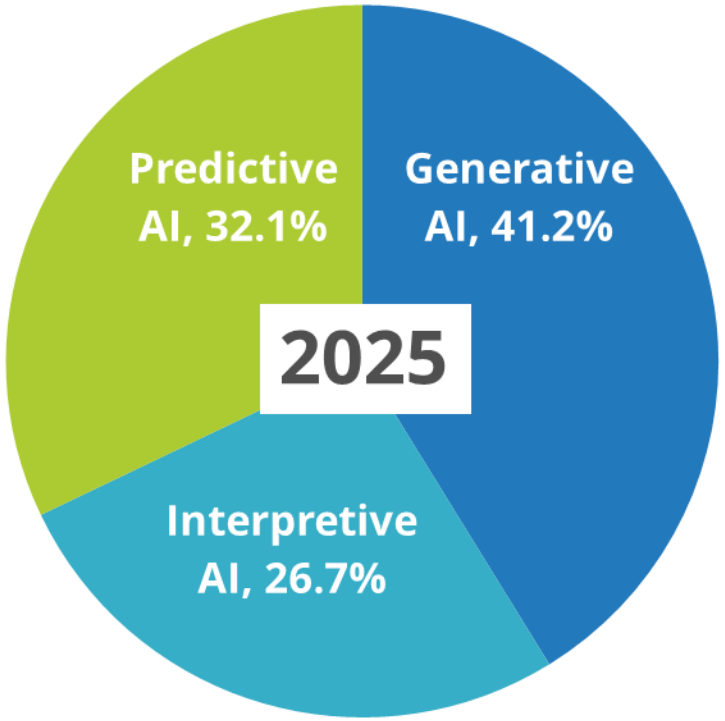
Source: IDC Future Enterprise Resiliency & Spending Survey, IDC, February, 2025, Manufacturing N=98, Data weighted by IT spend (500+ emp size)

GenAI investments are increasing rapidly – now the dominant AI-related investment for manufacturers.

Manufacturer's estimated AI-related investments for 2025 (development, data, infrastructure).



Source: IDC Future Enterprise Resiliency & Spending Survey, IDC, January, 2024, Manufacturing N=116, Data weighted by IT spend (500+ emp size)



Source: IDC Future Enterprise Resiliency & Spending Survey, IDC, February, 2025, Manufacturing N=98, Data weighted by IT spend (500+ emp size)

AI-related investments include development, data, and infrastructure assets.

In 2025, 41% of manufacturer's AI spend is going toward GenAI.

- A 15% increase in just one year.
- GenAI is now a bigger investment than Interpretive and Predictive.

Manufacturers will continue to spend on Interpretive and Predictive AI.

- For product development, this is a key source for many of the data-driven decisions.

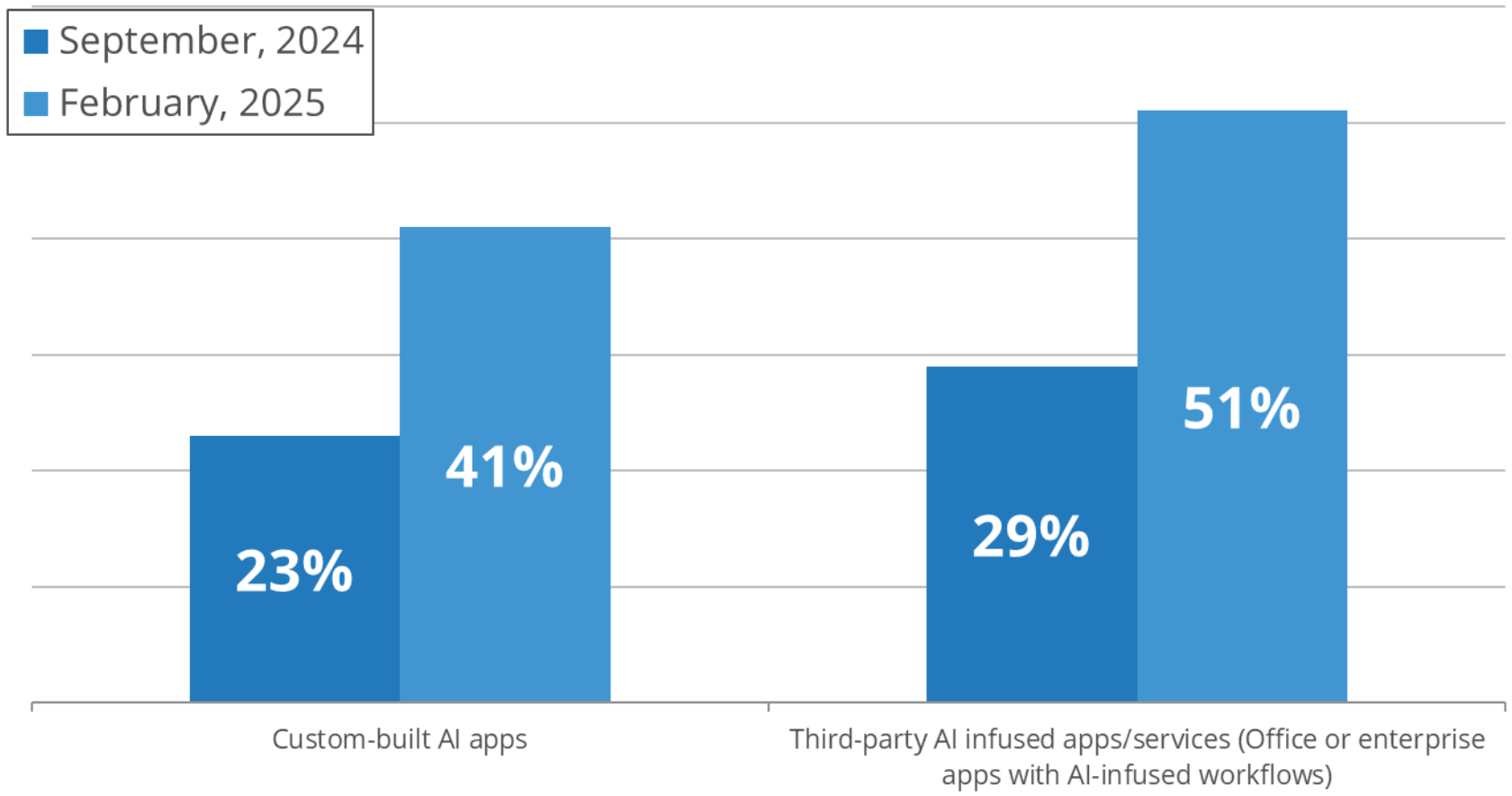
AI deployments are accelerating.
In only 5 months, the number of AI-apps that moved into production doubled.

What percentage of proofs of concept (PoCs) for custom-built AI apps and third-party AI infused apps/ services have been successfully released into production in the past 12 months?

Manufacturers are using PoCs to learn how to derive value from AI.

Those PoCs are then rapidly rolled into existing processes.

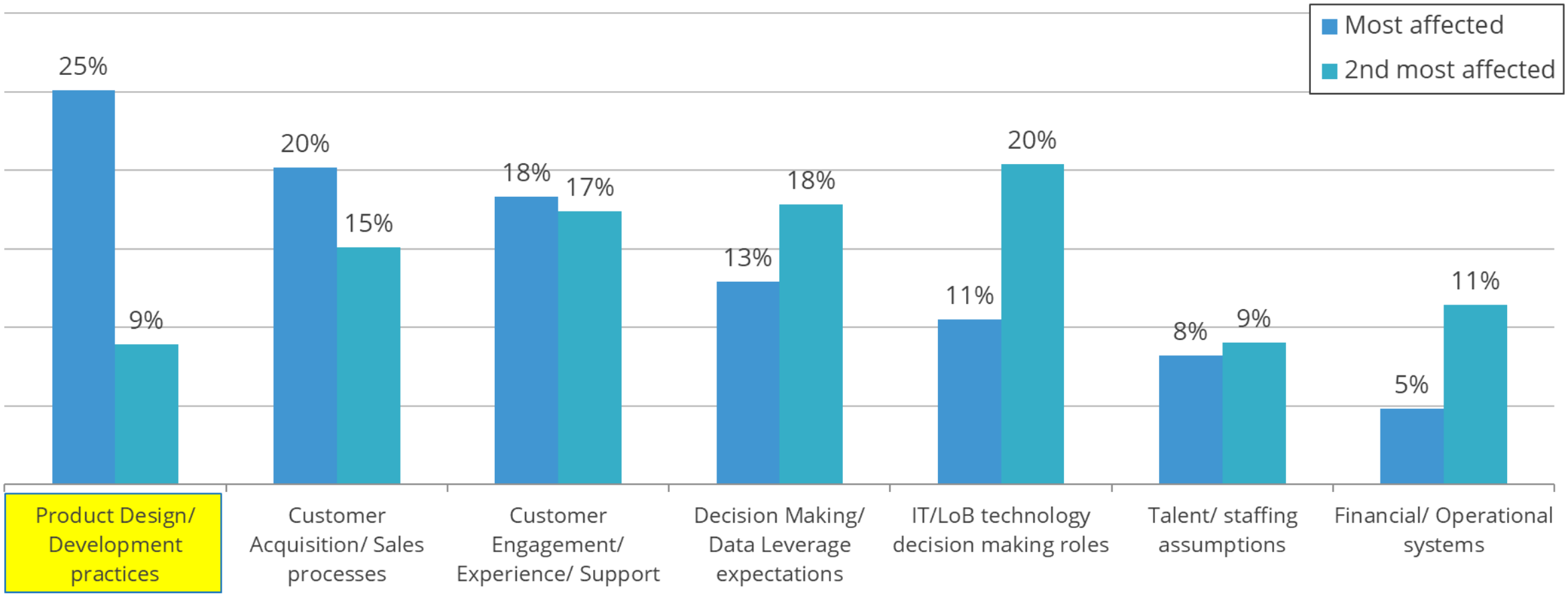
Manufacturers are quickly identifying valuable sources of data and finding ways to leverage it.



Source: IDC Future Enterprise Resiliency & Spending Survey, IDC, September, 2024, Manufacturing N=110, February, 2025, Mnaufacturing N=76, Data weighted by IT spend (500+ emp size)

GenAI is a competitive differentiator for product design and development.

What are the top two business areas where you believe the disruptions associated with GenAI technologies are affecting your competitive position or business model?

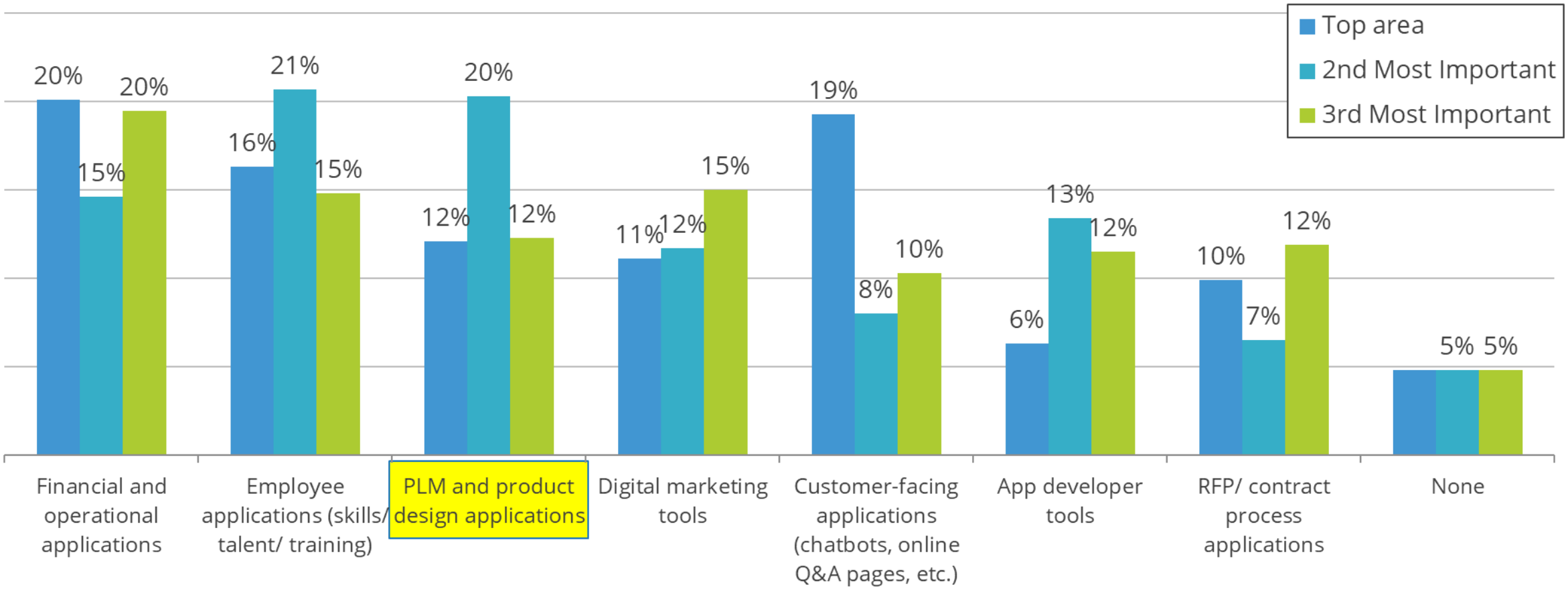


Source: IDC Future Enterprise Resiliency & Spending Survey, IDC, December 2024, Manufacturing N=89, Data weighted by IT spend (500+ emp size)

The C-suite wants GenAI to address challenging problems with high ROI.

PLM and product design appears to be the most complex opportunity under consideration.

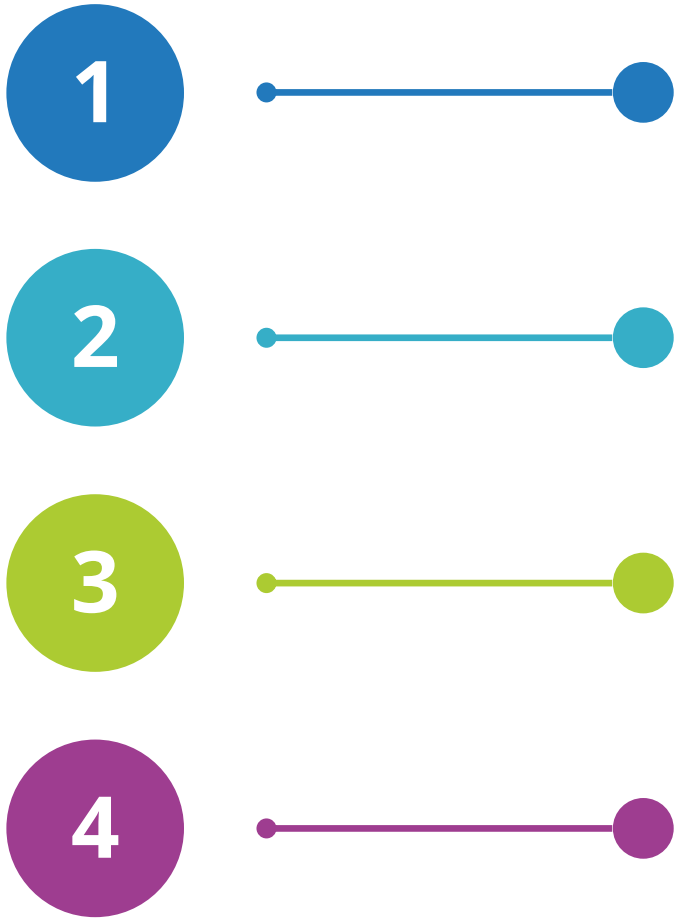
What are the top areas of focus for your C-Suite when it comes to integrating GenAI into existing applications or business processes?



Source: IDC Future Enterprise Resiliency & Spending Survey, IDC, December, 2024, Manufacturing N=109, Data weighted by IT spend (500+ emp size)

PLM in the Board Room – Key Takeaways

Build an AI-powered, digital thread across product development, manufacturing, supply chain, and service.



Invest more in engineering to design for actual production capability. This will reduce manufacturing scrap, rework, and change requests, and decrease cost of goods sold.

Focus on manufacturing cost and quality vs. engineering time. Prolonging development may seem counter-intuitive, but improving first article quality reduces time-to-market.

GenAI is now a competitive differentiator for engineering and adoption is accelerating. The C-suite is expecting to see results in product development and manufacturing.

Manufacturers have AI-enabled applications in production. Engineering organizations should build AI "muscles," using in-house centers of excellence to deliver proof-of-concepts.

Q&A

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