

 WEBINAR

August 3, 2023 | 1:00pm ET

Innovation Budgeting Checklist



Maggie Nichols



Lydia Carson



Greg Lemmon

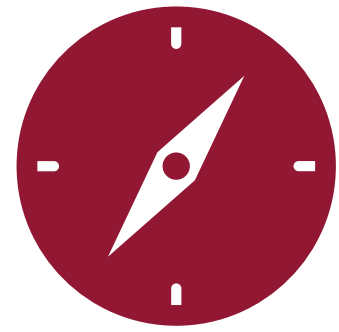


We specialize in
**SYSTEMIC
INNOVATION**

because innovation
shouldn't be a gamble.

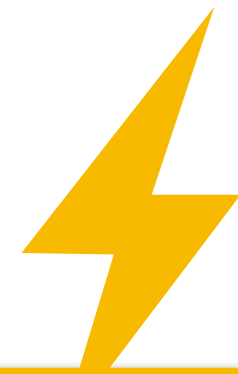


WE HELP ORGANIZATIONS IMPROVE, SUSTAIN, & SCALE INNOVATION WITH CUSTOMIZED PROGRAMS FOR...



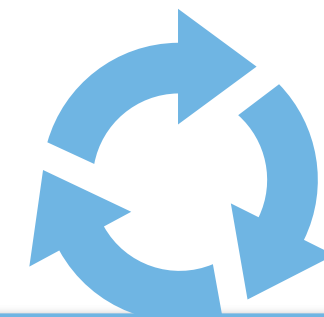
INNOVATION **STRATEGY**

Align on where and how to innovate in your organization for the greatest return.



DISRUPTIVE *INNOVATION*

Invent and vet disruptive innovations that are possible, patented, and win over customers and stakeholders.



INNOVATION **PROGRAM**

Build an innovation program that enables your teams to consistently deliver new solutions with 250% higher odds of success and moves 6x faster than average.



INNOVATION **TRAINING**

Scale an innovative mindset and approach throughout your organization with a shared framework, enabling all with proven training and tools to create a culture of innovation.

FOUNDATION OF TODAY'S PRESENTATION



- *100+ interviews with innovation leaders from 2022-2023*
- *Except from a 3-year research study on Innovation ROI*
- *3rd Party research and trends*
- *35+ years of experience helping organizations innovate*

POLL

*In thinking about your own innovation budget,
where do you plan to allocate funding?*



POLL

In thinking about your own innovation budget, where do you plan to allocate funding?



- *Internal idea challenges*
- *External idea sourcing*
- *Innovation training*
- *Original exploratory R&D*
- *Continuous improvement of innovation systems (faster/better research, experimentation, etc)*
- *Process Improvement Innovation*
- *“Close in” new product development*
- *“Disruptive” new product development*
- *Enabling innovation beyond the “innovation department”*
- *Partnering with universities, experts or agencies*
- *Investing directly in startups / corporate venture capital*
- *Operating an innovation lab*
- *Onboarding and operationalizing new innovations*
- *Partnering with or sponsoring accelerators*
- *Mergers & Acquisitions*
- *Marketing or advertising*

DEFINE INNOVATION

Our definition for innovation is very inclusive

Barely New



World Changing

Exploratory



Delivery

Internal Change



External Offering

Internally Developed



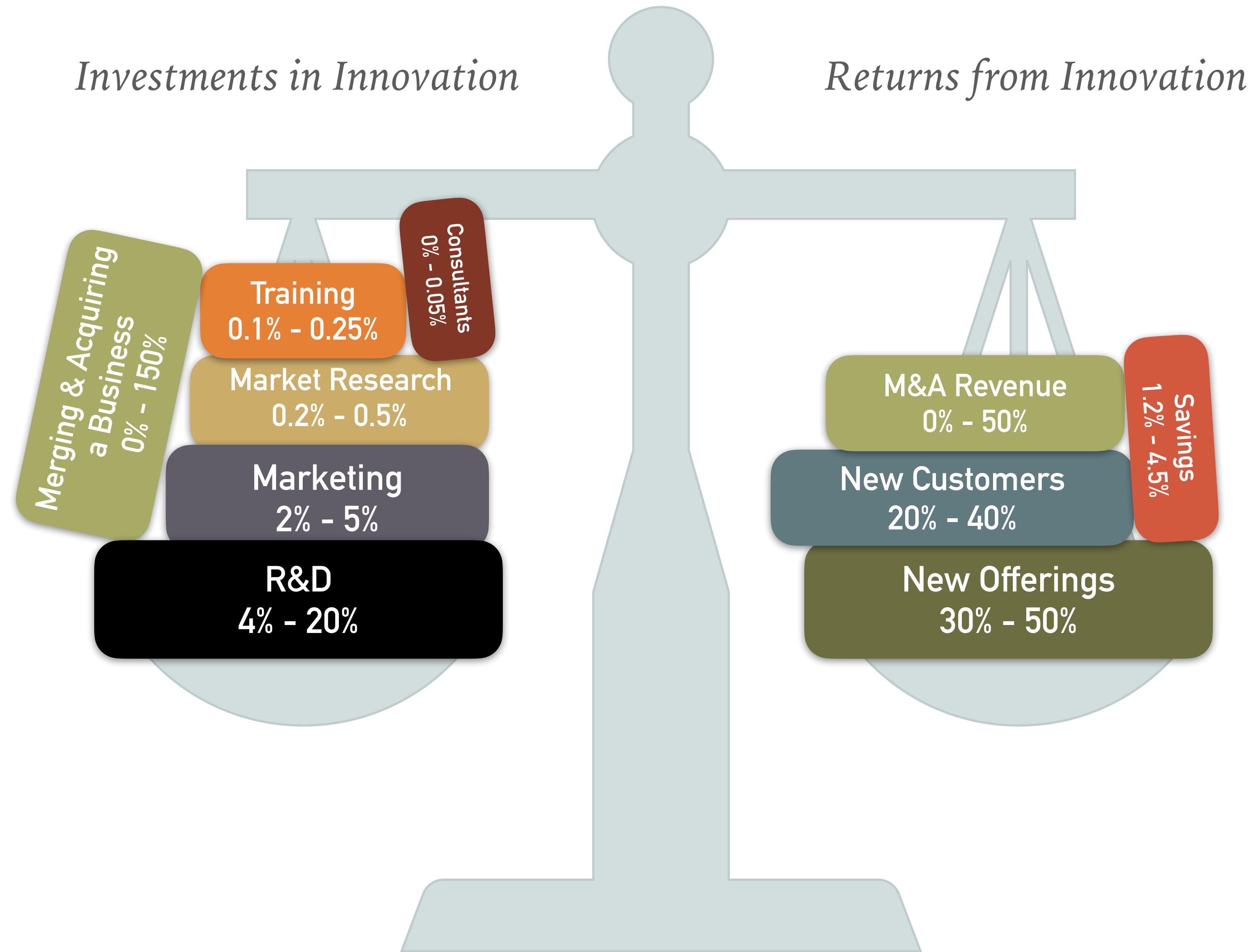
Acquired Business or Tech

Failure



Success

BENCHMARKING DATA

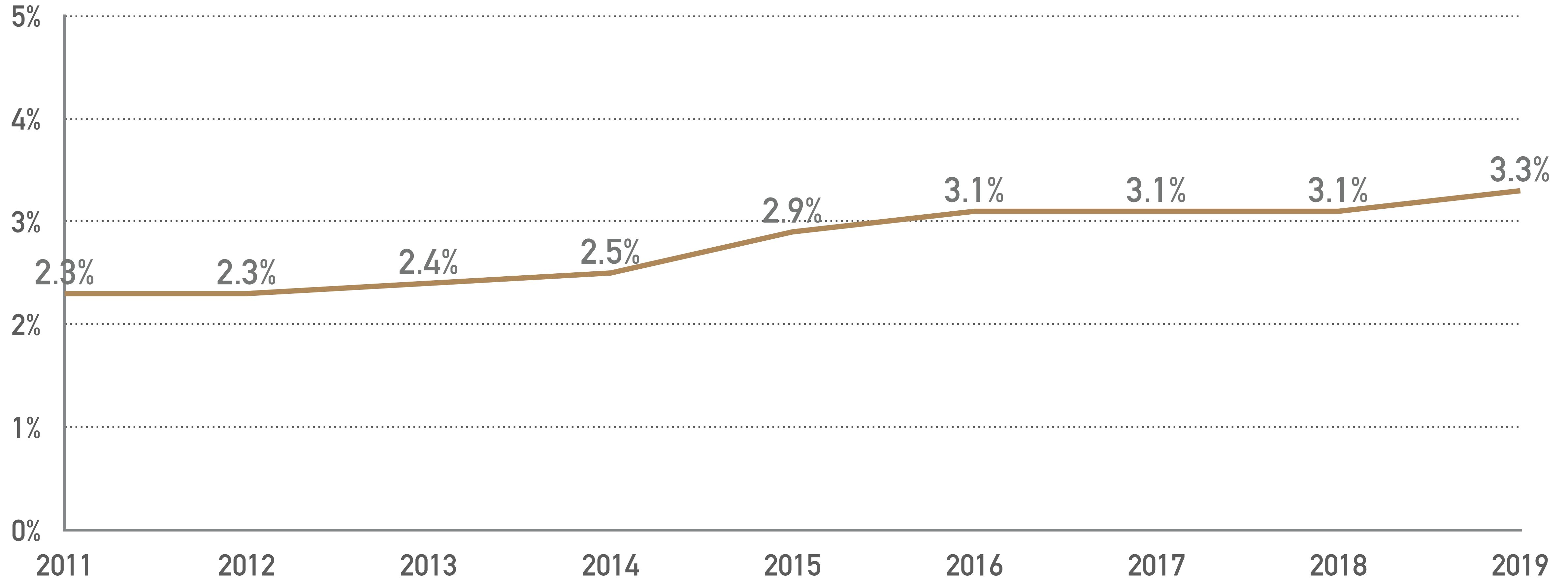


Percentages are percent of revenue

Source: Innovation ROI Best Practices
- Greg Lemmon

BENCHMARKING DATA: INVESTMENTS

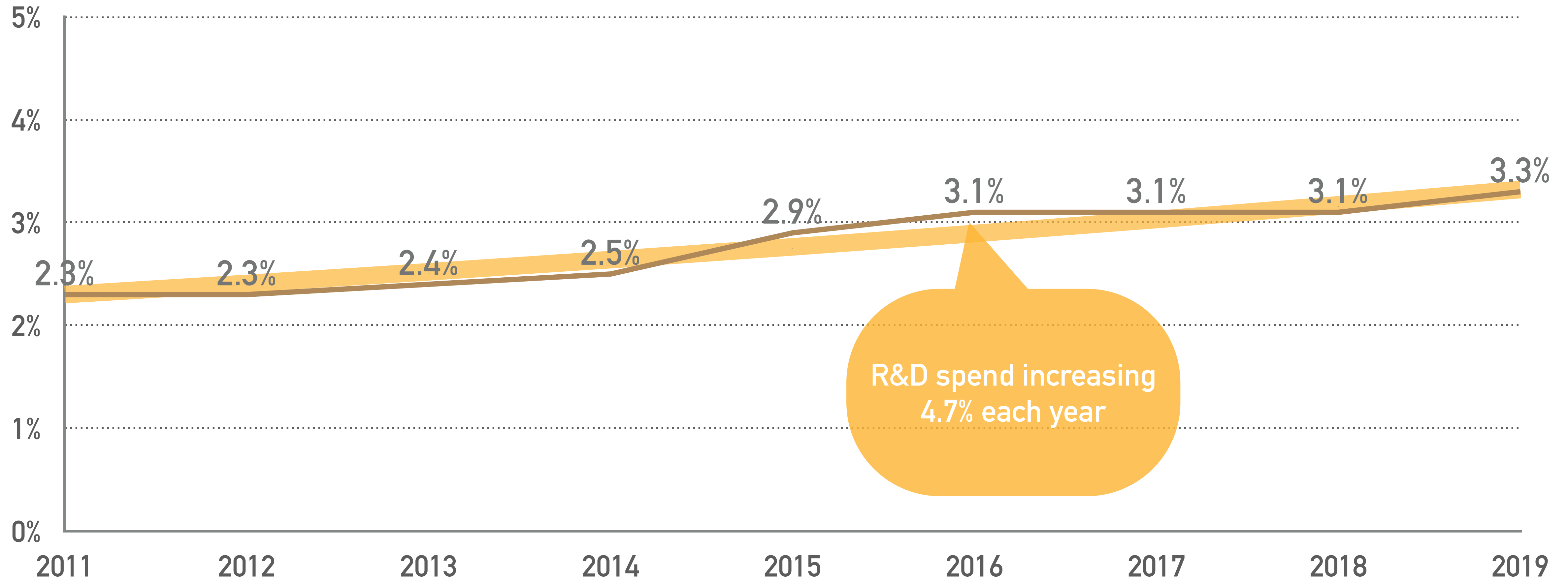
USA: R&D paid for by the company as a percent of their world sales



R&D does not include investments in assets, market research or training

BENCHMARKING DATA: INVESTMENTS

USA: R&D paid for by the company as a percent of their world sales



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BENCHMARKING DATA: INVESTMENTS

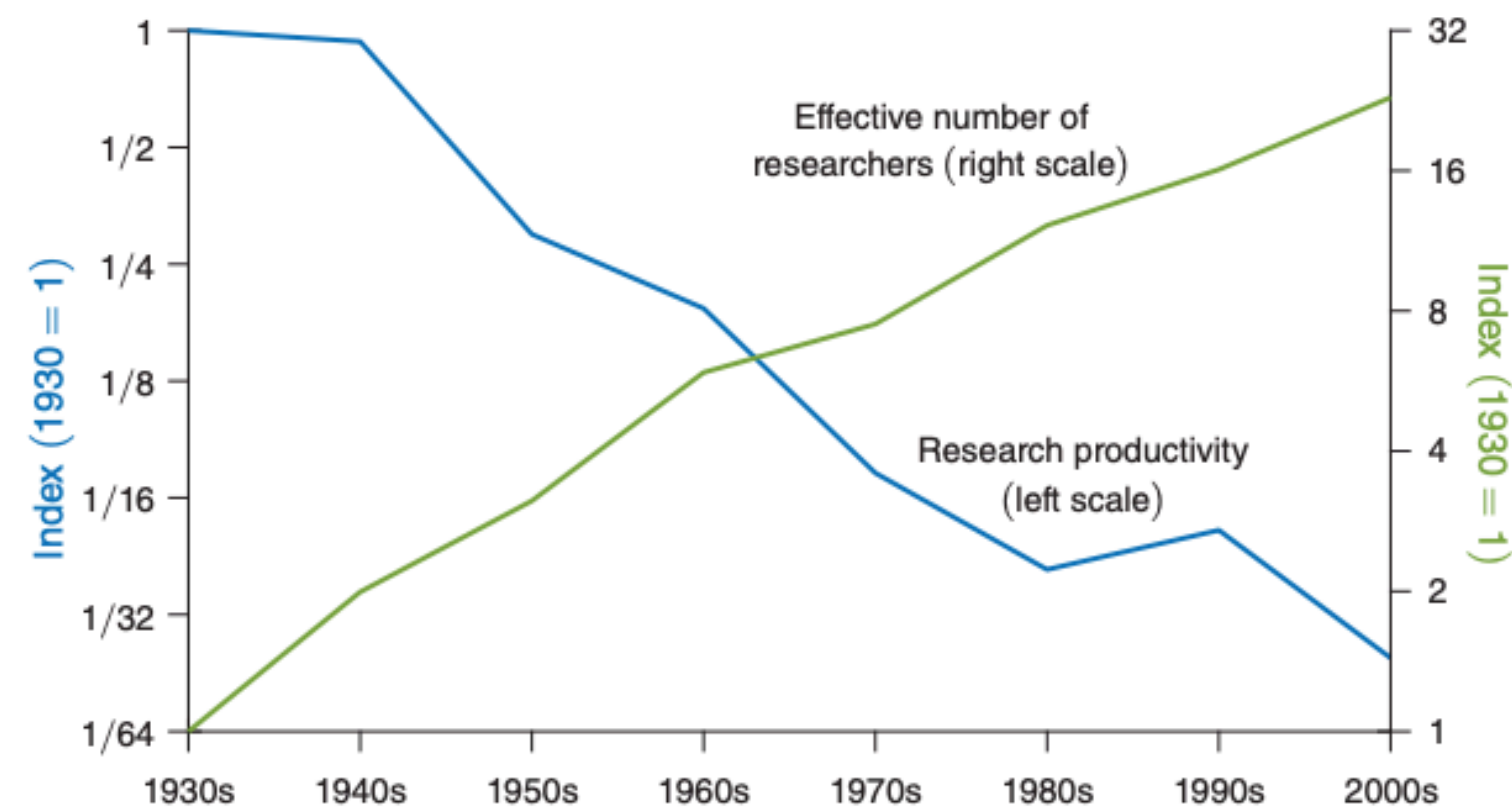


FIGURE 2. AGGREGATE EVIDENCE ON RESEARCH PRODUCTIVITY

Notes: Research productivity is the ratio of idea output, measured as TFP growth, to the effective number of researchers. See Notes to Figure 1 and the online Appendix. Both research productivity and research effort are normalized to the value of 1 in the 1930s.

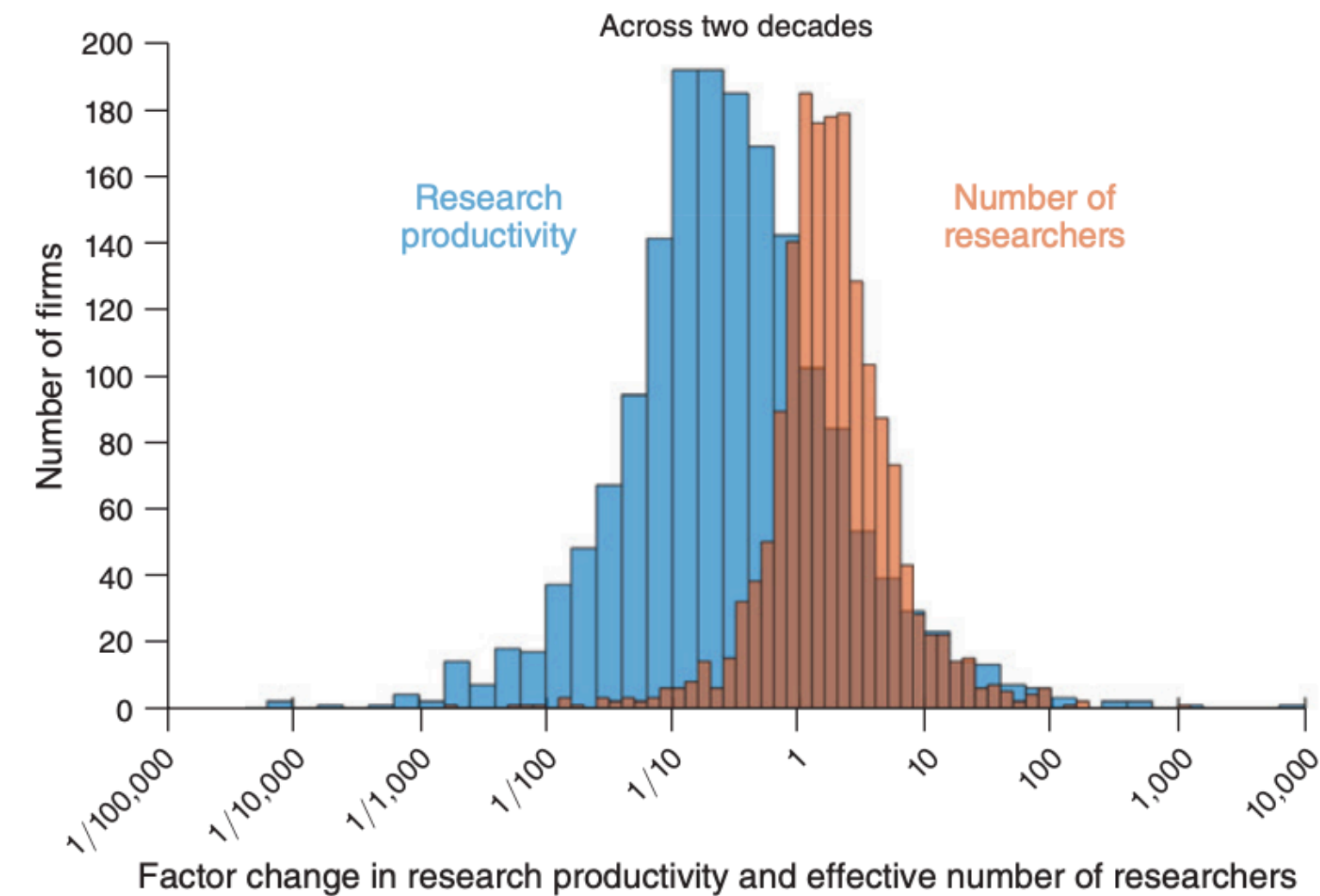


FIGURE 10. COMPUSTAT DISTRIBUTIONS, SALES REVENUE (TWO DECADES)

“Have to double research efforts every 13 years just to maintain the same overall rate of economic growth.”

Are Ideas Getting Harder to Find? By Nicholas Bloom, Charles I. Jones, John Van Reenen, and Michael Webb *American Economic Review* 2020 110(4): 1104–1144

R&D Spend as a Percent of Sales – Industry

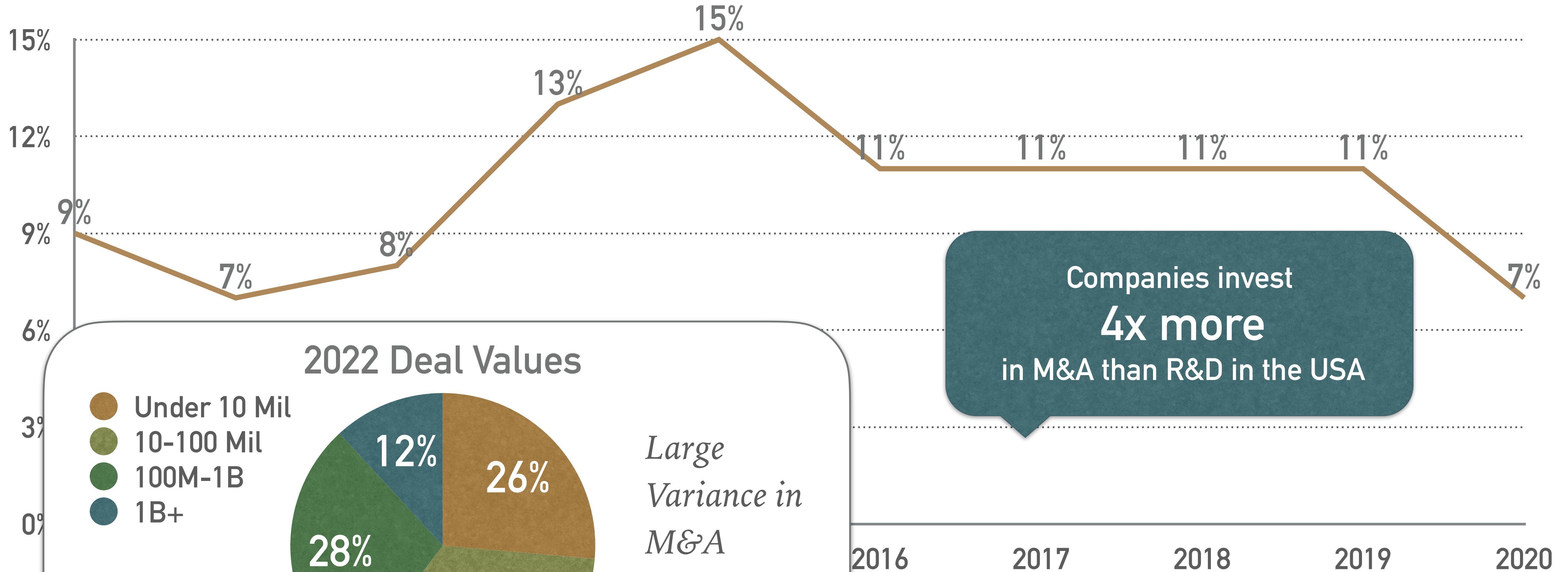
Source: National Science Foundation: Business Enterprise Research and Development Data from 2019, published in 2022

Industry	R&D Spends as % of Sales
Research and Development Services	45%
Biotechnology-based pharmaceutical and biological products (except diagnostic substances)	22.96%
Photographic and photocopying equipment manufacturing	19.38%
Couriers, messengers, and express delivery services	14.26%
Cloud computing applications and Internet-based software services	12.77%
Digital cameras manufacturing	12.27%
Other communication equipment manufacturing (except radio, television, and wireless communication equipment)	11.09%
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments manufacturing	10.77%
Telephone apparatus manufacturing, including routers, modems, and gateways	10.69%
Software publishers (except Internet)e	10.45%
Pharmaceutical, medicinal, botanical, and biological products (except diagnostic substances) manufacturingc	10.06%
Guided missiles, space vehicles, and related parts manufacturing	9.93%
Semiconductor machinery manufacturing	9.70%
Data processing, hosting, and related servicese	9.17%
In vitro diagnostic substances manufacturingc	8.29%
Computer systems design and related servicese	8.24%
Electromedical, electrotherapeutic, and irradiation apparatus manufacturing	8.07%
Audio and video equipment manufacturing	7.97%

Industry	R&D Spends as % of Sales
Semiconductor and other electronic components manufacturing	7.68%
Rental and leasing services	7.42%
Aircraft manufacturing	7.40%
Professional, scientific, and technical services (not listed elsewhere)	7.14%
Radio, television, and wireless communication equipment manufacturing	6.97%
Legal, accounting, tax preparation, bookkeeping, and payroll services	6.69%
Medical and diagnostic laboratories	6.39%
Management, scientific, and technical consulting services	4.91%
Medical equipment and supplies manufacturing	4.90%
Measuring and control instruments manufacturing (not listed elsewhere)	4.57%
Computers and peripheral equipment manufacturing and magnetic and optical mediad	4.39%
Aircraft engine and engine parts manufacturing	3.88%
Administrative and support services	3.67%
Industrial machinery manufacturing (except semiconductor machinery)	3.64%
Lessors of nonfinancial intangible assets, including patent licensing	3.53%
Military armored vehicle, tank, and tank components manufacturing	3.51%
Architectural, engineering, and related services	3.51%
Motorcycle, bicycle, and parts manufacturing	3.34%
Clay and glass products manufacturing	3.33%
All business activities	3.31%

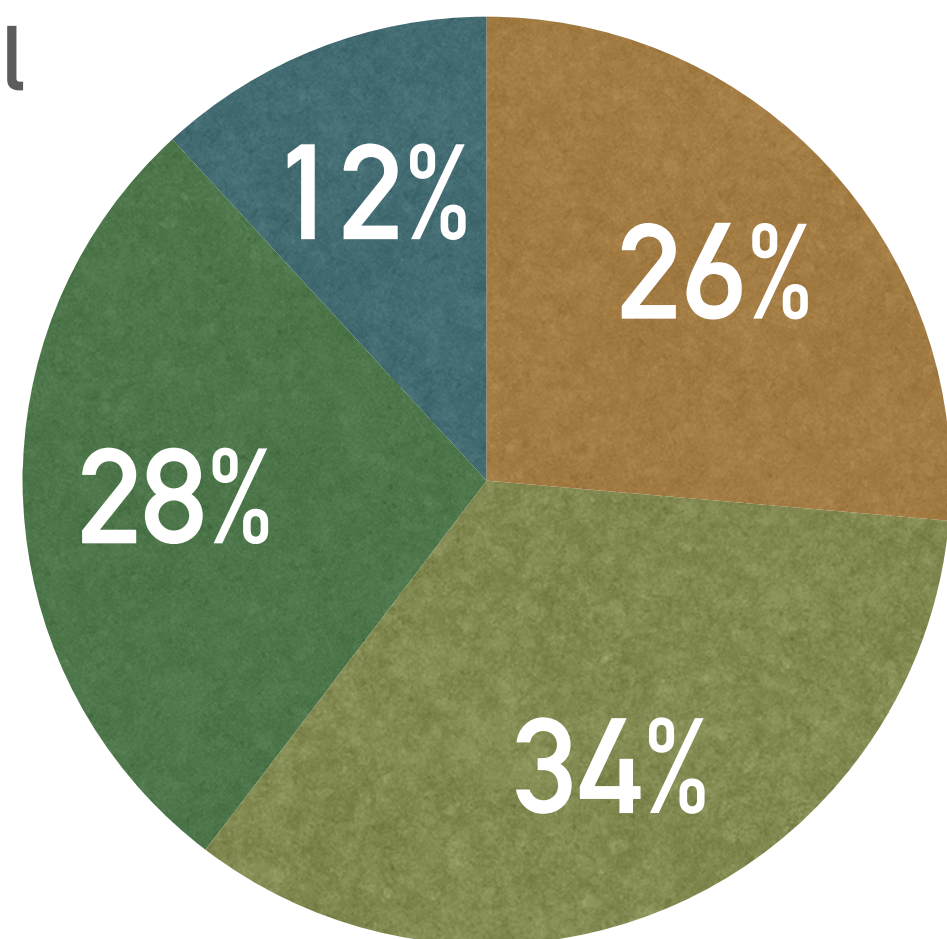
BENCHMARKING DATA: INVESTMENTS

USA: Mergers & Acquisitions (M&A) as Percent of Total Revenue



2022 Deal Values

- Under 10 Mil
- 10-100 Mil
- 100M-1B
- 1B+



*Large
Variance in
M&A
Spending*

BENCHMARKING DATA: INVESTMENTS

Average spend as percent of revenue

B2B	B2C
2-5%	5-10%

Some marketing gets spent on advertising older offerings, but is still a significant investment in innovation

Marketing could cost more than R&D

INVESTMENT DRIVES RETURNS

Investments in Innovation

Returns from Innovation

**100% OF
SURVEY
RESPONDENTS
SAID...**

**If
Investments
Increase**

**Returns
increase
proportionally**

“On average for internal R&D a 1% increase in R&D gets you 0.1% increase in revenues.”

Anne Marie Knott
Professor teaching strategy and innovation at Washington University at St. Louis

**There is more complexity
that can be measured and modeled**

Sources: IRI Innovation ROI Webinar Survey with Eureka! Ranch

Anne Marie Knott presented “How innovation really works”

**MAXIMIZING RETURN ON
INNOVATION INVESTMENT**

Spending more on innovation does not always result in higher sales, market share or profit. Here's how to maximize your return on innovation investment.

Miles P. Drake, Nabil Sakkab

OVERVIEW: “How does the level of business innovation investment really impact company growth and performance?” This question was put to an Industrial Research Institute panel for discussion at its annual meeting, May 2006. The panelists were also asked to comment on an initial hypothesis presented in strategy business by Alexander Kandybin and Martin Kihn, of Booz Allen Hamilton, that there is no broad correlation between innovation investment and growth. In their responses, panelists from Air Products and Chemicals, Procter & Gamble and The Monitor Group suggest ways to move forward.

KEY CONCEPTS: R&D investment, business innovation, return on innovation, metrics.

Raising Returns on Innovation, by Miles Drake

Return on investment is an ever-growing concern at my company as it is, I'm sure, at many others. Few activities in the corporate world, however, resist the business

Miles Drake heads the worldwide R&D activities at Air Products and Chemicals, Inc., Allentown, Pennsylvania, as vice president and chief technology officer. He joined Air Products in 1986 as a technology manager, was appointed director of the Corporate Science and Technology Center in 1994, director of Gases and Equipment Group in 1998, and assumed his current position in 2001. He is a Fellow of the Royal Society of Chemistry, the author of over 20 patents. He received a B.S. in chemistry from Cambridge University and a Ph.D. in surface and colloid chemistry from the University of Bristol. drakemp@airproducts.com

Nabil Sakkab is senior vice president, Corporate Research and Development, and a member of the Leadership Council at Procter & Gamble Company, where he has been since 2005. He received a B.S. in chemical engineering from the University of Michigan and a Ph.D. in chemical engineering from the University of California, Berkeley. He is also a member of the American Chemical Society and the Society for Applied Polymer Science. nabil.sakkab@pg.com

MEASURING THE EFFECTIVENESS OF R&D

R&D metrics continue to be an important topic for measuring the effectiveness of R&D. Practitioners share their issues and recommendations.

Lawrence Schwartz, Roger Miller, Daniel Plummer, and Alan R. Fusfeld

OVERVIEW: Measuring the effectiveness of R&D has been a perennial challenge. IRI's Research-on-Research working group *Measuring the Effectiveness of R&D* sought to investigate how managers define R&D effectiveness and what metrics they use to measure it. Via surveys and questionnaires, attendees at IRI meetings revealed that while the three top metrics are unchanged over the past 15 years, there were significant differences in metrics used depending on the industry type. The study also revealed issues with metrics in general and the need for new metrics to meet the changing R&D environment.

KEY CONCEPTS: Metrics, Technology value pyramid, Innovation games, R&D effectiveness, Research-on-research groups

Lawrence Schwartz is a vice president and principal of Intellectual Assets, Inc., a California-based professional services company linking business decisions and intellectual property. His areas of technical expertise are in materials and sustainability. Previously he was vice president of strategic development for Aurigin Systems. At Raychem (Tyco), he worked for 25 years in all phases of technology management. He holds a PhD in chemistry from the University of Arizona, an MBA from San Jose State University and a Ph.D. in chemistry from San Diego State University. lschwartz@iaia.com

Dan Plummer is the manager of R&D at Sasol North America in Lake Charles, Louisiana, where he is responsible for surfactants, surfactant intermediates, and specialty chemicals. He has 27 years of industrial experience, including 15 years at Sasol North America and its predecessor company, Shell Chemicals. He has filled roles in product management, sales, marketing, quality development, and global R&D management. Dan received a BA in chemistry from the University of California, San Diego and a PhD in inorganic chemistry from the University of California, San Diego. dan.plummer@us.sasol.com

Alan R. Fusfeld is president and CEO of The Fusfeld Group, a consulting firm focused on R&D and innovation. He has 30 years of experience in R&D and innovation, including 15 years at Procter & Gamble. He holds a B.S. in chemical engineering from the University of Michigan and a Ph.D. in chemical engineering from the University of California, Berkeley. alan.fusfeld@fusfeld.com

Roger Miller is a senior vice president at Procter & Gamble, where he has been since 2005. He received a B.S. in chemical engineering from the University of Michigan and a Ph.D. in chemical engineering from the University of California, Berkeley. He is also a member of the American Chemical Society and the Society for Applied Polymer Science. roger.miller@pg.com

INVESTMENT DRIVES SPEED

“The development of the Moderna vaccine at warp speed has taught us that given unlimited resources, time-to-market can be cut dramatically.”

Robert G Cooper
Accelerating innovation: Some lessons from the pandemic

moderna

Moderna received \$2.5 billion in funding from the U.S. government (Clouse, [2020](#)).

Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8014561/>

INVESTMENT DRIVES SPEED

TRAINING ROI

“The ROI conversation is almost laughable because it's so much higher than anything we've paid out”

“with the traditional process, the products would have eventually come to market in some form anyway, I think using the new process, we improve the product and de-risk them at the same time, and got them to market sooner.”

“The investment is so low compared to what the ROI can be, that I chuckle when I think about it.”

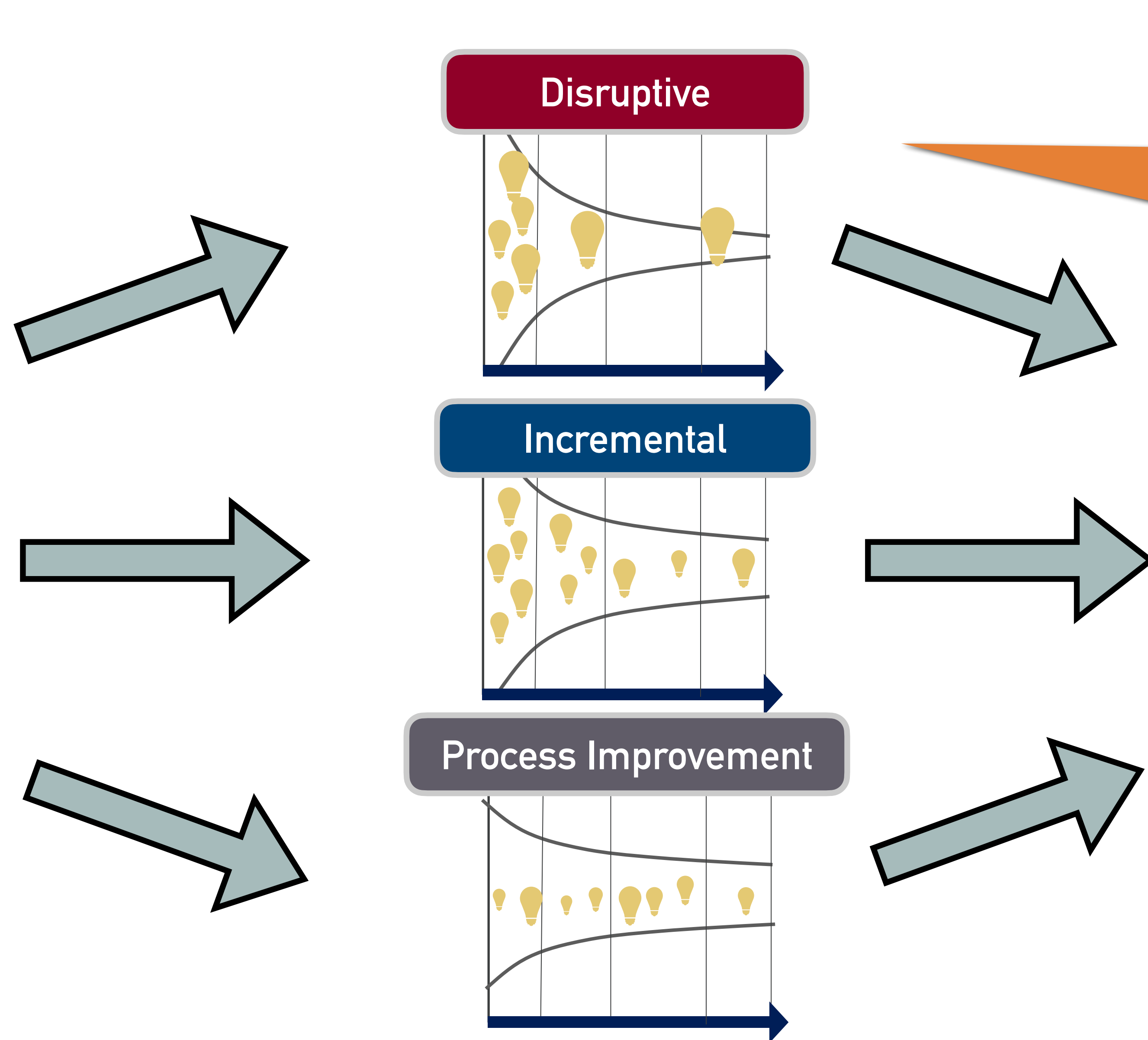
Eric Seibold Permatex Innovation Manager



Source: Innovation Engineering Webinar Quote “Discover Hidden Funding to Make Your Team Innovative”

ROI is impacted by the type of Innovation, so deconstruct based on your organization

INVESTMENTS

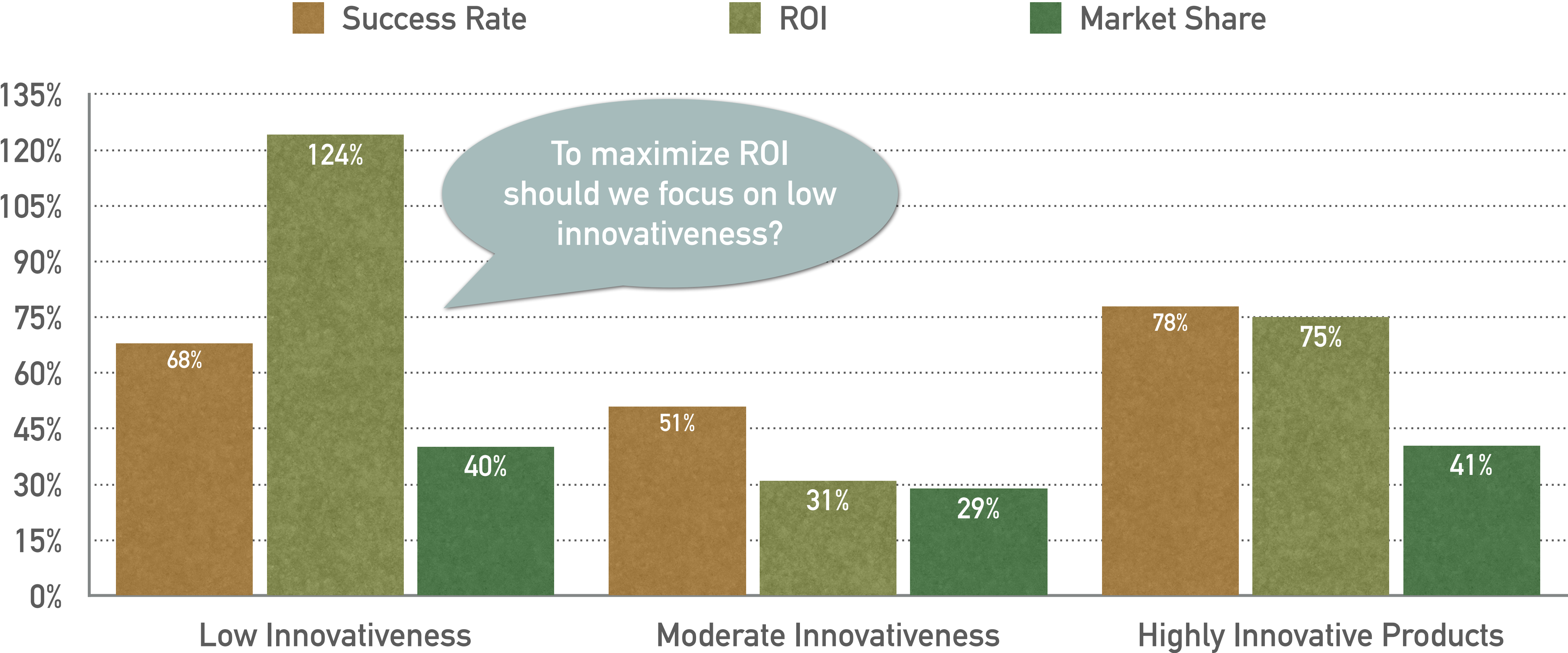


Each system has very different Failure Rates, Cost, Time & Project Value

RETURNS

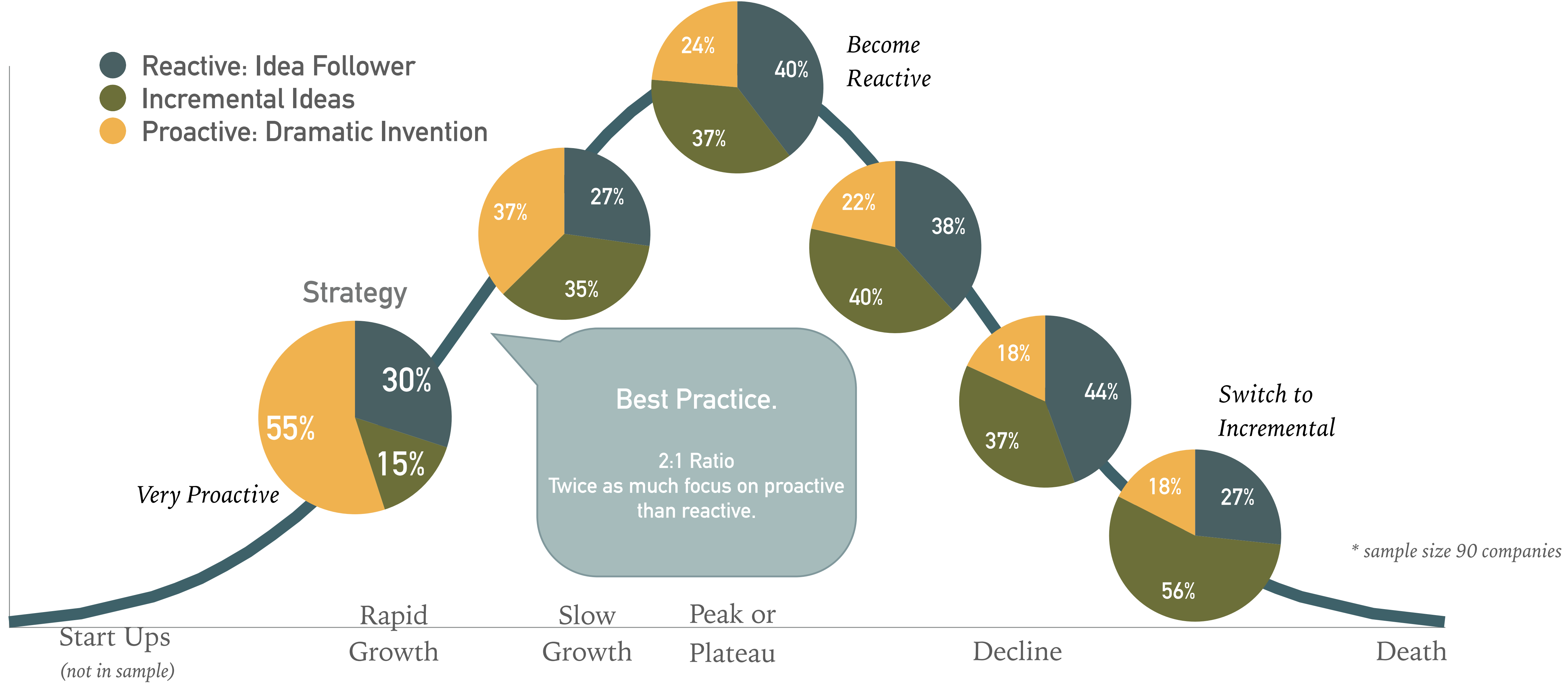
Examples of different types of innovation, Best practice is to create your own.

Levels of Innovativeness for new offerings



Source: Journal of Product Innovation Management Impact of product innovativeness on performance

STRATEGY FOR GROWTH



Growth requires a budget and focus on leading your industry with dramatic invention

DECISION MAKING

Idea decisions are more focused on avoiding cost, investment, and risk than maximizing the opportunity.

Leadership has control.

Strategic alignment is used to pick ideas.

They care what experts and leaders think

Market opportunity and odds of success are lowest

Implementing the Best Ideas: Uniting Ideation with Business Strategy

You've got ideas. Lots of ideas. Lots of exceptional ideas. But collecting winning ideas is not enough. To drive success, you need to marry ideation with strategy, implementation, and tracking. It's in the implementation stage – perhaps more so than any other – that there are significant opportunities for improvement.

Not surprisingly, survey respondents this year reported that "Alignment to Business Strategy" remains their number one criteria to pick winning ideas. This is a great approach, because if the winning idea doesn't satisfy a strategic need, it makes no sense to use limited resources to implement the idea. It's far more impactful to run a challenge tied directly to a strategic imperative and show employees how their valuable ideas can directly influence the bottom line. When strategy drives the crowdsourcing program, organizations see results.

Interesting to note, "Evaluation by Subject Matter Experts" in 2019 displaced feasibility as the fourth most selected criteria, highlighting the interest in ensuring the people closest to work are influencing the decisions on what to action.

Top 5 Criteria Customers Reported for Selecting Winning Ideas

1. Alignment to business strategy
2. Estimated value (ROI/savings/financial impact)
3. Estimated cost to implement
4. Evaluation by subject matter experts
5. Approval by senior leaders

What are the most important criteria your company uses to identify the top crowdsourced ideas on which a challenge sponsor will take further action? (Select up to 5)



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Inc.

INNOVATE

The Top 3 Reasons to Have an Innovation Budget

Innovation will always come with risk, but that doesn't mean you should be putting off plans for change.

BY VISPI DAVER, SVP OF GLOBAL SALES AND PARTNERSHIPS, WHATFIX @VISPID



A Foundation to Driving Positive Change

The Key to Risk Management

Helping You Manage Investments

McKinsey
Global Institute

People & Organizational Performance Practice

Performance through people

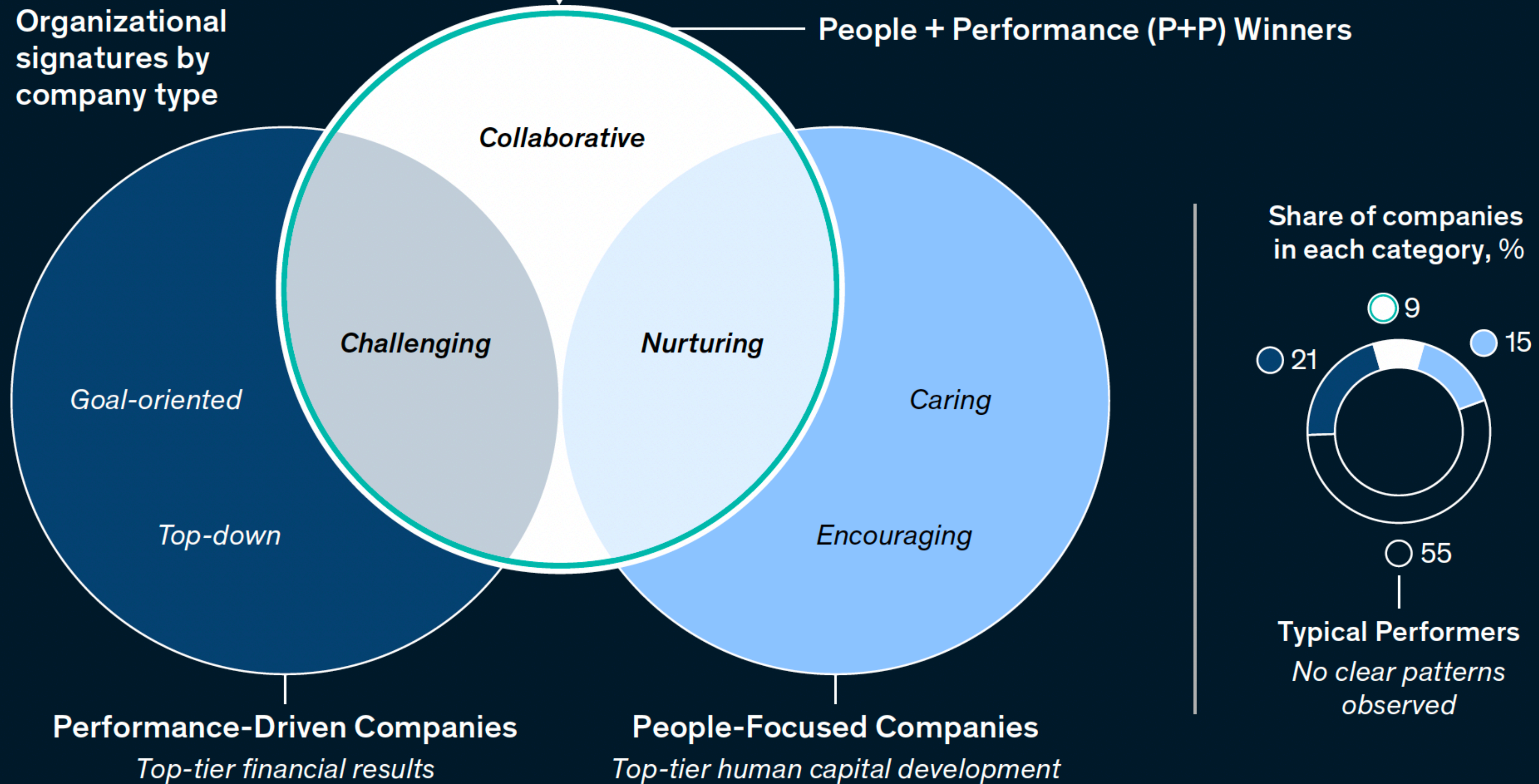
Transforming human capital into competitive advantage

February 2023



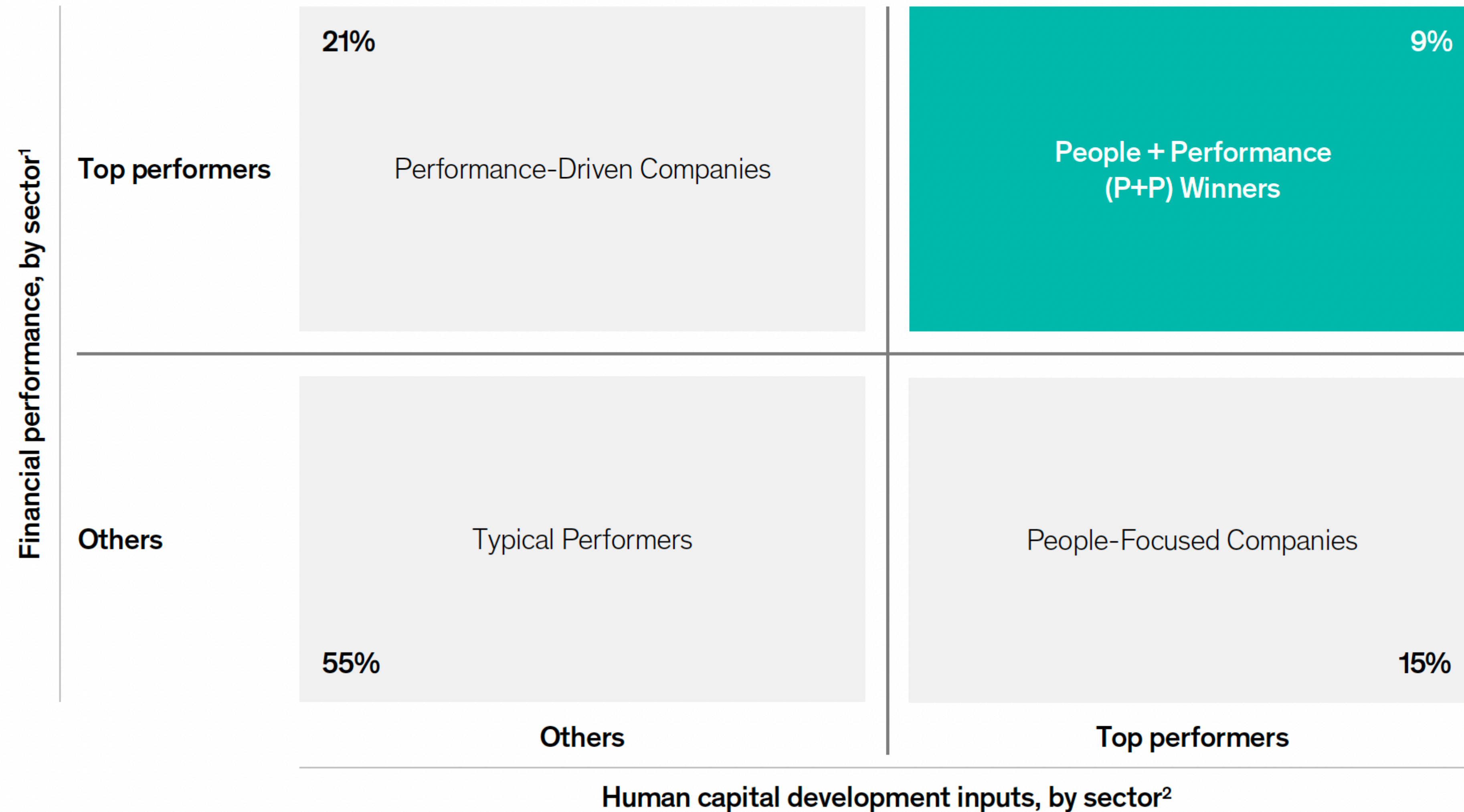
Companies can gain a competitive edge with a dual focus on people and performance

Organizational signatures by company type



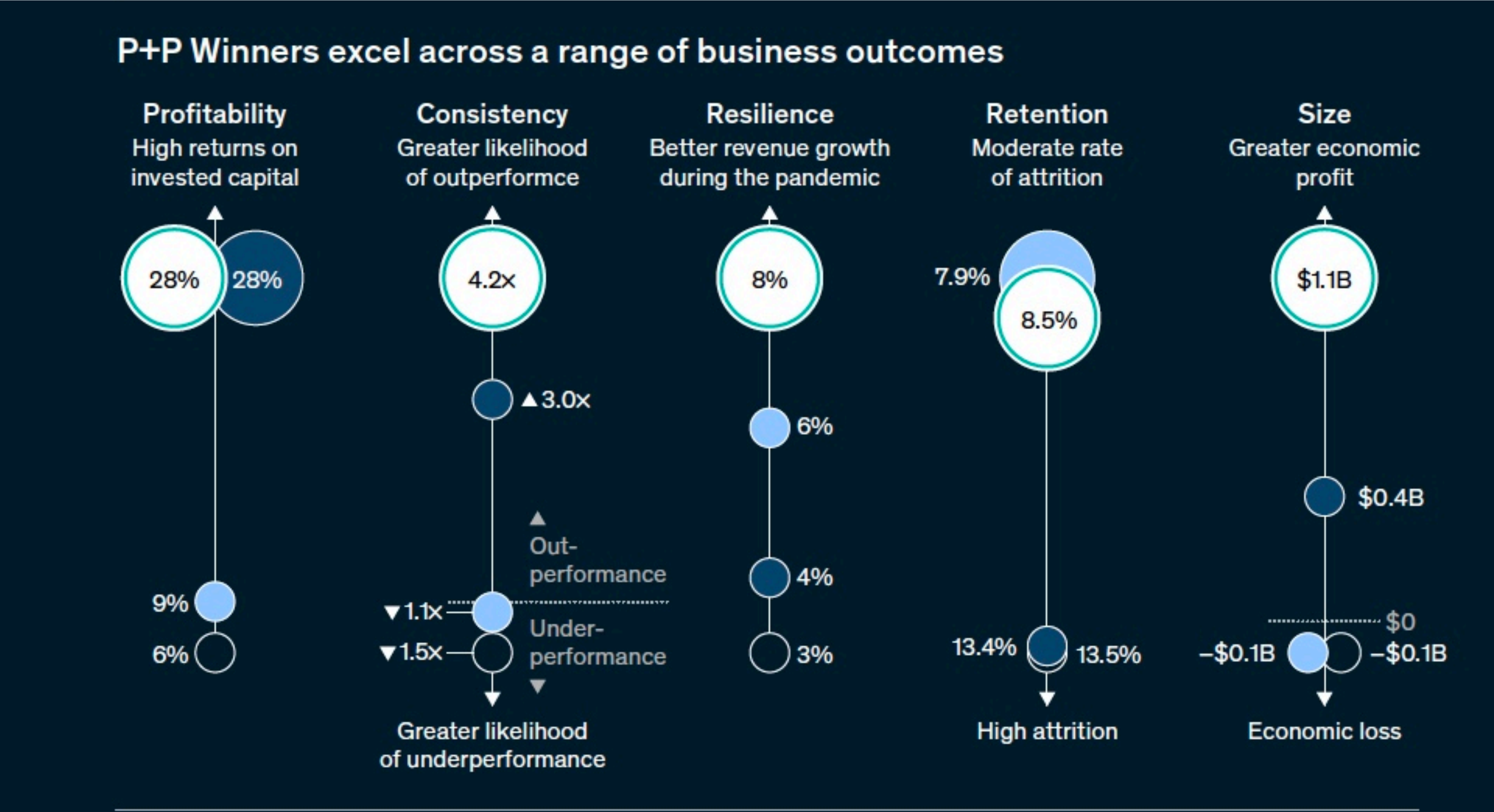
We categorize P+P Winners as companies that outperform on both financial results and human capital development.

Sample size: 1,793 companies across sectors in 15 countries



Source: McKinsey Global Institute. Performance through people Report 2023

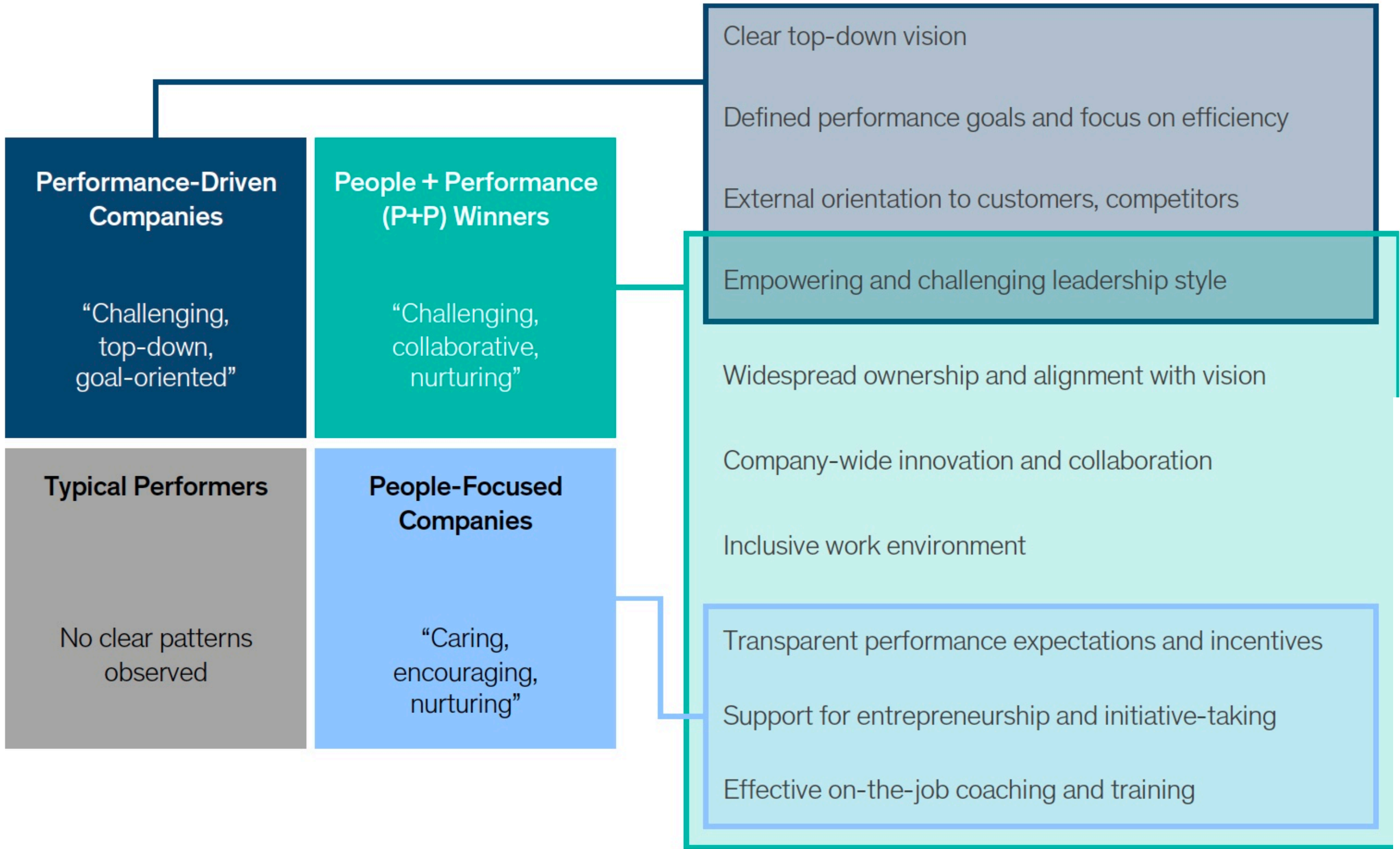
PEOPLE + PERFORMANCE ORGANIZATIONS



Source: McKinsey Global Institute. Performance through people Report 2023

P+P Winners possess a distinctive organizational signature.

Organizational elements prioritized by each category of company, based on Organizational Health Index surveys and other metrics



P+P Winners were

4.3x

more likely than the average company to maintain top-tier financial performance for 9 out of 10 years

P+P Winners grew revenues

2x

faster than Performance-Driven Companies during the pandemic

P+P Winners are

3.6x

more likely than the average company to be “superstars”

74

hours of annual training per employee provided by P+P Winners on average

FOUR SPENDING CHOICES FOR TODAY VS. TOMORROW

		BENEFITS	MANAGEMENT SYSTEM	MARKET IMPACT	
TODAY ↑ ↓ TOMORROW	Daily operations turbulence	Deliver results, sustain success	Within existing organization, ROI	Within existing value network and customers	85%
	Incremental improvement	Faster, cheaper (efficiency)	Within existing organization, ROI	Within existing value network and customers	5%
	Sustaining innovations	Better (effectiveness)	Extraordinary structures (e.g., program office) to manage across functions and boundaries, ROI, experimentation	Within existing value network and customers	5%
	Disruptive innovations	Growth (transformation)	Autonomous units to incubate opportunities, venture funding, experimentation	New value networks and customers	5%



CHALLENGES & ENABLERS

When considering the state of innovation within your organization, what are your **top three challenges or concerns?**

	2020	2023
1. Politics / Turf wars / No alignment	51.9%	35.8%
2. Cultural issues	47.2%	32.9%
3. Inability to act on signals or developments critical to the future of the business	42.1%	32.9%
4. Lack of budget	40.2%	32.4%
5. Lack of strategy, vision	37.9%	25.4%
6. Lack of executive support ▲	19.7%	24.3%
7. Not adopting emerging technologies	21.0%	21.4%
8. Recruiting / Not enough of high-demand skillsets ▼	24.8%	19.1%
9. Other*	16.4%	17.3%
10. Inability to pick up on signals or developments critical to the future of the business	14.8%	12.7%
11. Lack of CEO support	7.9%	4.0%

▲ Up arrow indicates this response moved up in the list since the 2020 benchmarking report.

▼ Down arrow indicates this response moved down in the list since the 2020 benchmarking report.

*** Other Responses (2023)**

- "The business' engagement in innovation due to competing priorities (daily operations; other initiatives, over-commitment of subject matter experts, etc.)"
- "Concerns about the economy weighing on spend."
- "Different agendas held by certain leadership as to how to measure innovation and therefore how we go after innovation. Also, the time it takes to 'sell' an innovative idea or opportunity into the business; corporate bureaucracy."
- "Innovations are stalling after piloting due to lack of funding and executive support in order to shift to scaling. Many are just happy with PR innovation."
- "Lack of actual strategy. Often, goals or visions are treated as strategy, which results in frustration with the organization's ability to advance viable work and creates an unnecessary churn, resulting in confused decision-making."
- "Risk-averse culture and inability to decide and commit. Ability to scale solutions."
- "Supply chain slow-downs and staffing challenges in the program execution areas of the business (where we generate our primary sales and revenue) have drawn talent from our innovation team. One philosophy which has been stated is, 'If I can't staff my programs, why would I staff growth-oriented R&D projects?'"

Innovation Leader

- Area of concern for innovation leaders
“No one is responsible for H2 and H3”

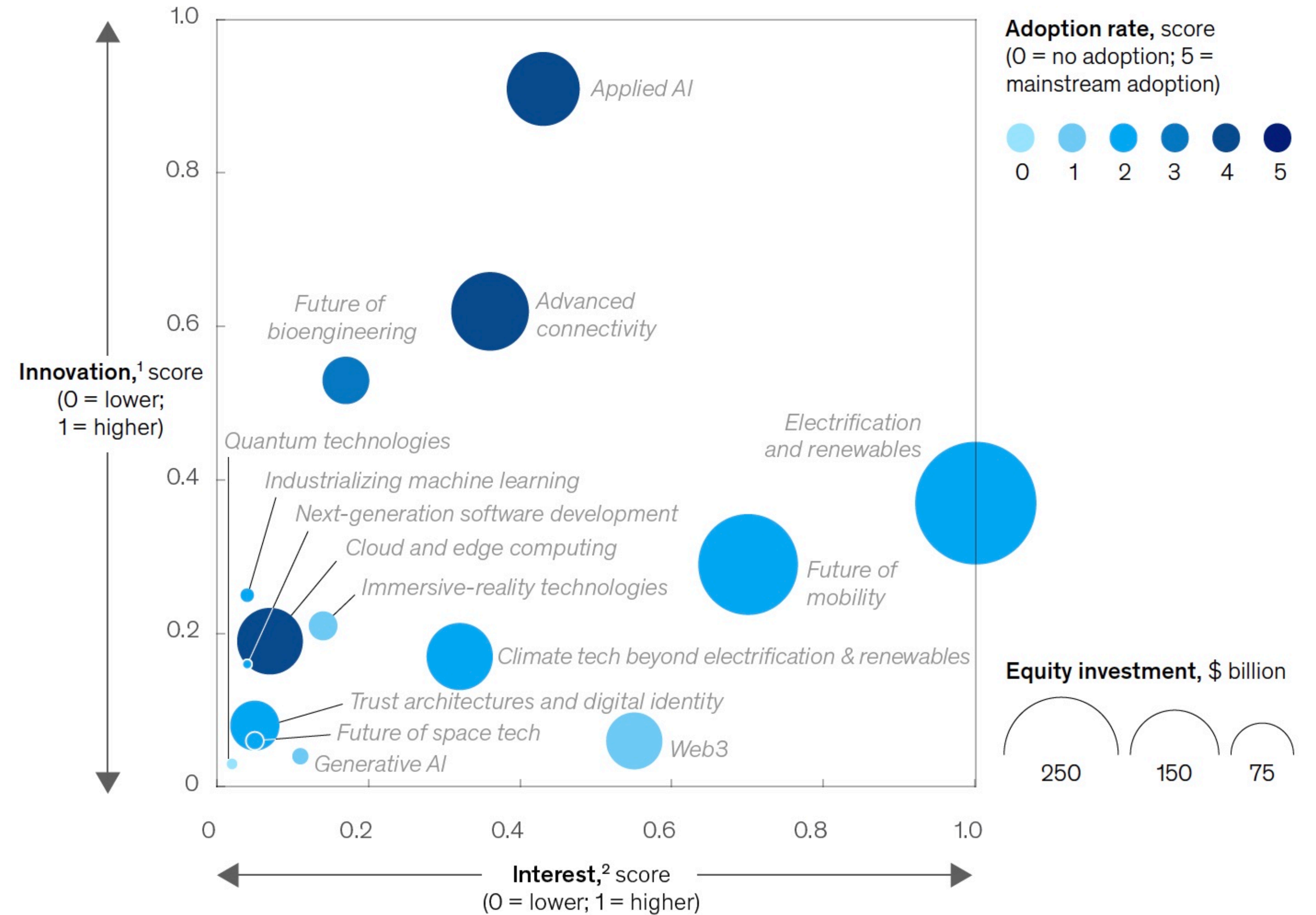
	HORIZON 1	HORIZON 2	HORIZON 3
Who's Responsible?	✓	???	???
What Resources Do They Have?	✓	???	???
Who Oversees It in the C-Suite?	✓	???	???



Exhibit 3

We described each trend by scoring innovation and interest, and we also counted investments and rated their level of adoption by organizations.

Innovation, interest, investment, and adoption, by technology trend, 2022



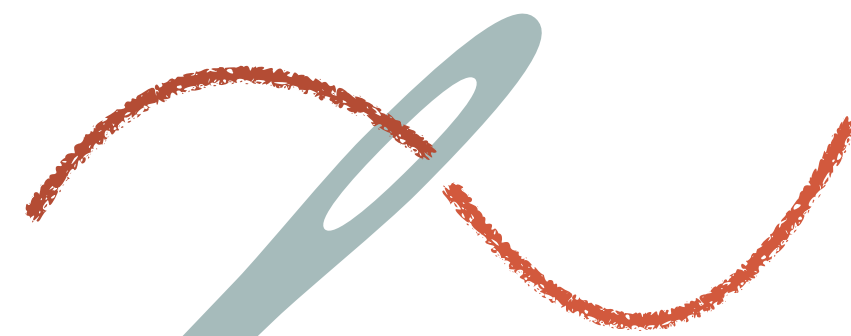
Innovation Ability

Innovation Capacity

(Innovation Winners) spent their innovation budgets more wisely, choosing to invest in innovation ability rather than capacity.

IP Up-cycling Double Play

Disruptive
Innovation



with less
internal
disruption

IN: CREATE MORE VALUE

*BY ADAPTING & APPLYING TO OTHER
BUSINESS UNITS*

- *Established protection*
- *Novel and non-obvious*
- *Higher Margin, unique*
- *Faster speed to market*

OUT: CREATE SUSTAINING R&D FUND

BY LICENSE OUT

- *to co's outside of industry*
- *to partners*
- *to competitors*

New opportunity for most organizations

Innovation Budgeting Checklist

- ✓ Define Innovation
- ✓ Fueling Innovation:
 - ✓ Budget for Exploratory Research and Enabling Technologies
 - ✓ Budget for Development and Experimentation Cycles
 - ✓ Budget for Marketing - making customers aware of your innovations even internal changes
 - ✓ Budget for Adoption and Operations integration
- ✓ Improving Innovation Operating Systems
 - ✓ Budget for Market Research or another idea testing system to reduce risk
 - ✓ Budget for Education to increase speed and capacity
 - ✓ Budget for Outside Help, Consultants, or Experts to accelerate results
 - ✓ Budget for faster Business Model Evaluation
- ✓ Allocating Resources (Strategy)
 - ✓ Funding Low Levels of Innovativeness to get quick ROI
 - ✓ Funding Disruptive or Industry Leading Innovativeness to impact long term growth
 - ✓ Funding Innovation in Optimal Markets or Categories to avoid dying or commodity industries
 - ✓ Training for culture of innovation
 - ✓ Expanding beyond innovation

Q&A

Questions?



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