



Forbes insights

**UNLOCKING INNOVATION
IN YOUR SUPPLY CHAIN:**
Five Collaborative Insights
For Life Science

IN ASSOCIATION WITH:

IDEX
HEALTH & SCIENCE

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FOREWORD

New life science technologies are introducing remarkable developments that are changing healthcare for the better. It begins with advances in personalized medicine, customized and smart medical devices, and the interconnectedness between patients and their health providers. But the list expands still further to include the rise of genomics and proteomics, multiplex analyses, precise molecular research, high throughput molecular analyses and CRISPR technologies—to name just a few.

The list of opportunities—and associated challenges—is nearly endless. The question becomes, how can companies—entire industries—that are facing fast-evolving technical demands innovate, compete and win? IDEX Health & Science, LLC a supplier of optofluidic components and sub systems for life science instrumentation development, surveyed 180 executives from the life science sector as well as pharmaceuticals and aviation/aerospace.

As with life science, the mission for these latter two industries requires the integration of complex processes, components and technologies to deliver highly advanced products and services. All three industries rely on applied science and manage multi-year product development timelines. All suffer from the occasional development delays or cost overruns, and all possess valuable, often breakthrough, intellectual property (IP).

This report sheds light on the degree to which companies in these sectors are using supply chain collaboration to achieve an array of benefits. From



JOE RYTELL
President
IDEX Health & Science

accelerated time to market to improved quality, and from reduced risk to improved margins and widespread innovation, it's clear that those who collaborate and partner most perform best.

Of course, there are impediments along the way that must be addressed. Business must first be open to partnership, overcoming resistance to externally fueled innovation (the “not invented here” syndrome). Similarly, businesses must lay down a handful of conditions, such as formal IP-sharing protocols and clear accountability for supply chain relationships. Perhaps most important: Companies must be willing to trust, share, be open and communicate freely. This is possibly the most critical aspect of collaboration.

Overall, the Forbes Insights research shows that life science is somewhat the laggard in terms of collaboration when compared with aviation/aerospace and pharmaceuticals. In that regard, this report serves as an invitation and opening guide to expanding supply chain collaboration.

KEY INSIGHTS

Overall, the research builds a strong case for greater collaboration and partnership between OEMs and other buyers and their suppliers. The survey and accompanying qualitative interviews can be aggregated into five sets of insights.

- **INSIGHT #1** The rate of change is accelerating, and no company, no matter how experienced, large or innovative, can afford to go it alone.
- **INSIGHT #2** We have entered the era when collaboration and successful supplier partnerships improve fulfillment, costs and quality, as well as processes.
- **INSIGHT #3** Closer collaboration with suppliers yields substantial benefits. More than half of executives are already taking steps to expand or improve the degree of engagement with a wide range of external relationships including partners, competitors, industry associations and customers.
- **INSIGHT #4** Life science is “behind” the collaboration curve. A full 37% of life science executives lean toward a “do it all” orientation, versus only 28% in pharma and 22% in aerospace.
- **INSIGHT #5** Most executives are now recognizing the need for, and benefits of, stronger partnerships. Nearly three-quarters of respondents in the Forbes Insights survey say they need to improve their capabilities in collaborating with suppliers.

INTRODUCTION

Keeping pace in an era of fast-evolving technologies places ever-greater demands on any single business. Recognizing the nature of such challenges, a growing number of leading firms are doing more to leverage the resources and creativity of those with whom they are already in business: their suppliers.

Though the focus of our research was life science, two additional industries, pharmaceuticals and aviation/aerospace, were also examined due to deep similarities. Developing an advanced life science instrument is like developing a drug, which is like developing an airplane. Each of these sectors faces profound complexity. Each requires unequivocal repeatability/reliability, and each must continuously meet a wide range of strict regulatory and performance goals.

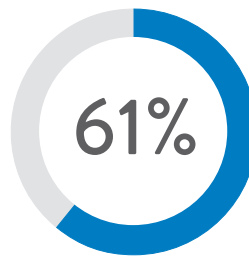
Overall, this paper explores the maturity of, and approach to, supplier collaboration. Specifically, it tackles the speed of change and companies’ ability to handle it, as well as the role of supplier collaboration in competitive advantage. Next, it explores why companies, though aware of the benefits of partnership, are missing out on many opportunities to strategically engage with their suppliers.

Finally, relying on survey- and interview-generated insights, this paper offers suggestions for the way forward. That is, how businesses can address the opportunities and challenges inherent in supplier partnerships as well as with a broader ecosystem of stakeholders.

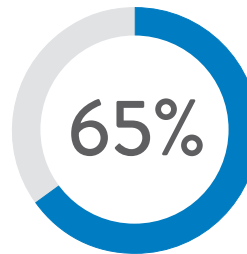
INSIGHT #1: CHANGE IS ACCELERATING; CHALLENGES ARE GROWING

Successfully commercializing scientific advances requires ever-greater skill, resources and speed. Consequently, leading businesses are recognizing the importance of widening their resource and innovation pools through broader and more intimate collaboration with suppliers.

Sixty-one percent of executives from the life science, aviation/aerospace and pharmaceuticals industries surveyed by Forbes Insights agree that we are in an era of accelerating complexity in design and engineering challenges. But dealing with this transformation is not easy: 65% find it hard to keep up with scientific and technological advances in engineering and design.



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of executives find it hard to keep up with scientific and technological advances in engineering and design

Source: Forbes Insights and IDEX Health & Science LLC survey of pharmaceuticals, life science and aerospace/aviation sectors

This increase in complexity is happening against the backdrop of tougher competition based on cost, quality and time to market, with a significant number (49%) of executives from all three industries agreeing that they are operating in a highly competitive environment.

Some of these competitive pressures are caused by the deterioration in margins. For example, 52% of survey respondents say that today's competitive pressures require the adoption of lean/agile design and development processes—63% among pharmaceuticals executives. Just under half, 48%, say that they often experience design and engineering intervals that last significantly longer than planned.

Additionally, 43% and 42%, respectively, say they have seen episodes of a general deterioration of quality (not supplier-generated) or regulatory compliance costs exceeding budgeted costs and approval dates. Note that repeatability, reproducibility and, in general, impeccable quality remain top requirements for all three of our focus industries. In addition, 66% say their current approach to risk management relating to supply chain issues can sometimes create unexpected and unnecessary complexity, uncertainty—and risk.

A man and a woman are standing in a laboratory or industrial setting, looking at a tablet held by the woman. The scene is overlaid with a blue tint. The man is on the left, wearing a light-colored polo shirt, and the woman is on the right, wearing a patterned jacket and glasses. They are both looking at a tablet held by the woman. The background shows industrial structures and equipment.

68%

of life science executives
believe that active and meaningful
engagement with suppliers is
essential to success

INSIGHT #2: COLLABORATION WITH SUPPLIERS BOOSTS EFFICIENCY AND GROWTH

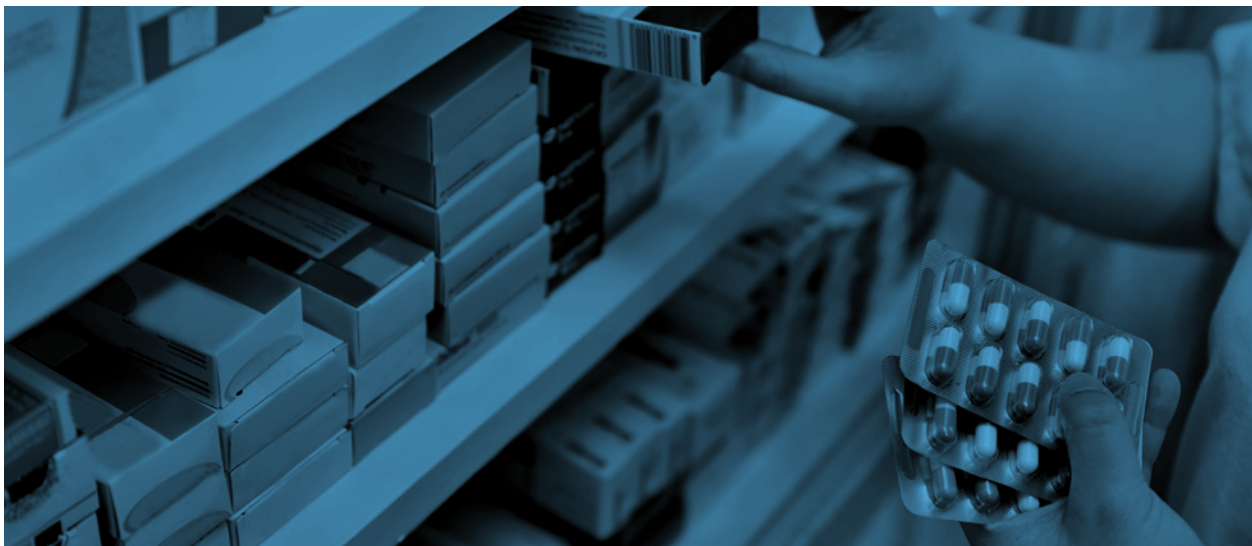
Collaborative growth—creating collaborative arrangements or partnerships with other firms—has become the top development plan to drive shareholder value.¹ Companies are also increasingly forming partnerships, alliances and joint ventures with industry associations and universities. Even competitors, who may also be suppliers as well as customers, are becoming part of the innovation chain. “We are evolving towards a world where what’s inside the company and what’s outside is not binary,” says Isabelle Allen, global head of clients and markets at KPMG.²

Life science executives share this collaborative vision for the future. Sixty-eight percent believe that active and meaningful engagement with suppliers is essential to success, a figure that is somewhat lower for aviation/aerospace (62%) and even lower for pharmaceuticals (57%). In short, supplier collaboration is significantly more important for life science than for its adjacent sector peers.

As shown by the examples below, successful supplier partnerships improve fulfillment, costs and quality as well as processes. They also lead to inventive products, devices and treatments. Collaborations are useful for both short- and long-term projects, and they can be carried out using different models. When conducted in the right way, partnerships are the backbone of competitive advantage.

SUCCESSFUL SUPPLIER COLLABORATIONS

Janssen Pharmaceutical Companies of Johnson & Johnson. “One of the most basic steps we can take in the supply chain is to work closely with our suppliers to meet business needs and accelerate innovation,” says Pravin Khandare, vice president of Janssen supply chain procurement at Johnson & Johnson (J&J). While with commodities the collaboration focuses on issues such as cost and fulfillment, the company, in effect, forms partnerships with its strategic suppliers. For example, recently, the company was faced with the challenge of how to improve patient outcomes for certain drugs to make sure that patients complete their regimen.



¹ Now or Never, Global CEO Outlook, KPMG 2016, p. 19

² Ibid

The Janssen team asked their packaging providers and an electronics supplier to collaborate on developing a blister pack with an integrated electronic circuit that could keep track of usage to improve patient adherence. The fruit of this collaboration is an iSMART packaging configuration within clinical trials. Linked to a participant's smartphone, iSMART introduces capabilities such as sending patient dosing reminders and informing doctors and clinics that a pill has been removed from its blister. Apart from helping with patient compliance, Janssen also obtains data relating to patient behaviors, which results in better outcomes and can lead to future innovation.

In another example, the group makes it well known to its suppliers that it is always in the market for process innovation. Making a molecule like an Active Pharmaceutical Ingredient (API) can take 15, 20, 30 or more manufacturing steps, and in numerous instances, supplier collaboration has reduced the number of steps and even produced breakthroughs allowing for reduced lead times and lower costs.

The company also operates a supplier innovation center, wherein supplier members are brought together with appropriate leaders across functions in J&J such as R&D, 'TechOps,' or others. Significant unmet needs and key focus areas are discussed and mutual collaborations are aligned on. Engaging senior executives from both sides, the commitment to collaborate and invest is real. Projects are sanctioned and progress is tracked to ensure desired outcomes are achieved.

SCIEX, a mass spectrometry-focused instrument developer, catalogs its suppliers into two core classes: specialists and generalists. With specialist vendors, who produce esoteric items for spectrometry such as vacuum pumps, ion detectors or processing boards, SCIEX pursues high levels of intimacy. This collaboration involves not only sharing details of the company's immediate needs, but also a longer-term technology road map. "We want these suppliers to see where we are going as a guide to their own development," says Jakub Rucinski, senior director of hardware and system development at SCIEX.

“

OEMs and supply partners can achieve incredible things once they commit to transparency and partnership.”

FIONA MCKAY,
BUSINESS DEVELOPMENT DIRECTOR FOR
THE PACIFIC NORTHWEST AEROSPACE ALLIANCE

In terms of more immediate needs, SCIEX expects certain component specifications, delivered at the right cost and on time. So, as Rucinski explains, "we show our suppliers the opportunity; we show them the challenges; and then we ask, what do you need from us? What data do we need to share? From there, they think it over and get back to us with what they believe they can do." Done right, collaboration requires choosing the right partner and developing trust to share data.

Boeing. In the fall of 2017, Boeing announced a comprehensive partnership with its supplier, Mitsubishi. Today the two are collaborating on an initiative to "reduce costs in the production of wings for the 787 Dreamliner,"³ as well as to conduct "joint studies of advanced aero-structure technologies for future-generation commercial aircraft." Overall, this is a move "to strengthen collaboration in ways that will enhance both companies' competitiveness."

Sano. Collaboration between Sano, a glucose measuring device maker, and Voluntas, a medical technology developer, resulted in the creation of a mobile application that aims to better treat patients suffering with type 1 and type 2 diabetes. The application provides patients with decision-making support through algorithms that help calculate personalized doses of insulin and remote management of patients' conditions through connections via telemedicine with health care providers.⁴

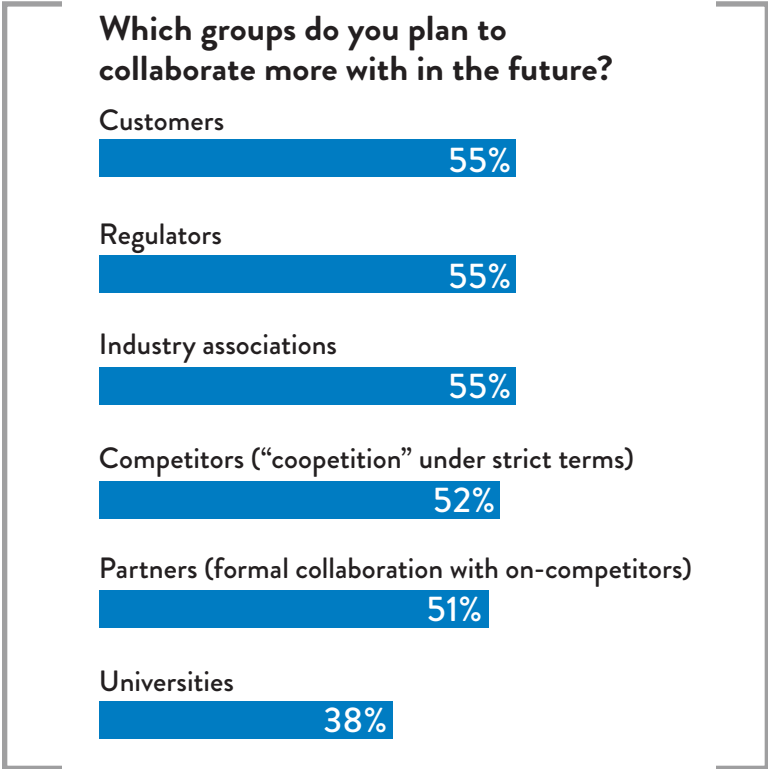
3 Boeing, Mitsubishi Heavy Industries Reach Agreement on Cost Reduction for 787 Production [Press release]; Boeing; October 23, 2017; Retrieved from: <http://boeing.mediaroom.com/2017-10-23-Boeing-Mitsubishi-Heavy-Industries-Reach-Agreement-on-Cost-Reduction-for-787-Production>

4 2018 Global Life Science Outlook, Deloitte

INSIGHT #3: CLOSER COLLABORATION IS EXPANDING BEYOND SUPPLIERS

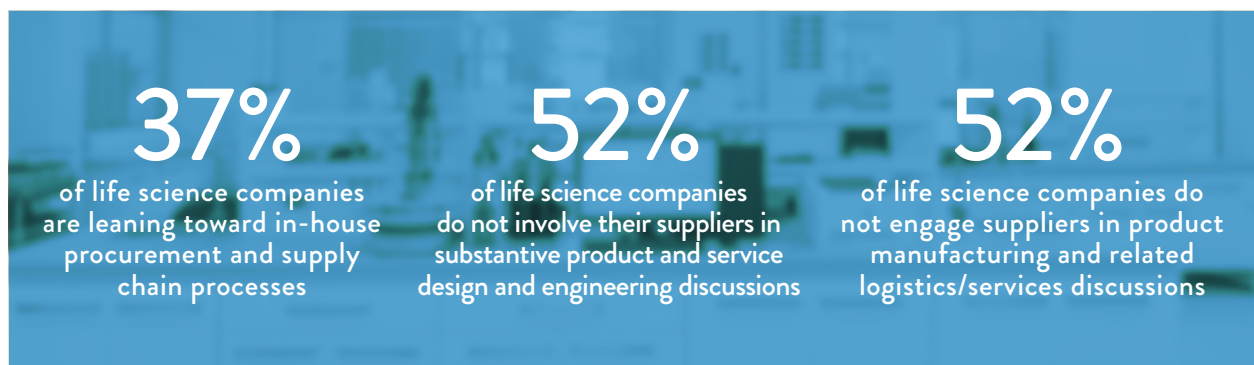
Closer collaboration with suppliers yields substantial benefits. But the Forbes Insights research shows an additional realization taking hold—similar benefits can accrue from closer collaboration across the whole of any business’s value chain or broader ecosystem. Indeed, a significant number of executives say they are already taking steps to expand or improve the degree of cooperation with a wide range of external relationships, including partners, competitors, industry associations, universities and customers.

Going forward, this trend of collaboration with multiple stakeholders will become stronger, as more than half of survey respondents plan to collaborate with almost all members of the broad ecosystem of potential partners. “I can’t tell you exactly, sitting in procurement, how the rest of the group is reaching out into other areas,” explains Khandare. “But I’m confident sharing that we are doing all we can to develop innovative products and to make it as easy as possible to do business with us—and we will work with any group that can help in this journey.”



INSIGHT #4: MISSED OPPORTUNITIES FOR COLLABORATION

The examples of fruitful supplier collaboration abound, so it may come as a surprise that companies do not take full advantage of this opportunity: 37% of life science companies are leaning toward in-house procurement and supply chain processes instead of partnering. That is more than in the case for the two other sectors surveyed by Forbes Insights and IDEX Health & Science, LLC. Still, overall, the research strongly suggests that all three industries need to do more to involve their suppliers in design, engineering, manufacturing and logistics.



Why don't more companies collaborate closely with their suppliers? Though improved collaboration with suppliers can generate substantial returns, it does not come without its own set of challenges. The most cited roadblock to greater collaboration is vendor selection: "With whom we should partner—and why?" Three out of five executives, 60%, indicate this most fundamental step in supplier collaboration requires significant organizational effort. This finding alone demonstrates just how difficult supplier relationships have become for these technology-intensive industries in an era of rapid advancement and change. And, as the chart to the right, this is only the first of numerous strategic challenges.

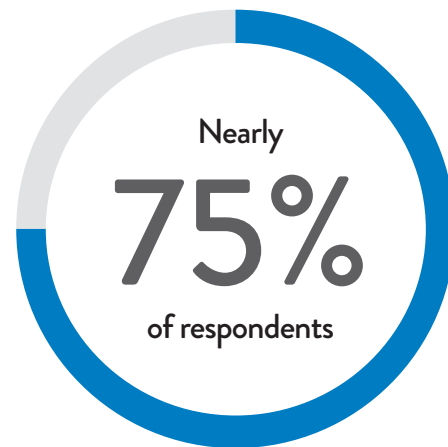
Note that supplier collaboration can extend not only to more categories of stakeholders but also to broader ranges of issues. Consider "sustainability." Pfizer, for example, sees value in working "directly with suppliers to perform energy assessments, sharing good practices in greenhouse gas emission reductions, saving costs, and energy efficiencies."⁵ Overall, the company maintains, "we can collectively reduce our environmental impact and deliver measurable social and business value."

- SIGNIFICANT CHALLENGES IN SUPPLIER COLLABORATION**
- Vendor selection
 - Exposure to reputation risk
 - Pride in ownership
 - Supplier ability to produce to specs
 - Ownership or protection of collaboratively developed intellectual property
 - Risk of becoming a "captive" customer
 - Protection or sharing of existing intellectual property
 - Data security
 - Risk of suppliers failing to meet schedules/objectives

⁵ Working with the external supply chain for a healthier world https://www.pfizer.com/sites/default/files/responsibility/protecting_environment/Working-With-The-External-Supply-Chain-For-A-Healthier-World.pdf

INSIGHT #5: RECOGNIZING THE NEED FOR COLLABORATION

The good news is that most executives are now recognizing the need for, and benefits of, stronger, strategic partnerships. Nearly three-quarters of respondents in the Forbes Insights survey say they need to improve their capabilities in collaborating with suppliers. In fact, half (53%) go so far as to say the ability to collaborate with key suppliers is becoming increasingly vital to future success in their markets, and 46% say they need to take steps to collaborate more intimately and intensively with their suppliers.



in the Forbes Insights survey
say they need to improve
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collaborating with suppliers.

CONCRETE STEPS TO ACHIEVING BETTER COLLABORATION

While the challenges to greater collaboration with suppliers can't be overstated, there are steps companies can take to improve these relationships—a collaborative “to-do” list, so to say.

FOCUS ON IP

When asked in which areas they needed to make substantial improvements to achieve their company's supplier collaboration objectives, over half of survey respondents said collaboratively developed intellectual property (54%). Addressing IP risk is important, no question, and any decision to enter into greater intimacy carries significant risks. “Who you collaborate with and how deeply is definitely a strategic decision,” says Fiona McKay, the business development director for the Pacific Northwest Aerospace Alliance (PNAA). But in general, she advises, “when choosing the right partners, the benefits can clearly outweigh any risks.”

SCIEX's Rucinski shares this view but also adds: IP risks are manageable. Beyond a fundamental confidential disclosure agreement (CDA), “we generally create language to support a relationship where whatever is yours remains yours, whatever is ours remains ours, and anything co-developed, we share.” That is, unless some specific payment for research changes hands. As Rucinski explains, “If we fund it, it's entirely ours.”

DON'T OVERLOOK CULTURE AND PROCESS

The second area executives most feel deserves attention is culture. Fifty percent say their company's culture—this “pride in ownership” mentality or “not invented here” syndrome—prevents better collaboration with

A blurred background image showing a group of people in a meeting or conference room, with their faces and bodies out of focus. The overall color palette is a gradient of blue and teal.

53%

of executives consider the ability
to collaborate with key suppliers
as increasingly vital to future
success in their markets

suppliers. These cultural challengers are significantly more common among life science firms (55%) and aviation/aerospace (53%) than in pharma (38%).

Closely related, 50% of respondents say an important step for their organization is to address authority levels and accountability for entering into collaborative relationships with suppliers. Here, this signals the recognition that greater rigor is needed in terms of organizing enterprise collaborative efforts and processes—again an issue of culture and leadership.



BE THOROUGH: ADDRESS IP ALONGSIDE OTHER RELEVANT ISSUES

Other elements on the to-do list are highly complementary of the challenges mentioned in the previous section. For example, IP concerns can be addressed by developing a more rigorous framework. Similarly, challenges such as supplier ability to perform to “specifications” (including timing, quantity and quality) can be addressed by developing (1) a more rigorous and strategic supplier selection/evaluation protocol, (2) early warning systems for supplier failures and (3) crisis protocols and risk mitigation strategies in the event of supplier failures.

Last but not least, companies need leadership that understands and promotes the value and means of collaboration. “Setting the example from the top is essential,” says McKay. “People need to understand that the company values collaboration and is willing to share its ‘inner workings’ in the interest of stronger relationships and joint performance.”

CONCLUSION: THE TIME TO PARTNER IS NOW



Executives across life science, aviation/aerospace and pharmaceuticals agree: It is an era of rapid change, ripe with new challenges. While executives recognize that closer collaboration with suppliers can help combat these challenges, it's clear that companies can do more to strengthen these relationships.

When looking across the three industries, it is the life science sector that stands out in terms of preferring to go at things alone. This is not to say the industry is not collaborative overall; it is merely to point out that emphatically, life science is less collaborative than its twin, closely related industries.

In general, the research shows that all three industries are likely missing out on all of the advantages described in this report. Turning the tide, the research suggests, begins with culture. Leaders need to help their organizations overcome any sense of “not invented here” syndrome. In an era of such fast-evolving technologies, those insisting they can do it all risk failures in market timing and innovation.

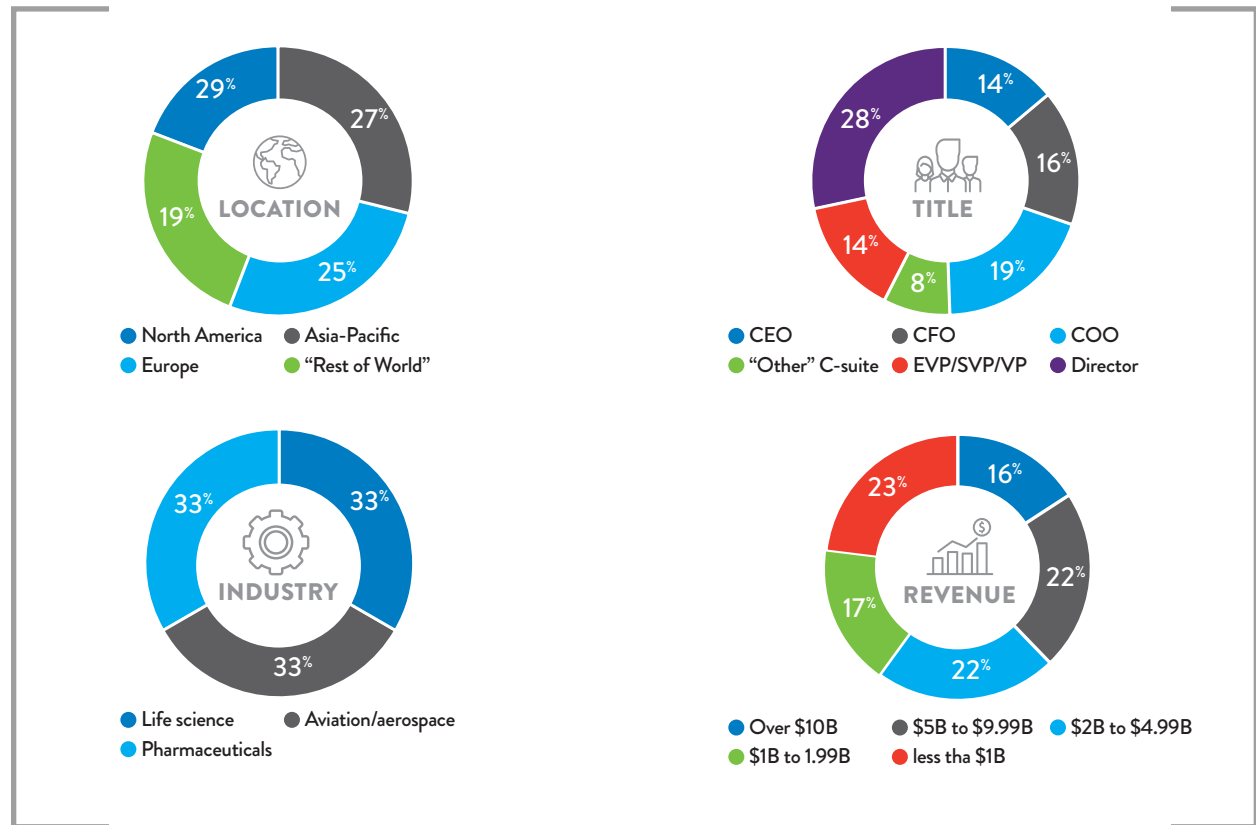
Once the decision is made to expand collaboration, it becomes a matter of taking inventory of the basic tools. Prioritization is the first step: Take inventory of your supplier set, focusing most intently on those who are similarly open to collaboration—and with whom collaboration promises the greatest benefits.

Next, look at protocols for IP sharing. Then make certain to engage strategic suppliers early on in design and engineering phases, but also consider letting them in on the long-term technology development road map.

Overall, be certain to address communications, both formal and informal. Be open, and expect your suppliers to be just as forthcoming. There will certainly be challenges along the way and, in some areas, sharing more can feel uncomfortable. But as the Forbes Insights research indicates, the benefits are well worth exploring.

METHODOLOGY

This report is based on an April 2018 global survey of 180 senior executives conducted by Forbes Insights in partnership with IDEX Health & Science, LLC. Key demographics include:



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- **Jakub Rucinski**, Senior Director, Hardware Development, SCIEX



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