

SCORR
MARKETING

APPLIED CLINICAL TRIALS
YOUR PEER-REVIEWED GUIDE TO GLOBAL CLINICAL TRIALS MANAGEMENT

COLLABORATIVE R&D SURVEY REPORT



OVERVIEW

Over time, drug development and clinical trials have become increasingly complex and costly. A much-cited Tufts study estimated that the average cost to bring a drug to market had risen to 2.6 billion USD by 2014.¹ To try to rein in some of these costs, drug sponsors are turning to a variety of strategies, one of which is collaborating on research and development (R&D).

Putting things in perspective: collaborative R&D policy in action

Collaborative R&D has a long history. The Industry-University Cooperative Research Centers program of the National Science Foundation, which began in the 1970s, was designed to partially fund university research programs that collaborated with industry. Later, the Bayh-Dole Act, passed in 1980 and amended in 1986, provided federal policy governing the patenting and licensing by nonprofit institutions as the result of publicly funded research. Meanwhile, the Stevenson-Wydler Act of 1980 and the Technology Transfer Act of 1986 also created new avenues for R&D collaboration between industrial firms and federal laboratories through Cooperative Research and Development Agreements.²

In Europe, collaborative R&D policy was originally country-based and varied substantially across the region. In 1987, the Single European Act, developed by the European Commission, provided a legal foundation for European R&D. While it focused on precompetitive research at its inception, the framework was transitioned to the EUREKA program, partially in response to the success of initiatives in the U.S. and Japan. Launched in 1985, EUREKA was led by industry and focused on research areas closer to commercialization. This new approach effectively increased international collaborations.³

Increasingly over the past three decades, governments and industry consortia have worked to improve collaborative R&D with the goal of reaping specific benefits; however, these types of agreements are not without risk. Collaboration partners are best served when these agreements set forth at their outset aspects of governance, resource availability and program design and when they define potential ownership scenarios of any jointly developed intellectual property or products.

Common benefits and risks of collaborative R&D

Benefits	Risks
Provides knowledge/expertise/technology to the collaborative R&D partners	Risk of collaborative R&D partner appropriating the technology or discovery from the collaboration
Lower costs: reduces duplication of investments, achieves economies of scale in R&D, shares cost and risk	Added complexity
Accelerates drug development	Less control over the R&D project
Supports access to the R&D capabilities of federal research facilities and academia by industrial firms	Failure to achieve real benefit or expected outcomes
	Incompatible culture

Collaborative R&D today: discovering what industry has to say

To shed light on current industry attitudes toward collaborative R&D, SCORR Marketing, in conjunction with Applied Clinical Trials, conducted a survey of industry professionals. Specifically, we wanted to know to what extent these joint efforts occur, what types of groups participate in such collaborations, and why some organizations choose to collaborate and why others don't.

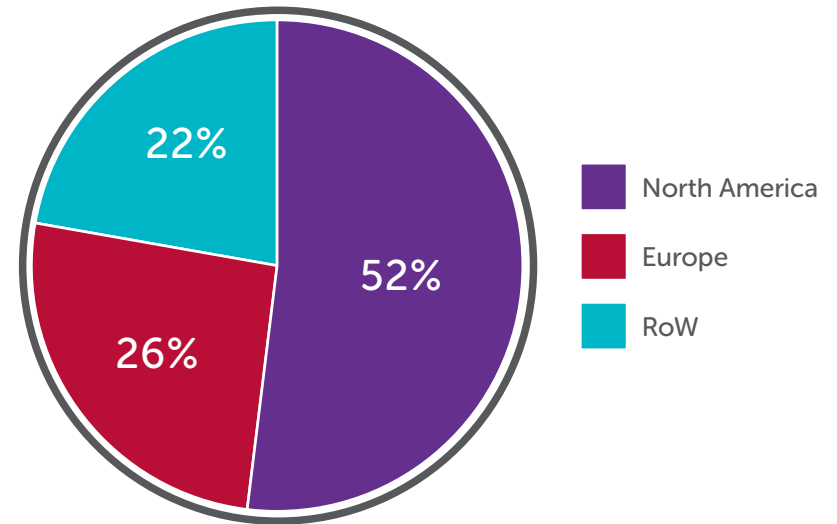
OVERVIEW (CONT)

Those who participated in the survey are from a variety of organizations: sponsors (including pharmaceutical and biotech companies), research sites, academic institutions and service providers (including CROs). Their departments and job titles range from clinical director to project or corporate management to research and development. More than one-half work for North American companies and more than one-quarter for European companies. A majority have worked in the life science industry more than 20 years.

In this report, we provide information about:

- The prevalence and participants of collaborative R&D
- Why organizations engage in R&D collaborations
- Thoughts as to why these arrangements are trending upward
- Benefits and downsides to these joint efforts
- Which stakeholders are receptive to R&D partnerships
- Industry beliefs about which types of medicines, therapeutic areas and medical devices will see more research and development through collaboration

Where is your company located?

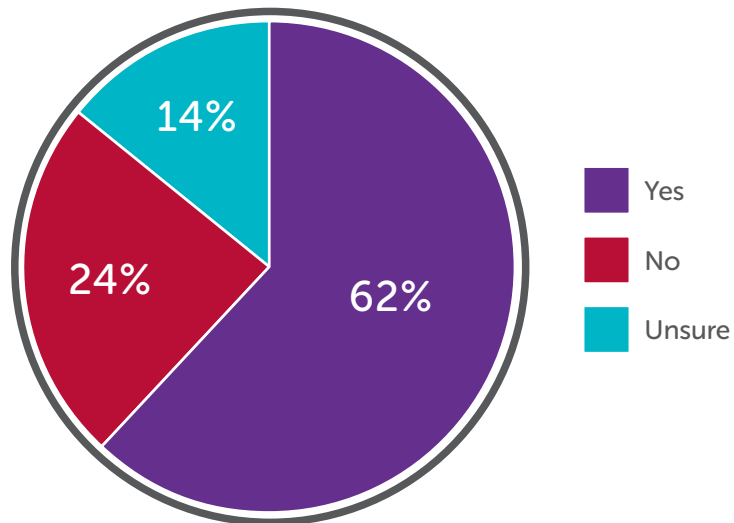


KEY RESULTS

A majority of respondents say their companies collaborate with other organizations on research and development. However, they're not impressed with their company's efforts in this area.

Because R&D collaborations can mean many things, we specifically asked respondents whether their companies work with other organizations on R&D tasks that are precompetitive and not meant to directly produce revenue. Nearly two-thirds of respondents said yes.

Does your company currently engage in collaborative R&D with other organizations?

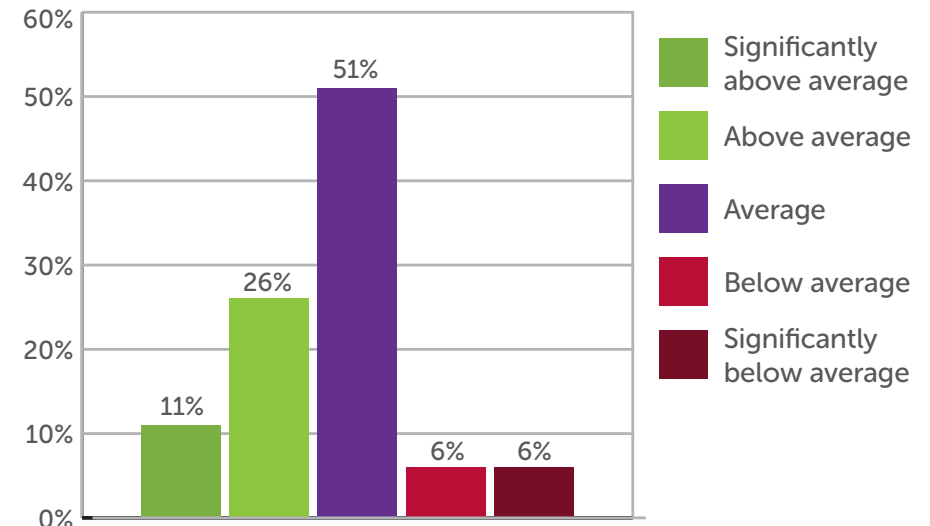


This is true across most organization types and all job functions, geographical regions and company sizes.

- Among organization types, academic institutions and sponsors (67% each) are the most likely to participate in collaborative R&D. CROs (40%) are the least likely.
- Large companies (those with 1,000 employees or more) are especially likely, with 86 percent of them reporting they participate in these joint efforts.

When invited to rate their company's collaborative R&D efforts, more than half of respondents rated their company's efforts as average.

Regarding your company's collaborative R&D efforts, are they _____?




The average rating was the prevalent one across all organization types, job functions, regions and company sizes. The most positive assessment comes from clinical directors; they were as likely to rate their company's efforts as above average (38%) as they were to select average (also 38%). The least enthusiastic reviews come from those who actually work in R&D — 83 percent of them rate their company's efforts as average while just 17 percent rate them as above average.

KEY RESULTS (CONT)

When survey participants think of collaborative R&D pairings, more than two-thirds include industry and almost half include academia.

To determine who is thought to collaborate with whom, the survey presented six scenarios (such as academia collaborating with industry). Industry was most often named as a participant.

Group most often thought to be a collaborative partner	
Industry	 1st
Academia	2nd
Government	3rd
Service/technology provider	4th


Fifty-six percent of academics think of an academia-government pairing. This relationship has the longest tradition, largely dictated by early policy implementation and public health initiatives. These pairings also tend to naturally cover precommercial projects, while industry tends to focus on research relationships that will yield outcomes and products closer to commercialization.

Other insights:

- 54 percent of sponsors — a group that includes respondents from pharmaceutical, biotech and medical device companies — most often think of industry partnering with another for-profit company within the industry.
- 43 percent of participants who work at research sites chose the industry-service provider pairing as being the collaboration that first comes to mind.
- 40 percent of service providers also chose the industry-service provider pairing.

Another notable finding is that European respondents (50%) are almost three times more likely as North American respondents (17%) to identify the academic-industry pairing. Also, respondents from the largest companies (29%) are more than four times as likely to select the industry-industry pairing than are those from the smallest companies (7%). Meanwhile, those in the smallest companies (33%) are more than four times as likely to choose the industry-service provider pairing as are those from the largest organizations (7%).

When we look to the future, industry will remain a strong collaborative partner, respondents said.

Organizations most likely to grow their R&D partnerships	
Industry	 1st
Academia	2nd
Service/technology provider	3rd
Government	4th

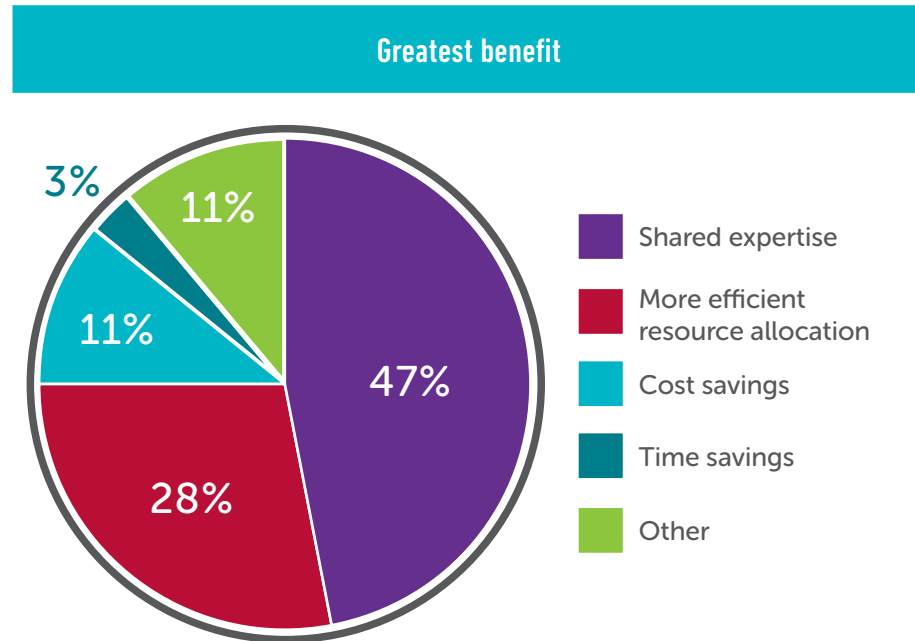
Among the insights revealed by this research:

- 67 percent of CRO respondents said that industry’s partnerships with service providers will see the most growth over the next five years.
- 50 percent of those who work at research sites indicated that industry alliances with service providers will see the most growth.
- 45 percent of sponsors named industry-industry partnerships as holding the most growth potential.
- 29 percent of academics choose the academia-government pair, while another 29 percent identified the academia-industry partnership.

Survey participants from smaller companies (40%) were five times more likely than those from the largest companies (8%) to identify the industry-service provider pairing.

KEY RESULTS (CONT)

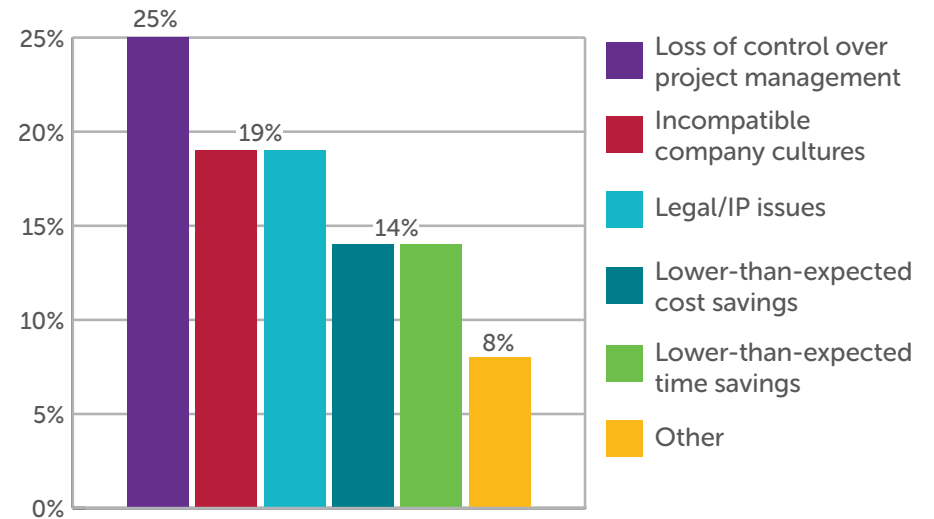
The greatest benefit of collaborative R&D is shared expertise while the biggest downside is a loss of management control, respondents said.



Shared expertise is the benefit selected most often across most organization types, job titles, regions, company sizes and respondents' levels of experience.

- CROs and other service providers (100%) are especially inclined to select shared expertise.
- Clinical directors (67%) are twice as likely to name shared expertise as those who work in R&D (33%). R&D personnel said more efficient resource allocation (50%) is the biggest gain from these collaborations.
- Those who work for European companies (67%) identified shared expertise as most beneficial at twice the rate of their North American counterparts (39%).
- Respondents with more than 20 years of experience in the life sciences industry (47%) selected shared expertise at almost three times the rate of those with 10 or fewer years of experience (17%).

Biggest downside



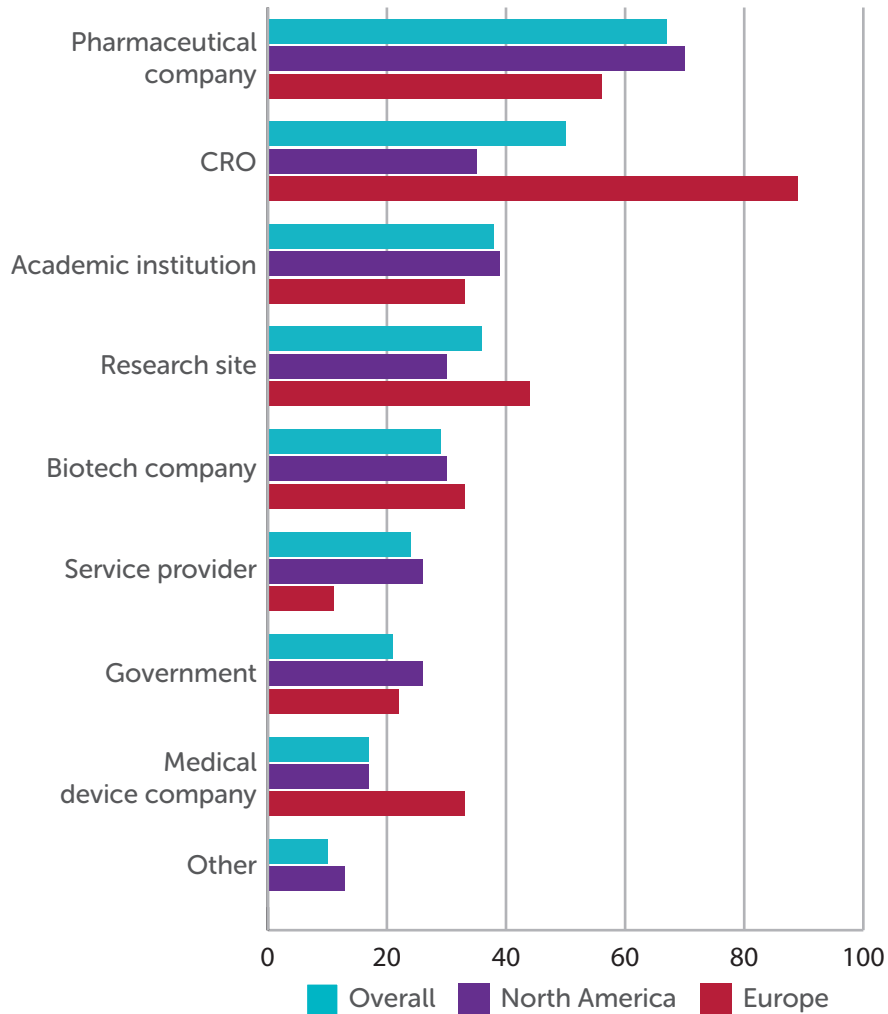
Among the groups that identify loss of control over project management as the most problematic result of collaborations are those who work in R&D (50%), with the least experience (10 or fewer years) in the industry (also 50%), and those who work at smaller (1-50 employees) companies (45%).

CRO respondents (50%) and academics (43%) are most likely to cite incompatible company culture as the worst outcome to R&D collaboration, while academics are also the most likely to select legal/IP issues (29%).

Survey respondents from European companies (50%) are inclined to identify lower-than-expected time savings, much more so than those from North America (4%).

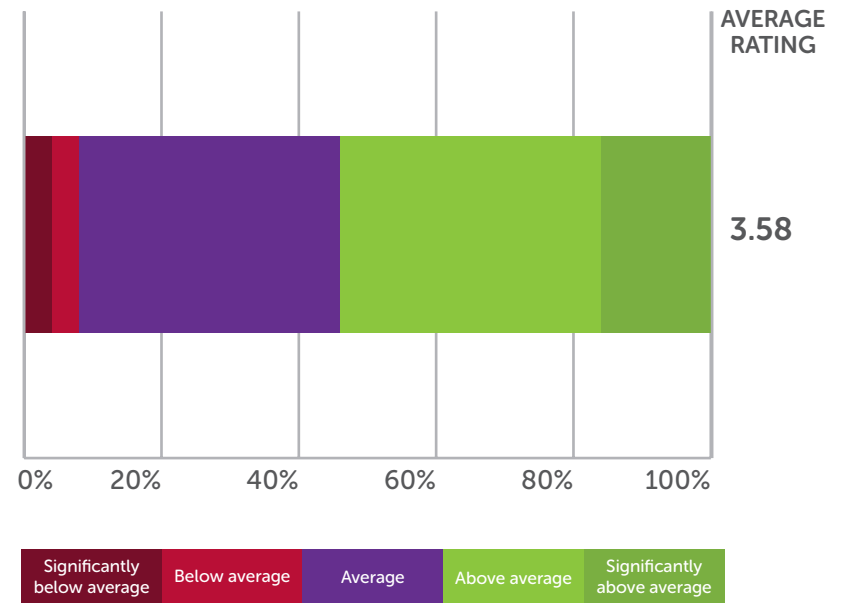
OTHER KEY TAKEAWAYS

Who does your company collaborate with on R&D?



Academia collaborates most with other academic institutions (67%). CROs most often work jointly with research sites (75%) while research sites collaborate the most with pharma companies (71%). Sponsors most often report collaborations with pharma companies.

How do you rate your company's collaborative R&D efforts? (includes only those whose companies currently engage in collaborative R&D)



(1-5 scale with 1 being significantly below average and 5 being significantly above average)

Those who currently engage in collaborative R&D rate their company's efforts more favorably than those that don't. More than half of those whose company works with other companies in research and development rate their own company's efforts as either significantly above average or above average.

OTHER KEY TAKEAWAYS (CONT)

Popular collaborative R&D pairings, now and in the future			
Pairing	What pairing do you think of most when you think of collaborative R&D?	In five years, which pairing will see the most growth in collaborative R&D?	Difference
Academic-Government	21%	15%	-6%
Academic-Industry	21%	21%	—
Industry-Industry	19%	21%	+2%
Industry-Service provider	19%	24%	+5%
Academic-Academic	5%	0%	-5%
Industry-Technology provider	5%	9%	+4%
Academic-Government-Industry	2%	3%	+1%
Government-Industry	2%	6%	+4%
Other	7%	3%	-4%

OTHER KEY TAKEAWAYS (CONT)

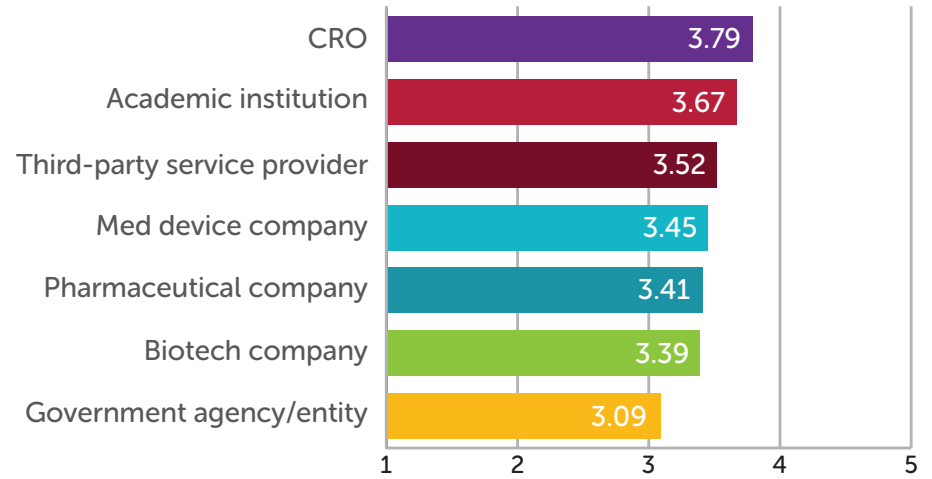
While academia partnerships with government most often come to mind now, respondents expect this pairing to be less prominent in the future. Industry partnerships are more likely to see the most growth — including industry collaborations with service providers, technology providers and government.

We also identified additional independent research on the types of collaborations that yielded the most innovation. According to a study reported in *The Journal of Product Innovation Management*, R&D collaborations with suppliers or universities, which are typically more open to knowledge sharing, had a positive effect on product innovation. However, collaborations with customers or competitors, which are typically less open to knowledge sharing, have little or even a negative effect on product innovation.⁴

Another important result came out in this same study. While a streamlined method to transfer knowledge between partners is important, it is also beneficial if the shared knowledge base is a narrow one. R&D collaborations with suppliers — collaborations marked by a narrow knowledge base — had a better impact on innovation than did R&D collaborations with universities that have a wider shared knowledge base.⁵

This sheds light on the findings reported in the table on the previous page. It seems likely that study respondents expect the most growth in industry’s partnerships with service providers because this relationship provides for the most innovative outcomes.

How receptive are these groups to R&D collaborations?



(1-5 scale with 1 representing major resistance and 5 representing major acceptance)

CROs are viewed as the stakeholders most accepting of collaborative R&D. This is consistent with our previous research that indicated that CROs are most willing to adopt innovative practices.⁶

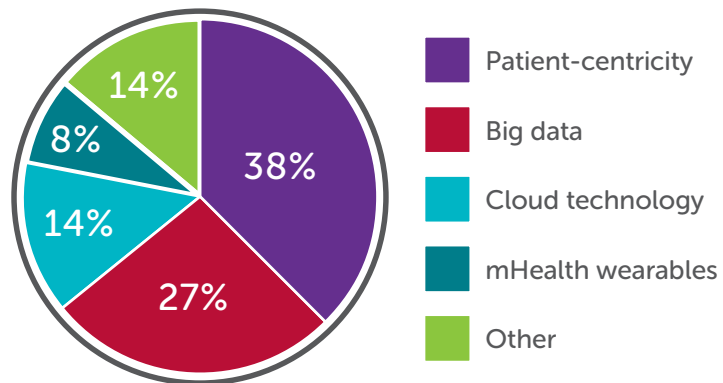
OTHER KEY TAKEAWAYS (CONT)

What is the primary reason for R&D collaborations?

Have scientific/technical challenges met by those w/ expertise	32%
Increase knowledge base	32%
Take advantage of greater efficiencies	18%
Shorten the time from development to market	5%
Other	13%

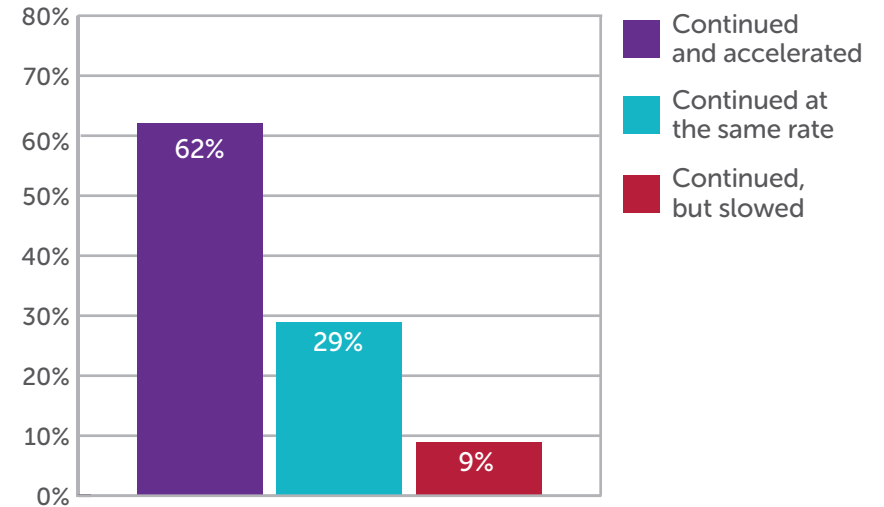
A majority of academics (71%) named gaining expertise as the main reason for partnering with other organizations. Sponsors were more apt to seek an increase in their knowledge base (42%) while those from research sites said they most often work with other organizations to take advantage of greater efficiencies.

Which of the following is the primary reason for the recent upward trend in collaborative R&D arrangements between companies?



Seventy-five percent of CROs named patient-centricity as the primary driver, but none of our academia respondents did. Conversely, 57 percent of academics selected big data, which none of the CRO respondents named. Patient-centricity was also viewed as the main driver by research sites (43%) and sponsors (42%).

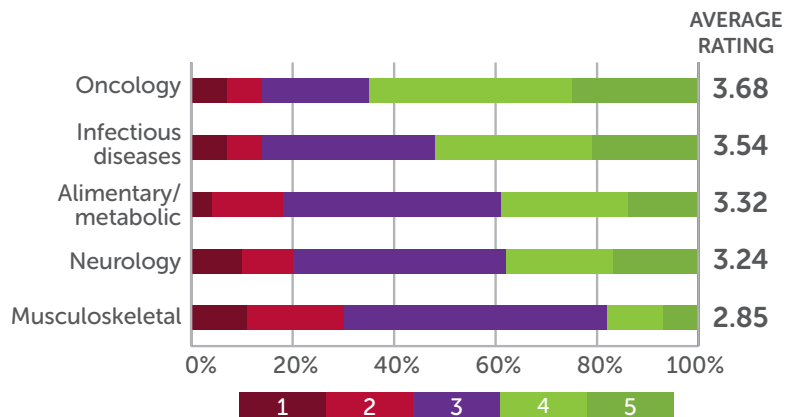
In five years, the trend toward increased collaboration in R&D will have ____.



Survey participants are generally bullish about future growth of collaborative R&D. All the academic respondents said these partnerships will accelerate. So did two-thirds of CROs and research sites (both at 67%). However, sponsors (64%) were more likely to say these collaborations will continue at the same rate. No one said the trend will stall or reverse.

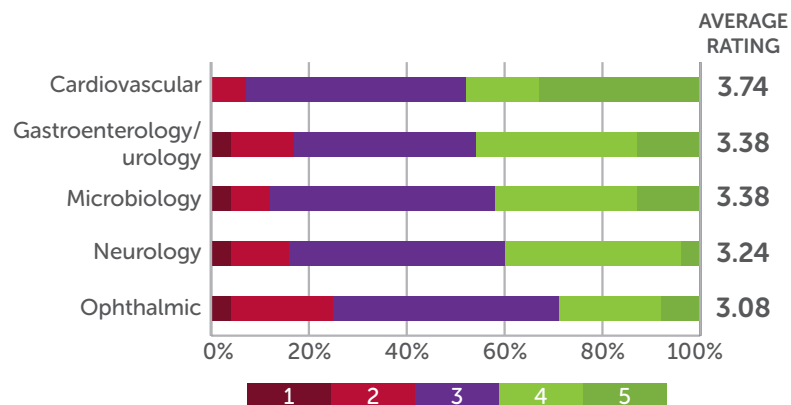
OTHER KEY TAKEAWAYS (CONT)

On a scale of 1-5 (with 5 being the highest), what is the industrywide level of collaborative R&D for drug development for each of the following therapeutic areas?



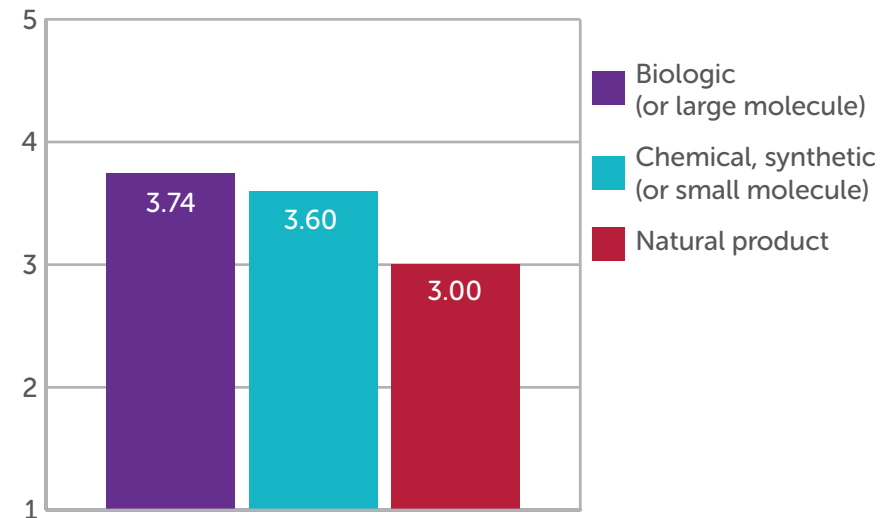
Everyone but those working at research sites said R&D collaboration is greatest in oncology and infectious diseases. Those working at research sites said there is the most industry collaboration on alimentary and metabolic studies.

On a scale of 1-5 (with 5 being the highest), what is the industrywide level of collaborative R&D for device development in each of the following medical specialties?



When it comes to medical device development, survey participants said the greatest R&D collaboration is in cardiovascular. This was generally true for respondents across the board, although sponsors and those who have been working in the industry more than two decades were slightly more likely to name neurology. Ophthalmic is the medical specialty seen as having the least collaboration.

On a scale of 1-5 (with 5 being the highest), what is the industrywide level of collaborative R&D for each of the following drug types?



Both biologic and small molecule drugs are seen as having a fair amount of industrywide R&D collaboration. Natural products are viewed nearly across the board as the drug type that has the lowest amount.



SUMMARY

- R&D collaborations are expected to grow, especially between sponsors and service providers, most likely because this relationship pairing is a better enabler of innovation.
- Organizations enter R&D collaborations primarily to gain access to knowledge, expertise or technology and also to reduce financial investment and achieve economies of scale. Only 3 percent named time savings as a primary goal, which seems to conflict with the industrywide goal of accelerating drug discovery. This may be because these groups don't believe time savings is a realistic goal of these collaborative partnerships.
- Organizations viewed R&D collaborations as challenging due to the loss of control over project management, incompatible organization cultures and concerns over intellectual property ownership and rights.
- Patient-centricity initiatives and the need to use big data to improve the drug development process were cited most frequently as key drivers of collaborative R&D relationships.

References

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- ⁵ Ibid.
- ⁶ Technological Innovations Survey Report, SCORR Marketing and Applied Clinical Trials, February 2017. <https://www.scormarketing.com/resources/act-scorr-technological-innovations-report/>

