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**Central European
Corporate R&D Report 2018**

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Partner's foreword

We are proud to present the sixth edition of the Deloitte Central European Corporate R&D Report. First of all, we would like to express our gratitude to the more than 300 companies from nine countries that took part in this survey. We hope this report will be of use to those companies that are already experienced in research and development (R&D), and also for those who are considering entering the exciting field of applied innovation for the first time.

R&D expenditure across the Central Europe region is still much lower than the EU average (Slovenia being the sole exception). Based on the survey's results, however, the overall picture is encouraging. Companies in the region are planning to increase their R&D activities in the years to come. We have found that this is not only driven by the EU funding available under the 2014-2020 budget, but also by the growing recognition that Central European countries' ability to build competitive advantage solely on low-cost labour will soon come to an end. The way ahead is to improve labour productivity, through gaining a wider understanding of innovation – in products, marketing and working processes.

Unclear regulations relating to R&D represent a major barrier for the region's companies that are active in R&D. We hope that state authorities will take steps designed to create a more friendly regulatory environment for innovative companies. Being a good place for doing

business is not only about attractive taxation rates – it is also about companies facing low regulatory risk.

When it comes to legal issues, we find it surprising that 12% of companies across the region do not protect their Intellectual Property at all. While patents can be difficult and sometimes costly to obtain, a company secrets policy appears to be a solution that practically any company could apply with little effort and cost.

To conclude, we hope that our region will be home to many interesting and profitable R&D projects over the next two years!



Luděk Hanáček
Partner

Macroeconomic view

The current macroeconomic situation in the region is relatively good, but a tough challenge lies ahead. Central European countries are in danger of falling into the same 'middle income trap' that has enmeshed Portugal and Spain. In simple terms, this occurs when a country achieves a moderate level of GDP per capita and then halts its progress towards joining the richest countries in the world. Such economies fail to take their competitiveness to a higher level.

A commonly prescribed cure for the middle income trap is to focus on innovation, which clearly includes R&D projects. It is a fact that most CE countries spend less on R&D (in relation to GDP) than those in the EU-15. But putting emphasis on R&D and innovation is not just about introducing new programmes of financial support for companies operating in advanced technology areas. Central European countries also need to verify if other important parts of the puzzle are in place. For example, if too many researchers leave a particular country to pursue opportunities abroad, then an insufficient supply of labour might mean some projects are no longer feasible. In such cases, there would be two main options: to encourage emigrant researchers to return home; or to hire more immigrants.

A key factor that enables efficient and effective R&D is the quality of a broadly defined set of regulations by institutions such as national tax authorities

and regulatory bodies. There is an interdisciplinary field called 'Law and Economics', which examines the economic efficiency of regulations. Complicated and unstable regulations relating to R&D activities are a serious problem in Central Europe. It might be interesting to work out an estimate of the dead-weight loss caused by R&D projects in the region that have been prevented from happening by unclear R&D support law. The overall loss would be even greater if we also included unnecessary bureaucracy involved in documenting R&D projects and claiming benefits. However, creating a clear regulatory system is a difficult task, particularly as the business environment increases in complexity.

The rapid advances in artificial intelligence (AI) and the increasing competencies of robots are making it increasingly important to join the research race with the world's most advanced economies. Many routine jobs may disappear over the decades ahead, making it crucial for countries' long-term welfare to create job opportunities in fields where humans are not easy to replace with robots. It is also worth adding that automating jobs is likely to mitigate the adverse economic effects of low birth rates in some of the region's countries, such as Poland.

In one respect, Central European countries are in a very fortunate position. They do not have to be pioneers in designing an environment that enables R&D projects, as they can benefit from the rich experience of more

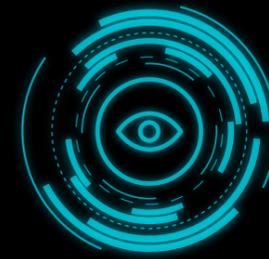
advanced countries. Precisely replicating solutions adopted elsewhere runs the risk that they will be inappropriate for meeting local needs. Instead, adapting a country's existing regulations to be in line with global best practice is a much safer route to take. It is also important to keep expectations reasonable – countries that focus on innovation and R&D do achieve higher labour productivity, but in most cases the effects only become visible over the long term.

Key findings

More of the region's companies have increased their R&D expenditure than was the case in the previous survey. More than two-thirds (**67%**) plan to increase their R&D spending over the next three to five years.



Similarly to the last survey, company secrets policies (**67%**) were the most commonly used means for companies to protect their IP; **12%** of companies in the region use no form of IP protection at all.



The biggest problems with the R&D support system, selected by **29%** of companies, were identifying the R&D activities that are eligible for tax incentives and coping with tax authorities' unclear interpretations of R&D regulations.



Similarly to 2016, companies see the availability of diverse support (**63%**) and skilled researchers (**62%**) as the main drivers that could cause them to increase their R&D investment.



Analysis

A total of 329 Central European companies participated in our survey, representing nine countries: Croatia, the Czech Republic, Estonia, Hungary, Lithuania, Poland, Romania, Slovakia and Slovenia.

Note: In the report we used terms such as 'innovations' and 'R&D' interchangeably. We recognise there is a difference between them, but from a macroeconomic point of view they are very similar.

Predictions of R&D spending in the years ahead

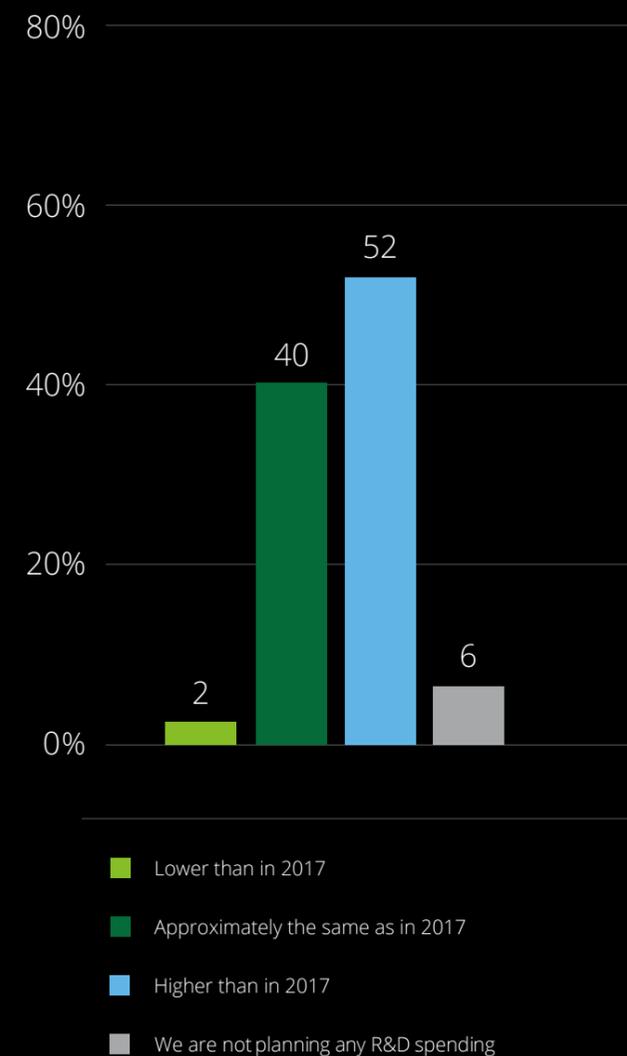
Slightly more than a half of respondents (52%) predict that their companies will spend more on R&D in the near future (the next one to two years) than in 2017, an increase of seven percentage points (pp) since the last survey.

The pro-innovation approach appears to be even stronger when we consider the longer term. Roughly two thirds (67%) of the surveyed companies are planning to increase their R&D expenditure during the next three to five years (a 10 pp increase over the previous edition of the survey). Overall, the tendencies revealed by companies' short and longer-term strategies are similar.

Such an optimistic picture may have two explanations. The EU provides heavy subsidies for companies' R&D activities, meaning that more innovative projects deliver a sufficient return on investment. Subsidies also provide an incentive for more risky projects, since only part of the investment is financed privately. It is also expected that there will be less money for R&D projects in countries like Poland under the next EU financial perspective.

The second explanation is that CE companies are increasingly realising that low-cost labour is no longer their advantage. For this reason, building a lasting competitive advantage on the basis of innovation is appealing to them.

Companies' R&D investments over the next 1-2 years (%):



Intellectual Property protection policies among CE companies

There are various different ways to protect a company's Intellectual Property, and several of these can often be applied simultaneously.

Similarly to the 2016 report, two thirds (67%) of companies have a secrets policy, making this the most popular solution used by respondents.

Protection by trademark was the runner-up, selected by 47% of respondents. This is a major change since the last survey (31%). On the one hand, the shift may be due to the influence of EU programmes promoting and subsidising IP protection. On the other, the difference may be partly attributed to the fact that the sample is composed differently from the 2016 survey. A similar share of companies (44%) told us they use patent protection (up by 4 pp from the last survey).

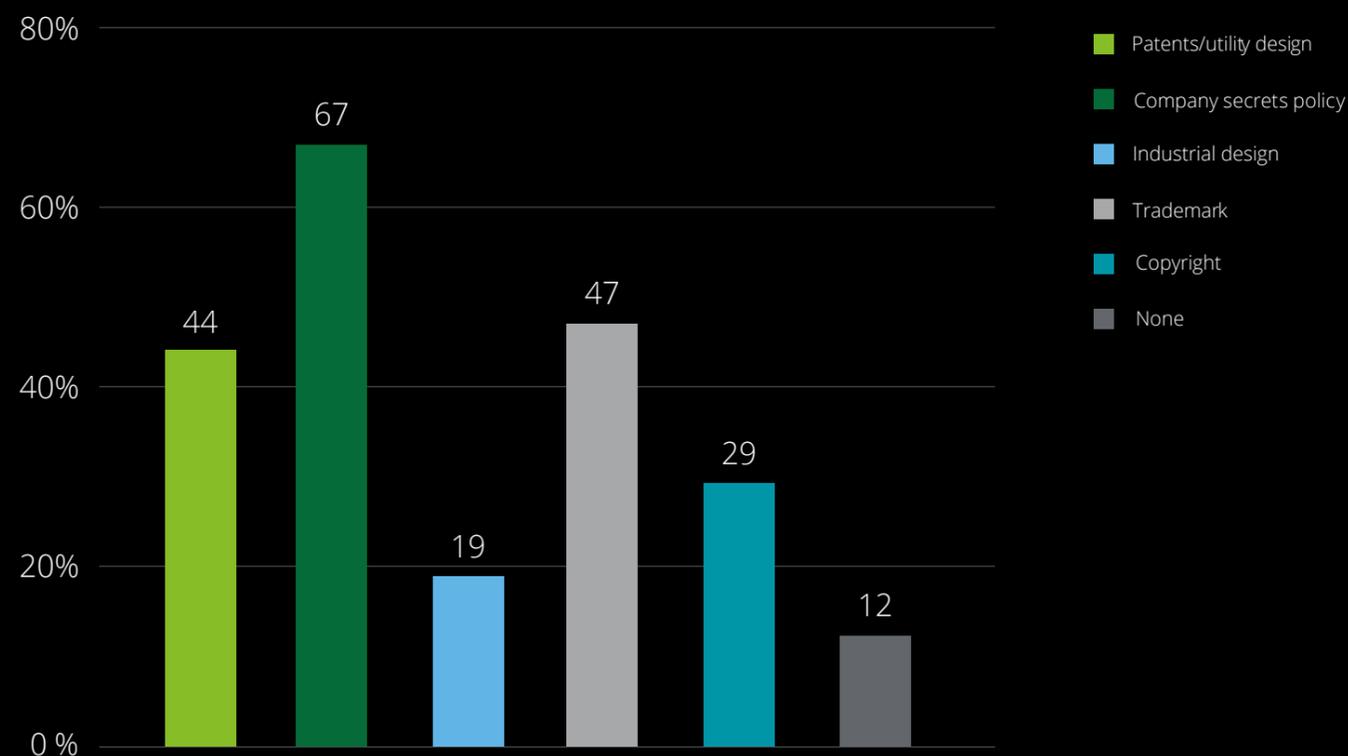
Copyright and industrial design are moderately popular among Central European companies, chosen by 29% and 19% respectively. The importance of each has increased somewhat since the last survey.

Nonetheless, a surprising 12% (previously 9%) of companies do not use any means of protecting their Intellectual Property. These are likely to be smaller companies that believe

the costs of protection would outweigh the benefits.

Overall, it appears that companies in Central Europe care slightly more about protecting their Intellectual Property than they did two years ago, and this should be seen as a positive change.

How do you protect Intellectual Property/know-how in your company? (%)



The most serious issues affecting the R&D support system

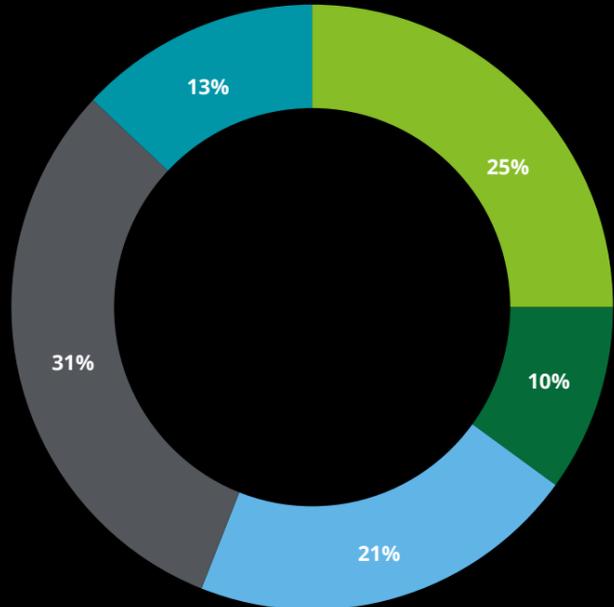
Because tax law changes frequently, companies feel uncertain about how to apply R&D regulations to their circumstances. Nearly a third of respondents find it most difficult to identify which R&D projects are eligible for deductions (on a par with unclear assessment by tax authorities). With just 10% of respondents selecting it, keeping track of costs separately is the least cited issue.

Interestingly, it is not only the laws that are unclear – so is the guidance intended to explain the regulations. Nearly a quarter (23%) of respondents are most concerned about guidelines that lack clarity. Policy makers apparently do not need to impose new laws in order to improve the climate for innovation. Simply improving the tax guidelines for innovative businesses could be sufficient.

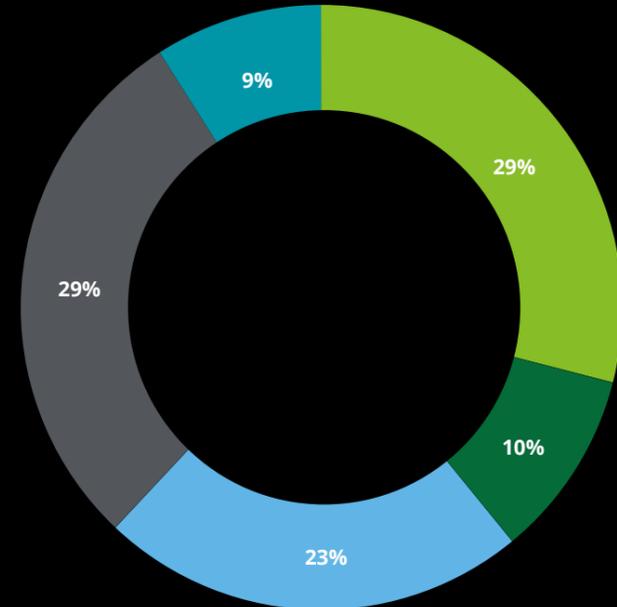
Overall, the results are only slightly different from those of 2016.

What is the most serious problem in the current system of R&D support (both in terms of subsidies and of R&D tax deductions)? (%)

2016



2018



- Identifying the activities that meet the R&D requirements for requesting a subsidy or a tax deduction
- Keeping track of costs separately
- Unclear guidelines on the conditions of the eligibility of the costs and their calculation
- Lack of tax clarity in the assessment of subsidies or tax deductions by tax or other authorities
- Other

Key factors influencing R&D spending

The main factors that could cause companies to increase their R&D expenditure appear to be largely unchanged. Respondents most frequently selected new kinds of public support (63%) and better availability of experienced researchers (62%), almost the same as in the last survey.

New types of support are desirable from companies' viewpoint, because it enables them more easily to meet the requirements for a given kind of support. This in turn reduces the need to deviate from the original project format in order to qualify for support.

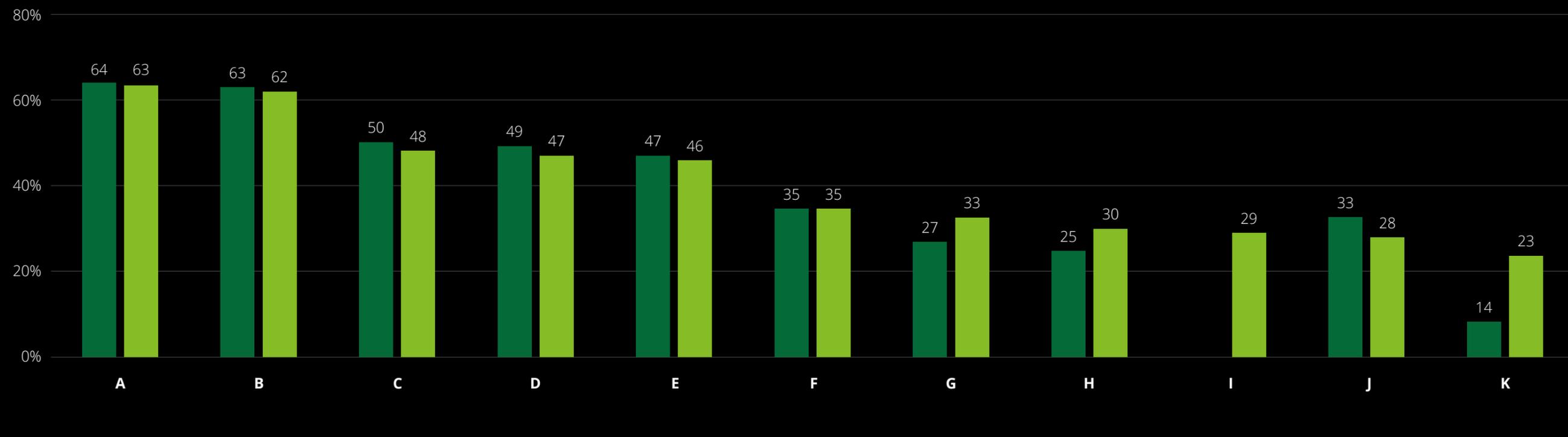
Since a lack of qualified researchers is currently a major challenge for companies in Central Europe, governments across the region should perhaps review their policies on hiring foreigners. Central Europe is an attractive destination for holders of advanced degrees from non-EU countries, such as Ukraine, Russia and India. When there are severe shortages of candidates, it would seem reasonable to soften work permit regulations for researchers. In all likelihood, the arrival of new scientists would have only a minor impact on a company's salary structure – just 35% of companies told us the cost of researchers was an important issue.

In a new question in the current survey, we asked whether the potential of partnering with larger enterprises would influence companies' R&D spending. The issue was seen as important by 29% of companies, placing it near the bottom of the table. This response is probably linked to the fact that such partnerships may be important only for small businesses, such as start-ups.

Grants versus tax relief

Companies from across the region are more likely to use R&D grants than tax incentives, which suggest they see R&D grants as more attractive. An important factor for start-ups in particular may be that they can benefit from R&D grants even if they are currently operating at a loss. Close to half (46%) of respondents said they were familiar with R&D grants and use them actively. The share for tax incentives was rather lower at 36%.

To what extent would the external factors mentioned below influence the increase of your R&D spending in the coming 1-2 years? (%)



■ 2016
■ 2018

A Availability of more types of benefits (cash grant, tax allowance etc.)

B Availability of skilled and experienced researchers

C More R&D cash grants as compared to R&D tax incentives

D Access to and cooperation with universities/research institutes

E Stability and transparency of the regulatory environment/state administration

F Lower costs of researchers

G Possibility of co-financing costs of IP protection procedures, including costs of protection maintenance period

H Effective management of IPR resulting from R&D activities

I Possibility of joint R&D projects implementation with larger enterprises

J Access to the R&D sectoral and competitors' benchmarks

K Other factors

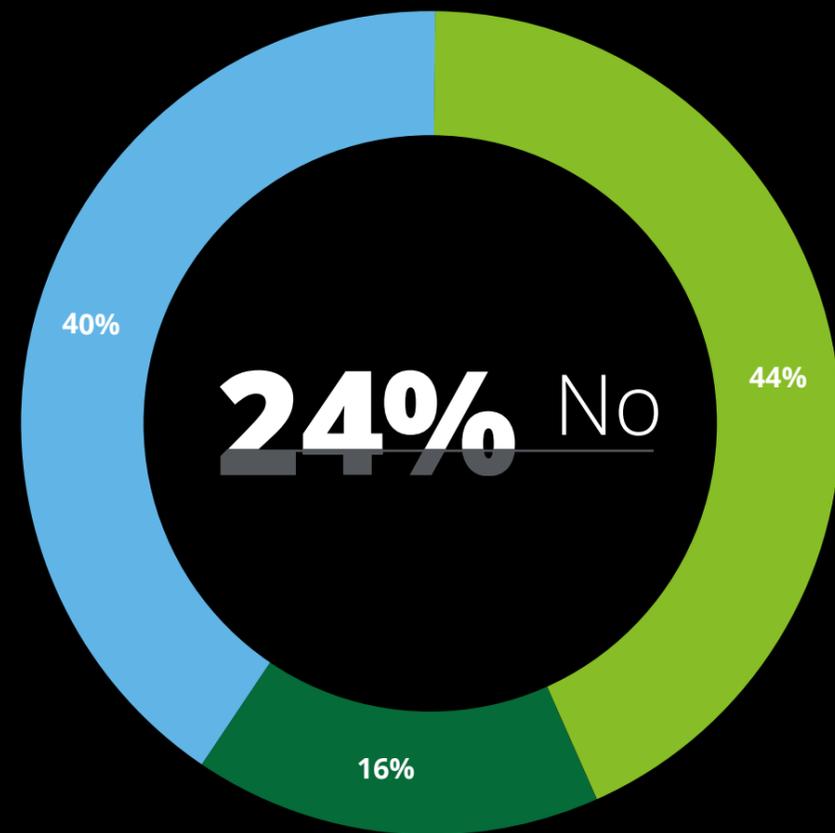
Collaboration with third parties in R&D projects

In all surveyed countries, it is common practice for companies active in the R&D field to partner on projects with third parties. Around three-quarters (76%) of respondents told us they had such partnerships.

It is often necessary to collaborate with external vendors, as it may take years for a company to build in-house expertise in a specialist area. Roughly two-thirds of companies that have external R&D partners told us they were motivated by the need to carry out a research project successfully (65%).

Over half the companies that do not collaborate with external partners either have their own R&D centre or can use the facilities of another company within their group.

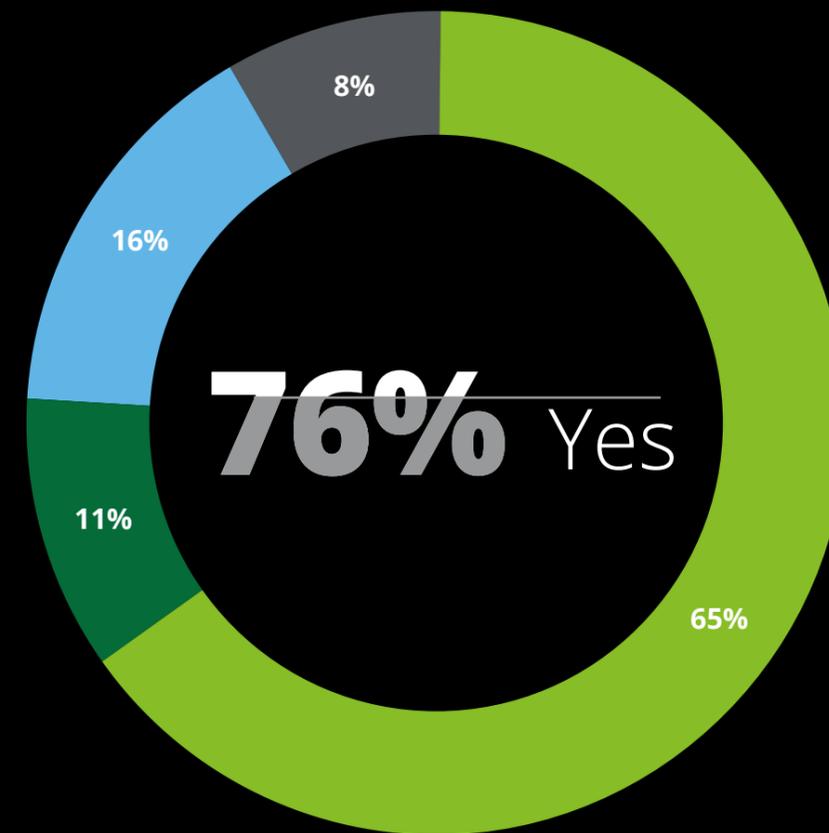
Do you collaborate with third parties when carrying out R&D projects?¹



No, because

- Our company has an R&D centre
- Our company has an R&D centre in another firm in our group
- Other reason

A significant share of respondents selected 'other reasons' (40%), but few companies provided details on this matter. We see this as an indication that more answers should be available in the next edition of the report.



Yes, because

- It is needed for conducting our research projects
- It is required in order to receive higher cash grant for conducting an R&D project
- It is required to apply for a grant
- Other reason

Companies most frequently partner with research units to carry out a research project (65%). This may be due to resource availability affecting both equipment and human capital. It is much less common for companies to be motivated by the opportunity to receive grant support or tax deductions. Only 16% of companies said finding an external partner had been a requirement in the grant application process.

¹ In this question, we excluded responses from companies that spent nothing on R&D in 2017. We assumed they do not carry out R&D, so asking them about external R&D partnerships may bias the results.

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