In 2016, Deloitte carried the survey „Corporate R&D Survey” in cooperation with the National Centre for Research and Development (NCBR) and PKO Bank Polski.
The ability to innovate is vital for the Polish economy. However, 44% of the Poland-based companies participating in the Deloitte R&D Survey 2016 tell us they do not implement an R&D strategy, instead taking ad hoc steps based on the decisions of their management. The outcome can be seen as positive if compared with last year’s results, when two-thirds of the surveyed Polish enterprises claimed not to have an innovation policy. But the situation is still a cause for concern – nearly half of our Polish respondents are oblivious to any business advantages of research, development and innovation (R&D&I) projects. These are some of the key findings of the R&D Survey 2016, conducted by Deloitte among enterprises from 10 countries across Central Europe, including Poland.

The survey’s findings explain why we are still outsiders on the innovation map of Europe. While Poland ranks 45th on the Global Innovation Index developed by INSEAD and the World Intellectual Property Organization (WIPO) and is only ahead of Greece and Romania in the European Union. This is confirmed by Eurostat data, which shows that in 2013 Poland spent 0.87% of GDP on R&D, as compared to the EU average of 2.02%. Although data from the Polish Statistical Office shows that spending has since been on the increase, rising to 0.94 percent in 2014, this is still less than half the EU average and far behind Finland (3.17% of GDP) and Sweden (3.16% of GDP), which are in a class of their own at the head of the ranking.

Will the new pool of European funds to support R&D projects and the implementation of innovative technologies encourage Polish companies to get more involved? Under the new central and regional operational programmes 2014-2020, over PLN 40 billion from the EU budget has been earmarked to support such projects in Poland. Will this, plus state aid granted under the programmes and companies’ own spending on R&D and innovation, be enough for Poland to reach its target of spending 1.7% of GDP on R&D by 2020? (This is Poland’s individual goal; the EU as a whole is aiming to spend 3% of GDP on R&D by 2020).

The survey shows that while companies expect the state to provide them with R&D incentives, they regard the inducements available today as only ‘somewhat satisfactory’. This suggests that there is still much scope for increasing companies’ capacity to innovate through the provision of other support solutions. This is particularly the case when you take into account the fact that many companies do not consider the new tax incentive available from 2016 to be satisfactory. It’s difficult to disagree with this opinion – Polish companies are well aware of the incentive systems in place across the world, particularly in other CE countries, which offer much higher R&D&I grants and tax incentives. Other increasingly important factors include good collaboration between business and R&D centres, a stable economic and legal environment that allows businesses to plan ahead, and the potentially high costs of R&D work.

I hope that this report – as in previous years – will give you valuable insights into the steps needed to make state policies even more effective in supporting R&D and improving Poland’s innovation capabilities. I also want to thank all the companies that agreed to take part in our survey and share their thoughts and opinions on these and other matters. I am confident that their efforts will bring tangible results for them and the Polish economy as a whole.

Magdalena Burnat-Mikosz
Partner
Leader for Deloitte R&D and Government Incentives Service Line

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1 The Business School for the World.
2 Eurostat, 2014.
Key findings

• The percentage of firms stating that their R&D spend exceeds 3% of their revenue has fallen sharply over the last year (from 48% to 33%), despite growth (from 13% to 17%) in the percentage of those whose R&D expenditure exceeds 10% of revenue. The proportion of Polish respondents spending more than 3% of revenue is significantly below the Central European average of 46%. Spending on R&D accounts for less than 5% of total capital expenditure in more than half the surveyed companies. The data indicates that companies do not yet recognise R&D as an important area for driving growth. It is possible that their actual R&D spending is higher than reported, but is not reflected in their financial reports or statistics. This is simply because, in the absence of any incentives, many of them see their R&D and innovation costs as part of their wider capital expenditure.

• The availability of a qualified and experienced workforce was named as the second most important factor impacting the level of R&D spending. This may result in a higher level of collaboration between the scientific and the business worlds. However, Poland still lacks incentives for companies to employ more R&D specialists.

• According to 39% of companies, the best R&D support system would combine state aid with tax incentives. However, the number with this opinion is on the decline (down from almost half of all respondents in the previous survey). There was a steep rise (from 9% to 19%) in the proportion of respondents who do not believe that incentives would have an effect on their R&D expenditure.

• 10% of companies are planning to cut their R&D spending within the next one to two years – a significant growth since last year’s survey, when one in 20 gave this response. The same percentage (10%) expects their R&D expenditure to decrease over a five-year period. While in Poland no respondent predicted a decrease in R&D spending within the next three to five years in 2015, 10% of the respondents share such a view today (2014: 4.2%). The percentage of companies that are not planning to spend anything on R&D has fallen from 6% in 2015 to 2% in 2016.

• The percentage of companies that are aware of subsidies and use them has gone up sharply over the past year (from 38% to 51%). Nevertheless, 38% do not use any incentives at all, even though they are aware of them. The main reason for this is that they do not believe their activities comply with the official definition of R&D.

• 71% of the surveyed companies collaborate on R&D projects with other organisations that are knowledgeable and experienced in this area. While this is higher than in 2015 (53%), it is lower than the 2014 figure (82%). The responses show that much still may need to be done in the area of collaboration between business and R&D centres.
Findings
Over the next few years, Poland is set to become much more involved in supporting companies’ capacity for innovation and the activities of R&D institutions. The focus of the 2014 – 2020 operational programmes using EU funds (which was criticised by some of the companies in the survey) is tending to drift away from investments in fixed assets towards involvement in new technologies and implementing innovative solutions connected with products and processes. This seems to be the only way for Poland to make the move from a traditional to a knowledge-based economy and avoid the middle-income trap.

Today, those projects with the best research and economic potential and related to areas known as National Smart Specialisation (NSS), stand the best chance of qualifying for EU funding. These specialisation areas are set to form a hotbed of innovative solutions, as well as a source of economic added-value and the drivers of an increasingly competitive economy. EU funds to promote R&D&I are available under the Smart Growth and regional operational programmes, which favour projects addressing smart specialisations in the regions – in total, more than PLN 40 billion is available to companies and research institutes. The key areas that will form the foundations of economic growth include the sustainable energy sector, innovative technologies and industrial processes, the agro and food bio-economy and health-improving initiatives such as medical technologies and modern diagnostics.

More effective initiatives for driving innovation also form one of the pillars of the Plan for Responsible Development announced at the beginning of 2016 by Vice-Premier Mateusz Morawiecki. This involves the development of an innovation-friendly environment that will support companies and the wider economy in their R&D&I activities. One such expected initiative is a new law on innovation, with a go-live date planned for the first half of 2017, following amendments to the laws in place today. Plans also include the StartinPoland programme that will offer tools facilitating business start-ups and a reform of Poland’s R&D institutes. The government has also announced changes in tax incentives for companies carrying out R&D activities. According to the plan, spending on research, development and innovation will increase to 2% of GDP (the current European average) by 2020.

Even when these plans have been successfully implemented, it will take some years for the economy to feel the effects of such initiatives. Today, the overall situation is not very promising: the Deloitte survey shows that the level of innovation-related activity among SMEs in Poland is declining, with patent applications remaining at a very low level (under 40% of Polish respondents claim to have filed an application). Nor have we seen any improvement in the quality of research work. The Research Excellence Indicator 2015 puts Poland in 24th position in the EU: only 4.2% of Polish R&D publications are among the top 10% of the most frequently cited papers, placing Poland ahead of only Romania, Bulgaria, Croatia and Latvia.
Level of expenditure

It is as yet too soon for us to see any positive effects in the form of increased R&D spending arising from the government’s announcements of expanded and improved systems to support R&D activities. Following the 2015 survey’s material increase in the number of companies spending over 3% of their revenue on R&D and innovation (up by 20.7 percentage points [pp] over 2014 from 26.3% to 47%), we have seen a sharp fall in 2016 to 33%.

This is despite a solid increase in the percentage of companies saying that they spend over 10% of their revenues on R&D and innovation. This indicates that an increase in R&D spend among large enterprises goes hand-in-hand with a sharp decline in such spending among smaller businesses. 17% of participating companies in Poland told us they spend more than 10% of their revenues on R&D, placing the country roughly on a par with the regional average (21%). To put this result into perspective, significantly higher proportions of respondents from Estonia (78%), Slovakia (31%), Croatia (30%) and the Czech Republic (30%) told us they spend 10% or more of revenues on R&D. The smallest proportions doing so were from Slovenia and Romania (both 6%).

However, if we take the total expenditures of those companies that spend in excess of 3% of their revenues on R&D, Polish firms lag far behind Central Europe’s average (46%) and are ahead of only Hungary (31%) and Slovenia (33%). The fact that companies are cutting costs is most clearly reflected in the increase since the 2015 report in the proportion of Polish respondents who spend from 1% to 3% of their revenues on R&D. This has risen from 19% to 25% (equal with Croatia as the highest proportion in the region), and is mirrored in the sharp fall (from 22% to 8%) in Polish companies spending between 3% and 5% of their revenues on R&D.

What percentage of your turnover was spent on R&D in the previous year? (%)

- Above 10%: 17
- Between 5 and 10%: 8
- Between 3 and 5%: 22
- Between 1 and 3%: 25
- Less than 1%: 29
- We did not incur any R&D expenditures: 29
- I don’t know: 25
Interestingly, the falls in R&D spending reported by companies are not reflected in the data published by the Central Statistical Office. In 2014, we continued to see a steady growth in the business sector’s share of R&D spending, rising to 39% of spending made by all organisations carrying out R&D projects. This marks increases of 1.7 pp and 14.6 pp respectively when compared with 2013 and 2010.

Despite such findings, the percentage of companies that spend very little or nothing on R&D has not changed from previous years (32%). More than two thirds of these respondents claim that this is because they do not recognise R&D as part of their business activity. This indicates that the level of awareness of how R&D activity is understood is still low in the day-to-day life of Polish companies. However, the level of low R&D spending in other CE countries is similar (with an average of 31%). In fact 56% of Slovenian, 45% of Hungarian and 40% of Latvian companies tell us they spend very little or nothing on R&D. This may be due to the growth trend of outsourcing R&D activities to specialised R&D units, meaning that such spending may be seen as investment activity. Overall, R&D spending accounts for less than 5% of the total capital expenditure of more than half of our respondents. This suggests that R&D is yet to become an area of substantial investment, possibly a consequence of the lack of incentives for companies to recognise R&D as a separate item of expenditure.

We need to bear in mind that 2014 (with that year’s spending being reflected in the responses to the 2015 poll) saw a sharp rise in reported expenditures, along with EU funds being available under the long-term EU budget that was coming to an end. The 2015 data shows the effects of a fall in the availability of external financing (subsequent to which, the opportunity for funds under a new perspective only arose in the second half of 2015, with the first effects being reported in 2016). In addition, work was underway on a new R&D tax incentive during 2015, meaning that companies postponed their R&D projects until the final decision was announced. Unfortunately, this turned out to fall short of their expectations.

Under the new tax incentive scheme introduced in January 2016, companies can deduct from 110% to 130% of qualifying R&D costs from their tax base.

Furthermore, our analysis of the criteria for awarding financial support from EU funds, alongside results indicating that only 10-15% of applicants have obtained funding, shows that the current long-term EU budget is making it more challenging than its predecessors for companies to receive a grant. This in turn converts into a lower level of optimism around R&D spending, particularly among smaller companies. Without any additional support mechanisms, R&D activity appears likely to become the exclusive domain of large entities.

Global experience, however, tells us that many new ideas come from the smallest companies or dedicated R&D start-ups.

After last year’s wave of optimism, which resulted from planned increases in R&D spending and improved innovation capabilities, the current survey shows that sentiment has deteriorated. The percentage of companies in Poland planning to reduce their R&D expenditure over the next two years has risen from 5% to 10% (similar to the 2014 result), which is more than twice the average for the CE region (a comparable level of pessimism can only be seen in Latvia).

What percentage of your investment costs was spent on R&D in 2015?

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 10%</td>
<td>11%</td>
</tr>
<tr>
<td>Between 5 and 10%</td>
<td>22%</td>
</tr>
<tr>
<td>Between 1 and 5%</td>
<td>29%</td>
</tr>
<tr>
<td>Less than 1%</td>
<td>25%</td>
</tr>
<tr>
<td>We did not incur any R&amp;D expenditures</td>
<td>3%</td>
</tr>
<tr>
<td>I don’t know / not applicable</td>
<td>10%</td>
</tr>
</tbody>
</table>

What percentage of your investment costs was spent on R&D in 2015?
Expectations for the medium term (between three to five years) are even worse. While in Poland no respondent predicted a decrease in R&D spending in 2015, 10% of respondents share such a view today (2014: 4.2%). A similar tendency can be discerned in the Czech Republic (9%), Estonia (11%), Latvia (10%) and Slovakia (11%). Uncertainty about the sources of R&D funding is the most likely cause, especially as accessing EU funds becomes increasingly difficult.

On a positive note, we have seen the percentage of companies with no R&D spending plans fall from 6% to 2%. This makes Poland one of the leaders in the region, where the average is as high as 10%. It is also worth mentioning that over 80% of Polish respondents tell us they are planning to maintain or increase their R&D spending. This indicates that an increasing number of businesspeople understand the importance of innovation to business development.
The availability of incentives is still the most important driver of R&D spending. Polish companies wish to mitigate the risk involved in running the business by ensuring that at least some of their R&D expenses are funded from external sources. However, legal compliance and sustainability are becoming increasingly important elements of such initiatives. This is why the findings of this year’s survey are very similar to the conclusions drawn last year: even though many companies have identified their R&D needs, taking the decision to meet those needs depends to a great extent on the availability of external funding.

The subject of external funding poses a significant challenge for any innovation-oriented government, as it has constantly to spur businesses into action. Consequently, the government needs to analyse the current form of available R&D tax incentive, modifying them to ensure they are effective at persuading companies both to increase their R&D activities and to disclose all their R&D expenditure (which is currently not always a tax-efficient solution). Ultimately, such incentives and other forms of institutional support (such as simpler procedures for start-ups, the readiness to take higher risks in innovative initiatives, national seed funds and easier ways to commercialise the outcomes of R&D work) should replace the current aid mechanism, whose importance will decrease as EU funds dry up over time.

As well as institutional support, it is important that companies can source competent and experienced R&D personnel. This is particularly important in Poland, which has seen a considerable outflow of qualified experts. We would like to see the government find ways of encouraging them to stay in or come back to the country.

The opportunity to collaborate on R&D projects with larger organisations is the least important area for our respondents. This might cause problems for firms trying to implement the concepts of open innovation and knowledge-sharing – the global trends that are considerably increasing the ability to innovate of businesses worldwide.

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To what extent would the external factors mentioned below influence the increase of your R&D spending in the coming 1-2 years? (where 1 is a factor without any influence and 5 is the most important factor)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of more types of benefits (cash grant, tax allowance, etc.)</td>
<td>4.08</td>
</tr>
<tr>
<td>Availability of skilled and experienced researchers</td>
<td>3.81</td>
</tr>
<tr>
<td>More R&amp;D cash grants as compared to R&amp;D tax incentives</td>
<td>3.54</td>
</tr>
<tr>
<td>Stability and transparency of the regulatory environment / state administration</td>
<td>3.36</td>
</tr>
<tr>
<td>Lower costs of researchers</td>
<td>3.22</td>
</tr>
<tr>
<td>Access to and cooperation with universities / research institutes</td>
<td>3.17</td>
</tr>
<tr>
<td>Effective management of IPR resulting from R&amp;D activities</td>
<td>2.83</td>
</tr>
<tr>
<td>Possibility of co-financing costs of IP protection procedures, including costs of protection maintenance period</td>
<td>2.75</td>
</tr>
<tr>
<td>Access to the R&amp;D sectorial and competitors’ benchmarks</td>
<td>2.71</td>
</tr>
<tr>
<td>Possibility of joint R&amp;D projects implementation with larger enterprises</td>
<td>2.34</td>
</tr>
<tr>
<td>Other factors</td>
<td>1.51</td>
</tr>
</tbody>
</table>
As in previous years, this year’s survey reveals problems concerning the long-term planning and management of R&D&I in Polish companies. Almost half of the companies still admit they do not have any R&D&I strategy in place – instead, strategic decisions in this area are made on an ad hoc basis by their management.

Nevertheless, we can discern a steady change in such an approach as the percentage of companies without any strategic plans in place has gone down from 64% in 2015 to 44% in 2016, while 20% of respondents were at the same time preparing the relevant documentation. But the fact remains that only 27% of companies can demonstrate a sound R&D&I strategy that involves the organisation’s own and external resources in seeking opportunities and solutions to business challenges. Only a third of businesses with a comprehensive approach to R&D have appointed a manager, such as an Innovation Director or Chief Innovation Officer, to run this business area.

How do you manage the R&D policy in your company? (%)

- There is no organized strategy in place, the management is responsible for answering marked demand in this respect (ad-hoc reactions) 64 (64)
- Development of R&D&I strategy is in progress 20 (20)
- The R&D&I strategy has been approved and the implementation process started 12 (12)
- There is an organized R&D&I strategy implemented and there is a responsible CIO / a member of the board appointed 33 (33)
- There is an organized R&D&I strategy implemented and the strategy includes external scouting focused on financing / purchasing new ideas / projects (i.a. supporting start-ups, running venture capital fund) 56 (56)
- There is an organized R&D&I strategy implemented and the strategy assumes gaining collaborative advantage by engaging external resources to find solutions for specific business opportunities and challenges (expanding open innovation network by engaging employees, customers, competitors) 19 (19)
Intellectual property/ know-how protection

Industrial design, technical and process solutions and innovative products and services resulting from R&D work constitute Intellectual Property and should be carefully protected as they drive competitive advantage. Polish respondents still tell us that the trade secret (73%) is the most popular protection mechanism, although its importance has declined somewhat since the previous survey (2015: 77%). With 69% of CE enterprises declaring the use of this method for protection of their know-how, Polish companies are on a par with the region’s average in this respect. The trade secret is also the most important protection method for Estonians (100%), who also most widely use patent protection (67%). The trade secret is the least popular protection mechanism among Slovenian respondents (28%).

At the same time, after a decrease in the previous year, Poland has seen a slight increase in the proportion of companies using patents and utility design to protect their Intellectual Property and know-how (39% vs 38% last time). In 2015, there was also a considerable increase in the number of Polish patent-registration applications at the European Patent Office (EPO), rising to 568 applications from 482 in 2014. In addition, the 150 patents granted to Polish inventors was the best result for 10 years. Regrettably, our achievements in this area are still rather small – applications from Poland accounted for merely 0.35% of all those filed at the EPO in 2015 (2014: 0.26%). Alike Estonia, a high proportion of respondent companies from the Czech Republic (54%) and Hungary (49%) also filed patent applications.

At the same time, however, when it comes to using copyrights, Polish companies are the unparalleled leaders in Central Europe (CE average: 26%, Poland average: 44%). The proportion of those using industrial design protection has not changed (at 19%). The level of trademark protection has dropped by 7 pp, however, which is hard to fully understand given the globalisation of the world economy. In the last survey 31% selected this method, close to the region’s average. Latvians are the leading users of trademarks (60%).

While the diversity of methods Polish companies use to protect their Intellectual Property – presumably matching the individual needs of a company – is a positive signal for the rest of the region, the 2 pp increase in the number of companies using no protection should be a cause for concern. However, Poland’s 10% score does not deviate from the CE average. When it comes to carefree attitudes, the record holders are Slovenians, 39% of whom see no need to protect their companies’ Intellectual Property.

Collaboration with third parties

71% of the surveyed companies collaborate on R&D projects with other organisations, mainly because doing so is necessary for success. While this constitutes an 18 pp increase since 2015 (53%), it is lower than in 2014 (82%). Although the trend is positive (as indicated by many other surveys and studies) the scale of interaction between business and research institutions to commercialise the work of R&D centres or enable businesses to commission studies on given subjects (61% of respondents point to this form of collaboration) is still too small. Respondents mainly turn to Polish R&D centres, with only 17% collaborating with foreign institutions.

Importantly, there has been a decline in the number of companies expressing the view that such collaboration is driven by funding criteria (ie it is a condition for obtaining new or additional funding). This is due to changes in the criteria for R&D competitions (which increasingly require no collaboration and sometimes ban applications from consortia). The trend is positive, because it shows that Polish companies are well aware of the need to collaborate but have varying motivations for doing so. Relatively few enterprises use crowd-sourcing techniques (5%) or similar solutions when seeking R&D resources. We have a lot of catching up to do with the Europe-wide and global trends underway in knowledge-based economies, where the open innovation model that involves sharing knowledge and experience between enterprises, start-ups and R&D centres is increasingly popular.

A quarter of Polish companies do not collaborate on R&D with any third parties, largely because they have their own resources, including R&D centres. The proportion of respondents who do not collaborate because they have their own R&D centre has doubled since the previous year and stands at almost twice the CE average of 36%.

Annual Report 2015, European Patent Office
Support for R&D in Poland

Enterprises that carry out R&D activity rate the Polish R&D support system much more highly than in past years: the percentage of those expressing dissatisfaction with the system has fallen by 22 pp to 12%. This may be due to the implementation of new EU operational programmes as well as the new tax incentive for companies investing in R&D. The same factors may have played a role in the substantial 10 pp growth (to 49%) in respondents rating the current solutions as ‘somewhat satisfactory’. While an improvement can be discerned, there is still room for more. Another positive conclusion of the survey is that only 5% of respondents admit to not knowing enough about available incentives and support systems. This is a considerable improvement since last year’s survey when 11% gave this answer.

As last year, for the largest proportion of companies (34%, 2.1 pp lower than last year) the main concern regarding available incentives is the uncertainty about how qualification requirements are evaluated, mainly by the tax and other authorities involved in the award process. Unclear guidelines on cost eligibility and calculation are another source of confusion, a view expressed by 22% of respondents (up by 3 pp over the 2015 survey). Such issues increase the perceived risk involved in using aid and tax incentives.

The responses show that the unclear Polish law and its not transparent interpretations by authorities are imposing a straightjacket on Polish firms that is slowing the growth of innovative businesses. But there is more to this than meets the eye – in recent years, many reports have looked into the obstacles slowing the growth of entrepreneurship in Poland. They all emphasise the need to cut through red tape and reduce administrative costs and charges to make R&D procedures and the whole economy simpler and easier. As regards R&D, the use of standardised definitions (based on the Frascati Manual) and the compilation of a common list of qualified costs for incentives and funding could improve the situation. Matters could be improved even further if a new or existing institution such as the National Research and Development Centre were put in charge of verifying applicants’ eligibility for the incentives.

While the subject of incentives and their legal framework is very important for companies carrying out R&D, their ability to do so is also influenced by the availability of staff, human capital and the institutional environment. As regards the level of savings, investments made by business angels and via venture capital, financial aid etc, Poland scored 1.68 on a 1-4 scale. In terms of tax charges, job market flexibility and ease of setting up a business, Poland scored 2.55. The scores for human capital and social capital (taking into account the number of graduates, spending on education, collaboration between research and business etc) were 2.27 and 1.5 respectively. With regard to the institutional environment (areas such as online communication and the effectiveness of services) Poland was rated 2.5 on a 1-4 scale. These results show how far we still have to go; they also reveal that companies’ willingness to be innovative is not enough on its own to transform Poland into a knowledge-based economy.

How would you rate the existing incentives for R&D activities? (%)

<table>
<thead>
<tr>
<th>Rating</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfactory</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Mostly satisfactory</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Somewhat satisfactory</td>
<td>39</td>
<td>49</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>I am not aware of any available incentives</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>I have no opinion</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>

\[\text{Deloitte, Diagnoza ekosystemu startupów w Polsce, Grudzień 2015.}\]
An interesting aspect of the survey is the decrease in the percentage of companies that consider a mixed system of support – comprising subsidies alongside tax deductions – to be the system with the strongest impact on R&D spending. This may be due to a lack of any tax deductions in the past, meaning that many companies believed that the new tax incentives would make R&D investments more attractive. When the new tax deduction was revealed in its final form at the end of 2015, it turned out not to be particularly attractive. Despite this, the number of businesses declaring that the existing incentive system has had no effect on their R&D expenditures has risen by 10 pp (to 19%). This dissociates with the fact that respondents see the availability of more types of tax incentives as the best way to encourage companies to develop their R&D activity.

Which system of incentives has the biggest influence on the increase of your R&D spending? (%)

- Pure R&D cash grants system
- Mixed system (availability of both cash grants and R&D tax incentives)
- R&D grants and tax incentives affect my R&D spending equally
- Incentives have no influence on our R&D spending

<table>
<thead>
<tr>
<th>Year</th>
<th>Pure R&amp;D cash grants</th>
<th>Mixed system</th>
<th>R&amp;D grants and tax incentives</th>
<th>Incentives have no influence on R&amp;D spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>20%</td>
<td>30%</td>
<td>16%</td>
<td>10%</td>
</tr>
<tr>
<td>2015</td>
<td>22%</td>
<td>39%</td>
<td>14%</td>
<td>9%</td>
</tr>
</tbody>
</table>
Tax Incentive

Since January 2016, a new tax incentive has been in place whereby companies can deduct some R&D expenses from their tax base. Not much has changed as a result – almost half of the respondents have no plans to use it, mainly because they do not know enough about the incentive or how it works. Again, the biggest concern the companies have is the tax authorities’ approach to reported costs, and consequently their eligibility for the new incentive. The government has not delivered on its promise to carry out innovation-developing initiatives, nor has it appointed any institutions to be in charge of tax incentives and help businesses understand how they work.

The percentage of replies to the question about the effect of the newly available R&D incentive on R&D spending shows that companies are disappointed, having expected more of it during the drafting phase. In 2015, half of all the companies were optimistic that the new incentive would drive R&D spending; in the latest survey, this had fallen to just a quarter. Four times more respondents (37%, compared to 9% in 2015) believe that in its current shape the tax incentive will have no impact on their R&D spending. It is also worth noting that there has been a sharp decline in the percentage of companies declaring that the tax benefit will encourage them to recognise R&D as a separate item of expenses. This means that the new benefit will have little effect on statistics such as BERD/GERD indicators.

Despite the criticisms expressed by businesses, the fact remains that a well thought-out tax incentive system (some countries allow their taxpayers to deduct up to 300% of qualified costs) is a more sustainable and attractive proposition for companies carrying out R&D activities that involve a certain risk. This remains the case, even if support is not in the form of a direct transfer of funds.

Subsidies

The percentage of companies that are aware of subsidies and use them has gone up sharply over the past year (from 38% to 51%). Somewhat smaller is the percentage of companies (34%) that say they do not use any subsidies even though they are aware of them (mainly because they do not believe their activities comply with the definition of R&D). This is a sign of a serious weakness in the current system – namely uncertainty as to how the relevant authorities evaluate eligibility for R&D incentives.

This is a clear message for the innovation-promoting authorities, telling them to incorporate the appropriate instruments to support companies’ R&D efforts (such by appointing an institution to certify the eligibility of activities for R&D incentives). This uncertainty around the compliance of R&D activities with the definition of R&D and the potentially wrong classification of R&D activities is also confirmed by a report from the Ministry of Development. This is a summary of the first phase of evaluating the system that selects projects for the Smart Development Operational Programme. It says the most common reason for projects being rejected is the failure of qualified work to meet the R&D criteria.

The growing awareness of subsidies has weakened the obstacles preventing companies from benefiting from this form of support. Deciding not to apply for EU grants is more and more often a purely business decision. The percentage of companies that are not confident their resources are adequate to monitor opportunities for co-financing and apply for them effectively has fallen steeply, by 23 pp to just 7%. The requirement to establish a consortium to qualify for funding is a problem for only 7% of respondents, down from a third in the previous survey. (This is an effect of a change in the criteria under the new EU long-term budget.)

6 BERD - business expenditure on R&D; GERD - gross domestic expenditure on R&D.
Alongside complicated procedures (although the percentage of respondents providing this response has fallen by 10 pp to 35%), the most serious doubt preventing businesses from filing applications for funding is uncertainty about whether the company will make a business decision to change its growth priorities while carrying out an R&D project covered by the programme (up by 14 pp to 45%). This is good news, as it shows that businesses know how the subsidy system works and are becoming more aware of the increasing need for flexibility to adapt to market needs. It would be good if such flexibility were also to embrace innovative R&D as well as criteria for obtaining and taking advantage of support using the available instruments.
Regional outlook
Partner’s Foreword

Research and development has many faces, not just white coats and laboratories. Basic and applied research is carried out primarily by the academic sector and financed chiefly from public resources. By contrast, experimental development is largely funded by the business sphere and it represents a way for companies to maintain competitiveness and ensure long-term financial growth. At the same time, however, research and development make up a single whole which no developed country can do without. That is one of the reasons why developed economies of the EU support research and development by investing approximately 3% of GDP per year, but the allocations of Central European countries to research and development are comparatively smaller – between 0.4% and 2.4% of GDP.

All Central European countries which participated in the survey have a set research and development support programme. It consists either of direct support in the form of grants, or indirect support in the form of tax deductions. The indirect types of support also include various financial tools such as loans offered under advantageous conditions. Although there is no unified support model, the majority of EU countries use a combination of these methods. This year’s edition of our survey has confirmed that it is precisely the combination of means of support that motivates companies the most to invest in research and development.

Another positive finding of the survey is the fact that companies want to maintain or even increase their volume of funds invested in development. An incentive for increasing investments are also the new grants under the 2014-2020 European Funds programming period, enabling companies to co-finance their development projects.

What makes companies increasingly more worried, on the other hand, is the uncertainty surrounding how they will be evaluated in a potential inspection by tax and other authorities. I believe that the individual state authorities of the countries in Central Europe will make use of this impulse not only for expert discussion on potential legislative amendments, but also to create a unified interpretation practice.

To conclude, please allow me to thank all the companies that gave their time to completing the questionnaire and enabled us to carry out this analysis. This year’s edition of the survey was already the fifth, so we can also evaluate the obtained data time series-wise. I hope that you will find the published results interesting and that they will contribute not only to the discussion on research and development support in the individual countries, but also to a dialogue between the private sector and state authorities.

Luděk Hanáček
Partner
Macroeconomic view

Economic growth is the basic prerequisite for improving the living standards of the population. And not only in the material sense of the word. A richer society offers people the opportunity to use their leisure time in a more meaningful way and to pursue personal development.

There are different paths to accelerating and sustaining economic growth. The basic perspective to consider is that of production factors. These are usually divided into three categories: work, capital and their productivity. The volume of work is limited by demographic growth. However, in a number of developed as well as developing countries, including Central Europe, this factor is likely to hinder further economic growth given the anticipated impact of an aging population. Investment in production capital also has its limits. Too much investment reduces the marginal rate of return on capital. Economics provides for an optimum distribution of resources between consumption and investment, with the present as well as future benefit to the whole of society maximised (within the growth theories referred to as the “Golden Rule”). What remains is the third factor: the productivity of the production factors. The principal means of enhancing productivity is innovation. Innovation activities may be, in turn, promoted by investing funds in research and development. Spending on research may not necessarily ensure that new ideas and technological processes will be produced; however, they considerably increase the likelihood of it happening. The experience of successful economies, such as the US, Germany, Sweden or South Korea, stands as proof of this.

Central European countries have, for a long time, lagged behind in terms of the volume of investment in research and development. In some of the countries, however, things have begun to look up, with the highest achievers being Slovenia and the Czech Republic. In 2014, the two countries invested 2.4% and 2% of GDP in research and development, respectively. By way of comparison: the European Union average is 2%. Slightly below-average investment in research and development has been made by Hungary and Estonia, oscillating between 1-2% of GDP. The amount of the costs incurred by the rest of the countries in Central and Eastern Europe is below 1% of GDP.

However, it is not only the total sum invested in this area that is at play. The sustainability of a high amount of investment in research and development and a reasonable burden on public finances may be ensured by a suitable financing structure. In certain aspects, the role of the state and its support in the form of direct subsidies is irreplaceable. Nevertheless, it is equally important to provide space for corporate investment supported by an appropriate tax system setup and its practical application.

An important parameter is the effectiveness of research and development costs. In this respect, the highest achiever from among the CEE region is Estonia, having taken 31st place in the list compiled by the World Economic Forum based on innovations and the sophistication factor. The Czech Republic is only one place behind. Lithuania and Slovenia were also among the countries that made the top forty.

The nature of the global economy, and with it the fate of small open economies in Central and Eastern Europe, have changed during the last two decades. The existing factors of economic growth have been exhausted to a certain extent and the external economic environment has been altered by the financial crisis. Investment in research and development will play an ever more important role. Central Europe could take inspiration from economically successful countries, which have been making use of this factor for their benefit. Therefore, it would be useful to increase the priority given as part of the economic policies of the CEE countries to the support of investment in research and development. Additionally, efforts should be made in promoting corporate-level innovation activities. At the same time, the sustaining or acceleration of economic growth will be vital not only for the growth of living standards, but for the sustainability of public finance as well, including the financing of retirement and health care systems.

David Marek
Chief Economist, Deloitte, Czech Republic
Key findings

• A comparison of the 2016 results with last year’s survey shows that companies are planning a greater increase in their R&D investments, over both the next one to two years (45%) and the next three to five years (57%).

• The principal drivers that are motivating companies to invest more in R&D include the availability of more types of benefits, enabling them to use a combination of grants, tax deductions etc. and the availability of skilled and experienced researchers.

• Most companies (71%) are continuing to collaborate with third parties, such as universities and research institutes, which is proving beneficial for both parties.

• The key concerns expressed by companies from all surveyed countries include the uncertainties they face when the tax authorities review the subsidies and tax deductions they have used, the uncertainties in identification of R&D activities and a scarcity of qualified and experienced research personnel.

• The highest proportion of companies mostly use a company secrets policy to protect their know-how and intellectual property (69%), followed by patents and utility designs (40%) and trade marks (31%).
Analysis

Deloitte’s ongoing focus on research and development (R&D) is one reason why we carry out this annual survey aiming to map the attitudes of companies in Central Europe to investing in R&D. It also helps find out what difficulties companies face in the R&D area, how they protect their know-how and what kind of government support they mostly use. This is the fifth consecutive R&D survey, mapping the situation in 10 Central European countries (Croatia, the Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovakia and Slovenia). More than 400 respondents took part in the survey.

New support tools
The good news from this edition of the survey is that companies throughout Central Europe would like to invest more in R&D, following the trend seen in previous years. The principal drivers that are motivating companies in this way include the new programming period of EU funds (2014 – 2020); this introduces new R&D subsidies that provide an immediate stimulus for companies to co-finance R&D projects, which can often be extremely financially demanding. Another motivating factor is the implementation of new tax tools for R&D support in individual countries: R&D tax deductions introduced in Slovakia (2015) and Poland (2016).

Last but not least, we should mention that the improving economic situation in Central Europe and across the world is having a positive impact on company finances, as higher demand for products and services leads to better results. This means that more funds may be invested in R&D to enable companies to retain their competitiveness in years to come.

Continuing collaboration
Another piece of good news is that most companies are continuing to collaborate with third parties, such as universities and research institutes, which is proving beneficial for both parties.

The key concerns expressed by companies from all surveyed countries include the uncertainties they face when the tax authorities review the subsidies and tax deductions they have used. Another area of concern is a scarcity of qualified and experienced research personnel, without whom delivering effective R&D projects is challenging.
How would you foresee your company’s R&D spend in years to come?
Responses clearly show that companies are positive about their R&D spending. Compared to 2015, they plan to increase their R&D investments over the next five years.

A comparison of the 2016 results with last year’s survey shows that companies are planning a greater increase in their R&D investments, over both the next one to two years (45%) and the next three to five years (57%). The countries where the greatest numbers of companies are planning to increase their investments are Slovakia (69%), Croatia (68%) and the Baltics (65%). However, most Slovenian companies do not plan to increase their R&D spend. It is possible, that last year most companies increased their investments on maximum level and because of this they plan to invest the same amount as 2015 over the next two years (44%) and three to five years (39%).

Companies’ R&D investments over the next 3 - 5 years (%)
Protecting companies’ R&D policies and Intellectual Property / know-how

Most companies consider the question of protecting R&D results to be a key one. How a company protects its IP and know-how depends on several factors, the most important being its size. For smaller businesses, the legislative process around registering a patent, for example, may be too demanding in terms of administration, time and finance. Alternatively, they may simply underestimate the risks involved in the disclosure of company know-how. The next most decisive factor is the market area in which a company operates. While technical companies may use patents or industrial design, such solutions are not used by IT companies to protect software.

Secrets policies still dominate

This year’s survey results are comparable with those from 2015. Like last year, the highest proportion of companies mostly use a company secrets policy to protect their know-how and intellectual property (69%), followed by patents and utility designs (40%) and trade marks (31%). The least commonly used form of protection is industrial design.

Surprisingly, 9% of all surveyed companies use no form of protection.
The most serious problems in the current R&D support system and the usage of R&D grants and tax incentives
When asked 'What do you consider to be the most serious problem in the current system of R&D support?', almost a third of the respondents (31%) cited the uncertainties involved when tax authorities review subsidies and tax deductions. (That is, the concern that following such a review, the company may have to refund part or all of the grant or pay compensation to cover an incorrect tax deduction.) The highest proportions of companies expressing this concern were in the Czech Republic (39%), Romania (35%) and Poland (34%).

Quantifying concerns
A quarter (25%) of our respondents stated that the second most serious problem is the difficulty in identifying those activities that may be considered R&D, highlighting the currently unclear legislative definition of R&D activities.

Last year, the greatest proportion of respondents (32%) saw the identification of R&D activities as the most serious problem they faced, followed by uncertainty relating to tax issues (27%). The switch in the ranking of these two problems in 2016 may be the result of several factors. First, the increasing number of companies utilising various forms of R&D support will lead tax authorities to undertake increasing numbers of financial reviews (with potentially negative outcomes). Second, companies will experience uncertainty when using a newly implemented support tool (such as a tax deduction) and are likely to be concerned about its potential assessment by a tax authority.

Media matters
There is a third factor that can have a negative impact on company attitudes – namely, the media coverage of controversial cases. However, such cases can in fact help to set clearer rules, create a better assessment methodology and even initiate legislative change. These benefits can arise in cases where a company does not agree with the procedure performed by supervisory authorities and uses legal means to make an appeal.

Over the long term, the lowest proportion of respondents (10%) sees the related administrative burden (keeping track of costs separately) as a problem. However, this is an increase from 7% in 2015.

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)? (%)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of tax clarity in the assessment of subsidies or tax deductions by tax or other authorities</td>
<td>31</td>
</tr>
<tr>
<td>Identifying the activities that meet the R&amp;D requirements for requesting a subsidy or a tax deduction</td>
<td>25</td>
</tr>
<tr>
<td>Unclear guidelines on the conditions of the eligibility of the costs and their calculation</td>
<td>23</td>
</tr>
<tr>
<td>Keeping track of costs separately</td>
<td>10</td>
</tr>
</tbody>
</table>
Key factors influencing R&D spending

Many factors influence a company’s decisions about whether and how much to invest in R&D activities. The survey attempted to identify the factors that play a key role in a company’s decision to increase their R&D investments over the next two years.

The responses show that companies consider the availability of more types of benefits, enabling them to use a combination of grants, tax deductions etc, to be the most influential factor in increasing their R&D investments (64%). The second most important factor is the availability of skilled and experienced researchers (63%); these include university graduates who companies can train as well as seasoned engineers and technicians.

Grants vs tax relief

The survey also shows that companies prefer the opportunity to use grants rather than tax relief. This finding may, however, reflect the fact that the tools available to support R&D differ between different Central European countries. Although grants are available in all the countries participating in the survey, the tax deduction was only recently introduced in Slovakia (2015) and Poland (2016). The way that tax relief is used differs from country to country as well. The proportion of R&D costs eligible for an R&D tax deduction ranges from 25% in Slovakia, to 100% in the Czech Republic and Slovenia, and right up to 300% in Latvia. The amount in question may play a role in influencing whether companies use tax relief or the grants for which they may apply – depending on the type of project and company involved, grants can cover significant part of a project’s costs.

A shortage of researchers

Respondents also confirmed that the availability of skilled and experienced researchers is still a high priority (63%). However, the related costs of employing them are seen as less important than last year (down to 35% from 65% in 2015). The numbers show that there has for some time been a scarcity of research professionals throughout Central Europe, mainly in technical fields and IT. It is not only the higher demand resulting from Central Europe’s economic growth that is driving companies to need more researchers and developers. New technologies are also penetrating all industrial sectors – new software tools and digitisation in banking, for example – where such processes were not commonly used in the past.

The above findings correspond closely to the results of previous surveys. At the same time, comparing results shows that companies are now placing greater emphasis on opportunities to collaborate with universities and research institutes (49%). Professional academics and experts can therefore participate in private-sector projects and put their knowledge into practice.

In an issue related to the concerns that companies find most worrying (summarised in the section below), respondents see the stability and transparency of the regulatory environment as very important (47%).

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

<table>
<thead>
<tr>
<th>Factor</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of more types of benefits (cash grant, tax allowance, etc.)</td>
<td>64</td>
</tr>
<tr>
<td>Availability of skilled and experienced researchers</td>
<td>63</td>
</tr>
<tr>
<td>More R&amp;D cash grants as compared to R&amp;D tax incentives</td>
<td>50</td>
</tr>
<tr>
<td>Access to and co-operation with universities / research institutes</td>
<td>49</td>
</tr>
<tr>
<td>Stability and transparency of the regulatory environment / state admin</td>
<td>47</td>
</tr>
<tr>
<td>Lower costs of researchers</td>
<td>35</td>
</tr>
<tr>
<td>Access to the R&amp;D sectoral and competitors’ benchmarks</td>
<td>33</td>
</tr>
<tr>
<td>Possibility of co-financing costs of IP protection procedures, including costs of protection maintenance period</td>
<td>27</td>
</tr>
<tr>
<td>Effective management of IPR resulting from R&amp;D activities</td>
<td>25</td>
</tr>
</tbody>
</table>
Collaboration with third parties in R&D projects

The good news is that, similar to last year’s survey, most respondents (71%) do collaborate with universities or research institutes. This can benefit both sides. Private companies with sufficient capital gain from access to experienced experts. And universities not only get the opportunity to focus on practical projects – working with the private sector may also be financially beneficial to them.

The main reason why companies co-operate with a third party in this way (be it a university, a research institute or another company) is to complete a development task (75%). A rather lower number of respondents said that working with a third party was a prerequisite for applying for or receiving a subsidy (32%) or receiving a higher subsidy (24%).

Leaders in collaboration

So where, according to the survey, is third party collaboration most common? The two leading countries are the Czech Republic (82%) and Lithuania (78%), while the least collaboration takes place in Hungary (64%) and Slovenia (50%).

However, a quarter of respondents do not work with any third parties. This is because they have their own R&D centres (36%) where projects can be taken right through to completion.
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