

# INVESTMENTS IN RESEARCH AND DEVELOPMENT SECTOR BY POLISH COMPANIES

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## Abstract

Operating research and development activities is an essential requirement that makes the companies are considered innovative. In an era of increasing globalization, businesses have to face many challenges. To remain on the market and have the possibility of continuous growth, improvement and maximizing profits, they need to invest. One of the areas where companies allocate their capital is precisely R&D sector.

The main purpose of this article is to present and discuss investments in research and development sector by Polish companies. The paper contains both a theoretical and empirical data. The first part of the article puts forward R&D definition and its activity in Poland. Next part of the article presents the results of studies on running a business and investments in R&D sector. During the analysis and presentation of subject matter the available literature and data from the report “Badania i rozwój w przedsiębiorstwach. Raport 2015” (“Research and development in companies. Report 2015”) were used.

**Key words:** investments, research and development, R&D sector, polish companies

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## Introduction

Investments are the main method for implementing strategy of the company and an essential requirement for its functioning and development. Their form is determined by the type, amount of expenditures and sources of financing. Investing involves specific changes in the material and technical base as well as the control and implementation of particular business processes. This implies the need to acquire and hold adequate facilities, machinery and infrastructure equipment that enable faster and more effective production process and customer service.

The source literature contains numerous criteria for classifying investment activities. From the point of view of areas for spending financial resources one can distinguish

investments in the research and development which are defined as intangible investments or investing financial capital in specified resources of the enterprise (Wolak-Tuzimek, 2010, pp. 74-75).

One of the conditions for being innovative is to carry out independent research and development activities, take advantage of work and research performed by external organizations and employ common R&D policy with other organizations (Szopik, 2007, pp. 285, 291). A high rank of the R&D activities in innovative processes requires a rational R&D policy of the state and business entities (Lo Nigro, 2015, p. 1791).

Investments of the enterprises in the R&D are a key factor for sustainable growth of the economy driven by innovation through an increase in added value of products, processes and services. The research and development activities of the companies are one of the priority factors driving sustainable economic development and contribute to creating new valuable workplaces.

## **1 Concept and essence of the R&D**

The research and development sector is created by institutions and individuals who are engaged in activities aimed at increasing the level of knowledge as well as finding new applications. The result of the R&D efforts are innovations (product, process, technology) which are essential for dynamic economic development (Leśniewski, 2010, p. 1).

The research and development activities are usually carried out by a team of people. They take a scientific or technical nature and their purpose is to identify regularities occurring in the selected area of the reality and verify hypotheses posed by theories or scientific concepts (Założenia polityki naukowej..., 2004, pp. 4-10). The practical reflection of these efforts includes discovering new dependencies and relationships of elements of the particular area of the reality in the process of improving and enhancing the technique, technology and methodology. Results of the R&D efforts can include further discoveries, inventions, new hypotheses, concepts and theories (Zona, 2016, p. 560).

The R&D is one of the elements of the innovation process (Dimos, Pugh, 2016, p. 797). Innovations involve launching new business and providing new services through a combination of factors, production, new products, methods for distribution of goods and services (Wolak-Tuzimek, 2010, pp. 85). The activity of the R&D sphere can be carried out in different phases of the innovation cycle not only as an innovative source of inventive ideas,

but also as a method of solving problems that may arise at any point in the process until the implementation of the innovation (Savin, Egbetokun, 2016, pp. 82-83).

The R&D sphere defines three areas of the activity (Golińska-Pieszyńska, 2007, p. 443):

- basic research – implemented at the level of theory and experiments. Its goal is to increase the base of knowledge concerning the causes of the phenomena and events. It happens that its results can be applied in practice because its domination is not determined in the suitability economy,
- applied research – in contrast to the basic research, applied research is intended to enlarge the knowledge to accomplish established practical goals or to find applications for achieved results of the basic research,
- development efforts – they apply to the use of existing available knowledge for developing new products or significant improvement of existing ones. Development efforts also include the preparation of prototypes and pilot installations.

## **2 Characteristics of the research and development activities in Poland**

The R&D activities are a key tool in the development of Poland and other countries. Investments in the R&D sector with a national reach and wider – international allow the Polish economy to become competitive both in Europe and worldwide (Tylman, 2015, p. 4).

The R&D activities comprise creative efforts run by a particular units in a quite systematic manner. They are aimed at increasing knowledge, its processing and using to create new applications. All kinds of institutions and organizations located in the external environment of enterprises deal with these activities. Some of the companies, however, do not need to use the reports or work of such units as they have departments responsible for the R&D sphere in their own structure and carry out their own research and development work (Szopik-Depczyńska, 2014, p. 76).

The R&D sector in Poland includes (Szopik, 2007, pp. 285, 291):

- scientific facilities of the Polish Academy of Sciences,
- research and development units: scientific and research institutes, research and development centres, central laboratories and other organizations whose main task is to conduct the research and development activities,
- higher education facilities engaged in the R&D activities,

- science support units: national libraries, archives, associations, foundations, etc.,
- development units, i.e. companies with their own research facilities such as laboratories, factories and R&D centres, design and technological offices, offices of studies and projects, etc.

The potential of Polish research and development sector is considerable. It is influenced by numerous factors, including (Leśniewski, 2010, p. 1):

- stable growth of Polish economy and safety of the research,
- high human potential – a large number of students in diverse fields of studies,
- a large number of existing R&D units in Poland (in 2015 there were 115 research institutes, 70 scientific institutes of the Polish Academy of Sciences and 755 basic units of universities),
- science and technology parks to help start and run a business research process,
- wide range of possibilities for obtaining investment support in fixed assets and trainings,
- scientific achievements of scientists and students,
- low barriers to entry and a strong support of local authorities,
- research institutes not only in urban centres, but also in smaller towns.

An important issue defining the R&D activities in Poland is the presence of the research and development units. These are business entities run by the enterprise which are a type of a scientific facility specialized in the implementation of new and improved technologies (Ustawa z dnia 25 lipca 1985 r. o jednostkach badawczo-rozwojowych). On October 1, 2010, some of these units were transformed into research institutes. Within the meaning of the act, such entities are state organizational units varied in legal, organizational, economic and financial terms. They are created in order to carry out scientific research and development work (Ustawa z dnia 30 kwietnia 2010 r. o instytutach badawczych).

### **3 Investing in the research and development by Polish companies**

Innovation is a key to the success of many companies and entire economies in the contemporary world. It comprises, i.e. investing in the research and development by organizations (Gu, 2016, p. 441). A report prepared by Deloitte “Research and Development in Companies. Report 2015” features a diagnosis and analysis of investing level in the R&D

area by Polish companies. The study has been performed between 19 January 2015 and 2 March 2015.

An important issue in investing in the research and development by Polish companies is the amount of funds allocated for this activity. For better presentation of changes that have occurred during the year in this field an analysis of results for 2013 and 2014 has been carried out. The table 1 shows the percentage of the turnover which was spent on the R&D activities by Polish companies.

**Tab. 1: Percentage of the turnover spent on the R&D activities in 2013 and 2014 by Polish companies**

	<b>2013</b>	<b>2014</b>
<b>More than 10%</b>	12,5	13
<b>Between 5% and 10%</b>	6,9	12
<b>Between 3% and 5%</b>	6,9	22
<b>Between 1% and 3%</b>	29,2	19
<b>Less than 1%</b>	22,9	19
<b>No expenses incurred</b>	9,7	12
<b>No data</b>	11,1	3

Source: Badania i rozwój w Polsce, 2014, p. 7; Badania i rozwój w przedsiębiorstwach, 2015, p. 6.

The survey results show a significant increase in funds allocated for the R&D activities in Poland. The share of companies whose money spent on the research and development exceeded 3% of the turnover has increased. The greatest change can be observed between 3% and 5% of the turnover spent on this activity. In 2013 less than 7% of respondents indicated that they spent between 3% and 5% of the turnover on the R&D, while in 2014 the number of such respondents increased up to 22%.

Increase in the share of companies that allocate more than 3% of their turnover may result from the fact that the awareness of entrepreneurs in the field of activities related to the R&D is still increasing. This is also evident in the fact that 11% of respondents (in 2013) who did not know how much money they spent on the R&D decreased to 3% in 2014.

**Tab. 2: Factors leading to the possibility of increasing the money spent on the R&D by Polish companies within the next 1-2 years (in percentage points)**

	2013	2014	2015
Availability of more kinds of expenditure support for the R&D (grants, tax reliefs, etc.)	2,41	2,35	2,34
Availability of qualified and experienced research staff	1,56	1,85	2,09
More grants than tax reliefs	1,56	2,1	2
Access and cooperation with universities and research units	1,53	1,69	1,72
Costs of the research staff	1,3	1,69	1,69
Stability of legal environment	1,32	1,4	1,59
Protection of intellectual property rights	1,36	1,57	1,53
Stability of legal environment	1,32	1,4	1,59

Source: *Badania i rozwój w Polsce*, 2014, p. 8; *Badania i rozwój w przedsiębiorstwach*, 2015, p. 7.

The table 2 shows factors leading to the possibility of increasing the money spent on the R&D within the next 1-2 years and indicated by respondents. The external factor with the greatest impact on a possible increase of the money spent on the R&D is the availability of the greater number of kinds of support. It was rated in average for 2.35 percentage points out of 3 possible. This result confirmed the need for the introduction of a new tax relief for the R&D activity during this period. The act of September 25, 2015, on amending certain laws in connection with the promotion of the innovation came into force on January 1, 2016. Currently, Polish tax payers have the opportunity to benefit from the relief on the research and development activity which allows the deduction from the taxation base a part of the money spent on the research and development. This is certainly a good step for the growth of the innovation and attractive alternative to grants whose availability will decrease in the future.

The survey results also show a continuous increase in the importance of other external factors which involve i.e. the availability of qualified and experienced research staff, cooperation with research units, stability of legal environment and other.

**Tab. 3: The biggest problems of the current support system for the R&D according to Polish companies (%)**

	2015
<b>Identifying activities that meet requirements of the R&amp;D in case of applying for the grant or tax relief</b>	24
<b>Running separate cost accounting</b>	8
<b>Unclear guidelines for eligibility conditions of costs and their calculation</b>	20
<b>Uncertainty in the assessment of eligibility of the R&amp;D activity to take advantage of the grant or tax relief carried out by tax authorities and other entities responsible for this assessment</b>	37
<b>Other reasons</b>	11

Source: *Badania i rozwój w przedsiębiorstwach*, 2015, p. 14.

The table 3 presents major problems of the current support system for the R&D according to Polish companies. As it turned out, the most serious problem concerning the support system for the R&D is the uncertainty in the assessment of eligibility of the R&D activity to take advantage of the grant or tax relief carried out by tax authorities or other entities responsible for this assessment. This answer has been indicated by 37% of respondents. On the other hand, according to the majority of companies, running separate cost accounting of the R&D is not a problem for them. This issue is a difficulty for only 8% of respondents. Such differences in the degree of complexity of internal and external reporting related to the R&D confirm the need to simplify this system (*Badania i rozwój w przedsiębiorstwach*, 2015, p. 16)

**Tab. 4: Evaluation of available incentives for the R&D activity (%)**

	2015
<b>Unsatisfactory</b>	34
<b>Moderately satisfactory</b>	39
<b>Mostly satisfactory</b>	5
<b>Very satisfactory</b>	2
<b>No knowledge about available incentives</b>	11
<b>No opinion</b>	9

Source: *Badania i rozwój w przedsiębiorstwach*, 2015, p. 16.

An important issue in the research and development sphere are available incentives which are intended for such sphere and can be beneficial for the company. In Poland, these include (*Badania i rozwój w Polsce*, 2014, p. 10):

- Structural Funds to support the R&D projects within the framework of the National Operational Programmes,
- Structural Funds to support the R&D projects within the framework of the Regional Operational Programmes,
- grants aimed at training the employees,
- exemption of legal persons from the income tax within the framework of the Special Economic Zone,
- support for the R&D projects granted by the National Centre for Research and Development,
- government grants,
- other.

34% of respondents indicated in 2015 that available incentives concerning the R&D activities were unsatisfactory. Only 5% of companies were satisfied, while a strong satisfaction was declared by less than 2% of respondents. Received results confirmed to a some extent a negative influence of the absence of the tax relief for the R&D activities carried out in the companies. The structure of received information could result from a limited types of the support available during the survey and the lack of alternative solutions such as the tax relief. Its introduction and legal force from January 1, 2016, would give a chance to Polish entrepreneurs to increase the scale of the R&D work and greater involvement in this activity. Over 59% of respondents indicated in the survey that after introduction of the relief they would increase money spent on the R&D within 3-5 years, while 44% of respondents would do this within 1-2 years (Badania i rozwój w przedsiębiorstwach, 2015, p. 15).

## **Conclusion**

In the era of globalization and constant evolution of the business it is vital that companies continuously develop and follow these changes. Strong organization is the innovative organization. An important condition for being an innovator is to carry out the research and development activities.

Analysis of the R&D activities among Polish entrepreneurs led to general conclusion that the scientific and research potential in Poland is fairly large and organizations are increasingly eager to spend greater amount of their turnover on this area. In 2015 a small amount of incentives constituted a big barrier for the companies which could motivate them



for investing in the research and development. Currently, there is a tax relief in Poland which was indicated by many respondents as a form that would encourage them to become more involved and increase the range of work in the field of the R&D. It will turn out in the future whether they do so or not.

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