The Road to Innovation and COVID-19 Challenges for the CEO



Report 2020

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Ayming Poland supports companies in running their business operations in an optimal way and achieving better financial results, by offering professional advice in three areas:

- Innovation funding (R&D relief, IP Box, subsidies)
- Taxes (real estate tax, new investments and cost segregation)
- Labour costs (accident insurance premiums, PFRON)

Ayming Poland chairs the Innovation Relief Team in the Tax Council of the Polish Confederation Lewiatan. In the first year of functioning of the R&D relief, 80% of individual interpretations issued on the relief were prepared at the request of Ayming.

The Group globally implements more than 15,000 projects per year related to EU subsidies and relief for R&D activities. The quality of services provided by Ayming Poland is confirmed by the ISO 9001:2015 Certificate.

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Introduction

"We know many examples of companies that have succeeded because they focused on innovation."

The economic crisis resulting from the COVID-19 pandemic is an unprecedented situation for companies in Poland. Although more than a decade ago the world was also struggling with a financial crisis, that situation did not affect local enterprises to such an extent. We were a green island that could boast of GDP growth as the only country in the European Union. Meanwhile, the coronavirus pandemic caused even the most resilient economies, including American or Chinese, to experience drastic declines. This is a crisis not only in financial terms, but also in social and health terms.

A huge responsibility now lies on the shoulders of company managers and owners, who must fight to ensure liquidity and preserve jobs. Some of them, perhaps for the first time in their professional careers, are facing such great uncertainty about the future. Soon, they will have to make strategic decisions, which will determine whether and how quickly the company will overcome the crisis. Success will largely depend on flexible adaptation of a company to market changes, and innovation can play a key role in the process.

In this report we present one of the possible strategies of combating the effects of COVID-19, namely following the path of innovation, which often ends with transformation of the business model. We know many examples of companies that have succeeded because they focused on innovation.

The media giant Netflix started its business in 1998 as a company renting DVDs by mail. The first innovation was implemented after just one year, by introducing a revolutionary subscription model. In 2007, the company decided to modify the business model and enable online watching. This change was the result of observing trends and the introduction of high bandwidth internet connections. Today it is hard to imagine that only 10 years ago a Netflix film would arrive to us by post in a red envelope.

Another example is Airbnb, an alternative to traditional hotels. The service was launched in 2008, offering cheap accommodation to people who were unable to book a hotel room. The key to success turned out to be an accurate diagnosis of the customers' needs and focusing on newly emerging innovative web applications.

The report presents challenges faced by CEOs, business owners and managers on their way to increasing innovations in companies. Although this is a winding road and sometimes it requires a lot of changes, the crisis of 2008 showed that it can be a good direction. Economic collapses stimulate business change by forcing the necessary adjustments and pushing entrepreneurs to look for new ways of increasing efficiency. Innovation can therefore be a factor that speeds up recovery from the crisis.

We share this study hoping that the readers will turn the current crisis into an opportunity for a new opening.

Magdalena Burzyńska Managing Director, Ayming Poland



Business landscape after COVID-19

Companies will continue to struggle with the consequences of the coronavirus pandemic for a long time to come.

It is still unknown what the post-pandemic world will look like. Based on an analysis of the current situation, we can try and conceive the most probable business and economic phenomena that will influence the formation of a new reality. They may occur simultaneously or one may become the most dominant. Although nothing can be certain, the current situation already shows that companies are facing an accelerated digital transition and the need to invest in innovative solutions.





Local business

The COVID-19 pandemic will prove that a sales model based on a global and unified distribution network is not resistant to sudden changes and crises. Companies will focus on local markets, while proximity of customers and intermediaries will be crucial. Safety and continuity of production will become more important.

- shorter supply chain and looking for suppliers in the nearby area
- formation of self-sufficient business clusters
- greater diversification of production sites
- more jobs on local markets
- weakening of China's economic hegemony



Hegemony of monopolies

Only the strongest players will survive the economic crisis - those who had enough capital to fight the effects of the COVID-19 pandemic. Acquisitions of weakened competitors will begin and many smaller brands will disappear from the market.

- development of business monopolies
- advancing consolidation, for example in the automotive and aviation sectors
- less competition on the market
- prices set by monopolies
- less consumer influence on prices



National economy

Once the threat is over, the free market will continue to be powerless in the face of the global economic crisis. The state will begin to intervene more and more in the market.

- abandonment of market self-regulation
- nationalisation of the most vulnerable companies, e.g. airlines and the mining industry
- implementation of new regulations and tax burdens
- greater cooperation between private business and the state
- setting up transnational institutions supported by local governments, such as laboratories or pharmaceutical companies



Praise for innovation

Already during the pandemic, companies that had previously implemented digital solutions and were flexible in business were doing best. After COVID-19 it will be crucial to look for innovative solutions to achieve growth and return to the market. Innovation will become a success factor.

- following the agile paradigm in management
- technological advance in companies (common remote working, implementation of 5G networks, cloud solutions)
- faster implementation of artificial intelligence and production automation
- dissemination of 3D prints and robots, development of the Internet of Things
- development of cyber security and data protection services

A recipe for getting out of the crisis? Innovation

Between 2008 and 2010, during the last global financial crisis, many countries recorded decrease in GDP, lower industrial production and trade as well as rising unemployment.

According to OECD studies, European and US companies that invested heavily in R&D have relatively quickly improved their product sales¹. Similar conclusions are provided by the research of the Institute of Economics of the Polish Academy of Sciences².

Why the correlation? It has long been said that innovation gives you a competitive advantage. This applies not only to individual companies, but also to entire industries, regions or countries. Innovation, especially in times of crisis, is becoming a driving force for the economy and an important factor for modernisation. At the same time, it lays the foundations for sustainable economic growth.

Despite the crisis in 2008, most European countries experienced an increase in their economies' innovation potential. One of the key success factors was a wellfunctioning system of links between the government, the scientific and academic community and various sectors of industry. Pro-innovation countries also gave companies access to a variety of sources of financing for innovation, including public funds, tax reliefs, loans, loan guarantees and support for micro and small enterprises.

¹OECD, *Technology and Industry Outlook 2012*, online access: https:// read.oecd-ilibrary.org/science-and-technology/oecd-sciencetechnology-and-industry-outlook-2012_sti_outlook-2012-en#page45 [22.04.2020].

² Institute of Economics of the Polish Academy of Sciences, *Raport o innowacyjności gospodarki Polski 2008-2012*, online access: http://inepan.pl/publikacje-sieci-msn-raporty-o-innowacyjnosci/ [22.04.2020].



Expert's comment: innovation in companies during a crisis

Agnieszka Hrynkiewicz-Sudnik Director of Taxation and Innovation Financing, Ayming Poland

The emergence of a crisis often means that companies reduce their financial resources for investments. Longterm goals that can be achieved with investments in R&D and the development of innovative solutions are being pushed into the background.

Meanwhile, innovative entities are less affected by the adversities of an economic crisis and have a higher rate of development. High-tech companies have a strongly developed adaptive capacity, which is crucial in the case of sudden market changes. In 2008, when U.S. GDP fell by 0.3 percent, Apple nearly increased its sales by almost 50% to \$37.5 billion. A year later, as the recession deepened and the economy shrank by another 3.5%, the revenues of the technological giant grew by more than 14%.

The voice of business

VOX's membership in a group of companies and institutions that includes universities, SWPS University, Concordia Design or Lab 150 is, in a way, a commitment to innovation. We put great emphasis on learning about people's needs and behaviours, as well as observing social changes - this is the basis for us to create new products, services and improve the processes of communication with our customers. We allocate considerable R&D budgets, thanks to which our organisation is able to adapt to market changes relatively quickly.

When COVID-19 appeared, many companies stopped their development projects. We decided to defend ourselves by attacking, so we even accelerated the implementation of many projects. Thanks to previous work on innovations in customer service and facilitating interior design processes, we were able to partially mitigate the negative effects of the pandemic, for example by shifting quickly to online activities. An example is the implementation of VOXBOX, which is an online interior design programme combined with e-commerce on vox.pl. Thanks to VOXBOX, customers can design their space, make a shopping list and plan their renovation budget without even leaving their home. They can also consult the project online with an experienced advisor or interior designer.

Innovation, in our opinion, is not only new, ingenious products or technologies. We look at innovation from the perspective of both customer value and improvement of internal processes within the company. We believe that a company's ability to generate innovation is primarily determined by its organisational culture. Innovative culture includes investments in the education and growth of people, space for experimentation and acceptance of failure. Relying on innovative culture, less hierarchy in the organisational structure and a flexible manner of working allow an organisation to change faster. This approach has helped us in these difficult times.

Marcin Barański General Manager, Member of the Management Board, VOX Group



Despite the difficult situation on the markets caused by the COVID-19 pandemic, we are not slowing down and we keep implementing innovative solutions intensely to improve the safety of our customers and employees. Dynamic changes in the macroeconomic environment make the development of innovations important for us, particularly in the area of corporate social responsibility. An example of applying innovation in this aspect is a new way of using the already functioning ORLEN Pay app, which allows customers of our petrol stations to pay for fuel in a safe and easy way, without the need to contact anybody. Since March this year, we have recorded an increase in the number of application users by over 500%, i.e. from 38 thousand to almost 200 thousand.

The current epidemic has radically affected our daily lives and business reality. Enterprises that properly understand the role of innovation will use the current situation to effectively transform their business models, recognising the opportunities offered by new technologies in the area of process automation, digitization or creation of new electronic sales channels. Innovation can not only facilitate recovery from the crisis, but it is often a decisive factor for the survival and transformation of many companies. At PKN ORLEN, we understand perfectly well the importance of innovation and its role in the process of delivering top quality products and services to our customers.

Patrycja Panasiuk Innovation Department Director, PKN Orlen



The most important facts about innovativeness of companies in Poland

Data collected in February and March 2020 before the COVID-19 crisis







Challenges for the CEO

"No innovation means death" - Chris Freeman³.

The COVID-19 pandemic has already forced the digital transformation of businesses. But in the near future, some of them will face an even greater challenge - for many companies, the focus on innovation may prove to be one of the most effective strategies of overcoming the crisis.

How do entrepreneurs, who already conduct R&D activity, evaluate their level of innovativeness to date? The conclusions of our study are quite optimistic. Compared to international competition, almost half of the companies assess the level of their innovativeness as 3 on a scale from 1 to 5. This means that they feel they are neither lagging behind the competition nor are they among the world's leading innovators. Every third respondent admitted that they assessed their level of innovation as good (4). The most extreme ratings - "1" and "5" were each chosen by 5% of representatives of companies developing R&D activities.

On the following pages of the report we present the six main challenges faced by CEOs and executives when deciding to increase the level of innovation in a company. We have identified them on the basis of our many years of experience in cooperation with both leading Polish innovators and organisations taking their first steps in the field of research and development.

We hope that the descriptions and good practices contained there will serve as guidance for entrepreneurs who appreciate the importance of innovation and would like to develop it in their own companies.

³ The economics of industrial innovation, 1974.



Self-assessment of the level of innovation of companies in Poland

#1 Developing an innovation strategy

Companies regularly define their business strategy and the way specific functions (such as operations, finance, marketing, R&D) will support its implementation. On the other hand, a small number of them develops and implements an innovation strategy, which allows for matching innovative activities with the business strategy of the company.

Our survey shows that only 27% of enterprises confirmed having an innovation strategy and 34% are in the process of preparing it. One in three companies is of the opinion that they do not need such a document at all. The authors of innovation strategies are usually the Management Boards (85%), R&D Departments (52%) and Financial Departments (30%). One in four companies is supported by external entities.

An innovation strategy should build a bridge between the corporate mission and vision and daily activities of the team to deliver the desired results. The process of creating an innovation strategy starts with clearly defined goals that will help the company build a competitive advantage. It should answer three simple questions:

- Where is the company now?
- Where is it heading for?
- How is it going to get there?

The strategy defines the long-term development of products or services, technologies, new solutions in organisation and management, as well as the licensing and patent policy. It specifies how solutions are sought, how ideas are transformed into business models and product or service concepts, and what determines the award of funding for further project development.

Due to such a document innovation is perceived in the organisation as an ongoing process, rather than a one-off response to competitors' actions or the need to instantly adjust to the market. At the same time, if there is no innovation strategy in an organisation, different functions may often have conflicting priorities.



Innovation - modification, breakthrough or transformation?

The strategy also defines how the selection of different types of innovative activities (e.g. improvement, breakthrough or transformation activities) can support the implementation of a company's business strategy. Contrary to popular belief, it is not only the most advanced innovations that generate profit, but simple improvements as well. Since Intel launched its last major revolutionary innovation (the i386 chip) in 1985, it has earned over \$200 billion, most of which comes from nextgeneration microprocessors. At the same time, companies such as Microsoft or Apple could not profit from minor modifications if it were not for the previously introduced breakthrough innovations⁴.

⁴G.P. Pisano, You need an Innovation Strategy, "Harvard Business Review", June 2015. Online access: https://hbr.org/2015/06/you-need-aninnovation-strategy [05.05.2020 r.].





Is having an innovation strategy important for developing innovation?



The role of the CEO

An organisation's capacity to create innovations depends on a strategy that is the responsibility of top management. This is due to the fact that innovations apply to virtually every function in an organisation, which requires designing a complex system to support them. Such a system involves e.g. a structure, processes, talent management and the way ideas are selected for implementation.

The key challenge for the CEO in developing a strategy is to determine how innovation will create value for the customers and for the company. Another one is the selection of priorities that are of key importance to the interest of the entire organisation, not just individual functions. Yet another challenge is allocation of resources - teams and budgets - to individual innovative activities in such a way as to effectively support the implementation of the business strategy.

CEOs are also ambassadors of an innovation strategy. An important element in the process of its implementation is open communication of its main assumptions to all employees. Finally, it is a relevant challenge to take a flexible approach to the strategy, allowing it to evolve according to market changes, customer expectations or actions of the competition.



Expert's comment: COVID-19 vs. innovation strategy

Przemysław Gabrysiak Project Manager in the Innovation, Relief and Subsidies Department, Ayming Poland

In a period of market turbulence, the company strategy and business model are verified. Companies that want to actively respond to technological challenges and crises caused by external factors, such as COVID-19, must have resources in place, in the form of intellectual capital and an appropriate model for managing this capital in addition to the finance. A properly defined portfolio of breakthrough projects in the innovation strategy, correlated with the company's long-term development plan, can help overcome the economic impact of coronavirus.

Strategy vs. innovation funding

A developed strategy does not only serve as guidance in business. Companies that have implemented it make more conscious use of available external instruments for financing innovation. Almost half of the entities having a defined strategy finance their R&D activities with the support of national subsidies, while 38% settle the R&D relief.

Success factors

- inclusion of innovation in the definition of the organisation's mission
- focus on strategic objectives
- focus on creating value for the customer
- o identification of key investment areas
- clear communication of mission and strategy to the employees
- the assumption that an innovation strategy involves continuous experimentation, learning and adaptation to changes

The voice of business

InPost relies in its strategy on innovation and introduction of new quality to the logistics business in Poland. This approach allows us to prepare well even for such unexpected situations as the coronavirus pandemic. In the e-commerce industry, for companies that are well-prepared in terms of stock and are organisationally flexible, the current situation and increase in volumes are an opportunity to prove that even in the most difficult moments you can efficiently manage a complex process, acting under enormous pressure.

We expect a constant change in consumer habits in Poland. Of course, to develop innovation, financial resources are needed, but so is the right speed of action. Currently, one of the biggest barriers to innovation and business in Poland in general is the bureaucracy that slows down processes and legal instability.

We are glad that in this difficult period Paczkomaty® with lockers that can be opened from the level of a free app, passed the test beautifully. Such a solution prevents the transmission of the virus. The collection of parcels from machines has become much safer than regular collection points. Already at the beginning of the pandemic we also introduced contactless courier pick-up. Due to the growing demand for Paczkomaty® we have also accelerated the introduction of a service called Multiskrytka - a free solution thanks to which several parcels addressed to a single recipient are placed in one locker.

The most important things are the company's strategy and organisational culture, because they determine whether a company intends to be innovative or not. If the fundamental element of the strategy is to rely on innovations, then we should not talk about an innovation strategy, but about innovations that support the strategy and development of the company. Often when we ask about an innovation strategy, we think of a document that describes the company's approach to creating innovation, and I dare say that most of the enterprises we admire and consider to be super innovative today did not have such a strategy when they were being established, but had ideas, passion and determination. We tend to forget about the need to develop an innovative culture, people's competencies, and to improve processes and methods of project work. A more important thing than creating a document entitled ,innovation strategy' is building an atmosphere that will motivate people to look for innovations supporting the company's strategy.

Marcin Barański General Manager, Member of the Management Board, VOX Group



Rafał Brzoska Founder and President, InPost



Having its own innovation development strategy should enable a company to achieve long-term goals in the area of new technology development. At the same time, its task is to ensure flexibility in responding to dynamic changes in the business environment. Aware of this, we have developed a Strategic Research Agenda at PKN ORLEN, which includes 11 technological directions based on the main pillars of the Company's strategy. It also includes a plan for the acquisition of innovative solutions and it specifies the tools necessary for their development. Taking all these elements into account and implementing them allows us to effectively manage innovation, which results in a sustainable and strong innovation ecosystem.

Patrycja Panasiuk Innovation Department Director, PKN Orlen



#2 Obtaining external financing

High costs and lack of sufficient financial resources are the key barriers to developing innovation in companies. Our survey shows that 93% of respondents finance innovation on the basis of their own funds. More than half of the surveyed companies have a separate budget for R&D activities. Interestingly, 70% of them think it is sufficiently large. Why such an optimistic assessment? Perhaps some enterprises only undertake innovative activities to a minimum extent.

Before the coronavirus pandemic, as much as 59% of the surveyed companies planned to increase their R&D budgets over the next three years, of which one in five declared that it would be "much bigger". 39% of the respondents predicted that they would remain at the same level. Unfortunately, due to the COVID-19 crisis, many entrepreneurs were forced to revise their plans and minimise expenses. Therefore, the intention to increase R&D budgets in the following year could remain nothing more but declarations.

In this situation, applying for external financing may prove not only to be an additional factor intensifying innovative activities in an enterprise, but in many cases it can even prove to be a way to maintain R&D activity in times of economic slowdown. Meanwhile, our survey shows that companies in Poland do not use the potential of external funding.

Factors conducive to increasing expenditure on R&D activities





The role of the CEO

Obtaining appropriate financial resources is one of the key challenges related to conducting innovative activities in an enterprise. When planning an innovation strategy and - within its framework - allocation of the budget for most promising activities, it is worth taking into account the possibility of using a wide range of solutions enabling the financing of innovation in addition to the company's own resources. There are several options to choose from: tax reliefs, EU subsidies or Horizon 2020.

The challenge of using external funding is to choose solutions that are tailored to the level of innovation of the company and the type of carried out activities. Some projects lead to improvements of existing solutions and introduction of new products or services on the company's scale. There are also breakthroughs that result in innovation on the scale of an industry, region or country. Another issue is to obtain the financial resources necessary to implement the already developed innovations. The role of the CEO is to choose the solution that will be most beneficial for the company. The most common way is to sell research results or to grant licences. Such studies should be supported by external opinions and validations. Another option is to reach business partners who will be interested in our solution.

The third way to commercialise an idea is to incorporate the developed solutions in the company's production activities. This is usually the most cost-intensive way of implementation, but may prove to be the most profitable. Entrepreneurs can take advantage of financial support under the tax relief and - depending on availability - also from EU subsidies.

Financing innovation

In Poland, the most popular source of external financing of innovations are EU subsidies - 40% of the surveyed companies apply for them. Tax relief for research and development was used by 21% of respondents, while loans and credits by 23%. According to the respondents, higher tax reliefs (67%), easier access to subsidies (65%) and less formalised procedures (57%) would contribute most to an increase in R&D spendings.

• New or modified products and services

The most affordable solution for companies is the R&D relief, which allows CIT and PIT taxpayers to deduct 100% of eligible costs. For example, with PLN 2 million of eligible costs incurred by a company (e.g. purchase of materials and resources or personnel costs), the tax liability may be reduced by PLN 380 thousand (19% CIT rate). Research and development work that has not been successfully completed is also eligible for the relief. It can be settled up to five years back.

• Breakthrough innovation activities

Another source of support for R&D activities are EU subsidies. They are awarded in competitions to companies and consortia to develop and validate new products or processes that will be innovative on the scale of a given industry, region or country. They concern projects that a company is planning to conduct. Such a project must be carried out according to a strictly described plan and within the approved budget, and its implementation assumes the achievement of previously set indicators. The prize for selected companies is a subsidy of up to 80% of the costs, depending on the type of research and the size of the company.

• Commercialisation of R&D results

These two instruments are complemented by the IP Box relief introduced in 2019. It is a preferential 5% income tax rate for taxpayers who obtain income from the results of their own R&D work, which takes the form of e.g. a patent, utility model, industrial design or computer software copyright.



Expert's comment: COVID-19 vs. innovation funding

Marek Dalka

Manager of the Innovation, Relief and Subsidies Department, Ayming Poland

During an economic crisis, the financing of innovation will become more precarious. It is natural for those responsible for the financial situation to reduce expenditure not directly related to the current operations of an enterprise, including the budget for innovation. It will now be even more important to exploit the potential of external funding.

It is necessary to keep a close eye on the market situation in order to be able to react quickly to the opportunities that emerge. In a situation of sudden change, consumers may be more willing to accept new products or services. It could be more successful to boldly enter the market with an innovative solution.

Success factors

- taking external funding into account already at the stage of strategic planning of resource allocation
- reviewing available instruments for financing innovation (tax reliefs, EU subsidies, PARP, NCBR, Horizon 2020)
- selecting instruments tailored to the type of undertaken innovative activities
- auditing the existing research and development activities and determining the costs incurred - this is the basis for applying for an R&D relief

The voice of business

At LG Electronics, applying for a subsidy to finance innovative projects is complex. The company develops and adapts to the market situation practically every day. The decision-making and investment processes are extremely fast. Unfortunately, the available forms of financing require us to fit in the recruitment schedule with a given project and to take a standardised approach to document preparation and project description, as well as to extend the research work in time.

Many activities related to the implementation of innovations are carried out in our company on a regular basis. The implementation and development of consecutive steps is correlated with the results of work on other projects. In order to meet the requirements of subsidy programmes, we would have to get prepared and carefully plan all possible scenarios a year or six months in advance. There is also a considerable risk that in the end we do not receive support for the project we want to implement. Given these risks and the inflexibility of subsidy schemes, companies decide to bear them as well as the costs of innovation themselves in order to be free to develop their projects further.

The plans of LG in Poland assume a significant share of local staff in the development of technologies related to electromobility, hence an opportunity to have projects eligible for support. The availability of qualified specialists and close contact with universities increases the chances of implementing complex and innovative projects. We plan to cooperate with a partner in this area, whose support will allow us to efficiently obtain and settle a subsidy while we will focus on project implementation.

Sebastian Stadnik Managing Director, LG Electronics



At VOX, we do not make the implementation of innovative projects dependent on external financing. However, if we see the potential for using EU, regional or other funds, we obviously try to raise them. This task is not easy, so in our Group it is handled by a team of three people, focused mainly on preparing applications and settling the financials for subsidised projects. The difficulty results mainly from too much bureaucracy, complicated procedures and competition requirements. The issue of funds for research projects is also problematic and so is the fact that their commercialisation takes time. According to requirements, research projects must be carried out for the period specified in the application. We are often able to tell much earlier whether or not the results can already be commercialised, so such requirements can slow down the commercialisation of innovation and business development.

Marcin Barański General Manager, Member of the Management Board, VOX Group



#3 Investing in staff and know-how

One of the key elements in building a company's innovativeness is the expertise of qualified employees. Investing in the potential of a company's own staff helps to develop the know-how of an organisation and at the same time it influences a more effective use of the internal R&D infrastructure.

The data of the Central Statistical Office indicate that in 2018 the percentage of graduates of technical and natural science universities was 28.5%, which is 10 percentage points more than 10 years earlier. Thus, the number of available talents is growing, so that entrepreneurs are unlikely to have any problems finding properly qualified employees.

Our survey shows that more than half of the respondents believe that the qualifications of candidates available on the labour market are sufficient. 36% of respondents are of the opposite opinion.

Despite the difficulties and challenges of intra-company R&D, the benefits may outweigh the costs incurred. First of all, a company gains full control over the conducted research and development process and can modify it on a current basis, as required. Another, no less important aspect is the fact that when developing innovative solutions inside a company, the key know-how is better protected and there is less risk that relevant information might leak outside.





The role of the CEO

Creating an interdisciplinary team that is able to effectively carry out R&D work is a major challenge for the managing staff. This is due both to the specificity of working on innovations and also to high demands placed on those who are to be responsible for the development of R&D activities. However, we should not give up on creating our own team, because innovations developed on the spot allow an organisation to increase its knowledge.

Remember that R&D personnel have access to the most confidential information concerning the company's strategy, its plans of introducing new products and services as well as the problems it is facing. The role of the CEO is to supervise the development of appropriate regulations and procedures that ensure the flow of information and at the same time effectively protect the company's know-how. An incentive scheme and development opportunities also play an important role. Their implementation is the responsibility of the management board. Despite activities aimed at documenting and archiving the knowledge developed as part of R&D work, it is not possible to fully consolidate the experience and skills acquired by the employees. This creates the risk of real losses at the end of cooperation with some members of the R&D team. Various gratification systems and a clear development path allow to limit the risk of employees with key knowledge leaving the company.

In-house R&D department

76% of the respondents admitted that the current number of employees (not only in the R&D department) was sufficient to effectively carry out R&D work. Two out of three companies have a separate R&D unit. This particularly applies to the largest organisations (employing more than 250 people), where 9 out of 10 can boast such a team. It is usually composed of 3 (14% of companies), 10 (11%) or 6 people (9%).

Carving out a separate R&D unit facilitates efficient management of innovation work and allocation of resources in response to current demands. Moreover, it enables procedures and tools to be put in place to allow the exchange of acquired knowledge among employees and its archiving in a specified way, so that it can serve the entire company in the future.

Recruiting employees for R&D work is a difficult task. While the implementation of simple research work can be carried out by newly employed staff (often only after completing an internal training programme), the overall implementation of innovation processes in a company requires knowledge of the specifics of the company operations and broad general knowledge.

We should remember that working in an R&D department may involve higher levels of stress than working in other parts of an organisation. This is due to the fact that R&D results are not always satisfactory and a significant part of projects fail. Sometimes you can only see the effects of carried out activities after a long time, when an innovative product or service is finally launched on the market and starts to generate profits. Therefore, employees may be more willing to engage in routine and measurable, short-term tasks rather than in risky and very uncertain research and development work.



Expert's comment: COVID-19 vs. investment in personnel

Tomasz Stańczyk

Senior Consultant in the Innovation, Relief and Subsidies Department, Ayming Poland

Undoubtedly, the COVID-19 pandemic has affected the labour market and recruitment processes in many companies. Some recruitment processes have been stopped and some employers have decided to reduce the number of jobs, limiting themselves only to those that they believe are necessary for further operation. That is why some companies decided to reduce the size of their R&D teams. Paradoxically, it is a good time now to start the recruitment process because the talent pool has increased. And in order to carry out intensified innovative activities, which is one of the stages of recovery from the crisis, experienced specialists are needed.

Success factors

- creating a separate R&D unit with a dedicated budget
- conducting research and development activities as much as possible within the company
- implementing programmes increasing the expertise of R&D employees
- creating development opportunities and an incentive scheme for R&D employees
- setting up procedures that will protect the company's know-how

The voice of business

We currently have our own R&D unit, which is responsible for the development of large household appliances, and we are in the process of developing a second unit dedicated to creating batteries and battery separators for electric cars. So far we have recruited production engineers, quality engineers and process engineers. We see great potential for further development of these people. One of the stages of induction of new employees was a monthly training at the LG plant manufacturing safety separators in Cheongju, South Korea.

The people we managed to recruit from the market are open to new ideas, they have theoretical and practical knowledge, and at the same time are active and able to test new solutions empirically. They all have inner motivation to create something new. They are not afraid to take risks or make mistakes. It is the right choice of people that is the key success factor in carrying out innovative projects. Employees should take their own initiative, not wait for instructions. It is important that they are not afraid to look for new, non-standard solutions to get to their destination. Another important aspect is giving a high level of trust and autonomy to R&D employees. It is also important to remember about feedback and assistance in overcoming various barriers in the enterprise, such as organisational or technological ones. The team should be satisfied with what they do.

I see a number of benefits resulting from carrying out R&D projects internally. This increases the team's commitment, stability and motivation. It has an impact on its working environment as well as on the process and the final product. This in turn translates directly into maintaining a competitive advantage on the market.

Sebastian Stadnik Managing Director, LG Electronics



#4 Risk management

Innovation can be a source of sustainable competitive advantage for an enterprise. At the same time, there is no innovation without risk. This is due to high costs of such activities and frequent failures in implementing innovative projects. Only a small part of R&D projects get commercialised. It may also turn out that an implemented innovation does not meet the assumed standards or expectations of the buyers and, as a result, it starts generating financial losses. The management of innovative activities involves continuous decision-making, which is subject to high uncertainty. Among the surveyed companies, 52% declare a high tendency to take risks when conducting R&D projects. At the same time, 43% admit to being cautious in this respect. Among the companies with a greater propensity to risk, those that have their own R&D unit prevail (58%). Enterprises with Polish capital more often declare a high risk propensity (59%) than those with foreign capital (38%).



The role of the CEO

Companies often do not take risky actions for fear of financial loss. This approach is particularly relevant for small and medium-sized enterprises, which have less expertise and less capacity to mitigate risk. The fact that the costs of undertaking R&D activities may exceed the potential profits is mentioned by 18% of respondents surveyed by the Polish Agency for Enterprise Development⁵. Meanwhile, the real business risk is not the implementation of innovative projects, but their complete abandonment, which may weaken a company's competitive position.

The starting point for innovative activity is acceptance of risk and of possible mistakes. Without accepting failures, there is no chance to improve the existing activities and, in the long run, to develop innovative solutions. It is therefore a challenge for the CEO to create, in cooperation with the management, an innovative culture that encourages the implementation of new ideas.

What is equally important is appropriate risk assessment of innovative projects. Such risks are considered in terms of their likelihood and impact. It is necessary to identify all the sources of risk - from those directly related to the company's activity (e.g. financial or production risk), through market risk (e.g. actions of the competition, condition of the sector), to those resulting from macroeconomic conditions (e.g. economic situation or changes in tax regulations)⁶.

It may be difficult to determine the likelihood of risks and potential consequences, especially since such assessment is usually based on one's own experiences and assumptions rather than on certain information. It is also a challenge for the CEO and for the managing staff to determine how to respond to identified threats.

⁵ PARP, Monitoring innowacyjności polskich przedsiębiorstw. Wyniki II edycji badania 2019. Online access: https://www.parp.gov.pl/storage/ publications/pdf/Raport-2019---II-edycja-Monitoring-innowacyjnocipolskich-przedsibiorstw.pdf [20.04.2020].

⁶W. Butryn, *Zarządzanie ryzykiem w działalności innowacyjnej*, Catholic University of Lublin, Faculty of Social Sciences, Stalowa Wola Branch Campus, Institute of Economics. Online access: https://imik.wip.pw.edu. pl/innowacje28/strona10.htm [08.05.2020].

Uncertainty of innovation

All projects were successful only in 12% of the surveyed companies. Failures, which are inherent in innovative activity, were much more common. The largest number of respondents (35%) declared that 50% to 74% of R&D projects were successful. Thus, it should not be expected that all actions have a fast and positive effect. Conducting innovations activities is a long-term process with a high degree of uncertainty.

The report Monitoring innowacyjności polskich przedsiębiorstw [Monitoring of Polish Companies' Innovativeness] prepared by PARP shows that companies in Poland are cautious about taking the risk of introducing a product or service to the market for the first time. They prefer to use proven solutions, successfully implemented by others⁷. And this despite the fact that the available analyses indicate positive effects of launching a new product or service. Such a company does not only gain on higher net profit and sales growth, but also on higher competitiveness.

⁷ PARP, Monitoring innowacyjności polskich przedsiębiorstw. Wyniki II edycji badania 2019. Online access: https://www.parp.gov.pl/storage/ publications/pdf/Raport-2019---II-edycja-Monitoring-innowacyjnocipolskich-przedsibiorstw.pdf [20.04.2020].



Expert's comment: COVID-19 vs. risk management

Przemysław Gabrysiak Project Manager in the Innovation, Relief and Subsidies Department, Ayming Poland

The development of the COVID-19 pandemic has highlighted the need to build risk management systems. Managing it in the right way is an additional instrument to support innovative activity. Thanks to this, a company can properly identify threats occurring during work on innovative products or services and take appropriate actions if they materialise. This is particularly important for projects commenced just before the outbreak of the pandemic. Proper and systematic risk management can help avoid activities that generate costs and engage resources while in the long run they prove unjustified.

Success factors

- creating an organisational culture that encourages risk acceptance and allows failure
- detailed risk assessment of innovative projects - sources of risk, likelihood and potential impact
- developing ways of dealing with risks
- implementing a risk management strategy and monitoring its implementation

The voice of business

Gedeon Richter Poland boasts over forty years of tradition in carrying out research and development work. We have been operating for nearly 20 years within the Gedeon Richter Group, which allocates at least 10% of its revenue for research, and nearly 1,000 employees are involved.

Each of the development projects we undertake is subject to risk. In the pharmaceutical business, this risk is special - the end "recipient" is the patient, and caring for his health is our mission. In my opinion, there are two types of risk that are particularly important for R&D projects: technological and financial.

Technological risk can be broadly understood, but for me it is an opportunity to confirm during project implementation that the ways of manufacturing a product, indicated at the beginning, yield the expected results. It is not enough just to know what we want to achieve, but it is equally important to determine how we want to achieve it. The technologies adopted at the planning stage must be confirmed by research results. Moreover, they must be repeatable.

Minimising this risk is primarily about defining the checkpoints (milestones) for a project. They summarise a completed stage, but they are also starting points for the next ones. These are the moments in a project when we ask ourselves again the question about our chances of being completely successful. If necessary, we can then run alternative scenarios that allow us to complete a project and avoid unnecessary costs.

I often refer to financial risk as "the risk of success". R&D activity is an investment in future revenues. Each project is preceded by an analysis which is based on an estimated future. We can calculate the outlays necessary for a project with a high probability, but it is much more difficult to predict market behaviour. R&D projects last for several years. We estimate the future state on the basis of our current knowledge, and we all know that a stable and predictable market is only a dream. The "risk of success" cannot be minimised to zero, but can be managed. In our case, this management has the dimension of periodic reviews of the market situation during project implementation (most often as part of milestone assessment). We also analyse our internal factors that may influence the final result. The closer a project is to completion, the shorter the forecast period. This gives us more confidence in the predicted financial result for a project.

For the above mentioned risk categories, but also for all others, the most important issue is to identify them before a project starts. If we know what is threatening us, we have a chance to prepare alternatives, and any materialised risk is no longer a big threat.

Krzysztof Lonca Economic Director, Gedeon Richter Poland



#5 Cooperation with scientific entities

The survey shows that 62% of respondents cooperated with external entities to introduce innovations. Most often these were universities (68%), research institutes and laboratories (58%) and independent scientists (39%). Our experience shows that the potential of such cooperation is not fully exploited and it does not always proceed in the way the client assumed.

This is often due to a mismatch of goals between science and business. For scientists, the main measure of success are scientific publications, and for business - industrial implementations. Entrepreneurs focus primarily on the practicality of the proposed solutions, cost reduction and short implementation time. In turn, researchers often focus on other scientifically important topics that are not so significant and urgent from a business perspective. It is also important that implementation involves working for a specific company, thus losing one's scientific objectivity. If it ends with a patent, the researcher is no longer able to publish an academic paper⁸. According to the report Skuteczna współpraca naukabiznes w opinii przedsiębiorców [Effective Cooperation Between Science and Business in the Opinion of Entrepreneurs], proposals of scientists are often of too high quality, corresponding to the highest scientific standards. As a result, they are too expensive, impractical or difficult to implement and detached from market reality. According to entrepreneurs, this is due to the lack of experience of scientists in industry and lack of market knowledge to understand the needs and reality of business operation⁹.

⁸Innovation and Technology Transfer Management Centre, Warsaw University of Technology, Inventity, *Skuteczna współpraca nauka-biznes w opinii przedsiębiorców*. Online access: http://inventity.net/wp-content/ uploads/2019/03/Skuteczna-wsp%C3%B3%C5%82praca-raportbiznesowy.pdf [10.05.2020 r.] ⁹ Ibidem

Sectoral Carlos

Managers engaging in cooperation with research and development facilities often do not understand the procedures and mechanisms of their functioning. The pain of working with scientists is excessive bureaucracy. Sometimes, in order to start cooperation on a single project, you need to set up a special purpose vehicle. Entrepreneurs also complain about the difficulties associated with the dependence of researchers on the facility in which they work, which results in lack of freedom in making decisions about their work on business projects. Companies that have cooperated with the research and development sector value such partnership because of its significant substantive contribution to their own activities. The reputation of a given centre and its infrastructure or human potential, e.g. specialised laboratories or specialists in narrow fields, are also important. Such cooperation contributes to the development of the company's own staff. The combination of entrepreneurs' knowledge of the market and customers' needs with the expertise of scientists allows to solve complex problems and create innovative solutions which could not be developed by either party on its own.



Cooperation with external entities in R&D implementation

26% yes, with private and public
19% yes, with public
17% yes, with private
34% no
4% I don't know
N=100

The role of the CEO

When starting cooperation with scientific and research institutions, it is the business representatives who should take on the role of leaders overseeing the work in order to find a market application for it. The CEO should be the main sponsor and supervisor of such undertakings.

What is challenging though, is the selection of the right facility for cooperation. The management, together with the head of the R&D team, should thoroughly review potential partners in terms of their competences and tools and how they could be used to develop innovation in the company. It is very important to build a partnership with external entities and to understand how they function. It is also important to ensure the confidentiality of the work performed and of the knowledge about the company acquired during the cooperation.

Another challenge is to choose the form of external funding for the project. This is an important mechanism which does not only allow to finance research and development works, but it also secures the implementation of the business plan and of the solutions.

It may be difficult to accept a possible failure in commercialising a research. However, it is not only embedded in the cooperation between science and business, but also in the conduct of innovative activities in general.

Benefits of cooperation between business and science

Cooperation between business and science is rather incidental and it is mainly large companies that use this opportunity. Meanwhile, smaller companies could also benefit from such cooperation. It allows the development of staff competence and provides access to the latest technologies which can be very expensive.

An example of successful cooperation between business and science is Medical Inventi, a company established on the initiative of the academic community of the Medical University of Lublin and private capital. It has set itself the goal of commercialising research implemented for the purposes of prevention and health care. Medical Inventi has implemented a breakthrough invention, which is the FlexiOss bone replacement composite called "the artificial bone from Lublin".

The objectives of the reform of science and higher education include greater openness of the science sector to business partnerships and its increased activity in initiating such cooperation. If only entrepreneurs are also more willing to cooperate with scientific and research institutions, both parties can benefit from this.



Expert's comment: COVID-19 vs. cooperation with science

Michał Barszcz

Project Manager in the Innovation, Relief and Subsidies Department, Ayming Poland

In the era of the COVID-19 pandemic, cooperation between science and business is necessary in the area of R&D projects aimed at reducing its effects, developing treatment methods or infrastructure and resources for epidemiological research. There is a number of actions initiated by the European Commission and its agendas to serve this purpose. Horizon 2020 alone has mobilised more than €1 billion, which is largely aimed at creating consortia of companies and universities. In Poland, a special edition of the "Fast Path - Coronaviruses" competition financed from EU funds was launched.

Success factors

- choosing the right partner and building a relationship based on trust
- accepting the risk of failure
- ensuring exclusivity of research, protection of intellectual and industrial property
- market orientation
- obtaining external funding for the projects
- providing funding and support for researchers during the implementation phase (e.g. covering the cost of materials)
- legal and tax support for researchers in settling the relief for creators

The voice of business

Cooperation with research facilities provides an opportunity to exchange knowledge and experience from various industries and scientific areas. This is particularly important for R&D projects which are characterised by a high level of uncertainty and require considerable financial resources. Thanks to cooperation we can achieve a number of benefits, e.g. at the planning stage we can identify the research problem and the expected results more precisely; at the implementation stage - minimise risks, contribute financially and promote the project together. Moreover, we have an opportunity to meet many experts in various fields.

Partnership between science and business also opens up opportunities to apply to national programmes and those at the European Commission level dedicated to research and development projects. Such cooperation provides ground for the formation of consortia consisting of even more than a dozen entities. Budimex has been intensely operating in this area for several years and as a leader in the construction industry we have experience in the implementation of national and international projects both as a consortium partner and as its leader.

Implementation of a joint project should start from the end. First of all, clearly define the expected result and issues related to commercialisation and intellectual property rights, as business objectives do not always go hand in hand with scientific ones. From a business point of view, we would like the budget of a project to be as small as possible, the implementation time as short as possible, and the solution to be suitable for implementation or commercialisation right after a project is completed. One of the main barriers to such cooperation are financial aspects. The key issue is support in the form of subsidies and reliefs that scientific entities use to finance their work and that make enterprises more apt to take risks related to the implementation of R&D projects, especially those that are at their early stages. Another barrier could be formal issues, as the use of public aid involves extensive bureaucracy and responsibilities.

In the case of joint projects carried out under EU programmes, scientific entities - unlike companies finance their work in 100%. As a result, the budget takes into account the performance of as many studies as possible, which undoubtedly translates into costs, scope of studies and time. In this respect we need to look for a compromise.

Przemysław Kuśmierczyk acting Director of the Innovation Department, Budimex



#6 Creating the culture of innovation

The last but utmost important challenge is to create an innovative culture in an organisation. This requires a working environment where there is openness, mutual trust, eagerness to acquiring new knowledge and encouraging people to take initiative. An organisation which displays the characteristics of an innovative culture, more often undertakes and develops innovative activities.

Meanwhile, companies in Poland still have a long way to go towards an innovative revolution, which translates into their international position. This is partly due to the fact that the innovative culture in Polish enterprises is relatively poorly developed. How far we lag behind other countries is illustrated by PARP data. Only 5 out of every 1,000 enterprises in Poland run their businesses based on innovative solutions, while in the West the average is 130. The situation is even worse with mature companies - only 1 in 1,000 of them use the latest technology, while in Europe the ratio is 700 per 1,000 entities¹⁰.

¹⁰ PARP, Global Entrepreneurship Monitor Polska 2019. Online access: https://www.parp.gov.pl/storage/publications/pdf/Raport-z-badania-GEM_200117.pdf [20.04.2020].

NENN

The role of the CEO

The PARP report reads that among 71% of companies active in the field of innovation, their owners or managers are the main source of innovation¹¹. In the second position (63%) we have external environment in the form of customers, suppliers and entities from the sector, which are usually contacted by the managing staff. Thus, the development of an innovative culture in a company depends on the determination and standards of operation set by the management.

The CEO's task is to promote behaviour and activities that foster innovation, because their attitude influences the rest of the employees. A leader who does not believe in innovation himself and is not an ambassador of innovation has little chance to create an innovative culture in a company.

One of the challenges is to define a clear strategic objective for innovation and to communicate to all the employees where the organisation is going and what role innovation is to play in it. Another one is the appropriate allocation of resources to innovative projects. The role of the CEO is also to introduce such kind of management, which involves engaging employees in the decision-making process concerning the organisation, increasing their independence and enabling them to take responsibility for their actions.

It is very important to strengthen the innovation team in the organisation structure, so that it has an impact on other areas in a company. The less hierarchical an organisation and the greater the emphasis on working in interdisciplinary teams, the bigger the chances of knowledge flow, generation of ideas and success of the initiatives undertaken.

The role of the managing staff is also to increase the involvement of employees in innovative projects by properly rewarding innovative attitudes and introducing an incentive scheme. An example can be financial bonuses in the success fee model settled on the income gained on commercialisation of an idea of a given employee.

Among our respondents, the vast majority (73%) promote innovative attitudes among employees. Additionally, 16% of entrepreneurs admitted that they were considering introducing an incentive scheme. However, such a system takes various forms. In more than half of the surveyed companies it was a financial reward, and in every fifth of them, the superiors used praise as a motivation.

¹¹PARP, Monitoring innowacyjności polskich przedsiębiorstw. Wyniki II edycji badania 2019. Online access: https://www.parp.gov.pl/storage/ publications/pdf/Raport-2019---II-edycja-Monitoring-innowacyjnocipolskich-przedsibiorstw.pdf [20.04.2020].



Promoting innovative attitudes in your company



Innovation catalyst

Creating an innovative culture in a company requires changes in the way of thinking about introducing innovations and systemic changes in the organisation itself. Innovation can manifest itself as:

- the result of actions taken (new or improved products, processes, services) it is innovation in the strict sense, which yields measurable financial benefits,
- a developed way of thinking, which generates new solutions for the entire organisation and in the long run also translates into business.

A company with an innovative culture promotes creative attitudes, appreciates employee initiatives and introduces changes and novelties. It is popular to create special units that are catalysts for innovation. These may be small, interdisciplinary innovation teams or more advanced entities, such as:

- Center of Excellence a unit that aims to share best practices in conducting innovative projects with employees. Centres of Excellence most often take the form of meetings where recent activities are summarised and the way in which company's knowledge has been increased is discussed. It is also important to give useful tips to the rest of the team.
- Innovation Lab space for generating innovation in a company with access to necessary platforms and tools. Innovations developed in the lab do not only concern products or services, but also any other aspect of a company's operation that can improve its performance. An example is the development of a system to manage reservations of conference rooms, which will inform about prematurely completed meetings.



Expert's comment: COVID-19 vs. the culture of innovation

Karolina Łukasik Senior Consultant in the Innovation, Relief and

Subsidies Department, Ayming Poland

The pandemic has shown us how important an innovative culture was in a period of volatility, uncertainty, complexity and ambiguity (VUCA) innovative culture understood not only as creating new products and services, but also as quick adaptation to change and courage to take action. Companies that have not developed such a culture so far may find it harder to go through the current crisis and be less effective in implementing the innovations developed.

Success factors

Mental change

- task orientation
- tolerance of mistakes
- delegation of tasks and management aimed at empowering the employees
- encouraging people to take initiative
- frequent communication and information flow
- atmosphere of freedom

Organisational change

- working in small teams
- rapid decision making, cutting the red tape
- partnership
- involvement of employees in the decisionmaking process
- introduction of an incentive scheme for employees

The voice of business

At Budimex, we approach innovation systemically, looking at it from the perspective of technology, processes and people. With such an approach we can look at innovation in a holistic way. This allows us to structure many processes, from identifying opportunities for innovation through intellectual property management, building an innovation culture to implementing new solutions within the group. This creates synergy.

Our activities are aimed at stimulating innovation by enabling employees to take part in innovative projects and submit their own ideas for innovation. We appreciate the commitment and initiative and we reward participation in innovative projects. We also award prizes for improvement ideas and promote employees on the company forum. We are currently investing in IT solutions, so we have created a special platform for employees to manage the process of submitting, assessing and implementing improvement ideas and innovations. Our goal was standardisation - the whole process is transparent and each employee can follow the project evaluation or can take part in consultations concerning an idea submitted by them. The most important thing is to stimulate commitment and raise awareness that in the company we are all responsible for innovative activities and everyone can take their own initiative.

Przemysław Kuśmierczyk acting Director of the Innovation Department, Budimex



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Methodology

The report was prepared based on Ayming analyses and a CATI survey carried out by Opinia24 among 100 companies. The survey was conducted between 25 February and 13 March 2020. The companies we qualified for it were those with more than 50 employees that are active in the sectors involving R&D. Depending on the size of a company, the questions were answered by the owner, CEO, general manager, CFO or development manager.

Preparation of the report

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