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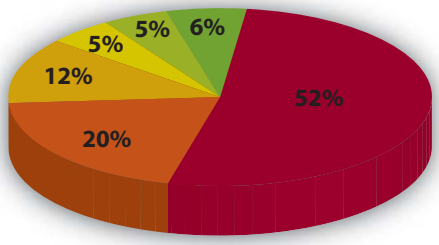

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Questions for Jiří Drahoš, President of the Academy of Sciences of the Czech Republic

Prof. Ing. Jiří Drahoš, DrSc., dr. h. c.
Since 2009, President of the Academy of Sciences of the Czech Republic. The main object of his scientific interest is multiphase chemical reactors. He has published more than 65 original works in high-impact international magazines, is co-author of 10 foreign and 10 Czech patents. In 2006-2009 he was President of the European Federation of Chemical Engineering; currently is a member of its executive body. He is a member of the Learned Society of the Czech Republic and the Engineering Academy of the Czech Republic.

The primary mission of Academy of Sciences of the Czech Republic and its institutes is to conduct basic research in a broad spectrum of the natural, technical and social sciences and the humanities. This research, whether highly specialised or interdisciplinary in nature, aims to advance developments in scientific knowledge at the international level, while also taking into account the specific needs of both Czech society and national culture. The Academy and its scientific institutes are the most efficient part of the Czech Republic's Research and Development system. To learn more about the Academy's orientation and its plans, we addressed its President, Prof. Jiří Drahoš.

You have been at the head of the Academy of Sciences since 2009 and now you are entering your second term in office. What does the period of the past 20 years of ASCR mean to you?

I view the period of the past 20 years from two angles, which are closely linked. From the scientific point of view, I cannot separate it from my previous work in the Czechoslovak Academy of Sciences – in the autumn of this year it will be 40 years since I joined the Academy of Sciences. When speaking about the past 20 years, I must point out that, within the framework of the former eastern block, ASCR has undergone the greatest formal transformation of all the other countries, except perhaps the former GDR, but there the situation was essentially different. We have abolished the Academic Senate, a body which in practically all the neighbouring Academies continues to exist, we have introduced a system of regular assessments (also involving international experts) of the Academy's institutes and have stood our ground against various political pressures.

How is Czech Science faring in comparison with previous years?

Czech Science is not at a standstill, but is steadily forging ahead. The number of good scientific publications and registered patents is continuously on the increase, which is also true of the results in other categories. Naturally, we must realise that keeping pace with the developed world is not easy, because the world, too, is going forward. A problem in some of the sectors may be the inadequate supply of high-tech equipment – in Physics, Chemistry, Molecular Biology and Genetics, for example, top-standard instruments and devices are absolutely essential. Nevertheless, even the best device won't help you if you lack highly skilled people with ideas – this is what really matters. In some sectors we are managing to keep pace with the top international standards, in others we are not doing so well. On behalf of the Academy of Sciences, I can say that we have top world-class scientists in practically all disciplines. However, I can, and perhaps should, say that we ought to have more of them. In general, we are doing well in Mathematics, Physics and Chemistry, and we also have excellent historians.

Can you mention examples of some of the Academy of Sciences´ achievements?

For example, a group of the Institute of Physics, in collaboration with Oulu University, Finland, has proved the formation of a ferromagnetic interface between non-magnetic materials with an imbalance of charges. Although it is a phenomenon remarkable mainly from the point of view of basic research, its practical importance is not negligible, as it makes it possible to propose new materials showing both a magnetic and ferroelectric arrange-

Photo: Stanislava Kyselová, Academic Bulletin of ASCR

ment without the need to use magnetic elements. Researchers of the joint laboratory of the Institute of Organic Chemistry and Biochemistry of the AS CR, v. v. i. and the Institute of Chemical Technology in Prague, in collaboration with an international team of scientists, published the results of their work in the prestigious Nature journal, which may mean another step in the struggle against HIV. In the treatment of HIV patients, the usual method is the combination of three different substances (inhibitors), i.e. compounds blocking the key steps in the life cycle of the virus. To prevent it from becoming resistant to one of those components, new inhibitors must constantly be sought. And this is where the work of the international scientific team mentioned above can help.

One of the key tasks today is setting out the direction the Academy of Sciences will pursue in future, i.e. outlining its Development Strategy. Its essential aspects will be top technologies, the limits to learning, transformation of society, and global challenges. This will need much closer collaboration of the research teams across the Academy's institutes. What changes in the system will the work entail?

I think that, so far, we have not taken full advantage of the potential the Academy of Sciences offers as a compact institution capable of solving complex scientific projects. Although we have 54 scientific institutes of different sizes, the latest detailed assessment has revealed that many teams in different institutes are closer to each other than the other teams of the same workplaces. Our aim is to make people and teams cooperate with each other more closely on the research programmes in specific spheres. The current practice is that the institutes work quite autonomously and the Academy of Sciences, as their founder, grants them institutional support without having any possibility of influencing their research. This, of course, is the logical consequence of a situation in which practically the full amount of the allocated institutional funds is used up by the mere operation of the research infrastructures and the payment of a part of the salaries, while the costs of actual research are covered mainly by grants or project funds. This situation must be changed and the management bodies of the institutes must be given instruments that will make it possible for them to influence much more the direction of research in the different institutes .

Society is changing and so is the depth and scope of knowledge. Does the Academy of Sciences adjust its work flexibly enough to the needs of society?

The natural obligation of academic institutions is continually to seek new forms of organising scientific and research work that will meet the requirements of the changing conditions, the actual level of knowledge and the development and transformation of society. Therefore, the new strategy of the Academy of Sciences should focus on activities which cannot be ensured efficiently by other sectors of the current research and development system in the Czech Republic. The principal aim of the new strategy is to raise the quality and efficiency of scientific work and its results, based on the synergy effect in the key directions of research. Another aim is the involvement of academic and business partners, including their personnel and financial capacities, in the creation and solution of the research programmes of the Academy of Sciences, thus contributing to the formation of a society open to accepting the results of Science and Research, with the ambition of ensuring the competitiveness of the Czech economy and the civilisation competitiveness of the Czech Republic.

As a chemical engineer, applications are very close to your liking, as indicated by your orientation to multiphase chemical reactors. As President of the Academy of Sciences, you are extremely concerned with its linkage to the industrial sphere. Is there reason for optimism in this area?

I'd say there is. We have a number of contacts with representatives of industry, especially those who really know something about research, and are meeting together, for the time being for informal debates. In this connection, I consider it extremely important to clarify certain terms which are often wrongly used – for example, industrial development is often (sometimes obviously intentionally) termed 'Applied Research'. Fortunately, there are many industrial managers, who do not underestimate the role of basic research and agree with the idea that the state should primarily ensure basic, or applied, research, as the case may be. The role of the state in supporting innovations should in no case mean their financing; support in this case should mean the creation of a suitable infrastructure, legislation, environment for communication between the academic and the business spheres, etc.

World in Motion and Highly Skilled Workers in the Czech Republic

Economic development, together with technological and political changes, has led to a steadily rising number of people moving abroad to work there. In addition, a marked lack of talent in some parts of the world has resulted in the growing importance of mobility. The proportion of employees working outside of their homeland has increased by 25% in the past decade, and the figure is expected to be another 50% by the year 2020. This kind of mobility does not mean the same as it did in the past. Mobility in its modern form is a response not only to the requirements of business, but also to the interests of the employees themselves, for whom the opportunity of gaining international experience has become an adventure and a chance to gain new knowledge.

Currently, the Czech immigration policy offers a relatively large number of instruments which significantly differ from each other. Existing legislation regulating the entry and employment of foreigners in the Czech Republic dates from the turn of the millennium and has been amended many times. Now (spring 2013), a new Act on the stay of foreigners in the Czech Republic is under preparation, which comprises completely new immigration policy instruments and rules regulating the flow of new workers from abroad into the country. The Ministry of the Interior, which is drafting the Act, debates its provisions with representatives of the employers, non-profit organisations, academic circles and the general public. The aim is to create an Act that will be a modern instrument enabling the flow into the country of highly specialised workers.

When moving into the target country, the employee must meet that country's immigration requirements, which are often a barrier to worker mobility. But is it always so? An answer to this question may be given by a survey carried out by PwC Czech Republic in collaboration with the Geographic Migration Centre attached to the Faculty of Natural Sciences, Charles University in Prague. The aim of the survey was to make a comparison between the instruments of the Czech immigration policy for highly skilled workers. Both short- and long-term work immigration instruments were analysed.

■ ACCELERATED PROCEDURE PROJECT

As part of the analysis, different factors were compared, such as the requirement to test the labour market before issuing the Work Permit, to submit a qualification certificate, the possibility of applying for a Permanent Residence Permit, limits on the number of new employees, possibly classified by nationality, and the length of time required to process the application for a Residence Permit or its validity. The survey revealed that the most open instrument of the Czech immigration policy is the "Accelerated Procedure Project for intra-company transfers of foreign investor employees" (Accelerated Procedure Project), which is the fastest way of bringing foreigners into the Czech Republic. In this case, no qualification certificate issued by the Czech authorities is required. Other open instruments of Czech immigration policy are the Green Card and the Blue Card, the advantage of which, among other things, is their relatively long validity period and the possibility offered to their holders to apply for a Permanent Residence Permit. On the other hand, the instruments based on the Work Permit seem to be less advantageous in comparison with the previously mentioned instruments, due to the complicated administration and time intensiveness preceding the foreigner's potential arrival in the Czech Republic.

In the case of short-term work migration, we assessed the sending out on the basis of either a Short- or a Long-term Visa, possibly on the basis of the Accelerated Procedure Project, launched last year. It was devised under the aegis of the Ministry of Industry and Trade of the Czech Republic and is being realised in collaboration with other three ministries. The project is intended to accelerate the transfer procedure in the case of highly specialised workers and managerial persons, whom their mother company is sending out to work in its branch in the Czech Republic. This concerns the transfer of highly skilled workers (specialists) and managers from third countries, who are sent out to work temporarily in the company's unit located in the Czech Republic. In the case of meeting the requirements, they will obtain a Work Permit and a Long-term Visa for six months, within 30 calendar days of the receipt of the application. To join the project, however, the Czech branch of the supranational company must meet several key conditions. These include, for example, the number of employees in the CR and the company's annual turnover (at least CZK 250 million according to the financial statement for the past accounting period and

NATIONALS OF MORE COUNTRIES MAY NOW APPLY FOR THE GREEN CARD

A new regulation of the Ministry of the Interior came into force on 20 February 2013, which regulates the list of countries whose nationals are entitled to apply for a Green Card. The purpose of the Green Card project is to eliminate administration obstacles complicating foreigners' access to the Czech labour market in the case of high-demand professions. The Green Card makes it possible for the nationals of selected countries outside the European Union to fill vacancies, provided the position has not been filled by a national of any EU country for one month. The new regulation has substantially broadened the number of countries whose nationals are entitled to apply for a Green Card. Of special importance is the enlargement of the list for type "A" Green Cards, which are usable for highly specialised workers. "From the point of view of the Ministry of Industry and Trade, I consider highly specialised foreigners to be of key importance for filling vacancies in high-demand professions on the Czech labour market, mainly for the high added value they bring," Martin Kuba, Minister of Industry and Trade, says. The original list of 12 countries, whose citizens were entitled to apply for type "A" Green Cards, has been enlarged to 64. The Ministry of Industry and Trade sees the greatest benefit of the new regulation in that it will help employers who cannot find suitable employees on the Czech and EU markets.

Photo: www.sxc.hu

Number of Green Cards issued between 2009 and 2012

	2009	2010	2011	2012
Green Cards, total	**55**	**70**	**90**	**174**
- type A	18	38	39	70
- type B	23	15	34	61
- type C	14	17	17	43

Source: Ministry of the Interior of the Czech Republic

the minimum amount of taxes – CZK one million – returned for the past accounting period (in direct and indirect taxes).

■ GREEN CARDS AND BLUE CARDS

In the case of long-term work migration instruments, Long-term Work Visa and Residence Permit indicators and two more Czech migration policy instruments were examined, in particular the much discussed Green Card. This is a purely Czech project. We also focused our attention on the EU Blue Card. Both are dual documents (Work and Residence Permits in one). The Green Card for highly specialised workers is issued for up to three years. Its additional advantage is its short processing time, which is within 30 days of receipt of the application by the authority concerned. On the other hand, the Blue Card is issued for a duration of up to two years, and, in the case of transfer to another member state, it may facilitate its holder the procedure of being issued a Residence Permit.

■ MEETING MARKET TRENDS AND THE REGULATOR'S REQUIREMENTS

Different types of mobility programmes are developing. This concerns not only short-term sending out of workers usually lasting less than twelve months, or long-term dispatch, but also project-based mobility programmes. In such a case, firms include employees in specifically oriented projects, or rotation, in the framework of the intra-company mobility programme. Specialists and talented employees, usually university graduates or workers with many years of practice, are included in different types of mobility programmes.

In addition, today mobility no longer means a straightforward transfer of employees from one area to another, and has a far more comprehensive form comprising a differing set of business requirements and issues related to it. For quite a long time, companies have been suffering from a lack of managerial employees. They are aware of the existing international possibilities and the need to offer interesting career opportunities to the best employees. Not every manager realises that a two-way transfer may be of benefit not only to the employee, but also to the company itself. An even less agreeable issue is often the immigration requirements on the part of the target country and the tax impacts or influence on social security in connection with the employee's transfer. Therefore, companies are changing their approach to international mobility, on the one hand, to comply with the needs of the changing business environment and, on the other hand, to meet the requirements of the receiving states and their preferences, as well as the needs of different groups of employees.

The text has been devised as part of the PRVOUK P43-Geography institutional support project.

Soňa Schovanková
Senior Consultant
Global Visa Solutions Department
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Do You Know How to Use Research and Development Tax Allowance?

For several years now, companies in the Czech Republic have been able to take advantage of the unique possibility of reducing significantly their tax base by applying for the Research and Development allowance. The basic principle of this allowance is an effective decrease of the tax base by exercising twice the right to deduct tax deductible expenses in comparison with the ordinarily allowable expenses. In 2011, the year for which the latest data are available, this advantage was used by 780 firms, which in this way deducted CZK 8.34 billion from their tax base, thus saving CZK 1.6 billion, which they could invest, for example, in their further development.

■ DEPRECIATION, TRAVEL EXPENSES, AND WAGES…

The range of expenses to which the double deduction of tax-deductible expenses applies is very wide, ranging from asset depreciation to travel expenses and other operating expenses, which arose in direct connection with the Research and Development projects. This also includes wage costs, which usually represent a significant part of the Research and Development allowance and also the research project budgets.

In this way, the state rewards companies investing in the Research and Development. Surprisingly, the number of companies taking advantage of this support is not as large as one could expect, and we think it could be much higher.

Our practical experience is that companies often do not realise that they can apply for the Research and Development allowance for many of their activities, thus lowering their tax liability. One of the reasons why this possibility remains widely unused by a number of Czech enterprises may be the surviving erroneous notion that the advantage only concerns firms employing research workers in their laboratories.

In reality, however, the range of firms entitled to use this advantage is much wider. It may well be used, for example, not only by firms operating in the pharmaceutical industry, but also by those engaged in engineering, manufacturing, and the food industry, and possibly in sectors such as banking and insurance. Evidence of this are the statistics of the Czech Statistical Office monitoring the utilisation of this indirect support classified by the industry sector. The proportion of pharmaceutical firms which have actively taken advantage of this benefit was only 5% of the total number of companies using this opportunity. On the other hand, the traditionally strongest sector using the possibility of deducting Research and Development allowance from the tax base is the automotive industry, with a proportion of approximately 30%.

The decisive criterion as to whether a project qualifies for the Research and Development allowance is whether it comprises an appreciable element of novelty and whether the activities within the project lead to the clarification of any technical or research uncertainty. These terms are not specifically mentioned in the legislation regulating the Research and Development allowance, i.e. in the Income Tax Act, but they are mentioned in the decree issued by the Ministry of Finance. Other examples of Research and Development activities can be found in the Frascati Manual issued by the OECD.

A practical basis for concluding whether a specific activity can be considered a Research and Development activity may be the basic rule. In the case of the primary aim being to achieve a further technical improvement of the product or process, the activity qualifies under the Research and Development definition, qualifying it for a deduction from the tax base. If the product, process, or approach is given and the primary aim is to create markets, do preproduction planning, or put a production or control system smoothly into operation, the work shall not be considered as Research and Development. At the same time, the resulting output of the activity should not be fully known in advance. This means that, even if we know in advance and have an idea of its final parameters, we do not know for certain what materials it will consist of or whether it will not need further modifications that will improve its usability, reduce its production costs or change other parameters. Also, it must not be forgotten that the appreciable element of novelty requirement and the requirement of the clarification of any technical or research uncertainty also apply in situations where the aim of the project or of any of its parts is already known to other entities and the company will prove that it is unaffordable to it for material or economic reasons, or unusable for some other material or economic reason, or that the company had no information about its existence at the time the project was being developed.

In general, it can be said that the identification of activities entitled to tax deduction represents the most complicated part of the entire application process, as it requires close cooperation of the employees of the Financial Department, the Research and Development Department, and external consultants.

■ THE WRITTEN WORD MATTERS

Another common barrier in respect of the application for the Research and Development allowance is represented by the ad-

Photo: www.sxc.hu

PRACTICAL APPLICATION OF RESEARCH AND DEVELOPMENT TAX ALLOWANCE

The provision of section 34 (4) of the Income Tax Act makes it possible to deduct from the tax base 100% of the expenses (costs), which the payer incurred in the taxation period under review, or the period for which the tax return is submitted, during the realisation of Research and Development projects having the form of experimental or theoretical work, project designs, calculations, technologies, manufacture of a functional sample or product prototype or its part, and the certification of results achieved on the basis of Research and Development projects. Tax deductible costs (expenses) are costs (expenses) directly connected with the project, such as wages, salaries, the remuneration of employees and payments under contracts for work done on the project, depreciation of tangible and intangible assets used in direct connection with the project, including book depreciation of low-value assets, other operating expenses (costs) – for example the cost of purchased material, provisions and low-value tangible and intangible assets, expenses for the purchase of books and periodicals, electricity, heating, gas and telecommunication bills and water and sewage rates, expenses (costs) incurred in the certification of results, travel expenses refunded by the employer, but only if they are directly connected with work on the project. The Income Tax Act lists costs (expenses) to which no deduction can be applied. These include services, licence fees and intangible results of Research and Development obtained from other persons, except purchases specifically mentioned above (electricity supply, heating, gas consumption, telecommunication fees, and water and sewage rates), and expenses (costs) already supported from public resources.

ministrative requirements. The Income Tax Act requires companies applying the right to deduct Research and Development allowance from their tax base to have their research project in a written form, and this written project must meet certain requirements. Also, the companies must keep a separate evidence of the expenses to which the allowance is applied. Analytical evidence of the Research and Development expenses is another point on the way to success and, at the same time, one of the statutory requirements.

There are companies which keep detailed evidence of costs concerning different projects or have a separate Research and Development Department and detailed supporting documentation. In the case of such companies, the situation is usually much less complicated.

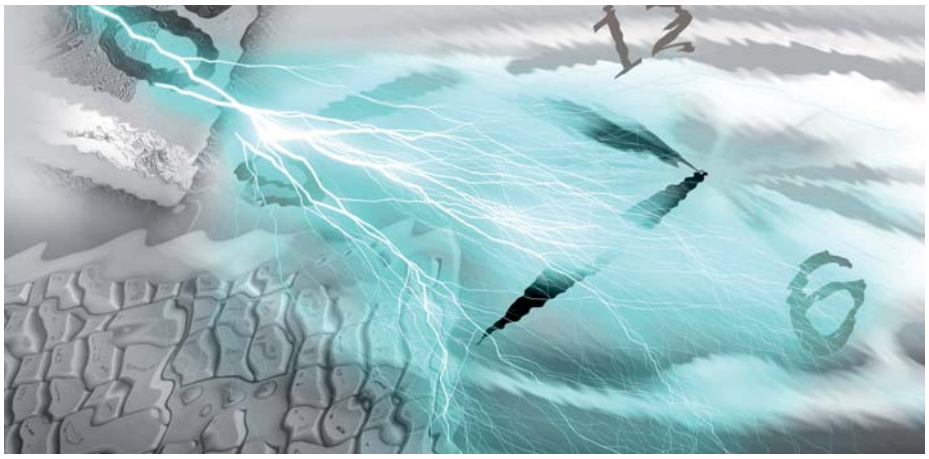
Other companies must, in the first phase, find answers to several questions that will help them map out the internal situation of the enterprise as regards the Research and Development allowance, and identify the situation concerning the progress and management of projects that qualify for the Research and Development allowance. The basic questions to which answers should be found are, for example: In what detail are costs in accounting being monitored, e.g., by division, the centres? How can the information system help? Does the company have an internal directive showing how to monitor the progress made in Research and Development projects? What is the aim of the project? Is there a solution in the market that is the subject of our project? Will the project raise the competitiveness of my firm? And so on. This analysis usually does not take too much time, but it will provide information about what chance the company has of succeeding.

In general, it can be said that there is no need to be afraid of excessive bureaucracy and paperwork, or the need to employ specialised employees to cover this agenda. There is no need to complete extensive questionnaires and forms, as we are used to in the case of a number of EU Structural Fund support programmes. If you have some experience with the preparation of documentation and the basic knowledge of a tax specialist, you will easily deal with it.

Zbyněk Pokorný,
Lenka Holoubková
Managers,
Tax and Legal Services Department
PwC Czech Republic

Eurostat: Labour Force Substantially Cheaper in the CR than EU Average

According to Eurostat, in the Czech Republic, as in the remaining post-communist countries, labour costs are substantially lower than the EU average. Labour is the most expensive in Sweden, Denmark, and Belgium. In the CR last year, unit labour costs amounted to an equivalent of EUR 10.6/hr., while the average in EU27 was EUR 23.4, according to the Eurostat estimate. In the European Union as a whole, labour costs between 2008 and 2012 increased by 8.6%. In the EU, non-wage labour costs, such as the employers' contribution towards social insurance, account for 23.7% of the cost of labour on an average. In the Czech Republic, it was 27%.



22 454 New Firms Altogether Came into Being in the CR Last Year

In all, 22 454 new firms were registered in the CR last year, according to the Czech Capital Information Agency (ČEKIA), 0.54% more than in 2011. In 2012, businessmen invested more than CZK 93 billion in the registered capital of newly established firms, 90% of which went into joint stock companies. At the end of 2012, 373 271 capital companies were registered in the CR, 24 937 of which were joint stock companies and 348 334 limited liability companies. The number of capital companies registered in the CR since the end of 2011 increased by 15 570, a growth of 4.4%. 4 850 firms altogether became defunct during 2012.

The Czech Republic Placed Second on the List of Most Attractive Locations for Investors

Only Slovakia was placed before the Czech Republic in the fifth assessment of the US Site Selection Magazine's annual list of the most attractive destinations for investors in Eastern Europe. Following the CR were Romania, Hungary, and Poland, which, surprisingly, was placed fifth. The assessment included countries which were exceptionally successful last year in attracting and supporting investors. The assessment was made on the basis of data registered in the databases of the Conway Data and IBM companies, such as the number of new facilities, the amount of capital investments, and the number of jobs created. This was one part of the assessment. The other part was based on the index assigned to the locality in the LocationSelector.com database. At the same time, specialists also assessed the most attractive capital city, where Prague was placed eighth among East European capitals.

The CR among the First Ten Countries with the Most Transparent Public Budgets

According to the results of the international comparative Open Budget Survey 2012, involving 100 countries and examining public finance transparency, the Czech Republic was placed ninth. According to the survey, among the states of Central and Eastern Europe, the Czech Republic has the most transparent public budget and, among EU states, the CR was placed fourth. The Czech Republic obtained 75 points out of 100 in the Open Budget Index, historically its best result.

Photo: www.sxc.hu

Household Income Grew Last Year

Last year, household spending was affected by a decline of economic performance and the relatively high growth of price inflation. Despite the slower growth of income, people raised the level of their savings. An analysis of the development of household income and spending in the CR in 2012 showed that the households' net income in 2012 increased by 2.0% in nominal terms and amounted to CZK 28 670 on an average. The largest source of monetary income of households was wages. The average nominal monthly wage amounted to CZK 25 101. Price inflation for 2012 reached 3.3% (1.9% in the previous year). Since 2008, this was the second highest annual increase in consumer prices. The most important factors influencing price inflation were higher housing expenses (accounting for 42% of the increased prices), food (31%), and transport (10%). On the other hand, the prices of clothing, footwear, furniture, and telecommunication services decreased. The rational behaviour of households as regards taking out loans could also be observed in 2012. Household loans increased by a mere 4% (the lowest since 1998) in comparison with 2011. The tendency to increase consumption by taking out loans weakened, especially as regards non-purpose consumer loans. On the other hand, housing loans still prevailed (growth of 4.8%, of which mortgage loans, growth of 6.3%). Despite lower income, households increased the level of their savings – their volume (according to CNB) increased by 3.4% year-on-year (to CZK 1 770.3 billion). Savers preferred making non-term deposits in Czech crowns. Financial products with relatively higher yields, i.e. mainly life insurance and pension fund deposits, continued to grow slightly.

We Will Start Growing within Three Years, Say Nine out of Ten General Managers in the CR

More than half (59%) of the managing directors of the most important firms operating on the Czech market expect their revenues to be growing this year. Only one-fifth of them (22%), however, are really certain of it. Much greater optimism prevails in assessments extending over the three-year horizon, where nine out of ten directors are at least partly persuaded of growth. This was revealed by the 4th annual Czech Survey of the Views of Managing Directors, carried out by the PwC Czech Republic consulting company. More than 100 respondents participated in the survey this year. The way to growth, according to the managing directors addressed, leads through gaining new and maintaining existing customers. This should be achieved by the development of new products or services (23%) and growth on existing markets. A surprise this year has been that more Managing Directors are seeing growth opportunities in the existing foreign markets (19%) rather than in the domestic market (18%). By adding to it those planning foreign expansion, we find that one-third of the addressed see the greatest growth opportunities beyond the boundaries of the Czech Republic.

Growth of Transactions in Czech Business Merger and Acquisition Market

The number of business purchases and sales in the Czech Republic rose by 30% in 2012, to 155, according to the M&A Barometer published by the Ernst & Young consulting firm. The estimated volume of transactions in the Czech business merger and acquisition market increased by 39% year-on-year, to USD 8.32 billion (CZK 158 billion). The massive increase is partly due to the extremely big transaction involving the Slovak Gas Industry (SPP) company. In the Central and Southeast Europe region, the Czech Republic occupies third position in the number of completed transactions, after Turkey and Poland. In the business merger and acquisition market, the year 2012 was marked by a slight decline in activity, both as regards the number of transactions and their value. "In terms of the volume of transactions, 2012 was the third year of growth for the Czech Republic. The overwhelming majority of the transactions are secondary sales, which reflect strategic changes in the distribution of power among the larger actors in the specific branch and region," says Petra Wendelová, Partner for Mergers and Acquisitions at Ernst & Young.

More than half of the transactions took place between purely Czech entities. In addition, Czech firms in 2012 reported 21 important acquisitions abroad, the most ever recorded. "This is showing, slowly and inconspicuously, the power of the Czech Republic and its businessmen. The country is no longer the target of cheap purchases and our firms have become active players in the region, where they invest in a number of important projects," points out Petr Kříž, Executive Director, Transaction Advisory Services at Ernst & Young. Most of the Czech deals were projects located in Central, Eastern, and Western Europe, mainly in Slovakia, Hungary, Germany, and France. In 2012, Czechs even became the most active investors in Central and Southeast Europe (12 transactions). As regards foreign projects, most investments came from the United States (eight), Germany (five), Russia and Great Britain (three investment projects each). While American investments were not limited to a single branch, Russian and German projects mostly involved production. Britons invested mainly in pharmaceutics. The most attractive sectors in 2012 were services and production, each accounting for 19% of the total number of transactions. One in every ten transactions involved power generation and mining. On the other hand, the IT sector failed completely, with a share of a mere 4%.

The Czech Republic Must Focus on Sophisticated Production

Karel Machotka

"In global comparisons, the general situation of the Czech business environment is stable; it is foreseeable, we are not a country torn by conflict, such as civil war or repeated natural disasters," says Karel Machotka, Executive Director of the Czech branch of the International Chamber of Commerce (ICC CR). We talked with him about the Czech Republic's competitive advantages, support of investments, and export strategy.

Helping Czech firms joining world trade and facilitating exporters entering foreign markets are among the tasks of the Czech branch of the International Chamber of Commerce (ICC). Do you also assist foreign companies wishing to establish themselves in the Czech Republic?

ICC is an association of large firms, which is organised very flexibly and which has brought order into international trade. ICC's primary aim is the support of free trade, and, to us, supporting exports is equally as important as supporting investment, not only foreign. As part of our Support for Investment Programme, we collaborate with institutions such as CzechInvest, whose task it is to pursue these activities. We are one of ICC's 120 branches and, thanks to this worldwide network, we are in a position to quickly provide potential foreign investors with information about the Czech market.

Can you make a comparison between the Czech legal environment and the environments in other advanced states?

The cultivation of the legal and economic environment in the Czech Republic is undeniable; we have behind us more than 20 years of democratic development and economic expansion. In global comparisons, the general situation of the Czech business environment is stable; it is foreseeable, we are not a country torn by conflict, such as civil war or repeated natural disasters. We have good rules by which we are guided, although sometimes our legal environment may seem confused, for example, due to frequent law amendments in certain areas.

Which are the competitive advantages of the Czech Republic as regards trade and investment?

The fact that the Czech Republic is situated in the heart of Europe ensures it a strategic position, which is augmented by the existence of transport links with neighbouring countries and a large number of well-prepared industrial parks. We have a well-educated labour force, with experts in the strategic areas of industry, especially power engineering. We have good universities. However, in spite of this, we must focus our attention on the entire educational system, from apprentice training to university education, and must attract young people more to technical studies.

Last year, the Investment Incentives Act was amended. What changes have taken place in this area?

Formerly, investments were focused on volume. Those who created the most working opportunities obtained the highest support. No consideration was given to what added value the investment would bring, whether only sophisticated processes would take place here, but mechanical production would be located somewhere else. The Amendment is trying to support not only the volume of investments, but also production generating high added value. The law now provides for support being given to Research and Development in a form in which the results can be practically applied. So that now investment incentives support technological centres and strategic services, and the novel thing is that direct support will be granted to big investment projects.

Czech industry is offering foreign partners high-quality products. Can you say which sectors are doing the best?

The Czech Republic is building on its tradition as an industrial country. It has a strongly represented car industry, but this does not mean actual car making and the manufacture of spare parts, but rather car-related industries, such as the rubber and textile industries. Of the less traditional branches, I would mention environmentally oriented projects, such as CNG filling stations, where Czech firms have also found outlets in foreign countries, and we are very good at Nanofibre Research and Development.

The Czech government has approved the Czech Republic's Export Strategy for the years 2012-2020, which has defined a concept of 12 countries of priority importance and 25 special interest states for Czech exports. What is the contribution of ICC CR to the process of opening up new export possibilities?

It is very good that the Czech Republic has such a strategy. ICC CR participated in its formulation and the debate on which are the priority or special interest countries for the Czech Republic is not absolutely essential for us. Export policy is a long-distance run, which, in addition, must be viewed from different angles, such as time and the situation in the world market. Export promotion should be multifaceted; it should not only be institutional, relying on state authorities, but also on ICC. The support of Czech exports should rely on more aspects – state administration, special interest associations and other entities. For example, ICC CR, in collaboration with the Ministry of Foreign Affairs, organises territorial meetings of businessmen with new Czech ambassadors being sent to specific countries. Traditionally, we organise East-West Business Forums, focusing on a certain part of the world each time. This year, the Forum will take place on 25th and 26th September and will focus on African countries and investment possibilities on that continent.

Photo: ICC CR archives

Research and Development in the CR as a Phenomenon

Research, development and innovation are traditionally irreplaceable phenomena in the development of the Czech Republic. One of the government priorities is the strengthening of the elements of competitiveness, among which the key role is played by research, development, and innovation.

In the framework of the government sector, research and development in the Czech Republic is entrusted to the institutes of the Academy of Sciences (AS) and to ministerial research workplaces, which carry out R + D as their core economic activity (CZ-NACE 72). Together with the universities and several applied research development workplaces, ASCR forms a functional, personally intertwined whole, in which each component plays an irreplaceable role.

Although, until the fall of the communist regime in 1989, Science in the Czech Republic was under strong ideological pressure, in a number of cases it maintained its creative potential and (in many respects and at different times) it was at the level of world standards. This is confirmed, for example, by the award in 1959 of the Nobel Prize to Jaroslav Heyrovský for his discovery of polarography, and the global recognition given to Otto Wichterle for the invention of contact lenses. In recent years, global recognition was accorded to Professor Antonín Holý from the Institute of Organic Chemistry and Bio Chemistry ASCR, for his results in the treatment of AIDS and cancer, whose worth to international Science is indisputable.

COOPERATION OF CZECH SCIENCE WITH INDUSTRY

In 2009, an organisation, the Technology Agency CR (TA CR), was established as an institution charged with the preparation and realisation of applied research, development and innovation programmes, including programmes for the needs of state administration, and the organisation of public competitions in research, development and innovation, and the awarding of public contracts. One of its tasks is the support of Competence Centres, i.e. centres of research, development and innovation, which link together top research and application facilities of the public and private sectors on a long-term basis of collaboration. The result is the strengthening of cooperation between the public and private sectors and the setting up of strategic partnerships in the research and business spheres aimed at making progress in research. When choosing draft projects, preference is given to those having a high application potential. Only enterprises or research organisations implementing the projects in collaboration with other participants, thus forming a consortium, may become beneficiaries under this scheme. The first public competition under the Competence Centre programme was organised in 2011. The result was the approval of 22 projects supported by the amount of CZK 4.27 billion.

Science and Research? Mainly in Private Hands

In the Czech Republic, expenditure on Science and Research in 2011 exceeded CZK 70 billion, 20% more than in the preceding year. In spite of this, in terms of the expenditure to GDP ratio, the Czech Republic ranks behind most of the original members of the European Union. As regards the structure of scientific research expenditures, firms are spending more than the state and are the main actors in the field of Research and Development.

Total science and research expenditures in 2011 amounted to CZK 70.7 billion, which accounts for 1.86% of GDP. All sources of financing (private and public, domestic and foreign) contributed to this significant growth in 2011. As in previous years, the most important sources of financing were private domestic investments, which accounted for 46.9% (CZK 33.2 billion) of total expenditures in this area. Increasingly important from the point of view of financial flows into R + D are foreign sources, which in 2011 grew by 44% in current prices, to CZK 10.8 billion (15% of total R + D expenditures).

A Total of 55 700 People Worked in Research and Development Last Year (Full-time equivalent)

At the beginning of 2012, 82 283 persons worked in R + D in the Czech Republic, which in terms of the full-time employment rate amounts to 55 697. As in previous years, in 2011, too, more than half of the people employed in R + D (FTE) were research workers (30 682). Nearly one-third (33.9%) of them were under 35, the majority being Czech nationals (94.5%). "As regards other countries, most foreign nationals working in the CR in Research came from Slovakia, the Ukraine, Russia, Germany, and Poland," Martin Mana from the Czech Statistical Office (CSO) specifies. In 2011, more than 2 500 entities were engaged in Research and Development. This involved 2 720 workplaces, 83.1% of which belonged to the business sector, 6.8% to the government sector, and 7.4% to universities.

Czech Inventors in 2012

As regards patents, nearly 50 000 of these have been awarded or validated for the territory of the Czech Republic since 1995. At the end of 2012, nearly 29 000 were in force. The proportion of patents awarded through European validation is increasing each year. "At the end of 2012, European validated patents accounted for 70% of patents valid on the territory of the Czech Republic," Karel Eliáš, a CSO specialist, said. Between 1995 and 2010, Czech entities filed 1 129 patent applications with the European Patent Office, a mere 0.06% of the total. More information can be obtained in the case of patents filed by Czech applicants. For example, a comparison by the type of applicants indicates that more than half of the valid patents belonged to enterprises (52%). Public universities accounted for 18% of patents, natural persons for 17%, and public research institutions for 11%.

Unique Tube in the Throat Becomes the Best Czech Innovation

The best domestic innovation of the year 2012, winner of the five-category Czech Innovation Competition, is a project called "Degradable Oesophageal Stent with Degradable Coating", which helps patients suffering from certain kinds of oesophageal diseases.

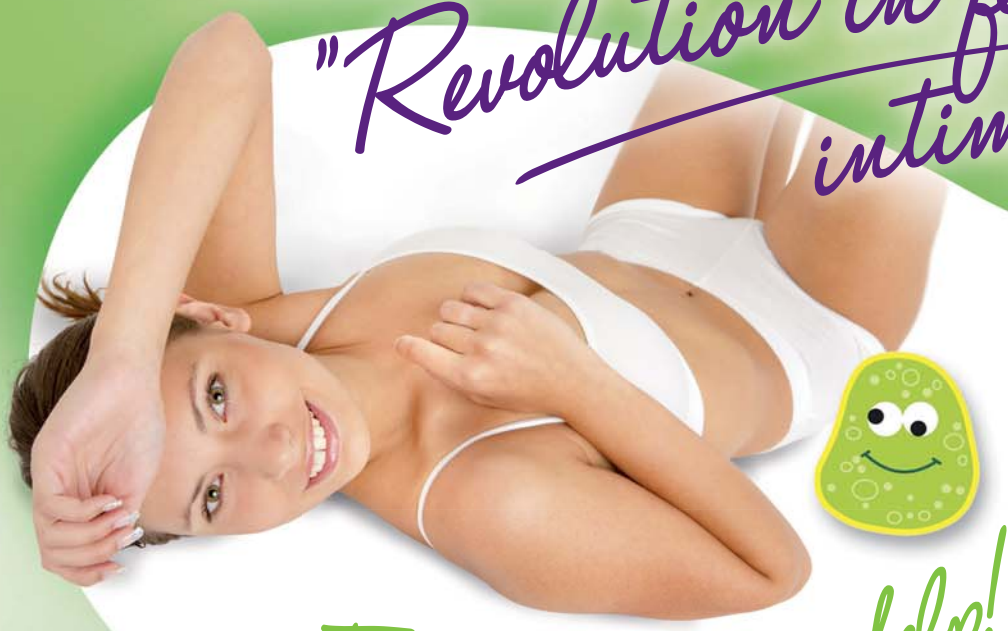
It is a tube that will enlarge a narrowed oesophagus, for example in the case of a tumour, or a car accident, or some other critical situation. The inventor of the winning project, which was included in the "Innovative Star" category destined for small and medium-sized firms, is the Ella – CS company. It is primarily intended for physicians treating patients with damage to the oesophagus, for whom it is more comfortable and less costly. This product is unique worldwide. This oesophageal stent has been devised in response to the demand for a special reinforcement that will be absorbed by the body tissue. It can be introduced into the digestive or respiratory tracts. Investment in this product ranged in the order of millions of crowns.

In the "Innovative Idea" category destined for individuals and students, the jury chose the project of a team from Masaryk University in Brno, called "Creation of Aerosol Samples by means of Thermal Evaporation by Diode Lasers". The method is used for determining the presence of metals, such as lead, tin, zinc or cobalt, in different liquids, blood or food. Its advantage is especially the low price, high speed and easy transport.

In the "Promising Innovation" category focusing on small businesses and beginning firms, the winning project by the firm of Flexicat Tools, is called "Tools and Technologies for Cementing and Grinding Large and Curved Surfaces". The innovation is unique for its special distribution of pressure covering the entire working surface and the use of the wiper principle. The grinding is faster and material-saving.

Photo: Ella – CS archives

"Revolution in feminine intimate hygiene!"



Friendly bacteria help!

Solution of vaginal yeast infection

Many women all over the world suffer from various vaginal diseases that are accompanied by discharge and considerable discomfort.

Recent scientific findings of the FIDE company, reached in cooperation with biotechnology company Pharmaceutical Biotechnology, have raised feminine intimate hygiene to a new active level. After several years of research, FIDE, manufacturer of feminine intimate hygiene products, is introducing a revolutionary product to the market – Carin & Oasis ProBiotic sanitary napkins containing live, friendly lactobacillus bacteria.

Who are feminine sanitary napkins Carin & Oasis ProBiotic made for?

Carin & Oasis ProBiotic napkins are suitable for regular use both by healthy women wishing to act preventively in their intimate hygiene and women who suffer from occasional or chronic vaginal problems of bacterial or yeast origin.

A unique combination of sanitary napkins and probiotics!

Why are feminine sanitary napkins suitable for women with inflammatory vaginal problems?

Carin & Oasis ProBiotic sanitary napkins bring natural bacteria into the vaginal microenvironment where they are missing due to inflammation.

Why are these sanitary napkins suitable for use by healthy women, too?

These sanitary napkins are suited for regular use by all healthy women who want to take care actively of their intimate hygiene and are well aware of the beneficial effect of probiotics on their body. There does not exist a more comfortable and convenient way of enhancing the vaginal mucosa with friendly bacteria, than using hygienic pads in close contact of the intimate parts of the body. Colonisation of the vaginal mucosa by lactobacilli is a very natural process. Carin & Oasis ProBiotic sanitary napkins inhibit the occurrence of inflammation in healthy women, thus acting as prevention, especially during menstruation, stress, or other aggravating conditions that generally increase the risk of inflammation.

Thanks to their very favourable price, they may replace classical feminine sanitary napkins that offer merely a single benefit, namely, absorption of menstrual blood or discharge. We recommend ***Carin & Oasis ProBiotic*** *sanitary napkins as a suitable means of preventing vaginal inflammation and the unpleasant itching, burning, and sometimes even discharge that accompany it.*

Fide

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Science and Research Centres Opening Up to Top Scientists


Biocev Project

Six research centres of excellence are coming into being in the Czech Republic. The centres will have a say about which disciplines of Czech Science should be promoted and which branches of modern industry could be built on the results of their work.

■ 1. SUPERLASER ELI – THE LARGEST RESEARCH PROJECT IN THE HISTORY OF THE CR

A unique multifunctional laser centre, ELI Beamlines, is being built in Dolní Břežany near Prague. ELI is the acronym for Extreme Light Infrastructure, and it will be the largest scientific project in the history of the Czech Republic. When fully operational, the centre is expected to employ 250 people, including some 50 scientific workers, not only Czech, but also, and mainly, foreign, whose main concern will be research in the area of Laser Physics. ELI lasers will be unique for their pulse intensity and the installation of several different types of laser systems in the ELI Beamlines building. Their synchronisation will make it possible to significantly raise the range of experimental possibilities, not only in the area of Physics, but also in Biology, Medicine, and the material sciences. In collaboration with universities and leading scientists, both foreign and Czech, with experience from top world research institutions, the centre will offer top postgraduate education to natural and technical science students.

Not Only Czech, but Indeed European

From the outset, ELI has been conceived and financed as a research infrastructure project of the highest European standards. In the preparatory stage, the project involved 40 institutions from 13 EU states. Apart from the ELI centre sited in the Czech Republic, another two centres are to be established – one in Hungary and one in Romania. These three countries, together with Italy, have set up the ELI Delivery Consortium, the aim of which is to support the development of ELI as an all-European research infrastructure. This means not only the control of all three infrastructures, but also their financing in the operational phase. "The establishment of the consortium is an important signal showing that our partners are really viewing the Laser Centre in Dolní Břežany as a European undertaking and that ELI as a whole is one of the EU's research priorities," Jiří Drahoš, Chairman of the Academy of Sciences of the CR, points out. "This shows that, despite all the objective difficulties, the Czech Republic is in a position to realise one of the most important EU projects in the area of Research and Development."

Research Cooperation with the USA

The unique character of the ELI Beamlines Laser Centre, according to its Executive Director, Vlastimil Růžička, rests primarily in its universality of use. "It is to be a really multifunctional centre, in which not only physicians, but also chemists, biologists and others, including industrial firms, will be able to carry out their experiments. The combination of laser technologies which we will have at our disposal will be unique indeed."The L3 laser system worth CZK 1.1 billion will be one of the essential parts of the Dolní Břežany Laser Centre. The ELI Beamlines scientific team began to cooperate on its development with California's Lawrence Livermore National Laboratory (LLNL), one of the world's best-known and largest laser workplaces, which it included among the key ELI project partners, together with the British Rutherford Appleton Laboratory, the Italian Instituto Nazionale di Fisica Nucleare, the German Deutsches Elektronen Synchrotron, and the French Laboratoire d'Optique Appliquée.

More at www.eli-beams.eu

■ 2. BIOCEV STARTS ITS FIRST RESEARCH PROJECTS

BIOCEV is another of the six large projects to become future Czech and all-European scientific research centres of excellence. The project, launched in October 2012, focuses on the modern and rapidly developing sciences, Biomedicine and Biotechnology, linking basic and applied research. The results of the research work are expected to be used in future for the development of new medicines and new diagnostic methods and treatments. Up to 600 scientists, plus 200 postgraduate students, will start work in the technological park, the size of twelve football pitches, in 2015.

The main aim of the BIOCEV project is to provide an adequate environment to renowned scientific workers for innovative research, to stimulate conditions for top standard scientific work in the Czech Republic, and to support the national and all-European development of Biomedicine and the follow-up biotechnological industry. This is what the former Czech Minister of Education, Professor Petr Fiala, says on the subject: "The Czech Republic supports top research centres, such as BIOCEV, which are expected to generate results of the highest European and even world standards, and the creation of conditions for hundreds of scientists, who would otherwise be tempted to leave this country."

Photo: Biocev archives

"Charles University in Prague is a key partner of the project, both as regards research and as being the guarantor of study programmes that will be realised in the framework of BIOCEV," says Professor Václav Hampl, Rector of Charles University. As regards scientific research, university teams will participate in practically all the BIOCEV research programmes, including Functional Genomics, but especially in the Cellular Biology and Virology programmes through the University's Natural Science Faculty, to which they will bring several unique experimental models, and in the Development of Diagnostic Methods and Treatment programmes, thanks to the University's 1st Medical Faculty. These research programmes will start in the middle of next year.

BIOCEV's First Research Programme

Although the centre in Vestec itself has not yet been completed, an international scientific team has already been formed during the past few months at the Molecular Genetics Institute, under the guidance of Associate Professor Radislav Sedláček, and the first BIOCEV programme, "Functional Genomics", has been launched. Functional Genomics is a branch which is trying, on the basis of the knowledge of the genomic sequence, to determine the functions of different genes. In the detailed study of the functional aspects of the genome, scientists develop and use mutant mouse and rat models.

"The primary aim of our programme is to find the specific functions of genes within the entire organism. Detailed knowledge of the functions of the genes is essential for understanding the substance of diseases and for the development of new methods of treatment. This branch is undergoing dynamic development worldwide, and leading scientific institutions and pharmaceutical firms invest much effort and money in it. Over the next ten years, the absolute majority of mammalian genes are expected to be described and prepared for further detailed characterisation," says Associate Professor Sedláček, Head of the Functional Genomic research programme.

Czech Phenogenomics Centre

As part of this research programme, scientists focus primarily on the specific function of selected genes in the case of serious diseases and disorders, such as reproductive disorders, cardiovascular disease, metabolic disorders, including liver disease, chronic inflammation of the digestive tract, and large intestine cancer. The latter two diseases are very frequent among the Czech population and, as regards the large intestine cancer incidence rate, the Czech Republic occupies a leading position on the European scale on a long-term basis.

Together with the research programme, Assoc. Prof. Sedláček is developing a national research infrastructure, the Czech Phenogenomics Centre (referred to as a "mouse clinic"), which comprises a number of service laboratories in the framework of the BIOCEV centre. This

specialised centre will serve the needs of BIOCEV's regular scientific teams, but the know-how and the research service will also be available to foreign scientific workplaces and the private sector. One of the centre's modules, which is already fully functional, is the Transgenic Laboratory, which produces specialised, genetically modified mouse models. These models serve as instruments for gene function research for the needs of both the Czech and the international scientific community.

The programme and capacity of the Czech Phenogenomics Centre has now already ranked it alongside the world's recognised research institutions participating in the international programme: "Encyclopaedia of Mammalian Gene Functions". This is a joint ten-year programme focused on the primary description of the functions of all genes. The unique possibilities of research under the Functional Genomics Programme in the Czech Phenogenomics Centre attract scientific workers from all over the world. Radislav Sedláček's scientific team has been joined by scientists from Australia, Canada, Germany, Poland, and Turkey, as well as successful Czech scientists, who are returning home after long-term stays in prestigious institutions worldwide, such as Harvard University and Max F. Perutz Laboratories in Vienna.

More at www.biocev.cz

■ 3. INTERNATIONAL CLINICAL RESEARCH CENTRE OPENS UP TO THE WORLD

In October 2012, new premises were opened at the International Clinical Research Center (ICRC) of St. Anne University Hospital in Brno. Patients are being moved to the new premises, where they will receive the most advanced treatment of cardiovascular and neurological diseases. At the same time, clinical research has started in the new buildings, aimed at finding and verifying innovative methods for the prevention, timely diagnosis, and treatment of those diseases. In developed countries, this group of diseases is the cause of up to two-thirds of deaths. After CERN and the International Space Station, ICRC is the third international research centre and the first concerned with medical research. Its preparation involved more than 300 specialists of various professions, from physicians to molecular biologists and nanotechnology experts from more than ten countries.

More at www.fnusa-icrc.org/cs/

■ 4. CEITEC CENTRAL EUROPEAN TECHNOLOGICAL INSTITUTE

The Institute will concern itself with the research of biomaterials and small robotic systems to be used in post-surgical treatment. Six hundred scientists from the Czech Republic and other countries and up to 1 200 students will be involved in, for example, the study of special hydrogels to be injected into split bones to join them, and new dental implants. One of the research programmes will focus on determining the most suitable artificial fertilisation methods. The Institute is also expected to develop self-cleaning paints for buildings, and even miniature robots.

One of its first achievements has already been recorded in Genetics, which in future may help in the treatment of cancer. Michael Zimmermann from CEITEC, currently working at Rockefeller University in New York, together with several foreign colleagues, has discovered a new genetic factor, which is of determining importance in choosing the correct method of repairing damaged DNA in chemotherapy. Their research monitored the behaviour of tumour cells in hereditary breast and ovarian cancer during chemotherapy, which provokes DNA damage. In the treatment, the two strands of the DNA helix get severed and must then be repaired. Sometimes the tumour cells are resistant to the treatment. Now, the scientists have found that the success of the treatment, i.e. the repair of the DNA, depends on the type of repair used on the DNA. According to the authors, the unique discovery of the function of this gene opens up new possibilities for the clinical research of breast and ovarian cancer and gives a better chance for an optimum prognosis and targeted individual treatment.

More at www.ceitec.cz

■ 5. THE IT4INNOVATIONS SUPERCOMPUTER CENTRE

IT4Innovations is a unique project, the aim of which is to build a national research centre of excellence in the area of Information Technologies. This new centre will allow the greater concentration of a number of IT-related scientific branches, thus assisting in their development. As part of the project, the Centre will provide a very efficient supercomputer to be put into operation around the year 2014. This will rank it alongside the world's 100 most efficient supercomputers.

The project is being prepared by five institutions: the Ostrava Technical University of Mining and Metallurgy, the Ostrava Technical University, the Silesian University in Opava, the Technical University in Brno, and the Institute of Geonics of the Academy of Sciences of CR. The IT4Innovations excellence centre will combine the function of a research centre for academic purposes with research for the needs of the application sphere. The basic task of the Centre will be computing work for all the scientific disciplines, with research being divided into three interconnected key areas: IT4People (Information Technology for People) – research focused on the improvement of the quality of life of society through modern Information Technologies, SC4Industry (Supercomputing for Industry) – supercomputer computations for the solution of industrial problems, modelling in the area of natural sciences and nanotechnologies (shape optimisation, materials suggestion, biomechanical simulations), and Theory4IT (Theory for Information Technology) – an area focused on basic research, in particular the development of new unconventional computing methods (knowledge mining, Anthill Theory).

More at www.it4i.cz/

■ 6. SUSEN SUSTAINABLE ENERGY PROJECT

The project will focus on the development of advanced nuclear technologies. Its task will be to examine how the service life of existing nuclear reactors could be prolonged by as much as whole decades. At the same time, it will join work on the development of completely new nuclear reactors, called Generation IV Reactors. These reactors are expected to be more efficient and safer than those currently being used, capable of generating energy efficiently from the waste of the now existing nuclear power stations. The participants in the projects are the Research Institute Řež Ltd. and the University of West Bohemia in Plzeň.

More at susen2020.cz/

FIDE's Latest Innovation

An interesting product, individual approach, application of new research trends, and innovation in production are the exigencies which are a key to success for every modern firm. One such firm is FIDE, the Czech company which has become established as a successful manufacturer not only in the Czech Republic, but also internationally, and whose main products are in the field of feminine hygiene. To learn more about the company's strategy and vision, we approached its Chief Executive, Libor Maděra.

FIDE is a manufacturing company which has been on the international market since 1994, operating in the area of feminine hygiene. What is your principal area of business?

FIDE's core business is the manufacture and development of sanitary towels. In testing these products, we endeavour to come as close to reality as possible and to apply the results measured in the innovation process. FIDE creates new trends in the area of sanitary towels with higher added value, such as towels with live probiotic culture.

You have included in your projects elements of the latest innovations and trends within the branch and have devised a pilot project for the renowned German firm of Bikoma—manufacturer, developer, and designer of special machines for the hygiene industry and software engineering. This trend in the area of modern ultra-thin towels is protected by the Czech Industrial Property Office. What does it actually involve?

The main feature is a special structure of the suction core, which in our case is made up of 100% cellulose, not paper, as in the case of ordinary ultra-thin towels. This unique structure of the core makes it possible to spread the superabsorbent more efficiently. Our technology allows for greater variability, which creates the best conditions for manufacturing private brand towels for different customers to meet their precise requirements.

All your products are manufactured without the touch of the human hand and their manufacture is subject to strict hygienic regulations. Much attention is paid to the quality of the input materials, their properties, microbiological purity, the observance of all the declared properties and, last but not least, to the technological processing requirements. How is the quality of your products tested? Which innovative elements have you applied recently?

At FIDE, all products are manufactured on high-speed and fully automatic lines; the first contact with the human hand is the handling of the sealed cartons. We only buy input materials from renowned European suppliers. In the case of raw materials, we require the supplier to attach an inspection report to each consignment. At our incoming check, we compare the required parameters of the raw materials with those being declared. All our final products are tested daily in our own laboratory, and the results are immediately passed on to the manufacturing section. In the development of new products, we continuously consult gynaecologists and biologists on menstruation changes relating to population development and the use of hormonal contraception. We use much more demanding testing than set out by the standards in this area.

What trends can be expected in your line of business in future?

The main trend in the area of intimate hygiene is reducing the proportion of the raw materials used, especially with regard to natural raw materials and their substitution by superabsorbents, so as to make the products smaller. Here, however, we must wait and see how they will be accepted by the customers.

In 1995, FIDE included in its programme the manufacture of private brands. Currently you manufacture private brands for more than 100 trade partners in and outside the EU, and export your products to more than 40 countries worldwide. This means that you have a number of foreign reference orders…

Private brand manufacture is an area that is continuously developing. It facilitates the quick and easy extension of the existing range of products, without the need to invest large sums in new technology, putting it into operation and running it in. So if you wish to become our partner, the only thing to do is to choose a product from our product range that will best complement your current selection.

How do you manage to stand up to competition?

Competition within the branch is keen indeed; some firms bet on advertising, but our focus is rather on quality and development in the area of sanitary towels. Our modern scientific knowledge, gained in collaboration with the Pharmaceutical Biotechnology firm, has made it possible to raise feminine intimate hygiene to a new active level. After several years of research, we were the only company in the world to place on the market towels with a live probiotic culture, which significantly increases the utility value of sanitary towels by helping to protect the vaginal mucous membrane against yeasts and moulds.

What is your vision of FIDE's future development?

The development and manufacture of high-quality sanitary towels comprising substances supporting hygiene and human health, an individual approach to customers with a wide offer of products adjusted strictly to their wishes and requirements.

Photo: Fide archives

Congresses Boosting Tourism

Congress tourism in the Czech Republic is booming. Last year, more than 11 000 conferences and congresses took place in Czech hotels, attended by more than 1.5 million participants, according to the Czech Statistical Office (CSO). One of the main reasons is the more stable financial situation of firms, accompanied by a growing flow of orders received by the organising companies. Most conferences are traditionally held in Prague, which, as a rule, attracts more than half of all the participants, followed by South and North Moravia. The region that has greatly improved its position in recent years is the Moravia-Silesia Region.

Thanks to this form of tourism, the Czech Republic is gaining general awareness throughout the world. And, in addition, it brings the country the much needed finance. In its assessment of large cities for the year 2011, the International Congress and Convention Association (ICCA) ranks Prague 14th, together with Copenhagen. Last year, 98 large congresses were organised in Prague, out of a total of 122 major events held in the Czech Republic, 19 more than in the previous year.

■ MORE CONGRESSES ARE HELD IN PRAGUE, MAINLY ONE-DAY EVENTS

Congress tourism is faring especially well in the capital city of Prague, which attracts mainly one-day gatherings. Last year, the number of events with international participation increased by 61% year-on-year. According to the Czech Statistical Office, 4 264 events altogether were held in Prague last year, 234 more than in 2011, and were attended by 671 812 participants. Over the past four years, the number of congresses held in Prague has increased by one-fifth and the number of participants by nearly 40%, according to CSO. The Prague Convention Bureau (PCB) reports that the most frequent events are corporate conferences and association conferences. The main subjects discussed, according to PCB, are Pharmacy, IT and Telecommunications, the Economy, and Medical Sciences. The average duration of the congresses, however, has been reduced, from 2.29 days to 2.06 days, with smaller events gaining momentum. Last year, the same as in 2011, most of the congress events were attended by 50-149 participants each, and their number has increased by one-tenth. Last year, the number of congresses with international participation also increased by as much as 61%.

The main organisers of the events are direct clients, followed by mediation agencies. Apart from Czech clients, the events are organised by persons and institutions from the UK, the USA, Germany, France, and Belgium. Last year, most of the congresses were held in hotels and other venues, mainly on university premises. An important role in the development of congress tourism, which also means a higher turnover for the tourism business, is played by the Czech Convention Bureau. It was established in 2010 as an umbrella organisation coordinating the work of regional congress offices and helping them to promote the congress potential of the Czech Republic. Its aim is to unify the presentation of all regions and coordinate the promotion of trade fairs, congresses and other events in the area of incentive and congress tourism. Decisive criteria are the price and quality. While, in 2007, only 97 events were held in the Czech Republic, with just 11 of them taking place outside the capital, last year's 122 events, with a ratio of 98 to 24, is an important achievement adding to the popularity of Prague and the country's other regions.

■ FAVOURABLE TREND IS EXPECTED TO CONTINUE IN 2013

The higher turnover generated by congress tourism is naturally closely linked with the quality of Czech hotels. In the first half of this year, their services, according to the Czech Statistical Office, were used by 4.7 million guests, 7.6% more than in the same period last year. Large hotel chains recorded a high occupancy rate even during the holiday months. The reason for the higher interest of guests is low accommodation prices and the generally greater popularity of tourism. After several years of saving, visitors to the CZ are prepared to spend more, which is especially true of congress tourists. The growing hotel occupancy rate, however, does not mean higher revenues, as accommodation prices still remain low. A survey of the Hotel and Restaurant Association has revealed that, between January and July 2012, two-thirds of Czech hotels did not earn more from renting their rooms than in the previous years. According to the survey, Czech hotels as a whole are on a very high level, and renowned world trademarks have become well established in them. This year, the hotel.info hotel portal focused their attention on the cleanliness of international hotels and Prague was assigned a flattering 13th position in the survey. Coming out best was Tokyo, followed by Warsaw and Zagreb. This was the result of voting involving some five million people, who visited approximately 200 hotels all over the world.

Good news is the information that in 2011 Prague's "To the Golden Well" was voted the world's best hotel by users of the TripAdvisor travel server. The house was the gift of Emperor Rudolf II to his court astronomer, Tycho de Brahe. An interesting feature is that from the terrace, used as a summer restaurant, guests have the possibility of direct access to the Prague Castle grounds.

NEW HOTELS IN THE DOMESTIC MARKET

After several years of crisis, the Czech hotel market is recovering, with a new worldwide hotel trademark to appear in Prague: In September, the Penta Hotel chain, belonging to the portfolio of the Hong Kong New World investor group, will open a four-star hotel in Prague's Karlín district. The Czech market witnessed the greatest invasion of new hotel chains in 2009, when pre-crisis plans were being brought to fruition. The new hotels at that time included the trademarks of Kings Court, Sheraton and Rocco Forte. One year later, Spain's HN Hotels appeared. Last year, the Czech hotel market witnessed a new boom, with a record 13.6 million guests being accommodated in hotels across the country, 6% more than the previous year.

The Czech Republic – a Global Power in Balneology

The Czech Republic is a spa country with a centuries-long tradition boasting nearly forty spa resorts. Balneology in the Czech Republic is known for its harmonious combination of Medical Science and Nature. Come to one of our spa resorts to rejuvenate yourself!

Spa recreation and treatment has a long tradition in the Czech Republic, which boasts 37 spa resorts, hundreds of curative springs and rich peloid deposits (mud, peat and bogs), ranking the country among international powers in this area. It is interesting to note that the number of foreigners visiting the country's spa resorts is growing each year, which testifies to the good medical care and advanced methods of treatment and rehabilitation used here. Nowhere else in the world can such a concentration of curative springs be found as in the West Bohemian spa triangle, formed by three famous spa towns: Karlovy Vary, Mariánské Lázně, and Františkovy Lázně. Other spa resorts of world renown are the Jáchymov Spa Resort, the first in the world to start using the curative effects of radon water, and Jeseník Spa, where the first hydrotherapeutic sanatorium was founded. Teplice Spa, with the longest spa tradition in Bohemia, this year opened its unbelievable 859th season. Darkov Spa, situated in the north-east of the Czech Republic, was established 145 years ago. Perfect care by physicians and physiotherapists, in combination with the unique spring of Tertiary sea water, have excellent results in the treatment and rehabilitation of the motor system.

Today, the spa resorts no longer limit themselves to mere conventional spa sojourns, but also comprise popular wellness programmes (managerial, anti-stress, weight loss, detoxification, wellness and beauty), in addition to medical wellness (the harmonious combination of natural curative sources, qualified medical care and other complementary activities, such as golf and Nordic walking). Therefore, if you happen to be on just a short business trip in CR, try to spend the weekend in one of the spa resorts. For example, Grandhotel Pupp in Karlovy Vary, which has been in the spa business since 1701, this year introduces an offer of spa treatments based on the use of the natural wealth of the Karlovy Vary region. In April 2013, the hotel welcomed the first guests to the new Pupp Royal Spa wellness centre with its swimming pool and saunas. In the new season, Rezidence Ambra wellness hotel in Luhačovice, Moravia, opened a sporting and relaxation resort, which is divided into several rehabilitation and recreational zones conceived so as to serve clients of all age groups.

Information about spa resorts in the CZ can be found in the Spa Catalogue or at http://spa.czechtourism.com, www.lecebne-lazne.cz and www.spas.cz.

Tourists Are Attracted by Hotels in the Centre of Prague, Those in City Outskirts Compete for Their Favour

Last year brought a revival of demand for accommodation services, as confirmed by the current annual comparative results of the TLT Benchmark Project organised by KPMG Czech Republic. Among the country's regions, the most popular for tourists is Prague, which accounts for one-third of the total revenue from tourism in the Czech Republic. As regards incoming tourism, Prague's share is as much as 52%. In 2012, the tourists' interest focused mostly on accommodation facilities in the centre of Prague, while hotels away from the city centre, in particular those on its outskirts, had problems.

AWARD FOR CZECH HOSTEL
An inconspicuous hostel at the Lesser Quarter end of Charles Bridge has become the world's fourth most popular establishment in its category, and the first in Eastern Europe. The award, referred to as "Hoscar" by hostel owners, managers and staff for its high prestige, was taken over by representatives of the Prague hostel, called Charles Bridge Economic Hostel, in Dublin, Ireland, at the beginning of this year.

"Even though the results achieved by Prague hotels outside the city centre are not worse than those located in the other Czech and Moravian regions, their operating costs are markedly higher. In addition, keen competition in Prague forces them to reduce their prices, so that average revenue per available room is much below the national average. In 2012, the average amount fell to CZK 465," says Ondřej Špaček, Associate Manager of KPMG Czech Republic providing services in the area of tourism and leisure-time activities.

■ YEAR 2013 WILL BE CRUCIAL FOR HOTELS OUTSIDE PRAGUE CENTRE

While the average per capita amount allocated by the regional and municipal authorities in support of tourism is CZK 254, in Prague the support only amounts to CZK 169. This is so, in spite of the fact that Prague accounts for the largest share of tourism in the Czech Republic as a whole and its returns from tourism into the public budgets amount to one-third of the total returns in this category of business.

In this situation, hotels outside central Prague are beginning to have problems. While in the city centre, the average cost of a hotel room is CZK 1 755 (excl. VAT), in 2012 hotels outside the city centre charged only CZK 1 016 per room, and those in the city suburbs only CZK 885. Similarly, occupancy also depends on the location of the hotel: in the centre it was 73%, outside the centre 68%, and in the suburbs 52%.

■ IN GENERAL, OCCUPANCY RATES ARE RISING, WHILE THE LENGTH OF STAY IS DECREASING

In recent years, Czech hotels have managed to balance out their revenue/expense ratios, but have failed to prevent the shortening of the stays. Over the past ten years, the length of stay of foreign tourists in accommodation establishments in the Czech Republic has been declining; in 2012, foreign visitors spent 2.55 nights in a hotel on an average. On the other hand, room occupancy in comparison with 2011 and 2010 slightly increased, to 57.7%. The average cost of renting a room rose by nearly CZK 60, to CZK 1 150 (excl. VAT), and came close to the 2010 level, when a room could be rented for CZK 1 175 on an average. Hotel managers' revenues from room rentals have increased, reaching a three-year high.

■ MORE HOTELS, BETTER SERVICES

In the years from 2006 to 2011, the capacity of accommodation facilities in the Czech Republic increased, with the addition of 13 256 new hotel rooms, mainly in four- and five-star hotels. Their number has been growing continuously since 2000 and has increased five-fold over the past ten years. "At the same time, the hotel boom has put greater pressure to bear on the hotel operators, many of whom had to cope with great problems at the time of crisis and were obliged to restructure their services to become more efficient," Špaček says in conclusion.

Situation in Czech Hotels

Three-, four- and five-star hotels	2010	2011	2012
Hotel room price (average price excl. VAT in CZK)	1 175	1 082	1 150
Revenue per available room (RevPAR)	634	626	689
Average number of overnight stays in hotels	2.83	2.63	2.55
Occupancy of hotel rooms	52.30%	55.71%	57.70%

Source: KPMG Czech Republic – TLT benchmark

Photo: Cushman & Wakefield archives

Veba

Veba
home textile

VEBA, textilní závody a.s., is a traditional Czech producer of cotton Jacquard fabrics. It ranks among the most important cotton Jacquard fabric manufacturers in Europe. The company concentrates on the production of home and clothing textile goods. Nearly 90% of VEBA's production are exported, mainly to Africa and Europe. In recent years, the West-African countries have become major markets for VEBA products. VEBA has developed African brocade with special finishes from the finest combed Egyptian cotton yarn exclusively for the African continent.

Top designers give VEBA products a high aesthetic quality in tune with today's global trends.

VEBA, textilní závody a.s.
Přadlácká 89, CZ-550 01 Broumov
Callcentre: +420 491 502 300
E-mail: callcentrum@veba.cz

Czech Golf Resorts: Prestigious Tournaments and New Courses

Why go to the Czech Republic to play golf? The Czech Republic is the most developed golf destination in Central and Eastern Europe. In this country, golf has a tradition of more than a century and there are nearly 100 courses to play on. All this, combined with comfortable accommodation, the excellent Czech cuisine and world famous Czech beer, forms the basis for a marvellous golfing holiday. In addition, a number of innovations await golfers in the Czech Republic in the 2013 season.

The "gentlemen's sport", as golf is often referred to, has a long history in the Czech Republic. The first course was opened in the Mariánské Lázně spa resort as far back as 1905, and the oldest golf club in nearby Karlovy Vary is even one year older. All this notwithstanding, golf only experienced its real boom in the early 1990s. Since then, the Czech Republic has come a long way, being transformed from a novelty into a much sought-after destination on the European golfing map, for both professionals and amateur golfers.

PRESTIGIOUS TOURNAMENTS

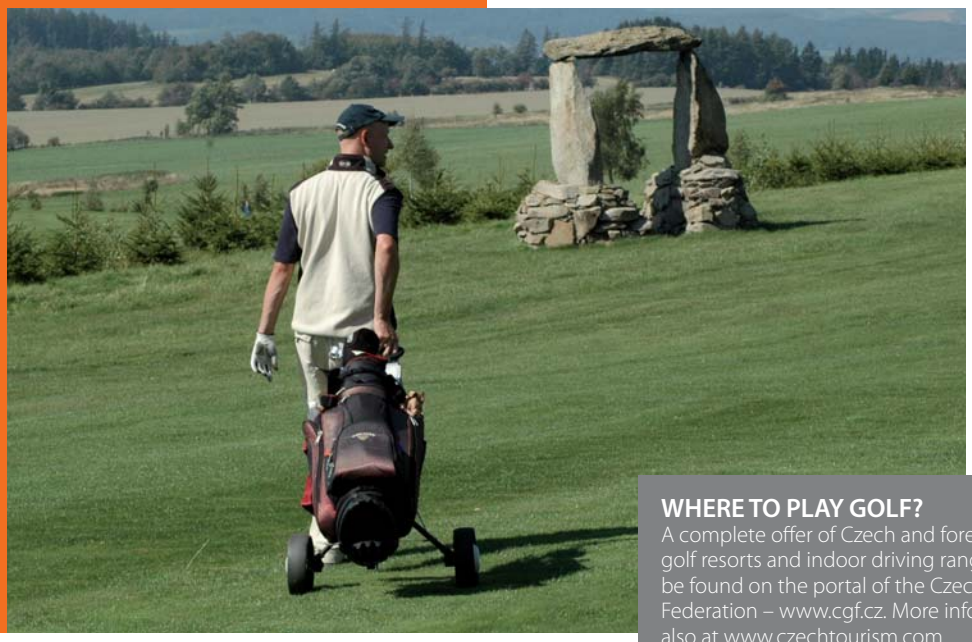
Prestigious tournaments are held in the Czech Republic on a regular basis, and 2013 will be no exception. Prosper Golf Resort Čeladná in North Moravia has hosted the European Tour Czech Open series several times, and senior players have met several times on the Casa Serena course not far from Kutná Hora on the European Senior Tour. This year, the Ladies European Tour will be played in the Czech Republic for the third year running. After two successful Raiffeisenbank Prague Golf Masters tournaments held in the Albatross Golf Resort near Prague, this year the event will be held on the Golf Park Plzeň-Dýšina course in West Bohemia. The tournament will take place from 5 to 11 August 2013, and the current holder of the title, Melissa Reid from the UK, will be defending it there again this year against other leading lady golfers, such as Jade Schaeffer

(winner of the 2011 event), Caroline Masson (last year's figure at the tournament and leading player of the Ladies European Tour), Carly Booth, Laura Davies, Diana Luna, Karen Lunn, etc. From 6 to 9 June 2013, the European Challenge Tour D+D Real Czech Challenge Open will take place at Kunětická Hora near Pardubice.

NEW GOLF COURSES

The number of golf courses in the Czech Republic is steadily growing, and each year the country has something new to offer to golf fans. In 2012, two new nine-hole golf courses were opened – the Golf Resort Lipiny near Karviná and the new Královská vinice Těšetice Golf Grounds near Znojmo. In summer 2013, the Loretto Golf Club Pyšely will open its new, long-awaited eighteen-hole course, a masterpiece designed by the renowned architect, Keith Preston, set in the charming countryside in the Sázava Valley. The original nine-hole Barbora Golf Resort not far from Teplice Spa in the North of Bohemia is another location to add nine more holes to its existing course, thus creating a full-fledged eighteen-hole ground.

Golfers who opt for the Czech Republic and spend their golfing holiday there will also appreciate pleasant accommodation right on the grounds, as well as other



WHERE TO PLAY GOLF?
A complete offer of Czech and foreign golf resorts and indoor driving ranges can be found on the portal of the Czech Golf Federation – www.cgf.cz. More information also at www.czechtourism.com.

Photo: CzechTourism archives

facilities providing agreeable relaxation after the game. The Konopiště Golf Resort, less than one hour's drive from Prague, in 2012 enlarged its accommodation capacity adding 11 rooms to the existing 44. So now golfers have 55 luxury double bedrooms plus two suites to choose from. In addition, a modern wellness centre covering an area of 2000 sq. metres was opened within the resort complex at the beginning of March. It comprises indoor and outdoor swimming pools, saunas, whirlpool baths, a salt bath, a gymnasium and fitness gym and much more. To make the regeneration perfect, golfers may take advantage of some of the spa treatment procedures, such as massage, inhalation, baths, and packs.

Golf travellers will appreciate the fact that Czech golf courses are usually located in the neighbourhood of large cities, and are therefore easily accessible. Albatross Golf Resort, for example, can be reached within 30 minutes by car from the capital city of Prague; the Cascade Golf Compound lies in the immediate vicinity of Brno, Moravia's largest city, and the 36-hole Prosper Golf Resort Čeladná is situated just a stone's throw from Ostrava in North Moravia. In addition, all these three golf resorts last year won prestigious awards from the American Golf Digest Magazine, as number one, number two, and number three category resorts respectively among Czech golfing complexes. Within the West Bohemian spa triangle formed by the spa towns of Karlovy Vary, Mariánské Lázně, and Františkovy Lázně, there are 10 golf resorts, six of which have eighteen-hole courses. The best-known of these are the Golf Resort Karlovy Vary, Royal Golf Club Mariánské Lázně, and Astoria Golf Resort Cihelny. In the vicinity of Ostrava in North Moravia, there are three eighteen-hole courses – Ropice, Ostravice, and Šilheřovice – in addition to Čeladná.

Playing golf on Czech soil is always a new experience thanks to the variable natural scenery and the environment which lend the courses an inimitable character. In Karlštejn and Hluboká nad Vltavou, golfers will be enthralled by the imposing sights of the Castle and Chateau, while in Mariánské Lázně and Karlovy Vary, they will be able to admire the decorative architecture of both these town and draw new energy by undergoing curative spa procedures. In Liberec, Ústí nad Labem, and Čeladná, they will enjoy the mountain panorama and healthy, fresh air.

The Czech Republic supports golf through the 2-for-1-golf project entitling two to play for the price of one on 40 courses. CzechTourism Agency participates in this project, which is valid until the end of 2013.

More information can be found at www.1fee2golfers.eu

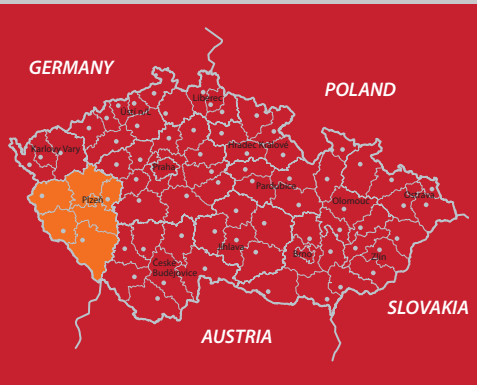
THE CZECH TOP 10

The quality and popularity of domestic golf courses is assessed each year by the Golf Resort of the Year survey, organised by FTonline through the Golfova-hriste.cz portal. Last December, the results of the third annual event were announced. On the website mentioned above, 6 232 valid assessments were published, with the following resorts winning the TOP 10 awards (in alphabetical order): Albatross, Black Bridge, Čeladná, Monachus, Karlovy Vary, Karlštejn, Kunětická Hora, Malevil, Park Slapy sv. Jan, Ropice Beskydy. Golfresort Monachus was placed second, with third position ascribed by the jury to Golf Resort Karlovy Vary.

The Best Golf Resort of the Year 2012 title went to the Albatross Golf Resort, which came out first in the survey of the preceding year. Part of the survey comprised two additional categories, in which the results were decided by a public vote. The golf resort most highly prized by the golfers themselves is Golf Resort Lipiny, while beginners were most satisfied with the Botanika course. Another category was the three most highly valued 9-hole greens. Placed first in this category was Golf Botanika, followed by Golf Kotlina Terezín and Golf Hostivař, last year's winner in this category.

Plzeň Region – More Than Just Pilsner Beer

The Plzeň Region is situated in the south-west of the Czech Republic. Its area of 7 561 sq. km makes it the third largest region of the Czech Republic (ranking ninth in terms of population). The distribution of the inhabitants in the Region is rather uneven. Almost 30% of the population live in Plzeň, the second most important centre in Bohemia after Prague, with 167 302 inhabitants.



The seven districts of the Region (Domažlice, Klatovy, Plzeň-City, Plzeň-South, Plzeň-North, Rokycany, and Tachov) are territorial units of distinct landscapes, numbers and composition of population, economic potential, size and population density. Its raw material reserves, which form the basic potential for the development of the manufacturing industry, are concentrated in the Plzeň Region, especially in its inner part (the area around Plzeň). There are reserves of bituminous coal, refractory and ceramic clays, and building stone. Areas at the foothills of the Bohemian Forest (Šumava) are rich in limestone. The Region has generally favourable conditions for agriculture. Farmland accounts for about 50.2% of the Region's total area (67.9% of it is arable land). Forestry is characterised by sufficient natural sources of wood.

The road network in the Plzeň Region is formed by 5 129 km of roads, 421 km of which are 1st Category roads. The natural centre of the Region is the city of Plzeň – currently the fourth largest city in the Czech Republic. Plzeň is the home of 30% of the population of the Plzeň Region. 40% of the economic entities are based in the area of the Plzeň-City District. Plzeň is well connected with the road network due to being situated on the D 5 motorway, which links the capital of the Czech Republic, Prague, with Germany, where it continues with the A 6 German motorway from the Rozvadov/Waidhaus border crossing. This motorway crosses all of Germany from the Czech border as far as France.

Plzeň is the junction of three main routes of the European transport network:

- E 49 Germany – Vojtanov – Karlovy Vary – Plzeň – České Budějovice – Austria
- E 50 Germany – Rozvadov – Plzeň – Prague – Slovakia
- E 53 Germany – Cínovec – Prague – Plzeň – Železná Ruda – Germany

INDUSTRY AND ECONOMY

The most important economic sector of the Plzeň Region is the manufacturing industry. The traditional industrial sectors include engineering, which is focused mainly on the energy industry and transport systems. Important sectors are the production of automobile components, electrical engineering, electronics, plastics, and food industries (especially the beer-brewing industry and the production of wines and spirits). The Region also supports investment in strategic services, high-tech technologies, and Research and Development. Other important sectors are transport, storage, telecommunications, construction, and services.

Major food industry companies of the Plzeň Region include: Plzeňský Prazdroj a.s., founded in 1843, the largest Czech beer exporter to almost 50 countries, and a member of the international SABMiller plc group, the second biggest brewing company; Stock Plzeň a.s., the traditional producer of liquor, currently the largest producer of spirits in the Czech Republic; Bohemia Sekt Českomoravská vinařská a.s. in Starý Plzenec, a prominent wine producer.

Important industrial sectors in the Region include engineering, which is linked especially with the Škoda name. Its main range of products is equipment for classical and nuclear power industry, oil industry, foundry and forge products, heavy machine tools, equipment for rolling mills, sugar cane processing equipment, hydraulic and vulcanising presses, gear boxes, rail transport vehicles, trolleybuses, complete electric driving gears. It also runs its own research, as well as a trading company. Other important industrial enterprises with an impact on the Region's economy are: DIOSS Nýřany a.s., manufacturing products from sheet metal and tubes; Okula Nýrsko a.s., focused mainly on the processing of plastic materials; LASSELSBERGER, s.r.o., which represents the ceramic industry, and is formed by the fol-

Economic Data		
Population	1 Jan 2013	572 687
Gross Salary	1-4 Q 2012	CZK 23 846 (EUR 954)
Unemployment	31 March 2013	6.55%

Source: Czech Statistical Office

USEFUL CONTACTS:
Plzeň Region Portal – Regional Office, **www.kr-plzensky.cz**
Plzeň City Municipality Office, **www.plzen.eu**
BIC Plzeň – Business and Innovation Centre, **www.bic.cz**
Chamber of Commerce in Plzeň, **www.hkpplzen.cz**
Regional Development Agency of the Plzeň Region, **www.rra-pk.cz**
CzechInvest, Plzeň Regional Office, **www.czechinvest.org**
Customs Office in Plzeň, **www.cs.mfcr.cz**

lowing companies: Chlumčanské keramické závody, Keramika Horní Bříza, Rako Rakovník, Cemix Čebín, and Calofrig Borovany.

Thanks to its geographic position, the Plzeň Region is attractive for foreign investors. Foreign investments are topped by the Japanese plant, Panasonic AVC Networks Czech s.r.o., which manufactures flat panel displays. Major foreign companies include YAZAKI Wiring Technologies Czech s.r.o., producing components for the car-making industry; the VISHAY ELECTRONIC s.r.o. company, manufacturing electronic parts; BORGERS Cs spol. s r.o., manufacturing plastic products; MD ELEKTRONIK spol. s r.o., manufacturing cable connectors, and Daikin Industries Czech Republic s.r.o., producing and repairing industrial cooling and air-conditioning equipment. (More on investments on pp. 30-31)

Most of the Region's economic entities (39.7%) are based in the District of Plzeň-City. A significant role in employment in the Plzeň Region is played by 55 entities with more than 500 employees each, 24 of them employing more than 1 000 workers. Organisations with large employee numbers in the Plzeň Region include the University Hospital, Dobřany Psychiatric Hospital, Plzeňský Prazdroj a.s. brewery, the University of West Bohemia in Plzeň, Panasonic AVC Networks Czech, s.r.o., IDEAL AUTOMOTIVE Bor, s.r.o., VISHAY ELECTRONIC, spol. s r.o., HP-Pelzer s.r.o., ŠKODA TRANSPORTATION a.s., ŠKODA POWER s.r.o., ŠKODA JS a.s., MD ELEKTRONIK spol. s r.o., LASSELSBERGER, s.r.o., the Statutory City of Plzeň, Plzeň Municipal Transport Enterprises, a.s., BRUSH SEM s.r.o., BORGERS CS spol. s r.o. Plzeň, KS-EUROPE s.r.o., and International Automotive Components Group s.r.o.

The Plzeň Region ranks among the areas in the Czech Republic with relatively low unemployment rates. At the beginning of 2013, the Region registered the second lowest unemployment rate in the CR (7.31%), an increase of 0.30 percentage points compared with the same period of last year. In 2012, the average monthly wage in the Plzeň Region amounted to CZK 23 108 (approx. EUR 924).

The Region's development is also promoted through cross-border cooperation with neighbouring Bavaria within the Euroregions structure. Taking advantage of the European Cross-Border Cooperation Programmes in the Plzeň Region are the Districts of Domažlice and Klatovy in the Bohemian Forest (Šumava) Euroregion and the District of Tachov in the Egrensis Euroregion.

University education is offered by the University of West Bohemia at its eight faculties (Economics, Education, Philosophy, Law, Applied Sciences, Mechanical Engineering, Electrical Engineering, and Health Care Studies), as well as the Medical Faculty in Plzeň, which is a part of Charles University in Prague. (More on the University on pp. 32-33).

TOURISM

The Region has favourable conditions for tourism. The city of Plzeň offers many cultural monuments, including its interesting historical underground, with about 20 km of passages and sites – one of the most vast of such complexes in Central Europe. Natural sites in Plzeň include the man-made Bolevec Lake System, a unique 15th-century Late Gothic project in terms of technical achievement and landscape planning. There is a dense network of leisure and hiking trails. Other frequently visited sites are the Zoological and Botanical Gardens of Plzeň as well as the hills in the city's surroundings – Krkavec, Chlum, and Sylván with observation towers. Cultural heritage sites include the Manětín Baroque chateau, the former monastery in Plasy (a National Cultural Monument), ruins of the Radyně and Buben Gothic castles, and the Kaceřov Renaissance chateau. Excellent conditions for summer and winter recreation are offered by the Bohemian Forest, thanks to its numerous hiking and cycling trails. Many groomed pistes and cross-country courses are available for both downhill and Nordic skiing enthusiasts. Stays in Konstantinovy Lázně Spa, focused on the prevention and treatment, including convalescence, of cardiovascular diseases, as well as the treatment of motor apparatus, metabolic and respiratory problems, can be used for both recreation and health improvement. Other sites favoured for leisure activities in the Region are, for example, the Hracholusky Reservoir, as well as the Berounka River, enjoyed immensely on downstream trips by canoeists.

Photo: CzechTourism archives

Švihov Water Castle

Miscellanea and Highlights of the Plzeň Region

The Plzeň Region is reputed for its varied natural environment and beauty of the landscape. Diverse opportunities for summer and winter recreation are offered particularly by the Bohemian Forest (Šumava). But other areas have much to offer visitors as well. The most popular tourist destinations include the Zoological and Botanical Gardens in the city of Plzeň, as well as the numerous castles and chateaux studding the whole Plzeň Region. The prestige of the city of Plzeň abroad will undoubtedly be enhanced by the title of the European Capital of Culture 2015 (more at www.plzen2015.net/). To live up to this award, Plzeň has prepared ambitious and unique projects in the area of culture. Let us at least mention the construction of a new theatre and a multicultural city district.

A look at the miscellaneous curiosities and top highlights of the Plzeň Region

Cathedral of St Bartholomew in Plzeň – the tallest church tower in Bohemia (102 metres),

Republic Square in Plzeň – one of the largest medieval squares in the Czech Lands,

Synagogue in Plzeň – the second largest in Europe and the third largest in the world, after Jerusalem and Budapest,

Plzeň – Brewery Museum is the only museum in the world preserved in an original medieval house which had possessed brewing rights,

Plzeň-Bory (1911) – the oldest airport in the Czech Republic,

Plzeň – the largest beer pub in Bohemia, situated within the complex of the Plzeňský Prazdroj brewery – the Na Spilce Restaurant has a seating capacity of 580,

Water-powered tilt hammer at Dobřív – the largest and most important technical monument of its kind in the Czech Republic,

Rabštejn nad Střelou – the smallest town in Central Europe,

Konstantinovy Lázně Spa – its mineral carbonic water has the highest content of free carbon dioxide in the Czech Republic,

Domažlice – the leaning tower – unique tower of the archdecanal church, of cylindrical type, leaning 60 cm from the perpendicular,

Chodsko – the best preserved ethnographic district in Bohemia,

Church of St Gunther (Vintíř) at Dobrá Voda near Hartmanice – the only church in the world with a unique glass altar, with the Chapel of St Gunther at Letiny Spa one of only two churches of this consecration in the world,

Match factory in Sušice – the oldest manufacture of matches in Bohemia (started in 1839),

The Bohemian Forest and Oberpfalzer Wald – Šumava and Český les (together with the adjacent Bavarian Forest) – the largest forest area in Central Europe,

Rabí Castle – the largest castle ruins in Bohemia,

Kašperk Castle – a Royal castle at the highest altitude (886 m),

Black Lake in the Bohemian Forest 18.4 hectares – the largest lake in the Czech Republic, maximum depth 40.6 metres,

Odlezelské (Mladotické) Lake – the youngest lake in the Czech Republic, originated on 25 May 1872 by a landslide following disastrous torrential rains,

Ceramic Lighthouse in the Plzeň "Na Slovanech" Park – the tallest (10 metres) ceramic work turned on a wheel. It was made from 4.5 tonnes of clay during one week by the artist Ivan Hostaša. The lighthouse is listed in The Guinness Book of Records,

Well at Zbiroh – 163-metre deep well at the local medieval castle, one of the deepest in Europe. The oblong-shaped well is cut into rock.

Kašperk Castle

DEVELOPMENT OF CONGRESS TOURISM

According to preliminary data, the Plzeň Region was visited by 544 046 guests in 2012, an increase of 13.6% (by 65 100) compared with 2009. Most of the increase in the number of guests was accounted for by foreign visitors – non-residents of the CR (34.4% increase), the lesser part were domestic guests – residents (4.6% rise). An interesting and developing phenomenon is Congress Tourism. According to preliminary figures, 1 516 100 participants in conferences/congresses arrived in the Czech Republic in 2012, while 426 conferences/congresses with 52 941 participants (i.e. 3.5% of the CR total) took place in the Plzeň Region. The City of Plzeň itself is an important Congress Tourism hub.

Support for Innovation Business Projects

The Plzeň Business and Innovation Centre (BIC Plzeň) was founded by the city of Plzeň according to the European concept of the Business and Innovation Centre network in 1992. The aim was to start building premises for innovative business and to create a system of quality services for companies. We discussed the priorities of the Plzeň Business and Innovation Centre with Jana Klementová, the Chief Executive Officer.

What services are you currently providing and who are they intended for?

The services of BIC Plzeň are designed primarily for small and medium-sized innovative enterprises from the Plzeň Region. They include, for example, support for the founding of new technology-oriented companies, assistance in the development of existing companies, and assistance in the search for and acquisition of financial sources for development projects, participation of firms in national and European programmes, support in the introduction of innovations in companies and in the search for suitable partners for development, production and commercial cooperation, as well as business, information, and consultancy services for doing business in the EU. In providing its services, BIC Plzeň uses the experience of its consultants, collaboration with other partners, as well as its foreign contacts and membership in the most important networks of support for business and innovation – primarily in the Enterprise Europe Network. We are also approached by foreign entrepreneurs who want to start activities in Plzeň or its surroundings, to establish a branch of their firm, a development centre, or the like. In cases of technology-oriented firms, we can assist in administrative matters, but we also offer the other services that we normally provide – especially placement on the premises of the Business Incubator or Science and Technology Park, or assistance in the establishment of contacts with universities and Research and Development institutions. We also provide consultancy on the possibilities of the use of grant programmes focused on Research, Development, Innovation, and Internationalisation.

Support for cooperation between companies and university teams is one of our important activities. A pilot project inspired by the British model of the Knowledge Transfer Partnership, which enables companies to use the knowledge of university specialists for the development of a new product or innovation of a production process, has been successfully completed recently. Currently, we are the mediator for the Plzeň Business Vouchers Programme, through which companies can be granted subsidies for the purchase of services based on knowledge from the University of West Bohemia or the Charles University Faculty of Medicine in Plzeň.

In the previous answer, you mentioned the Business Incubator and Science and Technology Park. Can you give some additional information?

In the years 1996-2000, the first facilities designed for use by innovation entities – the Business Incubator and the Technology Centre – were established one by one at Borská pole in Plzeň, next to the city's industrial zone. This provided the foundations for the development of a project for a science and technology park. At present, the Plzeň Science and Technology Park offers more than 4000 sq. m of office, pilot testing and laboratory space. It is a very modern infrastructure designed for the implementation of projects focused on Innovation and Applied Research and Development. Companies can use the business space, as well as a complex of related specialised services, such as assistance in the preparation of business intentions and financial plans, grants consultancy, services in technology transfer, advice on entry into foreign markets, and others. They can also participate in the education, information, and networking events we organise.

Do you also support the participation of companies in international projects and their presence at events abroad? Could you mention some specific projects and events?

In the area of technology transfer, we offer companies participation in a number of what are known as technology exchanges, where the purpose is to establish contacts between potential partners in future collaboration. At the moment, for example, we are publicising the international cooperation meeting at the HighTech Systems 2013 exhibition and conference in Eindhoven, the Netherlands, at EuroNanoForum in Dublin, Ireland, and EMO 2013 in Hanover, Germany. Recently, we have co-organised a Czech mission to Turkey focused on material technologies, where the participants had the opportunity of establishing contacts with major Turkish producers and representatives of top research institutes from Istanbul and the surrounding area. Similar events are being organised with a focus on the establishment of business cooperation.

Photo: CzechTourism archives, BIC Plzeň archives

Plzeň Region – Long-time Favourite with Investors

The Plzeň Region has been attractive for investors over the long term. The reasons are the quality business environment and infrastructure, skilled workforce, and strong science and research potential represented by the University of West Bohemia in Plzeň and other research institutions and companies.

INVESTMENT OPPORTUNITIES

The Plzeň Region is one of the areas in the Czech Republic most attractive for investors, thanks to its strategic position on the East-West communication lines in Europe, as well as to its good economic situation. Besides its advantageous geographic position, the Plzeň Region also has the advantage of a favourable transport situation (the D5 motorway connecting Prague with Germany and Western Europe runs across the Region, while Plzeň is also an important road and railway transport junction).

A great advantage of the Plzeň Region is the ample skilled workforce. The Region offers a wide selection of secondary education in the fields of Electrical Engineering, Mechanical Engineering, Construction, and Transport. Another source of qualified staff is the University of West Bohemia in Plzeň (UWB – ZČU in Czech). The University seeks cooperation with the business sector and wants its study specialisations to be tuned to the demand on the labour market.

At present the UWB has eight faculties (Mechanical Engineering, Electrical Engineering, Economics, Philosophy, Law, Education and the faculties of Health Care Studies, and Applied Sciences) and three University Institutes. The most important of them at the moment is the New Technologies – Research Centre (NTC), which is engaged in applied research, particularly research into technological processes, dynamic systems and materials. Its new key activities are dominated by the study of new materials, their development and use in photovoltaic applications, microsystems technology, construction, engineering and the energy industry. The NTC is equipped with state-of-the-art facilities which are also available for use to businesses. The Centre thus represents the possibility of major research and development support for investors. (More on the University on pp. 32)

Another important centre is being established in Plzeň by Charles University. The Medical Faculty of Charles University in Prague is setting up the University Medical Centre here, planning to complete the first stage of the construction in 2014. It will include the new seat for the five theoretical institutes of the Faculty and the Biomedical Centre.

Representatives of the local government are working together with their regional partners (e.g. the CzechInvest Agency, the Confederation of Industry of the Czech Republic, and the Regensburg Chamber of Commerce and Industry) to be proactive in constantly improving the business environment of the Region. The Development Programme of the Plzeň Region, as well as the Development Programme of the City of Plzeň, take the needs of entrepreneurs into account.

An intrinsic asset of the Plzeň Region is its clean environment, quality residential conditions, and developed services of health and social care.

ŠKODA INVESTMENT a.s. and the University of West Bohemia in Plzeň together built a modern interactive centre, a facility often referred to worldwide as the "Science Centre". The Techmania Science Centre is based on displays composed of interactive exhibits which popularise certain mathematical or physical principles in a game form. Interactivity in this case means that the visitor "sets the exhibit in motion", and receives an explanation of the actual principle. More at http://www.techmania.cz/.

The Plzeň Region is an inspiration to many European states and areas in attracting investors, let us name especially countries in Eastern Europe. In the last two years, the Plzeň Region has been visited by a number of trade missions seeking to become acquainted with the business environment, the possibilities of support for investors and the follow-up care. These encounters spread the good name of the Plzeň Region

Companies investing in the Plzeň Region which received decisions on the award of incentives in 2012

Company	Sector	Country of origin	Investment mil. CZK/EUR	Newly created jobs	District
Rondo obaly s.r.o.	woodworking and paper	Czech Republic	600.00/33.15	75	Rokycany
LASSELSBERGER, s.r.o.	other	Czech Republic	184.00/10.17	70	Plzeň
IDEAL AUTOMOTIVE Bor, s.r.o.	manufacture of transport equipment	Germany	275.48/15.22	100	Tachov
3D-Lasertec s.r.o.	manufacture of transport equipment	Czech Republic	106/5.87	20	Domažlice
electric cars s.r.o.	manufacture of transport equipment	Czech Republic	103/5.7	75	Domažlice

Source: CzechInvest

and help to establish and build more business contacts.

Investors (newcomers, as well as companies already present and expanding, both foreign and domestic) as well as big companies and small and medium-sized enterprises can use the services of the Regional Office of the CzechInvest Agency in Plzeň. CzechInvest provides information on the possibilities of being granted allocations from the EU structural funds and on investment incentives. It has recently also been concentrating on the support for exports and the protection of industrial property rights. Thanks to its extensive database of real estate for business, CzechInvest can also identify suitable sites and buildings for investment intentions, arrange contacts with subcontractors, or assist in the solution of clients' specific problems (negotiations with the authorities and local government, transport arrangements, etc.). The Regional Office accompanies the applicant throughout the implementation of the project. The contact with the investor continues even after the completion of the investment project within aftercare mechanisms.

■ MAJOR INVESTMENTS IN THE PLZEŇ REGION IN 2012

In 2012, companies showed a great interest in investment in the Plzeň Region. Most of it was for expansion by companies which have been operating in the Region for some time and have decided to use additional opportunities. The important share of re-investment is a clear signal that the Plzeň Region is capable of maintaining investor interest. Investment projects which obtained the promise of investment incentives in the Plzeň Region in 2012 exceed CZK 1.4 billion and will produce 295 new jobs.

■ OVERVIEW OF INDUSTRIAL ZONES IN THE PLZEŇ REGION

The most attractive industrial zones in the Region include:

Plzeň – Borská pole Industrial Zone

The Borská pole Industrial Zone is situated in the south-western part of Plzeň near the campus of the University of West Bohemia. The first foreign investor to settle in the zone was Panasonic in 1996. Panasonic's satisfaction also started to attract other foreign investors to the Czech Republic. A great part of the companies operating here are Czech, the majority of the foreign ones are German and Japanese firms. The Park, with an area of 105 hectares, is attractive for investment in the car-making industry, manufacture of precision engineering products, manufacture of air-conditioning equipment, manufacture of moulds and plastic prototypes, and Research and Development. The 40 companies based here employed 12 000 people as of 31 December 2012. Part of the Industrial Zone is the Plzeň Science and Technology Park.

For more on the Park, see p. 29.

Klatovy – Pod Borem Industrial Zone

The Pod Borem Industrial Zone offers investors unoccupied land to locate smaller-sized investment projects at very favourable prices. The Zone is well placed in terms of transport. Stage 2 of the North-East Ring of the town, which is currently being completed, will connect the industrial zone with Road I/27 in the direction of Plzeň as well as with Road I/22 in the direction of Domažlice and further on to Germany. An undisputable advantage of this locality is the obliging approach of the municipal government to investors and the sufficient number of educated staff.

Stříbro – Kasárna (Barracks)

The project for the complete revitalisation of the complex of the former barracks in Stříbro represents the long-term programme of the town's development. The site of more than 40 hectares will be given a new life in the reconstruction. The Zone features areas for residential housing, office and commercial buildings, and naturally sites for industrial use. Working together as partners in the project are the town of Stříbro and the Waystone CZ s.r.o. company, which has been selected by the town as its strategic partner on the basis of a public tender.

The University of West Bohemia in Plzeň Can Be Proud of Having a Number of Interesting Projects

The University of West Bohemia in Plzeň (UWB; ZČU in Czech) is the only institution of higher education in the Plzeň Region. At present, the University has eight faculties with over 60 departments and three university institutes. Almost 16 000 students can choose from a wide range of Bachelor's, Master's or Doctoral study programmes.

The educational activities at the University of West Bohemia in Plzeň include life-long education for citizens in the form of lectures, courses, and comprehensive training programmes, including the popular University of the Third Age. Besides its educational activities, the University is an important centre of Research and Development. Newly founded research centres will enhance the links between the University and businesses and other institutions in the future. This, too, is one of the reasons why scientists in various specialisations as well as UWB students win prestigious awards for their activities every year.

The University of West Bohemia in Plzeň has an important position among universities in the Czech Republic and abroad. This is documented by the ECTS (European Credit Transfer and Accumulation System) label it received at the end of last year, which confirms that the study environment at the University of West Bohemia in Plzeň fully matches European standards. As a result, the University has officially entered the European space of tertiary education.

COLLABORATION WITH BUSINESSES AND OTHER INSTITUTIONS

The University of West Bohemia in Plzeň actively collaborates with partners in the industrial sector, as well as in state administration, health facilities, and art institutions. In 2012, a total of 39 external entities were involved in the preparation and implementation of the study programmes, whether in the form of lectures by experts, the choice of subjects for student theses or student excursions and practical training in companies and other institutions. The University invited more than 1 700 specialists from industry, the economy, and various organisations to assist in teaching. In 2012, the entities cooperating with the UWB included the CzechInvest Agency, the People in Need Foundation, Plzeň University Hospital, the Regional Chamber of Economy of the Plzeň Region, the Techmania Science Centre, and the West Bohemian Museum in Plzeň. In the area of industry these were, for example, the companies COMTES FHT a.s., ČEPS, a.s., ČEZ, a. s., E.ON Czech Republic, s. r. o., PILSEN STEEL, s. r. o., Plzeňská energetika, a. s., Robert Bosch, s. r. o., SAP ČR, spol. s r.o., Škoda Investment, a. s., Škoda JS, a.s., Škoda Machine Tool, a. s., ŠKODA TRANSPORTATION, s. r. o., TESLA BLATNÁ, a. s., and Witte Nejdek, s. r. o.

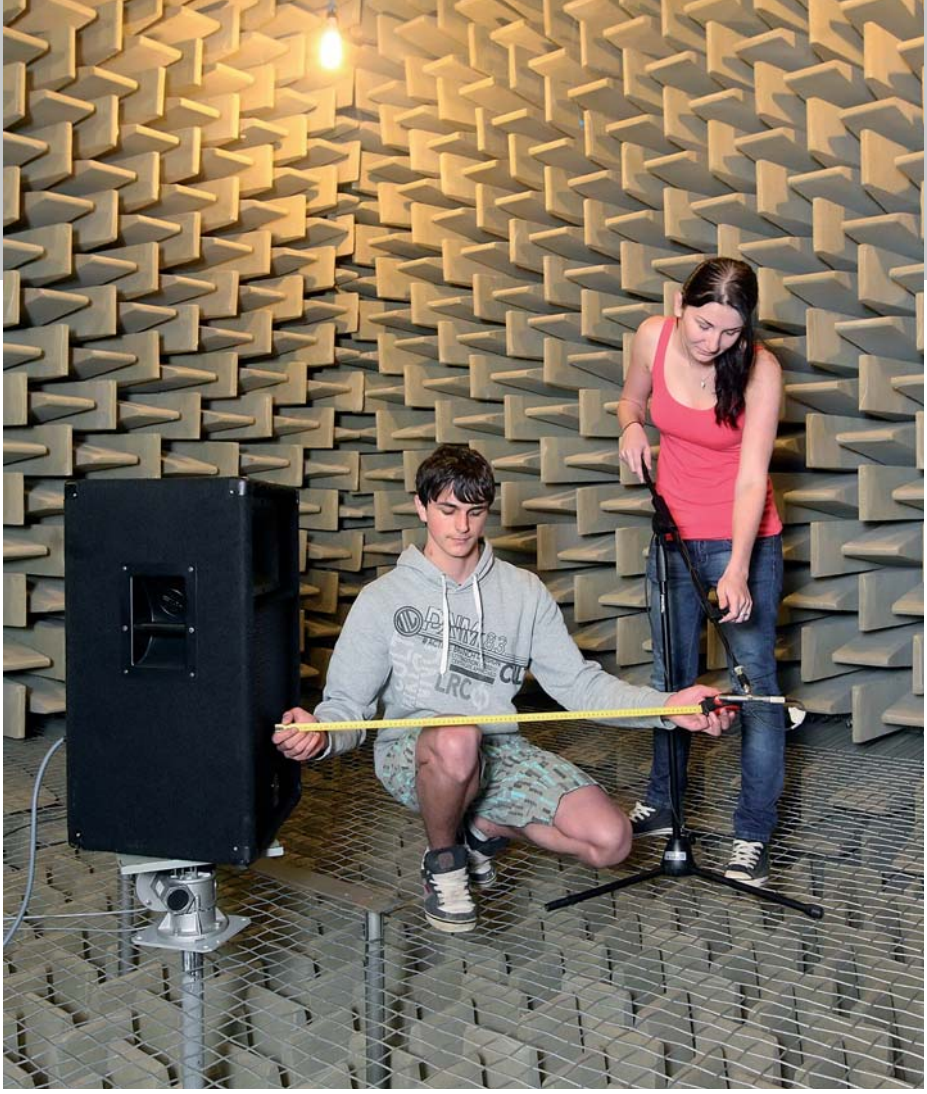
CAREERS FOR GRADUATES

The University of West Bohemia in Plzeň trains students for future careers at all levels of management in private companies and state institutions in the areas of production, trade, non-profit organisations and infrastructure, in research institutes, design and construction companies, in the public sector, local government, in the areas of services and consultancy, and in educational and cultural institutions.

The University also intensively develops collaboration between its faculties and departments. This effort has given rise to unique specialisations which respond flexibly to topical demand from companies. An example is the Bachelor's programme in Mechanical Engineering at the Faculty of Mechanical Engineering, where students can specialise in, for example, industrial technology design or healthcare equipment servicing. Teaching in these programmes is also provided by academic staff from the Institute of Art and Design and the Faculty of Healthcare Studies. Similarly, collaboration exists with designers, health care and electrical engineering specialists in the branches of Healthcare Technology, Construction of Nuclear Power Facilities, and Construction of Production Machinery and Equipment.

The faculties of the Humanities are not lagging behind in the offer of specific studies either. For example, the Near Eastern Studies Department of the Faculty of Philosophy educates specialists for contacts with countries of the Near East and enables them to work in institutions and business organisations orienting their activities to the region of the Near East. Every year, its students in Plzeň organise the increasingly popular Festival of Arab Culture.

Photo: University of West Bohemia archives



Last but not least, a wide range of study programmes is offered by the Institute of Art and Design, where applicants can choose from classical art subjects to multimedia, product and industrial design. Students cooperate with art institutions as well as industry and actively participate in the preparation of cultural activities within the project of the European Capital of Culture – Plzeň 2015. Since last October, the Institute has been based in an entirely new building known as the "art factory".

■ RESEARCH AND DEVELOPMENT CENTRES

The University of West Bohemia in Plzeň is building six research centres through the Research and Development for Innovations Operational Programme (RDIOP). The most important project is the New Technologies for Information Society (NTIS) – European Centre of Excellence, which is being prepared by the Faculty of Applied Sciences. "The aim of the NTIS project is the construction and equipment of a new research facility to meet European standards, and especially the establishment of Research and Development teams focused on two priorities – information society and material research," says the Project Manager, Pavel Novák. The teams will strive jointly for the results of research not to remain only in the computer or on paper, but also to have practical applications. The Faculty of Applied Sciences already has very good results in this regard. The teams have a number of references from Czech and foreign companies in power engineering, mechanical engineering, and medicine. The value of the NTIS project exceeds one billion CZK.

Besides the NTIS centre, the Faculty of Applied Sciences is implementing another European project – the Centre for Technical and Natural Sciences Education and Research (CTPVV). One of its main tasks will be to train researchers, for example, precisely for the NTIS. Both buildings will be linked and share some of their facilities.

The other technical faculties are keeping pace as well: The Faculty of Mechanical Engineering has completed the construction of the Regional Technological Institute (RTI) and the Faculty of Electrical Engineering is implementing the project for the Regional Innovation Centre for Electrical Engineering (RICE). The New Technology and Materials Centre (CENTEM) is operating at the New Technologies – Research Centre (NTC). The construction of an annex to the University Library, originating within the Enlargement of Information Support for Research and Development (RIPO) project, is nearing completion.

"The construction of the new scientific centres represents quite a new stage for the University in its development. The new buildings will not only change the face of one part of Plzeň, but will primarily greatly increase the potential of the University and the region as a whole," says the Rector of the University of West Bohemia in Plzeň, Ilona Mauritzová. "The faculties will thus receive a top-quality facility for the education of its graduates not only for its research and development base, but also for meeting the requirements of industrial firms and institutions in the region."

■ INTERNATIONAL COLLABORATION

The UWB has been collaborating with Marquette University in Milwaukee, the USA, for 16 years. They run a joint one-term course for students of Economics. The purpose of the programme is cooperation between students on case studies from the operation of small and medium-sized enterprises, as well as getting to know the economic and cultural environment of the other country. The Faculty of Economics is involved in this project and their students take part in regular 10-day reciprocal stays organised during the summer term. Last year, 10 students from the UWB and 10 from Marquette University participated in the project.

Among the other international activities, let us note, for example, a grant from the US NAVY, funded by the US. Department of Defence, which has been obtained by the Mathematics Department of the Faculty of Applied Sciences. UWB scientists have worked on it with colleagues from Texas A&M University. There is also close cooperation between the Department of Machine Design of the Faculty of Mechanical Engineering and the Technical University in Deggendorf, Germany.

■ FUTURE PLANS

In the immediate future, the University of West Bohemia in Plzeň is to complete the construction of the new centres. After that, the centres will commence their independent operations, which is known as the period of sustainability. Further, the UWB will develop its complex at Borská pole, where the construction of sports facilities is planned in the coming years.

More at www.zcu.cz

Research Centre in Dobřany Has Opened Unique Laboratories

A project for the West Bohemian Centre of Materials and Metallurgy, officially launched in Dobřany near Plzeň in 2011, is to establish an important centre of applied research into metal materials in the Czech Republic.

Its importance is documented by the fact that this ambitious research laboratory of the COMTES FHT company, with a budget of CZK 430 million (about EUR 17.2 million) will receive a subsidy of CZK 350 million (about EUR 14 million) from the Research and Development for Innovations Operational Programme. 85% of this amount will be provided by the European Union from the European Regional Development Fund and 15% will come from the Czech Republic state budget. The West Bohemian Centre of Materials and Metallurgy (WBCMM) is being set up at the Nad Nádražím Industrial Zone in Dobřany by the expansion of an existing research complex. "The Centre will develop, for example, profiles of nanostructured titanium for use in stomatology or surgery and special alloys and superalloys for nuclear power engineering," says Libor Kraus, the Executive Director of the Centre and COMTES FHT Chairman of the Board.

Two new buildings – a three-storey structure of laboratories for metallographic analysis, computer modelling and design work, and a unique metallurgical laboratory – have been erected on an area of 3 268 sq. m in the complex of the COMTES FHT a.s. company, which is building the Centre.

NEW TESTING AND ANALYTICAL INSTRUMENTS

Dobřany researchers are especially proud of their new metallurgical laboratory of 2 500 sq. m. A vacuum melting and casting furnace with a capacity of 300 kilograms, a hydraulic press of 25 000 kN force with manipulator, and a tailor-made two-high/four-high rolling mill with a straightener and other accessories have been installed here in the last few months. "The rolling mill and its many accessories will greatly extend the possibilities of experimental processing of explored materials. It will be used for the development of rolling technologies with special temperature behaviour and production of experimental semi-finished products," Libor Kraus says, adding that no equipment of similar parameters has so far been installed in the Czech Republic. It is currently (1 QTR 2013) undergoing trial operations, which should be finished during the first half of the year. The important position currently held by COMTES FHT in material analysis and testing is to be enhanced by the modern workplaces built on 750 sq. m, and also the arsenal of new testing and analytical apparatus installed here. This includes, for example, spectrometers, equipment for the taking of small samples from the operated machinery, and an apparatus for the measurement of thermal conductivity by laser.

INTEREST IN COLLABORATION

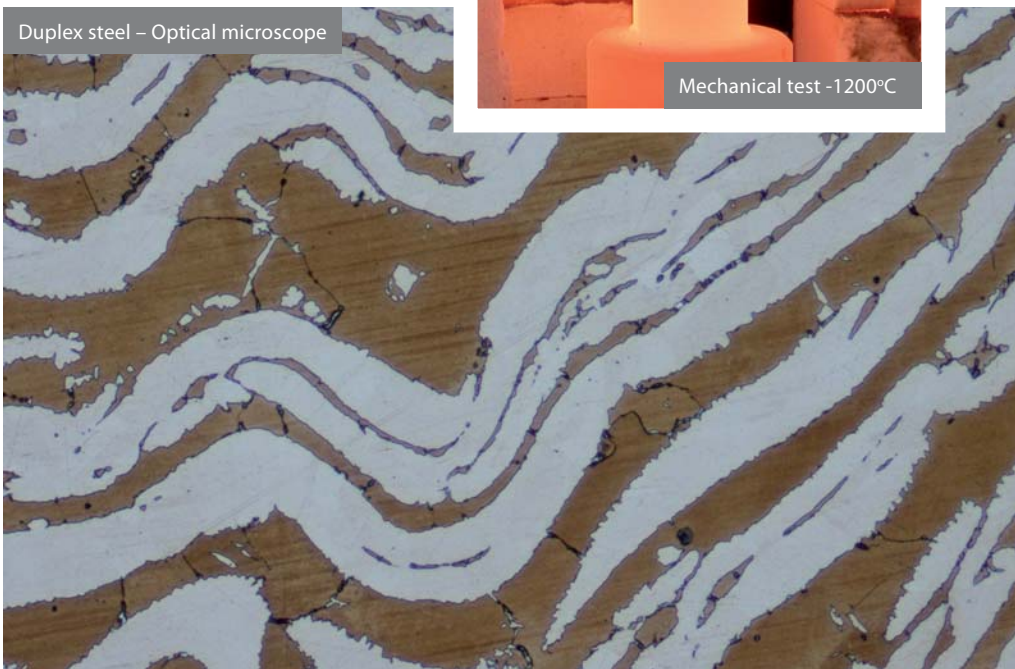
The WBCMM applied research centre now employs a staff of 40. They are studying thermomechanical processes and developing construction steel and metal materials for specific industrial applications. These include, for example, new high-strength low-alloy steel for transport equipment, a drop forging technology with reduced forging temperature, special nickel alloys for Generation IV nuclear reactors, and profiles of nanostructured titanium for dental implants or joint replacements. The scope of activities of the Centre is thus very wide. About half of its earnings is to come from research according to specific orders. An interest in collaboration has been expressed by Czech as well as foreign entities, such as the ŽĎAS and ŠKODA JS engineering works and the Benteler multinational industrial group.

THE FUTURE

In 2014, the West Bohemian Centre is to employ at least 60 people, two-thirds of them being researchers. According to Zbyšek Nový, Research Director of the Centre, more than 60% of researchers are now under 35 years of age. In an effort to attract talented university students and young scientists, the Centre is organising in its laboratories practical exercises and training for students in Master's and Doctoral programmes. The centre also provides themes for research, graduation and Doctoral theses.

Mechanical test -1200°C

Photo: Comtes FHT archives



Duplex steel – Optical microscope

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Chemical Industry Is an Indispensable Source of Raw Materials

"The chemical industry in the CR amounts for approximately one per cent of the revenues of the chemical industry in the EU. However, it is one of the three most important branches of industry in the CR, based on both revenues and the number of employees," says Ladislav Novák, Director of the Association of Chemical Industry of the Czech Republic (SCHP).

The Czech chemical industry posted good results in 2012. There was a seven per cent year-on-year increase in revenues, and foreign trade also grew favourably: compared to 2011, turnover increased by 5%, to CZK 828 billion. Do you expect similar results in 2013 as well?

The results that we have available so far do not seem to indicate a similarly successful year. However, being an optimist, I hope for a change. It will largely depend on the form of our neighbours – especially Germany – and on the development in related sectors, such as the automotive industry. Europe, and the CR as well, would need an impulse similar to what the phenomenon of shale gas has meant for the USA.

Could you assess the position of the Czech chemical industry in the European and world contexts?

The chemical industry in the CR amounts for approximately one per cent of the revenues of the chemical industry in the EU. However, it is one of the three most important branches of industry in the CR, based on both revenues and the number of employees. The position of the chemical industry on a global scale would deserve a longer and more detailed analysis. In short: In the 1990s, i.e. twenty years ago, the chemical industry of the EU was a dominant leader both in overall revenues and in international trade – 33% ensured a very comfortable lead. Today, twenty years later, the chemical industry of the EU still holds first position, but only with 22% of the global market. Especially China and India are hot on its heels, and China is today's greatest producer of chemicals.

Is the importance of the chemical industry in the CR changing?

I very much hope that it is not and that its position is going to get stronger. And not just because the Association has a direct obligation to protect and promote the interests of the chemical industry. Mainly because chemistry and the chemical industry are capable of offering solutions for current and future global challenges. We are surrounded by chemistry and cannot imagine modern life without the use of chemical substances and chemical processes.

For the chemical industry to be successful, it needs to invest in the support for science, research, and innovations. What, in your opinion, needs to be done by employees in Research and Development in this field?

I agree completely. I would not presume to assign tasks and instructions for researchers and developers, but the chemical industry and its products certainly can and must offer solutions for the truly global challenges of the next decades. We are about to reach nine billion inhabitants on this planet by 2040 or 2050. And it will be necessary to give them water, feed them, and provide them with sufficient energy. That is not lacking in ambition, is it? I can still see space for improvement mainly in tighter cooperation of science and research with the industry. Scientific and research institutions should have a better understanding of the needs of the industry, and the industry should be more active in preparing instructions. Innovations are the key to further development and continuing competitiveness of the chemical industry. Which is why we endeavour to direct potential sources to industrial research and science, participate in activities of technology platforms, such as SusChem (sustainable chemistry and chemical industry), that link science and research with the industry in an effort to foster innovation.

What are the priorities of the Association of Chemical Industry for this year?

We have agreed on four priorities for this year.

The first, which is related to the previous question, is the preparation for the next planning period of operational programmes of the EU, 2014-2020, where we would like to prevent the exclusion of big companies from the planned support while maintaining support for small and medium enterprises. We would also like to direct financial support to the industry.

The second priority concerns power engineering and energy prices, which significantly influence competitiveness. We are primarily interested in the EU Emissions Trading System (EU ETS) and the related prices of emission allowances. This is a European dimen-

Photo: Linde Gas archives, www.sxc.hu

sion, but it has a significant impact on our industry. Besides European legislation, the act on renewable sources and their support (POZE) has a major influence on our industry. Due to the disproportionate (approximately CZK 44 billion this year only) subsidies for energies produced from renewable sources – this mostly relates to photovoltaics – the price of electric power has increased at least twofold in recent years, which is for sure not going to benefit the competitiveness of the chemical industry (energy accounts for up to 35% of costs).

The third priority involves chemical legislation known as REACH. We are entering the second, registration phase this year, during which the problems of small and medium enterprises with the implementation of this taxing regulation will be fully manifested. Besides registrations, this year marks the start of the authorisation phase, which is also very difficult administration-wise and financially demanding. Our goal is to contribute to finding models that would make the situation easier for small and medium enterprises.

The chemical industry needs new, young blood, which is why our fourth priority concerns support for elementary and secondary technical education oriented at chemistry. For example, the nation-wide competition "Looking for the Best Young Chemist of the CR" had its first award ceremony this May.

According to a model for measuring the efficiency of fields and businesses, which was prepared by the ČEKIA Agency, the most efficient businesses in the Czech Republic are, apart from transportation and the food-processing industry, in the chemical industry. How would you explain that?

Chemistry is an exact science, and the chemical industry has a future, I believe. This would be my explanation for the business efficiency you mentioned. It really sounds very encouraging.

An important part of the chemical industry is the NECHELA system. It is a unique system that helps companies dispose of unused chemical substances that were left over following a change or end of production. What is it exactly?

NECHELA is really a unique system, and we have participated in its creation. It is, to put it simply, an exchange of either surplus or, conversely, missing chemicals. Unfortunately, according to our information, this exchange is not made use of as much as it could be. It is a shame that companies in the chemical industry have not found their way to this system. It will be necessary to rethink future operation of the system and look for changes that could help it.

Could you share your views on future perspectives of the chemical industry?

I have already mentioned the challenges of the oncoming years and decades. The chemical industry is capable of seeking solutions and can, or even must, contribute to sustainable development. However, it needs to be preserved in Europe, it needs to exist and have enough space to develop and maintain its ability to compete. I remain an optimist. After all, I hope that the latest signals from EU's political representation (which has a major influence on the regulatory and legislative framework that governs all business in this industry), which calls for re-industrialising Europe and for increasing industrial GDP to at least 20%, support my optimism. Not even the million and a half people employed in EU's chemical industry today is a cheap social argument. The same can be said for the direct link to other related industries for which the chemical industry is an indispensable source of raw materials (automotive, electronic, construction, pharmaceutical, and others). And finally: Do you know of any other industry that is named after a subject taught at elementary schools?

DEVELOPMENT OF THE CHEMICAL INDUSTRY IN SELECTED INDICATORS IN 2012 (ORGANISATIONS WITH 20 PLUS EMPLOYEES)

Based on revenues, the best results in 2012 were achieved by the CZ NACE aggregation 19.2 – Manufacture of refined petroleum products (year-on-year increase of 13.6%), largely due to favourable market prices. Very good results were also posted by another key field: CZ-NACE 20 – Manufacture of chemicals and chemical products (+ 11.4%). On the other hand, CZ-NACE 22 – Manufacture of rubber and plastic products recorded a significantly lower year-on-year increase (+ 3.1%), mainly because of the worsening development in key related industries (automotive industry, computer manufacture, etc.) during the second half of the year. Only the pharmaceutical industry (CZ NACE 21) saw a decrease of 5% in revenues compared to 2011. This was related to the difficult situation in health care (drugs policy, growing prices of prescription and freely available drugs, etc.). The development in monitored fields is shown in the table, which compares preliminary data from 2012 with the preceding year.

CZ NACE		Revenues (c.p.)		Revenues from direct export (c.p.)		Number of employees		Monthly revenues per employee in CZK thousand (c.p.)	
CZK milion	Units	2012	2011	2012	2011	2012	2011	2012	2011
19.2(x)	3	128 747	113 334	16 983	16 551	1 285	1 374	100 192	82 485
20	190	155 161	139 229	86 353	76 321	25 355	25 531	6 120	5 453
21	49	27 324	28 801	21 391	20 347	9 377	9 348	2 914	3 081
22	637	203 123	196 965	109 769	108 562	68 800	69 690	2 952	2 826

Source: Czech Statistical Office, department of economic analyses at the Ministry of Industry and Trade, February 2013, EUR 1=CZK 25

Collaboration of Pharmaceutical Firms with Research is Absolutely Essential

"Some 300 clinical studies oriented at the development of new, more efficient drugs are carried out in the Czech Republic every year. Hundreds of scientific institutions and doctors, and thousands of patients participate in research and development," says the Director of the Association of Innovative Pharmaceutical Industry (AIFP), Jakub Dvořáček.

Could you mention some benefits and specific impacts of collaboration in research and development of new, innovative drugs in the CR when it is happening across the entire industry?

Collaboration of pharmaceutical companies, experts, research institutions, and research-oriented small or medium enterprises is absolutely essential for the creation of new drugs. This fact is also evidenced by last year's analysis from Ernst & Young, which has made it clear that 90% of all clinical studies of new drugs are realised as a part of inter-sector collaboration. Some 300 clinical studies oriented at the development of new, more efficient drugs are carried out in the Czech Republic every year. Hundreds of scientific institutions and doctors, and thousands of patients participate in research and development. Innovative pharmaceutical companies invest CZK 1.2 billion in research every year, which is almost 3.5-times more than what is invested in other Czech innovation-oriented fields (e.g. the automotive industry, IT). The development of new drugs benefits not only patients, who have a better chance of recovering thanks to the fact that they have access to the most modern medicinal drugs, but also doctors. Doctors are in touch with the latest scientific discoveries that are necessary for combating today's most serious diseases. The state also profits. Every year, it saves on health insurance, which it does not have to pay for participants in clinical studies in just three of the most serious therapeutic areas, almost a billion CZK. The Association actively supports these activities and endeavours to make the collaboration even easier and deeper. For example, last year, in cooperation with the Senate of the Parliament of the CR and the Association of Czech Biotech Companies – CzechBio, it organised a professional conference: Industry Meets Academia. The conference made it possible to establish contacts between experts from the academic and private sectors, and contributed to the creation of conditions necessary for the establishment and development of professional partnerships in innovative medicine.

The Association also actively supports the European Innovative Medicines Initiative (IMI), which is a good example of an effectively working public-private partnership. Half of the allocated funding, which amounts to CZK 50 billion altogether, has been provided by the European Commission from the Seventh Framework Programme and the other half by innovative pharmaceutical companies associated in the European Federation of Pharmaceutical Industries and Associations – EFPIA). The funding is intended for research consortia

Photo: www.sxc.hu

for the development of new medicinal drugs. The latest call concerned the fight against antimicrobial resistance. Other calls are to follow before the end of 2013.

In what ways does the innovative pharmaceutical industry affect the Czech economy and employment rates? Could you assess the position of the Czech pharmaceutical industry?

In addition to the aforementioned benefits that the Ernst & Young analysis has revealed, we must not forget the benefits to the society in the context of basic demographic data. The Czech population is growing old; according to current estimates by the Czech Statistical Office, three million citizens will be older than 65 in 2060 (i.e. over 30% of all people). The ageing of the population affects all areas of social and economic development, including health care. The growing share of old people is accompanied by increasing numbers of the chronically ill, climbing costs of social care, heavier load on the pension system, shortage of work force, and lower competitiveness. In order to maintain the sustainability of the system and ensure maximum possible quality of life for the citizens, the development and subsequent accessibility of innovative medicines is absolutely necessary.

Today, Czech scientific teams have the opportunity to acquire funding from the European Innovative Medicines Initiative (IMI), which connects scientific institutions with the innovative pharmaceutical industry and focuses on the development of new preparations. Czech research organisations can draw on European funds for innovative medicine provided they join a consortium together with a pharmaceutical company. What level of participation do you expect from Czech research organisations?

Unfortunately, the participation of Czech research teams has been rather low so far. Even so, we noticed several interesting projects. For example, the team of prof. MUDr. Jiří Vencovský, DrSc., from the Institute of Rheumatology in Prague, participated in the winning BTCURE project, which was oriented at translation research of inflammatory diseases. Another successful project was ABIRISK, in which prof. MUDr. Eva Havrdová, CSc., from the Department of Neurology, 1st Medical Faculty and General Teaching Hospital participated.

The AIFP tries to support and encourage Czech researchers to participate in IMI calls more frequently. In addition to the first call of this year, which offered research consortia CZK 6 billion for the development of antimicrobial resistance drugs, two other calls are likely to be announced by the end of the year. At the same time, a continuation of the IMI is starting to take shape in the form of the Horizon 2020 Programme. Scientists and research centres now have a unique opportunity not only to draw on funds for research and development of medicinal drugs, but also propose topics and therapeutic areas that the research funding should focus on in the future.

Pharmaceutical companies that develop original, patented drugs invest CZK one billion per year into research and development in the Czech Republic. AIFP member companies realise 300 clinical studies in the Czech Republic every year. Since 2008, clinical trials have been conducted at 8 000 institutions with the participation of 22 thousand doctors. What needs to be satisfied (what conditions) before a clinical evaluation in the Czech Republic? What was/is the most interesting research that, according to your opinion, took/takes place in the Czech Republic?

Research and development of drugs is a very difficult and costly process. At the very beginning, there is a promising "candidate for a new drug", i.e. a molecule, which can be expected – on the basis of tests – to be an effective cure for some disease. Out of ten thousand of such molecules, only 250 progress to the so-called pre-clinical testing. This involves finding information about the molecule's tolerance, toxicity, and behaviour in the organism. If this phase is successful, the drug can advance to the next phase of clinical development, which investigates its effectiveness and safety on human subjects. That is not the end, though. Only one in five tested drugs is then approved by the registration agency.

Clinical testing of phases I, II, and III is the most common in the Czech Republic. One-third of all clinical trials is realised in oncology. Other fields with significant numbers of clinical studies include endocrinology, neurology, rheumatology, and cardiology. The Czech Republic lacks the pre-clinical phase of testing.

For this reason, I am very happy to say that we have been recently witnessing the establishment and development of biotechnology and biomedical research centres (e.g. BIOMEDREG, ICRC). I hope we will be able to establish collaboration on practically-oriented research

The Association of Innovative Pharmaceutical Industry (AIFP) associates pharmaceutical companies with own research and development of innovative drugs. It obliges its members to comply with the AIFP Ethical Codex. The Association was established in 1993 as the International Association of Pharmaceutical Companies. The AIFP is a member of the European Federation of Pharmaceutical Industries and Associations (EFPIA). The Association has 29 members as of 2013. More information is available at www.aifp.cz.

starting with pre-clinical phases, which will be concluded by introducing new, effective drugs for patients. That is the only way of improving the reputation of Czech science abroad again and returning the Czech Republic on the map of countries successful in the area of research and development of drugs.

You mentioned that almost a third of all clinical studies conducted by member companies of the Association of Innovative Pharmaceutical Industry in the Czech Republic is concerned with oncology medicinal preparations. The Ernst & Young analysis shows the same thing. Could you tell us about other economic consequences of pharmaceutical research and development and of clinical studies in the CR? Will the CR maintain its attractiveness for pharmaceutical research? What do you think the future holds for pharmaceutical research in the CR?

Europe, and the Czech Republic as well, stands on a crossroads at this time. According to information from the European Commission, the number of applications for clinical studies decreased by 25% in the European Union between 2007 and 2011. This dramatic plunge was caused by the ever-growing financial burden of clinical studies and the increasing administrative load and its complexity. Discovering a single new drug cost "just" CZK four billion in the 1960s. Since then the cost has risen to almost CZK twenty billion.

If the Czech Republic wishes to continue playing an important role in the area of medicinal research, it is necessary to deepen inter-sector collaboration. I see the Association as a "bridge", which connects innovative pharmaceutical companies with research and academic centres. The aim is to establish collaboration in the area of basic research of new, humane drugs and to provide a follow-up for the successful area of clinical testing. Of course, it is absolutely essential to ensure maximum possible accessibility of innovative drugs for Czech patients.

Photo: www.sxc.hu, Chemotex archives

Chemotex – Strong Position on the Market of Auxiliary Industrial Agents

It has been 113 years since the chemical factory in Boletice nad Labem commenced its operations. Today, its successor, Chemotex Děčín, a. s., continues the chemical production of industrial auxiliary agents.

Since 1993, when the company passed to private ownership, the portfolio of products has been greatly expanded. The firm's products can be found in a segment of industrial specialities, such as the production of resins, paints, and lacquers, or in the automotive industry. A substantial part of the firm's activities is oriented at the production and sale of household chemicals and cosmetics, which can be seen in a number of distribution channels.

Chemotex Děčín is currently strongly positioned on the market of auxiliary industrial agents. The company offers over 200 types of products, with a large part of the portfolio being formed by tensides and detergents, resins for construction, chemical preparations for the textile, glass, paper, and wood-processing industries, coating and degreasing preparations for engineering and foundries, and chemical specialities. "The company's production portfolio is very extensive. It is not possible to speak of key products because all of the products are important for us. The breadth of our portfolio has made it possible for us to survive the loss of some of our clients and products without serious problems," says Tomáš Urbánek, the Commercial Manager. The company has 30 trademarks registered and continues to be innovative with the introduction of new products. However, at this point in time, it promotes only some of its products, especially the ones for the consumer market, such as FLORE, KALYP, BENT, or AVISIL.

Strong Customer Orientation

The company has a team of professionals with many years of experience in the field. The employees work on research and development, but they are also ready to help with the application of the company's products for clients on-site. Chemotex Děčín is capable of formulating new products according to customer requests, based on market research, or through its own research. The company can also modify its existing products according to customer requests and on the basis of the most recent developments in the market place. "Our company's production range is very broad, and each target group of customers asks for something different. Industrial clients request high quality and functionality of products, including sale and after-sale services," explains Tomáš Urbánek. The firm also has the advantage of being family-owned, which allows the owners to adopt operative decisions in times of crisis that require a quick response to problems without the need to communicate with shareholders or other concerned parties. The privatisation moved the company forward mainly with regard to decision-making and customer orientation. "Private capital enabled us to react to market demand more quickly and in a flexible manner and to adopt strategic decisions on investments and marketing," emphasises Tomáš Urbánek. According to him, the firm wants to specialise in preparations that are not distinguished by price but by quality. The firm is able to triumph over its competitors thanks to its flexibility and ability to react quickly.

Cooperation Mainly with the German Market

Chemotex Děčín exports its products to a number of countries, but it considers our immediate neighbours, and especially Germany, the most important territories. Headquarters of companies with branches in other countries are often found in Germany. One such company is MINOVA. At the beginning of 2008, Chemotex started to closely cooperate with one of the largest European producers of tensides, PCC Rokita from Poland. Chemotex Děčín functions as the exclusive distributor of this company for the Czech and Slovak Republics. "For certain products, mainly non-ionic tensors, we have concluded distribution contracts even for the Balkans," adds Tomáš Urbánek.

Many domestic and foreign firms have been greatly affected by the global economic recession. However, Chemotex Děčín can take pride in successful numbers – thanks to the broad range of its business activities, it managed to get ahead of the recession and face it successfully. Even so, the firm's management views future development with caution. "Our prospects are not entirely optimistic because the fact that Eurozone countries have been hit by the recession has resulted in lower purchasing power of the population. This is compounded by social measures of the individual governments of the member states, which are not exactly contributing to restarting the economy that had slowed down. Considering other necessary legislative measures (especially for the chemical industry), I do not see much positive in the development in Europe," says Tomáš Urbánek. And what is the company's vision for the future? "Every company should have a back-up plan and a strategy for the future. I believe in keeping the competition on its toes, which is why I would like to keep these plans for Chemotex Děčín ," concludes Tomáš Urbánek.

Investments into Chemistry and Pharmacology in the Czech Republic

The chemical industry in the Czech Republic accounts for approximately 1% of all chemical industry in Europe. Which is really impressive for a country of ten million people.

Chemical History

Chemical production in the territory of the Czech Republic commenced as early as the end of the 18th century. A chemical factory was built in the north-east of the country in Velká Lukavice, which started to produce sulphuric acid by thermal decomposition of pyritic shales in 1778. The most aggressive growth of the chemical industry started almost a century later, when several sodium-producing factories were established in the Czech Lands. Let us now skip several decades and talk about the present. In addition to a number of both small and large chemical enterprises, there are also several oil refineries in the Czech Republic. Crude oil is extracted in the Czech Republic in experimental amounts, but the raw material for refineries is imported. Fuel is produced by Česká rafinérská in Litvínov and in Kralupy nad Vltavou.

Other important enterprises in the Czech chemical industry include Spolana Neratovice, Synthesia in Pardubice, Synthos in Kralupy nad Vltavou, Spolchemie in Ústí nad Labem, DEZA in Valašské Meziříčí, Hexion Specialty Chemicals in Sokolov, BorsdoChem MCHZ in Ostrava, Lovochemie in Lovosice, Lučební závody Draslovka in Kolín, Fosfa in Břeclav, Precheza in Přerov, and others.

Inorganic production is centred in Lovosice, where fertilisers and artificial silk are produced. Explosives are manufactured in Semtín near Pardubice. Incidentally, the Semtín firm also manufactures the undeservedly infamous explosive that is sold with the commercial name Semtex. The centres of pharmaceutical production are Prague and its surroundings, Ústí nad Labem, and Opava.

Growing Pharmacology

Pharmacology has interesting investment projects as well. The Czech Republic has become a popular place for manufacturers of generic drugs. The Czech Republic does not have a final producer of its own products, but two foreign firms operate on the Czech market: Sanofi-Aventis and TEVA from Israel. Sanofi-Aventis acquired the Czech company, Zentiva. Besides TEVA and Sanofi-Aventis, about a hundred small and medium enterprises do business in the Czech Republic. These mainly focus on research and development in the lower stages of pharmaceutical production, or operate as suppliers of basic raw materials for further production.

The Swiss company, LONZA, which is one of the world's largest suppliers for the pharmaceutical industry, health care, and biotechnologies, has received an investment incentive in the CR in the past. The company's products and services cover client needs for everything from research to the manufacture of final products. The Czech branch, LONZA BIOTEC, s. r. o., specialises in the manufacture of active substances for drugs (API), intermediate products for the manufacture of active substances, food supplements, and active ingredients of cosmetic products. L-carnitine, which is a substance similar to vitamins with wide-ranging means of application, accounts for a significant portion of production. Another portion of production capacities is taken up by production for clients. The factory also has its own research and development centre, which plays an important role in transferring processes into industrial production and in their continual perfecting through innovative, competitive, and technically viable solutions.

Mölnlycke Health Care, the leading European supplier of one-off surgical equipment and products for the healing of wounds, operates in Moravia. It employs almost 6 000 workers worldwide. The Karviná factory which was founded in 2001 and a year after that it started to manufacture one-off custom ProcedurePak sets. In addition to that, a semi-automated production of BARRIER surgical masks has been launched in 2003. To support the growing demand for the ProcedurePak sets, the company moved to significantly expand its factory in Karviná.

Largest investments in chemistry and pharmacology in 2012

Company name	Industry	Investment origin	CZK million
CHEMOPETROL, a. s.	chemical and pharmaceutical	Czech Republic	7 852.90
Česká RAFINÉRSKÁ, a. s.	chemical and pharmaceutical	Czech Republic	6 839.00
SYNTHOS PBR, s. r. o.	chemical and pharmaceutical	Poland	2 583.28
Teva Czech Industries, s. r. o.	chemical and pharmaceutical	Czech Republic	2 148.12
BIOFERM - lihovar Kolín, a. s.	chemical and pharmaceutical	Czech Republic	2 005.02
Linde Sokolovská, s. r. o.	chemical and pharmaceutical	Germany	1 978.50
Baxter BioScience, s. r. o.	chemical and pharmaceutical	USA	1 974.00
PREOL, a. s.	chemical and pharmaceutical	Czech Republic	1 880.00
S. P. of W., a. s.	chemical and pharmaceutical	Czech Republic	1 801.00
KORFIL, a. s.	chemical and pharmaceutical	Czech Republic	1 298.34

Source: CzechInvest

Blansko Revitalised by Drug Production

Synthon, s. r. o., a subsidiary company of the leading producer of generic drugs, the Dutch company, Synthon BV, completed two significant investment projects in Blansko in 2009. The projects are important for the development of the company's activities. The company was founded in 2000, when Synthon BV acquired the Blansko operation from PLIVA-Lachema, a. s. The company went through a major transformation, which resulted in a brand new, modern pharmaceutical company that is on par with leading producers of drug substances in Europe and worldwide. Synthon, s. r. o., is mainly oriented at research, development, and production of active drug substances, i.e. the chemical part of drug manufacture. It is this area that the aforementioned investment projects were aimed at. A new production unit, with world class technology equipment, for the manufacture of said substances was built in 2009 at the cost of more than EUR 10 million. In addition to the unit, a new research and development centre was built.

Research and Development

Investments into biotechnologies have multiplied in the Czech Republic in recent years. The Czech Republic, together with Hungary, has always been the leader in chemical and pharmaceutical research and biotechnologies in Central and Eastern Europe. This lead has been growing intensively in recent years.

The International Clinical Research Center was opened in the CR last year. The Center is located in the south-east of the country, in Brno, the second largest city in the Czech Republic. The main partner of the project is the renowned American Mayo Clinic; if not the most respected, then certainly one of the three most influential medical centres oriented at medicinal research. The Center's ambitious goal is to decrease the time between the discovery of a curing procedure and its application in healthcare to a minimum.

Brno is also home to the Central European Institute of Technology, which is currently being built. The Institute wants to combine life science with physics and create a scientific environment that will attract researchers from all over the world. Besides people, the Institute also plans to approach enterprises from all over the world because a key part of the centre's funding will come from contract research for private entities.

The situation is similar in the Central Bohemian Biotechnology and Biomedicine Center/BIOCEV. It focuses directly on biotechnology research – functional genomics, cellular biology and virology, structural biology and protein engineering, and also biomaterials and tissue engineering.

These projects are created directly at universities or in cooperation with the Academy of Sciences of the Czech Republic, so they are tied to real research and will use experienced scientists and talented novices. New laboratories are built thanks to the fact that with the accession of the Czech Republic to the EU, the Union's Structural Funds have become available. The Funds will be used to subsidise the construction and initial investments into the operation of these facilities. After that, the giant projects will have to maintain themselves, which opens up a lot of space for new investments.

The investments will need to go into contractual research and to spin-off companies, which will undoubtedly be created thanks to these centres. The laws of heritability, polarography, and the patent for the currently most efficient substance against HIV/AIDS have all Czech origins. Rich history promises a very bountiful future.

Zentiva Starts to Expand to New Markets


Soňa Porubská

"Zentiva invests more than EUR 30 million annually into research and development of medicines and applies for about 25 patents in the Czech Republic. The company invests around EUR 6 million into the expansion of production capacities every year," says Soňa Porubská, Zentiva's Division Director for Central and Eastern Europe.

Three out of four Czechs know Zentiva, what do you attribute such high brand awareness to?

First of all, we have a long tradition. Zentiva's historical roots reach back to the fifteenth century here in Prague and we are also fixed in the minds of people as a purely Czech company. It is also certainly due to our large portfolio of products, which includes the most important therapeutic areas. Today, nearly a billion people in Europe, Africa, and the Middle East use our medicines.

What is Zentiva's market standing on the Czech market?

Today, Zentiva is the largest company on the Czech market in the generics sector and every fifth package of medicine that is sold is a Zentiva brand. We devote great attention to the research and development of medicines, into which we invest more than EUR 30 million annually in the Czech Republic. Every year, we apply for about 25 patents in the Czech Republic and invest around EUR 6 million into the expansion of our production capacities. In 2012 alone, we offered our customers 731 new products, which amounted to 226 medicine brands. Not to mention that Zentiva, together with Sanofi, is the largest entity on the Czech pharmaceutical market.

And what about Zentiva in the world?

In 2012, Zentiva's sales increased by 8%, which was above the average of the pharmaceutical market. The entire group employs over 6 000 people, of which approximately 2 000 work in production and 4 000 more in operations. Last year, Zentiva commenced expansion into new markets in Africa and the Middle East, and today, together with Europe, it distributes its products to more than 50 countries.

This year, Zentiva is celebrating ten years of the existence of its brand, what were the most important milestones of the last decade?

There have been numerous milestones. In 2005, Zentiva purchased the largest Romanian generics company, Sicomed, and two years later, the Turkish manufacturer of generics Eczacibasi Generic Pharmaceuticals. A turning point came in 2009, when Zentiva was acquired by the international pharmaceutical company Sanofi, which then decided to make Zentiva the brand name for its generics on all the markets that it is active. Today, Zentiva in Prague is the headquarters of Sanofi management and the central office for the administration of its international activities in the generics sector.

Zentiva and social responsibility, how do you define that?

Socially responsible projects are an important part of our corporate strategy. We have four key pillars – Patients, People, Ethics, and the Planet. This year we are planning a volunteer project for our employees, projects focusing on the environment in the sense of reducing the consumption of water and energy at our manufacturing sites, and also education. We closely cooperate with universities and support projects by promising students. We also contribute to the education of health care professionals through co-organising expert management conferences.

Photo: Zentiva archives

ZENTIVA
A SANOFI COMPANY

www.zentiva.com

ZENTIVA WILL CELEBRATE ITS TENTH BIRTHDAY IN 50 COUNTRIES THROUGHOUT THE WORLD

This year, the Czech brand Zentiva will celebrate the tenth anniversary of its existence. It came into being in 2003, with the merger of the Léčiva company with the Slovak company named Slovakofarma. However, its historical roots are much longer and date back to the 15th century, when the famous "Black Eagle" pharmacy was founded in the centre of Prague.

Today, Zentiva is a leading international pharmaceutical company whose products are used by more than a billion people in 50 countries in Europe, Africa, and the Middle East and which employs more than 6 thousand people. The sales of Zentiva's products amounted to one billion euros in 2012. It is Zentiva's ambition to increase access to affordable health care and thus meet the needs of patients in individual countries.

Zentiva is the Czech market leader in the development, manufacturing, and distribution of advanced, high-quality and affordable generic medicinal products. The company has won an Image Award and its products regularly receive "Trusted Brand" awards.

Thanks to the manufacturing sites in the Czech Republic, Romania, and Turkey, Zentiva significantly contributes today to the world-wide production activities of Sanofi. Zentiva's manufacturing division annually produces 500 million packages of medicines. Currently, Zentiva offers over 500 products in 800 forms of medicine. This makes it the leader in the Czech Republic and gives it one of the most extensive generic drug portfolios in all of Europe, covering all the major therapeutic areas.

Zentiva's Prague headquarters have grown in importance within the Group. Since 2011, all the international activities of the Sanofi Group in the creation of the future products portfolio, the development of generic drugs, and their launch onto the market have been directed from Prague.

ZENTIVA TODAY

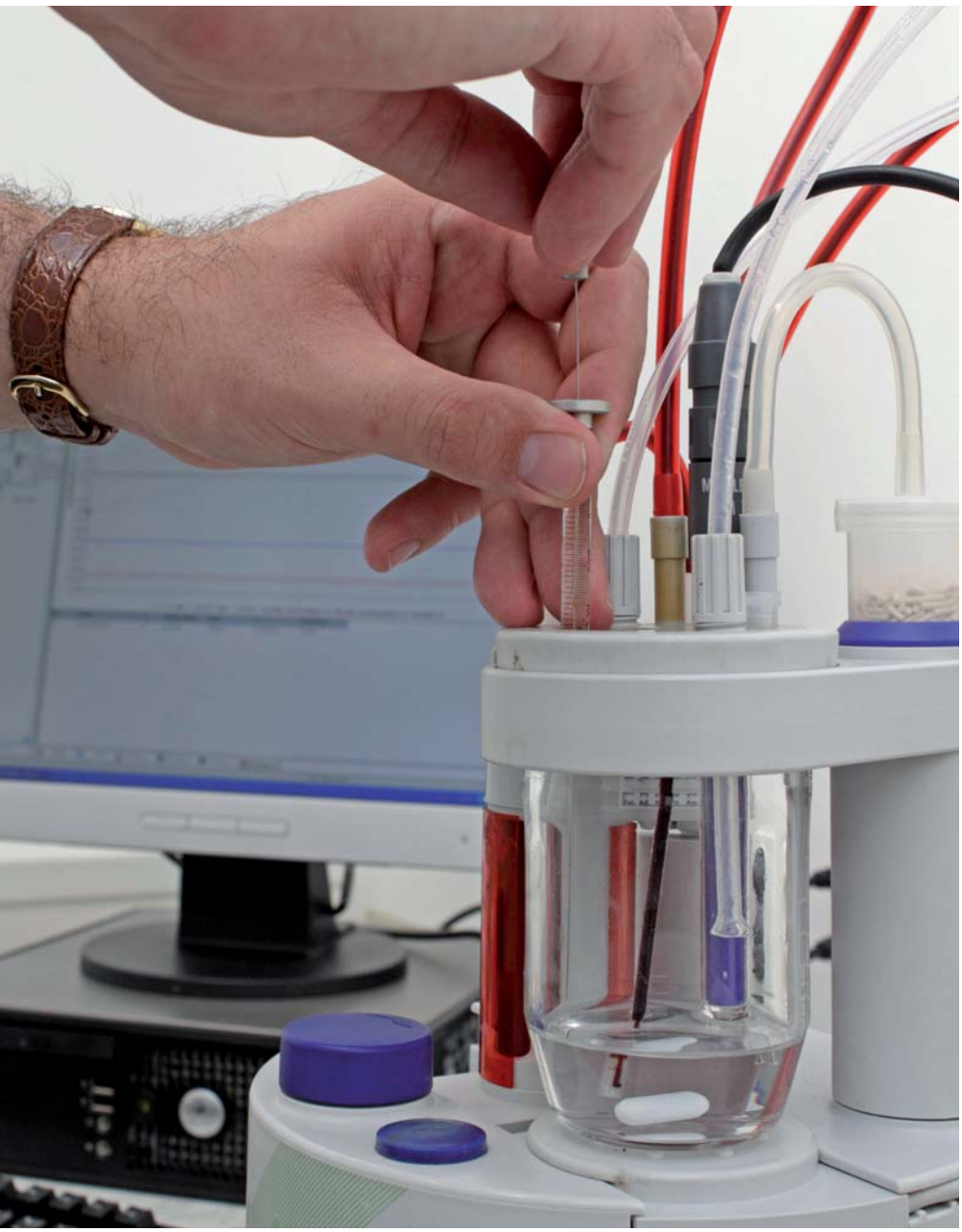
WORLDWIDE

- Represents half of the generic drug business of the Sanofi Group
- Provides medicines for 1 billion patients
- Operates in more than 50 countries in Europe, Africa, and the Middle East
- Sales of EUR 1 billion in 2012
- Annually manufactures 500 million packages of medicines
- In 2012, it launched 178 products onto the market
- More than 6 000 employees

IN THE CZECH REPUBLIC

- Every fourth package of medicine sold in the Czech Republic is a Zentiva brand
- 3 out of 4 people living in the Czech Republic know the Zentiva brand
- Annually invests more than EUR 30 million into the research and development of medicines in the Czech Republic
- Annually files for 25 patents

MedChemBio Cluster Participates in a Number of Projects



The MedChemBio Cluster has become a key entity for the cooperation of academic institutions, companies, suppliers, investors, professional organisations, and production enterprises in the area of development, testing, and production of drugs, and as such it helps with the development of medicinal chemistry and chemical biology in the Czech Republic. "MedChemBio has established itself rather successfully in the medicinal chemistry and chemical biology fields. During the short course of its existence, the Cluster has created a functional platform for expert-knowledge exchange. It has managed to expand the membership base by making it possible for its members to participate in the realisation of joint projects, attend professional events regularly organised by the Cluster, or make use of its infrastructure. The Cluster provides extensive informational services, notifies its members of suitable business and promotion opportunities, and arranges meetings with important professionals," says Arnošt Rybář, MedChemBio Project Manager.

The Cluster realises several specific projects in the area of research and development of new drugs and diagnostics. Which of them are the most important?

For example, as a part of a joint project within the Cluster, we have succeeded in building a control laboratory and acquired a licence for its operation from the State Institute for Drug Control. The laboratory provides services in the area of quality control of medicinal preparations, active substances, initial raw materials, and semi-finished products. It is capable of offering the possibility of preparing stability studies of the aforementioned materials. At the request of the clients, it is possible to use the MedChemBio laboratory for the development and validation of analytical methods and other forms of industrial research. Existing equipment also allows for the performance of regular and special physical and chemical analyses, such as liquid chromatography, gas chromatography, infra-red chromatography, titration, and a broad range of other analytical determinations. The laboratory has a licence from the Ministry of Health of the CR for handling selected precursors of addictive substances. The laboratory also currently cooperates with an important partner from the pharmaceutical industry.

What successes can the members of your Cluster pride themselves on?

Members of the Cluster participate in the investigation of various scientific and research projects. They are, for example, recipients in the Centres of Competence Programme, which is managed by the Technology Agency of the Czech Republic. Some of the commercial enterprises, e.g. FARMAK, a. s., Merck, spol. s r. o., QUINTA-ANALYTICA, s. r. o., MediTox, s. r. o. (formerly BioTest), are important players on the Czech market.

Your Cluster closely cooperates with Palacký University, Olomouc, the Institute of Organic Chemistry and Biochemistry ASCR, or the Institute of Chemical Technology, Prague. What is the basis of your cooperation and what joint projects have you realised?

Cooperation with public universities and research institutions is of a very high stand-

Photo: MedChemBio Cluster archives

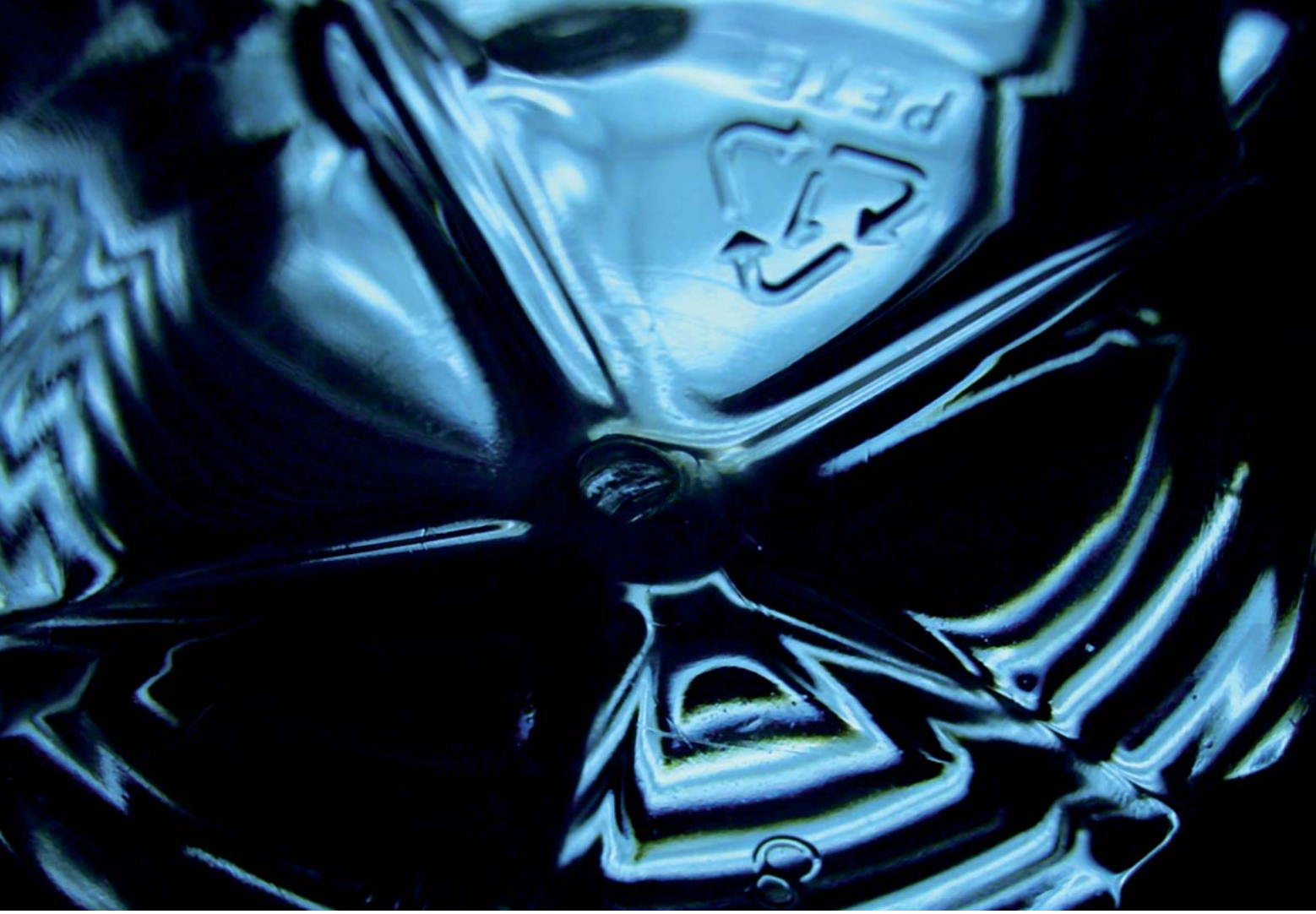
ard. Thanks to the fact that academics and researchers participate in the Cluster's activities, we have successfully realised joint projects under the MedChemBio brand. At this time, we are starting work on a project whose goal is to build a laboratory for structural modification of organic compounds. Another project is concerned with preventative diagnosis of neoplastic and latent infectious diseases. The search for new biologically active substances and their subsequent development as potential drugs is always associated with the development of an organic synthesis for the given substance or a group of substances. This process needs to be sufficiently flexible, so that the supply of new substances for biological testing is sufficiently fast and parallel tests of required activities may be conducted. Advanced biological testing also requires specific derivatisation of active substances, such as binding biotin using linkers of various natures at different parts of the molecule, creation of bioavailable formulations, increasing chemical or metabolic stability, etc. The main goal of this project is to prepare methodologies for the derivatisation of biologically active compounds for conducting advanced testing, their transformation into the form of technically simple and reasonably priced kits, and the adoption of automated synthetic procedures, so that it would be possible to conduct more of them and do it fast.

MedChemBio has become a partner to the TransMedChem project, which started in June 2011. The project's aim is to create conditions for transfers of expert knowledge and experience between academic and commercial institutions that focus on research and development in the area of medicinal chemistry and translation medicine. The project also aims to push for joint projects in the area. Could you provide more details about this initiative?

One of the many goals of MedChemBio is to create a platform for information transfer between the academic and commercial sectors. Participation in the TransMedChem project is in line with the Cluster's strategy in this regard. Other activities used by the Cluster in an attempt to connect the two sectors are the regularly organised professional seminars from the Quo Vadis Medicinal Chemistry series, which are open to a broad and varied audience, and have attracted relatively large audiences.

Do you cooperate with similar foreign associations?

Internalisation of the Cluster is currently being discussed. MedChemBio and its results are regularly presented at international exhibitions and conferences (the latest was BIO Chicago 2013). The Cluster established cooperation with new partners from the Visegrád Group and participates in the creation of a sectoral metacluster. The listed activities are still in their infancy, but the management of the Cluster is aware of the importance of international cooperation and will work towards further development in the area of internationalisation.



Importance of the Plastics Industry Growing in the CR

"Thanks to its huge application potential, the plastics industry is a very important branch of industry in the CR. It has seen enormous development, especially in recent years," says Miroslav Maňas, an important Czech expert on polymers.

You work as the Director of the ICT Technology Park at the Faculty of Applied Informatics and, at the same time, as the leader of the research team at the Regional Research CentreCEBIA Tech at the same faculty. You also worked at the Department of Production Engineering at the Faculty of Technology at the UTB in Zlín for a long time; you have been pursuing the subject of plastics for your entire life. What is the situation like in the use of plastics today? Could you assess the development that is taking place in the plastics industry in the CR?

Plastics have become a part of our everyday lives. They are with us at all times. When we get up in the morning, we reach for the light switch. The majority of components, from which a light switch is manufactured, is from plastics. The same goes for lamps. We continue to the bathroom – toothbrush, toothpaste tube, shampoos, liquid soap container, shower gel... The majority of these products are made of plastics. A large number of other products that we do not even see, such as the piping, plumbing objects, etc. are made of plastics. When we get into the car, 70% of parts making up the car are made of non-metal materials. Most of them are plastics.

In view of the composition of these materials, it would be better to talk about polymers – a large group of materials, which, besides plastics, also includes rubber, composites with a polymer matrix, and even ceramic and metal parts that were produced thanks to plastics, which contribute to the processing procedure in the form of carriers of ceramic or metal powders. What has made plastics so important? First of all, their extraordinary qualities: low weight (approx. seven times lighter than steel), good mechanical properties, high resistance to chemicals, excellent electro-insulating properties, easy processing, and a relatively low price. This predestines plastics for a variety of applications. In order for the source raw material, the granulate, to become a final product, a number of progressive steps has to be taken – starting with the design of a product, continuing with the design and realisation of a tool, and ending with the processing procedure itself, during which the source raw material changes into the final product.

Thanks to its huge application potential, the plastics industry is a very important branch of industry in the CR. It has seen enormous development, especially in recent years. Plastics companies have gone through significant modernisation. A great number of new machines, equipment, and polymer-processing production lines have been installed. The Czech plastics industry is currently a modern, highly performing, and competitive branch of industry. It is an important employer. The polymer processing industry is needed for tool manufacturing, which is also a modern and prosperous field.

Photo: www.sxc.hu

In what fields do plastics find use the most in the CR? Have there been any changes in the position of the plastics industry in the CR?

As has already been said, plastics find use in all fields – they are used for products of everyday necessity as well as for very demanding applications in automotive and aviation industries and in electrical engineering. Plastics hold a very strong position in health care. The popularity of plastics in the food-processing industry stems mainly from their sanitary character. Excellent processing characteristics, very good mechanical properties, and a relatively low price make plastics very attractive for demanding applications in the automotive and aviation industries and in electrical engineering. I am not aware of any field that would not use plastics to some degree. The importance of the plastics industry in the CR has been growing and not only because it is an important employer, but chiefly because it is a branch of industry that is characteristic for its extraordinary flexibility and ability to adapt to complicated economic problems.

The word 'innovation' is used very often – innovation of products, innovation of processes. What innovation potential is there in the plastics processing field? What tasks, in your opinion, need to be undertaken by researchers and developers in the field? What is the situation in education in this field in the CR?

Innovations are the main driving force behind progress in all industries. The ability to innovate products and processes continuously constitutes a great competitive potential. For this to work, new materials need to be used, as well as modern and efficient technological equipment. This also includes the use of modern ways of designing products and tools, including simulations and process modelling. New methods, such as Rapid Prototyping or Rapid Tooling are utilised ever more often in this area. When it comes to material research, it is about providing a description of plastics behaviour that is as accurate as possible and about modifications of polymer properties with the aim of preparing materials in accordance with a given request for a specific application. An important role is played by the ability to master the processing itself and to learn processing technologies with high added value. These include, for example, multi-component injection moulding, Gas Injection Technology (GIT), Powder Injection Moulding (PIM), and others. Individual activities are inter-related and having the ability to master them is a prerequisite for a successful realisation of product and process innovations. University education plays an important role as well, especially now that a significant portion of research capacities has ceased to exist or has transformed into other activities. In the area of material research, this involves mainly the Institute of Chemical Technology, Prague (ICT), University of Pardubice, and the Faculty of Chemistry at the Brno University of Technology. Tomáš Baťa University in Zlín also has a very well-equipped department for polymer research. It covers research and development in all the areas mentioned (material research, product and tool design, processing procedures). The scientific and research capacities have seen a significant expansion in recent years. New scientific and research institutions have been established at the Faculty of Technology and Faculty of Applied Informatics of TBU in Zlín, such as Cebia-Tech, Centre of Polymer Systems, and the Centre of Polymer Materials, with very good technical equipment and personnel. Another well-equipped institution is the department at the Faculty of Mechanical Engineering at the Technical University of Liberec. I believe that very good conditions have been prepared for collaboration between university institutions and the industry. On the other hand, it has to be said the universities should also focus their efforts on educating more new experts for the area of polymer processing, who would be interested in working for industrial enterprises. However, I am afraid that there are much fewer than would be required for a plain generational exchange.

Could you share your view of future perspectives of the plastics industry? What opportunities and risks do you perceive for the field?

The plastics industry in the CR is currently in a very good shape. There are a number of supranational companies on the market, a number of traditional processors of plastics, and also many new, progressive and successful firms. This is the result of the availability of modern equipment in the industry, which goes for the processors of plastics and for tool manufacturers as well. In order to achieve efficiency in the use of modern facilities in all phases of production, i.e. from design to realisation, an influx of highly educated professionals will be required – constructors designers (nebo desing engineers) and material and process engineers. That, in my opinion, is the main task that lies before universities. Their flexibility and ability to supply professionals and to cooperate on problem solving will largely determine future development of this progressive industry.

Czech Glass-Making Industry Has History, Present, and Future

"One thing that has remained the same in the glass-making industry for centuries is the orientation of glass-making firms at export. With its positive numbers, the glass-making industry contributes annually to the trade balance of the Czech Republic," says Vlastimil Hotař from the Department of Glass Producing Machines and Robotics at the Faculty of Mechanical Engineering at the Technical University in Olomouc.

What is the situation like in the Czech glass-making industry? Could you evaluate the development of the glass-making industry in the CR?

Glass-making has been an important branch of industry in the territory of today's Czech Republic for several centuries. Today, it is an industry that remains the "family silver", as one might say. Glass-making went through many changes, and it has kept its competitiveness, in the past and today, mainly thanks to the introduction of new technologies, mechanisation, and automation, which proved to be very important in the 20th century. The picture of a glass-maker with a blowing pipe has changed during the last hundred years into a glass-maker who controls machines and equipment. Today, "glass-makers" are machinists who fine-tune automatic lines, sit in front of computers, and control equipment worth millions or billions of CZK. There are many other professions that people usually do not associate with the term "glass-maker". Today's glass-making is highly sophisticated, automated, and one of the most modern branches of industry. Manual production still exists, of course, in areas where production and refining are not cost-effective when automated. Manual production will continue to exist. Gradually, it will focus mainly on luxury glass, special products, and tourism-related glass-making.

It is necessary to emphasise that the glass-making industry produces a variety of different products. The Czech glass-making industry is often associated with "design" glass, i.e. utility glass (glasses, goblets, vases, etc.), glass parts for fashion jewellery, and lighting glass. Glass of a "technical" character is often overlooked. It includes flat glass (for construction, cars, furniture, mirrors), packaging glass (mainly bottles, vials, pill bottles), technical glass, and glass fibres. Based on an analysis carried out for the Confederation of Industry of the Czech Republic, the glass-making industry has changed considerably during the past 21 years. In 1991, "design" glass accounted for approximately 55% of overall revenues of the glass-making industry and "technical" glass accounted for 45%. In 2011, "design" glass had a share of only 25%, and "technical" glass accounted for 75%. The largest Czech glass factory is currently AGC Flat Glass Czech, a. s., in Teplice, which manufactures flat glass. Glass-making has also come through a number of sales crises. The last one, between 2008 and 2010, visibly affected mainly utility glass. Every one of the glass factories that had to close during that period is now in operation again.

Is the importance and position of the Czech glass-making industry changing?

Mechanisation and automation caused and is still causing lay-offs in the glass-making industry. This fact has been clearly visible for the past 21 years. In 1991, glass-making was employing 41 650 workers, and in 2011, it was only 16 977. In this regard, the importance of the glass-making industry decreased when compared to other industries. In spite of that, the Czech Republic remains fourth in the European Union, behind Germany, Poland, and France, when measured by the number of employees in glass-

Photo: Moser company archives

making. In recent years, the trend has been reversed, and the numbers of employees in glass-making have been seeing a moderate growth.

The volume of glass produced more than doubled from 1991 to 2011. Revenues increased by 140% during that time, which is 14% in 1991 prices. Productivity of work grew sixfold – or threefold when calculating with stable prices.

One thing that has remained the same in the glass-making industry for centuries is the orientation of glass-making firms at export. With its positive numbers, the glass-making industry contributes annually to the trade balance of the Czech Republic.

What is the situation like with education in this industry in the CR?

Education has always been of a high standard in the glass-making industry in Bohemia, and it has had good links to the production sector, which is not always the case nowadays. Professions oriented at glass design have a relatively sufficient numbers of students, but graduates often have difficulties finding work in glass-making. Conversely, there are not enough technically educated graduates, who are in ever greater demand by the glass-making industry. The fault is not entirely with glass-making schools, which try to offer these professions. The problem lies with student demand. Design is attractive, unlike technology, despite the latter being a guarantee of a well-paid job. Glass-making companies show next to no activity when it comes to student preparation. Communication and cooperation between schools and employers need to be improved. Czech glass-making schools still exist and offer professional education, both on the secondary and tertiary level. Some of the schools have the potential for becoming international glass-making schools.

In order for the glass-making industry to be competitive, it needs to invest in support for science, research, and innovations. What tasks, according to your opinion, are waiting for researchers and developers in this field?

The history of the glass-making industry is a history of technology development, history of research and innovations. The fact that the Czech glass-making industry successfully competed on foreign markets was due to successful research, development, and the adoption of innovations. Glass-makers in the territory of today's Czech Republic were always capable of reacting flexibly to world trends, which they often further enhanced. The same is true today, despite the fact that research institutions oriented at research and development in glass-making have ceased to exist in the Czech Republic. The reason is both the ownership structure of "Czech glass factories", which are mostly owned by foreign proprietors with their own centralised research, and state support. Today's research and development is mostly undertaken at universities. Broader participation in research of supranational firms is a challenge for these institutions. It is also necessary to cooperate with local compa-

nies on scientific and research issues. If the Czech glass-making industry is to remain competitive, this cooperation will be necessary. Czech research and development facilities have a lot to offer.

Could you share your thoughts on future perspectives of the glass-making industry?

Thanks to its properties, glass is a unique material. Even though it will be replaced by plastics in some products, it will also find new applications, and new products will appear. Today, glass is a part of many modern-day products, including mobile phones, display screens, solar panels, and wind-farm arms, which use them in the form of glass fibres. This list is by no means a complete one. The future of the Czech glass-making industry depends mainly on the economic health of the European Union, which is the largest customer of Czech glass-making companies. The glass-making industry manufactures a variety of products for further use in other industries. Which is why the manufacturers of flat glass will only prosper as much as the construction industry prospers, and manufacturers of utility glass will prosper when households prosper, etc.

Another important competitive advantage is professionally educated employees with know-how, the educational system of glass-making professions, and tradition. Today, it is not a problem to build the most modern glass-making line anywhere in the world – it is just a matter of investments. It is incomparably harder to acquire and train employees, to build know-how, and to acquire knowledge, which is often empirical. For this reason, I am of the opinion that the criterion of labour cost is not the most important factor when it comes to competitive manufacture of glass.

What opportunities and risks do you perceive for the industry?

The Czech glass-making industry faces both opportunities and risks, and both will have a significant impact on its further existence. The opportunities lie in new products, improvements to existing technologies, brand new technologies, and new markets. The risks, which apply to glass-making in the whole of Europe, are the following: economic stagnation of the European Union, the Union's inflexible and bureaucratic operation, and strict environmental regulations. European companies have to invest large amounts because of environmental concerns, but companies outside of the Union do not. This causes imports to the European Union to grow, and cheaper goods to be sold at the expense of European goods. Another threat is posed by competition from Eastern Europe and Asia, and by plastics (see above), which will continue to increase their share in, for example, packaging and fashion jewellery, at the expense of glass.

In view of what has already been said, we can claim that the Czech glass-making industry has a history, present, and a future. I believe there are risks associated with this branch of industry, but they are outweighed by opportunities, which are supported by strong aspects of the Czech glass-making industry. If the needs of this field, which can be summarised in the following four words: education, research, innovations, and investments, are fulfilled, the glass-making industry will keep its important position in the Czech Republic for the next one hundred years.

Czech Glass on the Rise Again

The global economic crisis has forced some glass factories in the CR to terminate production, but other glass-making firms have benefited from the crisis. These producers abandoned unprofitable areas and started to develop a specialisation or identify opportunities further from home than before. Czech design glass has seen a great boom as well.

What are the basic industrial types of glass, and what enterprises are the market leaders?

Flat Glass

By far the most important type of glass, when it comes to production volume, is flat glass. Sales of flat glass account for almost half of all revenues of domestic glass-making. The only manufacturer of large-format flat glass is AGC Flat Glass Czech, a member of the AGC Group. This glass is used for the manufacture of an assortment of products for the automotive industry and the construction industry. A significant amount of flat glass is manufactured for the automotive industry by AGC Automotive Czech and Saint-Gobain Sekurit ČR. There are a number of other firms that manufacture glass for the construction industry in the Czech Republic (insulation glass, mirrors and furniture glass, layered security glass, heat-protection glass).

Glass Fibres

The only manufacturer of glass textile fibres and products based on the fibres in the Czech Republic is Saint-Gobain Adfors CZ. Insulation material based on glass wool in the form of boards and rolls is manufactured by Knauf Insulation, spol. s.r.o., Krupka u Teplic. The only Czech manufacturer that produces heat and sound insulation from glass fibres in the form of mats and boards is Union Lesní Brána.

Packaging Glass

Packaging glass includes beverage bottles or glass packaging for the food-processing, chemical, pharmaceutical, or cosmetics industries. The leading manufacturers of packaging glass in the Czech Republic are O-I Manufacturing Czech Republic, a. s., with its sales branch, O-I Sales and Distribution Czech Republic, s. r. o., Dubí u Teplic, both of which are members of the international group of enterprises, Owens-Illinois (USA), and VETROPACK MORAVIA GLASS, a. s., Kyjov, which is a part of the international group, Vetropack Holding AG, based in Switzerland. These two groups hold approximately 90% of the packaging-glass market in the Czech

Photo: BOMBA company archives

Republic. They also account for a significant share of exports to neighbouring countries through their supranational ownership and commercial ties.

Utility Glass

This category includes a broad range of goods from common consumer products to art glass. Utility glass is manufactured by about thirty firms with fifty or more employees in the Czech Republic. The biggest firms include Crystalex, Crystal Bohemia, Moser, or Kavalierglass.

Other Glass Types

Products of this branch of the glass industry tend to be called (especially abroad) special glass. It is a broad range of glass products with precisely defined special qualities, which are mainly supplied to other processing industries. The selection in this category is very broad in the Czech Republic.

KAVALIERGLASS, a. s., Sázava is the leading Czech manufacturer of technical and laboratory glass, pipes, and equipment from borosilicate glass. The following firms also manufacture technical and laboratory glass: TECHNOSKLO, s. r. o., Držkov, EXATHERM, s. r. o., Železný Brod (glass thermometers and densitometers), DETESK, s. r. o. (technical borosilicate glass), Železný Brod, Vitrum, spol. s r. o. - Sklárna Janov (Janov glass factory), Janov nad Nisou, and other smaller firms. The following firms manufacture optical glass: EcoGlass, s. r. o., Jablonec nad Nisou, which specialises in manufacturing precise pressed components from optical glass for electro-optical equipment, and BOHEMIA OPTIK, s. r. o., Mařenice u České Lípy,

which manufactures optical components and systems.

Semi-finished products for fashion jewellery are manufactured by a number of firms, mainly from the Jablonec region in the north of the Czech Republic (Preciosa, a. s., Liglass, a. s, PAS JABLONEC, a. s.). Lighting glass is manufactured by Sklárny Janštejn, s. r. o., and it also constitutes a complementary offering of several small manufacturers of utility and technical glass. A number of firms manufacture components for chandeliers or chandeliers themselves. The most important ones are Preciosa, a. s., and Liglass, a. s.

SUCCESSES OF CZECH GLASS-MAKERS

The mastery of Czech glass-makers is evidenced by, for example, orders realised by Sans Souci. The firm supplied the university in Riyadh, the capital of Saudi Arabia, with the largest glass light-fitting in the world. It measures 19 meters. Another unique order consisted in lighting for the Gate Mall luxury shopping centre in Doha, which is the capital of Qatar. Sans Souci created a magical illusion of an underwater world for the centre. Suspended in the air, directly above the shopping area, are nine glass medusas, each of which weighs from 150 to 200 kg. Another Czech firm, Lasvit, has managed to make a breakthrough with its glass products in China. For example, it supplied light sculptures for the highest bar in the world, which is at the Carlton Ritz hotel in Hong Kong. The BOMMA design glass from Světlá nad Sázavou is another example of an interesting and successful firm on the Czech glass market. A unique, patented technology of machine-cut glass combined with manual manufacture brought this brand awards and deserved media attention. BOMMA sets have been included in the permanent collection of the Museum of Arts and Design in New York. This year, it can take pride in having received the Good Design Award from The Chicago Athenaeum for its Dots beverage set, which was designed by the Olgoj Chorchoj studio. In 2012, the firm collaborated on the manufacture of the biggest whiskey bottle in the world. It can hold 228 litres of this alcoholic beverage. The order came from an important Scottish producer of whiskey. The manually blown bottle, measuring 1.7 meters and weighing 50 kg, was made by glass-makers from Sázava-based Kavalierglass together with technicians from BOMMA in Světlá nad Sázavou. Other Czech firms enjoyed success in Frankfurt am Main at the 2013 Ambiente trade show of consumer goods, which is held annually in February, mainly because of young, talented designers, innovative technologies, and the Czech glass tradition of more than 100 years. The thirty-seven Czech firms that participated in the trade show presented products from glass, crystal, porcelain, or glass fashion-jewellery. On top of that, the Czech centre initiated an exhibition called Brilliant By Design – the exhibition had been proposed by the Olgoj Chorchoj studio. It was oriented at serial-production Czech design glass and porcelain. The CR is second in the world in the amount of glass produced per capita, both in the area of our renowned art glass and serial-production glass.

Furnaces, machines and equipment, and professional services for the glass and ceramic industries

There are some forty to fifty independent firms in the Czech Republic that manufacture and supply furnaces, machines and equipment, glass-making moulds, and apparatus that is used for the production of glass and ceramics. These firms also provide servicing and project or expert consulting for these industries. These firms include, for example, Sklostroj Turnov CZ, s. r. o., which manufactures machines and equipment for automated manufacture of packaging glass, SKLOPAN LIBEREC, a. s., which manufactures machines for machining flat glass, and TRIMA, s. r. o., Turnov, which manufactures machines and equipment for manufacturing and processing glass fibres. Teplotechna Prima, s. r. o., Teplice and PKI Sklopece Olomouc, spol. s r. o., design, project, and build glassworks. Glass Service, a. s., Vsetín and Dites, s. r. o., Teplice (automated systems for controlling technology processes) are both active abroad in the area of design and systems for controlling glassworks. Machine equipment for glass production is also manufactured by FOR G, s. r. o., Teplice or Bohemia Machine, s. r. o., Světlá nad Sázavou.

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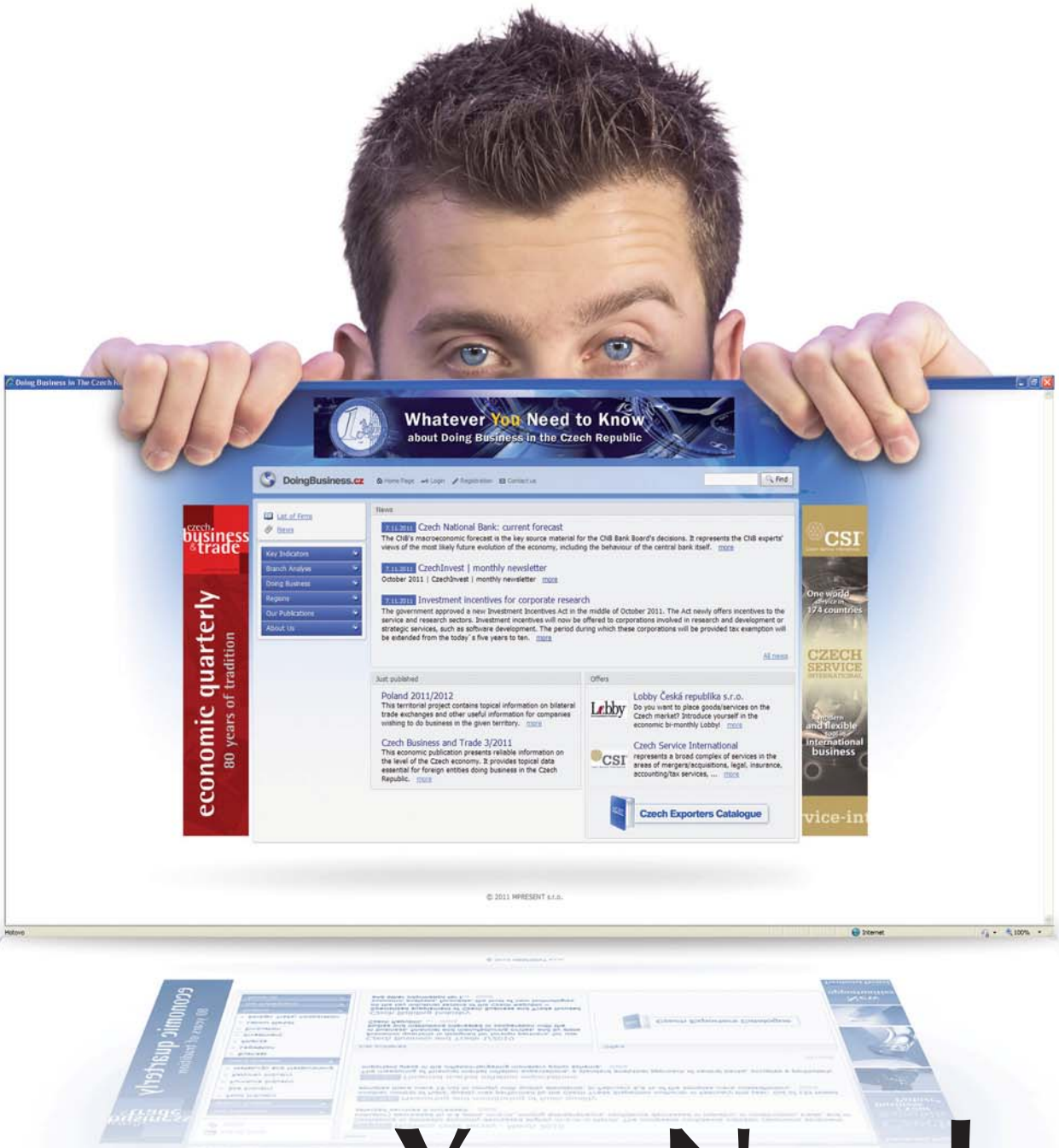

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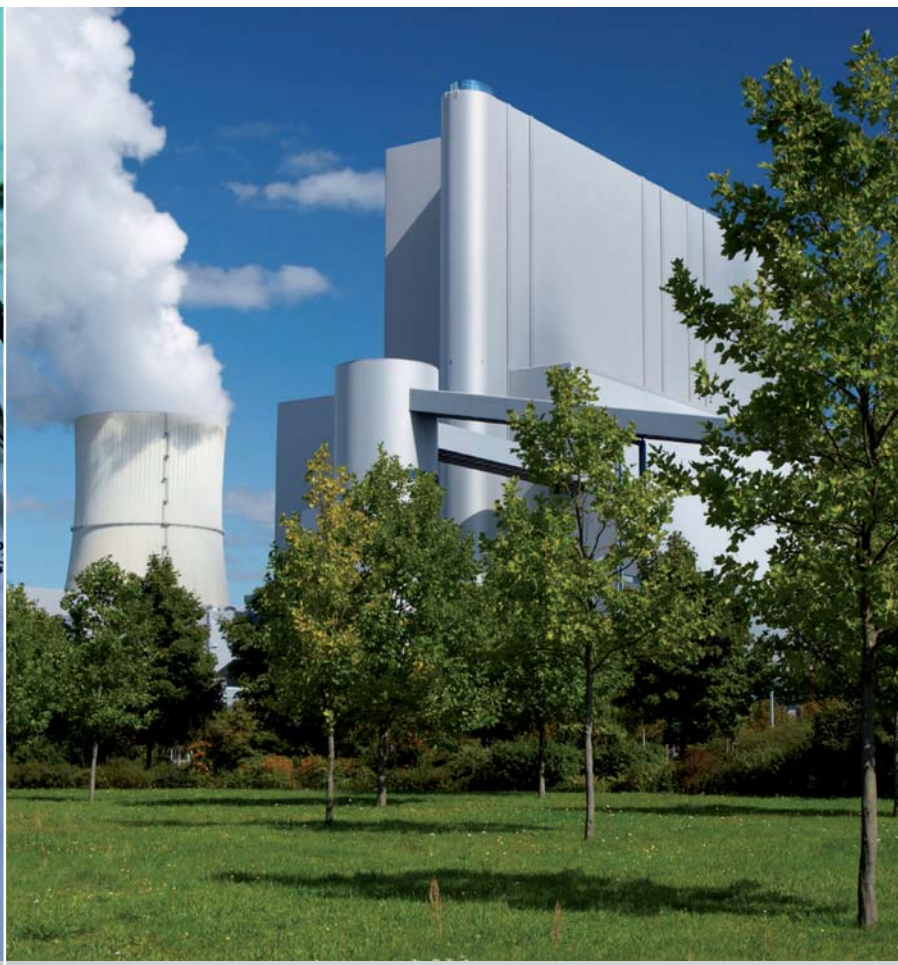

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