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**GREATEST REFORM
OF PRIVATE AND
COMMERCIAL LAW**

**CZECH RAILWAY
INDUSTRY IS AMONG
EUROPE'S BEST**

**CZECH LOGISTICS
HAS GREAT
OPPORTUNITIES**



3
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CZECH ENGINEERING

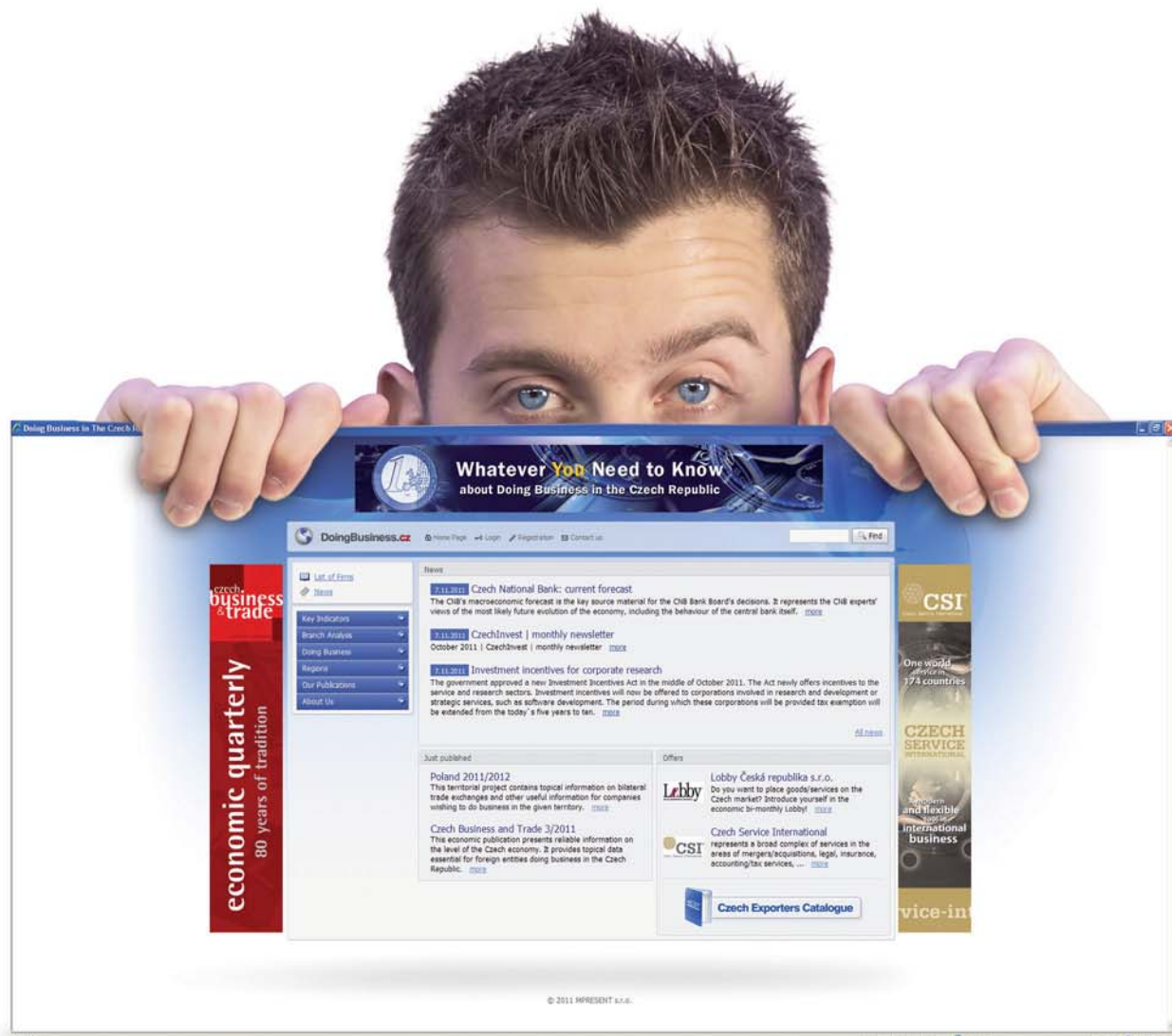
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2013

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Questions for Marian Piecha, General Director of CzechInvest

Which are the main goals and priorities you have set yourself as General Director of CzechInvest?

My main goal is to bring the Agency back to its former glory days. This means to outline new concepts of attracting investments and to prepare the new programming period. At the same time, I would like to push through the idea of making CzechInvest more project-oriented and also profitable in future. My priority now is to prepare the concept of attracting investment. We must specify what exactly should be done to entice as many investors to the Czech Republic as possible, how we can assist in this and how, for example, the administrative burden could be reduced. This concept naturally also includes business promotional activities.

An investment incentives act amendment is currently being drafted in reaction to the changes made by the European Commission concerning the reduction of public support from 40% to 25%. Within the framework of those changes, CzechInvest would also like to accentuate steps to help increase domestic and foreign direct investments in the Czech Republic. Can you give us more details?

For example, the Investment Incentives Act Amendment provides for an Income Tax allowance for the manufacturing industry and support in the form of an allowance on the sum of wages and a premium for social and health insurance for technological centres and strategic services centres. We are also negotiating other benefits. Financial support of investments, however, is not the only area where more action is needed in relation to potential investors. For example, the support of technical education, shortening of permission procedures and less red tape are also very important.

You are also preparing a concept of investment incentives for 2014 - 2020. Which type of investments do you want to support in particular – domestic or new foreign investments?

We do not like distinguishing between domestic and foreign investments. If they create new jobs, add to the development of the region or provide new opportunities for suppliers, they are equally valuable. Recently, however, a new trend – reinvestment – has been witnessed in this area. This means that foreign firms which entered this country in

previous years, now trust the Czech Republic and are enlarging their projects they have already realised here. We are viewing this as a positive signal for potential investors planning higher added value projects, who are still weighing up where to place them. Therefore, in future we want to focus especially on attracting foreign investors whose projects have a good expansion potential.

Which sectors will participate most in the future development of investments?

Currently, the dominant investment projects are those in the automotive industry. I don't think this is a bad thing. The automotive industry has a tradition in the Czech Republic, and it can be seen that we have the adequate number of skilled employees this sector requires. At the same time, however, we do not want to limit ourselves by highlighting certain sectors in advance. No one can deny that many interesting innovations are possible, for example, in the food industry. Nevertheless, one thing is certain, and that is that firms must be open to technological innovations.

In 2012, new investments brought more than CZK 26 billion into the Czech Republic and created over 12,000 new jobs. What are your expectations for this year?

The current flow of investment projects mediated by CzechInvest Agency does not differ much from that which we could witness in 2012. Production is still the dominant sector, but there is a growth in projects and shared services, as well as in technological centres. The leading sectors are the automotive and the rubber and plastics industries. As I have mentioned before, the issue is not

the growth of new investments, but expansion. This year, a positive role was played by the Investment Incentives Act Amendment of July 2012, which a large number of firms had been awaiting impatiently.

Which investment projects have given you, personally, the greatest pleasure?

It is hard to pick just a few examples. In general, each investment project which brought along with it new jobs, was a pleasure. But if I were to pinpoint only one, it would be the investment by JC Interiors Czechia, which was the first strategic investment project whose support was approved by the government in October this year, under the 2012 Investment Incentives Act Amendment. This first instance the Triangle Industrial Park in the Louny District heralds the spending of CZK 1.3 billion plus 537 new jobs. I am firmly convinced that it will be an inspiration to others.



Marian Piecha handing over the award for the Industrial Zone of the Year to representative of CTPark Mladá Boleslav, that won the category within contest Investor of the year 2012 and Business Property of the Year 2012

The Czech Republic Has Withstood Crisis

The Czech economy ranks among the medium-sized economies in the European context. For this reason, it is the price-taker in most commodities, which means that it takes over the world prices and does not have much influence on their sum. On the one hand, this exerts pressure on companies in the case of major changes, but on the other hand, we have learned to be more flexible thanks to this.

Thus, Czech exports are recording the best results ever, the crisis notwithstanding. In 2012, exports totalled a record CZK 3 trillion (approx. EUR 120 billion) and the balance of trade surplus amounted to CZK 310 billion (approx. EUR 12.4 billion/about 8 per cent of GDP). Besides the success of private companies, the response of the government can be praised as well.

■ DOMESTIC DEMAND CONTINUES TO BE WEAK

Thus, foreign trade has helped us to avoid a much deeper recession than we would have apparently otherwise faced. True,

development of the gross domestic product is not gratifying, but it is still much better compared to states on Europe's southern wing. For example, this is why we have overtaken Greece and Portugal, out of the original 15 member states, in the level of GDP at purchasing power parity. However, domestic demand continues to be weak, and the government tries to change this by pro-growth measures.

While budget responsibility slightly influenced economic development, the effect has been only short term and will gradually fade away. On the other hand, budget conservatism has created an environment for long-term growth, for which healthy public finances are essential. This is why the government reduced the imminent budget deficit by CZK 78 billion (approx. EUR 3.12 billion) by pro-active steps already in the 2011 budget. In 2013, the overall deficit of public finances will thus be brought to below 3 per cent of GDP, which will release the country from the European excessive deficit procedure. In 2012, the Czech Republic's public debt amounted to 45.8 per cent of GDP, and was thus the eighth lowest in the EU as a whole.

Naturally, these positive steps have secondary implications. For example, the Czech Republic has become one of three countries (besides Greece which, however, is rising from the level of a virtually bankrupt state, and Estonia) whose ratings have been raised by two or more grades in the last two years. This is an indisputable success in the post-crisis period. Although rating agencies are often criticised, financial investors very frequently refer to their evaluations. It is even possible to say that the more criticism is levelled at the rating agencies, the more important their evaluations are. Thus the better rating for the Czech Republic was naturally reflected in an increased demand for Czech bonds. This is, for instance, the reason why the interest rates of ten-year Czech bonds have been permanently decreasing, even faster so than those of other developed countries. In the middle of May 2013, these rates were thus in the region of 1.5 per cent.

This is a level below the inflation target of the Czech National Bank. Investors are thus buying Czech bonds, although they know that they will actually lose by this. However, Czech bonds have become such a safe ha-

ven that investors find them worth it. To put this level in context, it is the third lowest level after Germany and Denmark within the European Union and the eighth worldwide. Our credibility on the financial markets is thus significantly above-standard. Thanks to this, CZK 22 billion (approx. EUR 880 million) was thus saved against budgeted costs in 2012 alone.

■ LABOUR MARKET AND SOCIAL SITUATION

Unemployment in the European Union was at the non-negligible 11 per cent in April 2013. However, the Czech Republic's situation is much better, in April it recorded a 7.2 per cent unemployment rate, which ranks the country seventh in terms of the lowest unemployment rates in the European Union. Nevertheless, the Czech government does not want to rest on its laurels and has thus prepared a seven-point plan which is to help reduce unemployment. This plan is targeted, among others, at the most sensitive groups of the unemployed, that is young people, parents with children, and the long-term unemployed.

Also important for social cohesion in this area are the indicators of at-risk-of-poverty rate and income distribution in society. No deterioration has occurred in this either. On the contrary, the poverty rate was at 9.7 per cent in the Czech Republic last year, which was one-tenth of a percentage point better than in 2011. Thus it can be expected that we have maintained the first place with the lowest at-risk-of-poverty rate in the European Union last year. This is also evidenced by the distribution of incomes in society. In the Czech Republic, the 20 per cent high-income population earns 3.5 times more than the 20 per cent of those with the lowest incomes. The European average is 5.1 times. Thus, we have a more even distribution of incomes than, e.g. the Scandinavian countries.

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*Abridged version of the article "The Czech Republic Has Withstood Crisis" from the publication Doing Business in the Czech Republic
More at www.doingbusiness.cz*



Business Sphere to Pull Czech Economy

In the second quarter of 2013, the Czech economy came out of recession and the revival is also expected to continue in 2014. The sector with the best prospects is the business sphere, but growth is to be expected in nearly all sectors. Nominal wages will be slowly increasing, but, in real terms, households will be faring better and will not have to be concerned about a higher unemployment rate, which is currently finding itself at the point of stabilisation. These two factors, together with a decline in regulated prices, will revive household spending next year.

The Czech economy came out of recession in the second quarter of 2013, when GDP rose by 0.6% quarter on quarter. In industry, added value grew by 1.1%, in construction by +0.5%, and in private services by 0.6%. Taxes on products (+0.3 pp) also had a positive effect, but here, a role was played by stocking up on tobacco products for reasons of expected indirect tax changes. This stocking up resulted in higher GDP growth at the end of last year, with a negative impact in the first quarter and a positive impact in the second and probably also the third quarter. As excise duty on cigarettes will also increase at the beginning of next year, similar contributions from taxes on products will also be seen at the end of this year and the beginning of the next, as tobacco firms will be stocking up again.

■ EXPORTING FIRMS PROFIT FROM THE WEAKER CROWN

The business sphere will be faring well. Despite a decline in the past few years, the profit rate remains high when compared with other countries. Thanks to the decline in energy prices and the factual stagnation of real unit wage costs, the profit rate is not expected to worsen by any large margin. Exporting firms profit from the weaker crown, which raises the value of the Czech crown export income. Finally, local businessmen are also more competitive on the domestic market in comparison with the importers. In the third quarter, the CZK/EUR exchange rate was 25.84 on an average, which in comparison with the equilibrium level (measured by the NATREX model), means a 3.1 per-cent weaker exchange rate. A support factor is interest rates, where rates on new credits to non-financial enterprises in Q3 amounted to just 2.3% (the average rate since 2002 being 3.6%).

The situation in industry is improving, with production from the beginning of 2013 ris-

ing by a cumulative 5.4% (SA, WDA). An improvement is also shown by advanced confidence indicators, for example the Czech Statistical Office survey showed a minimum in November 2012. Since then, confidence in industry rose by 8.1 points. A similar picture was shown by the PMI index, which in September 2013 was strongly in the expansion zone at the level of 53.4 points (the 50-point line divides the expansion and contraction zones). Demand for cars abroad still remains a problem, as new car registrations in EMU and Germany are still close to their minimum levels reached in the first quarter of this year. A positive factor is that, as regards demand, the Czech automotive industry is most likely to have escaped the worst effects.

The low inflation rate supports household consumer spending. While, last year, real consumption dropped by 1.0%, this year it is expected to rise by 0.1% and next year by 1.6%. A good sign for households is the decline in regulated prices, especially of electricity, where low-income households will benefit most. A favourable sign is also the stabilising labour market, where the unemployment rate (prediction of the Ministry of Labour and Social Affairs) is expected to stabilise at around 8% (SA). Wages will be growing only slightly (nominally by a mere 1.9%), but, owing to the low inflation rate, real wages will be growing by 1.8%.

■ DEVELOPMENT OF THE STATE BUDGET

The State Budget deficit continues on a positive trend. At the end of September, it amounted to just CZK 36.2 billion, with budgetary income increasing by approximately CZK 38 billion (+5.8%) year on year, mainly thanks to a massive growth of income from the EU (+CZK 33 billion) and better VAT collection (+CZK 14 billion). The provisional government installed by the President approved the draft State Budget for 2014, which shows a deficit of CZK 112 billion. According to the draft, budgeted income is to rise by 1.4% to CZK 1099 billion and expenditure is to increase by 2.6% to CZK 1211 billion. The draft must be approved by the Chamber of Deputies arising from the October general elections. The new government will have the power to change the draft, but only within a certain time limit.

CZECH ECONOMY DROPPED 0.5% QOQ IN Q3 13

According to the preliminary estimate of the CSO, GDP dropped 0.5% qoq in Q3 (-1.6% yoy). In terms of GDP, the Czech economy has remained on the edge of recession. Not adjusting for the uneven number of working days, GDP increased 0.4% qoq (there were three working days more in Q3 in comparison with Q2). Fortunately, monthly data from the real economy provides a different view and confirms recovery in the domestic economy. For instance, industrial output added 2.4% qoq in Q3 13, construction grew by 4.8% (all data are adjusted for seasonality and different number of working days – SA, WDA). Also, retailers fared well as sales increased 0.5% (SA, WDA).

Greatest Reform of Private and Commercial Law

A new Civil Code, No. 89/2012, which is to come into effect on 1 January 2014, signifies the greatest reform of private law since the establishment of the independent Czech Republic. Linked to it will be a number of other acts, among them Act No. 90/2012 Coll., on Business Corporations, which is the second part of the recodification of private law.

Thematically, the new Civil Code is divided into five parts – General Part, Family Law, Absolute Property Rights, Relative Property Rights, and Common, Interim, and Final Provisions. The General Part primarily specifies the terms used in the text of the Civil Code. The Family Law part comprises today's Family Act, which deals with the institute of matrimony and the relationships between related persons, in particular relations between parents and children. The part Absolute Property Rights contains the definitions of ownership, the right to other people's things and succession. The fourth part, called Relative Property Rights, is the most extensive. It comprises different kinds of contracts and delictual liability (including liability to damage). The last part concerns itself primarily with legislative technicalities, such as which acts will be made void by the new legislation.

■ MINIMUM AMOUNT OF DEPOSIT FOR LIMITED LIABILITY COMPANIES

The Business Corporations Act sets forth the basic conditions for the running of business corporations, which includes all forms of business companies (limited liability and joint stock companies, limited partnerships, publi trading companies, European companies, and European Economic Associations) and cooperatives (cooperatives in the narrow sense, housing cooperatives, social cooperatives, and European cooperatives). The new provisions have an impact primarily on the domestic forms of those corporations, as the European ones are governed by special EU regulations. The Act regulates issues such as the establishment of corporations, the internal structure of bodies, the responsibility of the members of those bodies, activities within concerns up to their cancellation. Some conditions of the corporations' functions are addressed in more general terms by the new Civil Code, others by special acts. Important changes introduced by the Business Corporations Act include, for example, the abolition of the obligation to deposit CZK 200 000 (EUR 8 000) as registered capital. The minimum amount of the deposit according to the Business Corporations Act will be CZK 1 (40 c). This change is due mainly to the fact that registered capital did not meet its purpose, i.e. the protection of creditors, because the act did not require the company to maintain the registered capital at the stated level. At the same time, the new minimum amount of the deposit eliminates one of the barriers to entering into business.

RENT OF SPACE FOR BUSINESS

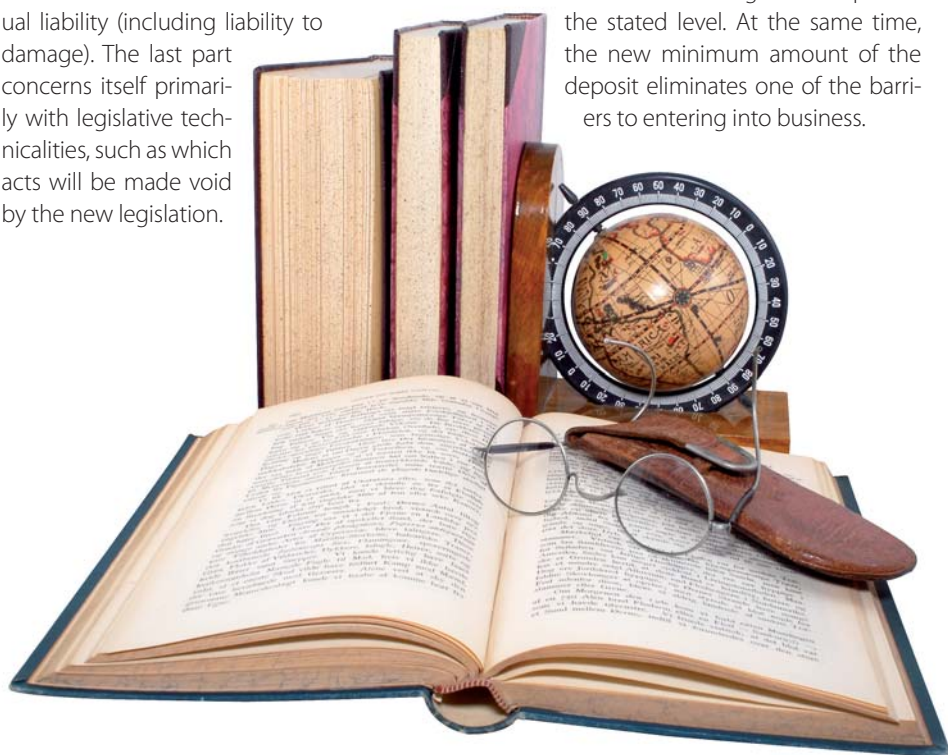
Along with the New Civil Code entering into effect, Act No. 116/1990 Coll., on the Lease and Sublease of Non-residential Premises, shall be repealed. From 2014, the procedure shall be governed by the new Code, which considerably simplifies the entire procedure. Formerly it was strictly specified what the contract was to comprise (e.g. the object of lease, purpose of lease, amount of rent and method of its calculation, amount to be paid for the services provided and method of calculating it, specification of the object of business); in case any of the specifications were omitted, the contract was invalid. The contract even need not be in writing. To avoid uncertainty, however, it will be desirable, even under the new legislation, to make lease agreements in writing. It continues to apply that if no period of lease is stipulated, the lease is for a determinate period. Under the new legislation, it will be possible to lease a thing that will only come to exist. Other changes concern the termination of a lease by giving notice. In case the party which was given notice (either the lessor or the lessee) does not agree with the notice, it must raise an objection. The term for delivering the objection to the other party is one month. If the party does not raise any objection, or does not raise the objection in time, it will lose the right to have the notice reviewed by court. The purpose of this provision is to preclude suits and to make it possible for the party giving notice to learn within one month whether the other party intends to defend itself against being given notice.

■ NEW CHANGES IN 2013: DEADLINES FOR THE PAYMENT OF INVOICES

The Czech Republic has incorporated in its legislation the Directive of the European Parliament and Council 2011/7/EU on late payments in commercial transactions. The main purpose of the directive is to adopt mechanisms for the improvement of payment morale and the protection of small and medium-sized suppliers of goods and services. The amendment to the Commercial Code responding to this directive entered into effect on 1 July 2013.

Before that date, the late payment issue was only regulated by section 340 of the Commercial Code, according to which the parties were expected to state the deadline for payment in their contracts, and in case no arrangement to this effect was made, the debtor was obliged to fulfil his/her obligation (to pay) without undue delay after he/she had been requested by the creditor to do so. The sending of an invoice is as a rule considered a form of such a request.

The Commercial Code Amendment, based on the EU directive mentioned above, lays down fixed terms for the settlement of relationship-based liabilities. A novel provision comprised in the new Commercial Code is the explicit statement that the debtor is obliged to pay the price for the delivery of goods or the provision of services within 30 days of the day on which the invoice or another call of a similar nature was served to him. The Code also sets out



rules determining the periods during which the payment must be made in case no call for fulfilment (invoice) was sent. The contracting parties, however, may arrange for payment periods longer than 60 days, but only if this is not grossly unjust towards the creditor. In cases where the object of the mutual obligation is to deliver goods or a service against payment to a public contractor, the 60-day period is the maximum allowed term during which the payment must be made. From the explanatory report it ensues that upon the request of the Minister of Indus-

try and Trade, stricter rules have been applied to situations where the liability is met through subcontractors. In that case a 60-day payment period is the maximum limit even in relations between the contractor of a public contracting authority and its subcontractor.

The Commercial Code Amendment thus specifies, i.e. lays down, fixed terms for the settlement of liabilities in situations where the contracting parties have made no payment arrangement; however, the provision of section 340(1), which stipulates that the

debtor is obliged to fulfil his/her obligation to pay within the term stated in the contract, continues to apply.

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Changes to Employment Regulations in 2013 and Outlook for 2014

Unlike 2012, when employment law relationships in the Czech Republic were severely affected by the great Labour Code Amendment, the year 2013 is not so turbulent; in spite of this, employers have had to cope with new regulations concerning occupational healthcare and prepare for the changes to come into effect on 1 January 2014.

■ CHANGES MADE IN 2013

Occupational Health Care

As from 1 April 2013, all employers are obliged to comply with the provisions of the Act No. 373/2011 Coll., on specific healthcare services, as amended, in ensuring occupational healthcare for their employees (formerly "occupational preventive healthcare"). Last year, they could act on a voluntary basis in this respect.

Now, each employer must have a written contract signed on the provision of employment-related medical services with their provider – physician or medical facility authorised to provide the services in the area of general practice medicine or employment medicine.

The employer is further obliged to send all his employees and applicants for work to be

examined by the physician (entrance, periodical, extraordinary, exit or follow-up medical examination), except applicants for the performance of non-risk work – classified as Non-risk Category 1 or 2.

Fixed-term Employment

Since the great Labour Code Amendment eliminated practically all exceptions in the case of fixed-term employment, effective from 1 January 2012, a new Amendment to the Labour Code passed at the end of May 2013 reintroduces some exceptions as from 1 August 2013 in the case of serious operational reasons on the employer's side and/or reasons consisting in a specific nature of the employee's work.

Under the provisions of the Amendment, employers with a trade union may stipulate details concerning the application of the exception in a written agreement with the trade union. Employers with no trade union may introduce the exception and set out its rules by an internal regulation.

Shortening of the Uninterrupted Rest Period between Two Shifts

The same Labour Code Amendment, which provides for more exceptions to be introduced in the case of fixed-term employment, simultaneously shortens the period of uninterrupted rest between two shifts from 12 to 11 hours, with the exception of employees under 18 years of age, where the minimum 12-hour uninterrupted rest period between shifts is maintained.

■ LABOUR CODE AMENDMENT IN CONNECTION WITH THE CIVIL CODE RECODIFICATION

The new Labour Code Amendment is currently being reviewed in connection with the new Civil Code and the Companies Act to become effective on 1 January 2014. It concerns the following areas:

- Invalidity of legal acts – new rules will be set for the relative and absolute invalidity of legal acts and, in addition, the nullity concept, until now unused in labour legislation, will be introduced;
- Agreements on salary deductions – new rules will be introduced in the new Civil Code, e.g. the maximum amount which can be deducted from salary will be newly set up to the half of salary provided that this amount does not exceed the maximum limit stipulated by the Civil Procedure Code;
- Use of certain securing institutes in employment relationships will be newly regulated, alternatively completely excluded;
- Possibility of the statutory representative to immediately cancel an employment relationship in the case of a minor under 16 years of age, provided that all the conditions set out by law have been met and the court has given its consent.

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Jan Piřha: Ethical and Unambiguous



Jan Piřha is Managing Director of the BACKBONE telecommunication and IT company, which specialises primarily in the construction and servicing of mobile communication technologies. He himself started as a rank-and-file installation technician, who, thanks to his diligence, experience, and technical know-how, has built a prospering firm, which has won the respect and recognition of partners at home and abroad.

Over the more than a decade of its existence, Backbone Company has mastered a number of projects not only in the Czech Republic, but also abroad, working for renowned firms such as Motorola, Siemens, and Huawei. What lies behind this success? What were the beginnings of your business activities like?

I worked for a Motorola contractor, starting as an installation technician, and made my way to become a Team Leader. After that, I was taken on by Motorola as Project Manager, but my favourite occupation was still technical work. I tried to find a job where I could use my organisational experience and technical skills. I looked up in awe at

the big firms such as Siemens and Motorola, pondering how to be able to take part in such activities and to develop them. So I decided to start my own firm, called BACKBONE, and become a professional supplier of telecommunication services for those vendors. And what lies behind my success? Self-education... I attended a number of courses and hunted for new things in the world of technical inventions and management in my branch of business. This is what has always interested me and what is still my great hobby.

What kind of boss are you? How is it that you have managed to set up an efficient team with such a good reputation?

At the start, being a good boss was not very simple. I thought it would be enough to tell people what they should do, and that would be all. But soon I could see that was a mistake. When I saw that my know-how as a boss was insufficient, I decided to enrol in a managerial training course, and began to apply what I had learned there. This helped me formulate certain principles by which I am guided, mainly to be ethical and unambiguous. And this is what I also require from my employees. In most cases, we address each other by our first names and our relationships are very friendly, but working results, which are precisely formulated in our firm, always come first. This has proved to be a good thing: as a result, the atmosphere in our firm is very friendly and we are able to work as a team. I have never stopped learning, so I can always draw on new experiences. This is very exciting about my work.

You are known to take up complicated projects as a challenge. Which was the most difficult one you have had to manage?

Yes, that's true. Originally I was a technician and used to travel to do assembly work, just as our employees do today. That is why I am interested in the technical performance of the projects, and our strong point is the ability to organise the different processes of the project efficiently, so that the solution is not only cheap, but also, and mainly, reliable, where all the terms and standards are strictly observed and the customer gets more than he expected. I consider this the result of my own work, which I always want to be proud of. My most difficult project to date is the exchange of the complete technology of an existing network for a German operator, where a new generation mobile network is simultaneously being built and everything is being re-installed in three different systems at a time, without the mobile operator's client noticing anything. The processes are very extensive, but, thanks to the professional approach on the part of both ourselves and the customer, everything is going very well.

What did the economic recession mean to you? Have the demands of your customers changed?

Well, the market always has periods of boom and bust. We have experienced this, too. But if you have common sense and are able to observe the principles of management and business, you'll also be able to cope with periods of slump and motivate people even in more difficult times.

In 2012, you were a nominee for the Entrepreneur of the Year 2012 competition organised by the prestigious firm of Ernst & Young. What did this recognition mean to you personally?

It was a great honour for me to have been nominated for such a prestigious award, and I admit I've taken it as the recognition of my good work. The whole competition was a great time for me. I met many businessmen whose example I admire, and have drawn much experience from them. It was definitely a new impetus for my future work.

You are very successful abroad, in particular on the German market, where BACKBONE

has been announced as the best firm working on a technology exchange pilot project order. How do you explain this success?

It is a matter of professional approach. If you do everything as a professional, the people around you will accept you as such. This is not just a matter of installing a technology, but the general approach to the firm. We train the management, as well as the people on the job, and are trying to do professional marketing, provide technical assistance and support. The aim is to ensure a perfect result of our work, and the logical outcome is success. That is why we have obtained such an evaluation many times before. Our greatest achievement has been winning the "Outstanding Delivery Partner 2009" award from Huawei. We greatly appreciate this.

What do you see as your greatest competitive advantage?

Our great advantage, in my opinion, is that we have our own capital and can organise work according to our own views and experience, resulting from team work. We have a common aim and each of those working for the firm knows it and contributes towards its achievement. Good and stable relationships within the firm make us a strong team which is pulling on the same end of the rope to attain the set aim. I think that creating and maintaining such a team is the most important, and at the same time the most difficult thing in business. I would like to thank all my people in the firm, as our achievements go primarily to their credit.

BACKBONE s.r.o.

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Can you unveil to us something about the future goals of your firm?

Our firm will always be standing on good foundations. Our primary goal is not making money, but helping our customers in providing their services and building a good name for themselves in the market, and the automatic result will be the turnover and profits. This has always proved its worth. On this basis, we would also like to help other European and world providers of telecommunication services. And if anyone at all shows an interest in joining us in these endeavours, we'll gladly welcome a partner with whom to promote these aims.

The Czech Republic Holds Its Position among the TOP 15

Last year, despite the economic problems of the Eurozone, Europe has not lost its attraction for foreign investors. This is what follows from the European Attractiveness Survey, carried out regularly by EY. According to the eleventh instalment of the survey series, the country which last year attracted most direct foreign investments, was the United Kingdom (697), followed by Germany (624) and France (471).

The Czech Republic still holds its position among the first fifteen countries that are most attractive for investors, ranking 12th on the European scale in the number of created jobs and 13th in the number of investment projects. In 2012, 64 direct foreign investment projects were contracted in the Czech Republic. In comparison with 2011, the number of investment projects declined by 3%. Thanks to foreign investments, however, 5 508 new jobs were created, 6.6% more than in the previous year. The survey was based on an analysis of statistical data on foreign investments started in Europe the previous year and on the views of more than eight hundred senior managers on the development of direct foreign investments in the next decade.

■ THE CZECH REPUBLIC IN 2012

"Sixty-four direct foreign investment projects were contracted in the Czech Republic in 2012. Although in terms of their number this means a 3-per cent decline, 5 508 new jobs were created thanks to foreign investments. The most important investors are German, Japanese, and Austrian companies. The Czech Republic is especially attractive for car manufacture,

which account for 60% of new jobs created thanks to direct foreign investments. Important investment projects were announced last year for example by the German automobile works Volkswagen AG and SAS Autosystemtechnik GmbH & Co. KG. The number of foreign investment projects also increased in heavy engineering and logistics," says Ms Magdalena Souček, commenting on the survey results. "In 2012, CzechInvest Agency mediated 350 new investment projects and surpassed its 2011 record. The number of new investment projects mediated by the Agency, mainly involving expansion, is growing steadily. This shows that we are managing to make the investor whom we have brought into the country stay here," says Mr Petr Očko, General Director of the EU Funds, Research and Development Section at the Ministry of Industry and Trade, and Chief Executive Manager of CzechInvest. "Much credit for the higher number of investment projects in the CR in 2012 is due to the Investment Incentives Act Amendment. In all, the investments will bring more than 26 billion crowns into the country and will create more than 12 000 new jobs," Petr Očko adds. CzechInvest

statistics confirm a diversion from big investments into production to smaller and more sophisticated projects, with the proportion of service projects and technological centre projects increasing. In the IT sector, for example, the volume of investments increased by nearly 150%.

■ INVESTORS TRUST EUROPE

2012 was another complicated year for Europe and its stagnant economy, which forces enterprises to concentrate on the "bottom line" rather than revenues. Most of the managers addressed in the survey believe that in the next three years Europe will become more attractive for investors, or at least will remain as attractive as it is now. "New investments in Europe are planned by 38% of companies included in our survey, in comparison with only 26% of those addressed in the previous one," Magdalena Souček adds. "This shows that despite the economic uncertainty investors have learned how to behave in the new socio-economic conditions. To bring the "European dream" closer to reality, it will be necessary to intensify economic integration, restrict regulation, and place greater emphasis on education and innovation."

SOME OF THE LATEST INVESTMENT PROJECTS IN THE CR

A New Prenatal Diagnostics Centre Opens in Prague

A joint project of the Association of Medical Genetic Centres of the CR and the firm BGI Health opened in Prague at the end of June 2013. Its laboratories specialising in prenatal and reproduction medical testing, which cost EUR 2 million, will employ experts in biology, biochemistry, and bioinformatics. The project opens up excellent opportunities for the further development of domestic scientific and research activities in the field of genomics and bioinformatics.

Eaton Starts a New Innovation Centre in Roztoky u Prahy

The EATON industrial manufacturer has started the construction of another building for its innovation centre. This is the company's response to the rapid development of its European Innovation Centre, which it opened in 2012. The ceremonial event to mark the start of the Centre construction was attended by representatives of the Czech Technical University. EATON has long collaborated with the existing European Innovation Centre on the development of new technologies for its customers operating in the area of the electrotechnical, hydraulic, aviation, and automotive industries. The objective is technologically effective, efficient, sustainable, and safe power supply solutions.

CzechInvest Brings the Swiss Manufacturer of Industrial Sensors Baumer to Brno

Baumer Group, which is concerned with the manufacture of industrial sensors, is expanding its activities to the Czech Republic. In mid-2013, the Swiss company opened a new development centre in Brno. The centre is another addition to the company's competence centre network. Thanks to research and development in the company's own facilities new products can be manufactured, which are thoroughly tested and only then put into production. Thanks to its investment in innovations, Baumer Group is a leading manufacturer in the area of industrial sensors, encoders, measuring instruments and automatic image processing components worldwide. In the future, Baumer is planning to create up to 30 new jobs for software and testing engineers in Brno. CzechInvest assisted the company in choosing the locality and the establishment of contacts with contractors.

Panalpina Opens a Service Centre in Prague

The Swiss Panalpina Company, one of the world's leading providers of supply chain solutions, opened a service centre in Prague in June. The centre will focus on internal customers for the entire area of Europe and the Middle East. By the end of the year, it will employ 50 people. The new centre in Prague is part of Panalpina's global service centre. For the company it means that by providing its services to internal customers, it will be less dependent on the fluctuations of the local markets. Before making its choice as to where the centre should be located, the firm was also considering Poland and Hungary. In the end its choice fell on Prague, thanks to the optimum combination of the good supply of skilled labour and the well-developed infrastructure in the city.



New Obligation for Joint Stock Companies

The new Business Corporations Act to enter into force in 2014 imposes upon joint stock companies the obligation to open their sites on the Internet, giving basic information about themselves. If they do not comply with this provision, a fine could be imposed and in particular they will risk their general meetings becoming invalid. Therefore, as from January 2014, the provision applies that joint stock companies must have their sites placed on the web; in the case of other company forms, such as limited liability companies, the Act leaves it up to them whether they will post their sites on the web or not (if, however, they already have a web site, or will open one, they will be obliged to state the required information there and keep their sites up to date). On the website, each businessman must state his name and the registered address of his business. This information must be available on the web free of charge so as to be easily accessible after typing the

electronic address. The act also lays down the obligation for companies to publish invitations to the general meetings on their web sites (at least 30 days before the day on which they will be held, and the invitations must remain posted until that day). So that in case a joint stock company does not have its own website, there is a danger that its general meeting will be invalid.

Unemployment Rose to 7.5%

The July unemployment rate rose to 7.5% from 7.3% in June. In the course of the month, the number of the unemployed persons increased by more than 10 500, to about 551 000. The main reason was the arrival of new school leavers on to the labour market. At the end of July, Labour Offices had some 40 000 vacancies on their lists, nearly four thousand less than in the previous month. There were 13.7 job seekers per vacancy on an average; the largest proportion, 57.4 job seekers/vacancy, was recorded in the Bruntál District.

Employee Benefits in the Czech Republic

Starting in January 2013, Czechs have an opportunity to join a new voluntary pension system, making it possible for them to save for retirement in the funds of pension companies. Interest in joining the scheme, however, was not too great: only one-fifth of firms, in each of them just less than 5% of the employees, showed an interest in joining. According to a regular survey carried out by ING Insurance Company and the Confederation of Industry, the political and all-society disunity of view on the new system led to the offer to employees to participate in the additional pension insurance scheme as an employee benefit. This year, however, this benefit was offered by only 68% of enterprises. Although most domestic companies do not show any significant improvement in their economic situation, the offer of employee benefits has increased in comparison with last year. Currently, companies offer 10 different benefits on an average, and those in a better shape or with a larger number of employees, 11. The top benefits offered by firms include mobile phones and education, which are provided by 87% and 85% of firms, respectively. As in the previous year, the largest increase is recorded in education, with 14% of firms planning to enlarge the range of learning opportunities for their employees. The offer of employee benefits partly reflects the needs of the firms. An interesting situation has developed in the area of company cars. While in the past, company cars were a relatively common benefit accorded to medium- and top-level management, today company cars are only allowed to those for whom they are indispensable in carrying out their working tasks.

Moody's Confirms A1 Rating for the Czech Republic, the Sixth Time in a Row

Despite the unstable political situation, the Czech economy ranks among the least problematic in Europe. Moody's has recognised the country's stable tax system, the decrease in state debt and the good situation of Czech banks. No bankruptcy or any serious financial problems are threatening the Czech Republic, according to Moody's long-term prognosis. The country's state debt is low in comparison with the other EU members – last year the Czech Republic's deficit amounted to 4.4% of GDP, which also included the one-off settlement with the churches and other exceptional expenditures; without them the deficit would be only 2.5% of GDP. The rather high independence of the Czech economy on foreign markets was one of the factors which influenced Moody's rating. In comparison with other European states, the Czech economy is growing at a slower rate, the country's banking system is stable, and the indebtedness of Czech households is below average.

Foreign Investors Control 42% of Company Capital in the Czech Republic

Foreign investors control 42% of the registered capital of Czech firms and have capital shares in about one-quarter of them, according to Bisnode Consultancy. The largest share of foreign capital in domestic companies (90%) is invested in the automotive industry. In information and communication service companies, foreign investors control 73% of capital and in engineering com-

panies, it is 60%. On the other hand, Czech firms hold the biggest stakes in the area of culture, entertainment and recreation (97%), education (94%), health service (93%) and agriculture (88%). "We have found that although foreign firms hold much smaller stakes in the firms' registered capital than Czech firms in the particular sector, they control the branch in terms of revenues,

i.e. in terms of market share. As a rule, the most important foreign-owned company has higher revenues than is the sum of the revenues of ten largest Czech firms in the same sector," says Bisnode analyst Michal Řičař. This, he points out, means that if foreign firms enter into a certain sector, it is on a massive scale, and in the long term they will take the largest share of the market.

BANES Uses the Most Advanced Technologies

Years ago, Pavel Baloun became captivated by engineering. Today he is head of the BANES Company, which he himself has founded. The company, located in Soběslav in South Bohemia, manufactures precision rotating parts, which it sells to customers at home and abroad. Thanks to their high quality and reasonable prices, the products are selling well, even in the face of keen competition.

You are a forward-looking firm, which has been increasing its turnover throughout all the years of its existence. Can you say what lies behind this success?

To find out what lies behind any success, one has to look for motivation. Our motivation has always been the satisfied customer and pleasure in what we are doing. For the entire lifetime of the firm, we have supported our efforts by significant investments, mainly in the machinery. Here, we bet on Japanese technology. At the same time, however, we must not forget to mention the cornerstone of our success, which is our team of experienced employees.

Why did you decide to found a firm specialising in rotation machining?

After graduation from the Prague Technical University, I started working at LADA Soběslav as an NC lathe programmer. The machines which today, seen by the modern eye, are so slow and imperfect, captivated me so much that they influenced my choice when I was pondering on what BANES should be manufacturing. I am still following all that is new in rotational machining and am pleased to say that we are using many of the latest inventions in our workshop.

As you say, technology alone is not the most important factor in a firm's success. Equally important are the people. Is it a matter of their skills, knowledge, or enthusiasm?

A good team is the greatest asset of every firm. I always choose my employees myself and meticulously weigh up their pros and

cons. My emphasis is on enthusiasm, honesty, conscientiousness, and communicating skills. If a new employee feels like learning new things, he will always find specialists in our firm who will be willing to initiate him and pass on their experience to him.

Looking back over the past few years, what, in your opinion, is your greatest achievement?

I think that the term "greatest achievement" should not be used in business. Nothing can be done "overnight". There exists a lot of work, ideas, patience, ambitions, as well as humility, behind all our results. Of course I am pleased that we have managed to build a strong and stable team of collaborators, that we can invest some one million euros in new technologies each year without foreign sources and subsidies and that we increase the firm's turnover every year and gain new customers.

Currently, exports account for approximately 15% of your total revenues, with the largest portion being realised in trade with Germany and Austria.

How are smaller Czech companies, like yours, faring in foreign markets and in projects in the face of such keen competition?

Over the years, we have gained valuable experience and know-how, we use the most up-to-date technologies and our company structure enables us to work at substantially lower operating costs than is the case of larger enterprises. Therefore we can offer our foreign customers the required quality at more reasonable prices than our rivals do. This share of exports in total revenues will further increase, due to the fact that we have become reliable partners to existing domestic customers, who recommend us to their parent or sister companies abroad. This is always the greatest reward and the best publicity for us.

What can you offer your customers as added value?

Added value in collaboration with our firm rests in our open and partner-like approach. We realise the mutual importance of the customer-supplier relationship. We propose measures to help reduce the customers' costs and provide services to them, for



Pavel Baloun

example in the area of logistics, such as JIT, KANBAN, consignment stores, etc.

Which times were the most difficult in the development of your firm and how did you cope with them?

One of the most difficult times was the year 2009, when the global crisis culminated, and our orders declined by approximately 30%. However, looking at the period from the perspective of the next few years, I can say it was the beginning of our current prosperity. Thanks to our financial stability, we survived the critical year without the need for any massive dismissals, and owing to the extremely low purchase prices of new machines, we even invested massively. When the revival came, we gained many new customers just because we were well prepared and reacted promptly to new demand.

This year you marked 20 years of your existence. What are your visions for the future development of your firm?

In the first place, we would like to continue boosting the volume of production. We are planning to do this by increasing production for our existing customers and obtaining production orders from new ones. We have in hand a number of projects, mainly for large supranational firms, for which it is necessary to prepare new grounds and premises. We'll start preparing the grounds covering an area of approximately 18 000 sq. metres at the end of this year, to be completed at the end of 2014. The company is also planning to obtain the ISO TS 16949 quality management certification, which is increasingly demanded by customers operating in the automotive industry. However, we are planning to keep this segment at the current 60% maximum level of the company's total revenues.

Czech Logistics Has Great Opportunities



Czech logistics has great opportunities in view of the country's strategic position in spite of the challenges regarding its road and motorway system.

The recent economic crisis has led to a sound consolidation of the logistics providers' market and prompted demand for the outsourcing of logistic services, says Jan Porter, Commercial and Marketing Director of DACHSER Czech Republic a.s. and Chairman of the Logistics Club of the Association of Forwarding and Logistics.

How would you characterise the development of the Czech logistics market?

The Czech logistics market has undergone a rapid development since the fall of the iron curtain – from privatisation and the emergence of the first private Czech automobile transport firms, the first visionaries in the area of logistics and transport system pioneers, such as Ten Express, to consolidation and the entry of foreign capital. Everything in this country was done in great haste; what in Western Europe had been developing gradually for 50 years, we had to manage in

less than 20 years. After the revolution, the development of logistics was influenced mainly by our favourable geographical position in the centre of Europe and the skyrocketing demand for consumer goods. Suddenly we became both a new outlet and a transit country with a relatively satisfactory infrastructure and an inviting location for foreign investment. What happened is that today there are not many purely Czech firms in this country in the logistics market, which is saturated with logistics providers, and companies are faced with keen competition.

What changes has the economic recession caused in logistics? Do you think the crisis has also brought something positive to the firms?

Every economic crisis always also brings along positive effects. In general, I think that it triggers faster decision-making processes and produces new ideas regarding optimisation and savings. In my opinion, the recent economic crisis has resulted in a sound consolidation of the logistics providers' market and boosted demand for the outsourcing of logistic services.

Can you tell us what tasks the Association of Forwarding and Logistics (SSL) has set itself in connection with the current economic development?

The mission of SSL is to represent its members and support them in providing their

clients with services of the highest quality. SSL associates firms operating in logistics and forwarding, ensures that they are kept informed and supports the creation of a good basis for doing business in forwarding. It also supports the presentation of firms at trade fairs in other countries, for example, recently their participation in the world's largest logistic fair, Transport Logistic, in Munich, and thereby their expansion to other countries.

How is the role of logistics, providers changing?

Logistics, providers are increasingly focusing on consulting services and are being drawn more deeply into the internal processes of firms – their customers. Logistics providers are under ever-greater pressure to optimise the processes of their services, which must be more comprehensive than they were in the past.

Where do you see opportunities or setbacks in the logistics sector?

Poorer economic performance, lower foreign investments, and very slow changes in the Czech motorway infrastructure are definitely a challenge for logistics. An opportunity, for example, is the further enlargement of the European Union (e.g. the accession of Croatia to EU membership) with the ensuing elimination of market barriers.

Can you see any trends influencing logistic services in the Czech Republic?

As in other European countries, logistic services in the CR are affected by the increasing pressure for speed and precision of deliveries, which are then less bulky and more frequent. This changes the routine structure in providing logistic services and places high demands on providers.

What is the situation in the logistics sector in the other CEE countries?

From the all-European point of view, trade between the Central and East European countries is becoming equally as important as trade exchange with the West. In Poland, several important motorway corridors have been built, and after their joining the EU, trade with Bulgaria and Romania has grown. A similar development is expected in the case of Croatia.

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Warehouse Construction Last Year Fell Short of Expectations, This Year Optimism Prevails

Only 106 000 sq. m of new industrial structures were built in the Czech republic last year, which is one-third of the 2011 figure, according to the Cushman & Wakefield 2012 report. The forecast for this year, however, is that the surface area of new halls to be built will be the largest for the past four years.

According to C&W, the renting of industrial surfaces in the CR last year declined by 11.4% year-on-year, to 687 000 sq. m. In 2011, the size of rented surfaces amounted to 775 000 sq. m. and, in the record year of 2007, to as much as 855 000 sq.m. From the long-term point of view, however, it is not a significant decrease. "The Czech industrial property market is a stable environment, where demand has been stabilised at a sustainable level of around 600 000 sq. m. This is the average for the past ten years and it can be said that it expresses a verified capacity of the market," says Jaroslav Kaizr of Cushman & Wakefield.

In the last quarter of 2012, the volume of new construction was negligible (25 000 sq. m), with only 106 000 sq. m of new halls being built in the whole of last year, which is approximately one-third of the 2011 figure, the report states. This is mainly due to higher demands on the part of the financing institutions, and consequently the nearly non-existent speculative construction. "The year 2012 confirmed the trend of previous years, when new construction was partly suppressed by the reconstruction of existing halls. The structures built at the beginning of the 21st century can still be considered modern, but

their owners must invest in them to meet the stricter demands of the renters and to withstand their pressure for operating costs saving," believes Jaroslav Kaizr.

■ THE AUTOMOTIVE INDUSTRY BOOSTS DEMAND

Last year, mainly developer companies, such as CTP, Goodman and VGP, were building modern industrial halls for rent. Practically all construction was outside of Prague. At the end of last year, vacant surfaces accounted for 7.0%, while one year before it was 6.4%. Despite this moderate growth, the vacancy rate has not reached the "sound" 10% and opens up scope for new construction, states the C&W report. Domestic demand in 2012 was pulled by automobile factories and their subcontractors, which gained a 28% share of the total gross realised demand for modern warehousing spaces.

■ OPTIMISM PREVAILS IN THE INDUSTRIAL SPACE MARKET

The results for the first half of the year are an expression of moderate optimism in the industrial property market. In the 2nd quarter of 2013, firms rented 70% more surfaces in industrial parks than last year, according to

A NUMBER OF NEW PROJECTS

In the first quarter of this year, the PointPark Properties developer company started the construction of a 20 000 sq. m BTS project in PointPark Prague D1 for Yusen Logistics. Foxconn, which has been manufacturing computers and other electronic and engineering products in its European production centre in Pardubice since 2000, has concluded a contract for the rental of nearly 15 500 sq. m of warehousing space and 1 000 sq. m of office space in the Pardubice CTP Park. These will serve as distribution warehouses for the entire European region. The NBGI Private Equity Limited investment fund, in cooperation with Panattoni Europe, has completed the acquisition of the Pilsen Park West logistics park. At the beginning of 2013, the Multimodal Logistics Centre near the Ostrava-Mošnov Airport extended its rented surfaces. The HB Reavis developer company has concluded new contracts for a surface of 6 000 sq. m. Hellmann Worldwide Logistics has rented 20 000 sq. m of surface in the Bor CTPark. The developer firm, Goodman, will build a compound sized 30 000 sq. m in the Kolín-Ovčáry industrial park for Ingersoll Rand Equipment Manufacturing, ready to operate. DHL Express will start the construction of a logistics centre in Zdiby near Prague on a surface of 11 000 sq. m. Accolade and Panattoni are planning to build a network of parks in several locations in the CR to serve the automotive industry and firms linked to the German market.

The Industrial Park in Mladá Boleslav Declared the Best Industrial Development of the Year

The Goodman Mladá Boleslav Logistics Centre of Goodman, the Australian developer, has won the "Best Industrial Development in the Czech Republic 2012" award. The logistics park, covering an area of 22 000 sq. m, was completed in August 2012. It was built for SAS

Automotive according to its requirements. In 2012 it was one of the largest rental transactions in the industrial property market. The Park offers the most up-to-date technologies and meets the most demanding European standards. "It is the first time Goodman has won this prestigious award in the Czech Republic. We highly value the opinion of people who have been in the business for many years and have a good knowledge of the domestic and international property market. Our thanks go to the entire team which participated in the realisation of the Park in Mladá Boleslav," says Jakub Pelikán, Regional Director of Goodman Czech Republic and Slovakia.

TOYOTA TSUSHO EUROPE S.A. Considers Jirny a Strategic Site

At the end of 2012, the logistic division of Toyota Tsusho Europe S.A. rented nearly 8 000 sq. m of surface in the Prologis Park in Prague-Jirny. From the Park, it controls logistic operations for firms in the area of automotive production and other sectors. Jirny has a strategic geographic position between its headquarters in Prague and the service centre in Kolín, which provides services with the final destination in TPCA. The Park is situated on the main route, in a location with an adequate supply of skilled labour. The Prologis Park Praha-Jirny has a total surface area of more than 220 000 sq. m and is rented to full capacity. Other important renters are, for example, DHL, LGL and Globus.

Rentals and Service Fees

The highest rentals of industrial and logistic property (prime headline) in the Czech Republic amount to approximately EUR 4.25/sq. m/month (1st quarter 2013). The rent for office space is usually EUR 8.00-9.00/sq. m/month and the customary cost of service fees ranges between CZK 13-17/sq. m/month.

Cushman & Wakefield. In the first half of this year, 472 000 sq. m of industrial surfaces were rented, in comparison with "only" 265 000 sq. m in the same period last year. In the first half of the year, the Czech industrial property market thus reached a record high demand, higher than in the 2007 boom year. The largest transactions in the 1st half of the year included the extension of the lease contract by HOPI in PointPark D1 (approx. 45 000 sq. m). The largest new rentals are those by Škoda Auto in the D+D Park in Mladá Boleslav (approx. 27 000 sq. m), new rentals by Faurecia in Nýřany near Plzeň (25 000 sq. m) and in Bezděčín near Mladá Boleslav (26 000 sq. m), Drylock Tech-



Photo: Cushman & Wakefield archives

nologies in VGP Hrádek nad Nisou (approx. 18 000 sq. m) and Global Logistics Solutions in the Pardubice CTPark (approx. 16 000 sq. m). The biggest building boom could be seen at the end of March 2013 in Brno, where some 70 000 sq. m of new industrial surfaces are under construction. Another very active region is that of Plzeň, where 47 000 sq. m of new surfaces are currently being prepared for construction. Next comes Prague and its environs, followed by the Central Bohemia Region, especially Mladá Boleslav.



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STEINBAUER LECHNER s.r.o. operates in the packaging market as one of the leading companies in the development and production of packing, innovative packing solutions, and export packing. Although today STEINBAUER LECHNER collaborates with a number of important firms in different sectors at home and abroad, its founders still consider their enterprise to be a family firm. Its most important partner is GEIS, a firm with tremendous potential in the area of logistic services. The company made a very modest start, but today it operates in its own premises with above-standard equipment. As its founder and Chief Executive, Antonín Steinbauer, said to Czech Business and Trade, the firm's potential rests on its 20-year experience, a stable team of collaborators and top-standard equipment.

What were the beginnings of your company?

The beginnings of STEINBAUER LECHNER s.r.o. were very modest; we started in rented space, without capital and with just a few employees. At the very beginning, we were part of a small sawmill. In 1992, most of our customers (mainly engineering firms) had their own joinery workshops, and so, from the outset, we were oriented towards export. Quality requirements forced us to go our own way, and so we decided to start a firm specialising in the development and production of export packaging. A milestone for us was the year 1999, when we purchased our own premises, moved our production

there and invested in modern equipment. This is how our firm obtained its current form.

Do you consider the family firm model the optimum choice? Are you seeing it as your advantage?

Although we are a family firm, all its members passed through the entire process of production before taking up leading positions. I always considered this necessary. The second important thing is straightforwardness in dealing with the employees and using the same yardstick for everyone. And the third condition is to strictly separate work from personal problems, find ways of solving them and ensure mutual communication. When observing those three principles, a family firm, in my opinion, is a forward-looking form, which I consider an advantage.

Which products are the most important for your firm?

All products meeting the customer's demands are important. The most important, however, are those which, thanks to our top-standard equipment, generate the greatest added value. The experience we gained in realising projects, the knowledge of the effects of exposure on packing and the knowledge of legislation, logistics, and all the materials available in the market make it possible for us to propose advanced packaging solutions with an emphasis on quality, functionality, and cost.

As far as I know, you attach great importance to the production management system. Can you give us some details?

In brief, our production management system makes it possible to retroactively trace the different steps made in the process of production and the persons responsible for those steps. This, however, is a process we are continuously improving.

You have your own Development Department and your own production base with the most up-to-date technologies. How does your own development base stimulate innovation?

After examining the customer's requirements, which comprise not only tangible

data, such as the size, weight, and technological specifics, but also the transport route and other items, we prepare the basic design of the transport packing. The Development Department is directly linked with the Production Technologist. In more complicated cases, such as the transport of works of art and optical or electronic instruments, we make a trial sample. All the experience we have gained constitutes our know-how for collaboration with other customers.

Where, in your opinion, lies the potential of your firm? Which processes are the most important for building relationships with existing and would-be customers?

The basic potential of the firm is its experience gained during its 20-year existence, a stable team of collaborators and top equipment. Our dealings with customers are very serious and the services we offer them are of very high quality.

How is it that you are beating your competitors?

We are not trying to beat the competitors, but to overtake them by the development of products, prompt offering, and good quality services. How we are managing this is up to the customers to say.

Which territories are the most important for you as regards exports? Can you also mention your target sectors?

As regards exports, considering the specifics of the deliveries, the most important territories for us are Germany, Austria, and Slovakia. We focus on the electrical and mechanical engineering sectors, the aircraft, military, and automotive industries, and we also have clients in the area of power engineering, telecommunications, and the food industry. A special feature are orders from art galleries and museums.

Last year you celebrated 20 years of your existence. What are your visions for the future?

I would like to celebrate one more jubilee of the firm in the event of us managing at least to maintain the current trend and standards. In this connection, I would like to thank all our customers, trade partners and employees for their collaboration.

Czech Railways Keep Pace with Europe in Safety



Zdeněk Chrdle

If one hears someone say “railway safety” and is interested in the subject, the words that will immediately spring to mind are AŽD Praha. It is a company that will next year mark the 60th anniversary of its presence in the market, during which time it has made and supplied a countless number of signalling, telecommunication, information and automation technologies. During its existence, AŽD has undergone great development. In 1954, the overwhelming majority of the systems it supplied were made under licence. Today, the situation is quite the reverse. The key signalling safety technologies are purely a Czech product used in twenty countries the world over. This is a discussion we had with Zdeněk Chrdle, General Director of AŽD Praha, concerning safety on Czech railways.

Mr Chrdle, let us start with perhaps the hottest subject being raised by all those interested in railway safety. I have in mind the fatal crash of the high-speed train in Spain, which was derailed in a curve, where the permitted speed was limited to 80 km/h, but the train travelled at nearly double that speed.

Whenever an exceptionally significant event happens in the world, it naturally catches our interest and we undertake an analysis of it. The results are then transferred into our Czech signalling systems. As regards the accident in the sharp bend by Santiago de Compostela, we are of the opinion that it was a case of failure of the human factor. But I would like to point out that no fatal accident is a matter of a single failure, there is always a series of minor mistakes, which result in a similar misfortune. As for the crash in Spain, it is interesting to note that the engine driver is said to have been driving practically on the whole track under the European Train Control System (ETCS), which can stop the train in case of danger. The problem is that in the sharp curve where the accident occurred, for some reason the system was not installed. In addition, even if the section had been fitted with ETCS, the derailed high-speed train was not approved for ETCS coverage. Instead, it used the ASFA national safety signalling system, which works differently, and consequently it did not stop the train in the fatal curve. So that all responsibility lay exclusively with the engine driver, who seems to have mistaken the section for another place, failed to notice the signal warning that speed had been reduced to 80 km/h, and when he saw the sign showing the 80 km/h speed limit, he was unable to lower the speed accord-

ingly, and you know what happened. Nearly 80 dead and a large number of injured people.

Is the ETCS system being installed in this country? Which tracks must be fitted with it?

According to Czech legislation, tracks that are to be provided with ETCS are those allowing trains to travel at speeds of more than 160 km/h. Although in this country trains run at speeds under 160 km/h, the Czech Rail Infrastructure Authority decided that all railway corridor tracks shall be fitted with ETCS. The purpose is simple: to ensure interoperability, i.e. a safe and unobstructed movement of trains across Europe without the need to change locomotives using different systems. At the moment, AŽD Praha is installing ETCS in the first corridor in the section Kolín – Břeclav via Česká Třebová and Brno. It is a more modern second level ETCS system. We estimate that some time around the year 2020 we'll have all corridors covered by ETCS.

Let's have a look at our national railway safety systems. How are things with us?

Besides the conventional train signalling system, which is our product LS-90, we have developed a similar system as ETCS. In comparison with the European one, however, it is much more simple and much cheaper. It is called Automatic Train Control (ATC), and is installed on tracks and CityElefant suburban trains operating around large cities. It was developed partly because the national safety signalling system has one drawback: although it monitors the vigilance of the engine driver and supplies the necessary information, it does not stop the train in case the engine driver forgets to slow down on a track



requiring the train to reduce speed, as it does not know the situation on the track. ATC knows it and would be able to prevent accidents, such as the crash in Spain. It's a pity the ATC project has been somehow sidelined for the time being and is not developing.

How do you see the future of Czech railways in general?

The railway has a great future in this country. Just have a look at the crowded motorways, jammed with trucks, the damage they are causing to the environment, the accidents, deaths and injuries they bring about. This will have to change soon. We should take Austria and Switzerland as an example.

At the beginning of our interview you said you were developing new safety systems which can easily stand competition in the

face of foreign systems of renowned companies. What new items from AŽD Praha can be found on Czech rails now?

In the first place I am proud of our greatest novel item, the ESA 44 station interlocking system. It is a fully electronic interlocking device allowing contactless control of most of the internal and external elements of the station signalling system.

Then there is another new item, the EZŠ shunt loss registering system, warning against trains illegally passing through signals. The system monitors trains and sees to it that they legally depart the railway station. In case it does not depart legally, the dispatcher will not be able to send another train on to that track. This is a system reacting to accidents occurring on the tracks in this and other countries.

Equally important is our new VNPN system, warning against the illegal passing of

red signals. It can identify and stop the train whose engine driver has departed without permission, i.e. passed a signal ordering to stop. In addition it will stop all neighbouring trains whose safety could be threatened by this fact. We already have the EZŠ system installed at the recently modernised Stará Paka railway station, for which we have won two awards in the prestigious Czech Transport Structure/Technology/Innovation 2012 competition.

Let's wind up our interview with a comparison of safety on Czech railways and railway safety elsewhere in the world.

Maybe you will not believe it, but the Czech Republic not only keeps pace with the developed world, but it is even a few steps ahead of it. And we could be even better, but all depends on money and readiness to invest in safety.

Czech Railway Industry Is among Europe's Best

"The railway industry has always been among the country's sectors pulling the economy up, and nothing has changed about it until today. Especially important are its export achievements. As for the domestic market, the railway industry is suffering from restricted financial resources needed for the modernisation of railways and, regrettably, from inadequate support of domestic manufacturers on the part of the state. For example, it is a great pity that Czech rails are ever more frequently plied by foreign engines, while domestic manufacturers offer comparable machines," says Marie Alžběta Vopálenská, Executive Director of the Association of Czech Railway Industry (ACRI).

What, in your opinion, are the prospects for the Czech railway industry?

The Czech railway industry has a tremendous potential. Investments in this sector will have a multiplier effect on the domestic economic development. Specifically, they will have a favourable impact on employment, will improve the quality of transport services and lead to a higher culture of travelling, while also raising the export performance of enterprises. In general, Czech railways will require considerable investments in the next few years to attain the desired standard. In particular this means investment in the development of the railway infrastructure, in addition to the completion of the railway corridors and the modernisation of key railway junctions. Nor must we forget about regional railway lines. To be competitive, we must fit the main corridors with the ERTMS/ETCS European train control system, modernise freight corridors passing through the Czech Republic, harmonise the costs of all types of transport, invest in the modernisation and purchase of new carriages and, last but not least, start preparations for the construction of high-speed lines that will

make the conventional lines available for freight transport.

What are the strategic aims of your Association?

In the first place we must complete preparations for the recodification of the new railway act and prepare the revision of its implementing regulations. The act should better reflect current needs linked with the liberalisation of Czech railways. This will lead to a greater efficiency of services and the broadening of their range, which in turn will raise the competitiveness of railway transport. All this will need to develop new technologies and raise the competitiveness of industry. The benefit for the population will be better accessibility of transport destinations. At the same time, however, it is necessary to take into consideration the need for a network coverage of the territory and support of the integrated transport systems so as to provide customers with optimum services. In these efforts, the role of the integrator should remain in the hands of the state. Emphasis must be placed on the development of the system as a whole. In this respect we must reference the issue of market

liberalisation. Currently, the greatest problem is the mutual recognition of products.

The general trend is that the decisive criterion is the lowest price. This, however, may involve quality problems, since technically, manufacturers often go to the last viable limit. Our other priorities include the preparation of the fourth railway package and its placing into practice, the monitoring and commenting on European standards and technical specifications for interoperability (TSI).

Last but not least, there is the issue of drawing money from the funds earmarked for the current programming period and the preparation of a cohesion policy for the new programming period after 2013 with the aim of maximising support for the modernisation and development of railways and rail transport in the CR.

Despite every effort we are unable to draw the 100 per cent amount of financial means made available by the current Transport Operational Programme, and it may happen that we'll have to return part of the money. It is obvious, not only from the short-term point of view, that a reasonably planned transport infrastructure, built at an acceptable cost, raises overall productivity and improves the returnability of private investments.

Your Association participates in international events and trade fairs. Can you tell us about some you have attended recently?

Of key importance for us are international events, such as the INNO TRANS International Trade Fair for Transport Technology, held in Berlin every two years.

TECHNIKA Beograd, the Eurasia Rail fair in Turkey and the TRAKO fair in Gdansk, Poland. Among domestic fairs I would like to mention in particular the Czech Raildays held in Ostrava each year. Member firms are also looking for opportunities on the promising Indian market and participate in the IREE International Railway Equipment Exhibition in New Delhi.

Do you collaborate with similar associations abroad?

ACRI is an active member of the Union of European Railway Industries UNIFE. Its mission is to actively develop an environment, in which its members will be able to provide competitive railway systems for rail transport. The Association also represents leading European railway suppliers of design, production, maintenance, and reconstruction of railway transport sys-



tems, subsystems, and related equipment. On the grounds of UNIFE we meet regularly with other members and associations.

To be competitive, the rail sector must invest in the promotion of science, research and innovation. What tasks, in your opinion, are facing researchers and development workers in this area?

The rail sector is a very complex branch. Owing to its history of more than 180 years, railways are bound by an unbelievably complicated system of regulations. In addition, railways were developing unevenly in different countries, so that the operation of railways in Europe has not, to this day, been unified, as regards both regulations and technical equipment. A help in this respect should be the adoption of Technical Specifications for Interoperability. For the time being, however, their introduction is seen rather negatively by the technical community. Nevertheless, there are many partial areas on which attention must be focused. But from the global point of view, research and developmental activities must focus on the adoption of a uniform European railway system. Such a system would make railway transport more cost efficient and more environmentally friendly. This is a matter of principle. On the other hand, the fact is that technical branches do not have an easy life today. In comparison with other branches they are highly demanding both as regards the knowledge of students and the cost of the equipment in schools at different levels would need. This is especially true of the railway sector. In view of the complex character of the branch, the training of new technicians takes a very long time. Therefore it would be desirable that technical education receive preferential treatment from the state authorities. This naturally also applies to the railway sector. Otherwise, there is a danger that in a few years certain professions will completely disappear,

and this will have a strongly negative impact on the whole sector.

What opportunities and what dangers can you see for the railways?

A fact, which has an especially negative impact on the Czech railway industry, is that the Czech Republic has one of the most open economies among European countries. This has its advantages, but also disadvantages. The disadvantage is that the Czech market is open to foreign investments to an extent that is not customary in neighbouring states. Every country is trying, within the limits of law, to support domestic firms, especially if this involves projects financed from public sources. Such investments financed directly or indirectly with state money, if realised by firms manufacturing in the CR, bring benefits in the form of employment, tax revenues and higher purchasing power of the population. Even in the strongly liberalised environment of the EU it is usual that the participants in the projects are primarily domestic firms, which is the result of a politically responsible support of domestic firms. The greatest handicap of the railway is its under-financed infrastructure, despite the investments made so far. Today, public budgets are under the influence of the economic crisis, which leads to a certain degree of pessimism as regards further investments in the railway sector.

On the other hand, however, a long-term development strategy cannot be built on short-term fluctuations of economic cycles. The basis for securing resources to finance railways is to include these priorities in the currently prepared operational programme for the area of transport so that the first investments in rail freight corridors and the modernisation of lines to allow trains to travel at a speed of 200 km/h can be made in the 2014-2020 period and the financing of new high speed lines, including the fulfilment of the interoperability conditions, ensured.

Questions for Petr Žatecký, Director of Foreign Marketing and Trade at AŽD Praha

In your opinion, what is the image of Czech products abroad?

Still very good. Czech producers are generally among the most sought after when it comes to quality and long-term reliability. On the other hand, it is true that the economic crisis and tight budgets have made foreign customers in the field of railway signalling equipment turn more often to low quality products from Asia.

Could you name some export success stories that your company can take pride in this year?

The conclusion of a contract for the supply of signalling equipment for the Osipoviči-Žlobin railway line in Belarus worth EUR 11 million and the conclusion of a contract for the supply of signalling equipment for the Tekirdag-Muratlı railway line in Turkey worth EUR 6 million.

What added value can you offer to your customers?

Undoubtedly, it is our willingness to listen to our customers. Our activities include trading with very complicated electronic signalling systems that go through meticulous

approval and assessment processes. In addition, every country uses different regulations that the suppliers need to adhere to. Some requirements go even beyond these regulations. Our main asset is our ability to adapt the equipment to our customers' requirements. We do not push our solutions at all costs. The issue of manufacture is also important, as well as the potential transport abroad. Then there is the issue of employment, i.e. how many new jobs we can create for local workers, which is every government's priority.

Czech Aviation Industry Strengthens Its Position

The Confederation of the Czech Aviation Industry associates important firms and universities concerned with the manufacture and integration of aircraft and aircraft structural parts, development and manufacture of aero engines, development, manufacture, and repair of aircraft equipment, avionics and aircraft systems. Its members include companies with the largest turnover in the Czech aviation industry, such as AERO Vodochody AEROSPACE, GE Aviation Czech, ZODIAC – Driessen Aerospace CZ and LOM PRAHA. How the Czech aviation industry is doing and what its prospects are were subjects we talked about with Petr Řehoř, Executive Director of the Confederation of the Czech Aviation Industry.

What are the strategic aims of the Confederation of the Czech Aviation Industry?

The basic strategic aims of the Confederation of the Czech Aviation Industry are to promote production cooperation and raise the level of know-how, participate in the education efforts and ensure the supply of skilled workers, seek support for the aviation industry aimed at reaching world standards and strengthen the competitiveness of the sector. The Confederation is striving to meet these targets, which has become reflected in growing revenues and a higher number of employees in the aviation industry. In 2012, the Confederation's member firms showed a year-on-year 24.5 per cent growth in revenues from aviation activities to USD 304 million and an 11.1 per cent increase in the number of employees in aircraft manufacture, to 3 208.

The purpose of establishing the Confederation was to strengthen mutual trade links: it is not an organisation founded for the purpose of drawing support from the state or from European Funds, which is the case of certain special interest associations in Europe. One of the main missions of the Confederation is to contribute towards raising the efficiency and competitiveness of this sector and to improve the environment for doing business. We are trying to push through changes in the financial and grant policy based on the principles of evaluation

using socially beneficial criteria with sanctions on the one hand and guarantees of support and greater flexibility on the other. We are developing the local supplier chain by broadening our membership base and supporting the members in their efforts to improve quality and efficiency. We contribute towards raising the number of skilled employees by cooperating actively with the schools (among which four universities are our associated members) and helping raise the attractiveness of aviation study branches.

After years of economic decline, Czech aircraft manufacturers have started on the way up to success giving the Czech aviation industry a chance to build a stable position for itself in the global supply chain, enhance its prestige and acquire new know-how and new skills. With its activities the Confederation of the Czech Aviation Industry helps the sector to use this opportunity and ensure its growth.

Your Confederation participates in international events and trade fairs. Can you mention some of the events you have attended recently?

The Confederation of the Czech Aviation Industry participates regularly in air shows in Paris and Farnborough in the UK, which alternate from year to year. In the past two years, the Confederation of the Czech Aviation Industry organised Czech exposi-



tions at those shows in cooperation with AERO Vodochody AEROSPACE. The organisation of the Czech participation and presentation were very much appreciated by visitors, trade partners, and the exhibitors themselves. As part of the expositions we arranged discussion panels, which were attended by important representatives of the aviation industry and foreign guests.

Later this year we'll present ourselves at the MAKS trade fair in Moscow and next year we are planning to take part in the Farnborough and the ILA Berlin air shows.

Do you collaborate with similar confederations and associations abroad?

Primarily we focus on the fulfilment of our strategic aims and are very selective in choosing foreign partners in the form of similar associations. Today, many such partnerships are often based on a purposeless drawing of European grants, which brings real long-term benefits only rarely. We are considering cooperation with an aviation association in the United Kingdom, which focuses on tasks that are very close to ours and pursues commercial, development, and production activities. It has a broad experience and similar views as we do. In this specific case, cooperation brings real benefits to both organisations.

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

Both the importance and structure of the aviation industry in the Czech Republic are changing significantly. After the massive decline in the 1990s the Czech aviation industry has found its place in key development and manufacturing programmes of global aircraft manufacturers. Currently there are three categories of companies operating in the Czech aviation industry, whose activities are mutually entwined. The first category is formed by big players, such as GE Aviation, ZODIAC, AERO Vodochody AEROSPACE, LATECOERE and Honeywell,

through which the Czech Republic is integrated into big foreign projects.

The second category consists of Czech subcontractors and suppliers of systems, who have a broad product portfolio (from machined parts and sets up to electronics, avionics, and aircraft systems). Some of them are subcontractors to the big players. Some manufacturers, especially those engaged in the systems area, are very successful abroad.

The last group are Czech finalists, i.e. aircraft manufacturers. Strongly represented in this category are Czech manufacturers of ultralight and light sports aircraft. Several companies which in the past belonged among "big" aircraft manufacturers no longer exist, or have changed their programmes. The successful ones today are Zlín Aircraft and Aircraft Industries, which are building on their long tradition and continue to make and develop their traditional products.

Nevertheless, considering the demanding nature of developing new types of aircraft and placing them on the market (this does not apply to small sports aircraft), the future of the Czech aviation industry rests in its integration into global production programmes and supply chains.

To be competitive, your sector needs investment in the support of science, research and innovation. What tasks, in your opinion, are facing researchers and development workers in this area?

In this area, the Confederation of the Czech Aviation Industry is endeavouring to become incorporated in new production projects, and is striving to boost efforts to link development more closely with production, while broadening cooperation between the development teams of Czech firms. To remain competitive, development and use of new technologies are a must. Our member firms invest increasingly in new cost- and time-saving technologies, which for the customer mean higher value and better products.

How are we doing as regards education in this area?

The education system in the Czech Republic has its pluses and minuses. One of the positive things is the fact that secondary vocational schools are still in a position to give their students knowledge and skills they will need in practical life, although many of them lack modern equipment. At technical universities students gain very good knowledge (e.g. in mathematics), although the general profile of the schools does not fully meet current needs and trends.

The common denominator of technical education at both levels of tuition, however, is the relatively low interest of students in technical branches. This fact is not a specific feature of Czech education system, but it is a problem in whole Europe.

How do you see the prospects of the aviation industry?

The aviation industry worldwide is growing dynamically, even though after a number of prosperous years its military part is experiencing a slowdown. Today, the industry is drawn by the manufacture of transport aircraft, which is growing at a record-high rate. The important thing for the Czech Republic is that disregarding the current development of the global aviation industry, the possibilities of the Czech aircraft industry are practically unlimited, because our share of the world aviation market is negligible. That is why for our enterprises it is important to follow the trends in seeking partners and building supply chains on the part of leading world manufacturers who are our partners.

In this respect, it is important for us to follow the trend in the consolidation of supplier facilities, with an emphasis on the optimum price/output ratio, and to work for the integration of suppliers as partners already while the product is still in the process of development. This is opening up nearly unlimited possibilities for Czech firms and their further growth.

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Olomouc Region – Strategic Position, Strong Industrial Tradition

The Olomouc Region stretches along the River Morava. The Region itself consists of five districts: Jeseník, Olomouc, Prostějov, Přerov, and Šumperk. Together with the Zlín Region, it creates a territorial unit at the NUTS 2 level, called Central Moravia. The Region's administrative centre is the city of Olomouc (100 160 inhabitants), situated 275 km from the capital, Prague. The Olomouc Region neighbours on Poland, with 104 km of its circumference forming the frontier with that country. The Region has a rich cultural tradition and is an important tourist centre with a large number of historical sites and unique natural features.

The Region has good transport accessibility, with 603 km of railway lines and 3 568 km of roads, 12.1% of which are class I roads. Olomouc and nearby Přerov are important railway junctions. The entire Region has a high-density road network. An airport, which has gained international airport status and handles small transport planes, is situated in the vicinity of Olomouc.



■ ECONOMIC POTENTIAL

The Olomouc Region has a favourable environment for doing business, based on a strong industrial tradition, with a large number of different sectors represented and a good supply of skilled labour. All this creates good conditions for the development of various types of business activities. The Olomouc Region has a predominantly industrial character. The highest employment is shown by the tertiary sector and industry. The most strongly represented sectors in the Region are engineering and the electronics industry, which has been growing rapidly in recent years. The food industry, too, holds an important position in the Region, which is known for its advanced farming. The textile and clothing industry is also doing well, maintaining its long tradition. From the economic point of view, the Olomouc Region is an industrial area with well-developed services. The economy of the Haná districts is very stable and diversified, while the Jeseník District and the northern part of the District

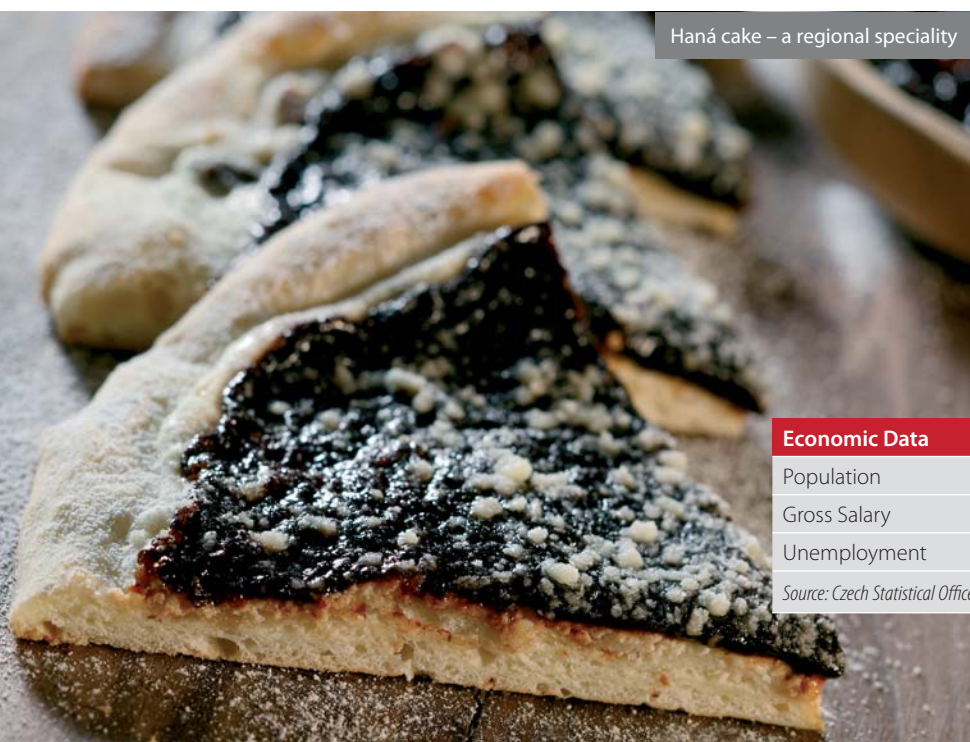
of Šumperk are among the economically weaker regions, due to their geographical position, inadequate transport availability, and the aftermath of post-war events (displacement of the German population). In 2012, more than 12 000 trading companies operated in the Olomouc Region, 156 of which were industrial enterprises with 100 and more employees, which, in total, employed 41 220 people with average monthly wages amounting to CZK 23 321 (approx. EUR 933). The revenues of those enterprises from the sale of their own products and services of an industrial nature amounted to CZK 103 804.58 million (approx. EUR 4 152).

Therefore, the Olomouc Region is attractive to investors not only for its strategically advantageous position in the centre of Moravia, its dense road and railway network, and the wide range of traditional production, but also for the local labour market offering a good supply of skilled and flexible labour and noticeably lower wage costs in comparison with other Czech regions. The Region's local governments support innovative business activities and systematically create conditions to satisfy high-tech firms.

■ INNOVATION

The Region's innovative potential is augmented by the activities of clusters, groups of firms with similar interests. Four clusters are currently operating in the Region with the support of the local authorities: the Olomouc Cluster of Innovations, the Czech Nanotechnology Cluster, the Moravian-Sile-

Haná cake – a regional speciality



Economic Data

Population	30 th June 2013	636 677
Gross Salary	1-2 Q. 2013	CZK 21 467 (approx. EUR 858)
Unemployment	30 th Sept. 2013	8.80%

Source: Czech Statistical Office

sian Wood Cluster, and, since 2009, the MedChemBio Cluster. 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 the development, testing, and production of drugs. As such, it assists in 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, and to make use of its infrastructure. 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.

To help raise competitiveness, support innovation and stimulate demand for the



Velké Losiny Chateau

results of scientific and research work and their commercialisation, an institution, the Science and Technology Park, was established at Palacký University in Olomouc (VTP UP). Part of the Park is the Technology Transfer Centre, whose task it is to promote the commercialisation of the University's scientific research and provide patent services. Another workplace is the Technological Centre with laboratories of the Applied Research Centre. There are several projects in the Olomouc Region whose task it is to support scientific research in the Region, such as BIOMEDREG – Biomedicine for regional development and human resources (the project concerns itself with the biomedical research of tumours and infectious diseases).

es). On the basis of the research results, the Centre develops new medications and outlines individual therapy for patients (more at www.biomedreg.eu). One of the tasks of the Haná Regional Centre for Biotechnological and Agricultural Research is to transfer advanced plant biotechnologies to enterprises in the Region. As part of this vast project, new facilities destined for scientific research will be built on a surface of more than 7 000 sq. m. (more at www.cr-hana.eu) or RCPTM – Regional Advanced Technology and Materials Centre (supports the start-up of new firms using sophisticated technologies and applied physical, optical, and chemical research with special regard to nanotechnologies).

TOP 18 COMPANIES BY TURNOVER (EUR MILLIONS)

Company	Location	Sector	Turnover
Miele technika	Uničov	Manufacture of electronic devices	163
Olma	Olomouc	Food industry	124
M.L.S.Holice	Olomouc	Manufacture of electric motors and generators	121
OP papirna	Olšany	Manufacture of paper	113
Precheza	Přerov	Manufacture of chemicals	89
SSI Schäfer	Hranice	Manufacture of metal constructions	85
Cement Hranice	Hranice	Manufacture of cement	82
MJM Litovel	Litovel	Manufacture of fodder for farm animals	74
Unex	Uničov	Manufacture of mining machines	59
Sladovny Soufflet ČR	Prostějov	Manufacture of malt	59
Mubea-HZP	Prostějov	Production for the automotive industry	59
Hella AutotechnikNova	Mohelnice	Manufacture of electrical lighting fixtures	59
CeramTec	Šumperk	Manufacture of technical ceramic products	59
Tondach	Hranice	Manufacture of bricks and tiles	58
Honeywell Aerospace	Hlubočky	Manufacture of aircraft engines and avionics	58
Mora Moravia	Přerov	Manufacture of non-electric household appliances	53
Gambro	Přerov	Manufacture of medical and dental instruments	50
Meopta	Přerov	Manufacture of optical instruments	50

Source: CreditInfo, Firemní Monitor, 2012

EDUCATION 2011/2012

	Number of schools	Number of students	Number of graduates
Apprentice training centres	100	6 886	1 951
Secondary technical schools		25 177	5 542
Specialised technical schools	8	1 397	294
Universities	3	23 952	5 496

EDUCATION

Thanks to the university tradition of the city of Olomouc and the large number of educational institutions there, the Region has a good supply of skilled labour. In addition, the number of university graduates is growing steadily, thus creating a great potential for the future. There are three universities in the Region: Palacký University in Olomouc, the oldest university in Moravia and the second oldest in the whole of the Czech Republic, the Moravian University College Olomouc specialising in economic studies, and the University of Logistics in Přerov. Several universities in other parts of the country have their branches in the Olomouc Region.

TOURISM

Accommodation facilities in the Olomouc Region are mainly located in the most frequented tourist districts of Jeseník and Šumperk. As at 31st December, 2012, accommodation services in the Region were provided by 370 facilities, which in that year accommodated 406 500 guests, who spent 1 406 200 nights there; 314 400 of these were domestic tourists and 92 100 foreign ones, the highest number for the past four years. Most foreign visitors came from Germany (13 800), Slovakia (12 700), and Russia (9 200).

The Region is known for its attractive countryside, with a large number of historical sites, such as the castles of Bouzov, Helfštýn, and Šternberk, and the chateaux in Úsov, Tovačov, Velké Losiny, and Jánský vrch, and dozens of museums and galleries. Most visited by tourists is the regional city of Olomouc, with the second most valuable historical city reserve, comprising a vast compound of historical buildings and architectural monuments situated on the well-preserved grounds of the medieval city. The most significant monument in Olomouc is the Baroque Holy Trinity Column in the central square, included in the UNESCO World Cultural Heritage List since 2000. The Renaissance City Hall with horologe, as well as a group of Baroque fountains illustrating stories from ancient mythology are very interesting. Olomouc prides itself on a number of historical religious structures, and Flora Olomouc, the

regular floral exhibitions held in the city's vast parks.

The Region has an abundance of hot and cold curative springs and baths. Various cultural events and promenade concerts are held, especially in the spa towns of Jeseník, Teplice nad Bečvou, Skalka, Slatinice, and Bochoř. Dozens of ethnographic and dance ensembles present folklore performances at Náměšť na Hané, Prostějov, Kojetín, and other places to entertain visitors and maintain folk customs and traditions in the Haná district. The Olomouc Region also provides good opportunities for sport. There are more than 1 500 km of cycling paths and a large number of modern swimming pools and natural bathing lakes. Prostějov and Přerov are known for their tennis resorts. Popular among tourists are the Ecce Homo Hillclimb Championships, held regularly near Šternberk. Tourists can also watch football and ice-hockey matches on pitches and in stadiums scattered all over the Region. In winter, sportsmen can try the ski runs and cross-country lanes in the Červenohorské sedlo, Petříkov, Ostružná, and Ramzová ski resorts in the Jeseníky Mountains and in a number of other places.

USEFUL CONTACTS:

Olomouc Regional Office – www.kr-olomoucky.cz

Olomouc land price maps and other information for businessmen, including information about industrial parks – www.olomoucko.cz

Science and Technology Park, Palacký University,

including information about the Business Incubator – www.vtpup.cz

Czech Nanotechnology Cluster – www.nanoklastr.cz

TOP COMPANIES BY THE NUMBER OF EMPLOYEES

Company	Year	Sector	Employees
Meopta	1994	Manufacture of optical instruments	2,000 – 2,499
SSI Schäfer	1993	Manufacture of metal structures	1,000 – 1,499
M.L.S. Holice	1993	Manufacture of electric motors, generators	1,000 – 1,499
Honeywell Aerospace Olomouc	1997	Manufacture of air- and spacecraft	1,000 – 1,499
HELLA AUTOTECHNIK	1997	Manufacture of air- and spacecraft	1,000 – 1,499
Tondach Česká republika	1999	Manufacture of bricks, tiles, and construction products	500 - 999
Sigma Group	1997	Manufacture of pumps and compressors	500 - 999
Precheza	2005	Manufacture of chemicals	500 - 999
Pramet Tools	1999	Manufacture of tools	500 - 999
Olympus Medical Products Czech	2007	Manufacture of optical instruments	100 - 199

Source: Albertina – Company Monitor, 2013

Olomouc Region Is Attractive Not Only for Investors in the Area of Strategic Centres

The Olomouc Region offers to potential investors a number of industrial parks, as well as modern office space.

■ OLOMOUC-HNĚVOTÍN TECHNOLOGICAL PARK

The Park in the south-western part of the city, near the elevated crossing of the R46 and R35 speedways, offers to investors 950 000 sq. m (95 ha) of development surfaces designed for the location of investment projects mainly in the area of pure innovative technologies, the manufacturing industry and light production, strategic services, shared services, administration, warehousing and storage surfaces.

"In 2013, construction began of new industrial surfaces, specifically a hall sized some 10 000 sq. m. It is the first of three facilities being prepared for rental; taken together, they will provide clients with a surface area of up to 52 000 sq. metres. There are only a few industrial parks of this size prepared for immediate construction in the Czech Republic. As the demand for such spaces is increasing, we expect the interest in this locality to grow," says Jaroslav Kaizr from the Cushman & Wakefield real estate services firm in charge of its industrial surfaces renting. "The Park is expected to attract firms



operating within a wide range of sectors. It could be an important solution not only for manufacturing and logistic companies, but also for research and development centres. Currently there are no vacant modern industrial spaces available in Olomouc and the Park therefore may be the ideal solution for filling the gap in the market that will give an investment impetus to firms, which in turn will create new working opportunities in the Region," Jaroslav Kaizr adds.

In the 1st stage of the Park, 300 000 sq. metres of fully equipped plots are available, in addition to the aforementioned halls being prepared for rental. There, clients will also be able to realise their built-to-own and built-to-suit projects. Plots sized from 5 000

sq. metres upwards are available there for this purpose. In the Olomouc Technological Park, companies which have already realised their projects, include VOLVO Truck Czech s.r.o., Jungheinrich (ČR), s.r.o., EverLift spol. s r.o. and GEMO OLOMOUC, spol. s r.o. A part of it is the National Biomedical and Biotechnological Park. More at www.tpoh.cz/en/

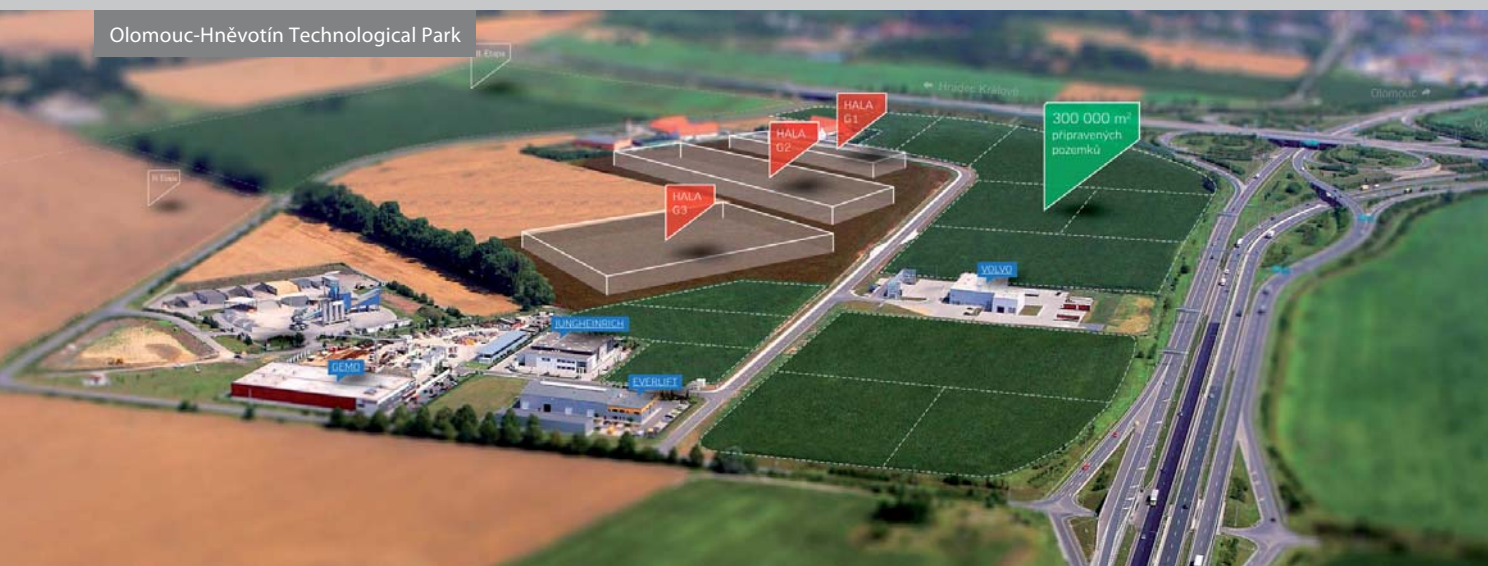
■ SCIENCE AND TECHNOLOGY PARK OF PALACKÝ UNIVERSITY IN OLOMOUC

The Park has been renting offices and manufacturing spaces and providing consulting services since the year 2000, making it possible for its clients to use the instruments and know-how of Palacký University under ad-

IMPORTANT INVESTMENT PROJECTS IN THE OLOMOUC REGION

Investor	Sector	Country of origin	Year	Location
Cavaliere AB	Textiles	Sweden	2012	Jeseník
TorayTextilesCentralEurope II	Engineering	Czech Republic	2012	Prostějov
HoneywellAerospace Olomouc s.r.o.	Manufacture of transport vehicles	USA	2011	Hlubočky
HELLA AUTOTECHNIK, s.r.o.	Manufacture of transport vehicles	Germany	2011	Mohelnice
Edwards, s.r.o.	Engineering	UK	2010	Lutín
Meopta - optika, s.r.o.	Electronic and electrotechnical	USA	2009	Přerov
Agrofert Holding a.s.	Chemical and pharmaceutical	Czech Republic	2009	Přerov
Tondach ČR s.r.o.	Construction	Austria	2007	Hranice
TOUAX s.r.o.	Construction	France	2007	Jeseník
Olympus TC	Biotechnological and medical equipment	Japan	2007	Přerov
MORA AEROSPACE	Manufacture of transport vehicles	USA	2007	Hlubočky
Wanzl	Engineering	Germany	2005	Hněvotín

Olomouc-Hněvotín Technological Park



OFFICE / APARTMENT RENTALS

Location	Standard A	Standard B
Office (EUR/sq. m/month)	10.00 - 12.00	7.00 - 9.00
Apartment (65 sq. m/ month/EUR)	270 - 330	

Source: CBRE 2012, Ministry of Regional Development 2013

vantageous conditions. The business incubator located there helps start-up businessmen to launch promising firms with unique ideas and orientation. www.vtpup.cz

■ CTPARK HRANICE AND CTPARK LIPNÍK NAD BEČVOU

Due to their strategic position, both are ideal for high-tech production and logistics. A motorway connects the localities with Olomouc, Ostrava, Brno, Katowice in Poland, and with Slovakia. The large industrial park in Hranice near Přerov, where LG. Philips Display used to make its conventional television screens, now houses a number of firms, such as Etimex, Henniges Automotive, Medi-Globe, DAS and Rolled Alloys. The most recent large investor is Smiths Medical, which is planning to locate a manufacturing centre for Europe in the Hranice CTPark, where 250 people will find employment when the centre is completed later this year.

More at www.ctpark.eu/

Other industrial parks in the Region open to investors and businessmen can be found in the towns of Šumperk, Jeseník, Šternberk, and Zábřeh, among others. An advantage of these localities is the possibility of having the space adjusted to the specific needs of investors. One of the parks, named Šlechtitelů, which

is already serving its clients, is situated on the southern outskirts of Olomouc. It has an area of 17 hectares and 85 to 90% of its surface area are already occupied. By 2015, the firms operating there are expected to employ up to 180 people, and 205 more jobs are to be created in this park between 2013 and 2015. Eluvio is another firm planning to build a new facility there. Its existing plant in nearby Náměšť na Hané, manufacturing sector tools for the printing industry, needs the new facility to increase its production capacity to meet growing demand. Vivaco from Hradec Králové, another investor, is planning to build laboratories for the development of new cosmetics plus a storage centre in the park. OLC Systems, s.r.o., specialising in the development of custom-made software, also wants to build a facility there.

Another business park is situated in Šternberk, which the town is constructing in former barracks. About half of its surface is already occupied by 11 firms, which employ 58 people. Other investors, who had already come to the Olomouc Region earlier, are now enlarging their facilities. For example, Toray, a Japanese company in Prostějov, is investing 628 million Czech crowns more in the construction of a new plant for the

manufacture of waterless offset plates for printing newspapers, magazines, and other printed matter. To date, Toray has invested more than a billion crowns in the manufacture of lining and airbag textiles.

■ STRATEGIC SERVICES AND OFFICE SPACE

There are good conditions for the development of services in the centre of the Region, where new strategic centres (BSS centres) are coming into being. This is made possible primarily owing to the good supply of skilled workers with a knowledge of foreign languages and practice in the area of finance, accounting, economy, and IT. Most of the companies are based in Olomouc, a university city, with a population well versed in foreign languages and with new Type A office spaces.

On-going new office space projects are being realised: multifunctional CPI City Centre Olomouc, BEA Business Centre Olomouc, NOVÁ ENVELOPA Olomouc administration compound, LAFAYETTE OFFICES Olomouc. Projects currently under preparation include the ŠANTOVKA OFFICE PARK and the Silo Tower Olomouc, an interesting structure that will turn a former silo into modern offices.

TOP BSS COMPANIES RANKED BY NUMBER OF EMPLOYEES

Company	Year	Sector	Employees	Languages
Icon Communication Center	2003, 2007	BPO (CCC)	300	25 languages
ExlService (Schneider Logistics)	2005	SSC (fin/acc/CCC)	230	3 languages
BüroKomplet	2008	SSC (fin/acc/CCC), high-tech repair centre	20	-

Source: CzechInvest, 2013

Palacký University in Olomouc – Pillar of Education and Research in the CR

Palacký University in Olomouc, the oldest university in Moravia and the second oldest in the Czech Republic, is one of the main pillars of education and research in the Czech Republic. It also plays an important role in the Olomouc Region, where it is one of the largest employers.

The University is very popular with young people wishing to obtain higher education. Nearly 24 000 students are enrolled in its eight faculties, which offer a wide range of courses from Natural Sciences and Medical Studies to Humanities, Social Sciences, Physical Culture, and Law. In addition, it provides learning opportunities to children and seniors in its Children's University and Third-Age University courses.

ACADEMIA FILM OLOMOUC

Science and Research need the popularisation of research activities, and Academia Film Olomouc, as among the most important European popular science film festivals, owes much of its success to the unique environment of the university city. AFO has set itself the aim of presenting Science as an attractive, dynamic, and variegated phenomenon with the aid of films mapping out natural, humanistic, and social science aspects. Hundreds of documentary films and television programmes are annually entered in the Festival competitions. More at www.afo.cz

This year, Palacký University celebrates the 440th anniversary of its founding. To mark the occasion, various social, cultural, and sporting events, as well as scientific symposia and congresses, are being held throughout the year. In this connection, the University has opened a permanent exhibition mapping out its rich history and featuring its dynamic present and promising future.

SCIENCE, RESEARCH, INNOVATION

Palacký University is an institution of higher learning, whose main priorities are Science and Research. With its scientific and technological background, it is one of the best universities to focus its efforts on top international research and running demanding Doctoral and Master's degree courses. Basic research, which boasts international standards, is supplemented by applied research. The University owns more than 120 patents and utility designs, many of which are being used in commercial practice or by spin-off firms.

One of its most recent registered utility designs is an antibiotic preparation with a silver admixture. Olomouc scientists and physicians have proved that antibiotics enriched in this way suffice when applied in lower doses and are effective in the case of bacteria which until now have been resistant to drugs. This discovery by Olomouc scientists could help to solve the burning problem of the excessive use of antibiotics and bacterial resistance to them. The efficiency of the preparation has been proved not only in vitro, but also by local application in the form of ointments and hydrogels.

OLOMOUC UNIVERSITY GRADUATES OF WORLD RENOWN



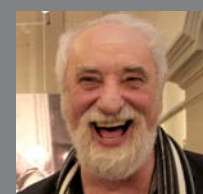
Emil Viklický – although a Mathematics graduate, he won world acclaim as a Jazz composer and pianist. In addition to recordings with world-renowned jazzmen, including Joe Newman,

pianist James Williams and Bill Frisell, one of the world's best contemporary guitarists, and his efforts to combine Jazz and Folk elements, he also devotes himself to contemporary music.



Jiří Bártek – graduate of the University's Medical Faculty – is the most frequently quoted Czech scientist and one of the most important Czech biologists devoting himself

to the research of the cellular cycle of normal and tumour cells. Currently he is leading a team of researchers at the Cell Cycle and Cancer Laboratory of the Danish Cancer Society Institute in Copenhagen and participating in the scientific programme of the Olomouc Institute of Molecular and Translational Medicine (see IMTM).



Jindřich Štreit – world-famous social and folklore documentary photographer and teacher, is a graduate of the University's Pedagogical Faculty. In the early years of his career, he created

sets featuring Romany subjects. However, his most valued works are those depicting village life, private life, and interpersonal relationships. In the 1980s, he portrayed life in collectivised socialist villages at the time of "real socialism" in a collection of photographs bearing personal witness to the human suffering, which he himself experienced as one of those citizens.



Bohdan Pomahač

– graduate of the University's Faculty of General Medicine, is a pioneer in performing and promoting face transplants. He has been working on facial

reconstructions since 2004. Currently he heads the Trauma Center of the Brigham and Women's Hospital in Boston, USA. With his team, he has performed several unique facial transplants on patients after serious injuries.



Educational and Research Collaboration between PU and Foreign Institutions

The most important international educational projects of Palacký University are two Erasmus Mundus Master's programmes: Euroculture at the Philosophical Faculty and Adapted Physical Activities (IMMAPA) at the Faculty of Physical Culture. Both programmes are realised in collaboration with other European universities.



Olomouc University also participates in projects under other lifelong learning programmes: J. Monnet, Leonardo, and Gruntvig. In addition to the Erasmus Mundus programme, it runs another five joint study programmes with foreign partners and has cooperation contracts with 65 foreign universities.

■ JOINT DEGREES AT PALACKÝ UNIVERSITY

Euroculture (Erasmus Mundus)

partners: Rijksuniversiteit Groningen; Uniwersytet Jagiellński w Krakowie; Georg-August Universität, Göttingen; Università degli Studi di Udine; Université de Strasbourg; Uppsala Universitet; Universidad de Deusto, Bilbao.
<http://www.euroculture.upol.cz/>

EMMAPA (Erasmus Mundus Master in Adapted Physical Activity)

partners: Katholieke Universiteit Leuven, Belgium; Norges Idrettshøgskole, Oslo, Norway;

University of Limerick, Ireland; University of Virginia, Charlottesville, USA; University of Queensland, Brisbane, Australia; University of Stellenbosch, RSA.
<http://e-mundus.upol.cz>

GLITEMA (German Literature in European Middle Ages)

partners: Universidade do Porto, Universität Bremen, Università degli Studi di Palermo.

Dutch Language, Literature and Culture in a Central European Context

partners: Károlyi Gáspár Tudományegyetem, Budapest, Masaryk University Brno, Debreceni Egyetem (University of Debrecen), Comenius University in Bratislava, Universität Wien, Uniwersytet Wrocławski.

Nederlands Tolken en Vertalenals B-taal

partners: Hoger Instituut voor Vertalers en Tolken/Associate Univ. Antwerpen, Dept. Vertalen en Tolken Hogeschool Gent.

English Language (Olomouc), Transcultural Communication (Wien)

partner: Universität Wien.

Law

partner: Paris Lodron Universität Salzburg.

Palacký University also collaborates with a number of important foreign organisations and institutions, such as Karlsruher Institut für Technologie, Institut für Molekulare Biotechnologie GmbH, The University of Manchester, The University of Birmingham, Ben-Gurion University of the Negev, University of Bristol, Golder Associates GmbH, Industrieanlagen Betriebsgesellschaft mbH, Danmarks Tekniske Universitet, Politecnico di Torino, Centre National de la Recherche Scientifique, and many others.

■ MEDICAL STUDIES IN ENGLISH

General courses in Medicine and Dentistry are offered in Olomouc in English and, as a paid form of study, are offered to students from abroad. Currently, some 300 students from Malaysia, Taiwan, the UK, Portugal, India, Japan, and the USA are enrolled in these courses. The courses meet EU standards, and the six-year General Medicine courses are also accredited, for example, in the USA and Canada.

IN SEARCH OF EXPERIENCE

The Erasmus Programme is an important element in the internationalisation of Palacký University. Due to it, nearly 500 students set out each year to gather experience at a university abroad. In return, more than 200 foreign students arrive to study in Olomouc. PU collaborates with nearly 400 partner universities in the Erasmus Programme.

Science and Technical Park – Bridge between the World of Science and Business

Palacký University collaborates actively with hundreds of firms not only in the Region, but also in other parts of the CR and in foreign countries. Its main activities include contract-based research and joint scientific projects of the Czech Technological Agency. The University's Science and Technical Park, too, creates conditions for the promotion of scientifically and technologically oriented firms. Its Business Incubator serves as the support for newly emerging firms with an innovative potential.

Collaboration between the University workplaces and business firms takes the form of single or repeated consultations with University specialists on a specific subject. University scientists participate in customised research, and the Park mediates the sale of licences to use the objects of the University's industrial property, and assists in the commercialisation of inventions and the preparation of licence contracts. It also mediates the renting of offices and manufacturing space, provides consulting services and arranges for the use of the University's technical equipment and know-how under advantageous conditions.

The PU Science and Technical Park organises regular meetings of academics with commercial representatives. The meeting held in June this year featured Chemistry and Biotechnology. The following meetings will focus on Medicine and Optics.

In their Bachelor's and Diploma theses, students can help solve the long-lasting problems of firms. University students have a high potential, especially in the fields of Natural Sciences, Applied Economy, Informatics, and Languages.

■ TECHNOLOGY TRANSFER: THREE CENTRES, THREE IMPORTANT RESEARCH LINES

As regards technology transfer, the University pursues three main lines, which are be-

ENTERPRISING HEADS

Palacký University and its students assist start-up businessmen. One form of assistance is a competition for the best business project, which businessmen can take advantage of and utilise. This year's event, the fifth in its history, attracted a record number of competitors, who entered 67 projects in the competition. Winning competitors will receive a financial reward and the PU Science and Technical Park will offer them offices and facilities, including consulting services, to realise their projects. To date, more than 100 start-up businessmen and students have participated in the competitions and many of these have put their ideas into practice. More at <http://podnikavahlava.cz/>

ing realised by three top centres recently completed: Regional Centre of Advanced Technologies and Materials (RCATM), Centre of the Region Haná for Biotechnological and Agricultural Research (CR Haná), and the Institute of Molecular and Translational Medicine (IMTM), the core of a future national biomedical and biotechnological park.

Regional Centre of Advanced Technologies and Materials

The main aim of RCATM is the development and transfer of hi-tech technologies into medical, industrial, and environmental practice. The Centre is engaged in top research in the area of metal oxide nanoparticles for catalytic and magnetic applications, in the area of carbon nanostructures, metal nanoparticles for antimicrobial technologies and water purification technologies, coordination chemistry, photonics, and new instruments in optics and analytical chemistry. It is also planning to offer first-class microscopic, spectroscopic, magnetic, and other instruments for commercial use. It collaborates with a number of commercial firms, carries out measurements for industrial partners, and helps with the transfer of knowledge into practice. Its partners include, for example, the companies of Medihope, Aqua Test, Ravak, Precheza, Farmak, and Epcos. The development of the technology of silver nanoparticles' immobilisation on solid polymeric substrates and technologies for high-capacity production of ferrous nanoparticles are examples of know-how transfer from academic soil into real practice.

RCATM (optical and photonic technologies group) contributes significantly to the ATLAS-CERN and Pierre Auger Observatory



international collaboration projects, owing to its use of optical methods for the analysis of the properties of nanocrystalline materials and thin layers, and the research and development of the nanophotonic sources of photons, as well as methods to detect separate photons and the development of technologies for the production and control of optical nanosurfaces and thin layers.

The Centre, with its 100 research workers, publishes some 180 scientific papers annually. The team comprises a number of top foreign specialists.

More at www.rcptm.com/

Centre of the Region of Haná for Biotechnological and Agricultural Research (C.R. Haná)

C.R. Haná has given a new dimension to collaboration between the University and the Olomouc workplaces of the Research Institute of Vegetable Growing and Breeding and the Institute of Experimental Botany. It offers to carry out contract research in a wide range of areas, from the qualitative and quantitative characterisation of organic substances and mixtures with the use of selected physical-chemical methods, the verification of the biological effects of growth-regulated substances, to the optimisation of dosing selected herbicides and the monitoring of their degradation in plants. Examples of its contract research deals include its collaboration with TEVA Czech Industries and OIChemIm. Thanks to this cooperation, commercial firms gain access to specific know-how and machinery equipment, which helps them raise their competitiveness.



Institute of Molecular and Translational Medicine

The Centre boasts a number of achievements. One of these is a method making it possible to read the complicated genetic information code of wheat. The use of the results of the researchers' work exceeds the scope of Biotechnology and Agriculture – in the study of plant hormones and their derivatives, researchers also identified their effects usable in Pharmacy and Cosmetics. One of the substances is currently being tested clinically in the USA for its anticancer effects and another substance is being used commercially by a foreign firm as part of a cosmetic preparation. The Centre is preparing commercialisation in the form of a licence of a supranational company for a patented substance based on plant hormones, which, as part of a crop tending preparation, augments the quantitative characteristics of field crops and increases their resistance.

The Centre has 130 Czech and foreign scientific workers.

More at www.cr-hana.eu/

Institute of Molecular and Translational Medicine (IMTM)

The Institute of Molecular and Translational Medicine of Palacký University Medical Faculty is a unique infrastructure institution, important in the development of the Central Moravia Region. The Institute, where research and development in the area of Biotechnology and advanced materials is concentrated, is a technological platform for basic and translational biomedical research, the aim of which is to gain a better insight into the molecular nature of tumorous and infectious diseases. Scientists at IMTM concern themselves not only with the research of those diseases, but also the development of new diagnostic methods and medications. A member of its scientific team is Prof. Jiří Bártek, the most frequently quoted Czech scientist in the area of biomedical sciences, who leads the Genomic Integrity Department of the Cancer Research Centre in Copenhagen, Denmark. The team's main research topics are the Molecular Nature of Diseases and Molecular Aims; Medicinal Chemistry; Chemical Biology and Experimental Therapeutics; Biomarkers – identification and validation; Pharmacology and Toxicology, and Translational Medicine. In addition to Palacký University, the Olomouc University Hospital, the Institute of Chemical Technology in Prague, the Institute of Organic Chemistry and Biochemistry AS CR and other important institutions in the area of applied research also participate in the scientific programme being pursued at the Institute, a unique workplace within the framework of the CR.

More at www.umtm.cz/

SCIENTIFIC CENTRES AND INNOVATION VOUCHERS OF THE OLOMOUC REGION

The University's scientific centres also collaborate with firms on the basis of OK innovation vouchers. To finance their cooperation with the PU scientific workplaces in the area of innovation, businessmen may obtain a grant of up to CZK 149 000, and for the purchase of research services, a grant of up to CZK 200 000. The companies, which collaborate with **C.R. Haná**, include Úsovsko, Trisol, and Chemap Agro. Their innovations will be concerned with the effect of growth stimulators on selected crops, the verification of the effects of nutrition by microelements on grain crops, and the preparation of the method of small peptide extraction from barley caryopsis. Thanks to innovation vouchers, **RCATM** will cooperate with four commercial firms. It will focus on the research of nanomaterials and new technologies. Its research tasks will involve packing materials, new control technologies with the use of modern computing methods, and contaminated water monitoring technologies.

More at www.ok4inovace.cz/inovacni-nastroje-7.html

Palacký University presents itself at www.upol.cz

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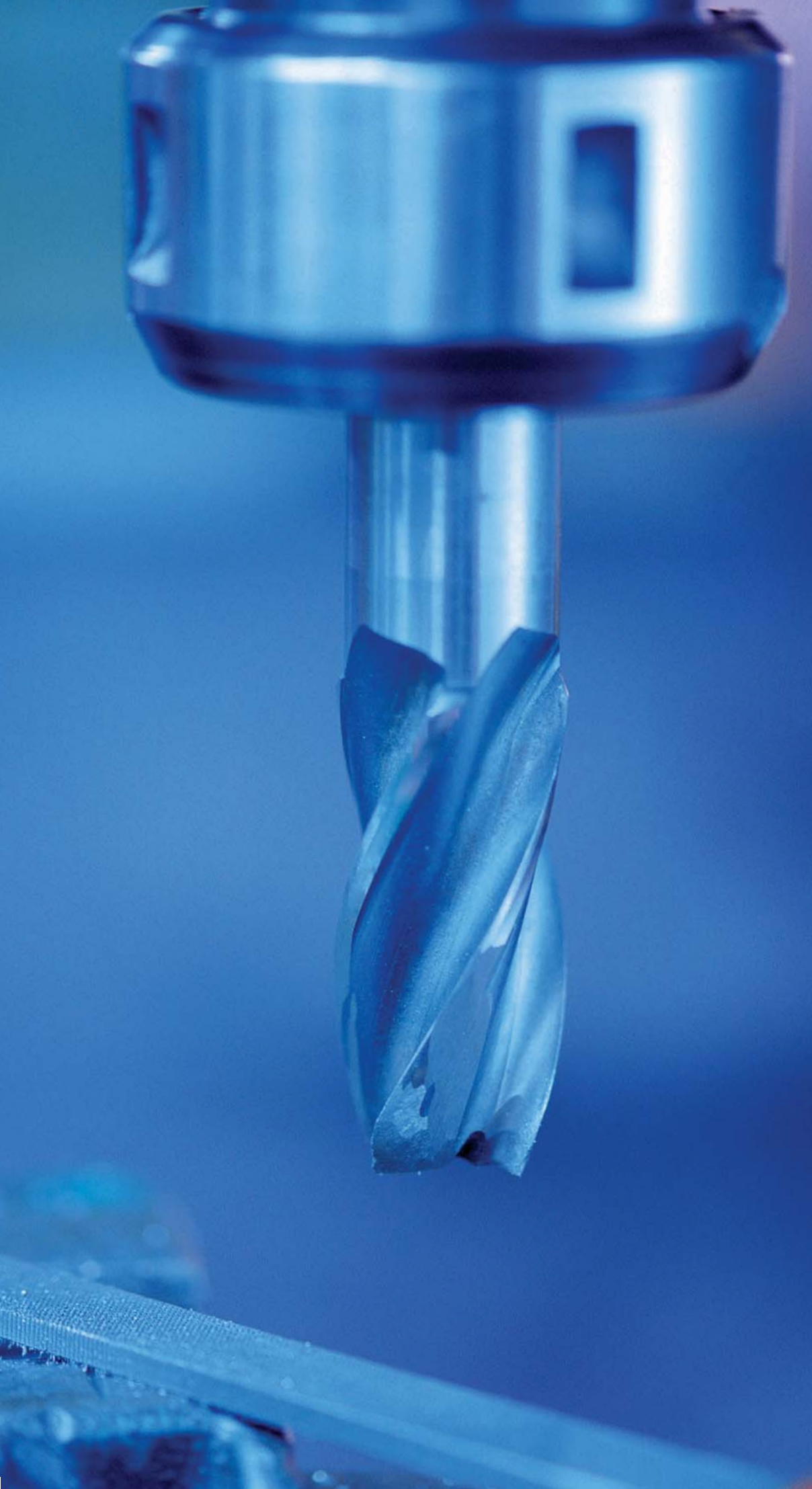




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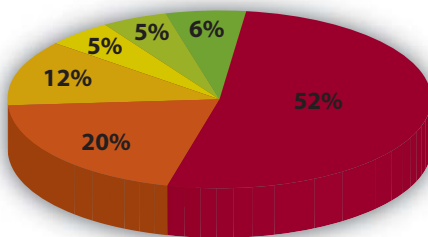
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Czech Engineering – Tradition and Future



Czech companies and research institutions mostly specialise in the following fields:

- power engineering
- transport engineering
- machining and forming machines
- metallurgy
- metal structures and components

Engineering is one of the important fields of the Czech processing industry, and it is also one of the most demanding industries with high requirements for the quality of input factors and energy consumption.

The field includes the manufacture of a broad range of products used for mechanical or heat working of materials or for other operations (e.g. spraying, weighing, packaging, handling etc.). Engineering production includes the manufacture of machinery (including parts and accessories) useful for most branches of the processing industry and other fields of the national economy (e.g. agriculture, transport, forestry, metalworking, metallurgy, mining industries, textile, paper-making and food industries, construction etc.). The development, manufacture, and sale of this equipment indicate the current state and future development of the national economy. The field of investment engineering includes all companies that operate as suppliers for the listed areas of business, but without companies that supply their goods to end customers – consumers. Investment engineering as a whole is characterised by a substantial product diversification.

Engineering has a long tradition in the Czech Republic. During the period between

the world wars, Czechoslovakia was one of the ten most important engineering countries in the world. Throughout the past 150 years, a number of radical changes have taken place in this field of business, both on the level of technology usage and production structure as well as within the business base. A major change occurred after 1989, when the engineering companies were forced to deal with the unfavourable situation resulting from the loss of traditional markets, influx of new, foreign competitors (with appropriate capital and know-how) to the Czech market, or changes in ownership structure.

IMPORTANCE OF MORE COMPLEX ORDERS

The positive development of the investment engineering field is largely dependent on the revitalisation of the entire Czech economy as well as on the economic situation of our biggest foreign trade partners. In connection with the expected boom in

the next period, the engineering industry may be negatively influenced by the Czech crown's unfavourable growing exchange rate towards foreign currencies or by the growing cost of energies and input materials (relatively high sensitivity of the sector to these factors). Gradual revitalisation is taking place in the area of new investments, with the apparent overall restarting of industrial activities and trust in general. Mid-term perspectives of the field depend on functional enterprise and research programmes, which would benefit from integrating university research. Strong ambitions in the area of productivity are only possible when seeking out new production opportunities, which is feasible on the condition that higher levels of science and of its technological application are employed. Of course, this also requires a higher concentration of capital capable of establishing an economic base for the required level of research and development. With regard to the ever-growing demand for cost optimisation in the majority of production industries, the importance of more comprehensive orders realised through deliveries of investment units has been growing recently – the transaction includes everything from preparing an investment plan, construction proceedings, project realisation (using own capacities or sub-deliveries from other entities) to training for buyer's employees and the offer for general repairs.

PRESENT TIME

The production of machinery and equipment occupies an important position in the framework of the manufacturing industry. In 2012, this line of production accounted for 7.8% of revenues from the sale of own products and services of the entire manufacturing industry. In 2011, the following companies, whose production activities can be at least partly included in this section, figure on the prestigious CZECH TOP 100 ladder (by revenue): TRINECKÉ ŽELEZÁRNY, a.s. (placed 14th with revenues of CZK 37 100 709), ŠKODA PRAHA Invest s.r.o. (placed 29th with CZK 17 463 736), Vítkovice Holding a.s. (placed 34th with CZK 16 212 000), DENSO MANUFACTURING CZECH s.r.o. (placed 65th with CZK 8 566 898), and Daikin Industries Czech Republic

s.r.o. (placed 66th with CZK 8 480 468). The results, which section CZ-NACE 28 shows, were favourably influenced, among others, by the Business Support System, run by the Ministry of Industry and Trade (MIT) and operated under several specialised programmes (for example, during 2012 MIT made a promise to grant investment incentives to three companies that will invest CZK 703.3 million on the territory of the Czech Republic in the course of three years). In order to keep pace with foreign rivals and to raise their competitiveness, engineering enterprises must solve various projects in the area of applied research and experimental development and take part in public tendering to obtain support (e.g. under the ALFA programme run by the Czech Technological Agency). New technologies are making their way into engineering, such as nanotechnologies and mechatronics, and intensive research into new materials and their use is taking place. Last but not least, the use of electronics and the application of new software products are becoming common practice.

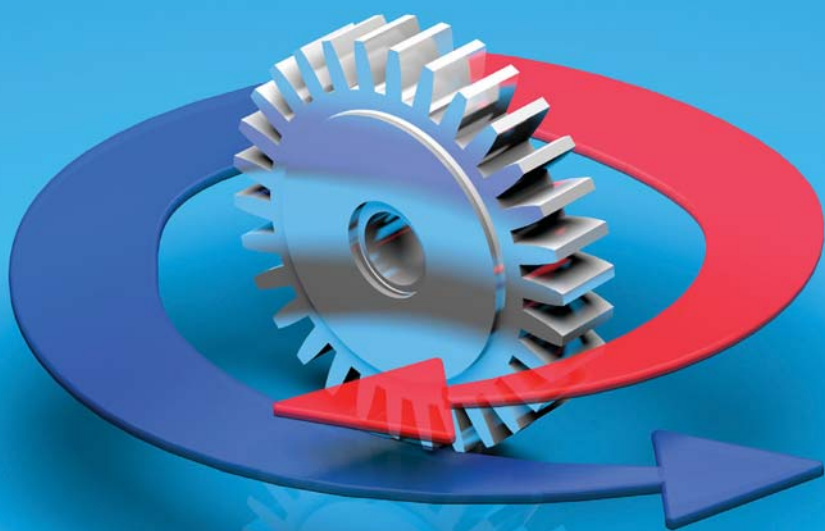
GERMANY IS THE DOMINANT PARTNER

As regards engineering imports and exports, Germany is a traditionally dominant partner of the Czech Republic. In the past five years, exports to Germany have accounted for approximately 30% of total Czech exports, and imports from that country for about 40%. In the case of other territories, too, no major changes have taken place for the past few years, with France and the Russian Federation, for example, each accounting for 6% of total Czech exports. Other traditional trading partners of the Czech Republic are Slovakia, Poland, the UK and Italy, to which CR exports some 3% to 4% of its goods and services. Approximately 34% of Czech exports go to other territories. Czech manufacturers are showing interest in exporting their products to East Asian countries, and negotiations are under way on exports to South American countries. In the first half of 2013, the first meeting took place in Bombay of the Czech-Indian working group for "Sophisticated Heavy Engineering". The meeting, which was attended by representatives of

important Czech engineering enterprises, was the outcome of lengthy preparations. Their partners were representatives of large Indian engineering companies.

PROSPECTS OF THE ENGINEERING SECTOR

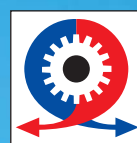
Engineering is characteristic for its relatively high degree of sensitivity to the economic cycle. The state of the Czech economy, as well as that of our biggest foreign trade partners, thus directly influence demand. Despite the fact that Czech engineering was able to shrug off the impact of the global economic crisis relatively quickly, it still endeavours to steer its production offering towards machines and equipment with high added value, which will be based on new knowledge acquired through engineering research and on new patents. This development has been contributed to by foreign investments into the establishment of branches of research and development institutions in the Czech Republic. Czech companies are very capable technically and cover a broad range of high-tech engineer-



29 Sept.–3 Oct. 2014

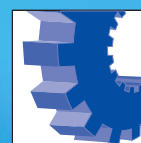
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MSV 2014

**56th International
Engineering
Fair**



IMT 2014

**9th International
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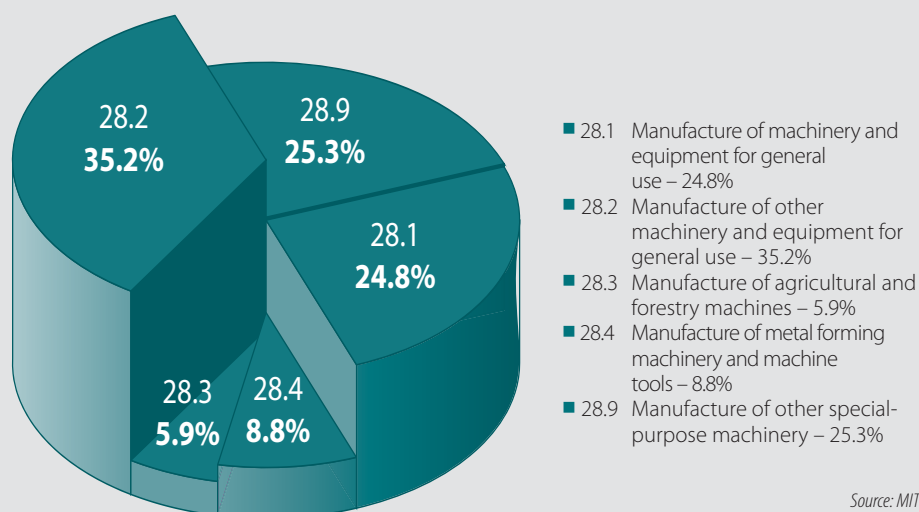
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**Veletrhy
Brno**



ing sub-sectors, such as optics, measurement and regulation, precision-part machining, or automation. Their activities include product design, construction, and production itself. Czech enterprises can manufacture complex machines or technological units for foreign companies, or provide quality sub-supplies. Their portfolios include the production of turbines, transport and air-conditioning equipment, and food-processing, assembly, metal-working, and forming machines. The following are examples of Czech companies that manufacture top-class measurement equipment: ZPA CZ or Metra Šumperk, which exports to the entire Europe and to the Middle East. TOS Varnsdorf and Škoda Machine Tool from Plzeň are well-positioned in the market of progressive machining equipment. The latter has been focusing on the development of highly sophisticated machines with a maximum level of automation in recent years. Šmeral Brno manufactures top-class forming machines. Companies draw on the tradition and facilities of technical universities. As it is, the Czech Republic still has one of the highest rates of graduates from technical majors in the world. On top of that, domestic engineers have authored a number of ground-breaking patents, including light-emitting diodes known as LED or liquid crystal indicators (LCD). For example, the Research Center of Manufacturing Technology at the Czech Technical University has been developing a fully-optimised machining

Percentage shares of CZ-NACE 28 Group's revenues from the sale of own products and services in 2012



tool or intelligent systems for the production equipment in its laboratories.

Power engineering is one of the important sections of Czech general engineering (which is currently witnessing a boom, thanks to the growing global demand for energy). This branch of the engineering sector comprises the manufacture and supply of equipment for many branches across general engineering, from turbines to fittings, compressors and pumps, to lifting and handling equipment. In the past few years, Czech power engineering, the decisive factor in the revival and further development of the Czech power industry, has once again come to the fore, while maintaining its traditional customers in Russia, the post-Soviet republics, China, India, Pakistan, Egypt, Turkey, Vietnam, Cuba and other states.

Czech manufacturers are expecting to participate in deliveries for the construction of two new blocks at the Temelín nuclear power station (in this connection, some companies are planning to increase their production capacity, invest in Research and Development and increase the number of their employees), and the modernisation, and possibly the construction of another block at the Dukovany nuclear power station. The affiliation of Czech manufacturers of power generating equipment to supranational companies often assists them in becoming part of supplier consortia and opens the way for them to foreign contracts. At the same time, many Czech companies are successful exporters of power generating equipment, mainly due to their long tradition and valuable references.

Engineering Maintaining Its Dynamics Despite Unfavourable Economic Conditions

Petr Zemánek, Director of the Association of Engineering Technology, www.sst.cz

The field of machine tools is one of the few branches of the Czech industry that has been achieving encouraging results despite the declining gross domestic product. The reason for this is, among other things, the nature of the production cycle of these tools, which is characteristic for its relatively long production and delivery periods. Managers at production companies also need to take into consideration that long-term planning is required to secure orders, including their financing. At the same time, it can be said that the majority of export-oriented production companies has managed to adopt changes that direct exports towards markets with higher absorption potential.

The results of the exports in 2012 were very good, which was evidenced by the achieved volume, which exceeded CZK 14 billion (approx. EUR 560 million) – in spite of the ongoing recession that dominated the majority of the Eurozone, the collapse of business relations with almost the entire southern Europe, and the “economic falter” in China, which experienced a slight slow-down last year of its hitherto impressively dynamic economic development. Conversely, the quality of our relations with our main commercial partners, Germany and Russia, continues to grow. In 2012, Germany accounted for 34% of the overall amount of our exports and Russia for 15%. In view of the fact that the Czech Statistical Office continues to add to and correct the final balances of individual fields long after the official announcement of the results, it can be expected that the overall balance of the field of machine tools will come close to the record, “pre-crisis” year of 2008, when exports reached CZK 14.62 billion (approx. EUR 585 million), which would put 2012 among the most successful years. Even the currently valid results mean that 2012 grew by 10.5% compared to 2011. The growth occurred in all groups of the customs nomenclature. An extraordinary growth was recorded in groups of physical-chemical tools, tools for

drilling, boring, milling, and screw driving, as well as lathes and tools grouped in the nomenclature called other machine tools.

Czech engineers successfully compete with serial production

Today, customers prefer big, strong, and heavy specialised machines that are often manufactured on the basis of specific technical and technological requirements. Czech machine engineers have been successfully competing with the largely single-purpose machines from Asia in this category. It is for this reason that the highest turnover was achieved by companies such as TOS VARNSDORF, a. s., ŠKODA MACHINE TOOL, a. s., KOVOSVIT MAS, a. s., TAJMAC-ZPS, a. s., ŽDAS, a. s., or the manufacturer of prestigious grinders, Erwin Junker, a. s.

The support for the participation of members of the Association of Engineering Technology at the most important international exhibitions and trade fairs is and will be one of the key activities of the Association of Engineering Technology. The ability to push through a sensible selection of trade fairs

onto the list of events supported by either the Ministry of Industry and Trade through special participations or by the CzechTrade Agency on the basis of financial contributions from the Specialised Exhibitions and Trade Fairs project funded from the structural funds of the EU, means significant help for the member companies – especially for medium and small enterprises, for which the costs of presenting their products at international exhibitions would often exceed their financial means.

Territorial orientation of Czech engineers

The annual selection of these trade fairs is carried out by the expert department of the Association of Engineering Technology with meticulous attention to detail, using the department's knowledge of individual territories, especially considering changes in economic and political situation of individual countries and the absorption potential of the given markets. In recent years, we have seen dynamic development in the BRICS countries (Brazil, Russia, India, China,





South Africa). As time went by, it has become apparent that, for example, in Brazil and in other Latin American countries, import of tools and machinery is significantly impeded by a set of customs and tax regulations that work as a protective measure for the domestic industry and make import unbearably costly and complicated. The Indian market also has its specifics, which stem from its size and chaotic nature, as well as from cultural differences, which often influence negotiations with local clients. As it is, the main areas of interest for our exporters remain Russia, republics of the Commonwealth of Independent Nations, some countries of the former Soviet Union, and, last but not least, China. These are followed by Turkey and countries of south-eastern Asia (Thailand, Indonesia). As can be seen in the table that shows the overview of the participation by members

of the Association of Engineering Technology at supported international trade fairs in 2012, the selection of fairs is based on the above-mentioned reasoning.

The most important trade fairs for Czech exporters of machine tools include EMO Hannover, which is held every odd year, Milan (starting in 2014, this list will also include the largest European exhibition in Asia, EMTE-EASTPO Machine Tool Exhibition in Shanghai, China), and the International Engineering Fair in Brno, which specialises in machine tools every two years (IMT). The 8th International Machine Tools Exhibition took place as a part of the 54th International Engineering Fair in Brno in September 2012. The rich accompanying programme was partly organised by the Association of Engineering Technology. The most important of these events was the traditional Educational Centre – competition of young engineers

in programming CNC machine tools. During the trade-fair week, students from 35 technical and vocational schools could test their skills in machine tools programming with the help of HEIDENHAIN, SIEMENS, or FANUC control systems for milling or lathing technologies. The competition has become very popular and the fact that it is organised certainly contributes to making technical studies more attractive, which is one of the goals of the Association of Engineering Technology in the role of the organiser.

The Association of Engineering Technology has also organised the Indian-Czech Technology Forum, which was a reaction to the fact that India was an official partner to the Brno Trade Fair. The Czech-Russian Business Conference attracted a lot of interest among exhibitors and visitors. The conference was personally attended by Mr. Georgy Vasilyevich Samodurov, the President of the



did not limit themselves to visiting the Trade Fair itself, but made use of the offers to inspect the operations of engineering enterprises in the vicinity of Brno.

Key trade fairs in 2013

In 2013, Czech engineering companies participated in the following key trade fairs: IMTEX in Bangalore, India, TECMA in Mexico, INTERMAC in Bangkok, and METALLOOBRABOTKA in Moscow. EMO Hannover and IEF in Brno have also taken place in 2013. December participation at the SISTEP MIDEST trade fair in Casablanca, Morocco, constituted one attempt to expand our area of interest to African markets. In view of the need to hold transparent public competitions for determining the realisers of our participations at international trade fairs, the selection of trade fairs supported in 2014 is already being prepared in cooperation with the Ministry of Industry and Trade and the CzechInvest Agency.



Kazakh-Czech Technology Centre of Astana

One of the most important international projects of the Association of Engineering Technology was undoubtedly the establishment of the Kazakh-Czech Technology Centre in Astana, whose opening was attended by the then-minister of industry and trade, Mr. Martin Kuba. The realisation of this project took almost three years, and its opening has not, of course, meant the end of our cooperation with our Kazakh partners. On the contrary, the centre's activities are a part of the process of a dynamic modernisation of the Kazakh industry and are laying the foundations for future business relations and possibilities of efficient production collaborations. The KCTC is a joint project in the area of machine tools, technologies, and know-how. Czech companies associated in the Association of Engineering Technology (TOS VARNSDORF, a. s., Strojírna TYC, s. r. o., HOL-MONTA, s. r. o., PILOUS-TMJ, s. r. o., AXA CNC stroje, s. r. o., PRAMET TOOLS, s. r. o., VANAD 2000, a. s., TRENS SK, a. s., HELTOS, a. s.) contributed to the project by supplying machines, and the Kazakh side offered the industrial space. The investment will be paid for from the production of the Czech machines, and their capacities are already fully booked for six months ahead.

STANKOINSTRUMENT partner association and a member-correspondent of the Russian Engineering Academy, and by Mr. Alexander Turov, the Director of the Commercial Representation of the Russian Federation in Prague. Participants had the opportunity to meet representatives of twelve important Russian enterprises, and their mutual negotiations contributed to the establishment of

direct contacts between Russian and Czech production companies. The block of accompanying programmes was also enriched by the arrival of Indian and Brazilian delegations, which was a part of the Ministry and Industry and Trade's incoming programme, and a visit by a five-member group of workers of the Association of Chinese Producers and Users of Machine Tools. Foreign visitors

As Always in the Past, Czech Engineering Industry Has Much to Offer

Ladislav Mravec



"Czech manufacturers of nuclear power engineering technologies are currently much more in view than ever before. The references of Czech mechanical engineers comprise a range of verified products, from steam generator bodies to hydraulic devices and control systems, all this including development and project documentation. There are not many individual organisations in Europe that can offer such a large portfolio of products," says Ladislav Mravec, General Manager of the Czech Machinery Cluster.

The Czech Machinery Cluster is the oldest cluster organisation in the Czech Republic, which this year marked 10 years of its existence. What has your association achieved during this time?

The Czech Machinery Cluster was founded ten years ago by 35 companies, mostly from the Moravia-Silesia Region. Shortly after that, the cluster was given a massive impetus in 2005, when it was joined by the Vítkovice Machinery Group, whose management, together with the management of two more leading members, Strojírny Třinec, a.s. and ŽDAS, a.s., systematically support our association. In 2008, the cluster enlarged its radius of activity to cover the country's entire territory. Today, it associates 68 important engineering firms, universities and other institutions from all parts of the country. The cluster focuses in particular on the building of supply chains, the creation of purchase alliances, and the organisation of educational projects for member firms, as well as confer-

ences, seminars and workshops for specialists and the general public. During its existence, the cluster has managed to integrate half of its members into the nuclear power supply chain and 41 members into the conventional power engineering supply chain. For our members, we organise joint purchase of electricity and gas. The pilot project for the purchase of energies was launched earlier this year and in June 2013 the first joint energies auction was arranged for the members who participated in the project. At the auction for the year 2014, the saving of cost in the case of electricity was 35% and in the case of natural gas 27%. The cluster also participates very actively in different educational projects, usually rule in alliance with the academic members of the cluster, in particular the Technical University in Ostrava as a project partner. Our association could show off already 7 years of the popular international conference Engineering Ostrava, attended annually by leading specialists, where topical, as well as strategic priorities of Czech industry are discussed. At one of them, for example, we drew attention to the absence of transport corridors in the Czech Republic, which is an obstacle to the export trade of the CR. We presented the Czech Republic as a country boasting high-standard engineering technologies and one with developed nuclear power and gas industry technologies, including shale gas extraction. On the premises of our members, the cluster also organises regular workshops.

These are items where we have succeeded; in the future we would like to concentrate on the area of innovation projects. Our plan is to encourage more of our members to become involved in research, development and innovation and to form a new group, "supply chain" also in this respect and to become a strong and competitive entity in this area, the same as we have done in nuclear power.

On its tenth anniversary, the Czech Machinery Cluster received a prestigious appreciation – the National Cluster Association awarded us with the Golden Cluster 2013 Title. The award is meant not only to appreciate the cluster management for its achievements, but also its members for creating a prestigious and modern engineering

base at home and the building of supplier chains in the area of nuclear and conventional power engineering.

You participate successfully in deliveries for the nuclear power industry, where members of the cluster take part jointly in important tenders and projects. Can you give us some details?

So far, we have managed to get 34 of our members integrated into the nuclear power supply chain, not only in the Czech Republic, but also in Slovakia, Russia, and India. Specifically this concerns preparations for the envisaged enlargement of the Temelín nuclear power station, in addition to our deliveries for steam generators in two blocks of the Kudankulam nuclear power station in India under an Indian project, and for the Leningrad II, Novovoronezh II, the Kalinin, Balakov, and Rosstock power stations, where we install low- and high-pressure heaters, fittings and pumps for VVER 1000 and VVER 1200 systems.

Our manufacturers of engineering technologies for nuclear power stations, and Czech manufacturers of these products in general – from fittings to control systems – are coming increasingly to the forefront. Their skills have become generally recognised and appreciated in the framework of tendering for the enlargement of Temelín by both the Russian-Czech MIR 1200 consortium and the American Westinghouse concern, as well as the French AREVA company. This has raised our self-awareness and persuasion that we can well succeed in international competitions and that the members of the National Cluster Association are now in a position to manufacture in compliance with the American ASME Code III regulations, Russian PN AEG standards, and French RCC-M requirements. We participate in various deliveries worldwide and it is our ambition to be on the list of qualified suppliers for big global companies operating in the nuclear power area.

The deliveries of domestic firms can comprise, faultlessly and reliably, the primary circuit and practically the entire system of the secondary circuit of nuclear power stations. The references of Czech engineers cover the full range of certified products, from steam gen-

erator bodies to hydraulic systems and fittings to control systems, including development and project documentation. There are not many single companies in Europe able to offer such a wide range of products. In our chain, we supply low- and high-pressure steam heaters, pumps, fittings, piping systems, machined forgings, parts of control and safety systems, spare parts and the servicing of the equipment in nuclear power stations. In addition, the cluster has invested some CZK 50 million (approx. EUR 2 million) in the training of about three thousand employees for our current nuclear power station deliveries. This is one of the reasons why the Cluster and its members are wielding extraordinary professional power as regards the individual knowledge of experts and the offer of production know-how.

You also organise a number of conferences devoted to the future of engineering. This year's event concerned technical education in the CR. What, in your opinion, is the level of knowledge of technical university graduates? Is it sufficient to meet the requirements of foreign investors in the CR?

Our companies invest tens of millions of crowns a year in support of technical education. They support scholarship holders, co-finance the development of certain branches at universities, run company technical schools, spend money on contact get-togethers with young people and on the promotion of educational institutions. Nevertheless, the shortage of technical school graduates continues and endangers the further development of Czech industry on a long-term basis, and consequently its future position in the world. In brief, there is a lack of young successors to

whom the older and experienced employees could pass on their skills and also work. This is a great problem, which we have been trying to solve for years; it will take time for the situation to change, but so far a turn for the better is not in sight. Within the cluster, i.e. among its 68 member firms, we have carried out a survey the results of which have revealed that the companies are short of some 10% of skilled workers among their apprenticed employees, 10% of those with secondary education and 15% of university graduates, with diplomas from technical schools. Converted into numbers, this means that companies within our cluster are short of unbelievable 2700 technicians of all levels. We are trying to raise the awareness of the public about technology and engineering and their reputation. This is never-ending, but interesting work, as there is a large number of technical branches, and advanced technologies provide opportunities for prestigious employment. The best way of doing this is giving examples which young people can see with their own eyes. That is why we organise excursions of young people to workplaces using high-tech equipment, including nuclear power stations, and organise open days in firms. In collaboration with secondary schools and universities, we arrange student competitions and with the help of EU funds we participate in programmes which bring engineering practice closer to students.

In collaboration with Ostrava Technical University, we organise internships in the workplaces of our members for academicians and students in master's and doctorate degree courses specialising in development and research, production, services, and other commercial and non-commercial activities. We

are trying to stimulate long-term cooperation in the area of development and manufacture of new products, technologies and services. We give technical lectures, organise seminars and conferences with world-renowned experts and educational courses for students, academic workers, and our members. There is never an excess of high-skilled graduates, and currently nearly each of our firms is feeling a lack of them.

How do you see the future of Czech engineering? What opportunities and what pitfalls are lying ahead?

Traditionally, Czech engineering has a lot to offer. The usual pitfall is the difficulty of finding markets where our goods could be placed. In the long-term, however, it applies that still there are markets waiting to be found, and still there are new countries interested in our products, such as India, Turkey, Russia, and other territories, as I have said before. The representatives of the domestic engineering industry agree with the fact that deliveries for nuclear projects across the continents are an opportunity, which may play a substantial role in the development of the Czech economy. OECD and the Nuclear Energy Agency expect that by 2030, the installed output of nuclear power plants will grow to 500-700 GW. Currently, some 430 nuclear reactors with a total output of some 400 GW are in operation in 41 states. The largest nuclear power is the EU, whose member states generate more electricity in their nuclear facilities than the USA and Canada together and seven times more than Russia. An important argument in favour of the expected growth of nuclear facilities is the fact that mankind has currently only two adequately efficient technologies for the production of electricity free of CO₂ emissions, i.e. hydro and nuclear power systems. The future of Czech engineering, therefore, also rests in exports to countries outside of Europe. That is one reason why, in addition to Ostrava, we have opened an office in Prague, through which the cluster wants to become involved in international projects more intensively. Among them, several opportunities seem to be opening up in the metallurgical industry, for which the cluster is preparing another supply chain. Another pitfall is the growth of production costs, which, in addition to taxes, are augmented by various administration fees, mainly on renewable energy sources. The cluster is trying to help engineering firms by decreasing those costs.



Engineering Tuition Has a Strong Tradition



Faculty of Mechanical Engineering – VŠB Technical University in Ostrava

<http://www.fs.vsb.cz/es/>

The Faculty of Mechanical Engineering was established in 1951, under the name of Faculty of Mining Engineering, after the merger of the Mechanical Engineering University and the Mining University in Ostrava. The Faculty runs both theoretical and practical courses in elementary engineering. Its branches focus on partial aspects, such as transport technique, robotics, machinery repair and maintenance, and industrial design. More than 2500 students are annually enrolled in the Faculty. The Faculty has 10 departments and one institute.

Engineering tuition has a long continuity and tradition in the development of the history of technical sciences in the Czech Lands, which is represented by important institutions. The following is a brief survey of the most important faculties in the Czech Republic concerned with education in this area.

Faculty of Mechanical Engineering, Czech Technical University (ČVUT) in Prague

<http://www.fs.cvut.cz/web/>

The ČVUT Faculty of Mechanical Engineering in Prague is part of the oldest civil engineering university in Central Europe, founded in 1707. The tuition of engineering as an independent branch commenced at this school in 1864; therefore, that year is considered the foundation year of the Faculty of Mechanical Engineering. The Faculty has the following departments: Environmental Engineering, Power Engineering, Instrumentation and Control Engineering, Automotive, Combustion Engine, and Railway Engineering, Mechanics, Biomechanics, and Mechatronics, Process Engineering, Production Machines and Equipment, Aerospace Engineering, Management and Economics, Biomedical and Rehabilitation Engineering, Materials Engineering, and Mathematical Modelling Techniques. International collaboration in education follows several lines. In addition to student staff and academic mobility based on contracts, it comprises scientific, research, and pedagogical activities linked with participation in scientific seminars and



conferences, especially in EU states. International collaboration in research and development has the form of direct participation in different EU and other international programmes. The Faculty also participates in the activities of other research centres; it collaborates with the Czech Academy of Sciences, the Czech Engineering Academy, the Association of Research Organisations, the Confederation of Industry, the Association of Manufacturers and Suppliers of Engineering Techniques, and a number of large, medium-sized and small industrial firms, such as Siemens, Porsche, Škoda Auto, and Hydrosystém Olomouc. In 2013, the Czech Technical University improved its rating in the prestigious QS World University Ranking, specifically in two areas – Engineering & Technology and Computer Science & Information Systems.

Its graduates are mainly employed as technicians in transport enterprises, or in enterprises concerned with the maintenance and repair of both road and rail vehicles, and in public transport and factory transport departments.

Faculty of Mechanical Engineering, University of West Bohemia in Plzeň

<http://fst.zcu.cz/>

The Faculty of Mechanical Engineering is one of the seven faculties of the University of West Bohemia in Plzeň and one of its oldest. The Faculty has been transformed into a modern, open educational institution and has become a recognised establishment in the area of science and research. The Faculty collaborates with other technical universities, both domestic and foreign, and with industrial enterprises. It has dozens of contacts with universities in Europe

and the United States. The Faculty collaborates closely with manufacturing enterprises and has won a number of awards. For example the Machining Technology Department of the Mechanical Engineering Faculty was awarded one of the two prizes in the 2010 GRAND PRIX FOR INDUSTRY competition for its design and construction of a milling machine with exchangeable toolheads for high-speed milling of extra hard materials. The machine's innovative features are the special geometry of the bed and a new clamping element, which make it possible to use the machine for high-speed and hard milling. The machine was made in collaboration with Hofmeister, s.r.o. The firm also undertakes other modifications of the machine.

Mechanical Engineering Faculty, Technical University in Liberec

<http://www.fs.tul.cz/>

The Faculty was founded in 1953 and is the oldest faculty of the Technical University in Liberec. At the time of its establishment, it focussed primarily on the education of engineers for the textile industry, glass-making, and the

automotive industry. Currently the Faculty offers engineering courses in five specialisations: engineering technologies, construction of machines and equipment, production systems, applied mechanics, and automated control systems in engineering.

Faculty of Production Technologies and Management, Jan Evangelista Purkyně University (UJEP) in Ústí nad Labem

<http://cz.fvtm.ujep.cz/>

The Faculty prepares would-be technical and economic workers in Bachelor's, Master's, and Doctorate study courses specialising in engineering technology, power engineering, and pedagogy. A science and technical park offering 850 sq. m of highly equipped laboratories and specialised workplaces is part of the Faculty's research workers in solving material and technological problems of industrial enterprises throughout the Czech Republic. The Park, however, is mainly oriented at the Ústí nad Labem and Karlovy Vary Regions. An important mission

of the Park is to bring together universities and industrial enterprises. Its role is also to support firms which do not have their own research facilities and want to carry out research, solve optimisation projects in the area of technology and materials, and modernise and innovate production. The Park makes it possible for firms to undertake their own research and create reference laboratories there. In addition, the Park offers firms consulting services in the area of technology, materials and 3D systems, preparation of their own specialists in the framework of doctoral studies, and the use of the entire range of instruments and equipment for materials testing. In 2012, the Park collaborated with more than 30 firms. In collaboration with 26 of them, 53 orders were realised and 39 research reports were published.

Faculty of Mechanical Engineering, Technical University in Brno

<http://www.fme.vutbr.cz/>

With its enrolment of nearly 4 500 students and 15 specialised workplaces, the Faculty of Mechanical Engineering (FME) is the second largest

www.chemotex.cz



CHEMOTEX Děčín a.s.



CHEMOTEX Děčín a.s. is an important Czech manufacturer and supplier of highly efficient environmentally friendly detergents and degreasing agents designed for use in engineering, metal-working, and other branches of industry.

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 - b) water insoluble – solvent type
- cutting fluids (EBOL SOK, OLEJ HB 20, OLEJ HB 30)
- drawing emulsions (EBOL P-S and EBOL P-TM)





faculty of the Technical University in Brno. FME collaborates widely with industrial enterprises and foreign educational institutions and has become a recognised institution in the area of science and research, collaborating closely with the Czech Academy of Sciences. An important step was its entering into collaboration with the Czech Technological Park neighbouring on the FME compound, a part of which are leading international and Czech companies (Siemens, FEI Company, Timken, Honeywell, IBM). FME is an active participant in the South Moravian Innovation Centre, which creates a comprehensive infrastructure for innovative enterprises in the South Moravia Region and whose core activity is supporting start-up firms in the form of technological incubators. Currently, the Faculty's specialised workplaces are being modernised. The modernisation has been made possible thanks to the Netme Centre project. The Faculty has become an important partner to the Central European Institute of Technology (CEITEC). Its principal aim, however, is education in engineering branches and applied sciences, where FME collaborates closely with other faculties,

not only within the Technical University, but also with Masaryk University in Brno. Many of the traditional engineering branches have greatly changed over a short time, and this became reflected in their names – this is how branches, such as process, power, automotive, construction, or fluid engineering came into being. Besides traditional construction and technological branches, specialisations undergoing important development are applied sciences and inter-branch sectors, such as mathematical engineering, materials engineering, physical engineering and nanotechnologies, mechatronics, industrial design, etc. All the study programmes are accredited in Czech and in English. Programmes, such as double diploma, are also accredited, making it possible for excellent students to obtain a diploma from a recognised foreign uni-

versity – Paris Tech Cluny and TU Chemnitz - simultaneously with the diploma of the Technical University. This type of combined study has also been arranged with the University of L'Aquila. An integral part of study is the preparation of practical projects, participation in the research work of institutes and the possibility of study or internship abroad.

Interesting Project of the Faculty – The Technical University in Brno Has a Unique Turbine

A vortex cascade turbine may operate some time in future in sedimentation basins, on weirs or currents with a steep gradient or in hydroelectric power station reservoirs. In June 2013, the turbine was presented by a team of scientists from the Technical University, who had worked on its development for two-and-a-half years. It is a unique project, an outcome of collaboration between the Technical University in Brno and ČEZ energy company. The joint project is aimed at improving the parameters (raising the efficiency) of the already developed single-stage turbine, both siphon and straight-

ENGINEERING: NUMBER OF GRADUATES	
School	Number of graduates
Faculty of Mechanical Engineering, Technical University in Brno	1070
Faculty of Mechanical Engineering, Technical University in Prague	540
Faculty of Mechanical Engineering, Technical University in Ostrava	536
Faculty of Mechanical Engineering, Technical University in Liberec	187
Faculty of Production Technologies and Management UJEP in Ústí nad Labem	51
Source: Survey HN (2012)	

flow versions, with counter-rotating wheels for greater discharges and higher gradients. In comparison with conventional turbines, the vortex turbines of the Brno scientists are cheaper and more reliable. Theoretically, vortex turbines can be used for most installations on the remaining available potential hydro power sources in the Czech Republic. In comparison with the conventional Kaplan turbine, the vortex turbine has a simpler construction and can be installed at a significantly lower cost. This will make it affordable for investors in the construction of small hydroelectric power stations. The two-stage vortex turbine with a cascade arrangement, developed at the Technical University in Brno, is the first machine of this kind on a world scale, which proved its functioning in prototype tests under real operating conditions.

■ RETOS VARNSDORF Wants to Conquer Also Non-Traditional Markets



Jan Müller

The history of machine tool production in Varnsdorf dates back to the early 1920s – and in 1992 RETOS VARNSDORF linked up on this tradition, when it began to include in its programme the overhaul and modernisation of horizontal boring mills, and later started its own development and manufacturing of new machines. To learn about RETOS VARNSDORF's current activities we addressed its director, Jan Müller.

What exactly does your company offer its customers now?

The company's production programme and the portfolio of the services it offers are determined, to a certain extent, by the market, independently of the will of the company's management. Factors such as pressure for machine work productivity, replacement of "worse" work further east, the political situation in Russia, the tainted EU grant system, legislative changes concerning labour safety and in general the requirement of compliance with EU legislation etc. influence customers' requirements and ruin the system of doing business based exclusively on repairs and modernisation. The modern customer wants new equipment financed with grant money and demands full support in the area of servicing and technological consulting. Currently, RETOS manufactures new machines, carries out overhauls, provides warranty and post-warranty services and offers machines including the supply of technology and tools. The sale of spare parts is a matter of course. Besides its core activities, RETOS has its own machining centre which it uses for its own production of machines and external cooperation.

What are the strategic aims of your company?

In the first place it is the company's stability and the satisfaction of all interested groups on a long-term basis – employees and customers, and naturally the company's owners. Going hand in hand with this is comprehensive technical development. An important element is the elimination of risks linked with fluctuations of the economy - and not only those of the Czech Republic, and consequently the change of the structure of de-

mand. We are trying to offset this influence by broadening the portfolio of our offer and the range of destinations to which we supply our business. We produce new machines either directly for our customers or for our parent company, TOS VARNSDORF a.s. Overhauls are a kind of counterweight to the supply of new machines to customers who cannot afford a new machine or do not want to buy a new one, nor do they want to throw their old machine on the scrap heap. For the leaner years, a partial substitution for machine production is the supply of services and medium repairs. As regards profit creation, the main source is machine production. One of our aims is to promote cooperation in machining and technological services.

What in your opinion is your greatest competitive advantage?

One answer will be for the manufacturing of new machines and the other for overhauls and modernisation. New machines – the overwhelming majority of manufacturers bet on modern technologies, while practically no one will opt for manually controlled machines. The W100A machine taken over from the production of TOS VARNSDORF a.s. is in fact a rarity of its kind, as it has been manufactured without any major technical changes for more than half a century and continues to be popular. As regards overhauls and modernisation, an indisputably great advantage is the company's direct link to TOS VARNSDORF, with direct access to technical documentation and the possibility of cooperation in the manufacturing of the key components of the machine. I see no competitive advantage in other areas.

How did your company fare last year?

We met our goals, so we fared quite well, although it was "a hard day's night" so to speak. We are still wrestling with a shortage of skilled workers. Engineering as a branch is, in general, wrestling with a lack of interest and the region of north Bohemia, in combination with the small-town environment where our company is located, are factors which often nearly disqualify us. We are trying to stimulate our employees by rewarding them for good performance, we invest in the training

of the workers, cooperate individually with university students, whom we support in their studies and provide them opportunities for self-realisation in development and production and we cooperate with secondary schools in the area of practical tuition and the creation of educational programmes. The aim is to keep young school leavers in the region and ensure continuity in passing on know-how between the generations.

Are you successful in leading the competition?

With competition it is about 51:50 in favour of RETOS. We are good with respect to quality, but it is worse as regards the reward for quality.

Which countries are among your greatest customers?

Currently our greatest customers are the countries of the former Soviet Union, especially as regards the sale of new machines. For overhauls and modernisation it is traditionally the Czech and the Slovak Republics, and after a period of slowdown in recent years, a revival can be felt on the part of Central and Western Europe, with Germany at the head. Our machines can also be found working in Canada, the USA, and Australia. Recently, we managed to penetrate into countries such as Brazil, Thailand, the Republic of South Africa, Libya, and the United Arab Emirates.

Where do you see a potential for your further growth?

More important than growth in the sense of higher turnover and a higher number of employees is the company's stability. Nevertheless, a potential certainly exists: in penetrating non-traditional markets and technically in efficiency of production and the supply of machines including follow-up services and technologies. At the same time, I am confident that despite the restrictive import policy, the market of the Russian Federation will remain open.

Can you reveal to us something of your future plans?

I would rather keep the answer to this question to myself. But we do have ideas in our heads.

Research Centre of Manufacturing Technology Presents its Activities

When a company specialising in machine tool part manufacturing comes across an issue in manufacturing technology, it usually seeks help from its machine tool or cutting tool supplier. If the cause of the issue is not evident or the issue is too complex, it is advisable to refer to an institution that can provide specialists in all relevant fields. The Research Centre of Manufacturing Technology (RCMT) is such an institution. It is part of the Faculty of Mechanical Engineering at the Czech Technical University in Prague.

RCMT was founded in 2000 with the direct support of the Ministry of Education, Youth and Sports, and the Association of Engineering Technology. In 2012 it merged with the Department of Production Machines and Equipment at the Faculty of Mechanical Engineering, Czech Technical University in Prague. RCMT functions as a research base for the field of production engineering in the Czech Republic as well as a training centre for the education of young specialists. During its existence, it has developed into the most important institution in the Czech Republic in this field. It collaborates on its research projects with many leading European and world universities and research institutions.

RCMT'S KEY ASSIGNMENTS

RCMT is strongly oriented to customised research and development. Providing support to its partners in the industry and identifying solutions to their technical issues are among

RCMT's key priorities. Its leading-edge expert competence covers a wide range of engineering technologies created for and applied to machine tool producers, as well as a number of machine tool part manufacturers in the engineering industry who implement manufacturing technologies in various application forms in their plants.

RCMT currently employs 80 specialists in seven research groups:

- Design ■ Simulation ■ Mechatronics
- Testing ■ Technology ■ Automation
- Manufacturing

When solving a specific customer issue, this allows us to choose a team made up of experts in the fields that are relevant to the solution of the issue.

MAIN COOPERATION

RCMT cooperates with leading machine tool producers in the Czech Republic, e.g. companies TOS Varnsdorf, TOS Kuřim, Škoda Machine Tools, TOSHULIN, Kovosvit MAS, Tajmac ZPS and others. In joint development projects, RCMT experts ensure design for development, including relevant optimisation and simulation computations. They also collaborate in preparing product documentation, and help in assembling and commissioning machine tools. They prepare customised technologies for a completed machine tool. If there are issues with an already existing machine tool or technology, specialists from the Testing Group are able

Preparation of customised technology



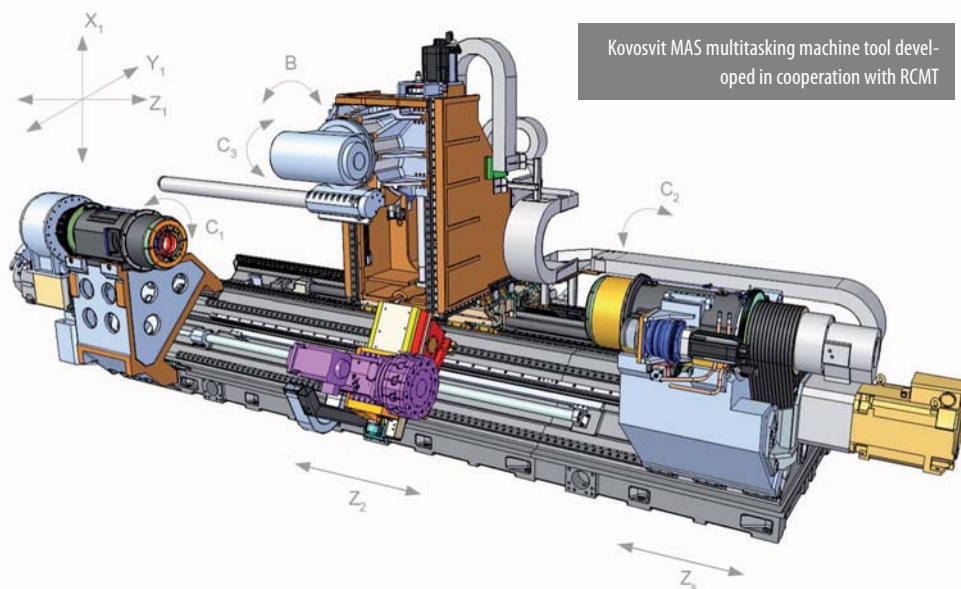
to identify the causes of the issue and to recommend a suitable solution.

RCMT also cooperates with machine tool users. Comprehensive services provided to these customers can be divided into three areas: The first area is the design and implementation of manufacturing technology. RCMT offers the complete delivery of technical and technological production planning, including the implementation of component prototype production. In each phase of the design and implementation of a manufacturing technology, we offer a broad range of support and services - from technology design and optimisation to implementation on our own or customer's machines. The second area is the diagnostics and development of the manufacturing base. These services focus on complete support in the area of measurement and diagnostics of machine tool condition at the customer's manufacturing base. Apart from this, RCMT offers enhancement of working machine tool properties by tuning drives and control systems and developing measuring equipment as well as developing special machines and machine groups. The third area is providing customised training and consulting in all the mentioned topics.

A VARIETY OF CUSTOMERS ACTIVE IN MANUFACTURING

After 13 years of RCMT's activities, a number of successfully solved research projects, implementation of specialised solutions for machine tool producers, comprehensive technological support to machine tool users and consulting and advisory work, RCMT's extensive know-how continues to be available to a variety of customers active in manufacturing. In the context of the continuously strengthening relations with industrial users, collaboration with RCMT is advantageous for both sides and both inspires and benefits the further growth of the Czech engineering industry.

More at www.rcmt.cvut.cz



Kovosvit MAS multitasking machine tool developed in cooperation with RCMT

Unique Centre for Development of Engineering Research Established in Liberec

The Centre for the Development of Engineering Research has opened in the industrial zone North in Liberec, which is a part of VÚTS, a. s.

It is the first research centre in the Czech Republic that has been completed as a part of the Operational Programme Research and Development for Innovations. The premises were prepared within a synergistic project called Application Centre for Laser Machine Tools, which was funded from the Operational Programme Enterprise and Innovation. The main aim of the project is to develop the knowledge and procedures for designing machines and equipment for the processing industry, which mainly includes machine tools and tools for the making of glass and fashion jewellery, as well as tools for polygraphics, assembly, textiles, and single-purpose tools, e.g. for the automotive industry. The realised research and development activities are orien-

ted at investigating key technical and technological aspects that limit further development of machines and tools, such as improving performance and production parameters, lowering power consumption, shortening innovation cycles, and optimising costs. In order to successfully tackle the listed key issues, the Centre will work on the development of machines and mechanisms, application of new materials and mechatronic systems, development of methods and controls for measuring technical and operational parameters of machines and tools, mathematical modelling of machines and tools, designs and creation of functional models and prototypes, and on the verification of their parameters.

Close cooperation with TU Liberec

The realisation of the aforementioned goal required the development of a spatially, ma-

terially, and personally well-equipped centre that would be capable of producing theoretical and practical outputs and, at the same time, would be able to flexibly react to the needs and requests of entities from the application sector. During the realisation stage of the project, top material and technical equipment was secured, and a number of unique instruments and tools was acquired and placed into operation, such as laboratories for noise analysis, vibration analysis, stream modelling and measuring, a workstation for designs and testing of mechatronic systems, workstation for FEM calculations, and machines and tools for the creation of functional models and prototypes and their evaluation. The Centre will also be involved in the education of graduates of engineering and PhD candidates, especially from the Technical University of Liberec.



DEPARTMENT OF PRODUCTION MACHINES AND EQUIPMENT | PME

Research Center of Manufacturing Technology | RCMT

The main research base for manufacturing technology in the Czech Republic.

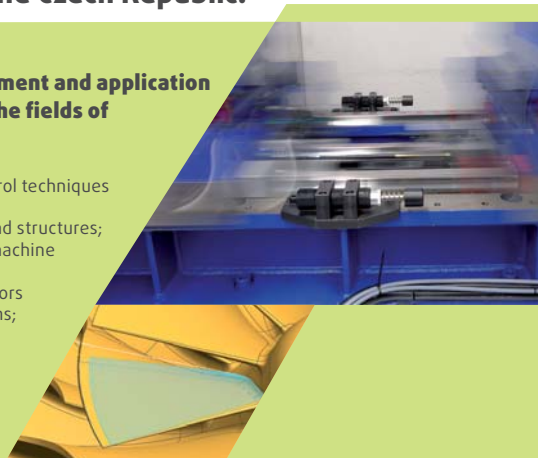
Cooperation with the industry is among our core activities.

We offer

- Customized research, development and training for the industry;
- Comprehensive support for machine tool development;
- Simulations and measurements of static, dynamic and machine tool thermal properties;
- Accredited Testing Laboratory services;
- Design of machine tool diagnostic systems;
- Energy and environmental optimization of machine tool design;
- Improvement of machine tool accuracy;
- Optimization of machining technology;
- Development of postprocessors and five-axis machining solutions;
- Solutions reducing production costs.

PME | RCMT focuses on the development and application of modern methods, especially in the fields of

- Advanced simulation models;
- Virtual prototyping and virtual testing;
- Development of advanced feed drive control techniques and vibration suppression methods;
- Application of unconventional materials and structures;
- Advanced monitoring and diagnostics of machine tool condition;
- Compensation of machine tool thermal errors and design of additional measuring systems;
- Multi-axis machining technology;
- Minimizing the environmental impact of machine tool operation.



135 Department of
Production Machines
and Equipment

Research Center
of Manufacturing Technology

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Czech Technical University in Prague, Faculty of Mechanical Engineering
Head of RCMT | PME: Jan Smolík, PhD

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The Present and Future of the Steel Industry

Jaroslav Raab, Executive Director, Hutnictví železa, a. s., e-mail: j.raab@hzova.cz, www.hz.cz

The steel industry in the Czech Republic has certain specifics that need to be considered and respected. Firstly, it is a highly demanding field when it comes to materials and power. The steel industry is essentially concentrated in a single region (almost 98% of production comes from the Region of Moravia-Silesia).

The development of the steel industry since 2008 has shown that the next period will not be just a "regular, cyclic industry crisis", and that the overall volume of metallurgical production in the EU will not return to the level of 2007 or 2008. It is apparent that the development in the steel industry bears distinct features of a structural change. The industry is moving from the EU to "third countries", and the volume of orders is decreasing and changing towards more sophisticated products.

Overview of Developments in 2012

2012 meant a turnaround for the Czech economy from the previous year. While the gross domestic product grew by 1.9% in 2011, it declined by 1.2% in 2012. The economy gradually slowed down in each quarter of 2012, both in year-on-year and quarter-to-quarter numbers. The main reason for the unfavourable development was the decreasing domestic demand of both

households for goods and services for consumption and investors for fixed capital. Foreign trade was unable to compensate for the development of domestic demand, despite the growing active balance.

In 2012, industrial production decreased the year-on-year rate of growth to -1.2%. An ever-growing part of domestic production goes for export, which is also caused by the fact that the growth of foreign orders exceeded the growth of domestic orders in the past two years. The apparent consumption of steel declined by 9.2% in 2012. This was influenced by maintaining the stable price of metallurgical products, even at the expense of lower production and halted capacities.

Basic Production Characteristics

The production of steel products in the CR had grown until the third quarter of 2008, when the consequences of the global financial and sales crises made themselves felt. The growth trend was restored in 2010 and continued during 2011, with a higher year-on-year dynamics during the first half of 2011, followed by a decline in the second half of 2011. Because of the financial troubles of Eurozone countries during that time, the demand for steel decreased. The resulting year-on-year dynamics of produc-

tion growth was lower in 2011 than in 2010. In 2012, the production of steel products decreased.

Table No. 2 shows that the achieved volumes are still lower by 20 to 25% than in 2007, i.e. before the start of the global sales crisis. While the volume of production in the CR reached approx. 75 to 80% of the volume in 2007, global production already reached the 2007 level in 2010.

Price Development in Steelworks

The expected development of the production of steel and final steel products may have a significant influence on the development of prices of input raw materials throughout the course of the predicted period, which will in turn influence the development of prices of steel products. The average year-on-year (2012/2011) decrease in the price of coking coal was 15%, the price of iron ore went down by approx. 22%, and the price of iron scrap decreased by approx. 10%. An increase in prices was expected for the beginning of 2013, with transaction prices expected to go down again at the end of 2013. The higher demand for steel will be reflected in a growth in steel production, which will undoubtedly influence the development of prices of coking coal, iron ore, and steel scrap. The significant growth of prices of input raw materials forces producers of steel products to reflect it in their end prices which may cool down the demand for steel. At the same time, the development of prices is also influenced by the cooling of the year-on-year dynamics of steel production in China. Therefore, it is

TABLE NO. 1: GDP DEVELOPMENT IN THE CR BETWEEN 2008 AND 2014

Year-on-year change in %	2009	2010	2011	2012	2013-E	2014P	2015P
GDP	-4.5	2.5	1.9	-1.2	0.1	1.4	2.4

Source: CSO, Ministry of Finance of the CR

TABLE NO. 2: DEVELOPMENT OF PRODUCTION OF STEEL PRODUCTS IN THE CR (thousands of tonnes)

Product	2007	2008	2009	2010	2011	2012
Raw iron	5 287.2	4 737.2	3 482.6	3 986.9	4 136.9	3 935.2
Raw steel	7 058.9	6 387.0	4 593.6	5 179.6	5 583.2	5 072.1
Rolled material	6 301.1	5 800.7	4 300.2	5 077.5	5 088.9	4 688.7
Steel pipes	777.2	718.8	469.1	579.2	595.2	596.7
Other products	1 076.9	967.5	695.8	821.3	833.2	836.3

Source: Hutnictví železa, a. s.

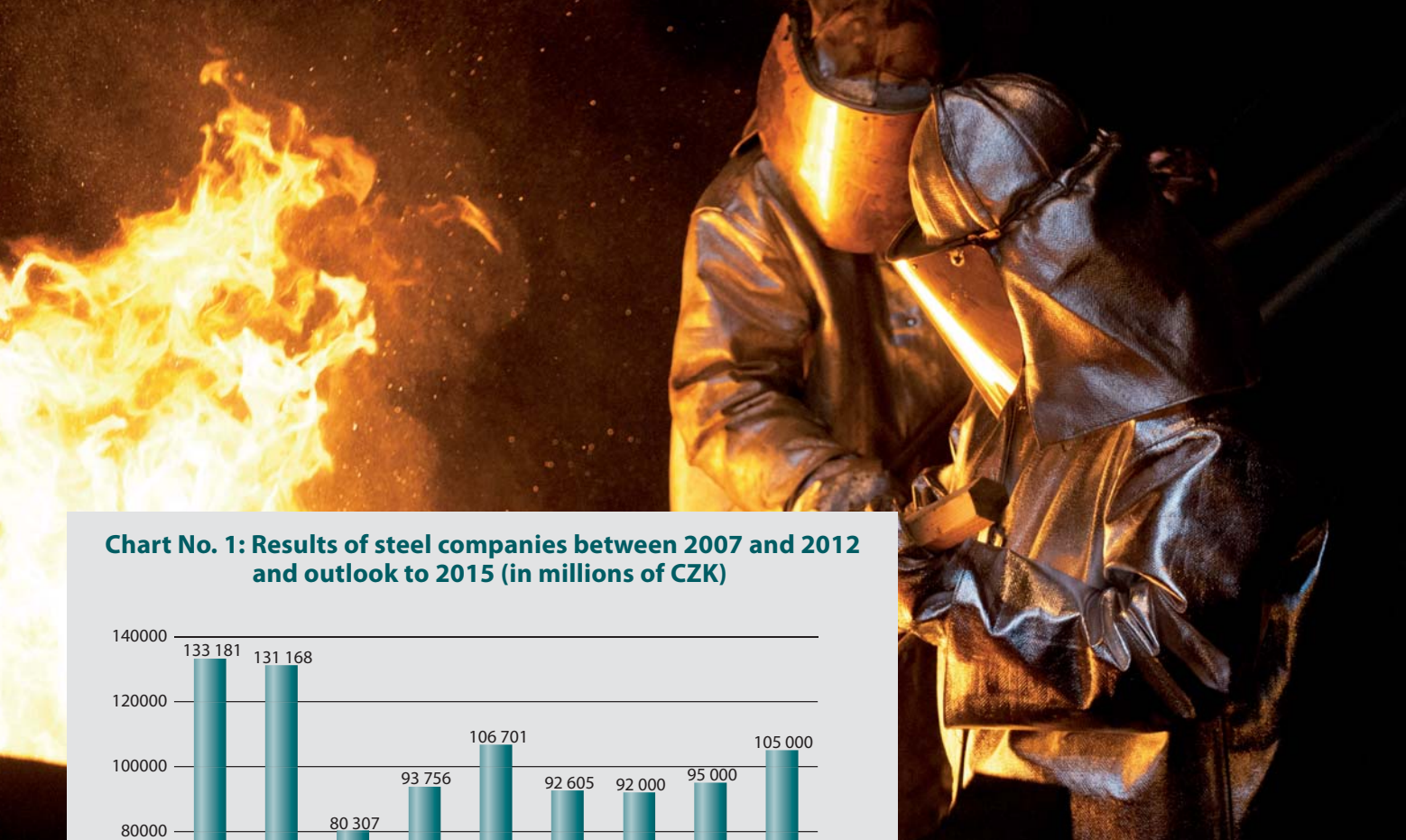
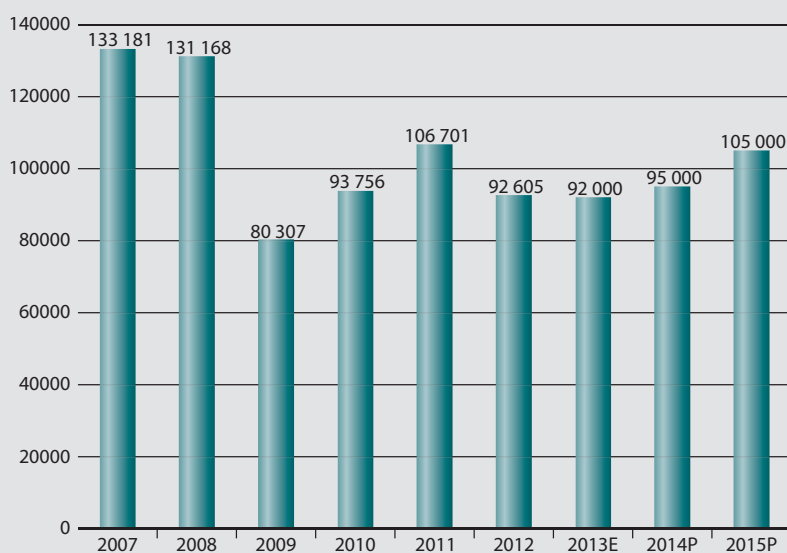


Chart No. 1: Results of steel companies between 2007 and 2012 and outlook to 2015 (in millions of CZK)



Source: Hutnictví železa, a.s.

ever more important to secure a long-term supply of input raw materials.

Economic Situation Development

As can be seen in Chart No. 1, there was a slump in 2009, and the field of metallurgy again gradually stabilised in 2010. The turnaround started in the second quarter of 2011, when the year-on-year rate of growth slowed down to 3.9%. In the long-term, metallurgical production has still not returned to the pre-crisis numbers. There was another decline in 2012.

Despite the fact that the development in 2012 showed all signs of a recession, which can be evidenced by the year-on-year decline of both added value and profits, it cannot be seen as completely negative. On the one hand, the more the economic indicators deteriorated, the more the contracted volume of orders decreased, and revenues suffered a year-on-year decrease of 14%.

On the other hand, enterprises applied a number of savings measures, including tem-

porary shutdowns of capacities, layoffs, wage measures, requalifications, etc. All in all, this led to the ability to maintain production and keep core employees. Important enterprises managed to turn a profit, even in the face of unfavourable external and internal conditions. Nevertheless, it seems that the main consumers will not recover before the end of 2013, which means that further savings will be necessary, investments will need to be postponed, or some production programmes reduced. The prognosis of results below already takes this slowdown into consideration.

Estimates for 2013–2015

Owing to previous developments, the financial condition of the majority of companies still allows for their business operations. The shortage of orders during the previous period necessitated shutdowns of production capacities and decreases in wages, both in the form of shorter weeks and employee layoffs. The degree to which capacities were used in the entire technological chain was

decreasing throughout 2012, and the same was true of labour productivity. In spite of the adopted measures, wage intensiveness grew by 11.7% in 2012 while production declined. Material intensiveness decreased by 0.4%. This was also reflected in evaluations made using the so-called viability indicators, which started to gradually decline again. The next development estimate reflects an expected decline in profitability and predicts the recovery of dynamics no earlier than from 2013. However, we do not expect to achieve the target parameters of the viability indicators (i.e. the pre-crisis values of 2007 and 2008) even in 2013 (see Table No. 3).

Labour Productivity

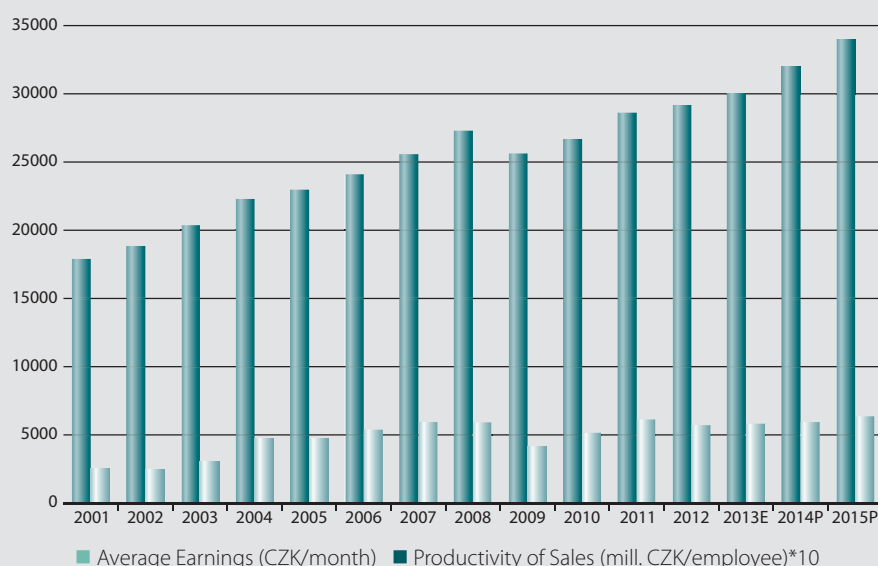
The slump in revenues and in the volume of orders, which accelerated especially in the first six months of 2009 and returned again at the end of 2012, had and continues to have an impact on the productivity of labour. It has also necessitated a gradual reduction in the area of employment in recent years. In 2010, the average recorded number of employees (not counting agency workers) saw a year-on-year decrease of 6.5%, 5% in 2011, and 7.3% in 2012. The reduction of the number of employees was actually higher because the number of agency workers has also decreased significantly in recent years (especially in 2011). The growing productivity of labour, which is gradually nearing that of western steelworks, remains a positive factor.

For the upcoming period (until 2014), it will be important to keep the “core employees”, i.e. even at the cost of temporary releases from work for educational projects and requalifications. It seems that the decline in the volume of orders could, in some companies, lead to temporary shutdowns of production.

Wages

Similarly to 2011, the year-on-year decrease in the number of employees partially influenced the growth of average wages in 2012. The result was a year-on-year growth of average wages of 2.8%. However, just as in the case of the growth of average wages in the CR (+2.7%), the overall result, considering the rate of inflation (+3.3%), meant a decrease of real wages. The growth of average wages in the CR between 2010 and 2012 was limited by the low rate of inflation and the government's restrictive measures in the budget sector. This year (2013), the growth of nominal wages will also be minimal and, considering the development of inflation and only a slow expected growth of the economy, the Ministry of Finance rather expects another decrease of real wages. It can be assumed that the growth of wages in the CR (both nominal and real) will recover in 2014 – considering the expected decrease in inflation (no further tax changes

Chart No. 2 – Development of average wages and labour productivity



Source: Hutnictví železa, a. s.

are planned, the prices of energies tend to go down, interest rates are low...).

Ecology

Since 1993, companies have invested CZK 94 billion from their own resources into efforts to reduce their impact on the environment in their vicinity. The investments mainly consisted of the modernisation of their production capacities and projects for the protection of the environment.

Equal Conditions for the Steel Industry

The creation of equal conditions for the future is important, not only for the steel industry, especially in the following areas:

- Creating purchasing strategies for main raw materials.
- Availability of raw materials (reaching more than 30% in “own” sources).

- Business relations, barriers, and support for competitiveness.
- Power engineering. Availability of stable and financially acceptable power supplies.
- Ecology.
- Support for dealing with unemployment.

The solution to the problem lies in the creation of competitive steel production that would be oriented at more progressive technologies and environmentally friendly methods. This also includes the innovation and investment factor. It is important to create conditions for the wider use of secondary raw materials.

Competitiveness is also influenced by parameters of environmental impacts:

- Despite the fact that the power consumption of metallurgical production has been steadily decreasing since 2004, the cur-

TABLE NO. 3: – VIABILITY INDICATORS IN THE FIELD FOR 2006 - 2015

	2006	2007	2008	2009	2010	2011	2012	2013 P	2014 P	2015 P
Gross margin	12.7	18.3	10.8	-3.0	-2.2	2.1	0.3	0.2	2.0	5.0
EBIT*/turnover	7.8	14.0	4.5	-7.9	-4	-3.6	-5.0	-5.5	-2.5	1.5

Source: Hutnictví železa, a. s., EBIT-Earnings before Interest and Taxes

rent situation still exceeds the parameters of today's most efficient technologies.

- The consumption of materials has been decreasing since 1997 (with the most pronounced decreases between 2004 and 2007). However, the CR still has a relatively higher consumption of materials than the average of the original 15 member states of the EU.
- Emissions of greenhouse gases have been steadily decreasing in the CR (by 4.7% per year on average).
- The most common method of waste disposal remains storage (96% of the overall amount of disposed waste), not its utilisation.
- The concentration of polluted air in certain regions is not caused only by industrial activities, but also by the factual impact of a number of other factors (transportation, local heating, distance transfer of pollution, historically fixed concentration of industry in small areas).

The goal of the EU is to decrease the emissions of greenhouse gases by 2050, by 80% compared to 1990. Outside of the EU, emis-

sions are expected to rise by over a third. The EU is thus harming its global competitiveness with its environmental measures. According to experts, a number of the goals are impossible to achieve, and the reason is simple – at present, there are no better technologies that would allow for the decrease of the environmental burden.

Conclusion

The creation of equal conditions is absolutely essential for the steel industry and industry as a whole – especially in the following areas: ecology (ecological legislation), raw material and energy availability, comparability of tax legislation, support for dealing with unemployment, and carrying industrial policies through in the EU and the CR. In many cases, this involves sustainability and the existence of the industry in the CR (with the possibility of job losses), considering that supranational owners often make decisions and optimise their production portfolios (surplus of steel industry capacities in the EU).

The goal of the prediction, including the identification of problems that jeopardise the competitiveness of the Czech steel industry, consists of the following areas:

- Ecological legislation could destroy the industry, should unrealistic regulations, limits, taxes, levies, and fees be introduced.
- The necessity to realise that the prepared ecological and investment activities require the pooling of funds from different sources, including a significant portion of foreign sources (up to 80% funded by the EU).
- The realisation of investments for implementing leading technologies are up to the owners. And it is the possibility of using a required portion of own financial sources that is the prerequisite for acquiring "foreign" capital and sources.
- Gross margin should (for full viability) reach the economic standard of 10%. Although we can expect the margin to be "positive" in 2015 (4–5% and differentiated), it will be higher for producers with significant portions of flat products.



Řetězárna a.s.®

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Řetězárna a.s. is a company with a tradition of more than one hundred years in the manufacture of welded chains and chain accessories. Skilled employees, long-time experience, modern machinery and equipment with the introduction and application of a quality assurance system in accordance with ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 give our customers certainty that they will purchase a quality product from us. The quality is also assured by the χ 45 certificate, which has been awarded only to several dozen companies in the world.

Our present production includes:

- a) tested chains in grades 2 and 3
- b) tested chains of higher strengths in grades 4,5,6,7,8 and 10 and sizes from 4 to 36 mm
- c) untested chains
- d) sling chains in grades 2, 8 and 10
- e) components of sling chains in grades 2, 8 and 10
- f) alloy steel forgings up to 4 kg, carbon steel forgings up to 7 kg
- g) chains for tyres of vehicles and machines (snow chains, protection chains, skidder chains)
- h) drawn wire

We manufacture these products to ČSN, DIN, EN and other Standards. Currently, the company exports 88% of its output to more than 36 countries. It cooperates with leading European manufacturers of chain products.



www.retezarna.cz

■ RETOS Varnsdorf s.r.o.

Number of employees: 93

Field of business: Engineering – production, overhauls, modernisation, sales and service of horizontal boring mills

Turnover in EUR: 5.8 million

www.retos.cz

What development do you expect in the field of machine tools?

In view of the rapid development in the area of automation, I believe that we are uncontrollably tumbling towards a digital jungle. Where there was a need for four fitters and one electrician before, only one fitter is needed today – and if the result is imperfect, four mechatronics compensate for it digitally. Even today, the complicated automation elements offer so many possibilities that it is impossible to make reasonable use of them all, let alone configure them. It is impossible for an individual to comprehend this complexity in a meaningful way. Unfortunately, this has a negative effect on the reliability of machines and on the possibilities of self-maintenance or self-service. And it will

only get worse! Equipment will be ever more complicated and ever less reliable. Many more experts will be needed – one for turning the screws to the left, one for turning them to the right. In the end, tightening screws will become so difficult and costly an operation that it will be more economical to replace the machine with a new one. Perhaps we will not even manufacture machines physically, perhaps it will be all done remotely over a network. Who knows? It is a big challenge.

In your opinion, what is the image of Czech products abroad?

Historically, it is certainly very good. In short, medium class for medium money. "Keepers." Which is not a bad starting position. Unfortunately, very few people today care that their machine will last mechanically for 20 years. It will be morally obsolete in just a few years. And who knows what technological requirements there will be just around the corner? Cheap Asian competition is likely to be of more use for quick business. The "good image"



of Czech products is then worthless. It seems to be a battle that perhaps cannot really be won.

Could you name some export success that your company can pride itself on?

I always consider it an important success when we manage to sell one customer more than one machine in one contract. Some customers even need to be "courted" for several years, and then only for one machine. The promise of another order tends to be an exception. Concluding a contract for more than one machine at a time is then almost a miracle. Such an event is, however, a real satisfaction for the effort exerted. We have already achieved this "miracle" in two cases this year. Three machines will be expedited to Thailand by the end of the year, and three to Belarus immediately after the New Year. In both cases, the order is for one customer.

■ TÜV SÜD Czech s.r.o.

www.tuv-sud.cz

Did the requirements for the operation of machinery change over the past years in the Czech Republic?

Basic requirements for machinery have been stabilised by the implementation of Directive 2006/42/EC through Government Regulation 176/2008 Coll.

However, harmonised standards that define safety requirements for individual types of equipment are gradually being updated.

Can you mention some news from the field of machinery compliance assessment?

The following standards could be mentioned as an example:

- EN ISO 13849-2:2012 Safety of machinery – Safety-related parts of control systems – Part 2: Validation (ISO 13849-2:2012)

- EN 1870-15:2012 Safety of woodworking machines – Circular sawing machines – Part 15: Multi-blade cross-cut sawing machines with integrated feed of the workpiece and manual loading and/or unloading
- EN 1870-16:2012 Safety of woodworking machines – Circular sawing machines – Part 16: Double mitre sawing machines for V cutting

Who are your typical clients in this area?

Manufacturers of various machinery and also organisations that for example import machinery with new technologies from areas out of EU countries within update of their operations. We are also increasingly asked for an assessment by investors, manufacturers and/or suppliers of large technological and production units where the conformity assessment is very complex and a mere conformity assessment of individual supplied techno-



logical components is not sufficient, but it is necessary to assess the unit as a whole. Given the complexity of the task and the high requirements for multidisciplinary knowledge we are also approached by the largest technology companies in the market since they cannot provide for such an assessment in a qualified manner even though they have relatively highly qualified staff."

What trends in the field of certification do you expect in the future?

At present, great emphasis is put on the decrease of energy intensity of products in many areas.

In the future, the requirements of Eco-design will be all the more topical also for machinery used in industrial practice.



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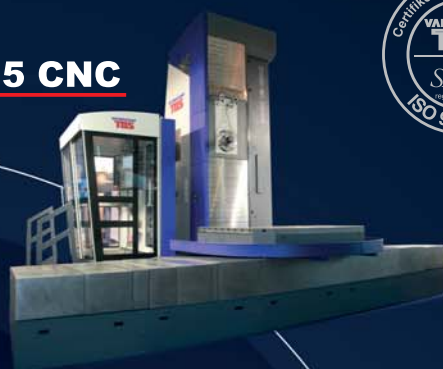
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