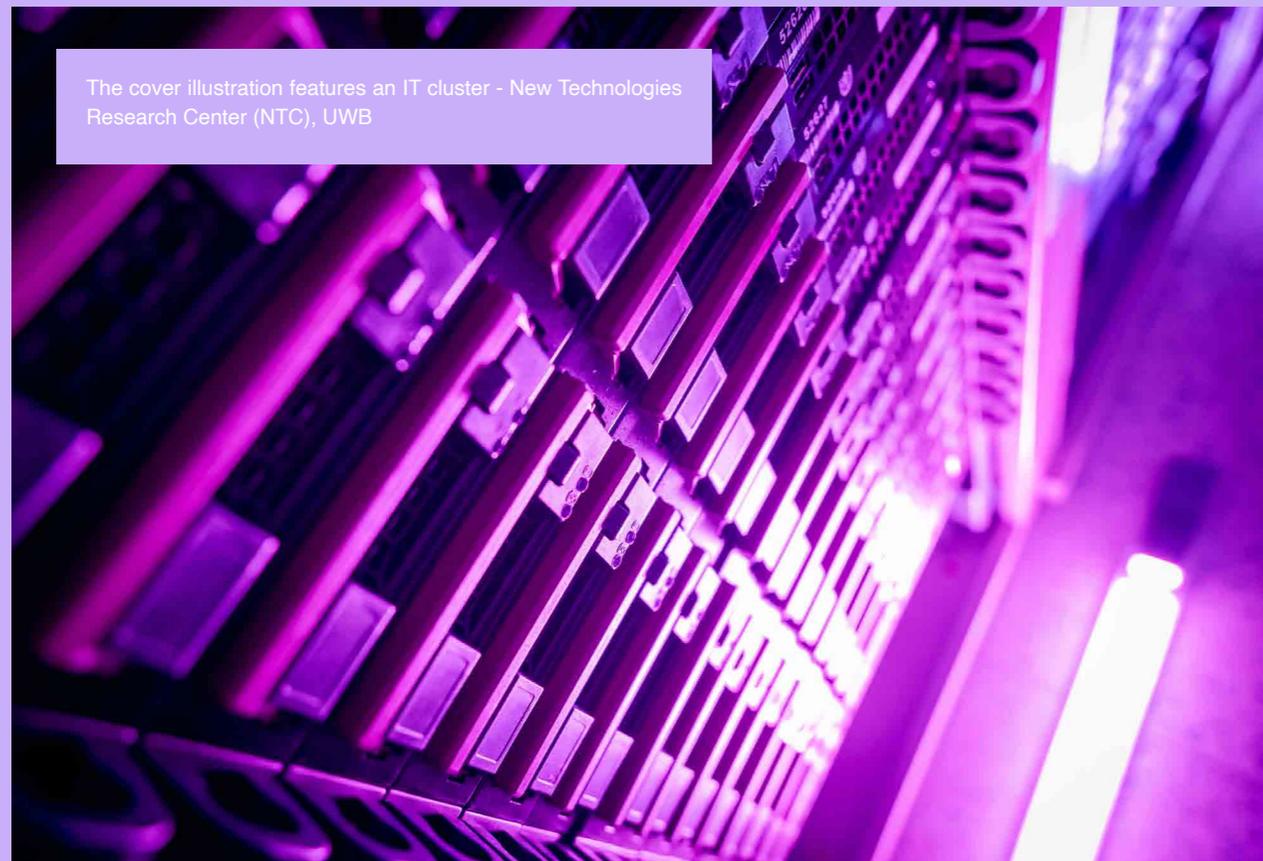


GetSmart #3

Published in October 2022 as part of the project Smart Accelerator for the Pilsen Region II

research, development, and innovation in the Pilsen Region

The cover illustration features an IT cluster - New Technologies Research Center (NTC), UWB



GetSmart #3

Published by the Regional Development Agency of the Pilsen Region as part of the project Smart Accelerator for the Pilsen Region II, funded by the Operational Program Research, Development and Education

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Dear supporters of development, research, and innovation,

You are now reading the third issue of GetSmart magazine, and once again we want to bring you interesting information from the field of research and innovation. It will definitely be worth your while getting to know about it. Whether it is an article about seeking young talents, working with them, and creating optimal conditions for their professional development, or the thoughts of Dr Mathias Eickhoff from ZF Engineering Pilsen about the conditions and prospects for entrepreneurship in our region. Also very interesting is the information about the first successes of the new program for developing new businesses, test-launched in the region as a part of the Smart Accelerator project. The concept of cooperation between researchers, entrepreneurs, startups, and public officials is developing constantly and dynamically and has inspired interesting new projects and solutions. Moreover, the potential of such cooperation goes beyond borders, as amply evidenced in the article on Twinning, which stresses the advantages of the proximity of Bavaria. One of our priorities in the coming period is to continue to offer excellent conditions for study and research in the region. We want to attract graduate and PhD students and researchers from other regions and abroad. We also plan to further develop and support the motivation of the younger generations to choose STEM fields. We intend to stimulate and activate students' interest in technology as early as elementary school, nurturing the next generation of experts and specialists not only for our universities and research centers, but also for the many companies operating in the region. It is thanks to them that the Pilsen Region is one of the most advanced and productive in Czechia. We really have a lot to be proud of. The Pilsen Region has an enormous potential for the development of new technological trends and business, thanks to its vast industrial background that generates a high GDP. If we manage to utilize it to the maximum, we will secure the future not only for ourselves but also for those who come after us. I wish all of you – students, investors, researchers, and residents and public authorities in our region and local governments – the best of luck in pursuing your goals of bringing progress and new, innovative solutions.

Yours sincerely,

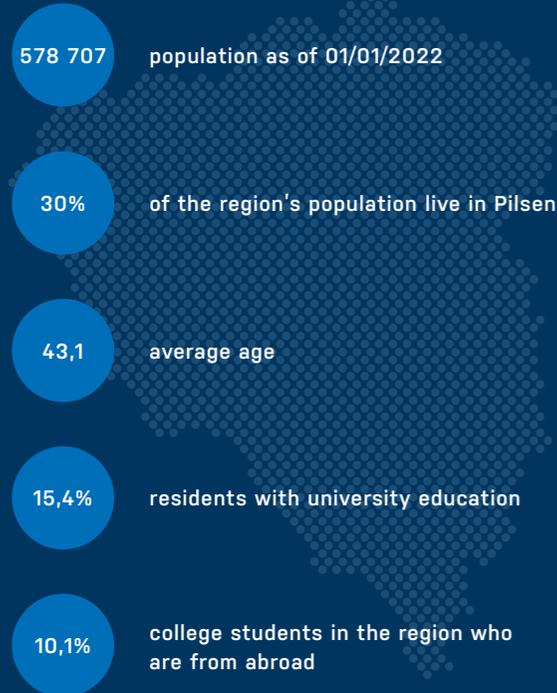
R v S

Rudolf Špoták
President of the Pilsen Region



Research & Development Data for the Pilsen Region

BASIC INFO ABOUT THE REGION:



FUNDS ALLOCATED FOR RESEARCH AND DEVELOPMENT

In 2020, funds allocated for R&D amounted to **CZK 4.9 billion** (compared to 5.1 billion in 2019). Compared to the previous year, the amount of funds allocated for R&D has dropped slightly (especially in the business sector).

R&D EXPENDITURES BASED DIVIDED BY SECTOR IN THE PILSEN REGION IN 2020:

76% BUSINESS SECTOR
23% UNIVERSITY SECTOR
1% GOVERNMENT / PRIVATE / NON-PROFIT SECTOR

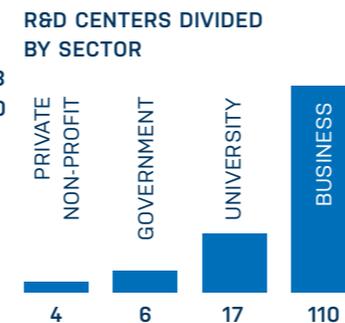


In 2020, the business sector's R&D expenditures amounted to 1.2% of the GDP (5th highest share among Czechia's regions).

R&D CENTERS

107 CENTERS
137 CENTERS

The number of centers with research as their primary economic activity has increased slightly in the past few years, coming up to 10 in 2020.



PEOPLE EMPLOYED IN R&D



Between 2019 and 2020, the number of people employed in R&D has dropped slightly (by some 100 persons).

The region has the 3rd largest share of people employed in R&D per 1,000 residents among all Czech regions.

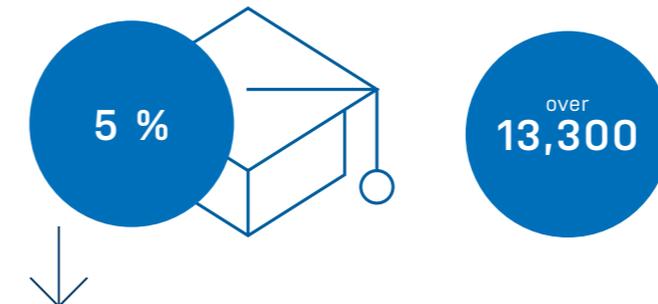
National average 7,6*
Prague 21,9*
South Moravian Region 13,5*

* people employed in R&D per 1,000 residents
** persons focusing on R&D activities full-time

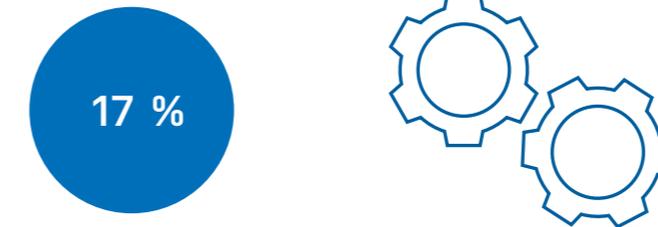
COLLEGE STUDENTS

Between 2018 and 2021, the number of students at the University of West Bohemia increased by:

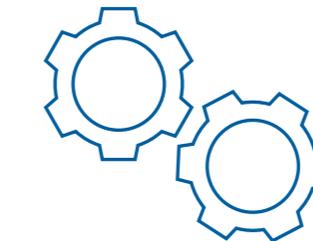
Number of students at the University of West Bohemia and the Faculty of Medicine of Charles University in Pilsen:



Students in STEM fields



University students in STEM fields who are residents of the Pilsen Region



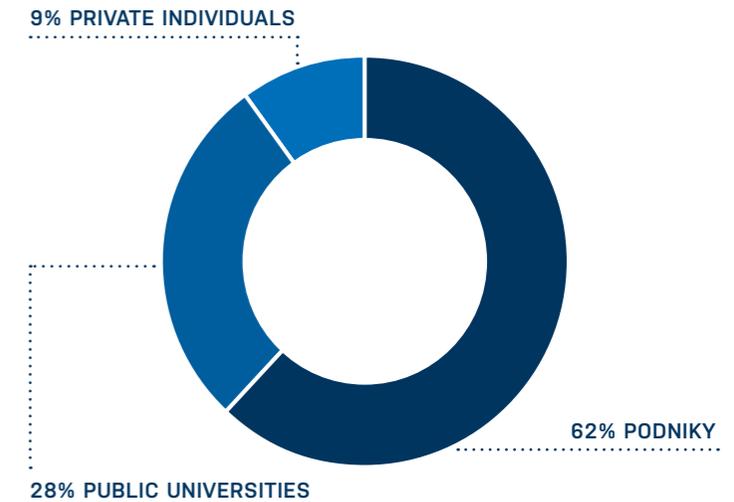
Zlín Region 18%
South Moravian Region 16%
Prague 10%

R&D RESULTS

Applicants from the Pilsen Region were granted **27 patents** in 2020, which is the highest number over the monitored period (2010—2020).

In 2020, **157 valid patents** were registered for Czech applicants in the Pilsen Region.

Most of the applicants came from the corporate sector (62%); 28% were from public universities, and 9% were private individuals.



Research in cutting-edge technologies:

The prominent field of Research & Development in the PilsenRegion is the field of information and communication technologies (ICT).



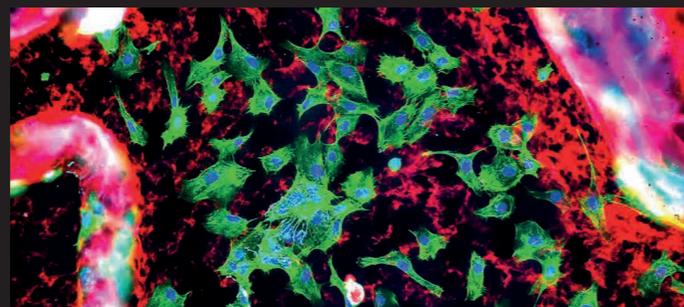
In total, **CZK 1.3 billion** were allocated for this field in 2020, representing **6%** of the total 23 billion allocated for R&D in ICT fields in the Czech Republic.

The Pilsen Region has the 3rd highest share, after Prague (57%) and the South Moravian Region (23%).

MUST-READ NEWS FROM THE REGION

PROTEINS IN A WINNING PHOTO

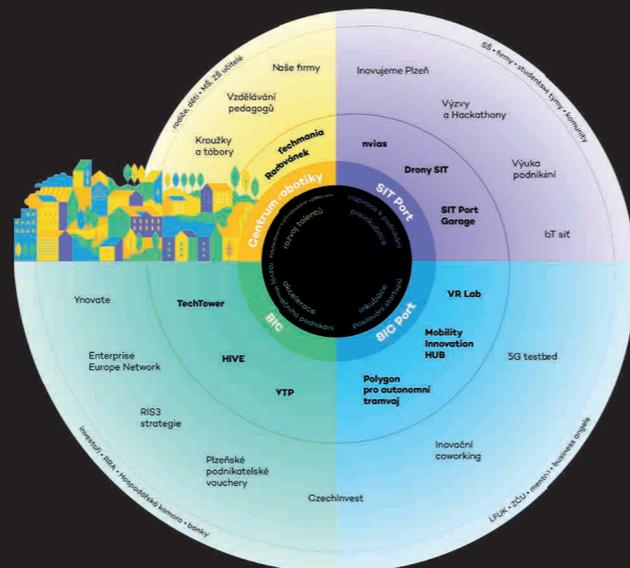
The microscope image, a scaffold of pig liver tissue in immunofluorescence staining, was one of the winning images of the Nerd Art Prize photography competition organized by the ERA Research Club, which is part of the Chaperon project at the Faculty of Medicine in Pilsen. The author of the image is Roshan Kumar Singh, a 2nd year PhD student in Experimental Surgery. The image shows several common proteins (collagen, fibronectin) present in pig liver tissue.



PILSEN INNOVATION ECOSYSTEM

PINE, Pilsen Innovation Ecosystem, is a new tool to support the technical community and innovative entrepreneurs in the region, launched by the city of Pilsen. The West Bohemian metropolis has been implementing this unique ecosystem in collaboration with other partners, with dozens of interesting and often unique projects across the Czech Republic.

PINE aims to bolster Pilsen's position as a city of science, research, and innovation, and to make sure that talented individuals with technical skills and knowledge and entrepreneurs stay here and do not seek opportunities elsewhere. The West Bohemian metropolis is easily accessible due to its location, so it makes sense to concentrate everyone involved in the ecosystem here. However, services provided within the ecosystem are available to talented individuals and entrepreneurs from all over West Bohemia. The PINE ecosystem stands on four pillars: polytechnic and science education; inspiration for entrepreneurship; incubation; and acceleration.



THE REGION ADDRESSES GLOBAL MEGATRENDS

Technological change and hyper-connectivity; an aging population; the breakdown of supply chains; urbanization and smart cities; and the rise of power politics are some of the global megatrends that have and will impact society. Do companies and research centers in the Pilsen Region have the potential to respond to the opportunities presented by megatrends? Is it possible to collaborate in research and use the results to address global challenges? Are our regional strengths in the field of research and development really relevant in a changing world? These and other topics were discussed by over 130 representatives of companies, research centers, educational institutions, and public administration at the conference Intelligent Specialization of the Region 2022, subtitled Global Megatrends as an Opportunity for the Pilsen Region, which took place on 7 June 2022 in Pilsen. The conclusions of the conference were reflected in an analysis, the outputs of which will be debated at the meetings of the sectoral platforms. Possible changes in specialization will be reflected in an update of the Pilsen Region's regional innovation strategy in the field of research, development, and innovation.



THE BEST 5G INNOVATOR IS COMTES FHT

COMTES FHT won the NEJInnovator 5G (BEST 5G INNOVATOR) contest, set up to support small and medium-sized innovative companies in 5G cities (Pilsen, Bílina, Jeseník, Karlovy Vary, and Ústí nad Labem). The aim of the competition was to find the organization with the best innovation management with theoretical impact on 5G networks, by evaluating the companies' approach to innovation. Evaluators assessed the various ideas in the field of innovation, but also the way companies utilized them, put them into practice and monetized them. Second place went to the Karlovy Vary Transportation Company, and third place was taken by the XR Institute.



DUCHEK APPOINTED DEAN OF THE FACULTY OF ENGINEERING

From October 2022, the Faculty of Mechanical Engineering of the University of West Bohemia in Pilsen (UWB) will be headed by doc. Ing. Vladimír Duchek. Ph.D. Duchek has succeeded Milan Edl, who headed the faculty for two terms, and thus could not run again. Duchek intends to broaden the standard focus on materials, technologies, machinery, and equipment by introducing topics corresponding to future trends, such as advanced high-tech materials and technologies or new energy systems, with an emphasis on clean production, additive technologies, and intelligent manufacturing systems.



Pilsen Region: A Solid Brand with Potential for Development

The Pilsen Region is known for its industrial tradition, beer, and Skoda. This means it can offer tourists many interesting places to visit, but it is also perceived as a good place to live and do business, thanks to the range of available jobs and good infrastructure. Does the region manage to communicate this sufficiently? How do the residents of the Pilsen Region perceive the regional brand and its values? And how is the Pilsen Region connected to the Karlovy Vary Region?

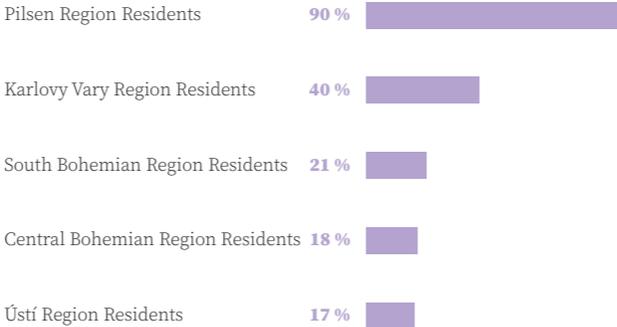
During June and July, the Pilsen Region, in cooperation with the market research agency NMS Market Research, conducted a survey regarding the Pilsen Region's brand shift. The aim was to map the perception of the region, its potential and values, in order to obtain input data to update the region's marketing and communication strategy. As part of our research, we spoke to representatives of the public and private sectors from the Pilsen Region (representatives of public administration, universities, support organizations, research centers, innovative companies – in other words, people who help create the image of the region and are important links in building the whole ecosystem, and whom we refer to as “stakeholders”). A questionnaire survey was also conducted with 1,020 residents of the Pilsen Region and the neighboring regions.

Pilsen Region Brand and Its Image

If you ask someone from Pilsen or the Pilsen Region what they associate with the region, it is probably not surprising that the primary associations are with beer, specifically Pilsen's own Pilsner Urquell, and the Skoda factories. What you might not guess at first glance, however, is that the Pilsen Region has a good reputation among residents of the Karlovy Vary Region: of all the neighboring regions, they are the most supportive of the Pilsen Region. They know the region better (55% of residents said they know the Pilsen Region very well or well, compared to 21% of the residents of the South Bohemian Region, for example), they plan to visit it more often (69%), but they also come into contact with the Pilsen Region as an institution or see its logo more often (40%), mostly on public transport or at cultural events.

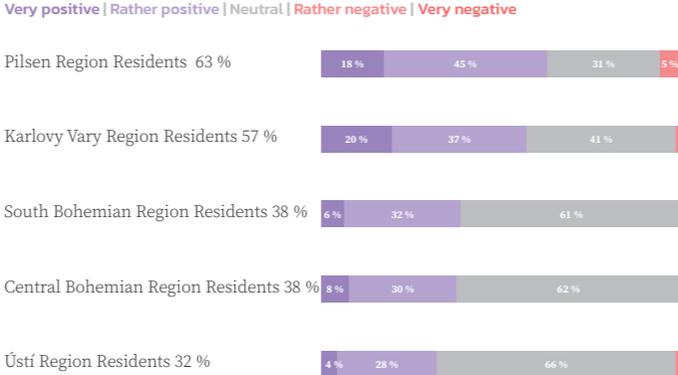
Residents of other regions, on the other hand, do not encounter the Pilsen Region brand much (17–21%), which supports the stakeholders' claim that the brand is not very visible. In addition, they add that the brand is not clearly profiled or associated with particular content but is perceived rather neutrally.

Encountered the Pilsen Region as an institution or its logo



And that's a pity. Although the Pilsen Region's brand is not very visible (28% of Pilsen residents and only 5–13% of residents of neighboring regions have come across any messaging or advertising), it is worth promoting. 63% of the residents of the Pilsen Region and 57% of the residents of the Karlovy Vary Region associate positive feelings with the Pilsen Region as an institution.

Feelings associated with the Pilsen Region as an institution



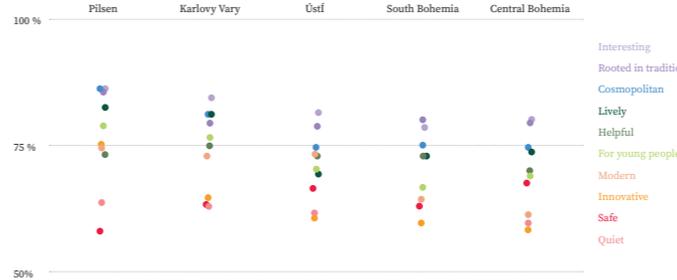
The brand would benefit from a clearer definition of the region's vision and more extensive description of the role the Pilsen Region's institutions play and what they actually do.

“The Pilsen Region has a lot of projects, plus it is a very interesting institution in itself, but people often have no idea what role it plays. Which is why it is necessary to spread awareness of the Pilsen Region brand to the general public,” said one of the stakeholders.

Increased promotion of tourist destinations, folklore traditions, historical events and important historical figures would help attract more visitors to the region. Seeds of awareness have already been planted: people tend to describe the Pilsen Region as interesting and connected with tradition.

Unfortunately, residents of other regions do not perceive the region as safe and peaceful, nor as innovative. Therefore, it makes sense to focus on these areas when building the Pilsen Region brand. In particular, it is necessary to bolster the sense of security among Pilsen's residents, which is currently Pilsen's weakest point. Stakeholders attribute this mainly to fear of agency workers in certain industries. On the other hand, Pilseners themselves perceive their region as quite innovative, unlike people from other regions where information about Pilsen's innovative ventures does not seem to reach.

Fits the Pilsen Region



When promoting the Pilsen Region, we need to keep in mind the need to accommodate all age groups. While people under 34 may best be targeted on social networks (mostly Facebook and Instagram) and video sharing websites (YouTube), the 35–54 age bracket mostly follows news websites and the 55+ age group mostly watches television.

Values of the Pilsen Region

In the survey, we presented stakeholders and residents with 8 core values they may associate with the Pilsen Region and asked what their perception of those values was. Here is what we have learned:

INDUSTRIAL TRADITION

88% of the residents of Pilsen and surrounding regions associate the region with an industrial tradition, which scored highest of all the characteristics presented. According to the stakeholders, the industrial tradition in the Pilsen Region has a positive impact, especially on improved the standard of living, job opportunities, job security, and low unemployment. For businesses, it is a source of profit, a skilled and experienced workforce with good work habits, but also the opportunity to build on traditional industries (engineering, electrical industry) and develop them within smaller innovative companies.

The region's industrial tradition can also present attractive tourist opportunities. The Industrial Footprint Festival or the Techmania Science Center are very popular.

However, some people expressed their regret about the demise of some companies that had potential (Pilsen Steel), and some were of the opinion that certain industries, such as foundries, are no longer necessary in this day and age.



Most stakeholders are aware of certain changes that have taken place in the Pilsen Region's industrial sector over the past 5 years. These include mainly the emergence of various start-ups, such as software development companies, but also innovative ventures within large established companies such as Doosan Skoda Power, Skoda Transportation or Wikov, which produce technologically complex products that meet the latest industry standards.

A GOOD PLACE TO LIVE AND DO BUSINESS

Stakeholders also associate the Pilsen Region with first-rate services and infrastructure, as well as beautiful natural scenery. Good infrastructure in particular is why the region is perceived as a good place to live with

Pilsen Region is associated with with first-rate services and infrastructure, as well as beautiful historic landmarks and natural sights. This is what makes it a good place to live with many job opportunities.



many job opportunities. The region is also perceived as a good place to live by 69% of people, both in the Pilsen Region and the surrounding regions.

As for the negative aspects of living in the Pilsen Region, stakeholders mentioned primarily the rising real estate prices and the availability of housing. They also mentioned the fact that smaller towns and villages often struggle with low transport accessibility, as well as the poor condition of secondary roads. Residents may also find life in Pilsen more difficult due to concerns about their safety in industrial locations.

When it comes to business, 60% of residents consider the region a good place to start an enterprise; one third of the residents has no opinion on the subject, however. Stakeholders also believe that business opportunities are one of the region's strengths. Contributing factors in this respect are Pilsen's industrial background, but also its proximity to Bavaria and the associated opportunities for marketing goods and establishing cross-border cooperation. 82% of residents agree that the region benefits from being located halfway between Prague and Munich. According to stakeholders, however, the location may present a slight disadvantage due to the outflow of manpower to Germany, or the fact that the labor force is mainly attached to large enterprises and multinational companies, which may be a problem for start-ups and smaller companies.

AN IDEAL PLACE TO GET YOUR EDUCATION

68% of residents in the Pilsen Region and the surrounding regions rate the Pilsen Region as an ideal place for studying. 63% of respondents think that the Pilsen Region offers a good standard of education, both academic and extra-curricular. A full 25 percent of residents has no opinion on the subject, however.

According to the stakeholders, the region with the university city of Pilsen offers its residents the opportunity to study a wide range of fields. Residents have the opportunity to obtain good education, which has a positive impact on improving their quality of life. For entrepreneurs, the presence of the university means there is a sufficient number of skilled, well-educated employees. They can also avail themselves of the opportunities presented by the proximity to various research and development centers, and of the opportunity to do business in a segment targeting students and student life (cafés, clubs, cultural events, etc.). The quality and range of subjects offered by the region's colleges and universities is fairly good and is comparable to other regions in the Czech Republic.

An ongoing problem is the comparatively low interest of students in STEM fields, which the Pilsen Region should try to promote more, as they have a tradition there and many opportunities for

their practical application. Ideally, it would be good to establish direct cooperation between technology companies and students, starting at the secondary school level. Students would have the chance to choose an internship with one of Pilsen's companies, and companies could use this as an opportunity to train their future employees.

A TECHNOLOGICALLY ADVANCED AND INNOVATIVE REGION

The Pilsen Region is generally perceived as an industrial and technologically advanced region, especially in the field of mechanical and electrical engineering. Most stakeholders agree that the technological advancement of the region has been gradually improving over the last 5 years. This is also influenced by foreign investment, but the implementation of individual steps is slower than it should be. The Pilsen Region has made the most progress in transport and mobility. As for innovation, stake-



holders are convinced that the region offers its residents a better place to live, a transition from "dirty" technologies to "cleaner" ones, and skilled jobs that offer the possibility to increase one's professional skills. An innovative environment is necessary for entrepreneurs to survive. It increases their competitiveness and their ability to compete in other markets, allows them to increase their sales and demand for their services, but also helps them to attract better, more qualified employees.

According to stakeholders, the environment for innovation in the Pilsen Region has been improving. Science and technology parks, as well as cooperation with foreign partners, have been established, which enables the parties involved to gain valuable experience. Equally important is the increased effort to steer young people toward innovation and new technologies.

CUTTING-EDGE RESEARCH CENTERS

Evaluation of research centers is an issue that residents of the Pilsen Region and the neighboring regions are the most unsure about. 40% of respondents do not have an opinion, and 19% think that this parameter does not apply to the Pilsen Region.

Stakeholders, however, believe that research ultimately improves the quality of life in the region, by creating new jobs and by developing products for everyday use. Entrepreneurs in particular may utilize the research to further develop their businesses. Stakeholders mention that there have been a number of changes in the field of R&D in the Pilsen Region in the past 5 years. This includes, for example, the establishment of the Biomedical Center, or setting up development departments at UWB. Stakeholders have also mentioned that the Pilsen Region has been involved in an increased number of R&D activities. It organizes events where companies and institutions can meet and inform each other about what they are doing and what they could cooperate on.

The survey has shown that although the Pilsen Region has a lot to offer, whether as a place for visitors, existing or potential residents, or for entrepreneurs, it fails to communicate all of its strong points to the outside world and to further improve its image. The Pilsen Region has the best reputation among residents of the Karlovy Vary Region, with whom it has already built a good reputation and who, as a result, have a solid awareness of what is going on in the Region. However, the Pilsen Region has not yet managed to establish a similar image among residents of other neighboring regions. It has failed to convey its focus on innovation, for example, which may make it difficult to attract new startups and technology companies. In addition to creating an external image, the region should also focus on maintaining a good reputation among its existing residents. Pilsen residents in particular need to be reassured that their region remains a safe place to live.



Let's Open Science to Talents and Help The Pilsen Region Become One of the Best

Nadané a talentované žáky je třeba podporovat a rozvíjet, jen tak posuneme kraj mezi elitní regiony.

An innovative and successful region is one that has enough capable and creative people who choose to tie their future to the region, be it by studying there or by starting a company. "If we start with support as early as elementary and secondary schools, we can help talented students and their families to master and systematically develop their talents," says Eva Rojíková from the Regional Development Agency of the Pilsen Region. "This way, we create a pool of young people who have the potential to become highly qualified workers, doctors or scientists, who will live and work in the region," she adds.

The Pilsen Region is working hard to be an innovative and attractive region to live and study in. The support of talented and exceptionally gifted individuals as early as the elementary and secondary school level is important for the development of an innovation ecosystem, i.e., a cooperative and mutually motivating network of educational institutions, startups, multinational companies, and local family businesses. Therefore the expert team within the Smart Accelerator of the Pilsen Region II project is strongly focusing on this area. Among the team members is Eva Rojíková, developer of the strategic intervention Education for the 21st Century and Talent Support, who has long been involved in the preparation and management of human resources development projects at the Regional Development Agency of the Pilsen Region.

Ms Rojíková, at the beginning of June, a meeting was planned with gifted children from the Pilsen Region, in order to start working with them and support the development of exceptional talents. Could you tell us more about it?

We want to help talented and enthusiastic students to find their way to science. That is why we decided to introduce them to two of the region's four specializations: biomedicine and new materials. We organized two field trips for gifted students from regional high schools, who then

collaborated with us on a survey of the current state of talent support in the Pilsen Region. These were the students who took the best places in regional competitions and Olympiads. We first visited the Biomedical Center at the Faculty of Medicine of Charles University in Pilsen. The second excursion took the students to several departments at the UWB Faculty of Engineering. Both field trips were accompanied by a more entertaining, yet still educational field program at the Environmental Center in Krsy, where students engaged in a number of tasks and discussed such topics as the dark sky, and the effects of light pollution on the environment and health.

The young people truly surprised me with their sophistication and the enthusiasm they showed during the field trips. It was extremely gratifying to observe their genuine interest, their spontaneous initiative, and their eagerness to try everything out and get to the bottom of things.

Even though not all the participants knew each other prior to the field trips, it was clear that they were happy, relaxed, and enjoying spending time in the company of like-minded peers, not having to feel like "nerds" for a change. Among other things, the students very much appreciated the respect they received from the adults. Furthermore, they immediately went on to share the knowledge they had acquired during the field trips, and some even expressed interest in internships at some of the departments they had visited. It was evident that they enjoyed the field trips immensely.

In a traditional classroom, gifted students have a hard time making friends; they think differently, and others often see them as nerds. This often makes talented students suppress their interests and aspirations in an effort to fit in. During the field trips, however, they were among their own, taking notes and chatting.

During an earlier survey, students expressed an interest in interdisciplinary meetings, which would allow them to form a community that was



impossible to establish in a classroom setting. Virtually all disciplines and research are now inter- and multi-disciplinary, which makes it extremely important for these young people to be able to communicate with each other. It is good for gifted students to know that they are not alone in the world and can meet with others who are just like them. Such encounters not only bring science closer to talented students and offer them the opportunity to meet top experts in the region, but also help boost their self-acceptance. Supporting these extracurricular activities is therefore very important.

The program of the meeting focused mainly on technical fields. Would it be fair to say that the expert team within the Smart Accelerator II project focuses mainly on gifted students interested in STEM fields?

The project is aimed at supporting the region's research, development, and innovation, which means that support is geared mainly toward talented students interested in the region's areas of specialization, i.e., technological and natural science fields. However, we are interested in all talented individuals who can come up with innovative ideas, which naturally includes students in other fields. After all, research, development, and innovation always take place on a multidisciplinary level.

How does talent support work in the Pilsen Region in general? Can you name any specific projects, programs, or measures?

Overall, the region organizes many programs and projects, but the activities are often quite fragmented. Since 2010, the Pilsen Region has been implementing the Support for Talented Students project, which focuses on languages, arts, crafts, science, technology, and social sciences.

Techmania Science Center Pilsen has launched the project Region of Talents. Among its activities is the Club for Gifted and Thoughtful Students, supported by the Ministry of Education and the RSJ Foundation. The project will also include other forms of support for gifted and thoughtful students, such as the Junior Lecture Forum. A training program for leisure educators and lecturers is also being prepared, in association with companies and institutions specializing in non-formal education. We should also mention other organizations that have been successfully working with gifted and talented students and have even achieved international success. These include, for example, the educational organization nvias, which has adopted a new, innovative approach toward helping elementary and secondary school students develop their talents and has already had a lot of experience of working with talented and enthusiastic students, fulfilling its stated mission to use fun, engaging activities to transform the young generation from consumers into creators.

An environment conducive to experimentation is also being provided by other organizations, such as SIT PORT, the Robotics Center, and the Radovánek Leisure Center, which offers a wide range of activities and provides talented students with individual care.

The University of West Bohemia and the Faculty of Medicine of Charles University in Pilsen also offer a wide range of extracurricular activities for elementary school students, such as the Children's University. They provide supervision for students who choose to complete papers as part of their secondary school vocational activities, and various professional internships.

As part of our expertise, we have collected inspiring examples of work with gifted students from across the region, which can be found on the inovujtevpk.cz website. We need to mention that there is a general lack of funding to support gifted students. Most teachers, lecturers, experts, and mentors do this out of enthusiasm and passion for the cause rather than for money. There is also a lot of room for improvement in the collaboration between formal and non-formal education organizations.

Data from the Ministry of Education for the Czech Republic indicates that the national average percentage of gifted students in the population is 1.3%. While the South Moravian Region registers 3.4% of such students, the Pilsen Region only registers 0.6 – 0.9%, making it a pressing issue, since a significant number of talents are clearly not being discovered and developed. Can you explain why this number is so low and why talents are not being identified and developed in our region?

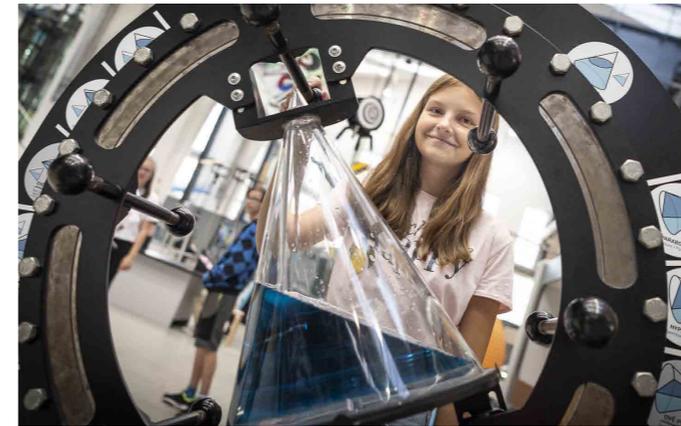
v There are several aspects of this issue. The most difficult thing is actually identifying gifted or talented children. Teachers often confuse them with bright and hard-working students, but a gifted or talented student need not necessarily be the one with excellent grades; indeed, this is often not the case. Teachers also often feel that gifted students can somehow manage on their own. Unfortunately, the opposite is true: gifted children regularly have trouble finding friends among their peers; they have different interests and are frequently misunderstood.

Another problem is the lack of specialists in educational and psychological counseling centers who would deal specifically with identifying gifted students and help them integrate in the classroom. Most of the time, talent is only identified when examining the child due to other problems, such as attention deficit disorder or autism spectrum disorders. Only then may a child be accidentally found to be exceptionally gifted. Such children are called "twice-exceptional." In the population, up to 20% of people are gifted and 2% are exceptionally gifted; but not all parents want to have their child diagnosed in an educational-psychological counseling center. Appointments for examinations in

educational-psychological counseling centers across the country have to be scheduled months ahead, and the only result is often an official report confirming that the child is indeed talented. Schools lack talent coordinators to help teachers identify gifted students and coordinate their further development. Unfortunately, there is a persisting opinion that parents should not put labels on their children and set them apart from their peers. However, the aim is to enable these children to fully develop their talents and use them effectively. That is one side of the problem. Blanket screening also requires funding, the goodwill of school principals and teachers, and close cooperation with parents. Unfortunately, schools are often overwhelmed by their other duties. Identifying gifted students is often seen as an extra task, even though ideally it would be part of routine educational diagnostics. We need to explain the issue to the public, parents, and schools, to make them aware of how important it is to identify a gifted student as early as possible, both for the student and for society. We need to stop wasting talents and teach gifted children how to use their potential. Only then can they become the ones who will change the established order and move the economy along. If we neglect them and let them stay average or even below average, we will have no one to push our society forward. It is therefore important to start nurturing talented children as early as possible, ideally still in kindergarten, but also throughout their elementary and secondary education, and continue supporting them even during their university studies.

Is there any other way to detect a child's talent, other than having them examined in an educational-psychological counseling center?

Definitely. First of all, there are tests available for teachers in schools that are not expensive to purchase. Testing is provided by other organizations, such as Mensa or the Talent Academy (ANA). Many schools collaborate with Qiido, an initiative providing patronage to gifted children. All that is paid testing, of course. In the end, however, examination by an educational-psychological counseling center is a necessary prerequisite for obtaining any kind of support for a gifted child. The Pilsen Region organizes summer camps for gifted students who have successfully represented the region in various competitions, as part of the Support for Gifted Students project. These are students who have shown an interest in a particular field and have shown promising potential, but who have often not undergone the standard diagnostic procedure. At the camps, students may get tested by an educational-psychological counseling center. We have also launched a pilot project of testing students at seven schools in the region, in cooperation with the Pilsen Region and the educational-psychological counseling center. We should keep in mind that there is a wide range of testing tools available, some of which have been adapted to facilitate the detection of talents by teachers, while others can only be used by specialists.



Development in the field of science and innovation is guided by the Regional Innovation Strategy. Can you tell us more about it? Does it define a process for identifying and developing talent?

The Regional Innovation Strategy of the Pilsen Region focuses on five horizontal priority areas. This includes the area of Human Resources for Research, Development, and Innovation, specifically objective 1.3 Improve the System of Working with Talented Individuals, aimed at providing direct support to talented and gifted students. In recent months, the expert team has focused on identifying the actual state of student support and defining the requirements for multi-faceted methodological support for working with gifted students in the Pilsen Region. We focused on working with intellectually gifted students, utilizing the experience of organizations providing non-formal education. The survey resulted, among other things in the intention to prepare a Talent Support Strategy for the Pilsen Region, a document setting up an effective and sustainable system of long-term talent support in the region. One of our objectives is to support gifted students over the entire course of their education, providing them with all necessary information at the right time and helping them put it into practice, and naturally draw the student back into the ecosystem. We also aim to use the students' experience to help other gifted children in the region, to teach them to navigate their field and overcome the obstacles that await them in life. Jakub Štěpánek, for example, is already studying at a university in Prague, yet he is supporting the region's budding talents by being involved in the activities of the Radovánek Leisure Center, with whom he is planning a large project supporting gifted students. Jakub is actively involved both in Radovánek's activities and in the development of our strategy. We very much appreciate his ideas, as well as comments from other gifted students we have approached. Currently, there is no one to systematically follow the education and career of gifted students, which means they

often disappear from our region. They go off to college and we lose sight of them. We have no capacity to systematically monitor their careers. That is why we are now considering setting up a system for monitoring the careers of gifted students, as part of the proposed Talent Support Center. Doing this would allow us to bring them back to the region in one capacity or another, even if they choose to move abroad. Such stories are the best inspirational examples, proving that studying in the region can help one achieve a world-class career.

Can you think of other talent support projects?

There is a project to establish a Regional Innovation Center of the Pilsen Region, which would be an important umbrella organization, like it is in other regions. Prague and the South Moravian Region, for example, have such a center. We could set up the Talent Support Center as a part of it – an idea for the future that we are currently working on. It would serve as an information and coordination center that would help gifted individuals (but not only them) to navigate the talent support environment. Among other things, it would facilitate the cooperation of all subjects involved, and provide valuable information to teachers, lecturers of non-formal education, and parents. Interviews with students revealed that they would welcome such an umbrella organization. It would be great to have access to information about Olympiads, competitions, internships, foundations, and incentives from companies (e.g., for research or innovation teams) all in one place. We need to attract more gifted students to research, and the organization could offer such things as a database of experts willing to provide consultations to talented individuals on issues within their area of expertise.



Ing. Eva Rojíková



TECHTOWER: HISTORIC SITE PROMISES NEW FUTURE

By refurbishing the dilapidated historical site of the former Světovar brewery and turning into a modern technology park, Pilsen will gain a unique space for innovators, technology enthusiasts, programmers, and budding entrepreneurs. Starting in February 2023, TechTower will provide comprehensive services and space for selected innovative companies with high growth potential and emerging startups. The 10,000-square-meter complex will offer flexible office and co-working space, a restaurant and café, conference and seminar facilities, shared workshops, and experimental equipment for creating world-changing ideas.

The former brewery site, specifically the former bottling plant and lager cellars, will soon begin to provide modern facilities for established innovative companies and an ideal breeding ground for emerging start-ups. Companies will be able to utilize new office space, a conference hall, meeting rooms, a co-working space, a testing water tank, fully furnished prototype workshops, but also a private daycare group facility, self-service cafeteria, and parking spaces. New companies and new jobs in value-added industries will be created in the technology park, specializing in such areas as 5G and 6G mobile networks, artificial intelligence, autonomous mobility, robots, and biomedicine. By supporting the project, Pilsen is strengthening its position as a city of development, research, and innovation.

TechTower was created by revitalizing the premises of a former brewery on the southern outskirts of Pilsen. Several years ago, it was planned to transform it into a multifunctional space for the presentation of contemporary art and facilities for art production. Eventually, the cultural venue found its home in the former transport depot in Cukrovarská Street. Consequently, it was decided that the Světovar site, which has retained its unique industrial character, would instead be turned into a facility supporting innovation.

Future Plans

The Světovar industrial complex covers about 5 hectares in the Slovany district of Pilsen, dominated by three large

buildings and countless smaller structures, and surrounded by a heritage-protected wall between Koterovská, Brojova, and Slovanská Alej streets. Revitalizing the brownfield, located only an hour and a half from the center of Prague and three and a half hours from Munich, will significantly enliven this rather quiet part of the city. After redevelopment, the premises will include a multifunctional hall for 300 people (640 sq. m.), conference rooms (140 sq. m.), shared offices, shared conference rooms, prototype and workshop spaces, as well as a 10-meter testing water tank for special underwater drones, the first of its kind in Czechia. An adjacent building, which is not part of the project, will house a polygon for testing robots. The premises will naturally offer such amenities as a central day reception and 24/7 security, as well as an interesting industrial setting. SeedUp Space, located on the 6th floor of the former water tower, will provide an absolutely unique meeting space above the rooftops of Pilsen, with a view stretching all the way to Czechia's borders.



History of the Premises

In its day, the Světovar brewery was the most modern industrial plant in Pilsen. The project, including the construction, was carried out by the company Müller & Kapsa under the direction of the architect Bohuslav Stéblo. The actual construction began in 1911, as a greenfield project in the newly emerging industrial area just outside the borders of Pilsen at the time, on the Pilsen – České Budějovice railway line. Two years later, the brewery was ready for its first batch of Světovar (or Weltbräu) beer. The brewery operated here between 1910 and 1932. In 1932, the board of directors of the Gambrinus Brewery approved its merger with Světovar, creating the largest brewery concern in the country under the name Pilsen Stock Breweries. Due to the protracted economic crisis at the time, all Pilsen breweries were experiencing gradually deepening existential problems, and in late 1933 the Světovar facility was closed down and abandoned. After the Second World War, part of the premises was taken

over by the Czechoslovak army and used as warehouses, and the rest was converted into a heating plant. Světovar was used for military purposes until 1989, when the army vacated the site. In 2004, the army began transferring parts of the premises to the city of Pilsen, which currently owns all the buildings. In 2008, some of the buildings were listed as cultural heritage sites. In 2010, the Concept and Development Department of the City of Pilsen organized an urban planning and architectural competition for the design of the entire area, with the aim to create a multifunctional space for the presentation of contemporary art and facilities for its creation at the Světovar complex.

A study titled Světovar II was completed in 2012, presenting an overview of the development in the area. The City of Pilsen subsequently approved the intention to sell the individual development areas within the complex. In 2016, the construction of a new technology center was announced, and construction started in December 2019. It is not, however, the only building activity on the Světovar site. An apartment building called Světovar Apartments – Block G is currently under construction, a project following the previous construction of Block D in the vicinity, which was awarded the prestigious Hanuš Zápál Award. Block G will offer 117 state-of-the-art apartments of various sizes.

The construction of the technology center is nearing completion. The first to be completed has been a former villa, which will now house offices, caretaker's quarters, and a nursery school. It is scheduled to open in September. The final inspection of the former lager cellars, the largest building on the premises, will take place in the autumn. The technology park will open its doors in February next year. Currently, almost half of the 2,500 square meters of office space has already been reserved. Prospective tenants will undergo a careful selection process and will include both start-ups and existing companies specializing in modern technologies such as virtual and augmented reality, 5G networks, big data processing, robots, or application development. One of the selection criteria is involvement in the PINE ecosystem, which supports education and entrepreneurship in STEM fields. "Through PINE, we want to keep talented people in Pilsen so that they do not feel the need to seek opportunities elsewhere, for example in Prague. We want to connect established companies with start-ups. We need entrepreneurs to inform us of their future business plans so that we can steer the education of children and young people accordingly and raise a generation ready for the future. We can be very flexible in that regard, utilizing such resources as the city's Robotics Center, which provides activities for over 600 children a year, or SIT Port, which organizes events such as hackathons or start-up weekends. In general, PINE is about communication and connecting important players who share a common goal: the growth of Pilsen as a city of knowledge economy, full of development, research, and interesting business and job opportunities," says Luděk Šantora, Director of the IT Administration Department of the City of Pilsen (SIT), which operates the TechTower complex.

SIT Port Is Raising a New Generation of Innovators and Entrepreneurs

The Pilsen Region, with Pilsen as its natural center, has long supported the creation and modernization of infrastructure for innovative entrepreneurship and education in the field of new technologies. For this purpose, it offers numerous facilities, services, and consulting. One such facility is SIT Port, located just a little way from downtown Pilsen and offering a wide range of services. It is a port for young technology enthusiasts and budding businessmen – a place for anyone who wants to set sail in a new direction. Tomáš Cholinský, the ship's captain and SIT Port's director, told us more about everything that SIT Port will offer at the new Světovar TechTower technology park.

Let's say I have no idea what SIT Port is, what it does and offers. What would be the most important things you could tell me about it?

At SIT Port we work with young people, starting from age 16, who are interested in modern technology in various fields, some of whom aspire to become entrepreneurs. We are part of a comprehensive system, and we are sort of a follow-up place for the Robotics Center, which organizes after-school activities for children aged 6 and older. In turn, our work is followed by the BIC Pilsen Business Innovation Center. At SIT Port, we focus on two areas: talent development, working with teens 16 and over, and supporting young aspiring entrepreneurs. We have a lot of projects – about 60 events a year. We cooperate with technical high schools in Pilsen and the region, as well the University of West Bohemia in Pilsen, organizing a lot of joint events. We encourage people to establish start-ups, we organize hackathons and various workshops. We also make podcasts, and we have our own channel where we invite inspiring people, experts from the business world, start-up owners who work with us and successful start-up founders from elsewhere.

What are the target groups that can find suitable facilities at SIT Port?

We are trying to build a community here. We have groups of 3D print specialists, and a community that flies FPV drones; we also we have programmers, ethical hackers, a few marketing specialists, but also young students who come here to do school projects or simply want to create something and are doing it here. We have a modern garage/workshop that community members can use free of charge. There's also office space, an event venue, and a studio that can be used to make podcasts or videos. Apart from the facilities as such, we also have mentors who are ready to work with young people. We try to be open to everyone, be the port where anyone can dock. We also try to be environmentally conscious and sustainable; we have had a group of high-schoolers from the Let's Make Pilsen Clean project ask us for support. We consider this to be an important issue, so we agreed that we would provide them with a space with refreshments, and we are also trying to provide the project with some marketing support.



Do you have any interesting young talents at SIT Port?

As I mentioned earlier, we are part of an entire system and it's nice to see children and young people growing up and making huge progress. Here I would like to mention a few people who were members of the Robotics Center when they were young, and now they actually run workshops at SIT Port. In May, we hosted the finals of a national cyber security competition. In the category of students aged 15–20, the winner was Patrik Vácal, a member of the SIT Port community and a student at the University of West Bohemia in Pilsen, who you may know as the founder of the startup SocialReaders and a big fan of artificial intelligence and autonomous driving. This was the second time someone from Pilsen had won the competition, which is great. We have young people here who have participated in hackathons in Vienna and Madrid, and they have had success in both places. We also run a project called CHALLENGES, in which we ask institutions in Pilsen whether they have any issues they need to solve, and we assign the tasks to students. We have real-life projects for which we try to find solutionists, and we are mostly successful. It clearly illustrates that sometimes you just need to give young people an opportunity, and they will employ all the creativity and tenacity they have. Students are making an impact on life in the city. For example, they have developed a functioning app for Sportmania, and the Safe Pilsen app. Through the CHALLENGES project, members of our community were involved in creating Plzni.to, a relatively well-known app which Pilsen residents use to report any failures and malfunctions in public areas.

You mentioned the workshops that you organize at SIT Port. Are they all technically oriented, or could they appeal to a different audience?

Just like our entire focus at SIT Port, we have two categories of workshops. As part of our talent development effort, we offer workshops on 3D printing, working with lasers, programming, and IoT. The other section focuses on helping people who would like to start a business. These include such topics as accounting, marketing, social media, pricing, legal issues, and so on. We always want people to get the most out of our workshops, which is why we select the topics we want to offer, but we also ask our community what they would like and need and base our workshops on that. This autumn, we will focus on marketing, which is a frequently requested topic, and on communication in general. I am happy to say that we have also managed to arrange interesting lectures: for example, we have had the CEO of the Czech company CityZen, which produces special T-shirts that you cannot sweat through, deliver a lecture to 100 schoolchildren, and it was a great success.

What I find particularly interesting is the Startupuj program, aimed at educating high school students. Could you tell us more about it?

This program is specific in that it is not a one-off lecture or workshop, but a full-on course that is part of the students' regular schedule and lasts a whole term. Within the Startupuj project, we educate high school students in areas related to starting a business. The students set up a fictitious startup that they work with during lessons, developing it based on the information they receive from the lecturers. We use the Design Thinking method, teaching students to think about possible ways to meet a need or obtain a service. Once they complete the course, we want them to be able to know such things as who the customer is and who the competition is; to be able to set up shares and familiarize themselves with financial issues. An important ability we try to teach our students is presenting and promoting their project, which is useful everywhere, not only in business. In the pilot year, students have come up with some 60 projects and we are still working on some of them, and it has to be said that although the students are only 16 years old, this does not mean that cannot create something meaningful.

Will you continue with the courses?

I have to say that we are really happy with the result, so the project will continue. It was sort of a leap of faith, to be honest, because we had not heard of any other place that does something like this as a part of their curriculum. The project was launched in record time: everything from making an arrangement with the schools, finding additional lecturers besides SIT Port members, to putting together a lesson plan, went very smoothly. We did not actually expect it to be such a success. Other schools have now shown interest and we will be expanding the program significantly. We have even been nominated for the SDGs Awards, which focus on sustainable projects and strategies that are changing Czechia and the world for the better.

Educators particularly appreciated the fact that the students were taught by lecturers with practical experience and that the whole program was very interactive. The quarterly exam, for example, has been conceived as a "D-Day:" students have to present their start-ups to five mentors/investors, and do it in front of a camera, which is good practice. We use modern technology and various apps, and we do quizzes on slido. The questionnaires we asked the students to fill out have shown that most of them really enjoyed the course. Obviously, we still see room for improvement, such as by adding more communication and marketing segments.

You mentioned adding more marketing to the program in the future. Is there a common perception that technology specialists often don't know how to present their project?

I am not quite sure how to answer this question. In the Startupuj program, there wasn't much difference between technically minded students and other students. Most of them struggled to present their projects properly, but they were able to improve very quickly and find the

right way to do it. When I look at technical start-ups in general, they are often run by extremely smart people, who often have trouble looking at a project in a kind of a dumbed-down way in order to be able to present it to the general public who don't need technical details but need to understand what the project is good for and what its benefits are. Sometimes it is hard to convince them that this is something they need to work on, to make them understand the importance of communication or soft-skills training in general. That is why we include these topics in our workshops.

You also organize interesting festivals for thousands of visitors – Dronfest and Innovating Pilsen. Have you managed to get visitors excited about technology in a more specific way? Do you subsequently meet them at other events?

This often happens with enthusiasts who want to start flying drones. We get interesting people to come and inspire visitors; at Dronfest, for example, you can watch performances by the best drone racing pilots from all over the country. We then get calls from people saying that they would like to start coming here to learn to fly, even from other cities. It was in Pilsen, by the way, that we opened the first urban FPV arena for flying drones. As for the Innovating Pilsen festival, we primarily invite high school students, with as many as 2,500 usually showing up. The general public comes too, of course. It is true that every event, not just the festivals, brings someone new to our community, but we are talking about a few people; you can't really expect to recruit a hundred new people at one festival.

You also organize smaller-scale events; your hackathons, for example, are much talked about.

Yes, we organize weekend hackathons, which are actually programming marathons where we give participants real problems to solve. Young people are very interested in real-world topics and like to tackle them. Often they don't manage to complete the project over the weekend, especially if we hit a snag of some kind, but they still make great strides in improving their skills, and if the topic interests them, they may very well pursue it further. We have done hackathons focusing on education or smart cities, but also free hackathons where we suggest interesting topics, but participants can also come up with their own ideas.

Whatever the event is, we always try to create a relaxed atmosphere and make the participants feel comfortable. We apply this strategy throughout our community. That's why we also do networking sessions styled as summer BBQs, where we try to find out what our community needs. We have regular start-up sessions every month to connect people who have something to contribute to one another's work. On that note, I'm very much looking forward to moving to TechTower, the new technology center that will open in February next year, connecting start-up creators

with established companies in a modern, welcoming, and well-equipped environment. I am convinced that countless interesting projects will be created at TechTower, and we will be hearing a lot more about them in the future.

I understand that you have also organized summer day camps this year?

The Robotics Center organizes day camps regularly; they are very popular and fill up quickly. Our colleagues from the RC focus on schoolchildren, whereas we at SIT Port started a day camp for the first time this year, based on inquiries from parents who wanted to come up with a meaningful way to spend leisure time for scientifically inclined teens. We organized a day camp called Design Your Own SMART HOME for those aged 14 and above and introduced the participants to the world of smart living. They tried out technologies such as 3D modeling, 3D printing, or IoT; at the same time, they could also test their manual dexterity. At the end of the camp, they presented their jointly created working model of smart living to their parents. They also tried working with robots or flying drones. We all enjoyed the camp, organizers and participants alike, and we will definitely keep up this newly established tradition..

SIT Port is also a place for budding entrepreneurs. Why should they come to you, and what do you offer that they can't find elsewhere?

I think we are exceptional in our approach to people, or so members of our community say. We are a bunch of young people who are game for anything – at least I hope so. We like having some rules, but we also like to have good fun and enjoy a relaxed atmosphere that allows us all to be creative. All in all, I think our big advantage is that we are part of the comprehensive ecosystem to support technical education and entrepreneurship, PINE (www.plzeninovativni.eu). When someone comes to us, sometimes we are only partially able to help them, or we help them as much as they need but then they grow and move on. In such case, we can refer them to other colleagues, which means they don't need to search for contacts themselves in order to continue their project and find optimal support.



ONE WEEK IN PRAGUE IS FINE, BUT A WHOLE YEAR IN PILSEN IS BETTER

Dr. Mathias Eickhoff is the director of ZF Engineering Plzeň. He's lived and worked here for seven years and during that time he's already become a citizen of Pilsen. And he also speaks Czech pretty well.

You've been working in Pilsen for seven years. Could you say you already know it?

I would say so in the meantime. When I arrived, it was quite a new city for me. Now, some colleagues say to me: "You know more about Pilsen than me".

What places in Pilsen do you love?

A lot of places! Definitely, I love the area where I live, between Velké divadlo and Techmania. I like opera, so I frequently go to Velké divadlo. And also I like the New Theatre. It's a very modern building from 2014. It's great equipment here, stage technologies and others. And I love the nature around Pilsen too. Pilsen is a relatively compact city: if you sit on the bike for a few minutes you are in the green. There is one place I definitely normally try to go when friends or family visit me: Radyně. That's a nice walk from Černice up to the ruin. And when you walk back you have to have a nice dinner in Purkmistr restaurant.

Why did you decide to leave Germany just for Pilsen?

Due to the job offer, I got from ZF, the company I work for now for more than 25 years. I became the Managing director of the Plzeň Tech center and was given the opportunity to develop a research and development facility, which was a very attractive challenge for me.

How did you get along with the Czechs? Because German people are very organized and Czech people very often play by ear.

We do things differently and we are very good at improvisation. And getting things done even without a big plan and I think the combination of both plans on the German side and improvisation on the

Czech side is a great combination. One of my early decisions was, in the second week I stayed in Pilsen, I started to learn the Czech language. I felt I need to learn at least a little bit of the language to be able to talk with people in everyday's life. And I get so much great feedback.

The Czech language has a lot of words with a German base. Some of them must be really funny for you, don't they?

Yes, some are funny. For example, jarmark - Jahrmarkt is spelled differently.

It is pretty old-fashion word.

But you use it! I was on "jarmark" in Štěnovice village.

What do you think Pilsen offers to people who come here for work and a new stage of life?

Pilsen is really a great place to live. I say one week in Prague is fine, but a whole year in Pilsen is better.

Really?

Yes. Because Pilsen has everything that you need to life: culture, sports, nature. Pilsen has opera, hockey stadium, swimming pool, traffic connection, but does not have disadvantages of being a too big city. For example here isn't traffic jam and it's convenient for living. Living here is easier than in Germany. I firstly feel very well here.



What do you think makes the Pilsen region promising?

Concurrently, the region has a rich heritage in towns and a lot of ambition to have a prosperous future. We do electromobility. And electromobility comes from the past: Škoda electric and electric trains.

And I also like the networking here locally. That is on a much higher level than I was used to in Germany networking between people from different companies, between the City of Pilsen, university etc. And the location between the Czech capital and Germany is an advantage too.

On the contrary, what are you missing in Pilsen or the Pilsen Region? What would you change or improve here?

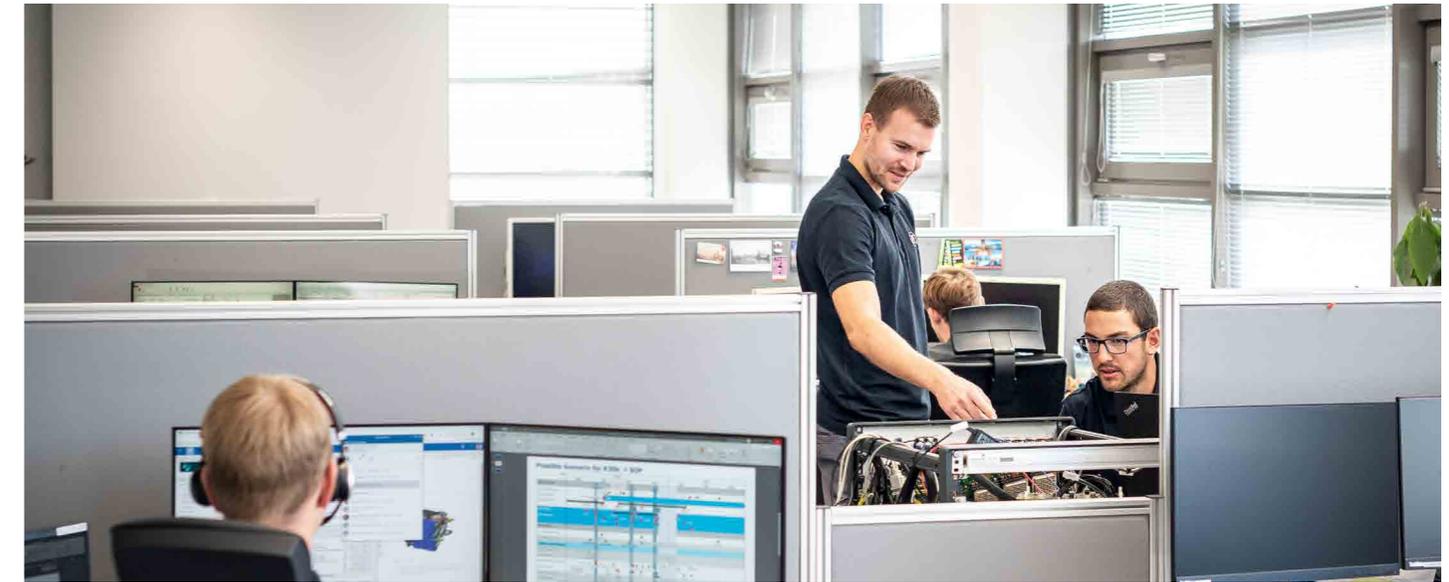
For my personally living – definitely nothing. For academic foreigners, the situation for their children might be improved regarding international kindergartens and schools etc. Infrastructure is great with D5 as well as train to Prague, but public transport towards Bavaria deserves improvement. The connection to Munich is slow, to Nuremberg quite complicated.

By the way, I like traveling to Prague the most when Smetana's Vltava starts playing on Supercity trains when they arrive in Prague. We have nothing similar on German trains.

Your company belongs to a big automotive family and needs qualified experts in electrical engineering and mechanical engineering. Do you find enough of them in Pilsen?

We are continuously growing so we are still offering opportunities for not only experts but also graduates, students, or internships. This mix of people is interesting and inspiring. Although Engineering is our biggest scope, with a focus on software development, design, simulations, or car calibrations for various products mostly in the e-mobility sector, we also look for IT experts and non-technical competencies.

In my top management, I have two ladies and seven men. It's much more ladies than in Germany is typical, but it isn't enough. We have twelve or fourteen nationalities in our company. We build on a strong people-focused culture and on diversity.



Where do you see ZF Engineering in the context of the whole region, for example in five or ten years?

We have been awarded "Zaměstnavatel roku" (The Employer of the year) in Pilsen region for four years in a row. And I hope we'll be perceived as a good employer in this region 1.

What's your cooperation with the West Bohemian University? Do you have some concrete projects?

We are working on one electromobility research project and we are a strategic partner with the University. Our closest cooperation is with the faculties FEL and FAV. Our experts give lectures in the classes, e.g. on SW development in automotive. And we are a sponsor too - we sponsor for example new equipment for the school. I am also a member of the international industry council of the FST faculty. And we are the main partner of the "Formula Student" racing team at ZCU.

What other schools do you cooperate with or would you like to cooperate with?

We also support high schools and elementary schools to promote interest in science, technology, or engineering among kids and adolescents. And we support the German lessons too.

Is there a school you don't work with yet, and would you like to?

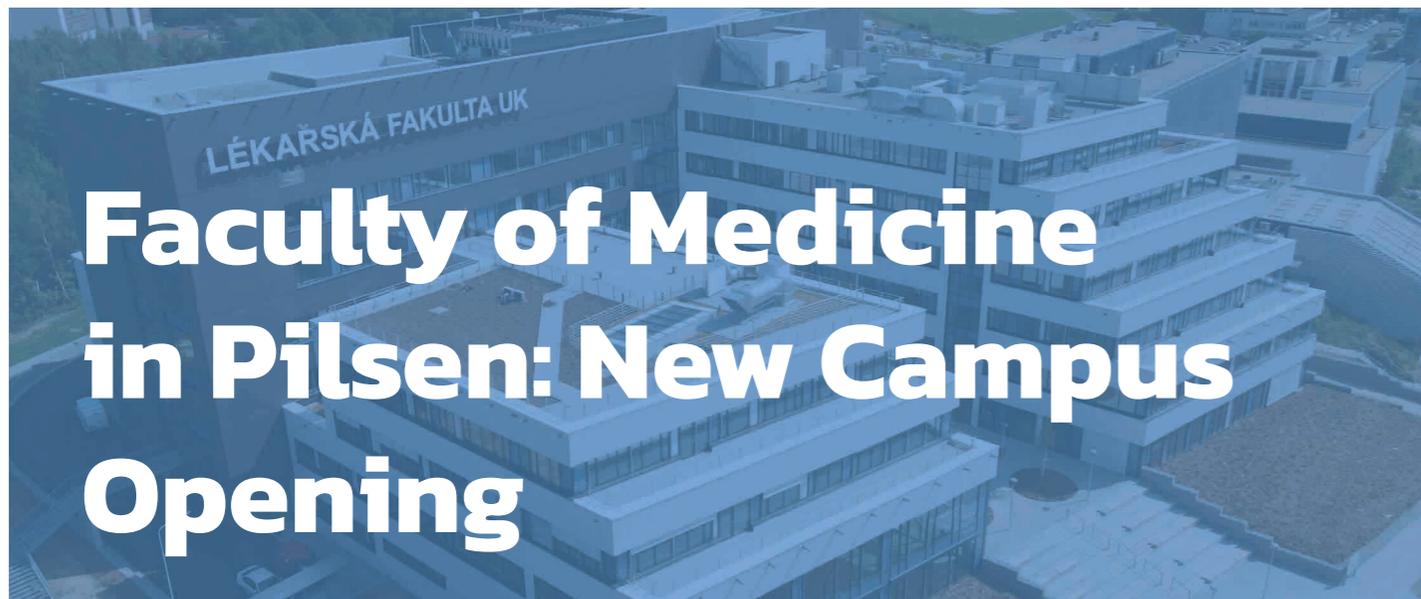
I could imagine that we'd closer cooperate with SOU elektrotechnické in Pilsen - Skvrňany. Because we don't only need engineers or graduates of secondary industrial schools, but also people with an apprenticeship certificate.

What does the collaboration between companies, universities, and municipalities in Germany look like?

I would say similar to here, however, German universities seem to have more stakes in 3rd party projects with industry. And also in Germany, the regional authorities support big companies like us quite well, as we are a relevant employer.

If some of your friends from Germany asked you: I have an offer to go to work or study in Pilsen. Should I accept it? What would you answer him?

Simply yes. I feel well here, it's a great place for everything.



Faculty of Medicine in Pilsen: New Campus Opening



After more than seven decades of existence, the Faculty of Medicine in Pilsen reached a major milestone this summer: the completion of a new campus with state-of-the-art teaching facilities. The faculty, established after World War II as the only branch of Charles University in the West Bohemian region, had been housed for many years in gradually acquired historical premises that were difficult to adapt to teaching. Although the estate beneath Alej Svobody, next to the Lochotín University Hospital, was approved as a new site for the Pilsen Medical Faculty as early as the 1970s, the university lacked the necessary resources to begin construction. Things moved forward at the beginning of the new millennium when, thanks to the helpfulness of the city of Pilsen, Charles University could purchase the land and finally managed to allocate the necessary funds. The construction itself was financed by EU funds and had three stages. The first building that was to house theoretical departments and the adjacent Biomedical Research Center was built between 2012 and 2014, with a total investment of over CZK 600 million. The lecture hall and cafeteria were built in the years 2015–2016. They were originally meant to be built in the first phase but could not be completed due to subsidy funding limits. The largest, final part of the campus was built in 2019–2022, with all the remaining departments, as well as the library, the Dean's office and other supporting departments, having relocated there during the summer of 2022. The campus has a canteen with a café, three additional lecture halls, and rest areas for students, but most importantly, state-of-the-art teaching spaces, including a simulation center where students will practice managing emergency and intensive care medical conditions on interactive dummies. The total cost of this last phase was approximately CZK 1.8 billion. Thanks to the new campus, the Faculty is now among the best equipped medical schools in Czechia. Furthermore, it is located close to the university hospital, where students receive their practical education. The new campus in Pilsen therefore represents an enormous improvement in educating new doctors.

Faculty of Medicine in Pilsen Hosted the Summer School of Experimental Surgery

At the beginning of July, the 9th Summer School of Experimental Surgery (www.sses.eu) was held at the Biomedical Center of the Faculty of Medicine, Charles University in Pilsen. The school, which specializes in demonstrating experimental surgery using practical examples, is the only one of its kind in Czechia. It teaches the care for animal models during surgery, experimental radiology, and experiment evaluation. The organizers place great emphasis on ethical aspects; they insist, for example, that the smallest possible number of animals should always be used in experiments, or that animals should be made sufficiently comfortable during those experiments. Students are also introduced to modeling software, which is able to replace the experimental models completely in some cases. The program starts with theoretical training, but trainees get to practical training very quickly; they start on pigs' feet, then proceed directly to experimental operating rooms. The workshop is interspersed with lectures on experimental and human surgery, delivered both by Czech and foreign experts.



"It is absolutely crucial for the Summer School's further development that we have managed to obtain international AAALAC accreditation for working with animals. The AAALAC (American Association for Accreditation of Laboratory Animal Care) is a non-profit organization that promotes humane treatment of animals in research. Thanks to the Summer School, Charles University has now become one of only six universities in Europe with this accreditation and the only institution in Czechia to have obtained it," said Prof. Václav Liška, M.D., Ph.D., Head of the Summer School of Experimental Surgery.



The AAALAC accreditation questionnaire had 120 pages, inquiring, among other things, about the environment in which the animals are housed, how the animals are monitored, the social and psychological conditions of their housing (yes, they do get toys), the provision and quality of animal nutrition, but also the ethical supervision over the teaching program, and the qualifications and training of the staff involved. It covered aspects that a lay person may not even think of, such as the crisis safety of buildings and the planning of animal evacuation. After studying and assessing the questionnaire, the AAALAC commissioned two experts to come to the Biomedical Center in person, review everything and discuss their comments on the questionnaire with the laboratory team. A few minor issues were rectified as a result of their visit, and the Association subsequently issued the decision to grant the accreditation. "It would not have been possible without the cooperation of the entire team and support from the Faculty management, to whom I would like to extend my sincere thanks," adds Václav Liška.

AAALAC accreditation has so far been awarded to more than 1,040 companies, universities, hospitals, government agencies and other research institutions in 50 countries. Institutions participate in AAALAC assessment programs on a voluntary basis.

The summer school is open to medical students from the 3rd year upwards. 33 students participated this year, with all participants coming from EU countries, mainly Belgium. 6 students were from the Czech Republic.

HOW TO STORE RENEWABLE ENERGY? SCIENTISTS FROM THE UNIVERSITY OF WEST BOHEMIA ARE LOOKING FOR NEW WAYS

According to the Council of the EU, renewable energy sources should account for 40% of the total energy mix by 2030. The key issue in utilizing renewable energy is its storage. Scientists at the University of West Bohemia in Pilsen (UWB) are currently focusing on this issue.

Batteries that last a quarter of a century

The New Technologies Research Center (NTC), which focuses, among other things, on developing solutions for green energy sources, is involved in the European HIGREEW project, which aims to develop a low-cost redox flow battery with water-based organic electrolytes that will be environmentally friendly, have a high energy and power density, as well as maximum life and efficiency at minimal cost.

“With the planned decarbonization of our society and the increasing use of renewable energy sources, redox flow batteries are becoming increasingly important. It is thanks to them that solar or wind energy can be

used at any time. They are also non-flammable, non-explosive, and have the huge benefit of a service life of more than 25 years,” says Jiří Vrána from the NTC Research Center.

The four-year HIGREEW project, funded by the EU’s Horizon 2020 research and innovation program, was launched in 2019 and involves ten organizations from six European countries.

In addition to battery systems, researchers at the NTC are also focusing on fuel cells or hydrogen generators. After all, one of NTC’s departments is the Czech-Israeli Center for Renewable Energy, which focuses on innovation, research, development, and application of renewable energy technologies.

How to store hydrogen

The use of hydrogen has major potential for the energy sector. Hydrogen can also be obtained from renewable sources. Scientist Ludmila Kučerová from the Faculty of Mechanical Engineering at UWB leads a team of experts from Czechia, Slovakia, and Japan who are currently researching hydrogen storage. They are working on a material that will be able to absorb hydrogen under the most favorable conditions.

“We want to find a material that can absorb and release hydrogen at reasonable pressures and temperatures,” says Ludmila Kučerová as she describes the objectives of the project, which is supported by the European Interest Group for Cooperation with Japan. Ludmila Kučerová’s team competed for the 3-year grant with 32 other teams, with the Pilsen-based scientist being the only Czech representative among the successful applicants.

The material which the scientists want to use to store hydrogen should be a mixture of metal and composite powders formed by plastic deformation of light alloys with high entropy (high-entropy alloys). “Cold plastic deformation of a metal or composite material breaks up the crystal lattice, and since the atoms are no longer in their usual positions, a place is created in the material where hydrogen atoms can settle,” explains Kučerová.

What exactly are high-entropy alloys? According to Ludmila Kučerová, high-entropy alloys have become extremely popular in materials research in the past few years. “Traditionally, alloys are formed with one major element as their base, such as iron, aluminum, or titanium, to which small amounts of other elements are added to influence the properties of the resulting alloy. High-entropy alloys, on the other hand, can contain as many as five elements in the same or similar atomic amounts. Considering that there are more than fifty metals in the periodic table of elements, and you can use, say, five of them to create an alloy, slightly adjusting their proportions to achieve better properties, you suddenly have a whole universe of completely unexplored alloys,” says the UWB scientist enthusiastically.

The developed material should not only be able to absorb hydrogen under the most favorable conditions but should also be light enough to be used in both mobile and stationary applications – as a hydrogen reserve in vehicles or in a house with its own hydrogen economy that produces its own hydrogen from solar energy. According to Ludmila Kučerová, it could take the form of powder compressed into tablets, for example. “I assume that the material will work for a limited number of cycles, so it would be good if it could be recycled or used for a different purpose afterwards. If we used the powder form, we could then repurpose it for 3D printing or laser spraying,” says Kučerová about the possible secondary use of the medium.

Kučerová also sees the European Interest Group’s call for cooperation with Japan, which focuses on decarbonization of the economy and the development of hydrogen technologies, as a possible new course for her field – engineering metallurgy and materials engineering. “Our department has experience in the development and forming of metals and high-strength steels. We thought that we could utilize this experience in a more unconventional field. It could also be a chance for companies specializing in metal forming or metal powder processing to become involved in the ‘green activities’ that various projects are working towards,” explains the scientist, who believes the project can expand the application possibilities of traditional industries.



doc. Ing. Ludmila Kučerová, Ph.D.

“Is This What Public Administration Does?”

PROVAS Impressed with the Accelerator Program

PROVAS Pilsen is an established business that specializes in installing and renovating designer and industrial flooring. It has ample expertise and experience with concrete, construction chemistry, and floor finishing. The company's specialties include the application of HTC Superfloor™ technology for industrial floor renovations, concrete floor repairs, poured terrazzo and terrazzo tile floor repairs, and natural stone floor renovations. But even quality products and services need excellent marketing, which is why the successful company joined the Platinn program of the Pilsen Regional Development Agency, which actively supports both emerging and existing businesses in their development. PROVAS's founder Josef Machalíček talks about the ways the program has benefited the company.

Mr. Machalíček, your company was the very first participant in the region to apply for the Platinn program, implemented within the Smart Accelerator of the Pilsen Region project. How did you find out about the program? Was it a coincidence, or were you actively seeking the advice of an external expert and happened to come across this opportunity?

We had no idea that we actually needed consultation, or that there was actually an opportunity to get advice. I had heard about coaching in the media, but I never imagined seeking professional consulting as a company. My father, who likes keeping abreast of everything that's going on in the region, alerted me of the possibility to get involved in the Platinn program. He found the information on the Internet just as Platinn was about to start, so we managed to sign up for the second year of the program as the first client in the region.

The goal of the accelerator program is for each company involved to identify any constraints that are limiting their growth. Have you been able to find these limitations in your company? Did you have any idea that there was room for improvement?

I was full of expectations about what the program would bring; but the fact that there was much for us to improve in sales and marketing did not surprise me. We have excellent facilities, human resources, technology, and production processes – that is what we do, after all, and we are good at it. We are not sales and marketing specialists, however, although we are continuously working on improving this area. We are certainly not neglecting it. Up until now, we have been outsourcing services in this

area, but it hasn't been ideal. The outputs of our work should not appeal to us, but to our clients – but it has been just the opposite so far. Plus, we have various types of clients, so it's not exactly easy to target our marketing efforts at the right groups.

Did you have a chance to handpick the experts?

We had the option to choose one expert from the three that had been recommended to us – but as it happened, we actually liked two of those experts and thought they would be good for us. We were granted an exception and had them both assigned to us. We had two weaknesses, both equally important, which was not the case with other Platinn participants. We had several long sessions, each lasting a few hours. Mr Duchek, the Platinn consultant assigned to us, used those to identify the strengths and weaknesses that I have already mentioned, which of course included the fact that our relatively successful company was doing poorly in sales and marketing.

We enjoyed the sessions with Mr Duchek very much, and so did he. He is an expert, and he is very strong-minded. We are stubborn and just as strong-minded, so sparks sometimes flew during the discussions.

Which specialists were you assigned, and what did they help you achieve?

Mr Opatrný is our business coach and we have yet to consult with him. We initially worked with Mr Smola from the Christo Group advertising agency. The marketing consultations made us realize that we need to look for more distribution channels, not simply rely on a single one. The market is evolving so fast that a lay person has no chance to keep up. Marketing communication needs to be adapted to the current situation. It was also important to realize that our marketing strategy need not appeal to us. As I have said before: I don't necessarily have to like our marketing strategy; it's our business coach who has to be happy with it. Therefore, the marketing coach's approach had to be approved by the business coach.

An important part of the program is asking questions that are often uncomfortable but can move you forward. In your case, these included, for example: Are excellent technicians able to promote their work well? Is it important to have names for your own products? Why are such great references accompanied by such poor photos, and why? Do you have a business plan? Do you set measurable business goals? Are your business processes repeatable? Have you been able to find answers to any of those questions?

These questions came up at our initial sessions, both from Mr Smola and Mr Duchek. We are working on the answers in order to improve. Mr Smola has not asked to hear our answers. Our excellent technicians are not quite able to promote their own work yet, but they are trying to get better at it. A technician can hardly switch into salesman mode in a day.

As for the photos, it is extremely difficult to take good photos of our floors. Once we complete the flooring and leave the otherwise empty space, we do not come back after the client has furnished it. In industrial plants, the floors are hidden under machinery and equipment, and owners of private premises often do not wish to show them to the public. For example, we have a great product that is unrivalled in the Czech Republic. It is a very important assignment for us, but it is part of another project that has not yet been completed, so it has been impossible for us to present it. But we are improving, and we now have photos from many more of our projects. For example, we installed flooring in the connecting tunnel between the old and the new building of the National Museum. Rather than waiting for the designers to send us pictures, we sent our own photographer to take photos. Mr Smola has been helping us design a new website to make our references easily accessible. We are working on it, but the whole thing is very costly and time-consuming.

Has completing the program had any impact on your business?

We have already had some results, but any improvements will only become apparent in the long run – it may take a year or two. The coaches predicted a tenfold increase within ten years if we manage to retain the necessary human resources. We'll see. At the moment I can say that I am happy we have completed the program, although the results have yet to show – and I hope they will. I have never seen so many smart people focusing on my company's economic performance, and I was surprised that the accelerator program is actually being organized by a public administration authority. That's unbelievable. I am very grateful for it.



Ing. Pavel Duchek

Twinning for Lasting Cross-Border Cooperation

Consultant Martin Jambura from the Regional Development Agency of the Pilsen Region specializes in Twinning – establishing contacts with other countries, the mutual sharing of experience, and exploring the possibilities of cross-border cooperation. Is internationalization and international networking a good way to boost the region's competitiveness and development?

Mr Jambura, the concept of Twinning is probably not that well known. Could you explain it?

In this case, the objective of Twinning is to gain experience in organizing specialized clusters, cross-border cooperation, and activities supporting the innovation ecosystem, and subsequently transfer this experience to our region, and use it to identify topics for joint cross-border cooperation.

Generally speaking, Twinning is a cooperation with entities from which we try to gain knowledge and experience and transplant it to our environment. We have chosen to cooperate with R-Tech GmbH, an organization based in Regensburg, Germany, which brings together entities that support start-ups, clusters, and professional platforms based on the specialization of the companies involved. How are clusters established, managed, and financed? Those were the things we tried to find out. What services do clusters provide to their members to motivate them to join, and what added value does cluster membership bring to companies? A cluster provides various services and gets assigned various EU projects; it connects its members with universities, start-ups, and other companies. We have chosen the Regensburg region, among other reasons, because the structure of industry here is very similar to that in the Pilsen Region, with a focus on the automotive sector.

It is basically job shadowing: in what ways is their way of working better, or worse? What can we learn from our foreign partners? How do they

approach projects and work, how do they present and promote their projects, and how do they handle marketing? Is there anything they do better, so there is no need for us to get involved in it? It's about the interesting things we can adopt from their environment and implement them in our region – we are essentially transplanting the best practices.

The crucial thing is cooperation. Which institutions is Pilsen in contact with through the Regional Development Agency of the Pilsen Region?

As I have already mentioned, our partner in this respect is R-Tech GmbH, an organization established by the City of Regensburg, which runs the TechBase innovation and start-up center. R-Tech supports technology-oriented companies, offers networking opportunities in business and science, and supports the development and expansion of technology networks in Regensburg and the Upper Palatinate. The organization is made up of several entities: in addition to TechBase, other members include the DGO – Digitale Gründerinitiative Oberpfalz, which is building a digital start-up community throughout the Upper Palatinate, and the Mobility and Logistics Cluster. However, their ecosystem, made up of entities involved in promoting entrepreneurship and cluster formation, is much broader in scope.

What stage is the cooperation currently at?

Two online meetings were organized earlier this year, during which we had the opportunity to present to R-Tech representatives our activities, and introduce members involved in supporting and creating the innovation ecosystem in the Pilsen Region. Lenka Palánová from the Pilsen Business and Innovation Center presented the incubation program, which is sponsored by BIC. We explained our marketing strategies that are being developed and implemented within the Regional Development Agency of the Pilsen Region. RDA consultant Jan Naxera presented the sectoral innovation platforms; Kateřina Podaná described the activities of the Mechatronics Cluster; and Tomáš Cholinský presented the activities of SIT Port. This was followed by two personal visits, aimed at acquiring a closer understanding of the structure of the Regensburg ecosystem

and to get some initial recommendations that we could implement in our region. In addition to the above-mentioned entities, participants included representatives of the Biomedical Center and COMTES FHT. Participants were chosen depending on whether they had a partner institution in Germany with whom they could trade and share experience.

What do you think we can learn from other countries, and how can we improve?

Regensburg has built a comprehensive system in which everyone works together seamlessly. Their environment covers all aspects of cluster and business support. We all agreed that the various entities in the Pilsen Region should cooperate and communicate more. R-tech in Regensburg is in charge of pretty much all the subjects involved; in our case, the various entities are more independent, and there is a decided lack of interconnectedness. Events organized in our region often overlap or cover very similar topics. It would be more efficient to organize some events jointly or to plan their dates better. The clusters also work slightly differently. In Germany, cluster members tend to share more know-how among themselves; they are not afraid to open up to other companies, and it is more natural for them to cooperate and share experiences. They believe that despite sharing valuable know-how with their competitors, the exchange of information will help them move further.



Is there anything the Bavarians could learn from us?

We tend to look at Bavaria as a rich region that surpasses us in every aspect. In turn, however, Regensburg tends to compare itself with Munich, or even the USA. I do not think Regensburg is that much ahead of us. We organize similar activities – we have just been doing it for a much shorter time. So the difference is in their many years of experience and partly in the budget they have allocated for their activities. We should also keep in mind the differences in mentality and realize that it is only possible to transfer certain elements to our environment.

What I think is problematic is the fact that some of our clusters do not have sufficient staff capacity and can only provide a limited range of services to their members. Therefore, it is important to also focus support on acquiring sufficient human resources to facilitate cluster creation. Another difference is the fact that Czech businesses are not yet used to sharing information with other companies, which makes it harder to create clusters and develop cooperation between their members. In Germany, inter-company cooperation is more developed and taken for granted. Another added value for companies in German clusters is the ease with which they can establish relationships with universities and start-ups that are part of the incubation program.

After the two meetings that have taken place, how would you evaluate the cooperation so far and what do you expect from it in the future?

So far, I would say that our experience with the cooperation has been nothing but positive. R-Tech representatives have shown great willingness to cooperate and share their experience. We still have two more visits to go, but we already have chosen several interesting areas that we would like to develop and implement more in the coming years. In the first phase, we will probably focus on less demanding activities such as better coordination of events organized by entities in the Pilsen Region, or organizing joint events with R-Tech. If these activities prove to be successful, we may focus on such things as building a cross-border incubator in the future.

Twinning is part of the project Smart Accelerator II of the Pilsen Region. Within the framework of the project, there will be a total of four visits to R-Tech and one visit of R-Tech representatives to our region. A document called the Design Option Paper will be completed afterwards, presenting the findings and recommendations obtained during the aforementioned meetings. This information will be used to determine the next steps in developing the innovation ecosystem and cross-border cooperation.



Ing. Martin Jambura

Developing the Region's Innovation Ecosystem

In recent years, the Pilsen Region has been involved in creating an innovation-friendly environment in the field of research, development, and innovation (RDI) through the Smart Accelerator project funded by the Operational Program Research, Development and Education. We are convinced that cooperation between the corporate and academic environment, supporting the creation of new small and medium-sized businesses or finding and inspiring talented students improves the region's competitiveness, creates more jobs for highly qualified employees, and contributes to the region's economic stability.

The same objectives are evident not only at regional but also at national and European level. In terms of technological development, the EU's position is not bad, but it may be at risk compared to the US, Japan, South Korea, and other rapidly developing economies. Investing in research and innovation can make the EU competitive on a global scale, contributing to the preservation of the European social model and improving the daily lives of people, both in Europe and elsewhere. That is why the EU supports research and innovation in areas ranging from agriculture, the environment, and organic farming, to power engineering, industry, transport, and space exploration.

But back to the region! Thanks to the projects Smart Accelerator of the Pilsen Region and Smart Accelerator of the Pilsen Region II, running from 2017 to 2022, we have managed to update the regional innovation strategy; map the innovation ecosystem; create platforms for mutual communication between various entities; analyze data on R&D in the region; or create a marketing strategy for presenting results in the R&D sphere.

How can you get to know some of the results? / What specific benefits can the project bring?

Did you know that in the Pilsen Region:

- We have cutting-edge research centers? / The Biomedical Center of the Faculty of Medicine of Charles University in Pilsen; 4 centers at the University of West Bohemia in Pilsen; COMTES FHT a.s.; Research and Testing Institute Pilsen; and Řež Research Center. The private sector has their own R&D facilities.
- We have the necessary infrastructure in place? COMTES FHT Science and Technology Park; Science and Technology Park Pilsen and TechTower Technology Park.
- We are always prepared to provide consulting about your ideas? We know which funding programs to apply for, and we can recommend the right partner

for research. / BIC Pilsen, CzechInvest, PR Regional Development Agency, SIT Port, Smart Pilsen Region Cluster, Mechatronics Cluster, and TIP.

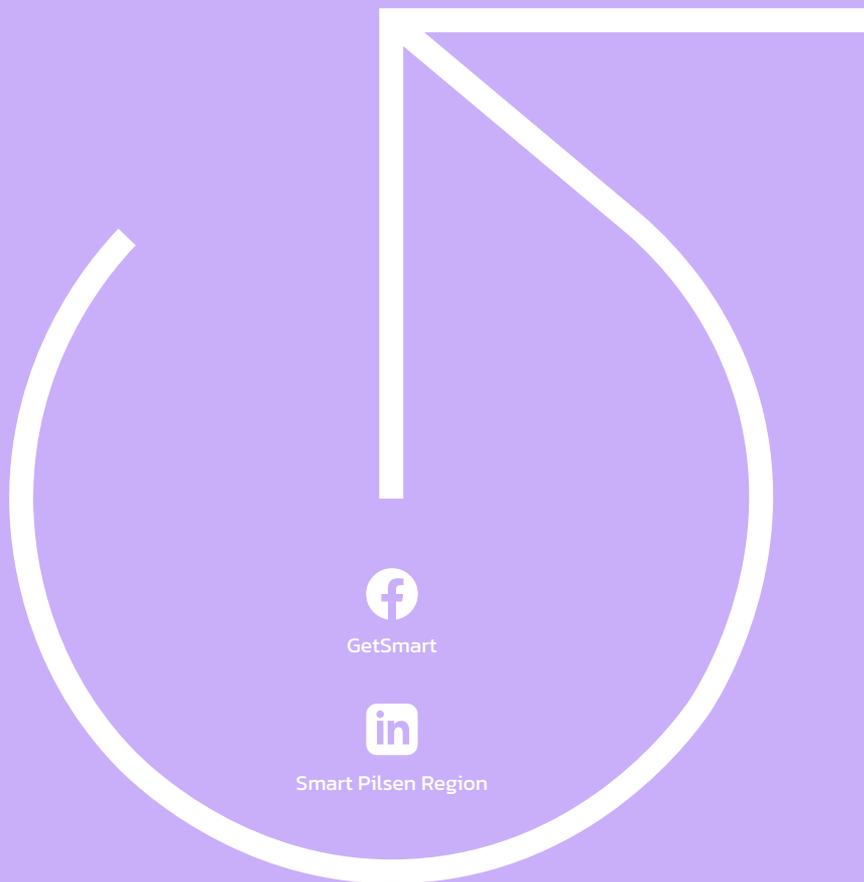
- We support students in their development? / Robotics Center, Techmania Science Center, Radovánek Leisure Center.
- We are good in all of these areas? / Smart mobility, intelligent manufacturing systems, new materials and biomedicine.
- We have successfully tested programs to support the creation of new companies and the development of existing companies? / Participants of the pilot incubation program and the regional program PLATINN most appreciate the opportunity to consult with mentors and experts.
- We invite foreign researchers and specialists for both short- and long-term fellowships? / Our region offers cooperation on interesting international and interdisciplinary projects.
- We have completed the first comprehensive materials on R&D that are available online at www.regionpilsen.cz. Other news can be found on LinkedIn (Smart Pilsen Region) and the GetSmart Facebook page.

What is coming up?

In the autumn of 2022, the Pilsen Region will apply for support for the Smart Accelerator III project; the decision will be made by the end of March 2023. What will the 4-year project involve?

Filip Uhlík, Director of the Regional Development Agency of the Pilsen Region, explains:

"Once again, we are going to focus on key areas where cooperation can bring the greatest effect. In the area of human resources development, for example, this involves facilitating the arrival of professionals from abroad, or verifying the benefits of systematically searching for talented students and capturing their interest, support for closer cooperation between entities dedicated to promoting entrepreneurship and facilitating cooperation between research organizations and companies. We are also considering securing the funding to prepare new development projects, ideally in fields in which the Pilsen Region excels, such as materials engineering, biomedicine, industrial automation and robotics, and the development of transport technology."



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